LAND USE CONVERSION ON RICE PRODUCTION: POLICIES, RICE PRODUCTIVITY AND PADDY LANDOWNERS

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Abstract

The diminishing agriculture land area in Malaysia, especially in the area of paddy plantation will lead to reduction of country's rice productivity. Paddy land located in the outskirts of the cities was seen to be the targeted area in the conversion of land usage; from agricultural to building or industrial land. Existing policies such as the National Agricultural Policies, Five Years Malaysia Plans, Food Security Policy and New Economic Model are clearly formulated to protect the performance of quantity and quality of rice production in reaching the 85 % rice self-sufficiency before Malaysia is ready to be a main producer in the future. This paper will look into the perspectives from policies implementation and main target group of the policies (paddy land owners). Hence, the investigation into the pattern of rice productions from 2004 to 2014 in KADA and MADA, and the survey on the paddy land owners in MADA was conducted. The result of the study shows the effects of the reduction paddy land to the rice productivity. It is also discovered that 96% of paddy land owners chose to remain planting paddy and sustaining the paddy land area.

Keywords: Agriculture, Paddy Land, Land Use Conversion, Policy, Rice Production

1.0 INTRODUCTION

Today, Malaysia is able to produce rice approximately 71.6% (Statistics Booklet of Plant (Food Crops of Sub-Sector) in Malaysia, 2015). Apparently, there was no change in the rice productivity for the past 16 years; where Malaysia produced 71% rice after the Second National Agricultural Policy (NAP) or 7th Malaysia Plan implemented in year 2000 (Eight Malaysia Plan). Even though the Third NAP (1998-2010) was outlined with the main purpose to enhance the labour or farmers’ income through increases in food production, the percentage of rice production only went up to 72% by 2010 (Tenth Malaysia Plan). Malaysia is one of the high cost rice producer. In 2014, the price for Malaysia rice production is RM617.98 per tonne (1USD = RM3.21 in 2014), compare with the foreign costs such as Thailand (RM368.79), US (RM540.05) and Australia (RM365.83) per tonne. Najim et al. (2007) stated that this must be the reason why the National Agricultural Policies (1956-2010) and the New Economic Model (NEM) (2010-2020) does not aim for full sufficiency in rice production and still depend on imported rice.

The population in Malaysia is 30,331,000 in 2015 and projected to continue growing linearly and is expected to reach approximately 43 million by the end of 2050 as shown in Figure 1 (UNDESA, 2015). The population in Malaysia is now growing with 2.7% per annum. Therefore, the estimated additional 45,000 tons of rice is required for each year as stated by Chang (1983) to maintain the current consumption; which is about 180,000 tonnes of rice per month. The increasing demand for food supply are due to two factors; world population growth and rising domestic incomes, especially those who live in developing countries (Azizan, 2015; Najim, et al., 2007). Through NEM (2010-2020), Malaysia
is now targeting to increase self-efficiency up to 85% to fulfil the demand.

The phenomenon of land use conversion for agricultural land has shown the gradual increase in potential areas for paddy production. As stated by Yasar (2011), usually, the reason of agricultural land conversion is the difficulties faced by the state authorities in determining the direction of development; which has been zoned previously in land use planning. Agricultural land especially paddy land in Malaysia also affected by this phenomenon. The impact of industrialization on paddy land can be seen through the plantation area deterioration from 335,340 hectares in 1978 to 243,020 hectares in 1983 (Arshad et al., 1997). A study by Ismail (2006) found that the total area of agricultural land in Alor Setar, Kedah has declined rapidly from 6,684.02 hectares in 1992 to 2,356.83 hectares in 2005. The incident of paddy land loss is occurred since the 19th century. Yusof (1993) said this is happened when the Malays have migrated from sustaining paddy land and farms to get engaged in rubber estates, which commonly owned by non-Malays to increase their income.

Therefore, this paper is focusing on trend of rice production by reviewing the policies related to agricultural (paddy land) to determine the importance level of paddy land existence in Malaysia, or gazetted paddy lands (such as KADA and MADA) and the tendency of paddy landowners to remain planting paddy and sustaining the paddy land area.

### 2.0 POLICY

In 1984, the first National Agricultural Policy (NAP) was emphasized on maximizing the agricultural income by optimized productivity. However, the self-sufficiency level in paddy sector reduced to 65% from 90% (1976-1980) (Table 1), as a response to the internal and external development. Concentration on food security encouraged Malaysia to focus on rice production during first and second Malaysia Plan, through the New Economic Plan and the First Outline Perspective Plans (1960-1975). Malaysia succeed to achieve 95% of self-sufficiency in rice production in 1975 (Arshad, 1997), but after the globalization and trade liberalization agreement, Malaysian paddy market forced to compete by other low cost producers. This resulted the rice import from other countries since it was cheaper than the locally produced rice. No new changes introduced in First NAP (1984-1995) except improving farmers’ subsidies from RM2 per basket to RM10 per basket. Furthermore, the shares from agricultural sector and export shares onto gross domestic product (GDP) also reduced to give priority on manufacturing sector.

Second NAP (1992-2000) was drafted to balance agricultural and manufacturing sector, improving agricultural integration with others, especially manufacturing sector, developing food industry to the comprehensive and higher level, and sustainable agriculture sector. Rice self-sufficiency is maintained at the 65% with the argument, to save costs with cheaper imported rice. Therefore, the government is focused to operate on selected gazetted paddy fields. The NAP also introduced the private agencies involvement to reduce government intervention in paddy market. This NAP was reviewed in 1997 and came with new emphasis, to maximize the income through optimal use of resources.

Other than that, there were a number of rice policies such as fertilizer and price subsidies. It was instituted to ensure food security during Third NAP (2001-2010). The mobilization of necessary investments locally and
internationally, making difficulties to the political decisions on resource allocation, land planning and land reform.

Table 1: Self Sufficiency of Rice in Malaysia

<table>
<thead>
<tr>
<th>Malaya Plan / Malaysia Plan / National Agricultural Policy (NAP)</th>
<th>Years</th>
<th>Self–Sufficiency Level (%)</th>
<th>Self-Sufficiency Achievement (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Malayan Plan</td>
<td>1956-1960</td>
<td>-</td>
<td>54.0</td>
</tr>
<tr>
<td>Second Malayan Plan</td>
<td>1961-1965</td>
<td>-</td>
<td>60.0</td>
</tr>
<tr>
<td>First Malaysia Plan</td>
<td>1966-1970</td>
<td>-</td>
<td>80.0</td>
</tr>
<tr>
<td>Second Malaysia Plan</td>
<td>1971-1975</td>
<td>-</td>
<td>87.0</td>
</tr>
<tr>
<td>First National Agriculture Plan</td>
<td>1984-1991</td>
<td>65</td>
<td>75.9</td>
</tr>
<tr>
<td>Fourth Malaysia Plan</td>
<td>1981-1985</td>
<td>65</td>
<td>76.5</td>
</tr>
<tr>
<td>Fifth Malaysia Plan</td>
<td>1986-1990</td>
<td>65</td>
<td>75.0</td>
</tr>
<tr>
<td>Sixth Malaysia Plan</td>
<td>1991-1995</td>
<td>65</td>
<td>76.3</td>
</tr>
<tr>
<td>Second National Agricultural Policy</td>
<td>1992-2010</td>
<td>65</td>
<td>65.0</td>
</tr>
<tr>
<td>Seventh Malaysia Plan</td>
<td>1996-2000</td>
<td>65</td>
<td>71.0</td>
</tr>
<tr>
<td>Third National Agricultural Policy</td>
<td>1998-2010</td>
<td>65</td>
<td>71.0</td>
</tr>
<tr>
<td>Eight Malaysia Plan</td>
<td>2001-2005</td>
<td>65</td>
<td>71.0</td>
</tr>
<tr>
<td>Ninth Malaysia Plan</td>
<td>2006-2010</td>
<td>65</td>
<td>72.0</td>
</tr>
<tr>
<td>Food Security Policy</td>
<td>2008-2010</td>
<td>80</td>
<td>72.0</td>
</tr>
<tr>
<td>New Economic Model</td>
<td>2010-2020</td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

Source: Malaysia (various years) and Arshad (2010).

In order to improve efficiency in the processing and the marketing of rice, the National Paddy and Rice Board (established in 1971) was made a corporate body renamed as BERNAS in 1994. Hence, the policy instruments used are price controls – floor and roof price, BERNAS’s involvement in rice manufacturing, monopolizes the import sector by BERNAS, licensing the paddy and rice traders, managing farmers’ subsidies, and transfer payments in the form of price subsidy to farmers. BERNAS also urges the government to raise the price of rice in the market so that farmers will have the incentive to plant quality rice that contributes to the better prices. In the end of 2010, Malaysia achieved 72% in self-sufficiency passing the target of 65% of self-sufficiency. Therefore, the New Economic Model (NEM) was drafted in 2010 put a higher self-sufficiency, 85% to achieve by year 2020. The Table 1 show the self sufficiency of rice in Malaysia from the year 1956 to 2010.

3.0 METHODOLOGY

This study used both primary and secondary data. The investigations were conducted at Kemubu Agricultural Development Authority (KADA), Kelantan and Muda Agricultural Development Authority (MADA), Kedah for secondary data. The data collection process was done through collecting the rice production in KADA (2015) and MADA (2014) to review the trends of rice production for these eleven years. An interview was conducted to 120 paddy land owners regarding the paddy land preservation from revoke to other land use.

Table 2: Agricultural Land Use in MADA (2009) and KADA (2012)

<table>
<thead>
<tr>
<th>Plantation</th>
<th>Width (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MADA</td>
</tr>
<tr>
<td>Paddy</td>
<td>96,558</td>
</tr>
<tr>
<td>Rubber</td>
<td>6,676</td>
</tr>
<tr>
<td>Coconut</td>
<td>907</td>
</tr>
<tr>
<td>Mixed Plantation</td>
<td>10,021</td>
</tr>
<tr>
<td>Others</td>
<td>11,993</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126,155</strong></td>
</tr>
</tbody>
</table>

Source: Development and Planning Department (KADA and MADA).
The scope of this paper is focused on the rice productions in KADA and MADA authority. This is because the paddy land use has been reported as the largest land use for agriculture land in both areas as shown in Table 2.

4.0 RESULTS

4.1 Trends of Rice Production in MADA and KADA

Meanwhile, the rice production in KADA shows more stability compared to MADA. Starting in 2004, the rice production maintained at rate of 3 tonnes per hectare with 3.567 tonnes per hectare, 3.602 tonnes per hectare, 3.374 tonnes per hectare, 3.608 tonnes per hectare, 3.853 tonnes per hectare and 3.586 tonnes per hectare before reaching the highest production with 4.076 tonnes per hectare in 2011. The productivity continues to maintain at the 3.812 tonnes per hectare in 2012, 3.774 tonnes per hectare in 2013 and 4.207 tonnes per hectare in 2014.

In Kedah, as shown in Figure 3, 48% of paddy lands have been converted to the housing purpose as Kedah focused in providing adequate housing. Another purpose of paddy land conversion in Kedah are 30% for mix development, 17% for institution and 5% for others reason. Meanwhile, Kelantan government focused on the development in Kota Bharu as the centre of growth that locates many functions and activities. The Kota Bharu City is functioning as centre of administration for state and district, service and commercials and tourist’s attraction. Moreover, the topography of Kota Bharu as in North Kelantan is more fertile and flat which bring the interests to the residents to migrate into Kota Bharu.

Figure 2: The Average of Rice Productions in MADA and KADA from 2004 until 2014

Figure 3(i) and 3(ii): The width of paddy land converted from 1992 until 2005 and Percentages of purpose of paddy land converted in MADA from 1980 until 2005.


Paddy land acquisition for development purposes also contribute to the attenuation of paddy land area. Based on the study, it is found as one of the weaknesses in Kelantan Structure Plan. The land use conversion activities in those ten years directly impact the rice production. In MADA, Kedah loss approximately 3,680 tonnes a year for 460
hectares of paddy land conversion (Ismail, 2015). This situation could apply to KADA area which loss 353.37 hectares per year, hence, it would impact on the loss of rice production with a total of 2,827 tonnes a year. If the trend of paddy land reduction continued, an improvement to avoid food supply problem in future are needed. It includes the implementing extra efforts such as sowing quality seeds, a good water irrigation and high technology for agricultural purpose.

Other than that, some of the farmers owned matching grant subsidy which help them to occupy the machinery and planting equipment. Mini Estate Paddy Programme is also offered to the farmers who want to cultivate their own land with provided loan and subsidy.

![Figure 4: The Width of Paddy Land Use Conversion by Kelantan Land Office from 2013 until 2015.](image)

<table>
<thead>
<tr>
<th>Districts / Area</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kota Bharu</td>
<td>6.6773</td>
<td>7.5094</td>
<td>6.2112</td>
</tr>
<tr>
<td>Bachok</td>
<td>1.1717</td>
<td>1.4087</td>
<td>1.0184</td>
</tr>
<tr>
<td>Pasir Puteh</td>
<td>1.4373</td>
<td>1.0145</td>
<td>1.8137</td>
</tr>
<tr>
<td>Pasir Mas</td>
<td>3.7758</td>
<td>0.6024</td>
<td>1.4087</td>
</tr>
<tr>
<td>Tumpat</td>
<td>0.6024</td>
<td>0</td>
<td>1.4087</td>
</tr>
</tbody>
</table>

Figure 5: The percentage of tendency of paddy land owners to preserve their land.

There was a respondent who chose to change onto housing sector while the other four chose to sell or make an investment on their paddy land. One of the factors why they refused to preserve their land is because of the high return in real estate investment. This would helping them to make a deal with the developer and change their family lifestyle in future.

4.2 The Tendency of Paddy Land Owners

About 96% of respondents tend to preserve their paddy land meanwhile the other 4% choose to change their paddy land to other land use in future (Figure 5). Ismail (2015) found that 115 respondents who chose to preserve their paddy land in significant to the household income. Landowners who have income below than RM1,000 per month do not intend to change their paddy land to other land use.

Majority of the paddy land are passed through generations and landowners get their main income from paddy planting. Moreover, 57% of the farmers are from the elderly who love to continue their lifestyle comfortably and know how importance of rice production is to domestic food security. Additionally, 95% farmers received fertilizer subsidy from the authority and government through fertilizer paddy scheme.

5.0 CONCLUSION

Malaysia targets to achieve 10 tonnes per hectare of rice production per year yet the average of rice productions in Malaysia paddy fields only able to produce 6 tonnes per hectare so far. However there was a yearly increase and in the last three years the rice produced is fairly consistent and improved. MADA and KADA as the biggest paddy fields in Malaysia contribute 40% and 20% of rice production. Replacement of original paddy land is concerning authority on rice productivity and food security to the nation.

As the nations of the world witness the globally diversion on food crops into biofuel, diversion of resource inputs into non-agricultural uses, it is obvious that Malaysia is following other transiting nations in continuing to witness
higher food price index. Therefore, for future agricultural land use and increase productivity will force Malaysia to improve application of science and technology in resource use efficiency, new crops cultivars and the ability to compete with other low cost producers to be able to produce 100% rice sufficiency.

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