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### Paddy Field Conversion In Malaysia : Issues And Challenges

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#### Abstract

The diminishing of paddy field due to land use conversion to non-agricultural or non-paddy agricultural purpose is a serious threat to national food security prospect. This present study intends to explain the phenomena of diminishing paddy field range in Malaysia. This is a descriptive correlation study. The result of the study found that the size of paddy field in Peninsular Malaysia either according to the state or the granary area was diminished. According to the state, the size of paddy field has reduced by 88,321 ha (22.17%) in the last 15 years or equivalent to 1.49% per year. Whereas, according to granary area, the size of the paddy field has reduced by 10,790 ha (5.10%) or equivalent to 0.34% per year. The diminishing of the size of the paddy field indicates a significant correlation to the national paddy production. In the meantime, the population growth is expected to increase whilst productivity expands slowly. The government needs to emphasise this matter to attain the goal of food security.

**Keywords** : Land use change, paddy field, food security

### Konversi Lahan Sawah Di Malaysia : Isu dan Tantangan

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#### Abstrak

Berkurangnya lahan sawah karena konversi penggunaan tanah ke non-pertanian atau tujuan lain yang bukan lahan padi merupakan ancaman serius bagi prospek ketahanan pangan nasional. Penelitian ini bertujuan untuk menjelaskan fenomena berkurangnya lahan sawah di Malaysia. Hasil penelitian ini menemukan bahwa ukuran sawah di Peninsular Malaysia juga daerah lainnya atau lokasi pusat padi/lumbung juga berkurang. Berdasarkan data nasional penurunan luas lahan sebesar 88,321 ha (22,17 %) untuk 15 tahun terakhir atau setara dengan 1,49 % per tahun. Sedangkan pada daerah lumbung, luas sawah telah mengalami pengurangan sebesar 10,790 ha (5.10 %) atau setara dengan 0,34 % per tahun. Berkurangnya lahan sawah ini terindikasi adanya korelasi yang signifikan untuk kondisi produksi padi secara nasional. Sementara itu, pertumbuhan penduduk diperkirakan terus meningkat pada saat produktivitas padi mengalami pertumbuhan dengan lambat. Pemerintah perlu mengendalikan hal ini untuk mencapai tujuan ketahanan pangan nasionalnya.

**Kata kunci** : Perubahan lahan, sawah, ketahanan pangan

## **INTRODUCTION**

Paddy field is an agricultural land used for paddy plantation. The rice that is produced from the plantation of paddy is the main staple food for Malaysian people. According to Mustapha et. al (1986), approximately 50-60 percent of the population depend on rice as their calories intake while approximately 24 percent of household expenditure for food items are rice. Thus, it can be concluded that paddy field greatly determines the food security prospect as it is the main input for the national rice production.

Food security is defined as a situation whereby all population, all the time, get the physical and economic access to sufficient, safe and nutrient food that fulfill the food's needs and preference for healthy and active life (FAO 1996).

Every year Malaysia has implemented various policies and programs to achieve food security especially for rice. The Government has translated rice supply security in the form of achieving 'self-sustained level' of rice. Since the Fourth Malaysia Pelan (National Agricultural Policy I) until the Ninth Malaysia Pelan (National Agricultural Policy III), the level of self-sustainability is at 65%. In the overall, according to Fatimah (2010), Malaysia has succeeded to achieve the level of sustainability but it has not been able to export like the other neighboring countries of Indonesia and Vietnam who before were among the biggest importers of rice in the world. Under the New Economic Model, the level of self-sustainability to be achieved by 2020 was increased to 85%.

This paperwork is aimed to explain the diminishing of paddy field size phenomena due to land use change and its implication towards national food security.

## **LITERATURE REVIEWS**

The phenomenon of land-use change from agricultural to non-agricultural is not a local or a Malaysian issue only. It has happened in almost everywhere in the world. In general, all countries that are still developing have experienced similar issue as a result of the development activities which is logical.

According to Ramankutty et al (2002), the international experience has shown that the rapid economic development is normally accompanied by the fight for land use from agriculture to industries, infrastructure and real estate. Countries in the Middle East, North America as well as the Europe, all have experienced losses of agricultural land throughout the period of economic development.

In Japan, 1% of its agricultural land has diminished for the past three decades. Similar trend can also be found in South Korea since 1970s. The United State has lost its agricultural

land by 0.1% to 0.3% per year for development. For the majority of European countries, the diminishing of agricultural land has reached 1.2% to 1.5% per year from 1975 to 1995 (Xiangzheng et al 2005)

China has lost three million hectares of its agricultural land between 1986 to 2000 or 0.16% of its total use land every year (Xiangzheng et al 2005). The push to attract foreign investors and the opening up of bigger job opportunities has caused the Philippines to lose hundreds hectares of productive agricultural land nationwide (Danilo 1998). Nicomedes (2007) has predicted that the Philippines' population to grow at a rate of 2.3% per year and hence by 2025, around 5.24 million hectares of agricultural land will be changed for the population needs.

Throughout the period of economic development (1989-1991), farmers and the country side people in Thailand have sold their productive agricultural land to investors who later on changed the land for the purpose of resorts, markets, and other commercial purposes. These activities have changed the farmers' polar from on-farm to off-farm (Samporn et al 2010). Similarly, in Vietnam, at least 200,000 hectares of agricultural land has been changed for non-agricultural needs since reformation was launched in 1986. This has forced thousands of farmer households to change their traditional income earning activities and even their lives. From one perspective, land-use change has altered Vietnam's economy from agricultural based to industrial based. However, from another perspective, this has critically influenced the traditional and social life of farmers (Nguyen 2009).

The phenomenon of land use change from agricultural to non-agricultural has gained serious worldwide attention. Food security threat is one of the most worried effects in addition to a number other impacts, and this has caused a number of countries to intensify their effort to inculcate the policy that can reduce the rapid pace of the land use change. They have prohibited the activities of land use change from agricultural to non-agricultural.

In China, the problem of policy prohibiting the change of land use from agriculture to non-agriculture has become a contentious debate. Some have disagreed with this policy as they believe that such policy would slow down the economic growth. While some others have claimed that such measure is important to ensure the national food security (Verburg et al 2000).

The Japanese Government has tightened its control towards the sustainability of its agricultural land. To achieve this target, the Government has bought all agricultural land from the land owners and lease them back for rental to the farmers at much higher prices. Japan has also implemented the zoning system to protect its agricultural land, that is classifying its

land into three main categories: Agricultural Use Area, Urban Area and The Rest Area (Tsubota 2007).

The prohibition of land use change especially the paddy field for the interest of non-agriculture has also happened in Indonesia. After losing 160 hectares of its paddy field land from 1981 to 1999, the authority has implemented the law (UU No. 41 2009) to control paddy land use change. The use of paddy land cannot be changed unless in emergency situation due to disaster or for the interest of public that fulfills the requirements of strategic, appropriate panning and the provision of replacement land (Muhammad Yasar, 2012).

## **RESEARCH METHOD**

This research is descriptive in nature and aimed to explain a phenomenon that is happening so that the findings of the research can be presented in more simple form, detailed and meaningful to facilitate knowledge. The data that is used is secondary data obtained from the Department of Agriculture and Agro-Based and the Department of Statistics of Malaysia. Data were analyzed in a form of descriptive and correlation to explain the relationship between two samples or two variables.

## **Research Findings and Discussions**

The size of paddy land in Peninsular Malaysia whether according to the states or granary areas for the past 15 years has shown a diminishing pattern. The reduction continues to happen every year. Analysis according to states has found that Pahang is the highest contributor in terms of the reduction of paddy land that is 21,449 hectares. In 1997, Pahang has 29,497 hectares of paddy land. It is the fourth-ranked state with highest paddy land areas after Kedah, Kelantan and Perak. This means that Pahang has lost its paddy land size by 72.71% from 1997 to 2011. However, according to percentage, it found that Negeri Sembilan has the higher percentage compared to Pahang that is 78.04%. The difference is that Negeri Sembilan has a smaller paddy land area that is from 9,793 hectares to 2,150 hectares. It is the smallest area after Johor and Melaka.

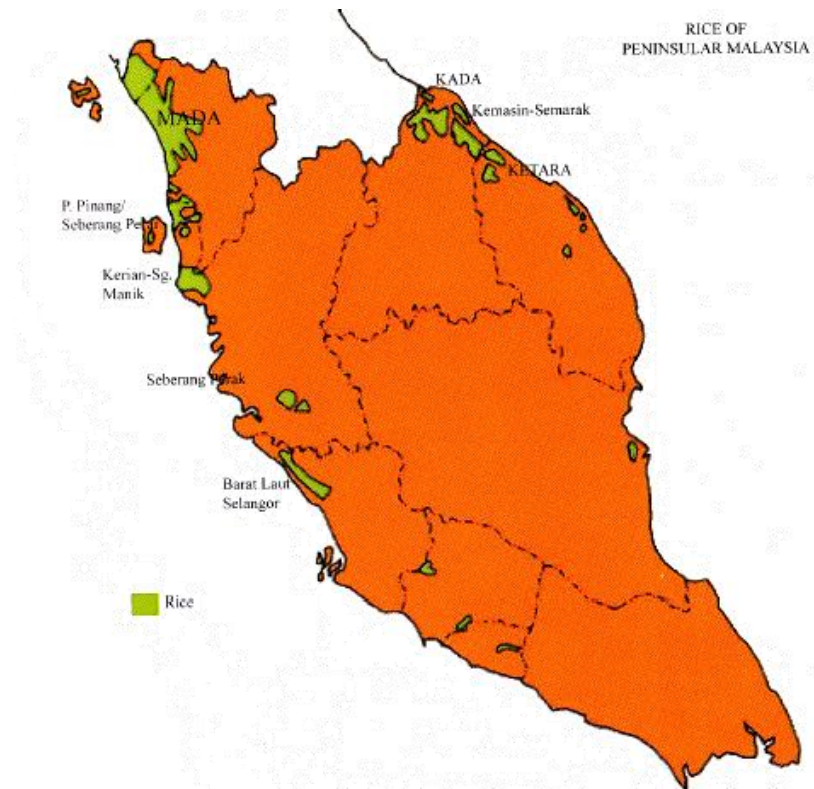


Figure 1: Granary areas in Peninsular Malaysia

To ensure the level of self-sustained rice as the national food security, the Government has identified 8 granary areas in Peninsular Malaysia. They are MADA, KADA, IADA KSM, IADA BLS, IADA Penang, IADA Seberang Perak, IADA KETARA and IADA Kemasik Semarak. Even for these areas, the land use change activities for the purpose of non-agricultural development or non-paddy agriculture are inevitable. From the perspective of the size of the diminished paddy land, IADA Kemasin Semarak granary area with the highest rate of loss. Almost half of the area has experienced land use change that is a reduction of 5,613 hectares or 52.65% of its total size. This is followed by IADA KSM with 3,270 hectares or 10.90%, and so on KADA with 1,990 hectares or 6.32% from its total area.

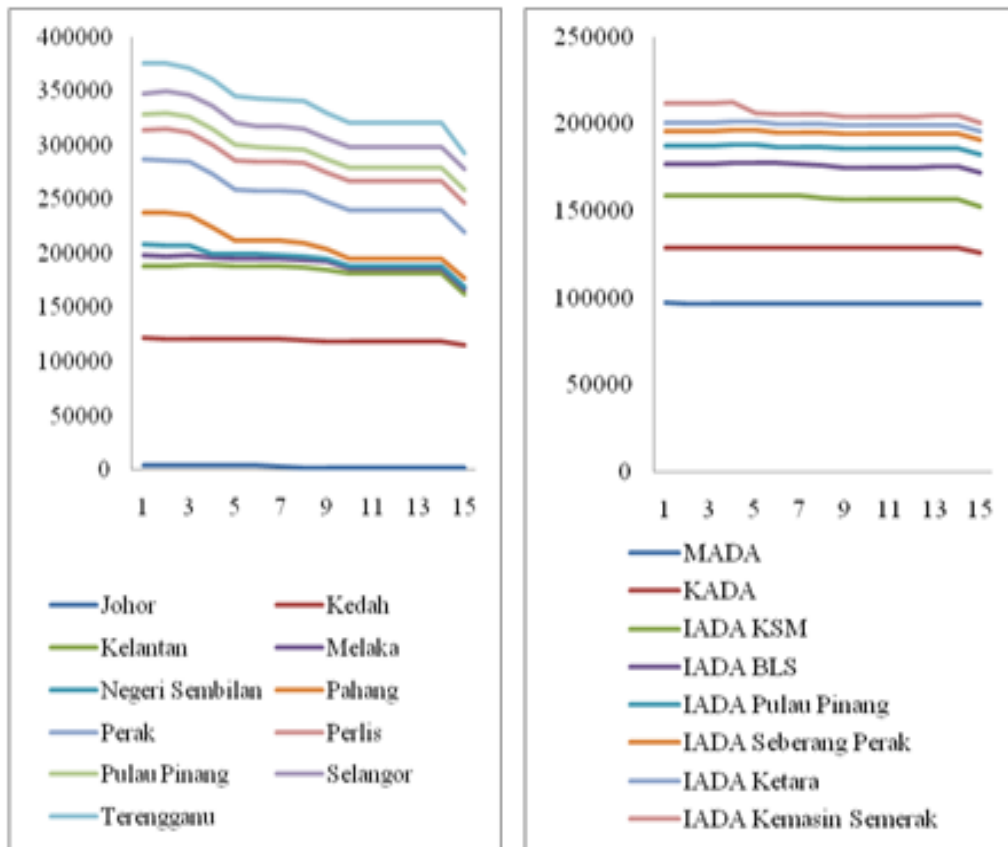


Figure 2: The trend of paddy land lost in Malaysia according to States and Granary Areas (1997-2011)

In contrast, from the perspective of the size of the states that were experiencing the loss of size of the paddy land, there were two areas with increasing size of land losses. The two areas were IADA Barat Laut Selangor (BLS) and IADA Penang which recorded an increase of 831 hectares (4.56%) and 364 hectares (3.66%) respectively. Although the size increase of the land lost is not compatible with the total diminished land in other areas, at least it has replaced part of the land that was lost.

Overall, the lost of paddy land in Peninsular Malaysia according to the States and granary areas was 1.47% and 0.34% respectively. This indicates that paddy land control according to granary areas is better compared to states.

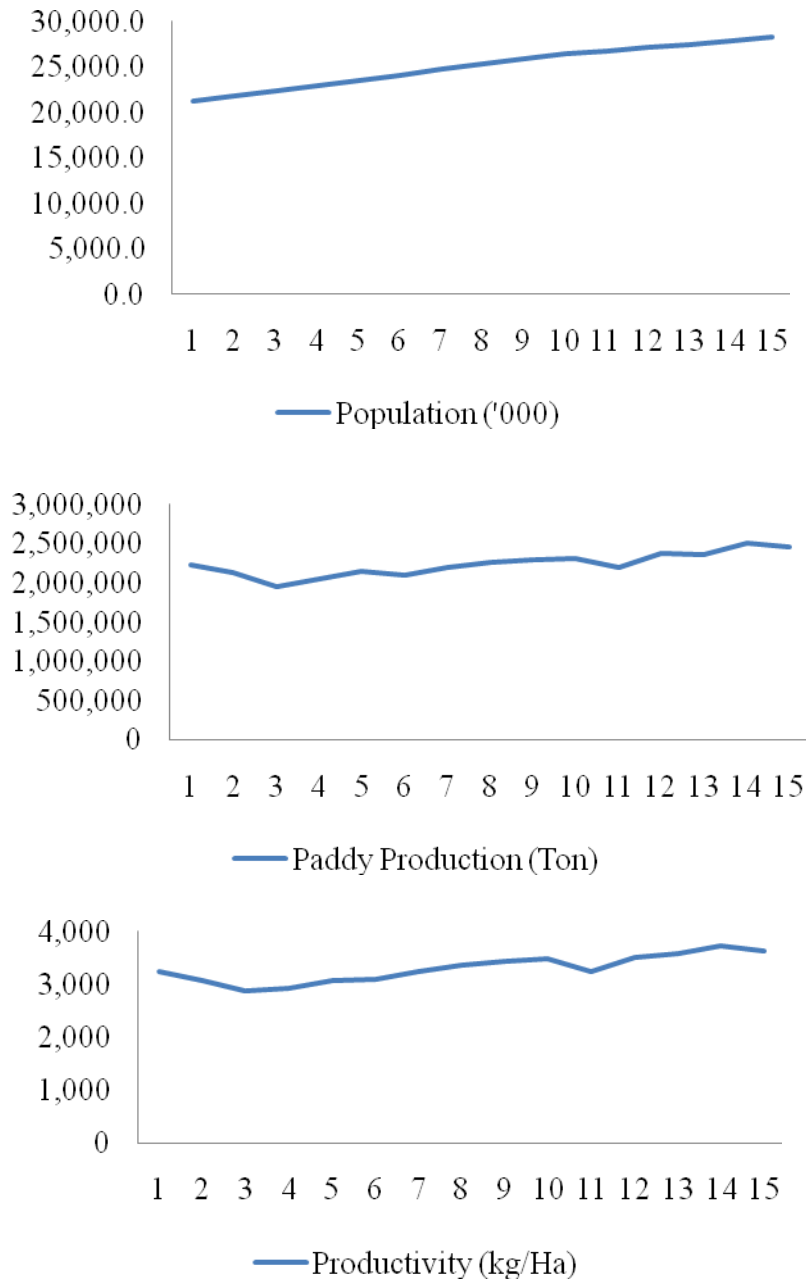


Figure 3: Paddy production, paddy production level, and population growth in Malaysia (1996-2010)

The loss of paddy land in Malaysia seems to have no impact on the reduction of national paddy production. From the perspective of paddy production trend, it continues to show increase as can be seen from Figure 3. This is because the Government has been successful in improving the performance to increase productivity level. Although the size is reducing, each hectare of paddy land however was able to produce higher yields than before.

Nevertheless, it does not mean that paddy land use change can be approved. The main problem is that population will continue to grow rapidly as can be seen from Figure 2, while

the level of production may not be able to balance it out. If it is observed more carefully, whether a it is production or productivity level, it always shows the tendency for unstability. Between 1996 to 1998, both have shown reduction in trend. It further increased in 1999, but however, in 2001, again it showed a reduction although it did not reach the lowest level as recorded prior to 1998. Similar trend continued for the following years. Although it has shown an increasing trend in general, they were very slow and with fluctuations.

The unstability of production figure and productivity level are normally influenced by a lot factors such as the reduction of soil quality, climate change, the occurrence of plant diseases and epidemic, the limitation of technological capability, the deterioration of agricultural infrastructure as well as land use change. If this is linked to the phenomena of paddy land use change, each reduction in the size of paddy land will always have implications on the declining of rice production figure.

Table 1. Correlation Between Paddy Production and the Size of Paddy Land

According to States

		Paddy Production	Paddy Land Size
Paddy Production	Pearson Correlation	1	-.784**
	Sig. (2-tailed)		.001
	N	15	15
Paddy Land Size	Pearson Correlation	-.784**	1
	Sig. (2-tailed)	.001	
	N	15	15

According to Granary Areas

		Paddy Production	Paddy Land Size
Paddy Production	Pearson Correlation	1	-.709**
	Sig. (2-tailed)		.003
	N	15	15
Paddy Land Size	Pearson Correlation	-.709**	1
	Sig. (2-tailed)	.003	
	N	15	15

\*\* . Correlation is significant at level 0.01 (2-tailed).



The results of correlation analysis for both show that there is a significant correlation between paddy production and the size of paddy land that is 0.01 for states and 0.03 for granary areas (Table 1). This shows that the reduction of paddy land phenomena need to be cautiously monitored as it could be a factor for the vulnerability of food security in Malaysia.

## CONCLUSION

Although economic transformation has reduced the contribution and the role of agricultural sector, the role and the development of food resources especially rice must be an important agenda in the national development process. The issue and the challenge of paddy land reduction requires the country to draft a sustainable paddy agricultural development policy that is able to ensure the prosperity of farmers and the people of Malaysia, in addition to ensuring sufficient rice supply. Paddy agricultural sector needs to compete with other sectors in terms of production, efficiency and the value of return that can reduce the acquiring of paddy agricultural land to be used for the purpose of non-agriculture or non-paddy agriculture.

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