THE IMPACT OF RICE TRADE LIBERALIZATION ON FARMERS AND FOOD SECURITY: THE CASE OF INDONESIA

by

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ABSTRACT

This project critically analyzes the implementation of rice trade liberalization in Indonesia and how it affected the domestic rice market and Indonesian farmers. The hope was that rice trade liberalization would decrease the domestic rice price and improve the economic condition of the farmers. This project looks into the reality since rice trade liberalization came into effect and its real impact to the socio-economic condition of Indonesian farmers.

This project also examines the impact of rice trade liberalization on Indonesian food security. Food security here is measured by using the level of food availability and accessibility of lower income people to food. This study scrutinizes the impact of rice trade liberalization based on the empirical evidence.

A clearer understanding of the impact of rice trade liberalization on Indonesia will help to better formulate policy regarding rice trade, which has significant role in Indonesia economically, socially and even politically.

I dedicate this project to two great women who had greatly influenced my life, my late mother, Mariam Hanafiah, and my wife, Luna Amanda Fahmi. Thank you for your everlasting love, prayers and encouragement.

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PREFACE

The study of the trade liberalization has generated scholarly works and debates amongst socio-economic scientists in the last few decades. The agreement on trade liberalization within the framework of the World Trade Organization was only reached in 1995 but discussion and analysis of trade liberalization occurred way before.

The debate among social scientists is whether trade liberalization is beneficial or detrimental to social and economic conditions of a country. The next question is that if it has a positive impact, does it benefit all countries or only a few countries such as developed countries, does it benefit all people in a country's population or only those at a certain economic level. The empirical evidence in each country in the world shows different experience and levels of impact.

This project proposes to examine the impact of rice trade liberalization on the domestic rice market, farmers, and food security in Indonesia. Indonesia was among the first countries to embrace the idea of trade liberalization. However, in the context of agricultural production, especially rice, Indonesia only started to fully liberalize its market in 1998. After being hit by an economic crisis in 1997-1998, Indonesia liberalized its food market in 1998 just as recommended by the

International Monetary Fund (IMF) and the World Bank to decrease the burden of the state's budget by abolishing the agricultural protection and subsidies. Since rice is the most important grain and the main food staple in Indonesia, it is important to study the impact of the liberalization of rice in Indonesia. Rice does not only have an important role in food intake in Indonesia but also has a significant role economically and politically.

The first chapter of this project examines the development of agricultural trade liberalization and various concepts of food security. This will help us in explaining the agreement that regulates the implementation of trade liberalization in the world and all the rules to be adhered by every country being a party to this agreement. This chapter will also help us in understanding the concept of food security and factors determining it.

The second chapter observes the condition of the world rice market. It will give us a bright picture about the characteristic of the world rice market, the countries involved in the rice trade, and the factors affecting the rice price in international market.

In the third chapter, the analysis will encompass the impact of rice trade liberalization on Indonesia's domestic rice market and farmers. It will consider the factors determining the rice price in Indonesia, and the characteristic of Indonesian farmers.

The fourth chapter will scrutinize the impact of rice trade liberalization on Indonesia's food security. It will consider the previous Indonesia's security approach, impacts of trade liberalization on rice availability and also accessibility.

CHAPTER 1:AGRICULTURAL TRADE LIBERALIZATION AND FOOD SECURITY CONCEPT

1.1 Agricultural Trade Liberalization

1.1.1 The World Trade Organization Agreement on Agriculture (WTO- AoA)

Compared to other commodities such as industrial products, agriculture was never strongly regulated and disciplined under the General Agreement on Tariffs and Trade (GATT). Only after GATT became the World Trade Organization in 1995, agriculture began to be regulated under the Agreement on Agriculture (AoA). There are three main elements of the AoA namely: a) market access, b) domestic support, and c) export subsidy (Das, 1998).

a. Market access

The most important key in market access is the reduction of trade barrier. An important step in market access is the use of tariff instead of non-tariff measures such as total import bans and quantitative restrictions on imports. The "tariffication" binds all countries in the world to synchronize their tariffs on all agricultural products including rice. The level of tariffs gradually brought down from the initial level in 1995 to the final reduced level at the end of the implementation period that varies between developed and

developing countries. For developed countries, the end of the period is in 2000, whereas for developing countries the final year for implementation of tariff is in 2004. The average cut of tariff on agriculture for developed countries is 36 per cent and 24 per cent for developing countries. Minimum cut per product for developed countries is 15 per cent and 10 percent for developing countries.

b. Domestic support

Domestic supports are used by many countries to provide support for their farmers and encourage more production and exports increase. However, under the WTO-AoA such support has to be limited to prevent market distortion. There are some exemptions on domestic support for developing countries. The domestic support can be classified into three groups namely Green Box, Blue Box and Amber Box. Domestic supports that do not have or have only minimum impacts on trade distortion are classified into Green Box. Domestic supports that are included in the Green Box are, among other, research and development, plant protection, extension and marketing services. Blue Box is any subsidy that could make market distortion, however it is still allowed as long as the subsidy is not over 10 per cent or so called *de minimis*. The subsidy included in the Amber Box is any subsidy that has direct impact on trade and production that has to be cut down. Developed countries agreed to make 20 percent cut in 6 years whereas developing

countries will cut down the tariff up to 13 per cent within 10 years effectively since 1995.

c. Export subsidy

Export subsidy concerns with export subsidy and ban. There are two main items concerning export subsidies namely total budgetary outlays and total quantity of exports covered by export subsidy. Export subsidy, obviously, will create world market distortion. However, developing countries are exempted from the disciplines on two types of export subsidy namely payments to reduce the cost of marketing, which includes handling, upgrading, processing, and institutional transport and freight (UNEP, 2005).

There are 1,341 agricultural products that were bound in GATT and written under the national schedules of commitment for Indonesia (UNEP, 2005). Indonesian government agreed to gradually reduce the tariff line to a minimal 10 per cent and the average of tariff reductions were 37 per cent as set by the Modalities for the Establishment of a Specific Binding Commitment under the Reform Program of GATT.

For the period of 1995 – 2005 under the AoA the average tariff line is bound at 48.1 per cent and the mode of tariff is bound at 40 per cent. All the tariffs that bound for the agricultural products are *ad valorem* (AV) and none of them categorized as *non ad valorem* (NAV). There are several commodities that are bound at a higher level of tariff such as 210 per cent for milk, 60 per cent for clove, 160 per cent for rice and 95 per cent for sugar. Especially for rice, under

the Schedule of Commitment, Indonesia has to open up its domestic market for international rice at a minimum quantity of 70,000 tons per year. Within the rice quota of 70,000 tons per year the tariff level is 90 per cent. The aforementioned tariff for the rice quota could be increased until 180 per cent, but it had to be reduced to 160 per cent in 2004 (Pranolo, 2002).

Under this agreement, Indonesia also agreed to reduce its export subsidies for rice. Indonesia's export subsidies for rice from 1986 to 1990 were approximately US$ 28,000,000 per year. This export subsidy was scheduled to be reduced to US$ 21,544,700 in 2004 (UNEP, 2005:14). The base quantity of rice was scheduled to decline up to 275,785 tons in 2004 from 299, 750 tons in 1995 (Swastika and Nuryanti, 2006:258)

1.1.2 Agricultural Trade Liberalization under ASEAN Free Trade Area

The discussion regarding closer cooperation especially on trade among Association of Southeast Asian Nations (ASEAN) members has been done since 1987. The agreement on trade liberalization or the formation of the ASEAN Free Trade Area (AFTA) was achieved on January 1992 at the ASEAN fourth summit in Singapore. AFTA has been recognized as a GATT-consistent regional trade arrangement (Erwidodo, 1999).

AFTA is implemented through the scheme of Common Effective Preferential Tariff (CEPT). The CEPT concept regulated the trade of manufactured products, capital products and agricultural products among ASEAN members. The products proposed in the CEPT are classified into four

groups namely: a) inclusive list products, b) temporary exclusive list products, c) sensitive list products, and d) general exception list products.

According to the CEPT scheme, all products that are included in inclusive list products would start to be liberalized in 2003 with tariff rates of no more than 0-5 per cent. The tariff has to be zero for all products by 2010 for Brunei, Indonesia, Malaysia, the Philippines, Thailand, and Singapore (ASEAN-6) and by 2015 for Cambodia, Lao, Myanmar, and Viet Nam (ASEAN-4).

According to the initial plan, agricultural products were to be fully liberalized by 2010. However, Indonesia and the Philippines succeeded in keeping their most important and sensitive products namely rice and sugar in the list of sensitive products. Under the time schedule for the sensitive list products, Indonesia is allowed to maintain the current applicable import tariff for rice until 2010 and up to 20 per cent maximum until 2020. The deadline for other agricultural products is 1 January 2010 for ASEAN-6 and 1 January 2018 for ASEAN-4.

1.2 Food Security Concept

Food security and famine are ages-old problems and threats that are faced by the world until today. Approximately more than 820 million people in the world are still living with hunger because they are unable to obtain sufficient food by any means (Stringer, 2001). Food security is a complex phenomenon encompassing many aspects. The concept of food security itself is far more complex than just food self-sufficiency which only oriented on the sufficiency of

food staple. Many experts agreed that food security, at least, has to consist of two main important aspects namely food availability and food accessibility.

The international community just started to show a major concern regarding food security in 1970s when the world suffered a global food crisis (Soekirman, 2000). The main discourse discussed regarding food security in 1970s was on the availability and supply of food both in national and global level (Foster, 1992; Maxwell and Frankerberger, 1992).

The 1970s world food crisis was able to be overcome in 1980s but cases of famine and malnutrition around the world are still increasing (Foster, 1992; Soekirman, 2000). Food security issue back onto surface and once again became an international agenda in early 1990s. There are several incidents behind this return of food security issues into international focus such as the low-levels record of global food reserves in the mid 1990s, weather-related crop failures, financial and economic crisis, decline in food production due to bad policies, and doubts about the long-term sustainability of the Earth's resources' base to meet future global demands. In addition, many of yesterday's issues are back on the world's agenda because of concerns over declining growth rates for cereal yields, falling investment levels in agricultural research, and the persistence of large numbers of malnourished people throughout the developing world.

The prevailing chronic and transitory cases of hunger and malnutrition around the globe show that food availability at national level does not guarantee the food sufficiency at household and individual level (Braun et al, 1992). Along

with the consciousness about this condition is a focus shift of food security, ,from food availability at national and global level to individual level suffered by lack or limited access to food (Foster, 1992). Empirical evidences demonstrated that, even though availability of food supplies is important, access to food by individuals is a greater constraint (Sen, 1981; Ravallion 1987; Drèze and Sen, 1989; Drèze and Sen, 1990).

The problem with individual access to food is related to the weakness of entitlement at household or individual level (Sen, 1981) which causes inability for a household or a person to gain control over food. The degree of entitlement is linearly related to the level of the household or individual stability of access to food because the degree of entitlement is determined by what they have, what they produce, what they sell and or what they inherited or were given (Sen, 1982; Maxwell and Frankenberger, 1992).

Food availability and access according to Braun et al. (1992) are two most important factors of food security. But food availability solely does not guarantee the accessibility of food. The accessibility of food depends on physical and economic dimension. What it means by physical dimension is the factor of food production control at the household level. Whereas the economic dimension of food accessibility is related to the purchasing power at household or individual level (Maxwell and Frankenberger, 1992; Braun et al., 1992, Haddad, 1997).

Furthermore according to Ronny Stringer (2000) availability and access to food are affected by population growth, demographic trends, economic development, government policies, income levels, health, nutrition, gender,

environmental degradation, natural disasters, refugees, migration, disease, and concentrated resource ownership.

Based on various factors that could cause food insecurity as mentioned above, experts had developed several different definitions of food security (Maxwell and Frankenberger, 1992). However, a definition that is widely accepted by most experts was achieved at the FAO World Food Summit 1996 that took place in Rome. Food security is defined as "the condition where the need for nutritious food of each and every individual is met in terms of quantity and quality, in order to lead and active and healthy life sustainably, in conformity with local culture" (Saliem et al. in Rusastra et al., 2008).

In Indonesia, the definition about food security is formalized in Law No. 7/1996 concerning food. In Chapter 1, Article 1 states the definition of food security as "satisfactory fulfilment of food for households as reflected by sufficient food availability in terms of quantity and quality, security, equality and accessibility".

Self-sufficiency in rice has become Indonesian food policy approach regarding food security. Later in the early 1980s this approach was expanded to food independency just as the recommendation of economists in 2nd Congress of Asian Society of Agricultural Economists (ASAE) in Bali on August 1986 (Amang and Sawit, 2001).

From early 1960s until early 1990s the Government of Indonesia has the sole and monopolistic right in terms of food procurement and distribution. The government controlled the distribution, export and import of grains, including rice,

by establishing Logistic Affairs Agency (BULOG) as the State Trade Enterprise. This food policy approach ended in 1998 by the implementation of rice trade liberalization policy. A more elaborate discussion regarding Indonesian food security policy will be explained in chapter 4.

CHAPTER 2:WORLD RICE MARKET AND TRADE

Before we discuss about rice trade liberalization and its impact on Indonesia, it is important to understand about the condition and characteristic of the international rice market and trade. This chapter will examine the condition and characteristics of the international rice market and the parties or countries highly involved in export-import business of rice. This chapter also discusses about the correlation between the domestic trade policies of rice exporting countries to the world rice price.

2.1 World Rice Market Condition

2.1.1 World Rice Trade and Production Structure

The world rice productions are fluctuating from year to year with an increasing trend. The total world rice production in 1998 reached the number of 394,082 thousand tons and increased to 434,586 thousand tons in 2008 (see table 1). From 1998 to 2008, the world rice production was increasing by the rate of 1.02 per cent per year with a production rate of 403,587 thousand tons per year.

Similar to the increasing trend of world rice production is the world trade of rice, which showed an increasing trend in 1998 to 2008. Within that period the world rice trade growing about 0.95 per year compared to world rice production. The amount of rice traded in the world market reach the number of 22 to 29

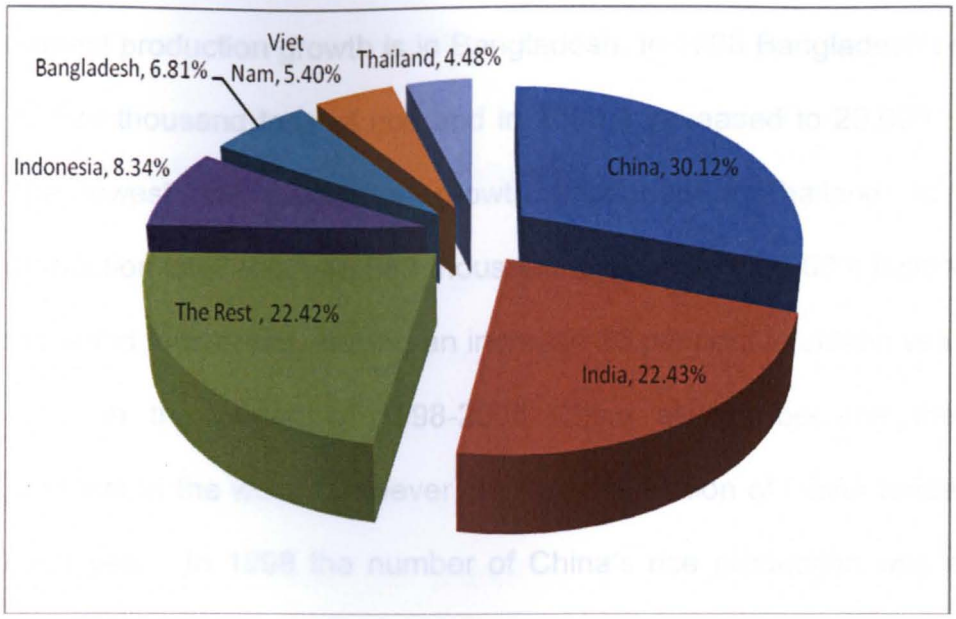
million tons or about five to seven per cent of world rice production. Compared to the amount of rice traded in 1994 that only reach 15 million tons, the trade volume of rice has increased almost 200 per cent. Compared to other cereals that traded in the world, the percentage of rice traded in the world to world rice production is the lowest (Amang and Sawit, 2001). Soy bean, wheat and corn that are traded in the world, for example, are much higher than rice about 30 per cent, 20 per cent and 15 per cent respectively. Thereby the world rice market can be classified as a thin market.

Table 1. World Rice Production and Trade, 1998 - 2008

Year	World Production (1,000 tons)	Growth (%)	World Trade (1,000 tons)	Growth (%)	Ratio of World Trade to World Production
1998	394,082		27,670		7.02
1999	408,392	3.63	24,925	-9.92	6.10
2000	396,894	-2.82	22,872	-8.24	5.82
2001	398,107	0.31	22,205	-2.92	5.58
2002	399,072	0.24	27,813	25.26	5.62
2003	377,509	-5.40	27,575	-0.86	7.30
2004	391,626	3.74	27,184	-1.42	6.94
2005	400,777	2.34	29,009	6.71	7.24
2006	418,002	4.30	28,451	-1.92	6.81
2007	420,480	0.59	28,915	1.63	6.87
2008	434,586	3.35	29,251	1.16	6.73
Average					
1998-2008	403,587	1.02	26,898	0.95	6.55

Source: USDA (various years), modified.

Figure 2. World Rice Production Share 2008



Source: USDA, 2008

From 434,586,000 tons of world rice production in 2008, 96 per cent of them are produced in developing countries (USDA, 2008). Asia contributed almost 91 per cent of total world rice production. For a decade, 1998 to 2008, the top six rice producer countries in the world have not changed. The biggest rice producer in the world from 1998 to 2008 is still held by China with world rice production share of 30.12 per cent, followed by India with 22.43 per cent of world rice production share, Indonesia with 8.34 percent share, Bangladesh with 6.81 per cent share, Viet Nam with 5.40 per cent share and Thailand with 4.48 per cent share, and the rest of world rice production share or 22.42 per cent are produced by other countries (figure 1). The total rice production of these top six rice producer countries comprised almost 78 per cent of total world rice production.

The trend of world rice production keeps on increasing each year. The highest production growth is in Bangladesh. In 1998 Bangladesh produced about 19,524 thousand tons of rice and in 2008 it increased to 29,600 thousand tons. The lowest rice production growth happened in Thailand. In 1998 its rice production was about 15,589 thousand tons, while in 2008 it increased to 19,500 thousand tons or only having an increase 25 per cent in eleven years.

In the period of 1998-2008 China always became the biggest rice producer in the world. However, the rice production of China tended to decrease each year. In 1998 the number of China's rice production was about 139,100 thousand tons but in 2008 the production decreased for about 6.26 per cent to 130,900 thousand tons. Since China has a very important share on world's rice supply as this decrease gave a significant impact on import demand and world rice price. The reason behind the decrease of China's rice production is the change in its food economic policy. The Chinese government recently implements food economic policy which relies more on market mechanism and support the farmers to produce less grains, especially rice, and produce more profitable commodities for farmers and its economic as a whole (Sawit and Rusastra, 2005). As a direct effect of this policy the Chinese government will use their rice production surplus to fulfill the domestic consumption rather than to export them and as a consequence this leads to the reduction of supply in the world's rice market.

The lack of supply of the China's rice could be covered relatively well by the United States. The United States' rice production has shown a significant rise

each year and the United States is the only developed country included in world rice exporter countries with a 12 per cent share of world exports.

2.1.2 World Rice Market Characteristics

The structure, behavior and appearance of the world rice market are far from a perfect competition market condition (Jayne, 1993 in Simatupang, 2001). There are several reasons why the world's rice market could not be considered as a perfect competition market:

1. The world rice market is characterized by a very thin or small transaction trade ratio and world production. With these characteristics the world rice market is prone to market shock from fluctuation of world's rice production, fluctuation of currency exchange of rice exporter countries, and also of transportation cost or the world oil price. Thus high dependency on world's rice stock will endangered food security of a country.
2. Rice market is a residual market. The reason why it is called a residual market is because rice traded in the world's market is the residual of domestic consumption of rice exporter countries. According to Amang and Sawit (2001) the instability of rice price both international and domestic determined the rice policy of a country. The instability of world or domestic rice price tends to make countries to fulfill its own rice consumption through a self-sufficiency policy. The same condition also happened in the lowest level, especially in farmer

household level in Asia. To prevent the risk of food insecurity they tend to keep more rice supply in case of rice price instability occurred. Therefore, it is understandable that rice exporter countries, such as Viet Nam, Thailand and India, are still implementing rice export limitation policy whenever production and stock of rice in those countries sharply decline and price stability is under threat.

3. The world rice market is segmented according to the quality of rice. The demand elasticity of the high quality rice is higher than the lower quality. The reason behind this is the high economic growth in the main rice consumer countries, especially in Asia. The economic growth and urbanization has created the decrease of the world total demand of rice that causing the world rice price to decline. Along with that condition is a change of the structure of rice demand. The share of high quality rice in the world is increasing which causes the price of the low quality rice to decline. This condition gives advantage to Indonesia since the majority of rice imported by Indonesia is the low quality rice. However it also creates a devastating effect to Indonesian rice producers.

4. The world rice market can be considered to be an oligopoly market. Rice production is concentrated in a small number of countries and about 86 per cent of world rice trade is controlled by only six countries, namely Thailand, Viet Nam, India, the United States, China, and Pakistan. The highly protective policies of these countries to their

farmers has created distortion in world rice price and worsened the condition of the world rice market because the price traded in the world rice market does not represent the real production cost.

5. The geographic distribution of the center of rice producers and consumers is mainly concentrated in Asia that influenced by the similar macro climate (Simatupang, 2001). The majority of Asian countries, situated in the equator, are affected by the instable monsoon climate. This condition causes instability of national rice production of those countries. This region often also simultaneously hit by climate anomaly of El-Nino and La-Nina that could create harvest failures. The co-variations of rice production of Asian countries are high due to these conditions. The success or failure of paddy harvest in this region is cumulative. It means if one country in this region is having a failure harvest season it could be predicted that the rest of the Asian countries would face the same situation. That is why the fluctuation of regional rice production in Asia is very unstable. This phenomenon is endangering the food security in the region, including Indonesia. For example, the El-Nino climate anomaly in 1997/1998 has caused rice harvest failure in many Asian countries. This harvest failure sharply increased the rice import demand whereas the world rice supply decline significantly. The world's supply during this season were very small and the demand for it were high that caused price hikes. The acute food crisis in Indonesia in 1998 is

the perfect example of the effect of El-Nino to food security in the region.

6. Exporter countries tend to exploit their monopolistic power over rice supply by imposing rice export tax, such as export tax policy implemented by Thailand and Viet Nam. This unfair practice clearly negatively affected the net importer countries especially those with un-elastic demand or a majority of low quality rice import.

7. Transmission of rice price in international rice market to domestic paddy and rice market is inelastic. In free trade market, the price in domestic market consumer level is determined by the world rice price. The change in the world rice price and currency exchange rate is directly transmitted to domestic market. The fluctuation of rice price or the currency exchange rate will negatively affect not only the rice consumers but also rice producers. The high fluctuation of rice price could initiate the instability of commodity related to it (Simatupang, 2001).

8. The last characteristic of international rice market that is often overlooked by analysts is that international market is also affected by currency market, stock market and global energy market. These three markets are known for their instability. The instability in these markets causes the instability in the world rice price.

The change of currency exchange rate in exporter countries are affecting the world rice supply or export whereas the change of the

currency exchange rate in importer countries are affecting the world rice demand or import. This condition is worsened by the fact that the currencies of main rice exporter and importer countries in the world are strongly correlated toward each other, because of the close location and concentrated mainly in Asia Thus, the effect of currency exchange in one country will most likely also affect the others. For example, the 1997-98 Asian economic crisis depreciated almost all Asian currencies at the same time and resulted in a sharp drop in the world price for rice.

Stock market affects the world rice market through interest rate. Rice trade both export and import required a large amount of capital commonly acquired through stock market so the payment of capital interest rate is a relatively large component of rice export-import.

The world oil price is affecting the world rice price through transportation or shipment cost component that had relatively large share in cost component of rice export/import.

From all eight characteristics above, it could be concluded that world rice market does not meet the criteria of free trade market which is a market with perfect competition.

2.1.3 World Rice Export and Import

From world's six main rice producer countries not all of them are rice exporter countries. Only Thailand, Viet Nam, China and India are including in

world rice net exporter countries whereas Indonesia and Bangladesh are net importer countries. Even though Indonesia and Bangladesh are the second and third world largest rice producer almost all of their production are allocated for national consumption due to a high domestic demand of rice.

Table 2. World Rice Export 1998 - 2008

Country	World Rice Export 1998-2008 (1,000 tons)										
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Thailand	6,367	6,679	6,549	7,521	7,245	7,552	10,137	7,274	7,376	9,557	10,000
Vietnam	3,776	4,555	3,370	3,528	3,245	3,795	4,295	5,174	4,705	4,522	4,750
India	4,666	2,752	1,449	1,936	6,650	4,421	3,172	4,687	4,537	6,301	2,950
US	3,156	2,648	2,756	2,541	3,295	3,834	3,090	3,862	3,363	3,029	3,500
China	3,734	2,708	2,951	1,847	1,963	2,583	880	656	1,216	1,340	1,000
Pakistan	1,994	1,838	2,026	2,417	1,603	1,958	1,986	3,032	3,000	2,696	3,000
Total	23,693	21,180	19,101	19,790	24,001	24,143	23,560	24,685	24,197	27,445	25,2004
World	27,670	24,925	22,872	22,205	27,813	27,575	27,184	29,009	28,451	31,938	29,251

Source: USDA, 2008

The volume of rice export from 1998 to 2008 was continuously increasing. The highest growth in rice export was experienced by Pakistan. In 1998 Pakistan's rice export only 1.9 million tons while in 2008 it increased to 3 million tons or increased for almost 150 per cent. And the lowest growth was experienced by the US that grew only 6.6 percent since 1998 to 2008 (USDA, 2008).

From the volume of rice export, China and India recorded a decreasing trend. Indian export in 2008 compared to 2008 was sharply decreased for almost 50 per cent. China also recorded a sharp decrease in export volume in 2008 compared to 1998 for about 2, 734 thousands ton.

Asia import share reached almost 45 per cent of global rice trade, the rest are traded to other part of the world especially to Africa, Central America and European Union. From the whole volume of rice traded in the world during 1998-2008 periods, mostly or approximately, 30 per cent of them were absorbed by six largest rice importer countries namely Indonesia (8%), the Philippines and Nigeria (5%), Saudi Arabia, Iran and Bangladesh (4%). The total rice import of these six countries in 1998 recorded 12,289 ton and in 2008 declined to 7,915 ton or decreased by 35.59 per cent.

The significant decrease of rice import volume was mainly caused by the improvement in rice production in all the six major rice importer countries. In 1998 the volume of rice import of all these six countries was very large due to the economic crisis that hit Asia, especially Indonesia, and climate anomalies of El-Nino and La-Nina that caused significant decrease in rice production. To cover the gap between rice demand and supply, these six countries imported very large amount of rice.

2.1.4 World Rice Price

World rice price is influenced by the trade policy of each exporter countries. Protection policy and heavy subsidies implemented by most of the

exporter countries has distorted the world rice market. The world market rice prices do not reflect the real cost of rice production. The high support for production, processing and export of rice in developed countries often leads to overproduction and dumping exports. The developed worlds often sell their agricultural products below the home market prices or below the production costs. In the GATT Antidumping Agreement article 2.1 mentioned that "*a product considered as dumped if introduced into the commerce of another country at less than its normal value, if the export price of the product exported from one country to another is less than the comparable price in the ordinary course of trade* [....]". However in the article 2.2 this agreement allows a comparison of the export market prices with the costs of production in the country of origins.

The US, for example, subsidized the rice sector for approximately US$ 1.3 billion in 2003 (Oxfam, 2005:35f). The government support for rice farmers in the US is very vital since 57 per cent of the US rice farms would not be able to cover their costs without government subsidies, counter cyclical payments, marketing loans and commodity certificates (Paasch et al., 2007:19). Between 2000 until 2003 the average costs of rice production (growing and milling) in the US was US$ 415 per metric ton. But with the support from the government the average of the US rice export price was only US$ 274 per metric ton or just 34 per cent of the real production cost.

The protection and input subsidies policy practiced by exporter countries has decreased the rice price in international market. This condition has caused the agricultural products from developing countries especially rice could not

compete with the product from developed countries and major exporter countries. For the consumers in the net-importer countries such as Indonesia this condition does not necessarily benefit them because the international rice price is not the only factor determining the price of rice in domestic market. This is will be discussed furthermore on chapter 3 and 4.

CHAPTER 3:THE IMPACT OF RICE TRADE LIBERALIZATION ON INDONESIAN DOMESTIC RICE MARKET AND FARMERS

3.1 Rice Trade Liberalization in Indonesia

3.1.1 Rice Trade Liberalization and Agricultural Policy Deregulation

The discourse of trade liberalization in Indonesia has been brought up by economists since 1980's. A study conducted by Rosegrant in 1989 for example showed that trade liberalization would generate substantial benefits to Indonesian people since the consumers' benefits would be larger that the losses from farm revenues. However Baharsjah et al. (1989) showed that the transition to agricultural liberalization would harm the farmers by an increase of the rice import demand that consequently would lower the income of farmers and lower the absorption of employment in the rural area. They suggested that the gradual removal of protection of rice market was the best policy.

Agricultural products trade liberalization including rice only started in 1995 as the result of the WTO-AoA. However, radical agricultural liberalization policy especially in rice trade started to be implemented only after Indonesia was hit by the 1997 Asian economic crisis. To survive the pressure of Asian economic crisis that subsequently turned out to be a monetary crisis, Indonesia had to seek

assistance from IMF and the World Bank and followed their recipe to overcome the crisis by implementing the Structural Adjustment Program (SAP) including market openness and privatization of state trade agencies. Indonesia implemented a fundamental deregulation on agricultural trade after the government signed a Letter of Intent (LoI) to the IMF on 31 October 1997. Based on LoI the Government of Indonesia had to liberalize their agricultural products market. The Government of Indonesia signed another LoI in 11 September 1998 stating "*also, for the first time in thirty years, we will allow private traders to import rice*".

The Government of Indonesia executed this agreement through the Ministry of Trade by issuing the Minister for Trade Regulation Letter No. 439 dated 22 September 1998 regarding rice import tariff stating that the rice import was liberalized with import tariff of zero per cent. Besides abolishing the import tariff during this time, the Government of Indonesia also abolished the privilege of the Logistic Affairs Agency (Badan Urusan Logistik/BULOG) that has served for more than three decades as a state trade enterprise monopolizing the rice import and shared the right to private traders to be involved in importing rice business.

Another deregulation that government made under the supervision of the IMF was the abolishment of special credit from the Indonesia's Central Bank (Bank Indonesia/BI) to BULOG. Under the Law No. 23/1998, BULOG's special privilege to receive loans at a special rate from BI was abolished making BULOG had to finance its operation by commercial interest rates. By the abolition of special privileges and the status of BULOG as a State Trade Enterprise (STE),

the socio-economic obligation to stabilize the rice price and supply in Indonesia was not in the hand of BULOG anymore but was given to market mechanism.

However after 2 years of zero import tariff policy to slow down the high flow of rice import, in 2000 the government decided to re-impose tariff on rice import as much as Rp. 430 per kilogram, this tariff was far much lower than the bounded tariff regulated under the WTO-AoA, which only equivalent to 30 per cent *ad valorem* of bounded tariff. Then in 2005 the government once again increased the tariff to Rp. 450 per kilogram of rice import. In 2003 BULOG was given back its status as STE by Government Regulation No. 7/2003.

3.2 Rice Trade Liberalization Impact on Indonesian Rice Market and Farmers

3.2.1 Trade Liberalization Impact on Domestic Market Rice Price

Theoretically, in trade liberalization era where world food commodity market and domestic market are spatially integrated, the rise or decrease of price of world food commodity will be perfectly transmitted to domestic market. Thus, the decrease of world rice price is supposed to make the domestic rice price to decline too. However this did not happen in Indonesia's rice market. The high flow of import rice that is much lower in price did not necessarily lower the domestic rice price. From the empirical evidences we can see that the domestic rice price continuously showed an increasing trend since the implementation of rice trade liberalization (see table 3). Even during the surge of rice import, the domestic rice price at market level has been continuously increasing except in 2003 when the rice price slightly declined (– 1.9 per cent).

Table 3. Rice Import Volume, Rice Import Price and Domestic Wholesalers Price during Rice Import Surge 1998 - 2003

Month/Year	Import Volume (MT)	Import Price (Rp/MT)	Wholesale Price (Rp/MT)
Jan 98	67	1,814,539	1,154,703
Feb 98	20,655	2,589,687	1,157,740
Mar 98	191,530	2,301,519	1,302,770
Apr 98	54,231	2,269,400	1,359,438
May 98	215,705	3,071,042	1,460,462
Jun 98	28,101	4,429,669	1,801,083
Jul 98	717,582	3,966,554	2,021,730
Aug 98	219.473	3,355,434	2,318,699
Sep 98	220,676	3,239,589	2,630,007
Oct 98	196,014	2,275,132	2,512,269
Nov 98	287,598	2,150,524	2,519,357
Dec 98	489,918	2,338,845	2,654,309
	Total: 2,641,550	Average: 2,816,827	Average: 1,907,714
Jan 99	221,179	2,958,576	2,650,256
Feb 99	354,820	2,756,846	2,586,250
Mar 99	327,762	2,749,660	2,516,086
Apr 99	315,273	2,760,773	2,583,878
May 99	250,528	2,482,724	2,618,276
Jun 99	383,373	1,691,611	2,609,109
Jul 99	549,444	1,656,431	2,529,530
Aug 99	590,801	1,881,300	2,468,856
Sep 99	797,048	2,197,481	2,480,429
Oct 99	444,054	2,241,161	2,403,881
Nov 99	196,154	1,787,933	2,364,578
Dec 99	321,413	1,777,753	2,348,597
	Total: 4,751,849	Average: 2,245,187	Average: 2,513,310
Jan 02	134,327	1,881,134	2,771,331
Feb 02	126,435	2,149,500	2,863,499
Mar 02	168,261	2,017,004	2,743,906
Apr 02	199,839	1,642,366	2,690,891
May 02	175,530	1,743,045	2,715,730

Month/Year	Import Volume (MT)	Import Price (Rp/MT)	Wholesale Price (Rp/MT)
Jun 02	106,030	1,630,495	2,705,574
Jul 02	172,009	1,658,989	2,678,274
Aug 02	142,760	1,704,652	2,584,428
Sep 02	72,605	1,812,964	2,546,747
Oct 02	152,704	1,641,993	2,553,135
Nov 02	220,503	1,736,046	2,638,339
Dec 02	140,984	1,794,765	2,647,011
	Total: 1,811,987	Average: 1,784,413	Average: 2,678,239
Jan 03	238,920	1,724,354	2,673,201
Feb 03	220,455	1,756,669	2,714,911
Mar 03	125,945	1,747,477	2,702,560
Apr 03	145,967	1,808,506	2,672,097
May 03	135,034	1,796,923	2,626,507
Jun 03	126,777	1,743,181	2,598,767
Jul 03	50,257	2,007,296	2,588,954
Aug 03	45,206	1,588,909	2,603,894
Sep 03	80,222	1,743,353	2,589,940
Oct 03	72,173	1,788,848	2,587,512
Nov 03	63,187	1,834,536	2,587,512
Dec 03	133,329	1,810,966	2,585,816
	Total: 1,437,472	Average: 1,779,251	Average: 2,627,639

Source : Central Bureau of Statistic for import and import price; BULOG for wholesalers' price.

Note : Import price is border price in local currency; wholesale price is medium quality of rice

This is an interesting phenomenon and there is an explanation of this. First we have to understand the equation of rice import price parity below (Simatupang and Syafaat, 1999):

$$HKD = (1+t)^* HIP^*E+M^*HIP^*E$$

Where:

HKD = food commodity price at domestic consumer market (Rp/unit)

t = effective import tariff coefficient (import tariff and other trade barriers)

HIP = price of imported food commodity at harbour (US$/unit)

E = currency exchange rate (Rp/US$)

M = marketing cost coefficient (marketing costs and profits)

From the equation above we can see there are four factors affecting the food commodity price at domestic wholesaler and consumer level, namely a) import tariff, b) food commodity price at harbour, c) the currency exchange rate between Rupiah and US dollar, and, d) marketing costs. The implication of these factors even if the import tariff (t) is omitted at all and the marketing costs (M) is lowered will not automatically decrease the price of rice at domestic level as long as the percentage of the world rice price decrease is much smaller than the percentage of currency exchange depreciation.

The fact is the trend of international rice price within the last three decades shows a sharp declining from 1.85 per cent/year in 1974-1980 to - 3.56 per cent/year in 1991-2001 (Saliem et al., 2003). The trend of currency exchange rate of Rupiah to US dollar was increasing sharply from 6.98 per cent/year in 1974-1980 to 32.50 per cent in 1991-2001. In the same period, the trend of domestic rice price at consumer level was increased from 13.16 per cent/year in 1974-1980 to 20.13 per cent/year in 1991-2001. From these facts and the equation of import price parity above can be concluded that the increase of rice price at domestic consumer level especially in the last ten years was mainly

caused by the high depreciation of Rupiah toward the US dollar and the trade liberalization did not have a major impact on rice price at domestic market level that benefited the consumers and producers.

Furthermore the research conducted by Istiqomah, Zeller and von Cramon-Traubadel in 2005 shows that domestic rice price in post liberalization period is more volatile both for rice producer prices and retail prices. Their study of three major rice producer provinces in Java namely West, Central and East Java showed that in pre-liberalization period between 1987 until 1997 the producer price volatility was only 0.0953 while in post liberalization period 1999 to 2002 the producer price volatility was increasing to 0.1637. The same condition also happened in retail prices. Between 1981 until 1997 the price volatility was only 0.0763 while between 1998 until 2004 the retail price volatility was increasing to 0.1322. Furthermore the study found that this volatility of rice price is because after trade liberalization full market integration in Indonesia was not found. Before liberalization, rice prices across markets in Indonesia moved similarly resulting in a fully market integration.

3.2.3 Rice Trade Liberalization and Its Impact on Indonesian Farmers

Under the Letter of Intent (LoI) between Indonesia and IMF, Indonesian government had to abolish or significantly reduce all subsidies including the agricultural input subsidies that were highly needed by Indonesian farmers majority of which were small farmers. The abolishment of production input subsidies during radical trade liberalization period under the provision of IMF had

caused severe impacts for Indonesian rice farmers. This condition was worsened by the decrease of paddy price and the loss in production due to El-Nino.

The typical production cost of rice per hectare in Indonesia is between 6.7 – 7.5 million Rupiah. The production costs per hectare amounted to 79 to 86 per cent of gross returns. Hence the farmer's income per hectare of paddy fields is only between 1.1 - 1.4 million Rupiah per hectare. Without input subsidies Indonesian farmers obviously had a heavier burden to manage the costs of production. Even without a competition with developed countries' farmers, Indonesian rice farmers have been in a weak bargaining position. The surplus volume available for sale is usually small, the ability to store is low and the pressure to immediate sell is very high due to the liquidity crisis of farmers.

Many researchers believed that the increasing openness of market could lead to a period of increasing price variability that could endanger farmers by destabilizing their income (Timmer, 1997). Since paddy production volume is very volatile and paddy supply is very inelastic the price at farmer's level becomes highly unpredictable and volatile.

From the empirical evidences, the price of paddy at farms level during rice trade liberalization period were fluctuating and tended to decrease especially during rice import surge. The rice prices at farm level were mostly lower than the government floor rice prices (Rp. 1,660 /kg in 1998, Rp. 2,310/kg in 1999-2000, Rp. 2,470/kg in 2001-2002, Rp. 2790/kg in 2003-2005 and Rp. 3,550/kg in 2006). The cases of farm level price falling under government procurement price floor were increasing compared to before the implementation of rice trade

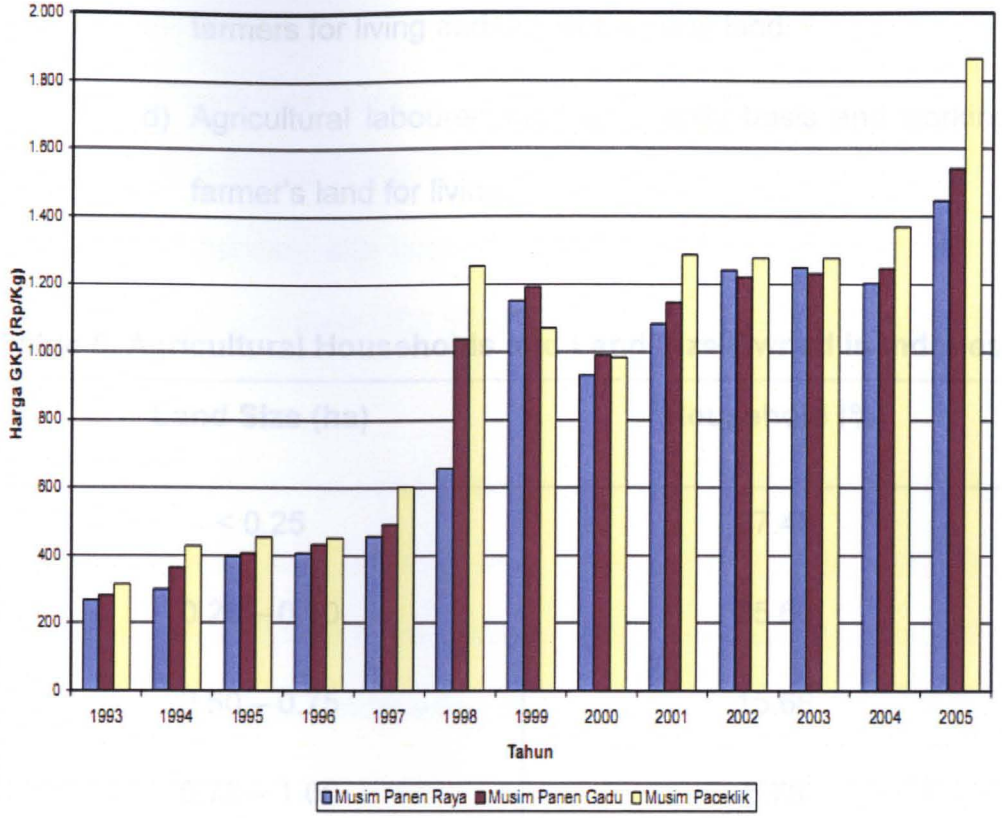
liberalization. From the table below, for example, we can see in 1997 such case was only found in 46 cases during main harvesting season but in 2004 it increased to 1,517 cases, the highest number of cases found between 1997 until 2006. During secondary harvesting season in 1997 only found five cases of the falling of rice price at farm level, whereas in 2004 there were 1,044 cases found.

Table 4. Cases of Falling of Farm Level Price under Floor/Procurement Price, by Season and Year 1997-2006

Year	Main Harvesting Season			Secondary Harvesting Season			Lean Season			Total
	Cases	N	%	Cases	N	%	Cases	N	%	%
1997	46	2,285	2	5	2,288	0	0	1,631	0	0.81
1998	194	3,105	6	63	1,948	3	24	1,760	1	3.77
1999	163	2,674	6	121	2,304	5	309	1,664	19	8.26
2000	1,343	2,449	55	739	1,746	42	762	1,111	69	48.32
2001	1,603	2,345	45	478	1,859	26	83	1,540	5	30.63
2002	351	3,304	11	143	2,508	6	214	1,671	13	7.68
2003	1,098	2,676	41	971	2,166	45	932	2,199	42	42.94
2004	1,517	3,513	43	1,044	2,888	36	454	2,173	21	36.60
2005	1,432	3,633	39	1,067	2,902	37	3,387	9,945	34	15.21
2006	1,056	3,122	34	988	2,754	36	3,625	10,236	35	7.26

Source : Central Statistic Bureau, 1997-2006
Note : Main Harvesting Season = Feb-May, Secondary Harvesting Season = June-Sept, and Lean Season = Oct-Jan.

Figure 2. Paddy Price at Farmers Level according to Season 1998-2005



Source : M. Husein Sawit, 2007
Note : Blue= Main Harvesting Season
Purple= Secondary Harvesting Season
White= Lean Season

Based on the landownership, there are four types of paddy farmers in Indonesia:

a) Farmers who own the land: farmers that have land which is cultivated by themselves or by other farmers/peasants.

b) Smallholder peasants with less than 0.5 ha: this type of farmers cultivate their own lands and usually cultivate other farmer's land on the basis of renting system, a trade in system or a crop-sharing system.

c) Landless tillers: this type of farmers working on the land of other farmers for living and do not own any land.

d) Agricultural labourer: paid on a daily basis and working on other farmer's land for living.

Table 5. Agricultural Households and Land Size Owned in Indonesia

Land Size (ha)	Household (%)
< 0.25	37.48
0.25 – 0.50	25.66
0.50 – 0.75	15.68
0.75 – 1.00	5.70
> 1.00	15.48

Source: CBS (Agricultural Census 2003).

From table 5 above we can see that around 75 percent of Indonesian farmers are small farmers that owned land less than 0.5 hectare. The abolition of production input subsidies and the decrease of rice price at farm level have severely harmed the social economic of their households. To manage their production activities such as tilling of the land, paying for seeds, fertilizers, pesticides and labours most small farmers are economically dependent on creditors. To payback their debt and interest to the creditors the small farmers

usually sell their harvest to them at a very low price and use the remaining of their harvest as their food. This condition has increased the number of poor households from rural area especially from farmer households. For example, from a study released in Kompas daily newspaper in 24 April 2005 in northern part of Java, farmers with land owned approximately 0.4 hectare only get Rp. 650,000 or approximately US$ 65 (in 2009 currency rate exchange) for 3 months of hard work.

The theory about trade liberalization that said farmer will be benefited by the trade liberalization because they could move from growing the low-value crops such as rice to the more valuable agriculture product (Dillon, 1999) was not proven in the case of Indonesia. The research conducted by UNEP (2005) in Java from December 2002-January 2003 showed that the farmers considered it risky to switch to other crops even if they have higher value compared to rice, such as vegetables and fruits, because of farmers' lacking the capability about the new crops and the perishable nature of the crops. From 261 farmer respondents in that research, only 4 per cent or 9 people that shifted to other crops (UNEP, 2005:42).

CHAPTER 4:THE IMPACT OF RICE TRADE LIBERALIZATION ON INDONESIAN FOOD SECURITY

4.1 Indonesian Food Security Policy Prior the Implementation of Trade Liberalization

4.1.1 Indonesian Food Security Approach

There are three fundamental indicators of national welfare that became the Government's objectives at the early stage of the New Order era (1966-1998) under Soeharto's administration (Timmer, Falcon, and Pearson, 1983:3-18) namely food security and price stability, rapid income growth and desirable income distribution. From these three government's objectives, food security at the national level was the priority of the Indonesian government policy under Soeharto's administration. The main agenda achieving this goal was by the achievement of producing adequate amounts of foodstuffs for all consumers at affordable price. Since food shortages were reflected in rising of food prices, the approach that was used by the government at the time was to maintain stable domestic food prices.

Rice self-sufficiency, cheap and stable rice prices have been the main target of Indonesian agricultural policy since early of the New Order era. The food security approach favored by Indonesian government was on the trend of self-sufficiency. This approach was taken by the Government of Indonesia

because of the highly unstable condition of world rice market marked by the highly unstable world rice price. The momentum that made Indonesian government achieved food security through self-sufficiency even stronger happened in 1973-1975 when the world rice price reached historically unprecedented heights.

To ensure the accessibility of most consumers to rice supplies at an affordable price, the government was aware that the stability of domestic rice price and the level of Indonesian rice production had to be achieved. Therefore the government implemented several policies namely: a) price stabilization policy involving public storage of rice and imports; b) price level policy by giving guaranteed minimum rice price to farmers and subsidies on fertilizers in order to expand domestic rice production; c) public investment policy, such as building irrigation infrastructure and maintenance, transportation facilities, research and development, and dissemination of seeds and technologies for high-yielding varieties/HYV (Pearson, Naylor, and Falcon, 1991:9 in Scot Pearson et al., 1991).

During the period of New Order regime an organization that was given the mandate to manage the rice trade and had the responsibility to stabilize the rice price and supply to also maintain the food security in Indonesia was the Food Logistic Agency or Badan Urusan Logistik (BULOG). The status of BULOG was a para-statal organization. In executing its tasks, BULOG's strategy was to implement buffer stock strategy by buying rice at floor price level during harvest seasons to absorb the excess of rice production in order to ensure farmers' profit

and providing them with a better income. Whereas in the leaning seasons, BULOG intervened the market by distributing their stock of rice to fulfil the market's demand as an efforts to maintain an affordable rice price for lower income households to ensure their food security.

BULOG defended a floor price and a ceiling price through the following policy instruments:

1. Monopoly control over international trade in rice by insulating the domestic rice market from international market to protect them from the fluctuation and distortion from the volatile international rice market.
2. Using rice as part of civil servants and military wages as an outlet for its surplus stock. By doing this BULOG has the ability to absorb more rice surplus at the farm level.
3. The special rate loan from the Central Bank of Indonesia was given to prevent BULOG from having a liquidity problem to purchase rice either from the international market or from the farmers.
4. Government subsidies to farmers through cheap fertilizers, pesticides and financial support during planting season made BULOG could purchase the rice at farmers' level at a lower price without harming the welfare of the farmers' households.

Combined with the huge investment for improving irrigation and massive subsidy, Indonesian government was able to boost the rice production rate to more than 4.5 per cent per year. Thus in 1984, for the first time, Indonesia achieved rice self-sufficiency and even became rice net-exporter until 1987. Food

security in 1984 was considered very strong and the primary rice supply came from domestic production.

This food security approach was considered effective for almost more than three decades. However, the cost to implement this strategy was very high. After Indonesia was hit by the economic and monetary crisis in 1997-1998, the Government abandoned the price stabilizing strategy and, to lift the economic burden, started to open the agricultural domestic market, including rice, under the supervision of the IMF and the World Bank. Indonesia changed the price stabilization strategy into market liberalization strategy.

4.2 Indonesian Food Security in the Era of Trade Liberalization

4.2.1 Indonesian Rice Production and Consumption

Compared to in the era of 1980s, Indonesia's paddy production growth in the late 1990s declined relatively high. During 1980s the paddy production growth rate was as high as 6 per cent. However in the end of 1990s Indonesia's rice production growth rate was declining to only 3.4 per cent (Arifin, 2003). The production rate in 1998-2008 declined even much lower to only 2.07 per cent. Along with the decline rate of paddy production the conversion rate from paddy into rice was also declining from 66 per cent in 1980s to 63.2 per cent in late 1990s.

Table 6. Paddy Production, Area Harvested and Productivity 1998 - 2008

Year	Paddy Production (1000 tons)	Growth (%)	Area Harvested (Ha)	Growth (%)	Productivity (ton/Ha)	Growth (%)
1998	49,237		11,730		4.197	
1999	50,866	3.31	11,963	1.99	4.252	1.30
2000	51,179	0.62	11,793	-1.42	4.340	2.06
2001	50,460	-1.40	11,494	-2.54	4.390	1.16
2002	51,490	2.04	11,521	0.23	4.469	1.80
2003	52,138	1.26	11,488	-0.29	4.538	1.55
2004	54,088	3.74	11,923	3.79	4.536	-0.05
2005	54,151	0.12	11,839	-0.70	4.574	0.84
2006	54,455	0.56	11,786	-0.45	4.620	1.00
2007	57,157	4.96	12,147	3.06	4.705	1.84
2008*)	60,280	5.46	12,343	1.61	4.884	3.80
Growth Rate		2.07		0.53		1.53

Source: Central Bureau of Statistic, 2008. Modified

Note: *) Forecast Figure

Conversion rate of paddy into rice is 63.2%

According to many experts the declining of Indonesian rice production growth rate was due to:

1. Harvested area and yield

Indonesia's harvested area has grown at an average of 1 per cent annually but the yield increases has been slower since the early of 1980s. Due to the nature of rice that has a short age to maturity harvested area depends on both area and cropping intensity.

The area of wet paddy field or *sawah* in Java has been declining since 1980s. Therefore, the source of growth in rice harvested area depends only on cropping intensity. The harvested area in Java in 1996-2000 was declining 1.04 per cent per annum. However this was compensated by an increase of cropping intensity by 2.78 per cent per annum (Simatupang and Timmer, 2008:69). Outside Java the area of wetland paddy field indeed increased in the 1980s and early 1990s, although since the late of 1990s it continues to decrease. Just as in Java, the decrease of land area outside Java, being around 4.04 per cent per annum, was compensated by an increase of cropping intensity by 5.47 per cent per annum (Simatupang and Timmer, 2008:69).

The problem is that the potential for boosting cropping intensity furthermore is very limited. The limits of cropping intensity expansion can be reached in a short time. Therefore, if the land area persists to decrease at the recent rate, the rice production in Indonesia in the future surely will continue to stagnate or even decline.

2. The decrease of paddy conversion at harvest and post harvest industry

Rice production is determined by paddy losses during harvest and post harvest activities. There are only two comprehensive studies about this in Indonesia, first was in 1986/1987 and the second was in 1994/1995.The lower the rate of paddy conversion to rice, the lower rice production will be. According to Sawit (1999) Indonesian paddy conversion rate were continuously decreasing since 1970. In 1970 the rate of paddy conversion to rice was 71 per cent and decreased to 66 per cent in 1985. The conversion rate continued to decrease in 1996 to the level of 63.2 per cent. The conversion rate was even decreasing to only 62 per cent in 1998 and 59 per cent in 2004.

The decreasing paddy conversion rate was caused by the old age and small capacity of milling machineries in Indonesia. According to Simatupang (2001), based on the type of mills, the lowest conversion rate was from the small milling unit and the highest was from Rice Milling Unit (RMU).

The decrease of paddy conversion to rice is very important because according to Amang and Sawit (2001) each decrease of one per cent of paddy conversion rate equals to 0.5 million tons of rice losses.

Table 7. Paddy-Rice Conversion Ratio 1949-2004

No.	Crop Season	Location	Conversion Ratio (%)
1.	1949	Java, Madura	69.0
2.	1950	Java, Madura	71.2
3.	1974	Java	64.6-65.1
4.	1979	West Java, East Java, Bali, South Sulawesi	64.8
5.	1981	East Java	66.3
6.	1982/1983	8 Provinces	64.6
7.	1985	15 Provinces	65.9
8.	1994/1995	15 Provinces	63.2
9.	1997/1998	West Java (Karawang, Subang)	62.0
10.	2002	East Java	62.0
11.	2004	6 Provinces	59.0

Source: 1-8: Nugraha et al.,1998; 9: Munarso et al., 1998 ; 10 : Handaka et al., 2002 ; 11 : Tjahjohutomo et al.,2004

3. Conversion of arable land to other uses

Conversion of arable land to non-agricultural uses continues to grow due to population growth, structural change in economy and urbanization. Most of land conversions from farm to other uses happened in Java Island. This creates a major concern because lands converted into other uses such as industry, manufacture or non-food farm land are farm lands that are considered as highly productive. In Java Island alone, the conversion rate of agricultural land has reached approximately 100,000 hectare per year. In 1993 the share of Java Island to national rice production was more than 60 per cent (Rusastra and Gelar, 1997) but due to the massive conversion of arable land in Java Island its share to national rice production declined to only 55 per cent. From the total of conversion of arable land nationally 68.3 per cent of them were rice farm lands (CBS, 1995).

However, outside Java the total of arable land has increased steadily. The expansion of land outside Java was mainly used for estate plantations. The further expansion of arable land in Java is almost impossible nowadays putting the potential agricultural land expansion available only outside Java. This makes the future growth of agricultural production, including rice, will be outside of Java and the domination of Java in rice production will gradually fade.

Table 8. Trends in Use of Arable Land (1,000 ha)

Location	1981-85	1986-90	1991-95	1996-2000	2001-04
Java, of which:	**7,423**	**7,539**	**7,287**	**7,260**	**7,314**
Temporary fallow	89	104	8	66	61
Estate Plantation	597	659	628	624	655
Wet Paddy field (*sawah*)	3,446	3,440	3,407	3,303	3,280
Off Java, of which:	**33,122**	**36,439**	**35,226**	**39,451**	**45,685**
Temporary fallow	8,750	9,497	7,486	8,437	9,981
Estate Plantation	7,898	9,470	11,799	15,227	17,276
Wet Paddy field (*sawah*)	4,034	4,632	5,000	4,554	4,602
Indonesia, of which:	**40,545**	**43,978**	**42,835**	**46,710**	**52,999**
Temporary fallow	8,839	9,602	7,568	8,503	10,042
Estate Plantation	8,495	10,130	12,427	15.851	17,932
Wet Paddy field (*sawah*)	7,500	8,063	8,406	7,856	7,882

Source: CBS, *Statistical Year Book*, various years.

4. Degradation of irrigation system

Irrigation is very important in increasing yield, cropping intensity and production stability. This is because of the nature of rice that requires continuing water availability for a good harvest. During 1970s to 1980s Indonesian government was investing a huge number of money in irrigation which in return had increased the rice production at that time.

Since late 1980s the government of Indonesia drastically decreased the investment in irrigation that made the rice production to fell. Furthermore,

the decrease of government spending on irrigation has resulted in some degradation of irrigation system. The recent observation on irrigation system in Indonesia shows that about 22 per cent of canals that served more than 6.8 million hectares of irrigated rice farmland/*sawah* are damaged. From those damaged canals, 5 percent of them are severely damaged. Adding to these numbers there are 237 large dams in Indonesia that considered severely damaged.

5. Over-intensive land use

Over-intensive land use by the excessive use of chemical fertilizer has caused land degradation. This excessive use of fertilizer by the farmers is partly the fault of the government due to high subsidies in fertilizer. Various researches show that the change of fertilizer price due to subsidies affected more the intensity of fertilizer use rather than the increase of yield.

The excessive fertilizer use has caused unbalanced soil nutrients content (Sofyan, Nurjaya, and Kasno, 2004). This condition has created soil-fatigue syndrome or over-intensification. Over-intensification of farmland was indicated as one of many reasons why the production level in Indonesia has been in decline (Simatupang et al., 1995).

6. Declining emphasis on technology innovation and dissemination

Post rice self-sufficiency in 1984, the technology innovation tended to stagnate because of the high yield varieties (HYV) introduced was

decreasing drastically compared to prior 1984. According to Simatupang and Timmer (2008) it happened because of the failure to improve agricultural technology through research and development (R&D) and the slow dissemination of the new technology from R&D institutions to farmers.

Based on the internal and external evaluation of the usage of new agricultural technology in Indonesia, the speed of dissemination and level of usage tend to slow down, even decline in trend (Simatupang, 2004). According to a research conducted by Mundy (2000), the dissemination of new technology took two years before it reached to 50 per cent of specialist field extension agents (*Penyuluh Pertanian Spesialis*) and six years to reach 80 per cent of specialist field extension agents. The time needed for the new technology to reach the hand of farmers took longer time of almost more than two years. This is why the varieties commonly used by farmers in Indonesia are mostly from 1980s' technology. For example, in 2000 the most common varieties used by farmers are IR 64 (released in 1986), IR 66 (released in 1989) and Way Apo Boru (released in 1998).

There are various different data regarding rice consumption in Indonesia that have initiated polemics. Several researchers and experts dealing in rice study especially those working at the Department of Agriculture stated that domestic rice production is sufficient to fulfil the rice demands in Indonesia, so import is considered unnecessary (Pribadi and Erwidodo, 2004).

The calculation conducted by the Department of Agriculture regarding the rice demands was obtained by multiplying population and rice consumption per capita gathered through the National Socio-Economic Census (Susenas). However, the rice consumption data released by Susenas were questioned by many researchers because it showed that Indonesia had never had rice deficit (table 9) which in reality Indonesia continuously imports rice.

Table 9. Rice Consumption in Indonesia 2000 – 2005 based on Susenas

Year	Population	Cons. (1,000 ton)	Cons. Per Capita (kg/year)	Rice Production (1,000 ton)	Rice Surplus (ton)
2000	208,436,800	24,879	119	28,836	3,957
2001	211,063,000	24,515	116	28,702	4,187
2002	213,722,300	24,612	115	29,287	4,675
2003	214,374,096	24,687	115	29,656	4,969
2004	217,072,346	25,506	117	30,766	5,260
2005	219,205,000	25,461	116	30,801	5,340

Source: Central Bureau of Statistic (Susenas), 2005 (rice surplus calculated by author)

There are two possibilities why this has happened, the first is because of an over-estimation of domestic rice production data and the second is because of an under-estimation of rice consumption data. From study conducted by Sastrotaruno and Maksum in 1997 (in Pribadi and Erwidodo, 2004), it was estimated that the number of domestic rice production that was officially released was 17 per cent higher than the reality. But until now there has been no counter opinion or clarification regarding this matter from the Government especially from the Central Bureau of Statistic and the Department of Agriculture.

The consumption data from the Central Bureau of Statistic through Susenas considered a much lower data than the reality because Susenas only count the household consumption. But it did not take into account the non-households rice consumption such as restaurants, hotels, and food processing industries.

Data regarding rice consumption in Indonesia was also released by Food Balance Sheet (FBS). The difference is that the data released by FBS reflected the direct consumption of rice and also processed food from rice in restaurants, hotels, street stalls / *warung kaki lima*, food industries, and livestock feed. According to the FBS report, during 1998-2003 Indonesia had deficit of rice supply so it had to import rice in big numbers. But during 2004-2006 periods Indonesia had a surplus in rice supply. Compared to the rice consumption data released by CBS (Susenas), at the same period, the data released by FBS had the most similarities to the real Indonesia's rice condition. During 1998-2003 Indonesia indeed had a deficit rice supply that forced the government to import rice to fulfil the rice demands. Whereas in 2004-2006 Indonesia had surplus in rice supply so the government imposed a rice import ban to stabilize the rice price at farm level.

Table 10. Rice Consumption in Indonesia 1998-2006 according to Susenas and FBS

Year	Rice Consumption Data (1,000 ton)	
	Susenas	**FBS**
1998	22,469	29,586

Year	Rice Consumption Data (1,000 ton)	
	Susenas	FBS
1999	21,544	33,971
2000	21,928	31,193
2001	22,204	28,768
2002	21,526	30,039
2003	21,592	30,216
2004	21,863	29,698
2005	21,077	30,502
2006	21,312	30,843

Source: Susenas and FBS

Rice consumption level in Indonesia is increasing each year even though the number of consumption per capita for rice in Indonesia showed a decrease in trend. In 1998 Indonesia's rice consumption per capita was 146.80 kilograms and in 2006 it has decreased to 139.15 kilograms. The main reason behind the rise of rice consumption was the increase of population number.

Table 11. Indonesian Rice Consumption and Population 1998-2006 according to FBS

Year	Rice Consumption (Kg/Capita/Year)	Growth (%)	Population (1,000 people)	Growth (%)
1998	146.80		201,538	
2000	149.65	1.94	208,437	3.42
2002	140.55	-6.08	213,722	2.54
2004	136.81	-2.66	217,072	1.57

Year	Rice Consumption (Kg/Capita/Year)	Growth (%)	Population (1,000 people)	Growth (%)
2006	139.15	1.71	221,652	2.11

Source: FBS, 2005.

4.2.2 Trade Liberalization and Rice Availability in Indonesia

Availability of food is one of many tools to measure the food security condition of a country. Food availability can be achieved through two ways: the first is by producing the food by the country itself, or in another word, food self-sufficiency and the second is by importing the food staple from other countries through trade.

One of the reasons behind the Indonesian government liberalizing the domestic rice market in 1998 was to fulfil the gap between domestic rice production and demands of rice that kept on growing. In 1998, Indonesia's rice production was sharply decreasing due to the effect of El-Nino climate and in the same time its economy was also devastated by the Asian economic crisis.

As the consequence of market openness, rice trade liberalization has caused rice import surge in Indonesia. Import surge is defined as an import hike of more than 10 per cent from moving average of the last three years. The import surges happened in 1998, 1999, 2002 and 2003.

Table 12. Rice Production, Import and Import Dependency Ratio 1996 - 2006

Year	Gross Production (1,000 tons)	Net Production (1,000 tons)	Total Import (1,000 tons)	Volume of World Rice Trade (1,000 tons)	IDR (%)	Self-sufficiency Ratio (%)	IWTR (%)
1996	33,216	29,894	1,470	19,664	4.7	95.3	7.5
1997	31,206	28,085	352	18,854	1.2	98.8	1.9
1998	31,118	28,006	2,901	27,668	9.4	90.6	10.5
1999	32,148	28,933	4,752	25,325	14.1	85.9	18.8
2000	32,040	28,836	1,375	22,600	4.6	95.4	6.1
2001	31,891	28,702	649	24,150	2.2	97.8	2.7
2002	32,541	29,287	1,812	28,225	5.8	94.2	6.4
2003	32,951	29,656	1,437	28,075	4.6	95.4	5.1
2004	34,184	30,766	246	26,875	0.8	99.2	0.9
2005	34,223	30,801	195	28,925	0.6	99.4	0.7
2006	34,603	31,142	400	28,575	1.3	99.7	1.4
Yearly Average:							
1996-1997	**32,211**	**28,990**	**911**	**19,259**	**3.0**	**97.0**	**4.7**
1998-1999	**31,663**	**28,470**	**3,827**	**26,497**	**11.7**	**88.3**	**14.6**
2000-2003	**32,356**	**29,120**	**1,318**	**25,763**	**4.3**	**95.7**	**5.1**
2004-2006	**34,337**	**30,903**	**280**	**28,125**	**0.9**	**99.1**	**1.0**

Source: Husein Sawit and Lokollo (2007)

Note: IDR=Import Dependency Ratio

IWTR: Import Ratio to World Rice Trade

From table 12 above, we can see that after the implementation of trade liberalization policy Indonesian dependency on import rice shows an increasing trend. In the era of radical rice liberalization between 1998 until 1999, quoting the term used by M. Suparmoko, an Indonesian researcher in UNEP Report, the dependency ratio towards international market or import rice was reaching the highest record since 1984 which reached the average of 11.7 per cent. The highest level of dependency of rice import happened in 1999 where the import dependency ratio reached 14.10 per cent.

Rice trade liberalization has exposed the domestic market to international market. As a consequence of this is a high flow of imported rice to Indonesia's market. This condition has two sides, on one side this give the opportunity for Indonesia to support the fulfilment of domestic rice demands which is continuously rising but on the other hand, if the high flow of rice import continues to happen in the long run it will endanger the food security condition of Indonesia.

The level of dependency of national food supply to import and domestic product are among the food security indicators. The more dependent a country is to the international market, the more insecure is the food condition in that country because the fluctuation and volatility of international food market will endanger the food security of that country. In the case of Indonesia, overdependence on international market will damage the domestic rice market due to the instability of international rice market as mentioned in the previous chapter. The world rice market has been known as an unstable and unreliable source of supply (Falcon and Monke, 1979-80; Monke and Pearson, 1991; Siamwalla and Haykin, 1983).

From the table 12, it could be concluded that from the view of food supply independency level, Indonesia's food security after the implementation of trade liberalization is still relatively stable. The level of dependency on rice import is relatively small compared to domestic rice production. However, if there is no action to slowing down the flow of rice import, this will jeopardize Indonesia's food security in term of food independency.

As a response to the surge of rice import flow to Indonesia, the government of Indonesia in 2000 decided to re-impose import tariff on rice, based on the LoI between the government and the IMF in 20 January 2000. The government imposed tariff at the rate of Rp. 430 per kilogram or equivalent to 30 per cent of *ad valorem* bounded tariff. Then in 2005, the government once again raised the import tariff to Rp. 450 per kilogram. However, these efforts in containing the flow of rice import to Indonesia failed due to a high number of rice-smuggling cases. Many experts agreed that at least almost half of imported rice in Indonesia was smuggled although there was no official data and evidence regarding this matter.

Table 12 above also shows a decline in Indonesian dependency on import rice after 2004. The decrease of Indonesian import dependency ratio from 2004 to 2006 was due to rice import ban policy that started to be implemented in 2004 through the Ministry of Trade and Industry Decree No. 9/MPP/Kep/1/2004. This policy was extended until 2007 despite it being a violation of the rules of the WTO-AoA.

4.2.3Trade Liberalization and Rice Accessibility in Indonesia

Food availability alone does not guarantee food security of a country. Accessibility towards food is another indicator used to determine the level of food security of a country. Food accessibility is related to access to market, food price, income and especially poverty level.

Poverty is a multidimensional problem. The institutional failures including market and political failures in allocating productive resources among the member of society are among many causes of poverty (Pakpahan et al., 1995). According to a previous study regarding poverty, poverty in rural areas especially in remote or isolated villages is highly correlated to the lack of access to public infrastructures and services (UNEP, 2005). Most subsistence farming activities are found in these remote or isolated villages where social and economic interaction with urban development centres is very limited.

Economic crisis which hit Indonesia in 1997-1998 had severely damaged Indonesian economy and sharply increased the level of poverty. This condition was further worsened by the escalation of social and political unrest during the time. The number of population below the poverty line in 1998 sharply increased to 49.50 millions people, compared to 34.50 million in 1996 or an increase of 6.50 per cent. Even though the number of poor people in Indonesia was decreasing, after 1998 the number of poor stagnated between 37 and 39 million people.

This condition was worsened by the implementation of trade liberalization. Croser in 2002 predicted the impact of trade liberalization on income distribution

and poverty in Indonesia by using a computable general equilibrium (CGE) called WAYANG. His research found that the complete removal of all tariffs and tariffs equivalent import licences would bring benefit to Indonesian people by reducing poverty and improve the welfare of households. But in reality, wealthier households were benefited more than poorer households. This condition has widened the socio-economic gap between the rich and the poor in Indonesia.

Table 13. Percentage and Number of People Living below the Poverty Line 1976-2007

Year	Poverty Line (Rp/capita/month)		Percentage of People Living below the Poverty Line (%)			Number of Population below the Poverty Line (millions)		
	Urban	Rural	Urban	Rural	Total	Urban	Rural	Total
1976	n.a	n.a	38.80	40.40	40.10	10.00	44.20	54.20
1978	4,969	2,981	30.80	33.40	33.30	8.30	38.90	47.20
1980	6,831	4,449	29.00	28.40	28.60	9.50	32.80	42.30
1981	9,777	5,877	28.10	26.50	26.90	9.30	31.30	40.60
1984	13,731	7,746	23.10	21.20	21.60	9.30	25.70	35.00
1987	17,381	10,294	20.10	16.10	17.40	9.70	20.30	30.00
1990	20,614	13,295	16.80	14.30	15.10	9.40	17.80	27.20
1993	27,905	18,244	13.40	13.80	13.70	8.70	17.20	25.90
1996	42,032	31,366	13.60	19.90	17.70	9.60	24.90	34.50
1998	96,959	72,780	21.90	25.70	24.20	17.60	31.90	49.50
1999	89,845	69,420	15.10	20.20	18.20	12.40	25.10	37.50
2000	91,632	73,684	14.60	22.38	19.14	12.30	26.40	38.70
2001	100,011	80,382	9.79	24.84	18.41	8.60	29.30	37.90
2002	130,499	96,512	14.46	21.10	18.20	13.30	25.10	38.40
2003	138,803	105,888	13.57	20.23	17.42	12.20	25.10	37.30
2004	143,455	108,725	12.13	20.11	16.66	11.30	24.80	36.10
2005	150,799	117,259	11.37	19.51	15.97	12.40	22.70	35.10

Year	Poverty Line (Rp/capita/month)		Percentage of People Living below the Poverty Line (%)			Number of Population below the Poverty Line (millions)		
	Urban	Rural	Urban	Rural	Total	Urban	Rural	Total
2006	174,290	130,584	6.51	11.13	17.64	14.50	24.80	39.30
2007	187,942	146,837	6.02	10.46	16.48	13.60	23.60	37.20

Source: Central Bureau of Statistic, 2008

Furthermore, there are more contradictive empirical evidences found during the radical trade liberalization era that the level of rural poverty tended to rise. Trade liberalization has significantly increased the number of poor people in Indonesia since almost half of Indonesian people are working in agricultural sector and have less than 1.0 ha land. As has been discussed in the previous chapter, the trade liberalization has created a negative impact on the welfare of farmers household especially small and subsistence farmers which contributed to the increase of poverty rate in rural area. The number of people living below the poverty line in rural area has increased to more than 20 million people after the implementation of trade liberalization (1998) compared to approximately 17 million people in the early 1990s (1990-1993).

In addition to the increase of poverty rate in Indonesia, people were also burdened by the continuous rise of rice price. The rice price has increased more than 400 per cent from 1992 to 2003. In 1992 consumer rice price was Rp. 603.68 per kilogram but in 2003 it increased to Rp. 2,785.85 per kilogram. The highest increase of consumer rice price was in 1998 from Rp. 1,063.80 in 1997 to Rp. 2,099.03 in 1998. It was caused by the scarcity of rice in the market due to profit taking and act of speculation by traders during the economic crisis and

socio-political unrest in 1998. The implementation of rice trade liberalization hoped to stabilize the domestic rice market could not help to decrease the rice price hike. Although the real price of rice tended to decrease after 1999 (see table 14).

Table 14. Current Prices, Consumer Price Index and Real Prices Jakarta Retail Market 1992-2003

Year	Current Price (Rp/kg)	Consumer Price Index (CPI)	Real Price (1996=100)
1992	603.68	71.11	848.94
1993	592.25	77.96	759.68
1994	660.37	84.63	780.30
1995	776.38	92.59	838.51
1996	880.00	100.00	880.00
1997	1,063.80	106.67	997.28
1998	2,099.03	168.32	1,247.05
1999	2,665.58	202.63	1,315.49
2000	2,424.22	210.27	1,152.91
2001	2,537.09	234.46	1,082.10
2002	2,826.06	262.31	1,077.37
2003	2,785.85	279.59	996.41

Source: - Nominal Retail Price from BULOG
- Consumer Price Index from CBS

The poverty and the rise of rice price have decreased the ability of Indonesian people to access the food because of their purchasing power significantly declined. The impact of this condition can be seen in the escalation of undernourishment and malnutrition cases in Indonesia. According to FAO the number of undernourished people in 2003-2005 was higher compared to 1995-

1997. In 2003-2005 there were 37.1 million undernourished people in Indonesia, whereas in 1995-1997 there were only 26.7 million people or increased 10.4 million people.

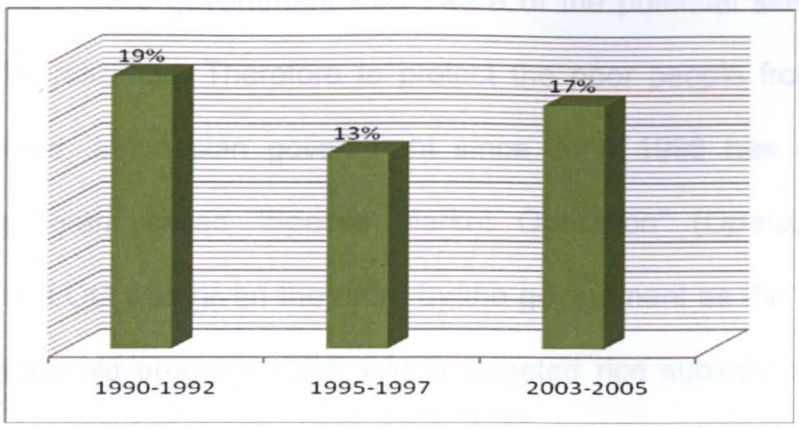
The prevalence of undernourishment in Indonesia in 1995-1997 according to FAO was lower compared to Southeast Asia region and Asia Pacific region. However in 2003-2005, the prevalence of undernourishment slightly higher compared to those of the mentioned regions (see table 15 and figure 5). Food consumption level also declined during 2003-2005. In 1995-1997 food consumption in Indonesia was 2500 kcal/person/day and slightly decreased in 2003-2005 at level of 2440 kcal/person/day.

Table 15. Number of Undernourished and Prevalence of Undernourishment in Indonesia 1990-2005

Year	Population (million)	Food Consumption (Kcal/person/ day)	Number of Undernourished (million)	Prevalence of Undernourishment (%)		
				Indonesia	Southeast Asia	Asia and the Pacific
1990-1992	185.8	2330	34.5	19	24	20
1995-1997	200.3	2500	26.7	13	18	17
2003-2005	223.2	2440	37.1	17	16	16

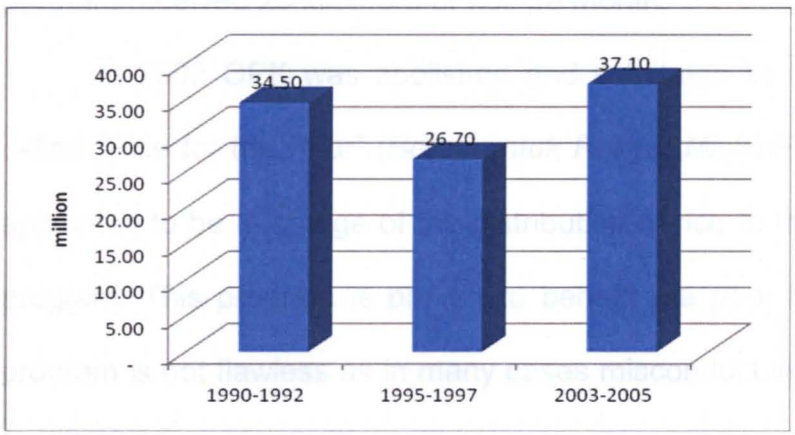
Source: FAO, 2008

Figure 3. Prevalence of Undernourishment in Indonesia



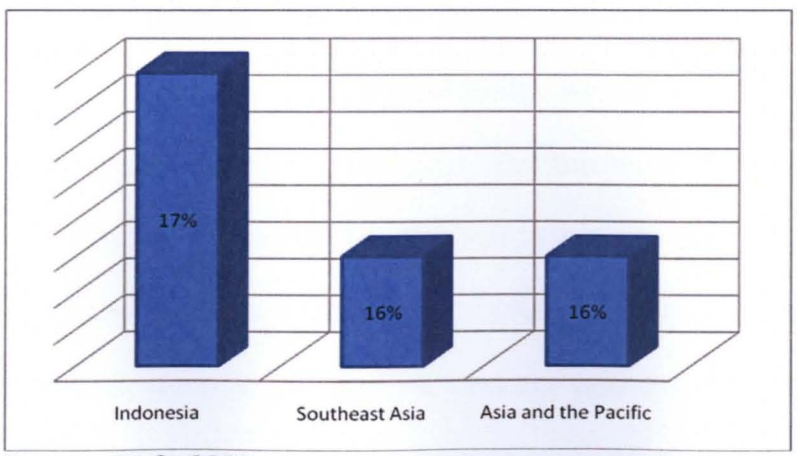
Source: FAO, 2008

Figure 4. Number of Undernourished in Indonesia



Source: FAO, 2008

Figure 5. Proportion of Undernourished 2003-2005



Source: FAO, 2008

The government was aware of the potential side effect of the rice trade liberalization. Therefore to protect the poor people from the lack of access to food, Indonesian government since June 1998 has introduced the food aid program called "Special Market Operation" (*Operasi Pasar Khusus*/OPK). BULOG was given the order by the government as the operational leader in this food aid program. OPK was a targeted rice subsidy program. In this program poor households were given special price at the rate of 54 per cent below the market price at that time or Rp. 1,000/kg. Every poor household according to this program received 20 kilogram of rice pe month.

In 2002 OPK was abolished and subtituted by a new food aid program called "Rice for the Poor" (*Beras untuk Rakyat Miskin*/Raskin). BULOG was still appointed to be in charge of the distribution of rice to the poor household in this program. This program is proven to benefit the poor household. However this program is not flawless as in many cases misconduct in distribution practice was found.

CONCLUSION

Rice trade liberalization undoubtedly has affected Indonesia's society and its economy. Many experts believed that trade liberalization will bring a greater benefit to every country in the world, both developed countries and developing countries. They believed that trade liberalization benefits, especially agricultural trade liberalization, will be far greater compared to the loss. It would reduce poverty and ease the economic burden coming from the market distortions due to policies promoting protection and subsidies.

However, in the case of the implementation of rice trade in Indonesia, the empirical evidence shows different outcomes. Rice trade liberalization implemented by Indonesia since 1998, under the supervision of the IMF and the World Bank, has negatively affected the domestic rice market and worsened the condition of Indonesian farmers. Rice trade liberalization proponents argued that the decrease of rice price in the international market would decrease the domestic rice price that eventually will increase the capability of the poor households to access the food. But the world rice price is not the only factor determining the domestic rice price, there are other factors, namely: import tariff, currency exchange rate and marketing costs. Under the trade liberalization scheme, even if the tariff is omitted and the marketing cost is lowered, the domestic rice price does not necessarily decrease if the world price decreases.

The domestic rice price will decrease only if the decrease is much higher compared to the depreciation of the domestic currency exchange rate (in the case of Indonesia, Indonesian *rupiah* versus US dollar). This is what happened in Indonesia where in spite of world rice price declines, the domestic rice price continues to hike.

In contrast, the domestic rice price at the farm level is decreasing rapidly due to the high flow of rice import. The rice price at farm level was often much lower compared to the government floor rice price. For example, in 2004 there were more than 1,000 cases of the falling of rice prices at the farm level below the government floor price in all three seasons: main harvesting season, secondary harvesting season and lean seasons.

The abolition of production input subsidies as regulated by the trade liberalization agreement under the WTO-AoA has also hampered the economic condition of farmer households. The production costs increased while the income decreased. This has discouraged farmers from maximizing their rice productivity even though they were also reluctant to switch to growing other crops.

Regarding the impact of rice trade liberalization on food security, the empirical evidence shows that Indonesian dependency for fulfilling the rice supply by domestic rice production is still high, more than 90 per cent, despite the high flow of rice import after the implementation of rice trade liberalization in 1998. Rice trade liberalization indeed helped Indonesia to fulfil the gap between domestic rice productions that decreased in 1998-1999 to the increasing demands. However, if the high flow of rice import continues to grow, it will

endangered the food security condition in Indonesia since the international market, very thin and distorted, is not a reliable source to maintain food security in Indonesia.

In the case of rice accessibility after the implementation of rice market liberalization, it, too, was not improved, if could not be said declining. This is because of the impact of trade liberalization to farmer households has increased the number of poor households at the rural area where most of them depend on farming for living.

BIBLIOGRAPHY

Books and Journals

Amang, Bedu and Husein Sawit (2001). *Kebijakan Beras dan Pangan Nasional: Pelajaran dari Orde Baru dan Orde Reformasi* (National Rice and Food Policy: Lessons from the New Order and the Reformation Order). 2nd Edition. Bogor: IPB Press.

Arifin, B. (2004). *Analisis Ekonomi Pertanian Indonesia* (Analysis of Indonesian Agriculture Economy. Jakarta: Penerbit Buku Kompas.

_____ (2003). *Dekomposisi Pertumbuhan Pertanian Indonesia* (Decomposition of Indonesian Agricultural Growth). Paper presented at the Special Seminar of Centre for Agro-Socio Economic Research/CASER, Bogor, November 14, 2003.

Ariningsih, E., & Rachman, H. P. (2008). *Strategi Peningkatan Ketahanan Pangan Rumah Tangga Rawan Pangan* (Food Security Improvement Strategy of Food Insecure Households). *Agricultural Policy Analysis* , 239 - 255.

Azahari, D. H. (2008). *Membangun Kemandirian Pangan dalam Rangka Meningkatkan Ketahanan Nasional* (Building Food Independency to Improve the National Food Security). *Agricultural Policy Analysis Vol. 6 No. 2* , 174-195.

Baharsjah et al. (1989). *Trade Policy, Self-Sufficiency and Liberalization in the Indonesian Food Economy.* International Association of Agricultural Economists.

Braun, V.J., Bouis, H., Kumar, S. and Lorch, L.P. (1992) Improving Food Security of the Poor: Concepts, Policy and Programmes. Washington, D.C.: International Food Policy Research Institute.

Christianto, L. (1997). Potensi dan Kendala Sumberdaya Tanah Menunjang Produksi Pertanian di Indonesia. Proceeding 6th National Symposium and Congress Peragi, 65-85. Perhimpunan Agronomi Indonesia.

Cramer, G. L., Wailes, E. J., & Shui, S. (1993). Impacts of Liberalizing Trade in the World Rice Market. *American Journal of Agricultural Economy Vol. 75*, 219-226.

Darwanto, D. (2005). *Ketahanan Pangan Berbasis Produksi dan Kesejahteraan Petani* (Food Security based on Production and Prosperity of Farmers). *Ilmu Pertanian Vol. 12 No. 2*, 152-164.

Das, Bhagirath Lal (1998). Introduction to the WTO Agreements. Penang: Third World Network.

Dawe, D. (2008). Can Indonesia Trust the World Rice Market? *Bulletin of Indonesian Economic Studies Vol. 44 No. 1* , 115-132.

Dawe, D. (2002). The Changing Structure og the World Rice Market, 1950-2000. *Food Policy Vol. 27* , 355-370.

Dillon, H. (1999). Trade and Food Security: The Case of Indonesia. *Building Trust in the Agro-Food System.* Florence.

Dorosh, P. A. (2008). Food Price Stabilisation and Food Security: International Experience. *Bulletin of Indonesian Economic Studies Vo. 44 No. 1* , 93-114.

Drèze J. and Sen, A.K. (eds.). (1990). *The Political Economy of Hunger.* 3 volumes, Oxford University Press.

Drèze J. and Sen, A.K. (1989). *Hunger and Public Action.* Oxford University Press.

Erwidodo and Pribadi, N. (2004). Permintaan dan Produksi Beras Nasional: Defisit atau Surplus?. In Ekonomi Padi dan Beras Indonesia (Ed. Kasryno, F., Pasandaran, E., and Fagi, A.M.). Jakarta: Badan Litbang Pertanian.

Erwidodo (1999). Effects of Trade Liberalization on Agriculture in Indonesia: Institutional and Structural Aspects. Working Paper No. 41. The CGPRT Center.

Erwidodo et al. (1996). *Ketahanan Pangan Era Pasar Bebas* (Food Security in Free Market Era). Jakarta: Badan Penelitian dan Pengembangan Pertanian Departemen Pertanian RI.

Falcon, W., & Monke, E. (1979-80). International Trade in Rice. *Food Research Institute Studies Vol. 17 No. 3* , 271-306.

Fane, G., & Peter, W. (2008). Agricultural Protection in Indonesia. *Bulletin of Indonesian Economic Studies Vol. 44 No.1* , 133-150.

Foster, P. (1992) the World Food Problem: Tackling the Causes of Under Nutrition in the Third World. Boulder, Colorado, USA: Lynne Reiner Publisher.

Gulati, A., & Narayanan, S. (2002). Rice Trade Liberalisation and Poverty. *Economic and Political Weekly* , 5237-5243.

Haddad, L. (1997). *Achieving Food Security in Southern Africa: Challenges, New Opportunities*. Washington, D.C.: International Food Policy Research Institute.

Hadi, P. U. (2003). Marketing Policy to Improve Competitiveness of Agricultural Commodities Facing Trade Liberalization. *Agricultural Policy Analysis Vol. 1 No. 2* , 143-151.

Haryati, J., & Aji, J. M. (2005). Indonesian Rice Supply Performance in the Trade of Liberalization Era . *The Indonesian Rice Conference 2005.* Tabanan, Bali.

Ingco, M., & Nash, J. D. (2004). *Agriculture and the WTO: Creating a Trading System for Development.* Washington DC: The World Bank.

Istiqomah, M. Zeller, Stephan von Cramon-Taubadel. (2005). Volatility and Integration of Rice market in Java, Indonesia: A Comparative Analysis Before and After Trade Liberalization. Conference on International Agriculturral Research for Development.

Jamhari. (2004). Rice Market Liberalization and Price Stability in Indonesia. *Tohoku Journal of Agricultural Research Vol. 54 No. 3-4* , 23-36.

Maxwell, S. and Frankenberger (1992). *Household Food Security: Concepts, Indicators, Measurements: A Technical Review*. New York: UNICEF-IFAD.

Monke, E., & Pearson, S. (1991). The International Market. In S. Pearson, W. Falcon, P. Heytens, E. Monke, & R. Naylor, *Rice Policy in Indonesia* (pp. 22-37). Itacha NY: Cornell University Press.

Munarso et al. (1998). Tinjauan tentang Rendemen Beras Giling: Evaluasi Mutu dan Rendemen Beras Giling di Tingkat Petani. Sukamandi: Balai Penelitian Tanaman Padi.

Naibaho, S. (2007). *Analisis Dampak Impor Beras terhadap Keragaan Beras Indonesia* (Analysis of the Impact of Rice Import on Rice Supply in Indonesia). Bogor: Institut Pertanian Bogor.

Nainggolan, K. (2008). *Ketahanan dan Stabilitas Pasokan, Permintaan dan Harga Komoditas Pangan* (The Security and Stability of Food Comodity Supply, Demand and Price). *Agricultural Policy Analysis* , 114-139.

Nugraha et al. (1998). Tinjauan tentang Rendemen Beras Giling dan Susut Pasca Panen: Masalah Sekitar Rendemen Beras Giling, Susut dan Pemecahannya. Sukamandi: Balai Penelitian Tanaman Padi.

Oktaviani, R., & Drynan, R. G. (2000). The Impact of APEC Trade Liberalisation on the Indonesian Economy and Agricultural Sector. *Third Annual Conference on Global Analysis.* Melbourne.

Oxfam (2005). *Truth or Consequences: Why the EU and the USA Must Reform Their Subsidies, or Pay the Price.* Oxfam Briefing Paper No. 18. Oxfam International.

Paasch, A., Garbers, F., & Hrisch, T. (2007). *The Policies and Hunger: The Impact of Trade Liberalisation on the Right to Food of Rice Farming Communities in Ghana, Honduras and Indonesia.* Geneva: Ecumenical Advocacy Alliance.

Pakpahan, A, Hermanto and H. Sawit (1995). *Kemiskinan di Pedesaan: Masalah dan Alternatif Penanggulangannya* (Poverty in Rural Area: Problems and Alternative Solutions). Bogor: Centre for Agro-Socio Economic Research.

Pearson, S., Naylor, R., & Falcon, W. (1991). Recent Policy Influences on Rice Production. In S. Pearson, W. Falcon, H. P., E. Monke, & R. Naylor, *Rice Policy in Indonesia* (pp. 8-21). Itacha: Cornell University Press.

Pranolo, T. (2002). *Pangan, Ketahanan Pangan dan Liberalisasi Perdagangan* (Food, Food Security, and Trade Liberalization) in A. Suryana and S. Mardianto (eds.). *Bunga Rampai Ekonomi Beras.* LPEM-University of Indonesia.

Pratiwi, P. (2008). *Efektivitas dan Perumusan Strategi Kebijakan Beras Nasional.* Bogor: Institut Pertanian Bogor.

Ravallion, Martin. (1997). Can High-Inequality Developing Countries Escape Absolute Poverty. *Economic Letters Vol. 56(1).* 51-57.

Reimer, J. J. (2002). *Estimating the Poverty Impacts of Trade Liberalization.* Washington DC: The World Bank Development Research Group.

Rini, A. (2007). *Penawaran Beras Dunia dan Permintaan Impor Beras Indonesia serta Kebijakan Perberasan di Indonesia* (World Rice Supply and

Indonesian Rice Import Demand and Rice Policy in Indonesia). Bogor: Institut Pertanian Bogor.

Rosegrant, M. (1989). *Impact of Trade Liberalization on Indonesian Food Crops.* International Association of Agricultural Economist.

Rosner, P. L., & McCulloch, N. (2008). A Note on Rice Production, Consumption and Import Data in Indonesia. *Bulletin of Indonesian Economic Studies Vol. 44 No.1* , 81-91.

Rusastra, I., Thompson, G., Bottema, J. T., & Baldwin, R. (2008). *Food Security and Poverty in the Era of Decentralization in Indonesia.* Bogor: UNESCAP and Ministry of Agriculture of Indonesia.

Rusastra, I Wayan dan Gelar S. Budhi. (1997). Keragaan Konversi Lahan Pertanian dan Strategi Antisipatif dalam Penanggulangannya (Agricultural Land Conversion and Anticipation Strategy to Overcome It). *In*: A. Suryana, T. Sudaryanto, dan S. Mardianto. 1997. Kebijaksanaan Pembangunan Pertanian: Analsis Kebijaksanaan Antisipatif dan Responsif (Agriculture Development Policy: Analysis of Anticipative anfd Responsive Policy). Monograph Series 17. Bogor: PSE.

Saliem, H. P., Mardianto, S., & Simatupang, P. (2003). Perkembangan dan Prospek Kemandirian Pangan Nasional. *Agricultural Policy Analysis Vo. 1 No. 2* , 123-142.

Saliem, H., Suhartini, S., Purwoto, A., & Hardono, G. (2003). *Dampak Liberalisasi Perdagangan terhadap Kinerja Ketahanan Pangan Nasional.* Jakarta: Department of Agriculture of Indonesia.

Sawit, M. H. (2008). Perubahan Perdagangan Pangan Global dan Putaran Doha WTO: Implikasi Buat Indonesia. *Agricultural Policy Analysis Vol. 6 No. 3* , 199 - 221.

_____ (2007). *Indonesia dalam Tatanan Perubahan Perdagangan Beras Dunia* (Indonesia in the Change of World Rice Trade Order). Electronic Publication.

_____ (2001). *International Rice Trade and Deregulation of Rice Policy in the Exporter Countries and Indonesia.* Paper presented at the Round Table of Food Policy held by Graduate School of Agribusiness Management, Gadjah Mada University, Yogyakarta, March 30-31, 2001.

Sawit, M. H. and E. M. Lokollo. (2007). Rice import surge in Indonesia. *In Action Aid International and Indonesian Centre for Agriculture Socio Economic and Policy Studies.* Indonesia

Sawit, MH and Rusastra, I.W. (2005). Globalisasi dan Ketahanan Pangan di Indonesia (Globalization and Food Security in Indonesia). Part of Research Report: "Road Map" Memperkuat Kembali Ketahanan Pangan (Road Map to Re-Strengthened Food Security). Jakarta: Lembaga Penyelidikan Ekonomi dan Masyarakat (LPEM), Fakultas Ekonomi, UI.

Sen, Amartya (1999). *Development as Freedom.* New York: Anchor Books.

_____ (1982). *Poverty and Famine: An Essay on Entitlements and Deprivation*, Oxford: Clarendon Press.

_____ (1981). *Levels of Poverty, Policy and Change.* World Bank Staff Working Paper No. 401.

Siamwala, A., & Haykin, S. (1983). *The World Rice Market: Structure, Conduct and Performance.* Washington DC: International Food Policy Research Institute.

Sidik M. (2004). Indonesia Rice Policy in View of Trade Liberalization. *FAO Rice Conference 2004.* Rome, Italy: FAO.

Simatupang, P. (2001). Food Security: Basic Concepts and Measurement in Food Security in Southwest Pacific Island Countries. CGPRT Center Works Towards Enhanching Sustainable Agriculture and Reducing Poverty in Asia and The Pacific

Simatupang, P. (1999). *Toward Sustainable Food Security: The Need for a New Paradigm.* International Seminar: Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions, 17-18 February 1999. Bogor: ICASERD.

Simatupang, P. and Timmer, C.P. (2008). Indonesian Rice Production: An Assessment of Recent Trends in Productivity Growth. *Bulletin of Indonesian Economic Studies Vol. 44 No. 1*, 65-80.

Simatupang, P dan N. Syafaat. (1999). *Analisis Penyebab Anjloknya Harga Komoditas Pertanian selama Semester-1 1999* (Analysis of the Cause of Agriculture Comodity Price Decline during 1st Semester 1999). Bogor: CASER.

Sitepu, R. K.-K. (2002). *Dampak Kebijakan Ekonomi dan Liberalisasi Perdagangan terhadap Penawaran dan Permintaan Beras di Indonesia* (The Impact of Economic and Trade Liberalization Policy on Rice Supply and Demand in Indonesia). Bogor: Institut Pertanian Bogor.

Soeparmoko. (2002). The Impact of the WTO Agreement on Agriculture in the Rice Sector. *Integrated Assessment of the WTO on Agriculture in the Rice Sector*. Geneva: UNEP.

Soekirman (2000). *Beberapa Catatan Mengenai Konsep Ketahanan Pangan* (Notes on the Concept of Food Security). Paper Presented at the Round Table of Food Security, Food Security Board, Jakarta, 26 June 2000.

Sofyan, A., Nurjaya, and Kasno, A. (2004). Status Hara Tanah Sawah untuk Rekomendasi Pemupukan. In Tanah Sawah dan Teknologi Pengelolaannya. Bogor: Pusat Penelitian dan Pengembangan Tanah dan Agroklimat.

Stringer, Randy (2001). Food Security in Developing Countries. In B.N. Gosh, *Contemporary Issues in Developing Economic* (pp.70-104) . New York: Routledge

Swastika, D. K., & Nuryanti, S. (2006). The Implementation of Trade Liberalization in Indonesia. *Agricultural Policy Analysis Vol. 4 No. 4* , 257-267.

Timmer, C. P. (2004). *Food Security in Indonesia: Current Challenges and the Long-Run Outlook.* Center for Global Development.

_____ (2002). Food Security and Rice Policy in Indonesia: The Economics and Politics of the Food Price Dillema. *Indonesian Food Policy Program* , 1-17.

_____ (1997). Building Efficiency in Agricultural Marketing: The Long Run Role of BULOG in the Indonesian Food Economy. *Journal of International Development* Vol. 9 No.1, 133-145.

Timmer, C.P., Falcon, W.D., and Pearson, S.R. (1983). *Food Policy Analysis.* Baltimore, MD: The World Bank/John Hopkins University Press.

Tjahjohutomo, R. Et al. (2004). Pengaruh Konfigurasi Penggilingan Padi Rakyat terhadap Rendemen dan Mutu Beras Giling. Serpong: Balai Besar Pengembangan Mekanisasi Peratanian.

UNEP (2005). Integrated Assessment of the Impact of Trade Liberalization: A Country Studyon the Indonesian Rice Sector. Geneva: UNEP.

Wailes, E. J. (2004). Rice: Global Trade, Protectionist Policies and the Impact of Trade Liberalization. In M. Aksoy, & J. Beghin, *Global Agricultural Trade and Developing Countries* (pp. 177-193). Washington DC: The World Bank.

Winoto, J., & Siregar, H. (2008). Agricultural Development in Indonesia: Current Problems, Issues and Policies. *Agricultural Policy Analysis Vol. 6 No. 1* , 11-36.

Statistical Data

BULOG, www.bulog.go.id

CBS, www.bps.go.id

USDA, www.usda.gov