

**THE IMPACT OF THE WTO AGREEMENT ON AGRICULTURE  
IN  
THE RICE SECTOR<sup>1</sup>**

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## **1. Introduction**

### **a. The role of WTO in trade and development**

This part of the paper will deal with the role of WTO in trade and development of the world economy, and specifically the content of the agricultural agreement on agriculture and its impact on the agricultural economy of Indonesia. Most of us have already known that the aim of the WTO policies is to make the world to have free trade. The organization contents that free trade is the most effective ways to carry out development to improve the human welfare. With free trade production and consumption will move to efficiency points. The production will have the lowest cost and the consumption will face the cheapest price and for each individual in the world. Hence, free trade will be able to move factors of production into the most efficient production system and enjoy the highest price, while the output of the production activities will increase and reach the most efficient point with the lowest price for the consumers.

However, while trade has been understood as an engine of growth, it does not mean that free trade does not carry with it any problem, especially for the developing countries. Although the trade regulation does not prohibit the developing countries to export their products to the developed countries; but in practice many developing countries do not have enough capacities to produce and to fulfill the developed countries markets due to many reasons. Among the many reasons is that the developing countries lack of efficient technology and skills. These factors result in a high cost of production in the domestic market as well as in the world markets. Furthermore, most developing countries are producing similar products among themselves and even similar with the products produced by the developed countries where technologies are better developed and efficient. Consequently the developing countries output prices become more expensive than those of the developed countries. Besides that, the qualities of the outputs are also better for the developed countries compared with those for the developing countries. As a final result, demands for the domestic products in the developing countries become lower relative to the demand for the developed countries' commodities. This high competition of the two kinds of product will hit the domestic production activities of the developing countries, and may cause a high level of unemployment and reduce the income level of the people. This is in fact the tragedy of the free trade for the developing countries. Without any trade barriers, it seems that the developing countries will suffer from high competition. Due to the extremely low capacity and technology resulted from the high intensity of poverty in the region; therefore they will never have any capacity for free competition. They loose their fight against the developed countries, especially because the rule or regulation is developed in favor of the developed countries. The end result is a good one in theory, but in practice the process toward the gains from trade is painful for the developing countries, since they do not have strong capacities and technology as well.

### **b. The WTO agreement on agriculture**

The WTO agreements on agriculture tend to abolish tariffs and subsidies both at the cultivation and trade sectors. Indonesia has been long time to be a net importer of rice due to a rice shortage in production in the country. Therefore the government applies a very low level of tariff duties and even has abolished tariff for rice imports. As a result of this policy was a big flood of imported rice in the Indonesia's market. The price of the imported rice was much cheaper than the price of the domestically produced rice. The domestic rice farmers suffer from a heavy competition and lose some incomes. Then farmers become reluctant to plant rice.

The introduction of the WTO agreement on agriculture in fact has caused Indonesia suffers from double attacks in the field of rice production, because the trade agreement prohibit the adoption of high import tariffs and was accompanied with the abolition of input subsidies in the agricultural sector namely for paddy (rice) production.

## **2. The Role of Rice in the Indonesian Economy**

### **a. The share of agriculture in the Indonesian economy**

Within more than twenty years (1975 –1996) the Indonesian economy has transformed from an agrarian type into an industrial type economies. In 1975 agriculture contributed 30.2% to GDP which was almost equal to other sector's contribution to the GDP, i.e. industry 33.5% and services 36.3%. From year to year the role of agriculture had been declining and in 1996 its role had reached to a point of only 15.4%, while the industrial sector's share to GDP increased to 40.0% and the service sector reached 44.6%. However, from the employment point of view, in 1996 agriculture still provided 46.0% of employment for the Indonesian labor force and the other sectors shared 54% of the total employment. (See Table 1).

### **b. The social and economic functions of rice**

Since rice is the staple food for most of the Indonesian people and has become a strategic commodity, the Government of Indonesia has decided to guarantee as

wise as possible the availability of rice for the people at all time and at cheap prices.

Before the reformation era (prior to 1998), rice price was always maintained stable at low prices by the government logistic agency (BULOG) by implementing a buffer stock policy. In fact the government applied a negative rice price policy by maintaining the price of rice low to gain a momentum for development. The non agricultural laborers, the civilian workers, the students, and the army as well, have been all protected from the high rice prices, while farmers have been sacrificed to accept low prices of rice for the sake of development purposes, although they were given production inputs subsidies. During the harvest season, BULOG purchased the rice produced by the farmers to protect them from the declining price of rice, and the BULOG built the rice stock during the harvest season. On the other hand, during the dry season where the rice production usually becomes lower, BULOG sold the rice stock to the market to protect consumers from the high rice prices.

The reason why the price of rice was maintained low and stable was to curb the inflation rate which was very high during the 1960's -1970's (600% in per year in 1966). It was seen very true that the price of rice acted as a price barometer in Indonesia during the 1960's to 1970's. When the rice price increased other prices followed.

Furthermore rice was having a psychological influence on the people because rice is the staple food for most of the people of Indonesia and can guarantee the minimum life of the people. The people were mostly happy enough when their needs of staple food as calorie sources were fulfilled. In fact it indicates that the people is still at a very low level of living. This condition is also applicable to the present time. The people's need priority and expenses are still for foods and other basic necessities. Therefore, again rice is still very important commodity in the Indonesian economy, and has to be given high priority in the provision of consumer needs in Indonesia.

It must not be forgotten that most Indonesian rice farmers are operating very small sizes of paddy fields, therefore it indicates that their incomes from the rice farming are low in average around US\$ 50 to US\$ 70 per capita per year.<sup>3</sup> Most of them do not have any additional or side jobs. Hence the existence of the rice farming is very important for the Indonesian rice farmers. Furthermore Indonesian rice farmers are traditional farmers, they work as farmers because of the tradition and inheritance in the family, and not because it is profitable, but more due to the lack of knowledge for any other alternative job opportunities.

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<sup>3</sup> H.S. Dillon, M. Husein Sawit, Pantjar Simatuang, and Steven R. Tabor, "Rice Policy: A Framework for the Next Millennium", *Report for Internal Review Only*, Prepared Under Contract to Bulog, Nov. 23, 1999.pp.

### **c. Government policies in rice production**

In fact it has been several decades (since 1960's) that the Indonesian farmers enjoyed the input subsidies in the rice production. The policy was to encourage farmers to plant rice to increase rice production to meet the increasing demand of rice in the country. A specific agricultural scheme of input subsidies was introduced such as the provision of high yielding rice varieties which requires a lot of chemical fertilizer, insecticides, irrigation water; and other agricultural extension services. Until the 1980's the government provided heavy subsidies for fertilizer in order to ensure the use of fertilizer by the farmers. The government has heavily subsidized fertilizer, insecticides and farmer credits to stimulate rice production. However, in the mid 1980's insecticide subsidies were eliminated and imports of a number of insecticides were restricted. In the early 1990's integrated pest management programs were introduced in Java. The impact of the abolition of insecticide subsidies and the adoption of integrated pest management techniques was a decline in the application of chemical insecticides in the irrigated rice areas.

Fertilizer subsidies were significantly reduced in late 1990's and had almost been eliminated by 1997. By late 1980's average fertilizer applications in rice were found well above technical recommendations. It is known that a long application of over use fertilizer would contribute to a long decline in soil fertility. Also, heavy subsidization of chemical fertilizers was found to discourage effective fertilizer use. A lot of fertilizer was wasted and sustainable soil and water resource management practices were discouraged.

In 1998 when domestic rice production dropped, heavy fertilizer subsidies were applied again in an attempt to stimulate rice production. The subsidies were given to food crop producers. But since the price of fertilizer were set lower than the export prices, fertilizer quickly disappeared from the domestic market. Traders built up fertilizer stocks and even though exports were banned, smuggling of fertilizer was common. The results, in November 1998 fertilizer subsidies were rather abruptly eliminated.

In 1998/99 the volume of credit subsidies was increased tremendously, but a significant amount of the credit was diverted to non-agricultural uses and many individuals other than farmers received subsidized credit. The program of subsidized credit suffered from a number of problems, among others were very low rate of credit repayment and had created opportunities for corruption practices.

### 3. Indonesia's Trade Policies for Rice

Beginning of 1998, rice imports in Indonesia were liberalized and it caused Indonesia to be more dependent on rice imports. Even during the main harvest season, rice imports were so high although ironically a substantial portion of rice smuggled abroad accompanied it. Rice imports became more than doubled after the liberalization compared to the years before it. (See Tables 2 and 3.) Between 1995-97, average rice import was 1,5 million tons and increased to an average of 3.3 million ton during 1998-2001. Rice imports were highest in 1998 and 1999 right after the trade liberalization. The trade liberalization in Indonesia happened right after the economic crisis of the country. To recover from its economic crisis, Indonesia has followed the advices recommended by the IMF and the World Bank because of the heavy debt burden held by Indonesia. Pressures by the IMF and the World Bank to open the Indonesian markets had contributed more to the liberalization efforts. The international rice market was opened to free trade, especially during September 1998 to September 1999. The Government of Indonesia signed a letter of intent with IMF in September 1998, where the Government of Indonesia agreed to limit import tariffs on all foodstuffs to no more than 5 per cent. In addition, the shift to free trade in rice was taken in reaction to the doubling of domestic rice prices between April and August 1998, while domestic supply of rice was low, and there was a soaring fiscal costs of rice subsidies, and the breakdown of commercial trade finance facilities.<sup>4</sup>

The increase in the rate of dependency for rice supply on imports could create economic and political problems in Indonesia. First of all high import dependence may erode the rice producer incomes and discourage farmers as well as the government from investing in measures aimed at improving the productivity of rice. Figures on rice production looked high and stable in 1999 –2001 because of the increases in rice yield per hectare as well as the total area harvested. The average rice yield of 4.40 ton/Ha is considered high enough for the Asian region. (See Table 4). Since rice has strong backward and forward linkages in the economy, a rising import dependence will have adverse effects that extend beyond rice production, and will affect the rural based economic activities in the urban sectors of the economy.

The trade liberalization has increased the import dependence for rice and affected the rice production in Indonesia. The impact is felt through the price of rice which became much cheaper after the trade liberalization of rice. The prices of imported rice were much lower than those of the domestic produced rice. (Look at Table 5). Due the the heavy stockpile of rice in the rice producing countries, the costs of holding the rice stock became large, and have caused the rice producing and exporting countries to dump their rice into the world market. This action had caused the rice importing countries facing a very low price of rice. On one thing it was good for the urban rice consumers and the rural net rice consumers. But on the other hand the low price of imported rice had caused the domestic rice producers suffered from a big loss because of the higher costs and prices of domestically produced rice relative to the imported rice. The majority of Indonesian rice

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<sup>4</sup> H.s. Dillon, M. Husein Sawit, Pantjar Simatupang, and Steven R. Tabor, "Rice Policy: A Framework for the Next Millennium, *Report for the Internal Review to BULOG*, pp.29.

producers are poor and operating on average of less than 0,5 Ha of rice fields. The low price of rice will heavily hit them and causes them not able to afford their family's costs of living. However, due to a suitable good weather, the rice production in 1998 – 2001 about stable at an average of 31.6 million tons which was lower than the average of rice production in the period of 1995-97. (See again Table 3). The rice production is forecasted to be lower again in 2002 because of big flood during the year of 2002.

Hence it appears that trade liberalization for rice in Indonesia may bring with it an import dependence and turns down the domestic rice production which accommodate a large parts of the Indonesian poor group of farmers. I believe the Indonesian politicians and the government as well will reconsider the adoption of trade liberalization of rice, since the free trade will cause a falling rice prices which heavily hurts the poor rice farmers. Moreover full reliance on import of rice will be very dangerous for food security of the country and for political stability as well.

#### **4. The Rice Economy and the Natural Environment**

Rice crop is commonly planted in the flat land, although in some places it is planted at the terraced land. The impact of the rice farming on the land quality depends more on the intensity of modern technology such as the application of chemical fertilities and the ample used of irrigation water, so it is not really always depleting the nutrient of the land. In fact rice farming may reduce flood and erosion, improves the quality of deep well water, and lower the temperature of tropical areas, even though the continuous use of fertilizers and insecticides may decrease the quality of water and land in the affected areas.<sup>5</sup>

In the period of 1970's through the 1980's there was a green revolution in Asian agriculture including Indonesia. Rice production increased very rapidly due to the introduction of modern technology, namely the high yielding varieties of rice, chemical fertilizer and insecticides, intensive application of irrigation water, extension services and better marketing and agricultural credit systems.

As a result, the green revolution besides increasing the rice production, it has intensified the use of agricultural land resources and chemical fertilizers and has caused a decrease in the land quality. The land fertility declined and grass hoppers and other insects appeared and spread over the agricultural region. The spread of insects and grasshoppers

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<sup>5</sup> Rozany Nurmanaf, Mayriwani and Jamal as quoted by Tabor, et.al., have computed the value of the multi-function benefits of rice production in Java. They found out that rice crops provide annual flood protection and erosion control benefits equivalent to US \$ 20,000 to US \$ 30,000 per village. Moreover, farmers expected to have a rise in ambient temperature, greater flood and erosion risk, less social contact between farmers in the villages, reduce contact between the villagers and non-villagers, a higher risk of hunger for the poor farmers, when there is a conversion of land out of rice crops. See Steven R. Tabor, M. Husein Sawit and H.S. Dillon., "Indonesian Rice Policy and the Chice of a Trade Regime for Rice in Indonesia," *Report Prepared for a Roundtable Workshop*, INDEF, March 11, 2002,

had dropped the Indonesian rice production and caused a gap between the rice demand and supply became wider in the 1990's.

Together with poor management of the agricultural sector infrastructures (dams, irrigation canals, and even inspection roads), lacked of agricultural researches and poor trade policies, have placed Indonesia into a large importing country of rice.

Hence, it is clear that the impact of rice plantation on the environment will depend on the level of technological use. The more chemical fertilizer and insecticides together with the high yielding varieties used for the rice plantation, the worse the quality of the environment will be. So to maintain the environmental quality in the agricultural sector seems to be difficult, unless the agricultural system is turned back to nature; the application of new chemical technologies will reduce the quality of water, land, and even air. Thus, on one side, if we reverse the practice of agricultural plantation for rice as a result of adjustment to the WTO agreement on agriculture, the impact of it will be an improvement of the natural environment. But on the other side, without any application of modern chemical technologies of fertilizer and insecticides, the rice production of Indonesia will be very low, and it will not be good for the food security and the political stability. Furthermore, the country must have a strong foreign exchange reserve to import rice from abroad, whereas Indonesia is under a very difficult position concerning the foreign exchange.

At present, Indonesia on the one hand has been importing a big amount of agricultural products, such as rice from America, Thailand, Japan, Vietnam, and Myanmar; soybeans are imported also from the USA; sugar, fruits, meats, and other dairy products from USA, Australia, Thailand, and China. On the other hand Indonesian exports are mostly limited to the extractive commodities, such as oil, coal, and timber. This means in the long run Indonesia will deplete its natural resources much more quickly, because this is the main source of foreign exchange for import payment as well as for foreign debt repayment.

Consequently, the impact of WTO agreement on agriculture in the rice sector may decrease the rice production of Indonesia, but may improve the quality of the environment due to the changes in the agricultural and rice production practices. To maintain the rice production and natural environment quality, farmers are stipulated to work more efficiently. However, the improvement of the environmental quality will be balanced by the depletion of the natural resources such as oil and timber which may reduce the speed of the economic development of the country due to the reallocation of resources and the environment quality might also be worsened. When the standard of living of the people is not improving, it might be expected that the quality of the environment might also be worse because attention will be directed more on the provision of basic necessities and less on the environment. The people are willing to take poorer environmental quality and shorten their life expectancy for the sake of having basic necessities. Good environmental quality becomes a very luxurious commodity.

## **5. Conclusion**

The role of agriculture in gross domestic product has been declining since 1975 and has become less dominant by the end of 20th century and early of 21st century. The economic crisis of 1978 – 1979 has brought a pressure for economic and trade liberalization as suggested by the IMF and the World Bank to the Government of Indonesia. Trade liberalization on agricultural products including rice has resulted in a big flow of foreign agricultural products including rice into the Indonesian market. The free liberalization argument is to bring all cheap products to the most poor groups in the country and encourage the local producers to produce with more efficient ways, but on the other sides there are other groups got hit by this policy.

Most Indonesian farmers are small farmers. The imported cheap rice competed the local rice, and caused the local rice producers (farmers) to suffer from a very low price of rice. They lost their incomes and incentives to plant rice but had very little alternatives or choices. In other words, they needed government protection.

The disappearance of rice crops in Indonesia, besides creating problems for life and employment of a large number of poor people in the villages, will also develop social, political, and environmental problems. Of course the size of benefits and costs of rice crops will depend on the adoption agricultural technology and it is known that its backward and fore ward linkages are known very large.

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**Table 1: Agricultural Share of Indonesia's GDP , 1975 – 1996**

<b>Year</b>	<b>1975</b>	<b>1985</b>	<b>1995</b>	<b>1996</b>
<b>Sectoral share % GDP:</b>				
Agriculture	30.2	23.2	16.2	15.4
Industry	33.5	35.9	39.1	40.0
Services	36.3	40.9	44.7	44.6
<b>Share of total employment (%):</b>				
Agriculture	62	56	48	46
Other Sectors	38	44	52	54

Source: Central Bureau of Statistics

**Table 2: Rice Production, Import, Export, and Per capita Production and Availability**

<b>Year</b>	<b>Production (1000 ton)</b>	<b>Import (1000 ton)</b>	<b>Export (1000 ton)</b>	<b>Population (1000 )</b>	<b>Per capita production (kg/capita)*)</b>
1983	24,006	1,154	-	155,469	138.97
1984	25,932	375	11	158,531	147.22
1985	26,542	-	407	161,655	147.77
1986	27,014	-	241	164,839	147.49
1987	27,253	120	119	168,086	145.92
1988	28,340	-	20	171,398	148.81
1989	29,072	464	155	177,362	147.52
1990	29,366	29	3	179,829	146.97
1991	29,047	178	-	182,940	142.90
1992	31,356	634	73	186,043	151.69
1993	31,318	-	494	189,136	149.02
1994	30,317	876	233	192,217	141.95
1995	32,334	3,014	-	195,283	149.02
1996	33,216	1,090	-	198,343	150.72
1997	31,206	407	-	201,390	139.46
1998	31,118	5,783	-	204,393	137.02
1999	31,294	2,851	-	207,437	135.77

\*) The volume of rice used for seed, feed and waste have been deducted from the production figure.

Source: Central Bureau of Statistics and BULOG.

**Table 3: Rice Production and Imports, 1995 – 2001**

<b>Year</b>	<b>Production (1000 tons)</b>	<b>Imports (1000 tons)</b>
1995	32,334	3,104
1996	33,216	1,090
1997	31,206	406
1998	31,118	6,077
1999	32,148	4,183
2000	32,040	1,512
2001	31,341	1,384
Average:		
1995 -1997	32,252	1,503
1998 -2001	31,661	3,289

Source: Central Bureau of Statistics, Jakarta

**Table 4: Rice Production, Area Harvested, and Productivity, 1990 – 2001**

<b>Year</b>	<b>Production (ton)</b>	<b>Area harvested (Ha)</b>	<b>Productivity (ton/Ha)</b>
1990	45,178,751	10,502,357	4.30
1995	49,744,140	11,438,764	4.35
1996	51,101,506	11,569,729	4.42
1997	49,377,054	11,140,574	4.43
1998	49,236,692	11,730,325	4.20
1999	50,866,387	11,963,204	4.25
2000	51,898,852	11,793,475	4.40
2001	49,590,342	11,332,128	4.40
Average:			
1995-97	50,074,233	11,383,002	4.40
1998-01	50,398,068	11,704,783	4.31

Source: Central Bureau of Statistics, Jakarta.

**Table 5: Imported Rice Price and Rice Price at Local Market of Jakarta,  
January 2000 – October 2001**

<b>Month</b>	<b>FOB Bangkok (US \$/ton)</b>	<b>FOB Price (Rp/Kg)</b>	<b>CIF Price (Rp/Kg)</b>	<b>Local Market Jakarta (RP/Kg)</b>
<b><u>2000:</u></b>				
Jan	202.5	1,502	1,651.88	2,250
Feb	202.00	1,516	1,667.61	2,229
Mar	187.50	1,423	1,565.44	1,929
Apr	179.75	1,428	1,570.93	1,864
May	171.00	1,474	1,621.42	1,906
Jun	166.50	1,454	1,599.82	2,010
Jul	167.00	1,504	1,6531.815	2,000
Aug	164.50	1,364	1,500.08	1,977
Spt	161.00	1,414	1,554.94	1,863
Oct	161.00	1,513	1,663.85	1,800
Nov	162.00	1,544	1,698.25	1,800
Dec	158.25	1,518	1,670.25	1,800
<b><u>2001:</u></b>				
Jan	158.00	1,482	1,629.90	1,889
Feb	153.50	1,479	1,626.66	2,070
Mar	146.25	1,490	1,639.19	1,994
Apr	139.00	1,539	1,693.33	1,950
May	141.75	1,601	1,760.75	1,998
Jun	148.50	1,677	1,844.92	2,000
Jul	152.40	1,659	1,824.52	2,038
Aug	153.00	1,371	1,507.68	2,075
Sept	160.50	1,491	1,639.81	2,131
Oct	159.25	1,606	1,766.09	2,262

**Source: BULOG**

**Table 6: Rice Import by BULOG and Private Sector  
January 1998 – September 1999 (in Tons)**

Month	1998			1999		
	Bulog	Private	Total	Bulog	Private	Total
Jan	399,800	0	399,800	445,100	232,800	677,900
Feb	427,200	0	427,200	301,900	207,300	509,200
Mar	663,900	0	663,900	221,500	231,300	452,800
Apr	843,500	0	843,500	97,400	94,900	192,300
May	725,000	0	725,000	132,600	98,800	231,400
Jun	323,800	0	323,800	156,800	275,800	432,600
Jul	252,600	0	252,600	218,600	418,800	637,400
Aug	293,600	0	293,600	20,500	n.a	n.a
Sep	362,200	228,600	590,800	108,600	n.a	n.a
Oct	375,600	216,400	592,000			
Nov	587,800	259,400	847,200			
Dec	528,100	613,300	1,141,400			
Total	5,783,100	1,317,700	7,100,800	1,703,000	1,559,700	3,133,600 <sup>*)</sup>

Note: <sup>\*)</sup> Up to September 1999.

Source: BULOG and, Ministry of Finance.