

## Global Grain Market and Human Security in Asia

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**Abstract:** In 2011, the Arab Spring erupted, and the collapse of dictatorial governments and civil wars successively broke out in certain North African and West Asian countries. Terrorist groups were also formed, most notably the ISIL/ISIS, which are responsible for the murder of many innocent civilians today. In Syria and Iraq, the ISIL/ISIS declared the restoration of slavery and implemented human trafficking of women and children of religious minorities. This has become a serious humanitarian crisis. Why has this severe crisis of human security continued since 2011? This paper argues that there could be three possible economic factors which have formed the background for this situation, namely, global grain prices, the grain self-sufficiency rate, and per capita Gross National Income (GNI). From 2006 to 2010, global grain prices soared rapidly. During the period from 2001-2005, the global wheat price remained at US\$161 per ton; however, by 2011, it had climbed to US\$347. The grain self-sufficiency rate of the countries that fell into civil wars had been low. For instance, in 2010, it was 7% in Libya, 23% in Yemen, 51% in Iraq and 53% in Syria. With the exception of Libya, per capita GNI was low in Arab Spring nations. In 2010, it stood at US\$11,416 in Libya, US\$2,819 in Syria, US\$1,375 in Yemen, and US\$835 in Iraq. Generally, in the countries with low grain self-sufficiency rate and per capita GNI, the global grain price has a great impact on the domestic grain price. For example, in Yemen, the domestic wheat price was US\$296 per ton during 2001-2005. But by 2011, it had risen to US\$653. The rise of domestic grain prices had harmful effects on the lives of low-income people. Hence, some young people opted to join terrorist groups or participate in civil wars to earn money. Especially, the ISIL/ISIS recruited combatants by paying US\$800 per month. Thus, poor young men joined this terrorist group in droves. How can we maintain human security and peace? The foundation for peace lies with the stability of domestic grain prices. Grain prices can be kept stable by improving grain self-sufficiency rates and grain reserve quantities. Therefore, an appropriate policy for food and agriculture is essential.

**Keywords:** *Grain prices, Terrorist groups, Gross National Income, Asia*

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### INTRODUCTION

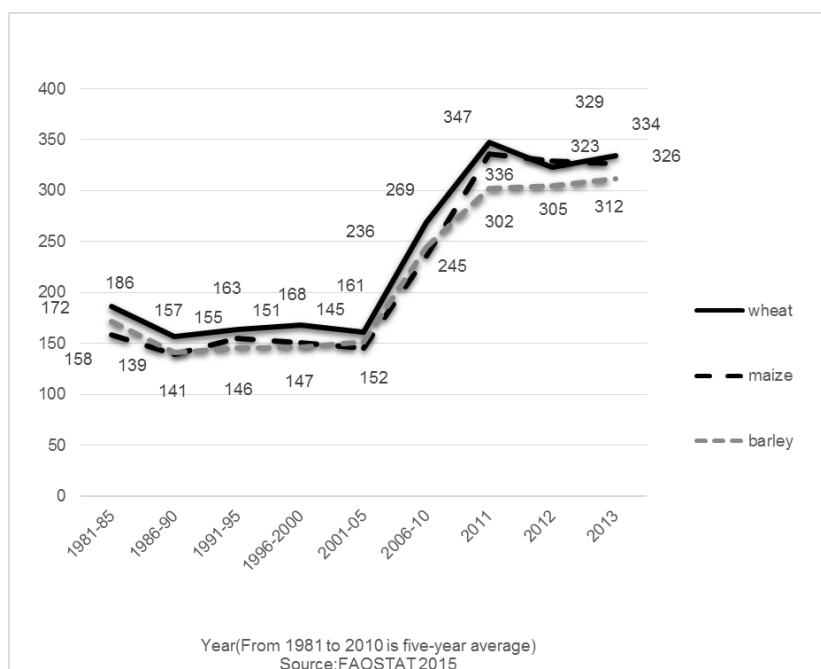
In West Asia, widespread violence such as civil wars, suicide bombings and the murder of journalists, all of which often lead to serious humanitarian crises, has been occurring since 2011. In 2011, ‘Arab Spring’ erupted, during which dictatorial governments collapsed and civil wars successively broke out in certain North African and West Asian countries. Today, many terrorist groups, most notably ISIL/ISIS, have been responsible for the murder of many innocent civilians. In Syria and Iraq, ISIL/ISIS declared the restoration of slavery and implemented human trafficking of women and children of religious minorities. This has become a serious humanitarian crisis. Why has this severe crisis of human security been continued since 2011?

The purpose of this research is to clarify the economic background to this problem in order to present solutions that will help to ensure human security. This paper argues that there could be three possible economic factors forming the background for this situation, namely, global grain prices, grain self-sufficiency rates, and per capita gross national income (GNI).

## THE ECONOMIC BACKGROUND OF THE HUMANITARIAN CRISES

In 2011 the dictatorial governments of Tunisia, Egypt and Libya were toppled, and Syria and Yemen fell into civil war. The economic background to these situations was food security, which includes the problem with food prices. First, this paper looks at the fluctuation of global grain prices with the latest data from the Food and Agriculture Organization of the United Nations (FAO).

Figure 1 shows the fluctuation in global grain prices per metric ton. It was calculated by annual import quantity and the value in the whole world, so Figure 1 shows the wide and long-range general tendency of global grain prices. In West Asian and North African countries, people mainly eat a wheat diet, but low-income groups consume maize as an auxiliary food, and in some West Asian countries, for example in Syria, people are fond of barley. Therefore, the grain prices of wheat, maize and barley are examined in Figure 1.



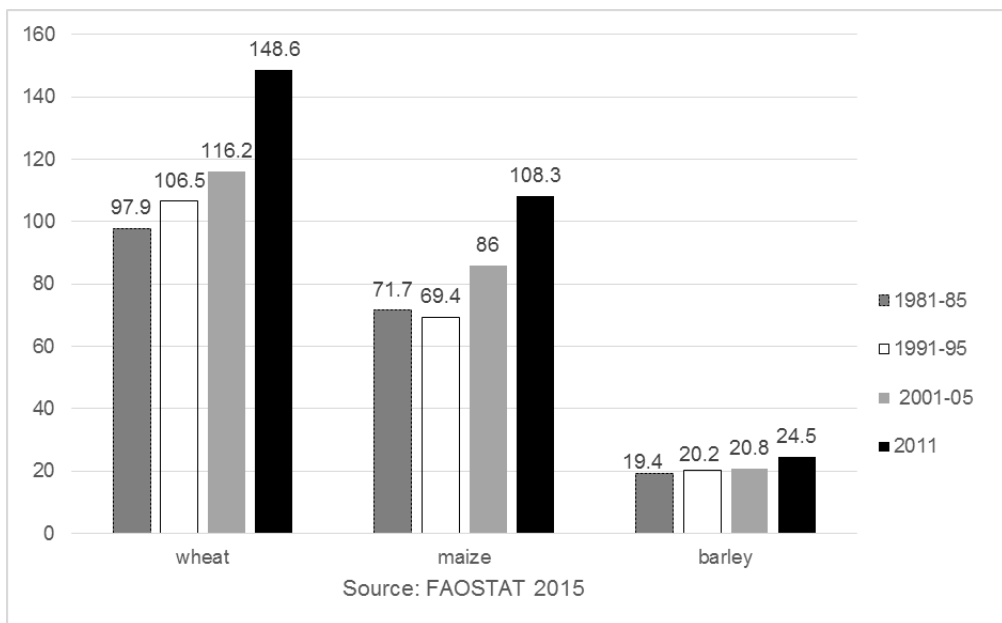
**Figure 1:** Global Grain Prices per MT (US\$)

According to Figure 1, for about 20 years, from the second half of the 1980s to the first half of the 2000s, global grain prices remained low. The global wheat price was US\$157 from 1986 to 1990 (five-year average) and US\$161 from 2001 to 2005.

However, global grain prices soared rapidly in the second half of the 2000s. The global wheat price rose to US\$269 from 2006 to 2010, and then to US\$347 in 2011. Compared with the 2001-05 period, the global wheat price in 2011 had doubled.

Syria had been importing a lot of barley and maize. From 2010 to 2011, the annual import quantity of wheat decreased by 50% from 1,050,000 tons to 540,000 tons, while the annual import quantity of barley increased from 110,000 tons to 380,000 tons (FAOSTAT, 2015). In 2011, the global price for barley was 13% cheaper than that for wheat. In Syria, to save money, some people converted part of their diet from wheat to barley. This is part of the reason why the anti-government demonstrations in Syria occurred later than in Tunisia and in Egypt. But, in 2012, the global barley price increased by US\$3 compared with the previous year. So, the lives of Syrian people had been negatively impacted; therefore, they strengthened their resistance to the autocracy.

From the second half of the 2000s onward, global grain prices doubled, but global grain supply did not decrease. Figure 2 shows the global grain supply. This was calculated based on annual import quantities for the whole world (FAOSTAT, 2015). Five-year averages are used from 1981 to 2005, while the annual import quantity is presented for 2011. Figure 2 shows that the global grain supply has been increased. Especially, from the 2001-05 period to 2011, the global wheat supply increased by about 30%. As stated before, global wheat prices had doubled from the 2001-05 period to 2011, and the supply had increased by about 30%.



**Figure 2:** Global Grain Supply (world import in quantity) (million ton)

According to the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF Japan), global grain demand has been expanding due to worldwide population growth and economic growth in developing countries (MAFF Japan, 2016: 4-5). But the most important factor has been the rise in global crude oil prices (see graphs of MAFF Japan 2016: 5, 21, 30), because, in the main grain exporting countries such as the U.S., Canada and Australia, grains are cultivated by using large farm machines, so a lot of petroleum is used. Therefore, the rise in global grain prices is linked to a surge in global crude oil prices.

The international crude oil price was US\$40 per barrel in 1980, but in 1986 it fell below US\$20. It remained around US\$20 throughout the 1990s, but it soared in the 2000s,

reaching US\$134 in June 2008. The international crude oil price plunged after the bankruptcy of Lehman Brothers, but began to soar again in 2010. It had gone up and down approximately US\$80 to US\$100 from 2011 to 2014 (Honkawa, 2016). From the summer of 2014 onward, the international crude oil price plunged and the global grain price plunged along with it (MAFF Japan, 2016: 5, 21).

Incidentally, in 2010, global wheat production was 650 million tons and global rice production was 670 million tons (Yano, 2012: 211). One ton of grain can support 6.7 persons for a year (Nishikawa, 2014: 144). Therefore, if wheat and rice are distributed equally to all human beings, it is not possible to support 8.8 billion people. The world population was 6.9 billion in 2010 (Yano, 2012: 52). In short, the food crisis is not a matter of quantity but rather a matter of price. In other words, the food crisis is a matter of poverty.

In Table 1, there is a list of Islamic countries in which a serious humanitarian crisis occurred after 2011. Civil wars have been going on in Iraq, Syria, Yemen, and Libya since then. In Egypt and Tunisia, the dictators were deposed in 2011, but their societies and new governments have been unstable. Terrorist groups have been actively operating in Afghanistan and Pakistan.

**Table 1:** Islamic Countries in which the Serious Humanitarian Crisis Occurred after 2011

Islamic countries	Danger Level	Income category	Per capita GNI(2010)	Population (million person)			Self-sufficiency rate Grain (%)		Self-sufficiency rate Wheat (%)	
				1990	2010	index	1990	2010	1990	2010
Libya	4	upper-middle	11416	4.3	6.4	147	10	7	10	6
Tunisia	2	lower-middle	4008	8.2	10.5	127	54	26	57	30
Syria	4	lower-middle	2819	12.3	20.4	166	60	53	56	75
Egypt	2	lower-middle	2685	56.8	81.1	143	61	55	40	41
Yemen	4	lower-middle	1375	12.0	24.1	201	37	23	12	9
Pakistan	2	lower-middle	1041	111.9	173.6	155	94	114	87	99
Iraq	3-4	low-income	835	17.4	31.7	182	52	51	38	47
Afghanistan	4	low-income	499	13.0	31.4	241	89	81	84	77

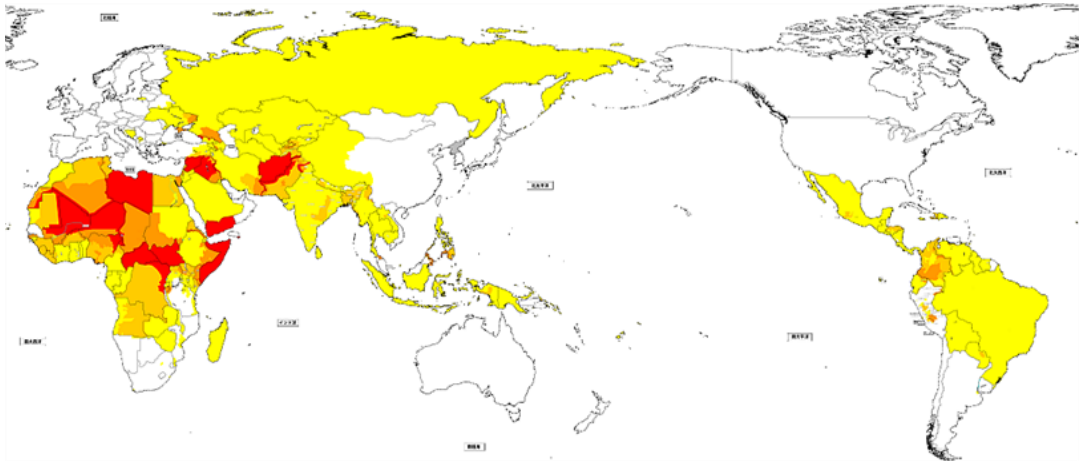
Source: FAOSTAT 2015. Yano 2012:26-36, 54-56. MOFA Japan 2016.

Note: Per capita GNI is in nominal U.S. dollars in 2010. Danger Level 4 is the red zone (the most dangerous region) on MOFA Japan 2016.

**Table 2:** Primary Islamic Countries in which Societies and Governments have been Stable

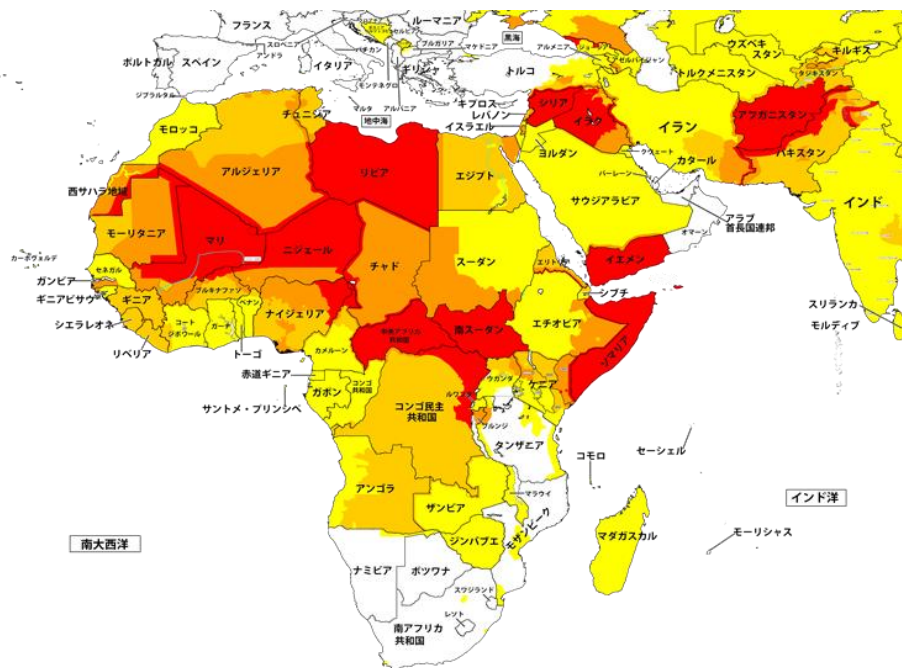
Islamic countries	Danger Level	Income category	Per capita GNI(2010)	Population (Mn)			Self-sufficiency rate Grain (%)	Self-sufficiency rate Wheat (%)
				1990	2010	index	2010	2010
Oman	0	high-income	19545	1.9	2.8	149	8	0.6
Saudi Arabia	1	high-income	16061	16.1	27.5	170	11	44
Turkey	0-1	upper-middle	10097	54.1	72.8	134	103	107
Iran	1-2	upper-middle	5159	54.9	74.0	135	73	95
Jordan	1	upper-middle	4553	3.4	6.2	181	7	6

Source: Same source of table 1. Note: Danger Level 0 is the safety region.



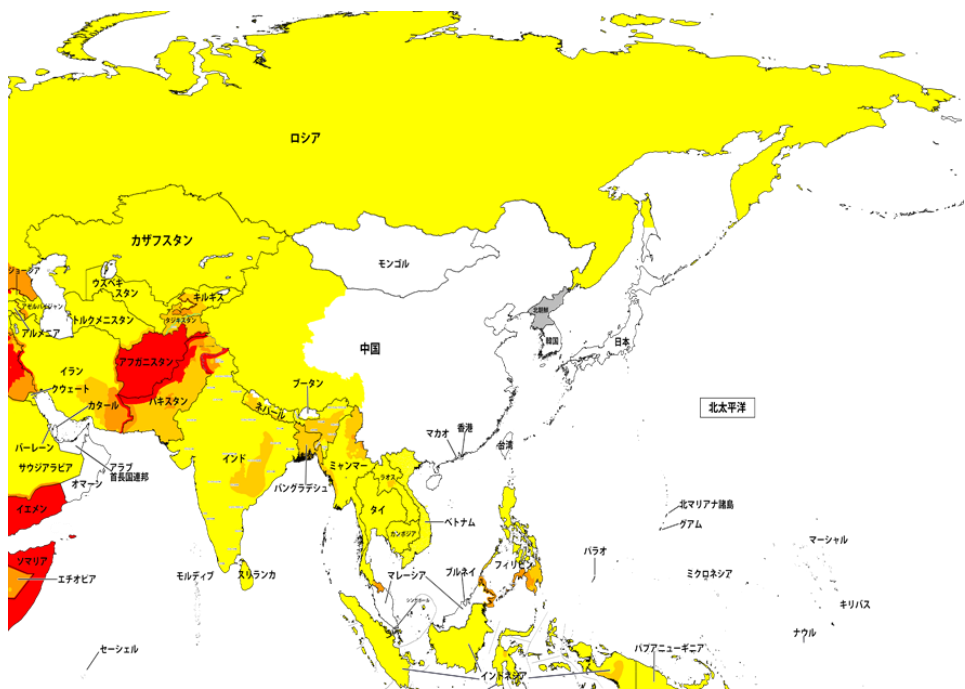
Source: MOFA Japan 2016.

**Figure 3:** The Degree of Risk in the World



Source: MOFA Japan 2016.

Figure 4: The Degree of Risk in West Asia and Africa



Source: MOFA Japan 2016.

Figure 5: The Degree of Risk in Asia

Figures 3, 4 and 5 show Japanese Ministry of Foreign Affairs' (MOFA Japan) warnings to Japanese citizens via its "Overseas Safety Homepage" on different regions of the world. The red zones are Level 4 meaning "Evacuate and avoid all travel". This means that all Japanese nationals are urged to evacuate immediately from the country or region and are urged to avoid travel to the area for any purpose. The dark yellow zones are Level 3 meaning "Avoid all travel". This means that all Japanese nationals are urged to avoid all travel to those countries or regions, regardless of purpose. Japanese residents in those countries or regions might be advised to consider the possibility of evacuation or to prepare for evacuation. The yellow zones are Level 2: Avoid non-essential travel. This means that Japanese nationals are advised to avoid non-essential travel to those countries or regions, and to stay alert to the security situation in those areas, taking appropriate safety measures should they decide to travel there. The light yellow zones are Level 1: Exercise caution. This means that Japanese nationals traveling to or residing in the country or region are advised to stay alert to the security situation. The white zones are Level 0. These countries or regions are safe (MOFA Japan, 2016).

In West Asia and North Africa, Syria, Yemen, Afghanistan and Libya are having red zones all over those countries as shown in Figure 4. Most areas of Iraq are red zones, but the Southern part of Iraq is the dark yellow zone. Most areas of Pakistan, Egypt and Tunisia are yellow zones.

Table 2 shows a list of Islamic countries in which the societies and governments have been stable. According to MOFA Japan Overseas Safety homepage, Oman and most areas of Turkey are white zones. Saudi Arabia, Jordan and most areas of Iran are light yellow zones (MOFA Japan, 2016).

When Tables 1 and 2 are compared two important points can be emphasized. First, all of the countries in Table 1, with the exception of Libya, are low-income or lower-middle-income countries. On the other hand, all of the countries in Table 2 are upper-middle-income or high-income countries. According to the World Bank, low-income economies are defined as economies having a per capita GNI of less than approximately US\$1,000. The lower-middle-income economies are defined as economies having a per capita GNI from approximately US\$1,000 to US\$4,000. The upper-middle-income economies are defined as economies having a per capita GNI from approximately US\$4,000 to US\$12,000. And the high-income economies have a per capita GNI of more than approximately US\$12,000 (World Bank, 2016).

Second, all of the countries in Table 1, excluding Pakistan, have had low grain and wheat self-sufficiency rates. In 2010, the grain self-sufficiency rate was 7% in Libya, 23% in Yemen, 26% in Tunisia, 51% in Iraq, 53% in Syria and 55% in Egypt. The grain self-sufficiency rate of Pakistan was 114%; this means that Pakistan was a grain exporting country. Afghanistan is a low-income country, and its per capita GNI was only US\$499 in 2010, indicating most of its people are very poor. And yet Afghanistan imported approximately 20% of the grain for their annual consumption. From where do the poor people get money to buy the grain?

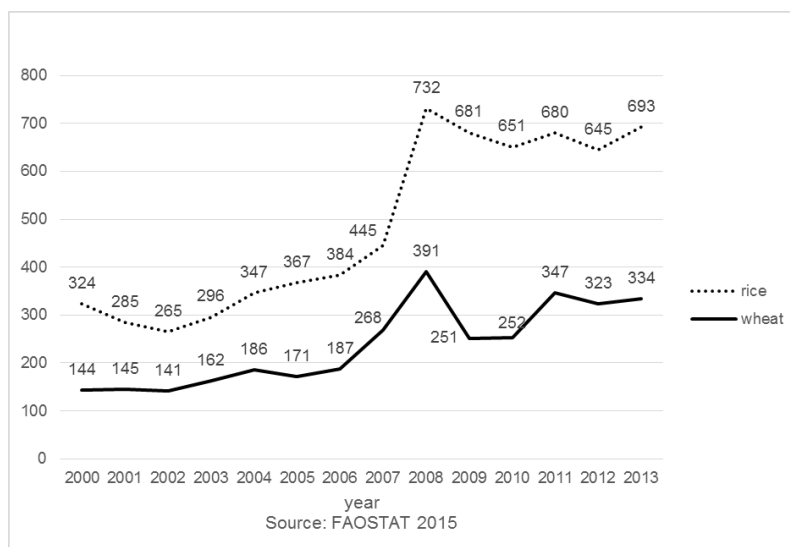
On the other hand, in Table 2, Oman and Saudi Arabia are high-income countries. Their grain self-sufficiency rates were very low, but most of their people have enough money to buy food. Turkey and Iran were upper-middle-income countries, and their wheat self-sufficiency rates were high at 107% in Turkey and 95% in Iran. Therefore, the governments

and societies of Turkey and Iran have been stable. In connection with this, Qatar and the United Arab Emirates (UAE) are very high-income countries and are considered to be at danger level 0 on the MOFA Japan Overseas Safety Homepage (MOFA Japan, 2016). In 2010, the per capita GNI of Qatar was US\$ 71,117 and that of the UAE was US\$ 40,367 (Yano, 2012: 26-27).

Generally, in the countries with a low grain self-sufficiency rate and low per capita GNI, the global grain price has a great impact on the domestic grain price. For example, in Yemen, the domestic wheat price per ton was US\$ 296 from 2001 to 2005. But by 2011, it rose to US\$653 (FAOSTAT Prices, 2015). Thus, when the global wheat price had doubled, the domestic wheat price had also doubled.

The rise of domestic grain prices had harmful effects on the lives of low-income people. Hence, some young people have opted to join terrorist groups or participate in civil wars to earn money. Notably, ISIL/ISIS has recruited Syrian combatants by paying US\$400 per month and non-Syrian combatants US\$800 per month as of December 2015. Thus, poor young men joined this terrorist group in droves. Incidentally, ISIL/ISIS fell into financial distress due to destructions of most of petroleum plants by American airstrikes, so regardless of 'military rank', the salary of all ISIL/ISIS members was reduced by half in January 2016 (based on the newspaper report AFP BB NEWS, 20.01.2016).

Moreover, one of the factors behind the low grain self-sufficiency rate of most of the countries in Table 1 is population growth. For example, in Yemen, from 1990 to 2010, the population doubled, so the grain self-sufficiency rate fell to 23% from 37% and the wheat self-sufficiency rate fell to 9% from 12%. On the other hand, the populations of Turkey and Iran, countries with a high wheat self-sufficiency rate, increased by about 30% during the same period.



**Figure 6:** Global Prices of Rice and Wheat per ton (US\$)

Figure 6 shows fluctuations in the global prices for rice and wheat. The global rice prices had been very high after 2008. In Table 3, Islamic countries are examined in which people live on a diet of rice, namely, Malaysia, Indonesia and Bangladesh. In 2011, the rice self-

sufficiency rate of Malaysia was 60%, which is a low rate. But, the per capita GNI of Malaysia was US\$ 8,083 in 2010, so Malaysia is an upper-middle-income country. Indonesia is a lower-middle-income country, but its rice self-sufficiency rate was 98% in 2011. The per capita GNI of Bangladesh was only US\$ 720 in 2010, so it is a low-income country, but its rice self-sufficiency rate was 113% in 2011, which is a very high rate. Therefore, these Islamic countries have remained stable.

**Table 3:** Islamic Countries in which Peoples Live on Rice Diet

Islamic countries	Per capita GNI (US\$) (2010)	Population (million person) (2010)	Self-sufficiency rate Grain (%) (2011)	Self-sufficiency Rate Rice (%) (2011)
Malaysia	8083	28.4	23	60
Indonesia	2611	239.9	86	98
Bangladesh	720	148.7	103	113

Source: Yano 2012:26-29, 54-55. Yano 2014:216.

Table 4 shows a list of the Asian countries in which people live on a diet of rice. The rice self-sufficiency rates of all the countries were high enough. The grain self-sufficiency rate of Japan and South Korea were about 20%, which is a very low rate. The reason for this is that they are big importing countries of maize for livestock feed.

**Table 4:** Asian Countries in which People Live on a Rice Diet

Countries	Per capita GNI (2010)	Population (million person) (2010)	Self-sufficiency rate Grain (%) (2011)	Self-sufficiency rate Rice (%) (2011)
Japan	44269	127.8	21	94
South Korea	21058	48.2	23	83
Thailand	4414	69.1	144	180
Philippines	2851	93.3	82	89
Vietnam	1145	87.8	114	136
Myanmar	876	48.0	102	102

Source: Yano 2012:26-29, 54-55. Yano 2014:216.

As shown in Table 5 China and India are countries in which people live on a diet of rice and wheat. In 2011, their grain self-sufficiency rates were 100% and 109%, respectively.

**Table 5:** Primary Asian Countries in which People Live on Rice and Wheat Diet

Countries	Per capita GNI (2010)	Population (million person) (2010)	Self-sufficiency rate Grain (%) (2011)	Self-sufficiency rate Rice (%) (2011)	Self-sufficiency rate Wheat (%) (2011)
China	4529	1341.3	100	100	95
India	1395	1224.6	109	111	106

Source: Yano 2012:26-29, 54-55. Yano 2014:216.

In the countries included in Tables 4 and 5, the governments have maintained a policy of keeping the grain and/or rice self-sufficiency rate high for the sake of food security. Because social stability is based on the stability of the domestic grain supply and prices, human security is based on food security.

## CONCLUSION

Based on the above findings, apparently it is possible to maintain human security and peace in the world. The foundation for peace lies with the stability of domestic grain prices. Grain prices can be kept stable by improving grain self-sufficiency rates and grain reserve quantities.

Most of the countries ought to keep the grain or staple grain (wheat or rice) self-sufficiency rate above 90%. Especially, China and India should keep it at approximately 100%, because 10% of the annual grain consumption of China and India is equivalent to the grain for 260 million people. It is not easy to import such a huge amount of grain. Most of the land in Libya and Yemen are in desert regions, so improving grain self-sufficiency rates is a difficult task. But, they can improve their grain reserve quantities. When the global grain price soars, they can release their reserve grain to the domestic market, so they can maintain the stability of domestic grain prices. Therefore, to ensure human security and peace it is important to implement an appropriate policy for food security and agriculture.

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