

Section 3 Food problems and the approach adopted by Japan

As seen in Chapter 1, the food price rise has had a huge inflationary impact mainly on emerging countries in Asia and Africa, countries with increasing social unrest. Behind the abovementioned price rise is the direct result of (1) the existence of a structurally tight supply and demand balance attributable to the economic growth and increased demand for food in emerging Asian and other countries; (2) increased demand for bio-fuels consequent to the efforts to address the issues of crude oil price rise and changes in the climate; and (3) increased investment flow and speculative funds into the global commodities market in the midst of the recent instability in the international financial capital market, which is causing a worldwide impact owing to the progress of globalization. In the future, food prices are likely to remain at high levels¹.

As it is clearly apparent that the food problem is restricting the sustainable development of world economy, Japan has already experienced ahead of other Asian countries, the situation currently faced in the emerging Asian countries (which includes increase in calorie consumption and diversification of eating habits in the rapidly growing economy, construction of a food production system to address the above, and securing of stable procurement of food based on imports from overseas and other means). At present, Japan's self-sufficiency rate in terms of food is the lowest among the major developed countries. Therefore, it is necessary for Japan to work toward a solution of food problems in Asia and other regions of the world by improving its food self-sufficiency rate. Based on the awareness of the abovementioned problem, the following chapter discusses the current situation of food problems and responses of various countries, and the direction of the approach adopted by Japan.

1. Asian economic growth and food problems

(1) Global food price rise and food problems in Asia

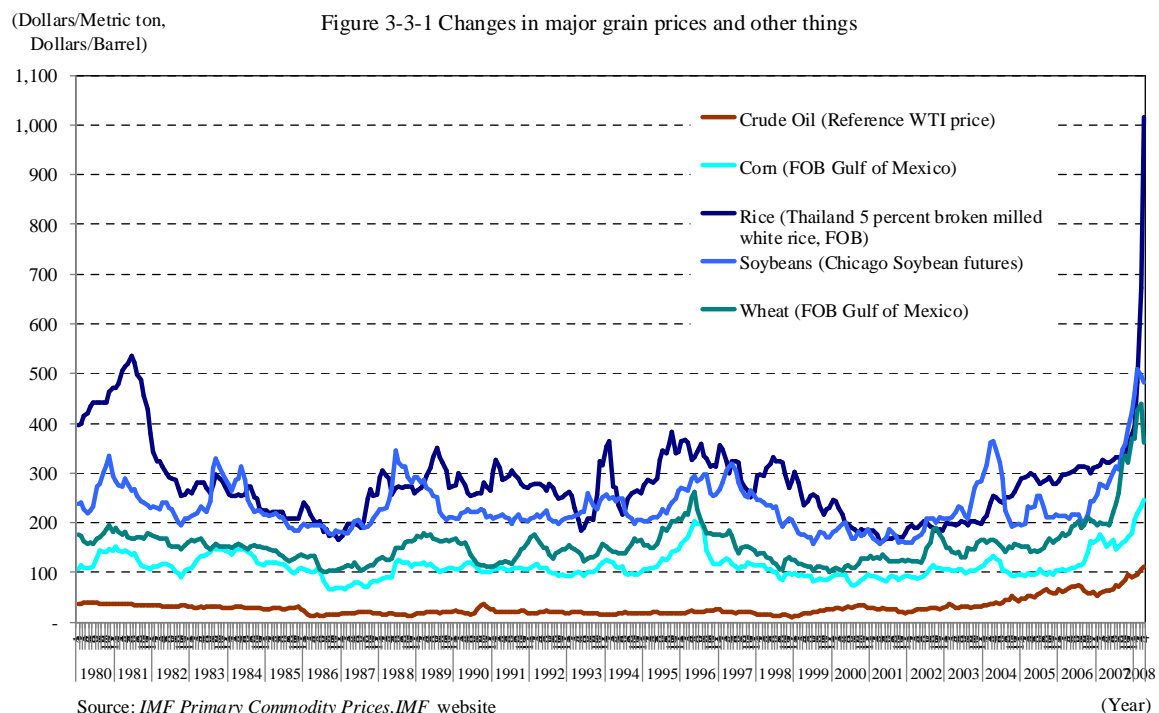
In recent years, the prices of grain and other food products have significantly risen. The prices of wheat, soybeans, corn, and rice soared 2.4, 2.5, 2.6, and 3.5 times, respectively, between January 2005 and April 2008, increasing more than the crude oil price (2.4 times during the same period)² (see Figure 3-3-1). As discussed in Chapter 1, Section 1, such global food price rise has a direct inflationary impact on developing and emerging countries. In such countries, the proportion of food expenditure in household consumption is high; the impact is particularly significant in the case of "the absolute poor" living on less than \$1 a day. Such situations are lead to food-related riots and protests.

Since the increase in the price of grain which is the basic food, in particular, poses a very serious social and political problem for the developing and emerging countries since it directly impacts people's livelihoods. The U.N. and other international organizations point out the need for

¹ FAO, *Food Outlook May 2008*; OECD-FAO, *Food Outlook 2008–2017*.

² *IMF Primary Commodity Prices* (Taken from the website of IMF). The soaring food price implies an increase in exports for exporter countries of agricultural products. On the other hand, many of the developing countries are dependent on the export of a single type of crop. Therefore, in a situation of soaring prices of multiple crops, imports increase due to the increase in the prices of food other than those produced locally and the net exports decrease in terms of the difference between imports and exports, which may consequently restrict economic growth.

international responses and state that this situation “may ruin the results of the economic growth in Asia during the past twenty years”³ and that “could seriously undermine the global effort to increase poverty and erode the gains of the past decades.”⁴



(2) Increased demand for food as a factor of soaring food price

(Population growth mainly in developing countries)

First, population growth mainly in developing countries may be cited as a factor of increased demand for food. Although the of the global population increase rate has slowed down since the 1970s, it is expected that the population will increase annually by 80 million (1.1% of the total population) between 2010 and 2015⁵. As a trend, growing population is mainly observed in developing and emerging countries where food consumption is generally on the rise.

(Diversification of eating habits that accompanies economic growth)

Second, the increase in per capita calorie consumption and diversification of eating habits may be cited as other factors of increased demand for food (see Figure 3-3-2).

It has been pointed out that, in addition to the increase in food consumption, eating habits diversifies to include consumption of livestock products, vegetables, and fruits based on the increased per capita income that accompanies economic growth⁶. In particular, the increase in per capita calorie

³ Remarks by Paul Risley, spokesman for the World Food Program (WFP).

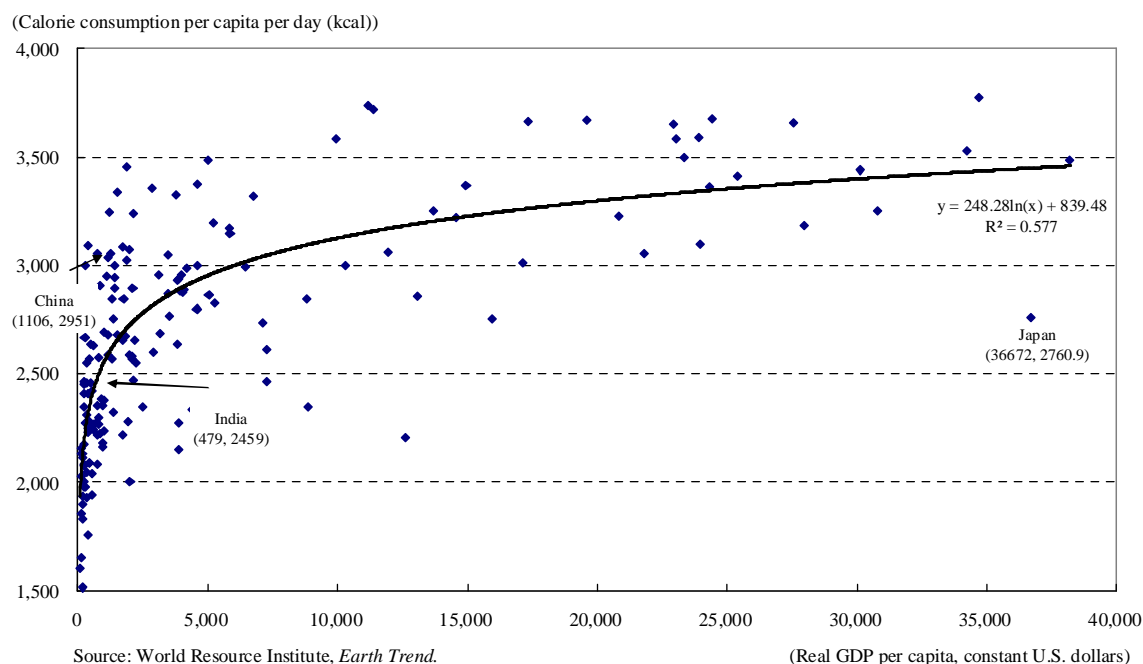
⁴ Remarks by Haruhiko Kuroda, President of the Asian Development Bank (ADB) (at the ADB Annual General Meeting held on May 5, 2008).

⁵ U.N. (2007), *World Urbanization Prospects The 2007 revision*.

⁶ According to FAO and other sources, eating habits diversify and include an increase in the calories consumed from edible meat from the conventional level of 200 kcal to more than 300 kcal in the group

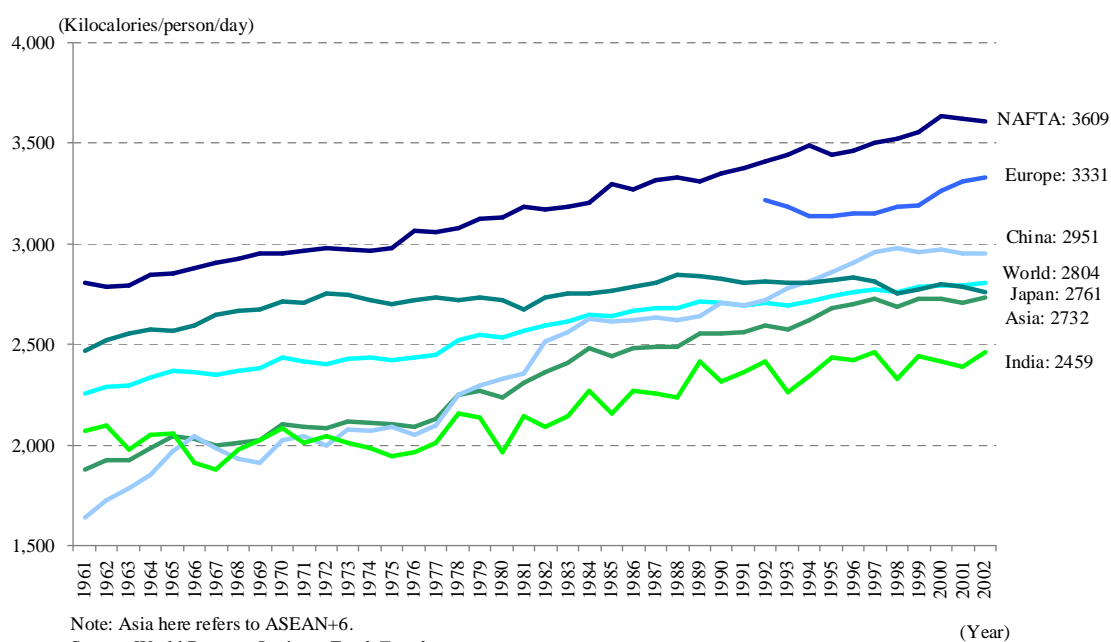
consumption in China and India where income continues to rapidly increase, which the total of the population of these two countries accounts for 30% of the global population, is causing a major change in the structure of global food supply and demand. In fact, from the available data starting from 1961, the total calories consumed in the entire region of NAFTA and the EU have remained mostly at the same level, while those in Asia, led by China and India, have increased sharply, and the percentage of the calories consumed in the region in the global calorie consumption increased from 40% in 1961 to 48% in 2002 (see Figure 3-3-3).

Figure 3-3-2 Relationship of economic growth and calorie per capita (2002)



with an annual income between \$1,500 and \$5,000. The above income group has significantly increased during the past 10 years, which has contributed to the increased demand for poultry and other things. It is estimated that the group with an annual income between \$5,000 and \$13,000 will double in the next 10 years. It is likely that further increase in income will in turn broaden the demand for beef and other things, and that consumption of highly value-added agricultural products, including meat, dairy products, vegetables, oils, and fats, will increase.

Figure 3-3-3 Changes in calorie consumption per capita per day in various countries/regions



Moreover, the rapid growth of pork consumption in China where, in 2007, 40% of all the pork produced in the world was consumed (see Figure 3-3-4)⁷, serves as an example of the diversification of eating habits. Livestock production generates a significantly larger demand for feed grain⁸.

As stated above, the global demand for food has increased by structural factors such as increase in population as well as increase in calorie consumption and diversification of eating habits that accompany economic growth. As a result, despite the fact that total production of rice, corn, soybeans, wheat, and other grains has remained at an all-time high level of around 2 billion tons, consumption exceeded production in five years out of the seven since 2000. Further, in 2007, ending stocks decreased nearly by half from 121 days' stock in 1999 to 61 days' stock in 2007, reaching the level in the first half of the 1970s (55 days' stock), a period of what people called the food crisis^{9,10} (see Figures 3-3-5 and 3-3-6).

⁷ It is not always possible to meet the demand locally in a country. For example, China has become a net food importer since 2004, causing a globally tight supply and demand situation through the rise of significant import demand.

⁸ The amount of feed crops required to produce 1 kg of livestock products may differ according to the production conditions in various countries; however, it is estimated that the amount of feed required to produce 1 kg of edible meat, for example, is roughly 2.6 kg for poultry, 6.5 kg for pork, and 7.0 kg for beef.

⁹ During the first half of the 1970s, then Soviet Union was hit by crop failure due to unseasonable weather and imported a large amount of crops to satisfy local demand, which caused a tight supply and demand situation in the global food market and soaring crop prices. Other crops were affected in a chain reaction, and countries such as Thailand and the U.S. decided to ban the export of rice and soybeans.

¹⁰ In the background, among other causes, were the low price levels of crops during the preceding 20 years and lowered stock of feed for supply and demand adjustment by China and India.

Figure 3-3-4 Changes in pork consumption in various countries/regions

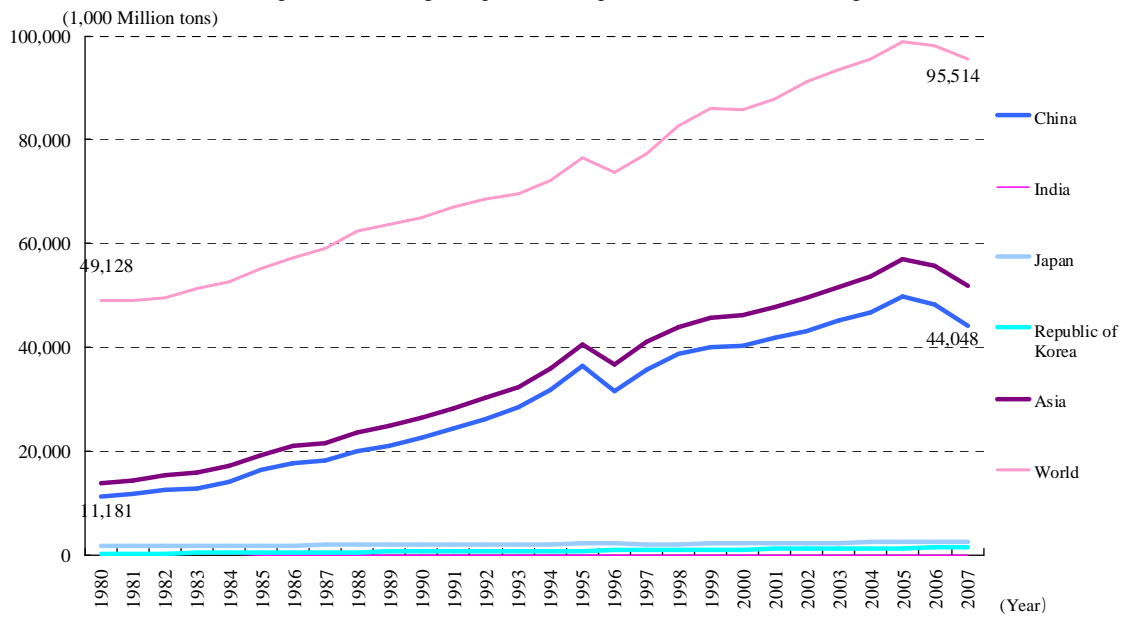
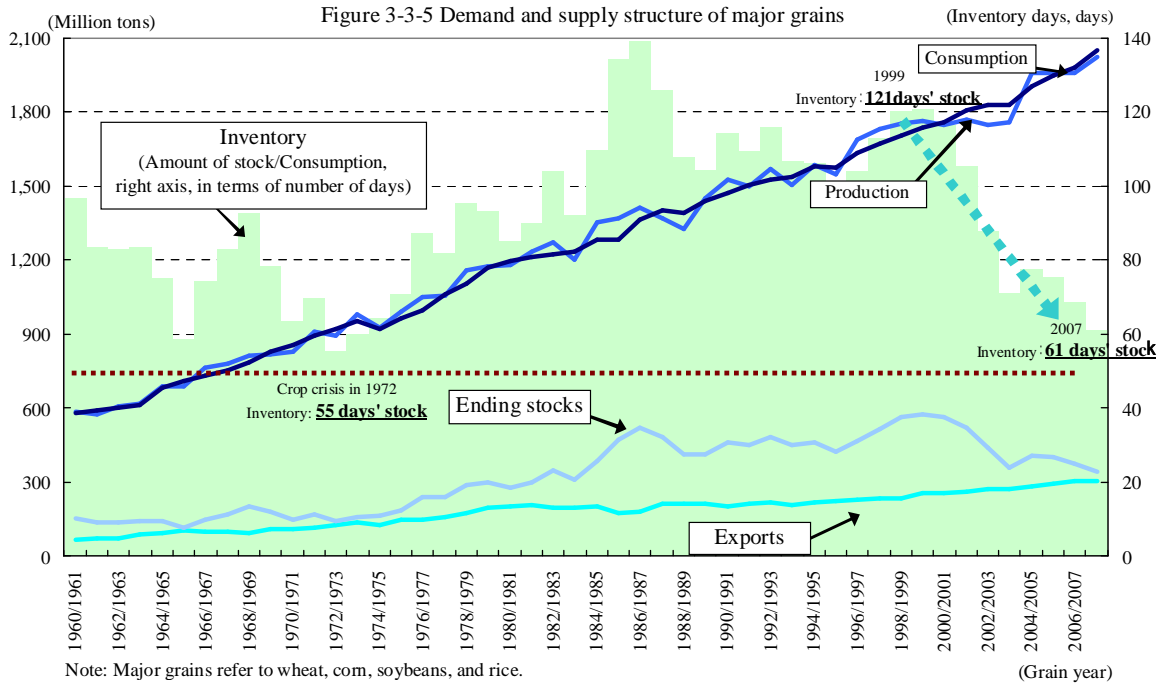
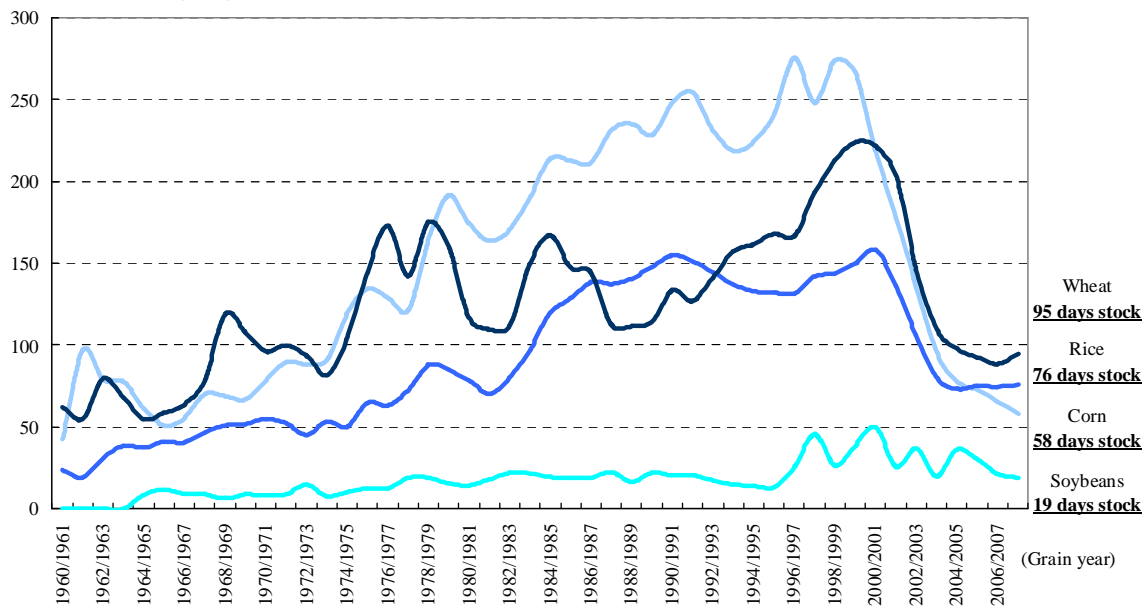


Figure 3-3-5 Demand and supply structure of major grains



(Amount of stock/annual consumption in terms of number of days, days)

Figure 3-3-6 Amount of stock of major grains in Asia



Note: Asia here refers to ASEAN+6.
Source: USDA, *PS&D*.

(Increased demand for bio-fuels)

In terms of demand, another major factor of increase in price is the demand for use of bio-fuels¹¹.

For example, the U.S., a major exporter of corn, has set targets to use bio-fuels for transportation equipment under the Energy Policy Act¹² and the Energy Independence and Security Act¹³ based on the consideration of rising crude oil price, political instability in the Middle East, environment friendliness, and so on. Around the same time, tax incentives and subsidy measures for the establishment of bio-fuel production facilities were provided by the federal and state governments. These incentives and measures accelerated bio-fuel production.

Consequently, the U.S. corn crop used to produce bio-fuels increased from 24 million tons, or 10% of the U.S. corn production, in 2002 to 74 million tons, or 24%, in 2007, which is equivalent to 30% of the feed demand for the year. Moreover, the amount intended for bio-fuel production exceeded the amount for export¹⁴. The increased demand for bio-ethanol in the U.S. has worked to increase the

¹¹ Due to a recent increase in food prices, the use of food for bio-fuel production is increasingly criticized in the global community. However, the USDA and EU dispute the above criticism. Thus, there are pros and cons to bio-fuels. On the other hand, technologies to generate fuels from cellulose, which does not compete with the production of food, are being developed.

¹² The law, enacted in 2005, set a production target of 7.5 billion gallons of renewable fuels by 2012.

¹³ The law, enacted in 2007, set a production target of 36 billion gallons of renewable fuels by 2022.

¹⁴ With regard to the global bio-fuel production, the EU produces bio-diesel from rapeseed, Brazil produces bio-ethanol from sugarcane, and China produces it from corn, cassava, and sweet potato. According to the USDA, bio-fuels have become price competitive even with the use of the existing technological level of many countries when crude oil price hit US\$60–70. It is estimated that crops account for 50%–70% of the production cost of bio-fuels (according to IEA). The demand for bio-fuel may decrease if crude oil prices reduce and crop prices continue to escalate. Production cost differs from country to country, and the cost of ethanol production in Brazil is said to be half that in Australia and one-third that in Germany. USDA, *Agricultural Productions to 2017*.

international price. Meanwhile, in response to the increased demand and price, the production of corn increased in the U.S. and reached 332 million tons in 2007, an increase of 24% from the 268 million tons in the previous year. Part of the increase in production, however, was achieved by abandoning the traditional crop rotation with soybeans, which led to the reduction in the supply of soybeans, resulting in a tight supply and demand balance and a higher price for soybeans¹⁵.

(Increased flow of money into the grain market)

Supply and demand factors constitute the base layer structure of price rise, which, however, does not sufficiently explain the rapid price increase in recent years. Therefore, it is presumable that inflow of pension and other investment funds as well as hedge funds and other speculative funds have also had a significant impact¹⁶. The volume of spot and futures transactions on the Chicago Board of Trade (hereinafter referred to as CBOT) increased by 30% in 2006. Considering the net long position of hedge funds with regard to corn, soybeans, and wheat on CBOT in order to confirm the state of inflow of speculative money, the total for the three items increased 3.8 times during the two years from in early 2006 (The breakdown mostly comprises money for corn and soybeans)¹⁷. It is conceivable that hedge funds have included food as one of the multiple investment targets of different risk levels, taking a so-called “flight to quality.” It is likely that hedge funds and other short-term funds such as those mentioned above are causing an increase in the volatility of agricultural commodity prices. The price range of corn, soybeans, and wheat has indeed widened since 2005 and that of soybeans and wheat, in particular, increased rapidly between 2007 and 2008¹⁸. Such increase in the price range may in turn increase the uncertainty for the future, decrease willingness to invest in as agriculture as an industry, and inhibit the improvement of productivity¹⁹.

(3) Restrictions on supply in food production

(Sluggish increase in the area of agricultural land and unit yield)

The primary restricting factor of food supply is the slow growth of the area of agricultural land and unit yield.

The rate of increase in the global area of agricultural land increased in the 1980s, but decreased since the 1990s and lowered to approximately 0% during the first half of the 2000s. This is probably partly because of the impact of urbanization and desertification when agricultural land was developing.

¹⁵ The total cultivated area in the U.S. is maintained at a stable level of 174 million ha, while the planted area of corn increased from 31.3 million ha in 2006 to 37.4 million ha in 2007 (equivalent to 20% of the entire cultivated area in the U.S., or the largest ever cultivated area in Japan), an increase of 6.1 million ha, which was compensated for by reducing soybean planted area by 4.8 million ha (a 16% decrease) and cotton planted area by 1.8 million ha (a 16% decrease) (U.S. Census).

¹⁶ For example, the percentage of respective investment targets of commodity index funds managed by investment banks, etc., indicate that crops account for 14% on S&P GSCI as of January 2008, the second largest percentage following oil and larger than the percentage of precious and industrial metals (10% in total). Ministry of Economy, Trade and Industry, *White Paper on Energy 2007*..

¹⁷ Nourinchukin Research Institute Co., Ltd., *Norin Kinyu March 2008*.

¹⁸ From the website of CBOT, FAO (2008), *Food Outlook May 2008*.

¹⁹ FAO (2008), *Food Outlook May 2008*.

Moreover, the unit yield of major grains (wheat, corn, rice, and soybeans) increased by an annual average rate of 2.3% between 1970 and 1990, which decreased to 1.1% between 1990 and 2007.

According to one of the views, the reasons for the lower rate of increase of unit yield as mentioned above include decreased investment in research and development of agricultural production due to reduced interest in food issues based on the low price of food for the past 20 years.

(Unseasonable weather and lower rate of inventory in major exporting countries)

Furthermore, it is pointed out that climate change has a significant impact on food production.

For instance, poor harvest caused by unseasonable weather has resulted in a shortage of food supply in major exporter countries of wheat, including the U.S., the EU, Australia, and Canada. The wheat production, for example, decreased by 12%–16% between 2004 and 2006 in the EU and the U.S. and by about 15 million tons, from 25 million tons in 2005 to 9.81 million tons, in Australia suffering from dry weather²⁰. In 2007, Australia covered the shortfall caused by poor harvest by using stocks and limited the decrease in the quantity of wheat for export to 3 million tons to reduce the impact on the global market. Yet, such crop failure due to unseasonable weather resulted in a tight supply and demand situation in the global grain market²¹. Ending stocks are expected to compensate for the reduced supply due to decrease in production. As such, it is likely that reduction in the ending stock rate will increase the concern over tight supply and demand balance at a time of poor harvest and will result in price volatility.

2. Responses of various countries and regions of the world

(Move to ban food exports for the purpose of self-sufficiency and securing of imports)

Increase in food prices is causing various negative impacts on countries and regions of the world.

Examples are found in emerging countries in Asia and Africa where it is becoming difficult to procure food mainly for the absolute poor due to soaring food prices, prompting increased social unrest particularly in developing countries. In fact, food-related riots and protest movements by citizens against soaring food prices are being observed in various countries²². To respond to the above situation, governments of some countries are taking measures to secure food through export restrictions, reduction of import duties on food, and others, in order to meet the domestic food demand²³ (see Table 3-3-7).

²⁰ Production decreased in other producer countries such as Russia, Ukraine, and South Africa due to dry weather.

²¹ The USDA believes that the 2007–2008 winter crop production in Australia will recover to 21.66 million tons to exceed the 2006 production by 38%, but at a level lower (by 38.5%) than 35.2 million tons, which has been the average for the past five years.

²² Refer to Chapter 1-1.

²³ It is pointed out that the impact is especially significant on the poor living in the urban areas of developing countries. For example, Amartya Sen's analysis points out that the impact of soaring food price is particularly significant on the poor engaged in the service industry in urban areas. According to him, food is the basic necessity of life. Since it is a good with low price elasticity of demand, the demand for food is slow to decrease even if the price escalates, while such a price rise reduces the value of real income to induce restriction on spending on nonbasic goods (especially spending on services) by urban citizens. Thus, sales in the service industry in urban areas decline and the income of those working in this industry drops at

Table 3-3-7 Export restriction and import promotion measures taken by Asian countries

<u>Export restrictions and so on</u>		<u>Reduction of import duties and other things</u>	
Indonesia	(February) Increased the maximum export duties on palm oil, which is used as edible oil and raw material. Bio-fuels produced from palm oil was made taxable as well. (April) Policy to restrict expo	Indonesia	Reduced export duties on rice and soybeans. Import duties and value-added tax on wheat have been exempted.
China	(December, 2007) Abolished export value-added tax refund (84 items). (January) Grain powder was newly included in the items under export quota (11 items in total). (January) Export duties of 5%-25% have	Philippines	· Signed an agreement with the Vietnam government on rice imports (1.5 million tons). · Discussing an agreement with the Thai Government as well. · Temporarily lifted the import quota (300,000 tons) for private rice and corn dealers.
Cambodia	(March) Announced a temporary ban on rice exports for two months.	Saudi Arabia	· Reduced import duties on wheat.
Vietnam	(April) Prime Minister Dung instructed that total rice exports be reduced by 10% compared to the preceding years. Ban on rice imports until June.		

Source: Compiled by Ministry of Economy, Trade and Industry based on various news reports

The above policies and measures by various countries, however, are not necessarily appropriate for the world. (1) the so-called “keep-stocks-for-domestic-use” policies such as export restrictions are likely to decrease the gross food supply to the world market. (2) subsidizing policies for consumers may reduce the impact of soaring global food prices on local price and lessen the burden on citizens, and accordingly may be effective as a short-term relief measure. However, it will not reduce the national demand for food²⁴. Moreover, such policies involve increasing expenditure as grain prices go higher, which will eventually place a heavy burden on public finance, and may not be sustainable²⁵. Indeed, there are countries and organizations that express opposing views on such policies.

It is possibly more effective and necessary for the solution of food problems to provide various supports for the increase of food assistance in the short term and for the improvement of the ability to produce food and to adjust supply and demand through trading and others in the mid- to long-term rather than to take measures like export bans, which will reduce trading volumes. In reality, the U.N., the World Bank, and the Japanese government are taking various support measures.

(Efforts for increased production, taking advantage of GMO crops)

Planting of genetically modified organism crops (hereinafter referred to as GMO) is increasing worldwide, which is contributing to increased production, reduced planting cost (labor cost, capital cost, and so on), and improved environment in some regions²⁶. As most of the currently

the same time. As a result, mainly the poor living in these urban areas may reach a state where “despite the availability of food, they can’t afford it.” Amartya Sen (2000), *Poverty and Famines*.

²⁴ USDA (2008), *Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices*.

²⁵ There is an analysis, for example, that says that when rice price increases 1.5 times in the Philippines, the financial burden is likely to increase 3.3 times. ADB (2008), *Special Report Food Prices and Inflation in Developing Asia: Is poverty Reduction Coming to an End?*

²⁶ Genetic engineering is actively and widely used not only for food crops but also for medical care,

commercialized GMO are resistant to herbicides and pests, their productivity is higher compared to that of crops in general; moreover, they are effective in reducing production cost due to the smaller amount of agricultural chemicals sprayed.

Concentration of cultivation in specific countries and increase of cultivation in emerging countries

As of 2007, GMO crops include soybeans, corn, cotton, and rapeseed. They are commercially grown in 23 countries in the world, and the planted area has increased about 60 times from 1.7 million ha in 1996 to 114.3 million ha in 2007, which is three times as large as the land of Japan and equivalent to 8% of the global cultivated area²⁷.

The following is the GMO planted area by country in descending order: the U.S. (57.7 million ha), Argentina (19.1 million ha), Brazil (15 million ha), and Canada (7 million ha.). The total planted area in these countries in the North and South American continents is 98.8 million ha, accounting for 86% of the global planted area. In recent years, planting has been significantly increasing in emerging countries such as India (6.2 million ha, or a 63% increase compared to 2006) and South Africa (1.8 million ha, or a 27% increase compared to 2006). Other than these, GMO crops are planted in China (3.5 million ha), Australia, and the Philippines as well. While European countries are adopting a cautious approach to GMO crops, commercial planting is being carried out in Spain, Romania, Germany, Portugal, France, Czech Republic, and Slovakia²⁸.

Although commercial planting of GMO crops is not observed in Japan, the truth is that a considerable amount is imported and widely used mainly as materials for oils and fats, processed food, and food not for human consumption but for cattle feed and industrial starch powder²⁹.

[Column 28] Production increase in South America and global grain companies establishing a global business network across the Pacific Ocean

Brazil and Argentina have increased production as food producing countries in the midst of increasing grain prices and changes in the demand structure. The above move is supported by global grain companies.

In China, eating habits diversified along with economic growth and led to growing livestock consumption, resulting in an increase in the demand for soybeans as animal feed. In the U.S., a major soybean exporter, production of soybeans has decreased due to a shift to production of corn, but on

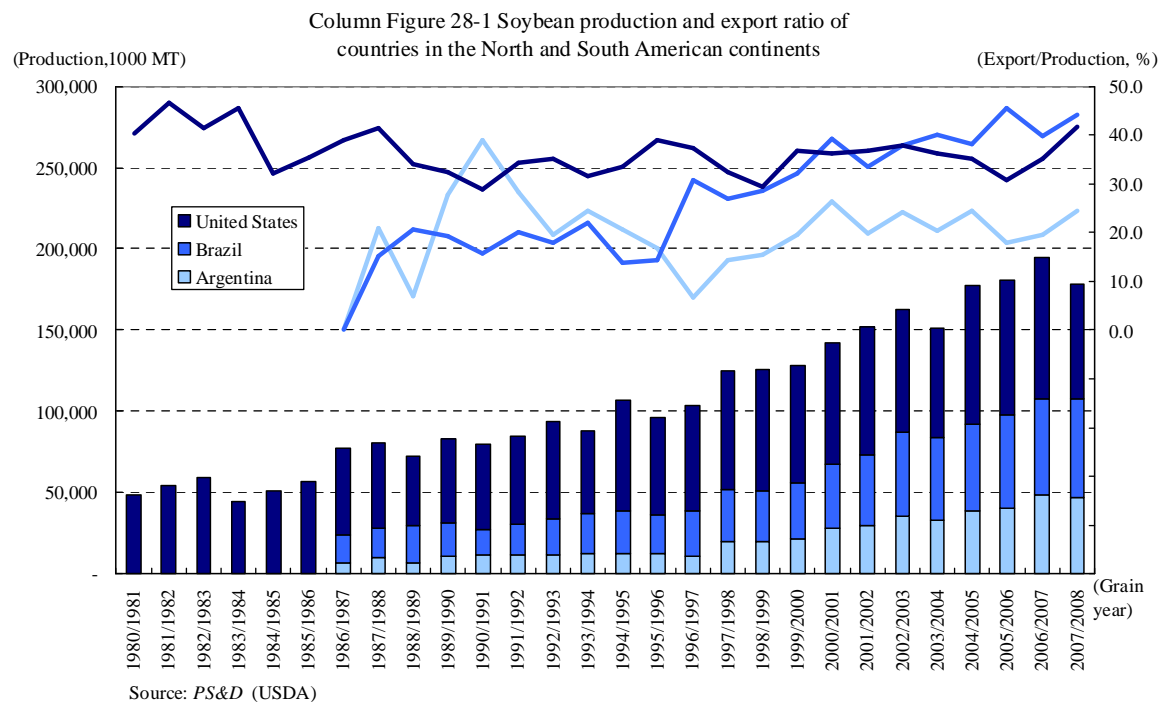
detergents, and other things. The first commercially grown GMO in the world was the “Flavr Savr tomato” that started selling in the U.S. in 1994.

²⁷ ISAAA, 2007 *ISAAA Report on Global Status of Biotech/GM Crops* Biotech/GM Crops.

²⁸ Planted areas by crop in descending order are as follows: Herbicide-resistant soybeans (58.6 million ha, or 51% of all GMO); pest-resistant/herbicide-resistant corn (35.2 million ha, or 31% of the same); pest-resistant/herbicide-resistant cotton (15 million ha, or 13% of the same); and herbicide-resistant rapeseed (5.5 million ha, or 5% of the same), which in total account for almost 100% of the entire planted area.

²⁹ Korea is making efforts to lift the ban on the import of GMO food, which was so far prohibited, in view of the tight supply and demand balance of food (various news reports).

the South American continent, especially in Brazil, production and export systems of soybeans are being improved. Thus, we notice changes in the supply structure³⁰ (see Column Figure 28-1).



It is said that behind these changes is the establishment of a global business network by global grain companies (so-called the grain majors), in which new technologies are provided by the bio-industry. It seems that these companies are establishing a value chain across the Pacific Ocean that connects “the place of production (Brazil) and the place of consumption (China),” “taking advantage of the market function of the U.S.”³¹.

First, grain majors labored to have soybean production rapidly increased in an arrangement where money needed for agricultural operations and a crop purchase agreement were jointly offered to soybean farmers in Brazil, a producer country. More specifically, grain majors provided farmers loans to procure the materials necessary for agricultural operations, including seeds, fertilizers, and agrichemicals, and buy crops from them at a certain price later in the harvest season. Thus, farmers received money for repayment. In other words, grain majors and others are playing the same role as the agricultural cooperatives in Japan. GMO is actively used for soybean production, and in reality, in Brazil, 14.5 million ha, or 68% of the total soybean planted area of 21.3 million ha in 2007 was planted with GMO³².

Next, grain majors obtained import quota allocation for soybeans as materials through the purchase of oil mill companies and so on in China, a customer country, and secured a stable buyer of soybeans³³. Grain majors hedge risk with sophisticated hedging techniques by adopting an opposite

³⁰ Ministry of Agriculture, Forestry and Fisheries, *Overseas Food Supply and Demand Report 2007*; Original source: USDA, PS&D).

³¹ Description of the business model of grain majors is based on the *Norin Kinyu February 2008* (Nourinchukin Research Institute Co., Ltd.) and materials posted on the website of respective companies.

³² Data prepared by USDA and ISAAA.

³³ A research indicates that soybean meal for feed is a bigger cause of increased demand for soybeans in

stance in the soybean futures market on CBOT to avoid the risk of a sudden decrease in price. As individual farmers do not have sophisticated risk management techniques that use the futures market, they benefit greatly from operating under grain majors³⁴. Thus, a global agricultural value chain has been established under the management of global companies.

3. Japan's approach to global food problems

Global price rise supports the establishment of agriculture as an industry through the improvement of international competition conditions, including a reduction in the difference between domestic and foreign prices. Global food price rise is imposing a significant impact on Japan's food supply in the form of a rise in production cost and the price of various food products, since Japan depends on imports for 60% of its food supply.

Since the tight balance between global supply and demand of food is expected to continue, it is necessary for Japan to secure a stable supply of food based on the efforts toward increasing domestic agricultural production with a policy to appropriately balance these efforts with imports and food stocks. On the other hand, interest in Japanese food products has increased rapidly due to the Japanese food boom in various countries and regions, and the amount of export of Japanese agricultural products, mainly including fruits, livestock products, fish, and seafood, has increased more than 10% annually since FY2004. Thus, demand for high-quality agricultural products of Japan has been increasing³⁵. When qualitative difference is taken into consideration, it can be said that Japanese agricultural products have become sufficiently competitive in the international market. Accordingly, the possibility of exploiting both internal and external markets by turning these challenges into opportunities is increasing³⁶. High-quality fruits, vegetables, and processed products intended for the affluent class in Asia, among others, are very promising now and will be in the future.

China than soybean oil. *Future estimate of demand for soybeans in China*.

http://park.iti.u-tokyo.ac.jp/iee/kako_ronbun/chinasoybeandemand.pdf

³⁴ Incidentally, the items, of which Brazil is increasing exports based on the synergistic effects of soybeans, include chicken, and the country's share in the global export trade has reached 50%. Major poultry producers in Brazil procure soy meal at a low price by locating feed factories adjacent to soybean processing factories. Thus, the low feed cost helps increase international competitiveness of poultry producers in the country. Further, methods to improve processing and distribution infrastructure are implemented concurrently.

³⁵ With regard to melons and beef, for example, the values calculated by dividing the export unit price with the import unit price (relative price) are 24 and 15, respectively, indicating that domestically produced products of Japan are relatively expensive as compared to foreign products; however, despite the abovementioned facts, the volume of exports nearly quadrupled between 2005 and 2007. What should be noted is that between 2005 and 2007, the relative prices of melons and beef increased 1.4 and 1.1 times, respectively, which implies that their exports are increasing. It is assumable that the market for high-quality products is getting larger overseas (*Trade Statistics*, Ministry of Finance).

³⁶ For example, customers in the potential market for Japanese agricultural products include foreign citizens visiting Japan mainly from other Asian countries, who are likely to try Japanese foods and whose number reached 8.34 million in 2006, and foreign citizens learning the Japanese language overseas, who are likely to have interest in Japanese foods and whose number reached 2.98 million in 2006 (Japan National Tourist Organization website, *2006 survey of overseas Japanese language educational institutions*, Japan Foundation). Based on the per capita GDP of the countries and regions where foreign citizens visiting Japan and overseas Japanese language students were born and are residing, the size of the potential overseas market of Japanese agricultural products is estimated to be ¥58 trillion.

In order to realize the constant exploitation of markets at both home and abroad as well as the establishment of a sustainable business model, it is necessary to urgently establish a comprehensive value chain between production (upstream) and point of contact with customers (downstream).

More specifically, it is necessary to make efforts to collaborate with food related industries (restaurants, supermarkets, convenience stores, food product manufacturers, wholesale dealers, etc.), including foreign-owned entities, and make proposals concerning brands, serving ideas, and others with producers possessing a good understanding of the strengths of Japanese agricultural products taking the lead³⁷.

(1) For exploiting overseas markets

Against the background of improved competitive conditions due to changes in the international situation and broadening of the market for Japanese food in Asia and other regions, export of Japanese agricultural and fishery products/food products has been steadily increasing. In order to support these exports in the future, every possible effort should be made including (1) improvement of the export environment; (2) strategic promotion of exports by item; (3) provision of support to motivated farmers and fishermen; and (4) provision of information on Japanese food and food materials to overseas, based on the “Comprehensive strategies for the export of Japan’s agricultural, forestry and fishery products” adopted by the National Council for Promotion of the Export of Agricultural, Forestry, and Fishery Products.

Some of the examples of the abovementioned efforts required for the future are (1) to establish and maintain high-quality, safe, and worry-free Japanese food brands (safe and tastes great) based on a strategic collaboration with mainly local Japanese entities in the distribution and food industries; and (2) to establish a value chain that connects upstream and downstream based on the optimization of the international supply network, which includes the establishment of a temperature zone distribution and high speed transportation.

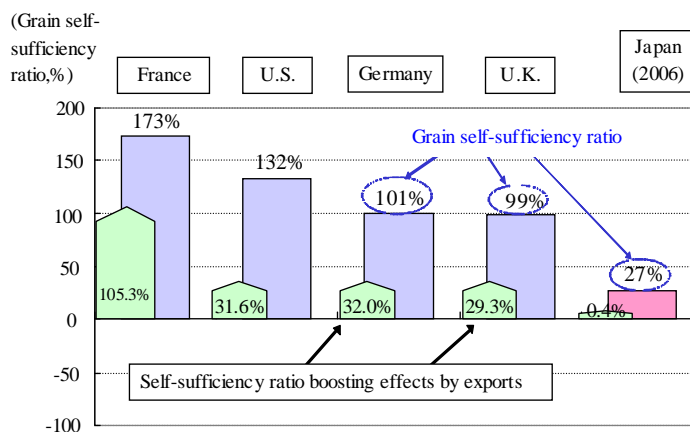
In order to achieve the abovementioned goals, it is necessary to adopt comprehensive measures through the clarification of regulations and their state of operations that are serving as inhibiting factors for market exploitation and a detailed on-site follow-up in addition to the improvement of abilities of producers in Japan and spurring of demand for trade partner countries, thereby making

³⁷ The size of the market for home-meal replacement (nakashoku) and away-from-home meals industries globally tends to be larger than the direct consumption market for fresh foods. The ratio of fresh foods/processed foods/away-from-home meals in food-related ultimate consumption in Japan was 2:5:3 as of 2005. The abovementioned ratio in China, a country with a potential to be the largest market for the Japanese agricultural industry, was 5:4:1 as of 2000, with the size of Chinese consumption being half of that of Japanese consumption, and as such, it is still a smaller market compared to Japan (based on a provisional calculation using the OECD Input-Output Tables). However, this ratio is likely to change with increased ratios for prepared food products and away-from-home meals from the viewpoint that in China, similar to the situation in Japan, women who have been engaged in household chores will play a more active role outside their homes with an increasing need to save time in addition to future economic growth and urbanization. Based on the above stated information, it is possible in the future that acceleration of vertical integration and prepared-food-product and away-from-home-meal-oriented overseas operations will be effective for market exploitation.

good use of JETRO's broad networks at both home and abroad and Regional Export Promotion Councils, etc., with the Regional Agricultural Administration Offices serving as a secretariat.

For the exploitation of overseas markets, mainly in Asia where interest in Japanese food is increasing based on the prosperity of the wealthy class in particular, it is important (1) as internal activities, to overcome bottlenecks such as human resources, information, etc. in order to appropriately identify overseas market needs and construct a network necessary for sales channel development as well as to let a type of "local trading companies" that have "new trade company capabilities" to provide information on the unique value of local products and sell them in a more appropriate size and adaptable manner than major trading companies to make production and distribution connected as entities responsible for the management of the entire food value chain; (2) as cross-boundary activities, to adopt strategic measures, including the acceleration of intergovernmental discussions on quarantine in order to increase the export of agricultural fishery, and food products from Japan; and (3) as activities in overseas markets, to secure loyal non-transient customers of Japanese agricultural products through the expansion of markets for Japanese food and food materials and the prevention of the leakage of intellectual properties such as local brands, making good use of Japanese restaurants that are the point of contact with customers. Moreover, export is important partly for the increase of food self-sufficiency of Japan. Progress of the exploitation of overseas markets, including the export of agricultural, forestry, and fishery products, will revitalize Japanese agriculture, forestry, and fishery and will resolve the issue of food security of Japan (see Figure 3-3-8).

Figure 3-3-8 International comparison of grain self-sufficiency ratio (2003)



- Notes: 1. Self-sufficiency ratio is calculated by dividing the "quantity of domestic production" by that of "domestic consumption."
2. "Contribution to exports" was calculated using the following steps.
- (1) Firstly, calculate the self-sufficiency ratio without export.

$$\frac{(\text{Quantity of domestic production}) - (\text{Quantity of export})}{(\text{Quantity of domestic consumption})}$$
 The above is based on an assumption that if the grain was not exported the production of the amount that would have been exported would not be made.
 - (2) Secondly, obtain the difference between the "self-sufficiency ratio" and the "self-sufficiency ratio without any export." (Please note that, by specifically making the above calculations, you will obtain the same answer as the one obtained by the following calculation: $(\text{Quantity of export}) / (\text{Quantity of domestic consumption})$)

Source: FAOSTAT (FAO); the Ministry of Agriculture, Forestry and Fisheries website.

[Column 29] About “food self-sufficiency and food supply capability”

Japanese calorie-based food self-sufficiency ratio, which used to be approximately 80% in 1960, has continued to decrease to 39% in 2006 which is a decrease by one point from the previous fiscal year. It is said that the reasons for this decrease in the self-sufficiency ratio are (1) shifts in food “preference,”³⁸ (2) the fact that citizens increasingly eat foods and meals from “external sources” where generally local agricultural products are not positively used³⁹.

In the process of shifts in food preferences, demand for livestock products increased, replacing that for rice, and imports, mainly those of livestock feed, increased in Japan. In a trial calculation, cultivated agricultural area overseas used for the production of major imported agricultural products is estimated to be 12.45 million ha compared to 4.65 million ha of agricultural land in Japan⁴⁰.

Based on these facts and given the premise of the population at the current level and the diversified diet of Japanese people, it is difficult to achieve a food self-sufficiency ratio of 100%.

Given the weakening food supply structure, including a decrease in agricultural land and aging human resources, it can be said that it is now an important challenge for Japan to secure food supply capability within Japan by addressing international negotiations based on the basic concept of “coexistence of various types of agriculture” and paying due attention to the progress of food security and structural reform of domestic agriculture, and by increasing efforts to produce rice flour and feed rice, etc. from the viewpoint of improving food self-sufficiency ratio and ensuring food security in emergencies.

(2) Advancing in the local market

Gross production of agriculture, forestry, and fisheries of Japan (upstream) is ¥600 billion (the figure for agriculture and forestry is for 2005 and for fisheries, for 2006), which is about 1% of the GDP. On the other hand, the food-related ultimate consumption expenditure (downstream) by consumers is as much as ¥80 trillion, and accordingly, there is still sufficient room for the expansion of the domestic market based on the replacement of imports and collaboration with home-meal replacement and away-from-home meals industries. It is essential to appropriately utilize the strengths of Japanese agricultural products other than price, including features such as “beautiful,” “tasty,” and “safe.”

For example, it is necessary to strategically promote an increased demand for “tasty” rice, fruits, vegetables, fish, seafood, etc. by using high-quality domestic products such as cooking ingredients for school lunch served in compulsory education schools, which almost all the Japanese children consume.

³⁸ The ratio of rice in the per capita per day calorie intake has lowered, while that of livestock products and oils and fats has increased (*Food Balance Sheet*, Ministry of Agriculture, Forestry and Fisheries).

³⁹ The rate of prepared food products and away-from-home meals in the food consumption expenditure was 43% in 2005, a 15-point increase during the past 30 years.

⁴⁰ Shogenji, S. (2008), *NOUGYOU SAIKEN*.

In order to fulfill this demand, active collaboration between the food-related industries and the Ministry of Agriculture, Forestry, and Fisheries is necessary.

(3) Establishment of a supply system for the developing domestic and international markets

In order to provide a stable supply in terms of quality, quantity, and diversity to new markets as mentioned above, qualitative improvement of the knowledge base of leaders is essential and the knowledge of different fields and industries is absolutely important⁴¹.

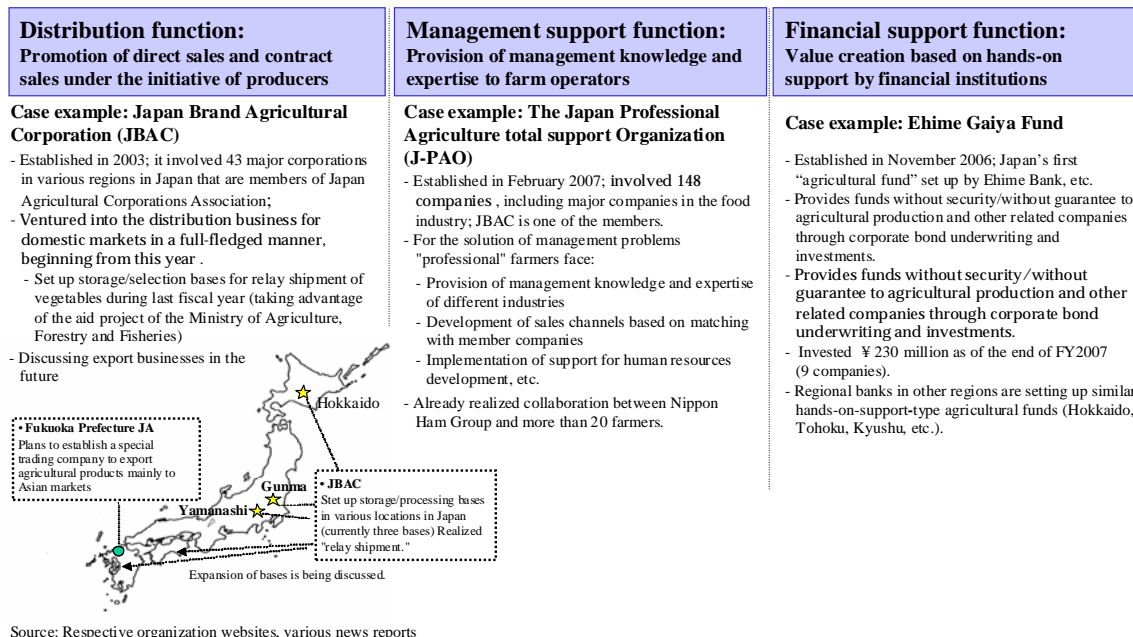
In 2007, the Ministry of Economy, Trade, and Industry and the Ministry of Agriculture, Forestry, and Fisheries began activities for the collaboration of agriculture, commerce, and industry in their recent efforts to support the fusion of knowledge of different fields, and in 2008, they began providing full-fledged law-based financial and management support with the enactment of the “Law concerning the promotion of business operations through the collaboration between small and medium-sized businesses and entities engaged in agriculture, forestry, and fisheries.”

Moreover, progress is being made in institutional supports, including the reduction of requirements for companies to enter into agricultural production and efforts for increasing employment for youth. However, support functions to better assist industry leaders when they launch their new activities are very important.

Multiple support functions, as mentioned above, are already being established mainly in certain regions. Advanced case examples include (1) the “Japan Brand Agricultural Corporation (JBAC)” that has realized a relay shipment between multiple regional bases, a key to the solution of the problem of establishing a stable supply system, which is the biggest disincentive for the export of agricultural products; (2) the “Japan Professional Agriculture total support Organization (J-PAO)” that supports agriculture management entities; and (3) the “Ehime Gaiya Fund” providing hands-on financial support to promising entities. Support should be provided for the birth of entities to follow the abovementioned examples and work for the dynamic export of agricultural products (see Figure 3-3-9).

⁴¹ In fact, the volume of shipment of agricultural products by agricultural corporations led by a corporate manager who has experience in industries other than agriculture has increased by an average 70% during the last five years. In the case of a corporate manager who has experience in the food manufacturing industry in particular, the quantity increased by an average 400%, which is a positive effect of management improvement (Survey of member corporations conducted by Japan Agricultural Corporations Association).

Figure3-3-9 Examples of enhancing logistics, management and financial support functions



[Column 30] Is the promotion of export of agricultural, forestry, and fisheries products something new?

In recent years, export of agricultural, forestry, and fisheries products has increased rapidly, and this has been highlighted for the past several years as an “aggressive policy”. In order to support these promotional activities for export, JETRO, whose main pillar of operation is provision of support for the expansion of overseas sales channels for small and mid-sized companies, set up “Agricultural, Forestry, and Fisheries and Other Regional Products Export Promotion Headquarters” on April 1, 2008, expressing its intention to make an all-out effort for the promotion of export of agricultural, forestry, and fisheries products.

In fact, it is not in recent years that the history of the export of Japanese agricultural, forestry, and fisheries products began. Its long, fascinating history along with the changes in JETRO’s operations for the export of agricultural, forestry, and fisheries products is as follows.

The history of the export of Japanese apples began in 1894 when apples were exported from Hakodate to the Qing Dynasty in China. In 1940, the exports expanded to 20 thousand tons to Manchuria, Vladivostok, etc. The history of export of tangerines is even longer. Japan began exporting tangerines to Canada in 1885. Due to its long history, Japanese tangerines have become considerably familiar for Canadian consumers and are well established in the country as Christmas oranges.

Export of fruits as mentioned above was suspended during the Pacific War, but it resumed immediately after the war while Japan was still under occupation by the Allied Forces. After the signing of the peace treaty, trade promotion policies were enhanced, and in 1954, the Japan

External Trade Recovery Organization, the predecessor organization of JETRO, was established; moreover, in 1955, the Japanese Agricultural, Forestry, and Fisheries Products Export Promotion Organization was set up.

When the abovementioned Japan External Trade Recovery Organization was reorganized to become the Japan External Trade Organization (JETRO), the Japanese Agricultural, Forestry, and Fisheries Products Export Promotion Organization was integrated into the new organization, within which the Agriculture and Fisheries Department was established. The Agriculture and Fisheries Department continued to promote the export of agricultural, forestry, and fisheries products, and although integrations, etc. were implemented within the organization, the flow remains to date as the Export Promotion and Agriculture Department.

Between the latter half of the 1970s and 1980s, there was a period when the export promotion operations, including those for agricultural products, by JETRO were replaced by import promotion activities due to concerns regarding external trade conflicts⁴².

It is notable that although we tend to believe that due to lower price competitiveness, export and production of Japanese agricultural, forestry, and fisheries products will decrease rapidly in the flow of trade liberalization by GATT and WTO, where import of lower-priced agricultural products produced overseas is liberalized, the relevant course of events has not always been as expected.

For example, tangerines had been exported to the North American market stably for some time under the abovementioned circumstances. Thereafter, exports have decreased till date due to the impact of the appreciation of the yen in the 1990s rather than due to trade conflicts. With regard to canned tangerines, a processed food product, Japan was an exporter country to the EU and US until FY1970. Due to a reduction in the production of domestic tangerines in 1980s and the impact of the appreciation of the yen, however, the exports decreased rapidly, and in the 1990s, Japan became an importer⁴³.

On the other hand, when we examine the history of the export of apples, we can identify traces of tough efforts to survive trade wars. Exports to Southeast Asia decreased due to the price rise in the 1970s and the fact that the ban on the import of apple juice was lifted in 1990 and that for fresh apples from various countries was lifted sequentially in 1993 and thereafter. However, apple farmers in Japan did not bow to the tide of globalization or decrease their operations. Instead, they changed their sales strategies and ventured into the upper market segment in Southeast Asia—their conventional market—and promoted their products positively in Taiwan, since trade liberalization was implemented there⁴⁴.

Moreover, in 2003, rice exports from Japan to China stopped as a result of enhanced regulations

⁴² In 1983, the Import Promotion Headquarters was set up in the organization.

⁴³ It is assumable that this is partly the result of the impact of a strongly promoted shift to fruit trees to replace satsuma, because the domestic share decreased due to the successive liberalization of the regulations for the export of competitive fruits (bananas, grapefruits, oranges).

⁴⁴ Taiwan abolished the import quota and lowered import duties when the country joined the WTO (2002). The US, which had enjoyed the biggest share in the Taiwan market, lost some share due to problems concerning quarantine (contamination with pests) and safety (doubt in safety of waxing) of apples. Japanese apple farmers entered into the market and succeeded in significantly increasing exports.

based on the Chinese plant quarantine system. It was decided, through technical discussions, that the regulation would be lifted in 2008. On the other hand, as apples along with pears had been exported to China, they continued to be exported to China even after the enhancement of regulations till date. Thus, although the amount of export of tangerines and apples accounts for an insignificant 1% or so compared to the amount of domestic consumption, they have been exported continuously under a one-hundred-years-plan of the nation. As seen above, that part of the business world is considered as both old and new where only those who can keep up with the rapid pace of the times can survive.

Exploitation of new markets needs to be addressed in the future. Currently, the US and China continue to have higher shares in a number of countries.

Exploitation of markets for agricultural, forestry, and fisheries products will be promoted now and in the future based on the wisdom of businesses and by utilizing various support measures. Japan is expected to achieve the national export target of ¥1 trillion in 2013.

(4) Efforts for the resolution of food problems through collaboration with other countries

(Establishment of international rules to secure trading systems)

It is also important to sign international agreements to counter the recent food export regulations. The declaration of the FAO “High-Level Conference on World Food Security” reaffirmed the need to minimize the use of restrictive measures that could increase volatility of international prices. Moreover, Japan, in cooperation with Switzerland, has recently proposed the strengthening of rules and disciplines on food export regulations.

(Promotion of investments in overseas agricultural development)

Next, as a measure to realize the abovementioned goal, it is important to work for the enhancement of global food supply capability through overseas agricultural development. In fact, triggered by the so-called “tofu riot⁴⁵” in the 1970s, in cooperation with the Brazilian Government, Japan made an agricultural investment in the form of Official Development Assistance (ODA) for the establishment of a stable supply system of soybeans in the Brazilian Cerrado (bushy savanna) region, which was considered to be unsuitable for agricultural production to make it a suitable for agriculture; moreover, it successfully increased the production and secured the imports of soybeans. Thus, the expansion of investments in foreign-owned agriculture and food entities is expected to be effective⁴⁶.

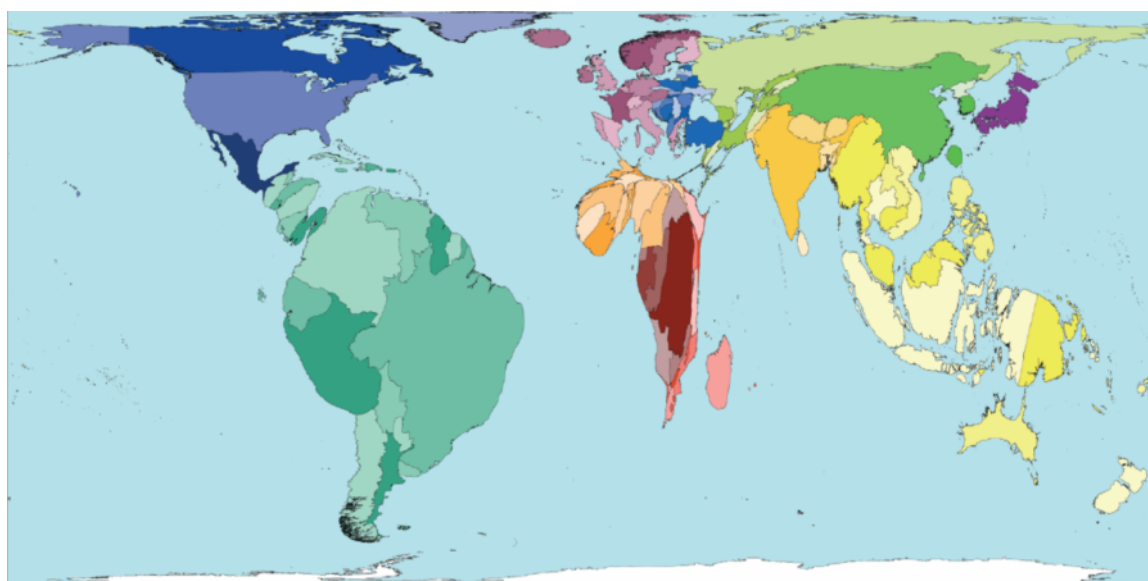
⁴⁵ During the world food crisis of the early 1970s, soybean prices rose sharply in Japan due to the insufficient supply caused by the impact of the US ban on export of soybeans, and tofu manufacturers, etc. held demonstrations jointly with consumers, chanting “Give us soybeans.”

⁴⁶ The amount of food import from overseas food-related subsidiaries of Japanese companies was worth a total of ¥330 billion in 2006, accounting for only 5.4% of the total food import (¥6 trillion) (Ministry of Economy, Trade and Industry, “*Basic Survey on Overseas Business Activities*”).

[Column 31] Development in the Cerrado region of Brazil: Increase of soybean production and restrictions on the use of water resources

Brazil has a very high potential for increased production. It is believed that the potential farmland in Brazil comprises 160 million ha, and it also has rich water resources. If we draw a world map based on the amount of water resources of the countries in the world, we notice that Brazil is rich in water resources compared to its land area, and China's water resources are relatively low (see Column Figure 31-1).

Column Figure 31-1 World map reflecting the amount of water resources as land area



Source: *World mapper* (Originally produced by: the SASI group (Sheffield) and Mark Newman (Michigan))

As mentioned above, the fact that cultivation in the Cerrado region, which had been unsuitable for agricultural production, has been promoted to increase soybean production in Brazil, and it also had a significant positive impact. At the time of the grain crisis in 1973, Japan searched for a new exporter country and in cooperation with Brazil, it implemented a national project called “Japan-Brazil Development Project in the Cerrado Region” in 1979; as a result, 15 million ha have been turned into farmland, which is three times the area of the total cultivated land in Japan, which changed semiarid land into one of the largest agricultural areas in the world in just a quarter century.

Diversification of exporter countries is an important issue for Japan, which is one of the largest importers of agricultural products in the world. It is likely that efforts in overseas agricultural land development and cooperation in agricultural production will also contribute to this effort.