Discussion on Issues of Food Security Based on Basic Domestic Self-Sufficiency

Shutao Gao Sichuan Agricultural University Ya'an 625014, Sichuan, China E-mail: cngst@126.com

Abstract

Food is the most essential and important living substance of human being and is "grain ration" and strategic material. Food security is the basic guarantee for the national security. To China, a country which holds the largest population in the world, food security is more obviously a vital problem which concerns with the national security, the economic improvement, the national happiness and the social security. However, under the condition of the economic globalization, there are different arguments on whether China's food security should be based on basic domestic self-sufficiency or it should be substituted by import. This paper will state that adherence to the food security strategy of "satisfying basic domestic self-sufficiency" is a necessary choice, by taking the serious situation of the global food crisis that has happened in the past two to three years as a background and from the three perspectives of the importance and specialty of food goods, the serious situation of international food supply and China's special national situation. Meanwhile, it will put forward the basic thoughts and policies on ensuring the food's basic self-sufficiency.

Keywords: Food security, Domestic, Basic self-sufficiency

1. Proposal of the issue of food security based on basic domestic self-sufficiency

Food is the important material which concerns with the national welfare and the people's livelihood and social stability. It is the subsistence foundation for everyone to possess enough food, which is also the basic right for people in the modern society to maintain existence. As for China which holds the largest population in the world, the issue of food seems more austere. It has always been a focus of attention to resolve the food issue of people, also has been an important target for all previous leaders of China. The Prime Minister of China, Wen Jiabao, has mentioned for several times that, "With grain in our hands, there is no need to panic", "the alarm of food security should be rung for ever, the string of consolidating agricultural foundation should be always tightened, and the requirement to resolve well the issue of 'Agriculture, Farmer and Village' should be insisted forever as the first priority in the work of the whole Party."

However, concerning the selection of food security strategy in China, some scholars believe that, under the condition of economic globalization, since grain production of China does not have a comparative advantage in the international market, we ought to exploit to the full our favorable conditions and avoid unfavorable conditions, put human resource, material resource and financial resource into industry and other industries with potential development prospect, satisfy domestic demand on grain through import and to realize the conversion from grain producing power to grain importing power. According to them, so long as the economy is developed and the national citizens have economic power, the country can regard all grain producing countries in the world as a granary of itself. In such way, this can not only strengthen the power of China to bargain in international affairs and diminish the favorable balance of trade with some developed countries, such as the US, but can also obtain grain resources with a cost lower than domestic cost and enjoy the price subsidies implemented by the government of the grain producing country as well to grain industry. This is the so-called the proposal of "grain importing theory". This food security strategy which is realized through grain import seems to be rational to some extent, but it implies two pre-conditions in logics: one is to regard grain as general commodity and the other is to presuppose that supply of food in the international market is sufficient.

As a matter of fact, the pre-supposition that supply of food in the international market is sufficient has been overthrown ruthlessly in the presence of the global food crisis that happened in the last two years. It is indicated according to relative report by the World Bank, from the second half year of 2006 until the end of February 2009, the price of wheat in the international market rose 181% and price of food in the international market rose 83%.

And international food price merely in the year 2007 rose 42%. The global food crisis that was caused by the soaring global food price and that has not come to an end makes the issue of food security again paid attention to by all countries throughout the world. The World Food Program made a statement on April 22, 2008, rise of food price was just like "a silent tsunami", and the World Food Program is facing up with the most serious challenges since the last 45 years. In the presence of the serious global food situation, we have to look over again the national situation and food situation of China and emphasize the food security strategy of "adhering to basic domestic self-sufficiency".

2. It is the basic strategy of food security in China to "adhere to basic domestic self-sufficiency".

The so-called basic self-sufficiency means that the ratio of self-sufficiency should remain above 95%. In November 2008, the National Development and Reform Committee (NDRC) issued "National food security medium-long term programming outline (2008-2020)". According to the Outline, the ratio of food self-sufficiency should remain above 95%, rice and wheat should remain self-sufficiency and corn should remain basic self-sufficiency; the productive ability of food should remain above 500 million tons in the year 2010 and should reach 540 million tons by the end of 2020; the sown area of grain should remain above 103 million hectares in the long run; the level of per unit yield should reach 4875 kilograms/hectare by the end of 2010 and should reach 5250 kilograms/hectare by the end of2020. Thus, it is visible, the Chinese Government attaches great importance to the issue of "basic self-sufficiency of grain" and regards it as the basic strategy of food security in China. Specific objective evidence is as below:

2.1 Food is an important and particular commodity.

Food is the most basic and important means of subsistence and is "grain rations" and strategic materials. If the food is serious in shortage, famine will be caused which may lead to social instability. Food is the "stabilizator" of the society, so only if we maintain stability of food price, can stability of price of commodities in the whole society be maintained. Continuous soaring food price will necessarily lead to inflation, which may further affect development of social economy. Food industry is the foundation of the national economy, and fluctuation of food industry may exert negative influences on development of other industries in several aspects. Thus, it can be seen that, for a country, the issue of food is not purely an issue of economy, but simultaneously a social and political issue which concerns with the economic security of the country. From ancient times till now, there is no government in the world that has not put the issue to resolve food security issue of national citizens in an important strategic position.

In the selection of food security strategy in China, some academics propose to abandon "the burden of food self-sufficiency" and ensure food security through "food import". Indeed, from the perspective of comparative advantage theory of economics, such countries as the US, Argentina and Canada with more plains are quite suitable for mechanized agriculture production, so their agriculture production has the advantage of low cost. By contrast, such countries as Japan, Europe and China in which there are a lot of mountains or hills are densely covered, the cost of agriculture production is relatively high. Thus, it seems to correspond with the economic rules to let these countries, such as the US and Argentina, with superior natural agricultural conditions grow grain and let Japan, Europe and China purchase food, in which "each one plays his part". However, food is a kind of strategic material which differs from other products, because its production is deeply influenced by natural elements and is full of uncertain factors. It often does not work properly to intend to depend on pure economic rules to adjust food supply. Once climatic anomaly occurs within a world-wide scope, which certainly causes reduction in grain yield and food supply is in shortage, all countries abundant in grain yield will give priority to domestic consumption demands and reduce export of food to push forward reduction of the total amount of global food trade. The climatic anomaly which happened in 1972 caused many countries to reduce in grain yield and the price of food soared rapidly within a short period of time. Afterwards, countries all over the world abundant in grain yield adopted the policy of "encouraging import and limiting export" and even discontinued food export. As a result, quite a large number of food importing countries had to run hither and thither to search for new food resources and the food panic appeared. Since the year 2006 when global food supply was relatively in shortage, a lot of countries abundant in grain yield gave priority to domestic demand and reduced food export, which made a lot of food importing countries trapped in food crisis. This is a good example. Therefore, it may be led by the nose by others and be dangerous if it is as the case preached by some people that we should abandon the policy of seeking for basic balance of food and place hope on the international market to resolve the issue of food. Nowadays, quite a lot of industrialized countries still give protection to domestic grain yield even if their grain yield cost is obviously higher than the price of the international market, with the underlying reason mentioned above.

2.2 The situation of the international food supply is serious and is intense in the long run.

The global food crisis, which has happened since the second half of the year 2006 and mounted to the peak in the first half of the year 2008, sounds alarm bells again to the issue of food security in China. This global food crisis has been the most serious one since the sixty years after the Second World War. It has lasted long, involved a large scope, fluctuated to a large extent and influenced deeply. Its main manifestations are as below:

Firstly, food reserve dropped swiftly and seriously weakened its function as a stabilizator to adjust and stabilize the price of food in the market. By the end of 2000, the inventory of food in the world reached as high as 630 million tons. In 2006, the total storage amount of food in the world reduced to 375 million tons, which accounted merely for 59.52% of that in 2000. At the beginning of 2008, the total storage amount of food in the world reduced to 370 million tons, which merely accounted for 58.73% of that at the end of 2000 and had reduced to the lowest level since the last thirty years. In 2007, the inventory of wheat in the world reduced by 11%, and the inventory of wheat in the US which is the largest country exporting wheat even reduced to the lowest level in the past sixty years. Radical reduction in inventory of food in the world has seriously weakened the function of food to adjust and stabilize the price of food in the world.

Secondly, the price of food hiked and continuously broke through the highest price throughout the history. It is indicated in relevant report by the World Bank, the global price of wheat in 2007 increased by 112% and the price of corn increased by 47%. Moreover, the price of rice in Thailand soared from \$360 per ton to approximately \$1000 within the period of two or three months in 2008. The price of food has continued to rise and panic in the market grew like a weed. In order to ensure food supply and control inflation, all countries throughout the world took measures in succession to restrict export of food and encourage import of food.

Thirdly, the severe situation of food shortage and soaring price of food has deep influence and has evolved from an economic issue to a political issue. According to incomplete statistics, the food crisis which occurred in 2006 has concerned with over half of the 6.6 billion population in the world and there are more than 20 countries abundant in food yield and more than 30 countries short in food that have been affected to different degrees. Famine refugees in Haiti rely on a sort of "mud cake" to satisfy their hunger, for which its Prime Minister is urged to be out of power. The disturbance of "johnnycake" is caused in Mexico. The Philippines sends "police of rice" to maintain the order of the rice market. Even in the US that is known as the "granary in the world", there are two supermarkets that take the measures of limiting purchases to its citizens. According to statistics by United Nations Food and Agriculture organization, continuous soaring price of food makes more than 100 million population in the following countries: Haiti, Egypt, Cameroon, Cote d'Ivoire, Ethiopia, Madagascar, the Philippines and Indonesia, etc. The largest enlightenment of this food crisis is that, it is the cardinal task for China to administer state affairs well and ensure national security to resolve the issue of food for over one billion people. Thus, we have to unswervingly persist in the strategy of keeping a foothold in domestic food and realizing basic self-sufficiency of food.

Furthermore, considering the trend of food supply in the international market, the condition of food supply will be intense in the long term. From the perspective of food supply, global warming has brought about unfavorable influences upon food production. It is estimated by the World Bank, when the global climate rises one degree centigrade, food yield will reduce by 1%-1.7%. Thus, one of the important reasons for reduction in food yield in 2007 was the influence of disastrous weather. In the mean while, with advancement of scientific progress to a certain extent, the speed of increase of per unit yield in food in the world reduces continuously. The speed of increase of per unit yield in food in the world has reduced from the average annual 2.7% to the present 0.8%. In addition, the urbanization process within the world-wide scope has also exerted influences upon grain yield. The proportion of global urbanization rose from 39% in the year 1980 to 49% in the year 2004. Acceleration of urbanization process causes the proportion of population engaged in agricultural production to reduce year by year and resources of plowland to reduce in a large quantity. Limited resources determine that the space of grain output is not big enough. Study by International Food Policy Research Institute indicates, even if the price of food rises 10%, the output of food can only rise 1% to 2%. Except that European Union which carries out common agricultural policy has a small amount of space for increase in yield, other countries have to face up with such controversial issues as overexploitation of farmland and application of transgenic technology, etc, and it is difficult for them to change the situation of slow increase in food supply. Corresponding with intense food supply, the increase of demand on food in the world is rapid. The increase of global population leads to increase of demand on food in the world. It is predicted by demographers that, by the year 2015, the global population will have reached 7.2 billion, and feeding of the newly born population will need 2.39 billion tons of food supply and 1.57 billion mu of agricultural acreage. Besides, the diet structure of human being is being improved gradually and per capita consumption of meat and dairy products is increasing year by year, so demand on feed grain rises year by year too. In addition, development and application of bioenergy on a large scale increases industrial demand of global food. In 2007, the corn used to produce ethanol in the US accounted for 20% and the proportion in 2008 rose approximately 25%. The US intends to increase output of ethanol to 35 billion gallon by the year 2017 (approximately 132.4 billion liter), so it will have to consume 0.32 billion tons of corn. Thus, in the long run, the trend of food supply in the world is not optimistic, and it is not that so long as one has money, he can purchase the food he needs. We have to firmly bear in mind the directive thought of keeping a foothold in domestic food to ensure basic self-sufficiency in the long term, and the idea of "there is no need to panic in heart with food in hands" at any time.

2.3 The particular national situation in China

China is a country which holds a large population and its demand on food is enormous. If we turn over food security of China to the international market, the international market has no means to satisfy such a large amount of demand on food, which may result in instability of the food market in the world. A minority of people always tend to make an analogy between Japan and China. Japan is a country with large population and little land, so it has to import a large amount of food each year and at present it has become the second largest food importing country in the world. However, there is one basic fact that can not be denied, that is, population in China is ten times that of Japan, and the quantity of demand on food reaches 500 million tons or so each year. Considering the medium-and-long term development goal of food in China, the total amount of demand on food will have increased from 500 million tons at present to about 720 million tons by the year 2030. Given the situation of international food trade, the average annual quantity of food trade in recent years has almost remained at 240 billion kilograms, which approximately accounts for 50% of the total food output in China. If China imports 1% of the total amount of domestic demand, this amounts to 2% of the international food trade amount. Thus, it can be seen, food supply in the international market is extremely limited with respect to domestic demand on food. So far as the present situation is concerned, even if we purchase all trade food in the international market, we can merely feed 40% of Chinese population, regardless of the fact that population in China is still rapidly increasing. Under the pre-condition that crisis underlies food security of the world in the future, if we do not keep a high food self-sufficiency rate, but just depend on import from the international market, then not only the international market has no means to satisfy such a large amount of demand, but this will also influence the food supply of the global market and will especially bring about unfavorable influences upon food purchase in those countries with low income.

As for China, there is also a particular situation, that is, China has a large number of farmers. Among the 1.3 billion population, there are about 70% of people who still live in rural areas for the time being. Thus, if we "cast off the burden of food self-sufficiency" and abandon food production, then farmers' way out is quite difficult to resolve and distribution of land is difficult to coordinate. According to the current national situation of China, it is extremely unrealistic and also impossible to transfer the large amount of agriculture population into non-agriculture population within a short period of time. It is unlikely for other industries with "bright development prospect" than food production to offer so many employment positions. Furthermore, if we give up food production and place hope on food imports on a large scale to ensure the food security, the traffic transportation caused by foreign exchange disbursements and import of food will be also a big problem.

Finally, China is a developing socialism country and the scheme of western countries led by the US to "westernize and differentiate" China will not be changed. Thus, if we depend on importing food to resolve the issue of food in China, this has no difference with fastening chains on ourselves. It is believed by some people that, since "Cold War" has come to an end so far and such countries as the US abundant in food production have declared not to implement food embargo, then there is no need to worry that these countries may seize us by the throat. However, this is just a subjective guess lacking in persuasive force. If a serious food problem really happens in China, there is no one who can guarantee that these countries will not impose pressure on us by taking food as a weight. Therefore, it is extremely unfavorable for independence and sovereignty of a nation to image fastening the bag of food on others. Independence and sovereignty of a nation can not go without a system of food security.

3. Thought and countermeasures to guarantee domestics basic self-sufficiency of food

Importance and particularity of food products, the situation of large fluctuation of international food price and long term tension of food supply, as well as the particular national situation of China, decide that it is a necessary choice for China to insist on the food security strategy of self-dependence. Its basic ideas is to focus on improving the comprehensive production capacity of food and ensure stable development of such primary agricultural products production as grain, etc. Thus, we should take the following major countermeasures and measures.

3.1 To strictly protect and effectively utilize plowland and water resource

Plowland and water are the most fundamental resources for food production. The contradiction between people and land in China is quite prominent, in which the per capita hold of water resource accounts for merely 30% of the average level in the world and spatial and temporal distribution is imbalanced. Thus, it becomes the foundation to ensure basic self-sufficiency of food to protect and effectively utilize plowland and water resources.

Firstly, we must carry out the most strict plowland protection system in the world and persist in the red line of 1.8 billion mu of plowland. We ought to strictly implement "Land Law" and "Regulations on the Protection of Basic Farmland", stipulate and set up permanent protective zone of basic farmland centered with production of grain, restrain all kinds of behaviors of aggression by all construction land in plowland, especially in basic farmland and prohibit such phenomena as abandoning agriculture land. We ought to take an initiate to start land consolidation and re-cultivation, increase effective agricultural acreage and realize the dynamic balance of the total amount of plowland resources all over the country.

Secondly, we should guarantee convertibility of plowland resources to ensure a certain amount of the sown area of grain. That is, we can ensure a certain scale of sown areas of land through the convertibility of plowland in production of grain and production of cash crop. Once the early warning mechanism indicates that the issue of food security might happen in the future, we can rapidly convert plowland used to plant cash crop into production of grain.

Thirdly, we should accelerate improvement of median-and-low yield farmland and improve multiple crop index. At present, two thirds of the plowland in China is median-and-low yield farmland and per unit yield is lower 150-200 kilograms than that in the high yield field. Each if hectare is increased 375 kilograms in terms of production, then the whole country can increase production more than 20 billion kilograms. For the time being, the multiple crop index of plowland in China is 159%. It is estimated that, by the year 2030,the multiple crop index will have increased by 10% through reforming the system of cropping. Furthermore, each increase of one percentage point in the multiple crop index in China amounts to an increase of 100 hectare in plowland.

Fourthly, we should take the initiative to study and promote advanced agricultural "water conservation" technology. In the mean time, we should ensure that irrigation facilities get protected and effectively utilized, strengthen the vigor of investment in water conservancy facilities and increase the area of irrigation. At present, the irrigation area in China accounts for approximately half of the plowland and if we increase the irrigation area to a larger extent, then there is still large space to keep stable production increase of food.

3.2 To strengthen infrastructure construction of agriculture

Ecological environment in China is congenitally fragile, and China is one of the countries with most serious natural disasters. It has quite important significance to strengthen agricultural infrastructure construction and improve food production environment. However, since a long time, investment in agricultural infrastructure construction has not been sufficient and there are too many historical debts, which lead to quite fragile agricultural infrastructure system and low capacity in withstanding natural disasters. In order to realize an increase in both production and income of farmers and ensure food security of the nation, the urgent affair for the time being is to continuously enhance investment in agricultural infrastructure. At the time when the government increases finance in agriculture year by year, the government should also accelerate in setting up an effective mechanism of agricultural investment with multiple channels to adapt to the market. We should make full use of the "green box" policy under the WTO framework, do well in the agricultural infrastructure construction with the focus of water conservancy and improve the capacity of flood control and drought relief. The government should vigorously conduct basic construction of farmland and improvement of median-and-low yield farmland, govern the issue of flood, water-logging and drought in a comprehensive way and continuously improve basic conditions of agricultural production. The government ought to make concentrative investment and overall development by taking a county as the unit and promote the national food central production area and back-up area construction by means of construction of water conservancy works on a large scale, soil improvement and farm mechanization, etc.

3.3 To give full play to the supportive role of science and technology

Science and technology constitute are a primary productive forces, it is furthermore the key to enhance the overall grain production capacity in the case of increasing arable land difficult. Therefore, the nation should

continue to strengthen its vigor of support in agricultural scientific research and promotion of agricultural science and technology. The nation should increase capital investment and set up an agricultural high and new technical integration system which fits with the national situation of China. Centered with land and water resources, the government ought to set up a high and new technical integration system for effective utilization of agricultural resources by means of dry farming technique and cropping system, the critical technology of breed optimization and land utilization, etc. At the same time, the nation should pay more attention to construction of grass-root promotion system of agricultural skills, strengthen training on grass-root agricultural technicians and model households, make agricultural technology of high and stable yields rapidly promoted and employed and improve the overall grain production capacity.

3.4 To mobilize and protect enthusiasm of farmers in growing grain

To mobilize and protect enthusiasm of farmers in growing grain is the fundamental solution to improve overall grain production capacity. Only the extensive farmers are willing to grow grain and happy to grow grain, can they increase grain production quantity and improve grain quality on limited plowland. At present, the comparative income of farmers in growing grain is still low, so farmers have more enthusiasm in growing cash crop and the secondary and tertiary industries than in growing grain. Then, how to increase income of farmers growing grain and protect enthusiasm of farmers in growing grain? Some people mistakenly believe that, it is unlikely to offer support and protection to production and operation of grain after China's entry into WTO. It can not be denied, entry of WTO has largely diminished the space of macro-control under and support and protection policy of China in grain production, but there is still space of functioning of policies and systems.

Firstly, we can offer direct subsidy to grain production by the means recognized by "Green Box Policies" of food. "Green Box Policies" involve extensive scope, including subsidy of scientific research of grain and technical promotion; subsidy of infrastructure construction of commodity grain base; subsidy of grain sale and storage, subsidy of crop insurance; and subsidy of environmental protection, etc.

Secondly, to make full and flexible use of "Blue Box Policies". "Blue Box Policies" is to allow the developing countries to encourage agricultural and rural development by policy of assisting a plan and other supports, with an amount of support not exceeding 10% of the gross national product. We ought to make full and flexible use of this policy to strengthen construction vigor of all sorts of irrigation and water conservancy and infrastructure in grain production bases and reduce expenses of farmers in all sorts of non-production cost; enhance the vigor of basic scientific research of food and resolve the issue of upgrade and update of food varieties; reinforce the vigor of environmental governance and improve the factor of merit and competitive force of food; set up the insurance system of grain production and operation and intensify the capacity of grain production in resisting risks.

Thirdly, to make full use of the obscure stipulation in "Amber policies" to play well the "edge ball". We should offer subsidy to agricultural production by the means of so-called public works duties and monetization of voluntary labor service to further enhance income of farmers; strengthen subsidy to agricultural production means; set up sound price support system of agricultural products according to the article of "De Minimis Rules" by WTO that the nation supports; offer subsidy to investment in seeds, fertilizer and irrigation, etc. As above, farmers can obtain more tangible benefits from growing grain with support of favor by the nation so as to fundamentally improve the overall guarantee capacity of grain production and supply.

3.5 To establish sensitive and accurate food early warning system and perfect risk guarantee system

Early warning system of food is the "announciator" to guarantee national "food security". We must have a sense of early warning awareness, set up and improve food security early warning system, supervise and report all early warning indices for food security at all times, make in time a comprehensive analysis of all information data, such as domestic and international food production, market supply and storage, etc and put forward the report in an accurate way for a frame of reference for decision makers. At the same time, due to long food production cycle, bad market response capacity and great natural risk, it is imperative to set up food production guarantee system and insurance system, in order to reinforce the risk tolerance of food production and protect stable development of food production and interests of producers. Today, agricultural insurance has become an important means by the government to support development of agriculture in developed countries.

3.6 To vigorously develop substitute products of food

Generally speaking, the more the quantity of substitute products of food, the higher the security coefficient of food. On the issue of national food security, we should resolve it with a view to the scope of "large grain". That is to say, not only cereal is grain, but all sorts of aquaculture and agriculture productions should be brought in the scope of grain. Simply speaking, so long as a product is edible and makes it possible to consume less grain, it is

the substitute product of grain. To vigorously develop substitute products of grain can not only avoid restraint on quantity of plowland, but can also optimize the diet structure of national citizens, optimize the production structure of agriculture and reinforce industry-and-agriculture integrative production. Firstly, to vigorously develop aquaculture, make full use of fresh water surface and ocean resources and increase the quantity of supply of aquatic products. Thirdly, to vigorously develop food processing industry, process all sorts of edible agricultural products, especially alive agricultural products that are not suitable for storage and to extend the quality guarantee period of these products. In such way, we can exponentially increase the quantity of substitute products of grain and increase the security coefficient of food in China.

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