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Agricultural Multifunctionality Evolution and Research into Issues concerning Agriculture, Countryside and Farmers

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Abstract From the point of view of agricultural civilization, the history of human civilization is the history of the development of the agricultural civilization. Accompanied by social progress and development of the times, the function of agriculture also experiences the expansion and deepening. In terms of economy, there is a process from mechanized farming to industrialization, then to informatization, modernization and internationalization. The great rejuvenation of the Chinese nation has also experienced and witnessed this process. In terms of "agriculture, countryside and farmers", the content is complex, diverse, profound, sharp, and changing, constantly testing and challenging our wisdom. When the Document No. 1 in 2007 targeted modern agriculture, it indicated that new connotation was integrated into agricultural multifunctionality, standing at a new starting point. At present, the function of agriculture is still deepening; there are tremendous achievements and outstanding problems concurrently in issues concerning agriculture, countryside and farmers. We take the agricultural multifunctionality as breakthrough point for exploration and research.

Key words Multi-functional agriculture, Modern agriculture, Issues concerning agriculture, countryside and farmers

The function of agriculture refers to the role, status and influence in the national and regional development. In recent years, the research on the function of agriculture is increasingly becoming a hot area; the production, teaching and research areas around the multifunctionality of agriculture all have made different progress. When the Document No. 1 in 2007 targeted modern agriculture, it indicated that new connotation was integrated into agricultural multifunctionality, standing at a new starting point. In-depth understanding of the multifunctionality of modern agriculture contributes to gradually resolving issues concerning agriculture, countryside and farmers, and helps us to know the practical significance of rural and agricultural development to social harmony and social security.

1 The evolutionary process of agricultural structure and function

1.1 The origin and progress of modern agriculture Modern agriculture is the socialized agriculture widely using modern science and technology, means of production, facilities and equipments, and modern scientific management method provided by modern industry, which is developed based on modern industry adopting the large machine production, with resource conservation, sustainable development and green production as its highest ideal. It aims to save the input of soil, fertilizer, water, pesticide, power and other resources. The process of building modern agriculture is the process of transforming tradi-

tional agriculture and continuously developing rural productivity; the process of transforming agricultural growth mode and promoting sound and rapid development of agriculture. The core of modern agriculture is scientificity; the characteristic is commercialization; the direction is intensification; the goal is industrialization. Modern agriculture is a green industry with high environmental standard under the strict supervision of quality standards, safety and quality of the environment, focusing on not only the production process, but also the maintenance and improvement of the quality of human life and the living environment. In general, the modern agriculture in developed capitalist countries began from the second industrial revolution, completed in the 1980s. China's Document No. 1 in 2007 targeted modern agriculture and modern agriculture has entered into large-scale, and all-around implementation phase since, achieving initial success. Director of the Office of Central Rural Work Leading Group, Chen Xiwen said: "The mode of operation, production scale and product standards are only the general characteristics of agricultural modernization, and there should be an indispensable premise-intensification of agricultural land, in order to make the three characteristics tenable." [1]

1.2 The main functions of modern agriculture

1.2.1 Economic function. The economic function of agriculture is mainly to provide basic food and agricultural products for urban and rural residents, ensure the basic needs of life in China above the survival level. The economic function of agriculture also includes the function of providing corresponding materials, raw materials, and fuel for China's industry, which is the function for agriculture exchanging with other industries. The economic function of agriculture is the foundation and core of agricultural multifunctionality.

1.2.2 Ecological function. Ecological function is one kind of

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non-material goods. The ecological function of agriculture highlights the weakening of the economic and industrial sector of agriculture, and the strengthening of the property of the public sectors. It means that agriculture optimizes and maintains water, soil, light, air, plant and animal resources in the natural system, to protect the basic living environment of rural residents, provide the leisure space for the urban residents to adjust body and mind, maintain biological diversity, balance and purify the ecological, survival and living environment.

1.2.3 Social function. The social function of agriculture is also an important component of non-material product function, and another important manifestation of agriculture's property of public goods. There is a large agricultural population in China, and the transfer to non-agricultural sectors will be a long process, therefore, agriculture's continuous provision of employment opportunities for farmers is an important channel to protect social stability.

1.2.4 Cultural function. It is mainly reflected in the role of agriculture in protecting cultural diversity and providing education, aesthetic appreciation, and leisure.

Agriculture is an ancient and modern industry. On the one hand, today's agriculture is the product of the history and culture, the interior of which is rich in cultural resources; in this sense, the protection of agriculture is to protect culture, and protect cultural diversity. On the other hand, agriculture plays a positive role in the formation of people's values, tastes and moral outlook, such as education and aesthetic appreciation.

2 The current situation of modern agriculture

2.1 Ceaseless "blood loss" – "net outflow" of three elements in rural areas The agricultural production has three basic elements, namely land, capital and labor. During three decades of rural reform, the agricultural and rural economy experienced 10-year gold growth, which is inextricably linked with three elements of agriculture (land, capital and labor) staying within the rural areas. The farmers independently turn the three elements into the development resources for rural industrialization and rural urbanization.

From the development law of world economy, a country's development and growth can not be separated from the "net inflow" of land, labor, capital and other development elements. In contrast, affected by the dual economy, social structure and traditional income allocation pattern, the three elements of the agricultural production in China have long been in the state of "net outflow".

In terms of land, with the acceleration of China's large-scale urbanization process, in accordance with the Chinese government's expectation, China will usher in the most rapid urbanization process in the coming period of time. According to the data from China Population Association (2010), at the end of the Twelfth Five-Year Plan period, China's total population will reach about 1.39 billion; the urban population will exceed the rural population, over 700 million for the first time^[2]. By 2020, China's urbanization rate will increase from 40% in 2008

to 55%. This means unconventional expansion of the city, and also means the arrival of another "golden decade". "Population increase and land decrease" has already the most striking contradiction in China's modernization process. Since the 1978 reform and opening-up, more than 4 million mu of arable land has been constructed annually on the average in China. For three decades, 100 million mu of rural farmland has been expropriated in total. According to the statistics of authoritative experts, the expropriation of each mu of land is accompanied by unemployment of 1.5 peasants. The number of landless and jobless farmers feeling insecure and losing land in the "enclosure movement", has reached about 45 million, and it is expected to increase to 110 million in 2030^[3]. This does not include the amount of land reduced arising from desertification and salinization.

In terms of capital, from 1952 to 1978, agriculture contributed 450 billion yuan of capital through state monopoly over purchase and marketing, supporting the advance of national industrialization. Moreover, the policy of state monopoly over purchase and marketing of grain and cotton was implemented until 1985, up to 32 years. In 2007, Zhou Tianyong, professor in the Central Party School, wrote that: "After the founding of New China, we have been providing huge primitive accumulation to cities and industry through the worker-peasant price difference and urban-rural "scissors difference"; the most conservative estimate of accumulation for industrialization and urbanization by the farmers is up to 30 trillion yuan"^[4].

Correspondingly, the average annual outflow of funds in the county is up to 600 billion yuan, with average annual net outflow of 300 million yuan in each county. Moreover, with the financial reform, the commercial banks withdraw from rural areas on a large scale, so that China's urban per capita loan is 10 times that of rural areas, and the average growth rate of rural loans is 5.94% lower than the national average rate; in terms of the number of outlets per ten thousand people in China's financial institutions, the urban areas are 3.7 times the rural areas^[5].

It should be emphasized that according to the statistics collected by experts, the surplus value created by each migrant worker each year is 19 000 yuan^[6]; there are more than 230 million migrant workers, creating at least 4 trillion yuan of wealth each year.

Now we turn to the most active and most productive factor – labor. More than 200 million migrant workers with young labor force as the main body seek jobs in the city, increasing farmers' income and promoting the process of urbanization, but it also leads to four kinds of phenomena in rural areas (diversification of farmers' work; weakening of agriculture; hollowing of rural areas; abandoning of farmland).

2.2 The national conditions of agriculture first Since 1982, the government has issued a total of 12 "Document No. 1" for issues concerning agriculture, countryside and farmers. The first 5 "Document No. 1" were issued in the period 1982 – 1986, outlining the basic blueprint of the rural reform at the time. The subsequent 7 "Document No. 1" laid the foundation for coordinated development of urban and rural areas. In addition,

tion, the government does everything possible to increase farmers' income and reduce farmers' burden; formulates a series of major policies, such as the policy of giving more taking less and loosening control to increase rural income and the policy of new rural construction. It makes China become the only country with no slum in the case of large-scale population migration; it could be a miracle under the government's policy of "coordinating urban-rural development".

However, as is put by Hu Guangyu, the research fellow of the State Council Development Research Center, a large population, weak economic foundation, and relatively insufficient per capita resources, are the core of the national conditions. In China, one eighth of land can be used as the farmland, mountains and hills account for two thirds of land. Among 26 countries with population more than 50 million in the world, China's per capita arable land area is only slightly higher than that of some tiny areas such as Bangladesh and Japan.

The urbanization has transferred the rural population on a large scale, an annual average of about 10 million, but the rural population base is so large (nearly 800 million). Through 30 years of rural reform, farmers' per capita net income increased from 134 yuan in 1978 to 4 140 yuan in 2007, a real increase of 6.3 times. At the same time, China's wealth increases by nearly 30 times, and the urban-rural income gap tends to be widened on the whole. In 2006, the income gap reached 8 127.5 yuan.

"Having sustenance for survival, but no money for spending" is the most Chinese farmers' living condition. It is just the state of dressing warmly and earring one's fill, far from reaching a comfortable level of living. In essence, such a fragile state of having adequate clothing and food can not withstand tiny accidents and risks in life. Chief economist of National Bureau of Statistics, Yao Jingyuan said: "Rural areas, the world's largest potential consumer market, have yet to be activated. If the farmers' poverty issue is continued, left unsolved, there will be not only problems in food security, but also problems in the hobbling economy. Without the modernization of the majority of farmers in China, China's modernization is impossible^[7]." It is worth noting that the number of Chinese farmers is about 15% of the total world population, accounting for about 35% of the world's agricultural population. This heavy number determines the fundamental tasks and long-term nature of the primary stage of socialism.

The space for re-growth of total grain output is small, and the growth potential has been basically exploited to the utmost. In terms of supply, China's grain has achieved bumper harvest for six consecutive years, and the output for three consecutive years is above 500 billion kilograms, indicating that China's grain production capacity has reached the level of 500 billion kilograms. In other words, in the case of no major natural disaster, the output can be kept at 5 000 billion kilograms in the normal times. From the demand, with the rapid advancement of industrialization and urbanization, constant improvement in people's living standards, China's demand for grain is increasingly huge, and the total food demand is expected to reach

more than 5 725 billion kilograms in 2020. In terms of the relationship between supply and demand, although China's grain has achieved bumper harvest for six consecutive years, it is still in the state of tight equilibrium. In order to meet the total food demand in 2020, the grain should be increased by at least 4 billion kilograms annually in the next 10 years. The task for ensuring the food security is very arduous^[8].

If the prices of grain are low, it will dampen the farmers; if the prices of grain are high, it will harm people. At the same time, it will impose a severe test on the old men, women and children left behind in rural areas. Restricted by the objective conditions and quality of people left behind, in China's rural areas, there are half of the labor forces having not attended the high school, and the majority of China's illiterates are mainly concentrated in rural areas. And the agriculture is a weak industry, vulnerable to the impact of natural risks.

More seriously, due to information asymmetry and lack of market experience, it is difficult for farmers to grasp the fickle market price. In face of the market under the control of "invisible hand", most farmers do not know how deep the water of market is. The nerve built between farmers and the market is always very sensitive and very fragile. Any sign of trouble in the market, may hurt the farmers. The agriculture in 2010 suffered from spring drought in southern regions, summer flood, rat infestation in Xinjiang and Inner Mongolia's grassland, and other natural disasters; the market prices are always fluctuating. The market and natural risks have dealt double blow to the farmers, leaving them painful experience.

In the last century, Marx with his acumen and creativeness, likened scattered small-scale farmers' entry into the socialized production to a "thrilling jump". Today, in China, when 230 million rural households are in face of the fickle large market, it is even more thrilling.

Economic history has proven that in modern agriculture, the dominant factor determining agricultural efficiency and farmers' income is the market demand, rather than the production and supply^[9]. For this reason, the agricultural policy emphasis in the European and American countries is laid on the protection of the interests of farmers under excess conditions, rather than on the promotion of production. However, in China, there are so many people wanting to eat, which requires us to promote production. The government and every citizen are always obsessed with this dilemma.

2.3 Fragile agricultural infrastructure-the burden is heavy and the road is long

Rural infrastructure is a general term of public services and facilities provided for developing rural production and ensuring the life of the peasants, including posts and telecommunications, irrigation and water conservancy, water and electricity supply, commercial services, afforestation, education, culture, health undertaking, and other production and living facilities. It is the basis for the development of various undertakings in the rural areas, also an important component of rural economic system, and even an important material basis for economic and social development in rural areas and improvement in farmers' production and living. It also includes

the greening, landscaping, hardening and purification of rural areas, under the requirements of "new countryside" construction. Statistics show that in China's existing farmland, only 40% of farmland have irrigation facilities and can achieve high yield irrespective of drought or water logging, aggravating the food insecurity risks. What we can not avoid is that we can increase input into agriculture and improve the level of agricultural technology and management to make up for the decline in the area of farmland, but the water resources are insufficient, only one fourth of the world's average currently, ranking No. 88. According to the statistics collected by the UN Commission on Sustainable Development and other six relevant organizations on 153 countries and regions around the world in 1997, China's per capita water resources rank No. 121. This is a hard constraint, restricting the increase of food yield. The flood and drought in 2010 sounded the alarm with painful fact and lesson.

3 Conclusions and recommendations

Under modern agriculture, since the agriculture bears a variety of functions, it is necessary to coordinate many functions of agriculture, to ensure food security based on the current situation of "agriculture, countryside and farmers".

3.1 We should strengthen people's awareness of resource conservation, and improve people's quality

Israel has set a good example in terms of dry farming, and its resource protection awareness is worthy of learning. From the history of economic development, shortage of resources is precisely an opportunity for solving the problem. Japan is one of the world's most resource-scarce countries, but also one of the countries developing most rapidly. Thus, shortage of resources is not the "death penalty". If handling it properly, for the sustainable development of a country and nation, it's not a bad thing. It is imperative to use various means to avoid "tragedy of the commons" in the use of public resources^[10], and form a universal action to conserve resources, making it become a conscious way of survival and lifestyle for every citizen.

3.2 We should strengthen the compensation mechanism under multifunctional agriculture

Currently, the basic functions, economic functions and strategic industrial position of agriculture have not been shaken, but agriculture is weak and its comparative benefit is low. It is necessary to reinforce the compensation mechanism in the major grain producing areas and counties; use the power of the government to make up for insufficiency in small farmers' capacity, so that the farmers in the major grain producing areas and counties are engaged in farming without unease, having increasing income annually, stable income expectation and high enthusiasm for farming. For example, China's largest major grain-producing county-Yushu, has not yet completely reverse the current situation of major grain-producing county, but poor county, which makes the title of China's largest major grain-producing county lacklustre. Similarly, 47 major grain-producing counties in Henan Province also share this concern. Therefore, it is necessary to explore a variety of compensation modes, to ensure that the farmers' benefit is not reduced.

3.3 We should promote healthy and rapid development of urbanization

Increasing farmers' income and transferring the farmers, has become the consensus of all sides. The key now is compared to the farmers left behind, the overall quality of the migrant workers who have entered the city is higher, and most of them are young migrant workers. For the young migrant workers, to find a foothold in the city, there is a need to learn the skills and knowledge for survival and development in the city, lest they should become passing travellers in the city.

Meanwhile, for the farmers farming in rural areas, there is a need to ensure that their agricultural production capacity and enthusiasm for production are not abated. Due to technological progress and social development, the labor intensity of farming has been greatly reduced, which also in disguise extends the age limit of farming for farmers, ensuring the production capacity of population left in rural areas. Of course, in the new round of urbanization, the two need to be better coordinated and balanced. At present, there is an urgent need to strengthen training, create living environment and opportunities for the farmers whose land has been requisitioned in the process of urbanization.

3.4 It is necessary to import food moderately under the new situation

Importing food, to a certain extent, is to import land and water, making up for deficiency in the ecological function of agricultural multifunctionality. At present, China's foreign exchange reserves are in the world's first position. 35 million overseas ethnic Chinese people have great ability to nurture the economy in motherland. According to the purchasing power parity, China has been the world's second economy, having enough economic strength to buy food, to make up for inadequacy in domestic production. However, we should understand the "survival dependence" problem and "market dependence" problem. Premier Wen has said, "1.8 billion mu of red line must not be moved." On by doing this can the survival security of 300 kg of food per capita annually be ensured macroscopically^[11]. Moderate import is to solve the problem of "market dependence" in a good situation, highlighting the social function of agriculture.

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8 Conclusions

In sum, researches on rural industrial development in the course of new socialist countryside construction have made some outstanding achievements. (i) Most achievements are concentrated on researches of rural primary industry, including weak agricultural foundation, unreasonable agricultural structure, backward agricultural industry, low level of agricultural operating organizations, and low processing degree of agricultural products. (ii) Researches on rural secondary industry are centered on rural road, reservoir, bridge, building industry, rural industry, and township enterprise development, but little attention is paid to farmers' house and market town construction. (iii) Researches on rural tertiary industry are in disorder. Some scholars study service industry in middle, eastern and western rural areas, while many experts research rural finance, market, logistics, insurance, tourism, catering, agricultural means of production and agricultural technical service, education, health, cultural industry, and ecological environment. Since there are great differences in the development of Chinese rural areas, the scope of application of these achievements is narrow. (iv) Some scholars and experts studied rural industrial development in foreign rural construction model, hoping to draw lessons from foreign models. However, among these researches, most researches are general and narrow about achievements in rural industrial development, while the causes are little touched upon. Therefore, it is necessary to deepen and specify researches on rural industrial development in the course of China's new socialist countryside construction.

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