

CHINESE AND INDIAN AGRICULTURE: DEVELOPMENT AND CHALLENGES

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Abstract

Agriculture is a very large topic, touching directly or indirectly on many sectors of societies. Since ancient times to the present, agriculture has been the foundation of people's survival. The development of social production first started in agriculture. In other words, not only in developed countries but also in developing countries agriculture is the foundation of the national economy and thus is the basis for economic development. China and India are two of largest developing countries in the world. The development of agriculture is vital to both countries. Because of the large population in China and India, agriculture is particularly important for the two countries. In this essay, the focus will firstly be on both China and India's general situation of agriculture. In addition, the present situation of agriculture including cropping systems, agricultural infrastructure and agricultural education will be discussed. In the context of those fields, two regions are selected as case studies; southwest China and West Bengal in India to specifically analyse each region's agricultural development. Finally, from discussing the rural economy in China and India, some insights into current Chinese and Indian agricultural challenges are provided.

Keywords: agriculture, india, china, Yunnan, west Bengal

China is located in Eastern Asia on the Pacific West Coast. It has a land area of 9.6 million square kilometers. Although China has diverse types of land resources, mountains are much more common than plains. Mountains and plateaus cover nearly 66 percent of all land area, while only about 34 percent of land consists of plains. Furthermore, there have a big proportion of semi-arid and arid regions compared with the other humid regions. In China farming is the most significant agricultural production sector; the main crops are rice, corn and wheat. There are also cash crops, such as cotton and peanuts (Peel, 1991). India is located in the South Asian subcontinent and has a land area of about 2.97 million square kilometers. Approximately 80 percent of the population depends on agriculture for their livelihoods. India has abundant land resources and has the most arable land of any country in Asia. The per capita arable land in India is at least twice that of China (Aggarwal, 2006). Through the above introduction, it is evident that although there have some similarities concerns the general situation of agriculture in these two countries such as the fact that both are in Asia and have large population, there are still appreciable differences between them.

Background

By understanding the general situation of agriculture in China and India it is relatively easy to analysis the current situation of agricultural development in both countries comprehensively. There is considerable evidence to suggest that the level of agricultural techniques reflects a country's level of agricultural development. In China, agriculture has entered a new stage of development in the

21st century. First, the adjustment and optimization in agricultural production and rural economic structures have been improved. Second, the agricultural growth pattern has changed from an extensive mode to an intensive mode. Furthermore, in rural areas, governments established the agricultural technology extension system, in order to promote the implementation of new agricultural techniques. For instance, by 2000, in national farming, livestock and management's systems there were a total of 215,000 extension services agencies. Meanwhile, governments provided technical training as well. For example, the extension service agencies impart agricultural knowledge to farmers through television broadcast and have established places to provide scientific and technological advice (Peel, 1991). However, there still have some problems in Chinese agriculture, notably the slow of transformation in agricultural techniques and the low levels of industrialization.

Current Scenario

The current situation in India is different. Since the last decade of the 20th century Indian economic growth accelerated. However, the overall growth figures disguised an imbalanced development between different sectors. For instance, from 2005 to 2006 the annual GDP growth rate of India was 8.4 percent. However, agriculture grew by only 3.9 percent. Another factor limiting agricultural development and the improvement of farmers' income is lack of modern infrastructure. Because of the lack of infrastructure such as roads and markets, many agricultural sectors' developments are limited. The rate of agricultural products which are processed only 2 percent, which is under the international level. In addition, there is a large number of poor and unemployed population of farmers. This situation may lead to urban slums. It is estimated that urban slums' population more than 70 million in India. Moreover, there has been a lot of urban drift. In response Indian governments have already carried out some new policies related to agriculture. For example, governments have adopted various policies to develop export of agricultural products, such as establishing the Special Administrative Region of agricultural exports and attracting foreign investment in some agricultural sectors (Aggarwal, 2006).

Comparative Study

The previous paragraph has outlined the current situation of agriculture in China and India, it is necessary to analyse the specific situations in detail in order to provide insights into current challenges. The reason why two regions have been selected is that both regions are major agricultural provinces. Furthermore, both regions have similar physical geography. For example, compared with other regions in these two countries, Yunnan Province and West Bengal are almost in a same latitude area and these two regions' average annual precipitations exceed 1000mm. In comparing Yunnan Province and West Bengal's agriculture, three main aspects are discussed below.

Firstly, in the aspect of cropping systems, it is evident that the terrain conditions and climate change may influence the cropping system to some extent. In other

words, cropping systems are subject to environmental constraints. There are a great number of high mountains in the southwest of China and Yunnan Province belongs to Yunnan-Guizhou Plateau. Because of the mountainous land, much of the cultivated land is on mountains. The temperatures on the Yunnan-Guizhou Plateau are usually lower than many other regions of China because of its high altitude. So the two crops of rice a year cannot be grown on this plateau. The main crops in Yunnan Province are rice, wheat and maize. However, the rice paddies is quite different from normal paddies because this kind of rice has to be grown in the mountains, where irrigation is more difficult (Xu, 1991). However, the cropping system in West Bengal is not the same.

Although the north of West Bengal is mountainous area, the south consists of alluvial flatland. West Bengal has a tropical climate which means that in the plain's area winter is usually short. The type of landform and climate makes a big difference to cropping systems. In contrast to Yunnan Province, the landform and climate of West Bengal allows multiple cropping to take place. Multiple cropping is defined as different crops grown on the same land. For example, the common form is that to plant a summer crop such as potato in the rice field after the rice harvest, then to leave the field fallow in winter, and to plant a spring crop such as maize in the spring. This kind of cropping system leads to higher productivity and promotes the development of intensive cultivation (Rudra, 1983). Secondly, in the aspect of agricultural infrastructure, the weakness of the agriculture in Yunnan Province is that it is far away from the sea and the inconvenience of transportation. Although in Yunnan Province highways are common, most of them meander through the mountains, so it is not easy for farmers to cultivate their land and they have to keep to the existing farmland instead of opening up new land which is far away from their houses. (Xu, 1991). West Bengal has a similar situation in agricultural infrastructure to that of Yunnan Province. Admittedly, West Bengal has its own geographical advantage which benefits agricultural development. However, the infrastructure in India is lagging behind and this is also a major aspect restricting the development of agriculture. For example, even now there are no roads to go to some rural areas in India. People who are living in those areas cannot transport food to outside and this constrained the rural agricultural promotion. Now the Indian government is aware of this point and advocates local governments to make plans for building rural link roads (Rudra, 1983).

Last but not least, in the aspect of agricultural education, although in Yunnan Province the history of higher education in agriculture is quite short, nowadays the local governments have realized the importance of agriculture and begun to establish more agricultural colleges and institutions. For example, in 1985, only Yunnan Agricultural University existed as an agricultural institution of higher learning (Peel, 1991: 238). However, the situation changed a lot in recent years. Now there are many secondary schools specializing in agriculture. Furthermore, there are also some middle schools which include agriculture in their curriculum. In rural

areas, agricultural training is also provided for people. Since living standards of farmers have developed, their interest in agricultural training has also increased. It is evident that West Bengal has paid more attention to agricultural education. In the middle of the 20th century, the 'Green Revolution' began in India and had a profound effect in agriculture. Since then successive Indian governments established the agricultural science and technology promotion network from central to local areas. West Bengal was also influenced by this agricultural revolution. In West Bengal local governments have already established an online agricultural education system for farmers. Farmers can easily access the latest agricultural information through computer shops and markets. In addition Indian Tobacco Company carried out a plan to combine market information regarding tobacco in West Bengal to that of the whole world (Mukherji, 1997). Moreover, according to Rudra (1983: 7) more than half of the agricultural families as labor families in West Bengal. The situation in Yunnan Province is almost the same, there are approximately 60 percent of the agricultural families as labor families.

Development

In addition, by comparing the agriculture in those two regions it is available to outline the development of rural economy in two countries. In China, agriculture has always been regarded as an important part of the national economy. As Yao states (1991: 179) "For the past 30 years agricultural policy has been drafted in accordance with the principle that 'agriculture is the basis of the national economy and grain is the basis of that basis'." Agriculture promotes rural economic development. In India low incomes of rural farmers are due to the lack of economic opportunities. Not only in India but also In China many people in rural areas still are unable to pay for many things. Though with the development of agriculture the rural economy has increased and there have been a number of programs which have been put into practice by the local and national governments to address the problems of poverty in rural areas, the situation still needs to be improved. The rural economy is inextricably intertwined with the national economy, so governments in these two countries should continue to pay close attention to it.

Challenges

The key challenges for both countries can be divided into two parts; domestic and international. To discuss the domestic part first, although both countries have made great progress in agricultural development in recent years, agricultural productivity remains low and the development of the rural economy had lagged behind that of national economy. In other words, the agricultural productivity still does not meet the demand for food and this will continue to constrain economic development. For instance, in Yunnan Province, farmers' low incomes and rural societies' poor development led to low agricultural productivity, because people regard agriculture as a weaker industry. In 2002, the rural population accounted for 80.5 percent of general population in Yunnan Province. However, agricultural value added as a percentage of GDP is only 20% (Li, 2010). Furthermore, market

development is another significant challenge for both countries. Since two countries do not have an improved market system compared with other western countries. Moreover, because of the agricultural infrastructure, it is problematic for farmers to take crops to markets for sale. This will lead to an imbalance market development between urban and rural areas. The international challenge is that although globalization has influenced all the aspects of the economy, including agriculture, the trend of globalization will be a threat to many countries around the world, especially those which do not have a modernized system and are not well prepared to deal with challenges (Xu, 1991).

Conclusion

To conclude, agriculture is an important sector to developing countries. Judging from the two countries' economic development from past to present, agriculture has a vital role in the national economy. The promoting speed of agriculture determines the increasing speed of national economy. This is a significant feature in both countries' development. Both China and India should try to change the traditional agricultural conception and improve their own agricultural systems. In addition, both countries need to explore international market and carry out effective policies according to domestic situation.

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