Agricultural Development and Environmental Issues in China

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It discuss ways in which green agricultural development acts as a symbolic mechanism and through that environment can be reconstructed and protected. It explores the socio-agriculture formations that have taken place in China followed by development programs. It generalizes the empirical findings in the form of evaluation and analysis on the agriculture development and environmental issues in China. The findings indicate a shift to postmodern approach in the field of agricultural development and environment studies, with regarding to the increasingly contradiction between agricultural development and environmental sustainability.

INTRODUCTION

Agriculture is the foundation of social economy; it also functions as the lifeblood for human being's existence. Since the ancient times, agriculture has experienced different historical stages. In the original natural condition, ancient people used simple stone tools and sticks to do farming works, which is the so called primitive agriculture. Judged from the perspective of environmental economics, agriculture is the way people use the direct and humble tools plundering nature, to obtain the survival materials. New social form has been gradually established due to the continuous development of agriculture. The evolutionary change in human life and production has been completed. Therefore, the formation and development of agriculture has run through the entire process of human development, and contributed a lot to the progress of human society. Despite all these, there are still many negative effects existed in the process of agriculture development which can generate serious harms to the society (Feng, 2017).

As an old Chinese saying goes, hunger breeds discontentment. Food cannot be acquired without agricultural development. Agriculture is closely related to the survival and development of human beings. Along with the continuous development of agriculture, new social form has been gradually established which brought the evolutionary changes of human life and production. In the 21st Century, the modern agriculture in China adopted the integrated development format of mechanization, automation, commercialization and internationalization. However, behind the great accomplishments, there are some

irrational agricultural production behaviors, which generated negative impacts on the environment for human's survival and development (Vimal, Singh, Arora et al., 2017).

ARGICULTURAL DEVELOPMENT AND HUMAN ACTIVITIES

The formation of primitive agricultural economy is a gradual process. In early stage of the process, the human society economy was mainly featured as collecting, hunting and fishing, and supplemented by the agricultural production. Taking Jiahu as an example, it's a small village in Beiwudu Town, Wuyang County, Luohe City, Henan Province. It shows the Neolithic ancient human activities as well as the basic Characteristics of China's original agriculture (Zhang, 2009). Ancestors in Jiahu village planted rice. But till now, people there are still living on collecting, hunting and fishing. Rice planting and livestock breeding are only the auxiliary production activities at that time. Jiahu village reproduced the scene of human life in 9 million years ago. It was rated as one of China's 100 archaeological discoveries in the 20th century and was listed in the famous buildings "China millennium monument" bronze bust prominently to shine forever.

China's original agriculture can be generated from 12,000 years ago and be divided into 3 stages, respectively the raw land tillage, fallow land tillage and leisure tillage. The "slash-and-burn" farming method, which was the earliest feature of primitive agriculture, was the law land tillage process with characteristics of fishing life giving priority to hunting. At the same time, they casually burnt forests and grasslands, took slash-and-burn approach to sow grain. A few years later, they abandoned the land and looked for other new land to cultivate. Jiahu relics unearthed many carbonized rice seeds, pea plants and so on. There are all kinds of bones of fish, turtles, deer, pigs, dogs and other animal, which are evidences of raw land tillage. Till to Shang dynasty from 1562 to 1066 BC, China society entered to the phase when the wild land was controlled by private persons. People could not clear the land arbitrarily. Individuals had to plow the land that they farmed before, or the abandoned land that has grown trees or herbs again (Zhang, Nong and Han, 2017).

This was a sign that Primitive agriculture had transited from "raw land tillage system" to "fallow land tillage system." Whatever the system was, they were both about "shifting farming system," which was completely relying on nature to restore soil fertility. As the historical development was tortuous and complex, until now, some ethnic minority villages in the remote mountainous areas still follow the abandoned farming system. With the decreasing of land resources, farming with hoes and spades became widespread to farmers. Some land had been planted or unused deliberately, which had led to the development of causal rotation system. The benefit of this farming system was that the land utilization had been improved. Although primitive agriculture had undergone a phase of different farming systems, their basic characteristics could be summarized as follows:

On one hand, the way of farming had changed. The primitive agriculture at its early stage was mainly the "slash and burn" tillage. For example, on an early spring morning, the ancestors cut down the trees scatted among the mountains. Then they burnt the trees into fertilizer at a evening before the arrival of spring rain. The next day, as the soil was still hot and soft, people sowed some grain seed sequentially into the holes, which were made by bamboo or sticks. Later, people needed to do nothing to keep the crops, just waited for the harvest (Peng, 2000). Because of the low production of "slash and burn," collecting, fishing and hunting were still the main ways of provision. Later, there emerged the "plow" to dig farming, which had the similar function as shovel.

Hemudu village, which is in Hemudu town, Yuyao City, Zhejiang Province in early Neolithic (5000-4500 BC), unearthed a batch of "bones" to plow (Song, 1979). Bones were more advanced than sticks, they could be used to plow the soil, and the production was higher by using it. Therefore, we called it a more advanced phase of "bone plow" (Peng, 2017). On the other hand, the instruments of production had changed. In the phase of "slash and burn," farming tools including only cut stone joins, pointed state apparatus, scrapers and sticks (Zhang, 1984). For example, Hemudu village had unearthed clam knives,

stone hoes, shoulder stone spades. These tools were basically inherited from the features of tools in collecting and hunting in Paleolithic age.

However, Hemudu unearthed some distinguishing tools, like 170 bones and some wood plowing, among which, there were two pieces of bone hilt still had a long wooden handle and binding canes. These bones tools were buried in the accumulation layer of 20 to 50cm thick. The accumulation was the mixed product of original japonica, Indica rice, chaff, rice leaf and sawdust. Cultural relics could prove that the Hemudu primitive agriculture of rice has entered "plow tillage" stage. This had historical significance due to the possibility to improve the individual labor productivity. The great man Karl Marx once said that the labor productivity which exceeds more than the needs of individual laborers, is the basis of society (Marx 1974). The labor productivity of Primitive agriculture has improved, which is conducive to the civilization of human society.

The Impacts of Original Agriculture on Human Development

The emergence and development of primitive agriculture formed the origin of human civilization. It freed the human society from ignorance and promoted the transformation of human society. At the beginning of primitive agriculture stage, namely the "slash and burn" period, human society was a matrilineal system since the gathering economy was the source of primitive people's life. In the plow farming stage, men relied on physical strength to use the "bone" or "wood" to plow. It not only increased the labor productivity, but also promoted the matrilineal system transited to the patriarchal system. In the agricultural stage of "slash-and-burn," people lived on cattle and sheep. The main reason was that cattle and sheep could be fed by weeds. After the "plow tillage phase," crop yields were increased, which made the pig and dog breeding possible. The generation of primitive agriculture production was of epoch-making significance. Primitive agriculture enabled human beings to settle life down, and the material wealth could be accumulated in a region, which made the shape of village and town appeared. As a result, there were further social division of labor and revolution of social form, which contributed to the foundation of modern civilization (Gao, 2016).

"Slash-and-burn" promoted the emergence villages with people settled down. However, this primitive farming undermined the human living environment to some extent. During Chinese period of Qin dynasty, there was a famous "book of songs"", the chant of it could indirectly reflect some cases of primitive agriculture. The meaning of the chants could be translated as: burning the land to farm was not rare, which would result in soil erosion, environmental degradation, and drought. No-rain weather made it hard to grow crops. Residents had to worship the heavens and long for the rain to support family. The chants revealed the original farming conditions concisely and profoundly.

The fires seriously damaged the ecological environment, at the same time the nature ruthlessly revenged to people in its own way. The primitive farming was not only inefficient, but also destroying the ecology, even leading to the change of dynasty. All these informed that primitive agriculture had been unable to meet the needs of human development and environmental protection. It must be replaced by the more advanced mode in agricultural production (Ran and Zhou, 2017).

Development and Characteristics of Traditional Agriculture

Traditional agriculture could be featured as utilizing metal tools and animal or human power tractions to complete production. The technology was based on intuitive experience. Although the effectiveness of such farming operation was several times more than primitive agriculture, it was still a low-level circulation form of natural resources. Yellow River, as one of the five famous traditional agricultural development bases in the world, helped make distinctive Chinese agricultural civilization (Wang and Tian, 2014).

Chinese traditional agriculture began from the Xia, Shang and Zhou Dynasties (more than 2000 years ago). The development of it could be divided into four stages. The period from Xia, Shang Dynasties to the Spring and Autumn was the sprouting period, where the irrigation canals and ditches agriculture

appeared at the Yellow River Basin, becoming an important symbol for this stage. People used plows to dig the irrigation canals and ditches, consequently, the couple collaboration farming became a widespread way of labor, which provided an important foundation for the implementation of well-field system. Even though there were still some traces of primitive agriculture, the agricultural tools, technology, production structure and layout had made great progress and changes (Chen, 2017).

"The Warring States Time," "Qin and Han Dynasties," "Wei Jin Northern" and Southern Dynasties" were the mature periods of farming. The formation and maturity of the intensive farming system in northern dry land was the obvious symbol of it. During this period, iron tools became widespread; the cattle got popularization, crop seed farming system gradually replaced the leisure system; the soil fertilization attracted people's attention; large-scale irrigation projects was built; the Yellow River basin was developed comprehensively. In Sui, Tang, Song, Liao, Jin and Yuan Dynasties, the intensive technology system in South came into being and mature. During this period, the popularity of hot-metal carburized steel technology improved the quality of iron tools; the emergence of Koto Plow marked the Chinese traditional plow had become perfected; Tangpu polder of Taihu Lake Basin was formed into a system; the small-scale projects of water conservancy spread all over southern China (Dong, 2017).

So far, China's economic structure had undergone momentous changes, and southern China became "the land of fish and rice." Since the middle Qing Dynasty, traditional agriculture had entered the developing stage and lucubrating stage. During this period, the Country was unified, the society was unprecedentedly stable. Besides, the breadth and depth of land utilization had gradually reached a new level; the intensive technology system had been promoted; all kinds of complex and multi-layered cropping systems had generated, and the crop varieties had increased; the cultivation and management technology became mature, crop replanting index and unit area was improved too.

The intensive farming was the essence of Chinese traditional agriculture, it was based on the land utilization of intensive way. Chinese Confucianism and agricultural production were mixed together to form the hybrid system，which was combined by the limitless right that from feudal imperial power, and small-scale peasant economy that from the bottom of society together, this system lasted for 2000 years. In every lunar year, the most important thing for the feudal emperor was to ascend the altar for agricultural sacrifice. All the people remembered every lunar solar term, and all acted together to follow the almanac. One of the important reasons for the formation of national culture was that, agriculture in China was not simply to plant crops, but the combination of "Heaven, Earth and Man." They were tightly bound together to get mild weather and grain harvest, or the world would fall into utter chaos, the starvation would spread all over the world (Xie, Feng and Zhang, 2017).

Influence of Traditional Agriculture on Human Development

Traditional agriculture not only supported Chinese people in survival life, which bears the biggest population in the world, but also created a splendid Chinese culture, and made outstanding contributions to environmental protection. In the development process of traditional agriculture, the innovation of production mode of agriculture made it possible for continuous utilization of land possible. The new farming combination system of all the links in agriculture; the new formation of land use patters by terraced fields, frame field, and Tu Tian; and the new proposed idea of adjusting measures to local conditions, like selecting the seeds and irrigation; all made the land utilization achieve a leaping improvement. The transition from original, simple, and predatory resources use to intensive cultivation eased the overcutting in quite extent, which played a key role in resource protection and soil or water conservation (Wang et al., 2017).

The "intensive cultivation" in traditional agriculture was an organic material circulation, which made the natural resources no longer be wasted. For example, the ears and seeds of grain and oil crops would become food after harvest. The straw would be used as fuel, folder, or woven; the excreta of people and livestock would be used as fertilizer and then be returned to the land, finally became the crop growth nutrients and growing into ear, seeds and other fruits. At the end, all of them would become the food

products in market. The organic circulation repeated year after year, and had never been stopped. The circular economy of Modern agriculture and the kinds of green products were various, but had basically followed the organic circulation rules that generated thousands of years ago.

Among the traditional ways of farming, there were some distinctive ecological operation systems, which are advocated highly by contemporary people. For example, the "mulberry-pond-fish" way, the "paddy-ducks" mode and "rice-fish" way, were the typical cases about material utilization and recycle by farmers (Xu, 2005). In the Ming and Qing Dynasties, the "kind of mulberry fish pond, and mulberry silkworm rearing, silkworm excrement feeding fish, confrontation, ten times as much grain" were very famous in Pearl River Delta (Peng, 2000). This was the excellent control for laws about the interdependence and mutual restriction for the same biological group but different individuals and various kinds of organisms, and a kind of highly efficient biological input and output of recycling, what's more, a good method to reduce greenhouse gas emissions (Xiang, Huang and Huang, 2006).

Status and Features of Modern Agriculture in China

Modern agriculture could be shaped as a form of marketization, standardization, industrialization and high-efficiency, taking modern developing concept as a guide, food security, farmer's income, and sustainable development of agriculture as the main goal. Besides, it introduced the new production elements and advanced management methods, operated with modern science technology, modern materials and equipment, modern industrial system of organization and management tools. Therefore, it was on an elevated level of land productivity, labor productivity and resource utilization in the national economy. In sum, modern agriculture has a high-intensity input, and a high profit returns at the same time (Jia, 2017).

The "intensive cultivation" farming method was the essence of traditional agriculture generalization, but this production way was constrained by the lack of external inputs and technical backwardness. As a result, it could hardly adapt to the improvement of people's living standards and the needs of national construction and development. Therefore, people must vigorously develop modern agriculture. To achieve the modernization of agriculture had been both the goal of China's reform and opening policy, and the goal of building well-being community. Modern agriculture achieved great development opportunities in 21 centuries. The traditional agriculture development approach was replaced by the new agricultural industry system, which was the combination of high technological content, good economic returns, low resources consumption, and little environmental pollution. And the features of modern agriculture could be described as follows.

First, the core of modern agriculture was the operation of high technology. The innovation of technology was the great engine and motivation of agricultural development. China's modern agriculture was no longer the iron yak farming, which had lasted for millennium years. On the contrary, the crop cultivation became the industry with high technology intensity.

Second, modern agriculture had been a combination of high technology, capital and other factors of modern production. The high-end talents, electronic equipment, organic fertilizers and other agricultural factors of production are coming into modern agriculture in a collection, creating a huge production force.

Third, the versatility of modern agriculture is strengthening day after day. Based on guaranteeing the supply of agricultural products, expanding the employment of farmers, and keeping other traditional functions, agriculture was continuously expanding toward the agricultural processing, tourism, leisure, and agricultural environmental protection.

Fourth, modern agriculture was developing in both agricultural market and industrial market. To achieve the industry modernization in operation and management, modern agriculture had constantly expanded and extended the industrial chain, in the combination way of trade, industry, and agriculture. Finally, there forms an industrial integration of production, scientific research, processing and consumption.

Fifth, modern agriculture is no longer a function of a single crop, but converts into the function of a wide range of industrial and agricultural production. The agricultural production follows the basic principle of maximizing the benefits, while pursuits the consolidated benefits of economic efficiency, production efficiency and social efficiency.

Sixth, modern agriculture pursuits of green, recycling, and sustainable development. In various parts of China, the development objective of this industry is to build a resource saving and environmental friendly agriculture, to realize the harmony between human beings and nature.

Since the reform and opening till to 2011, China had achieved remarkable results in the development of modern agriculture. The specific data was that: grain had increased for eight consecutive years, the output amount was stable at more than 500 million tons for five consecutive years, and the self-efficiency rate had exceeded 95%. Farmers' income had increased substantially, with more than 6% for eight consecutive years. The effective utilization coefficient of irrigation water was 0.5, the mechanization rate of integrated farming was 52%, the contribution rate of agricultural scientific and technological progress was 52%, too (Dong, 2017).

In the last few decades, the agricultural structure had been optimized constantly; the facial regions of agricultural products had initially been formed; the material equipment conditions were improved markedly; the scientific and technological capacity had been increased steadily; the operating system and mechanism had been innovated constantly; and the agricultural management level of industrialization had been improved greatly in China. Besides, agriculture made new progress in "going out" policy, with the new steps in opening policy. We believed that through the "13th Five-Year Plan" and 10 years' construction, agriculture would get a breakthrough. By 2020, the new pattern of advanced technology and equipment, optimized organization, perfect industrial system, secure supply, and comprehensive benefits will be formed. Modernization of agricultural products in the principal areas would be basically realized. These facts showed that China had been on the road to great strides in the development of modern agriculture (The State Council, 2012).

Impact of Modern Agriculture on Human Development

Modern agriculture is providing a stable food supply for people, as well as a wide range of numerous services, which have laid the foundation of human society. Indeed, there are still some hidden dangers in the way of agricultural production in contemporary society, mainly due to the limitations in cognition and the weaknesses in management. Positively speaking, the iconic things of modern agriculture, like mechanical operations, efficient fertilizers and quality seeds, have met the large needs of people in food and clothing. They also support the consumption of the boom population, industrial manufacturing and other aspects of culture and education (Peng, 2017). Modern agriculture is playing a significant role in the following ways.

First, to ensure the needs of food security. Because of China's large population and the scarcity of per capita arable land, people need to change the traditional farming ways to increase food production, which mean that China's modern agricultural development must take the "per yield, for quality and efficiency" as strategic focus. The transformation of traditional agricultural systems had achieved through the effective transfer of land ownership reform, which increased the investment in agricultural research, strengthened the agricultural market operation, expanded the coverage of improved varieties, and actively promoted the water-saving irrigation techniques. In this case, steady growth of grain output and the security of national food were guaranteed.

Second, to achieve common prosperity of the whole society. To solve the problem of farmers' income is not only the basis for the common prosperity of the Chinese people, but also the core objective of "issues of agriculture, farmer and rural area," ("three rural issues" for short). On one hand, the number of villages under poor line should be reduced. According to Standards of 2010, there were still 26.88 million of poor people in China. After raising the standards of poverty in 2011, the per capita net income of rural residents was 2,300 RMB per year. Under such condition, there were 128 million of poor people in China

till to 2012 (The Institute of Sustainable Development Strategy Research Group, 2012). In this case, all forces should be gathered to overcome the difficulty in achieving the goal of building a moderately prosperous society. On the other hand, the secondary and tertiary industries in rural areas should be accelerated. To enable farmers to achieve income and affluent in multi-link, the rate of agricultural products and its comprehensive benefits should be further enhanced. Finally, the international market should be actively explored. To improve farmers' income in a greater extent, we must vigorously develop the characteristics of agricultural products, and to export the overseas swap.

Third, to strengthen the industry support in new countryside's construction. Modern agriculture had been a comprehensive economic system. The key to develop agriculture was to accelerate the construction of new socialist countryside. To realize the modernization of agriculture, we must realize the comprehensive development of agriculture, forestry, animal husbandry, and fishery, to do well in the rural basic education, medical insurance, cultural entertainment and other aspects of public service work, to make farmers pastoralist literate, be healthy, happy and harmony in life. By doing these, people's creativity would get promoted, thereby the production efficiency would also be improved.

Negatively speaking, since the foundation of New China, the land utilization had been increased in the process of modernization of agriculture, thanks to the land reclamation provision, water conservancy, seed, fertilizer and a variety of advanced technologies adoption. However, at the same time, blindness exited also. For example, in the time of "Great Leap Forward," some places rashly attempted to implement the error slogan of "How bold, how much production." In the time of "decade-long calamity," some places blindly deforested and reclaimed the land to farm. These activities cared only about local, short-term interests and ignored the long-term interests, which resulted in soil erosion, soil desertification, lakes smaller, and frequent severe natural disasters (Wang and Tian, 2014).

In the 21st century, there existed new blind behaviors in some places. For example, in pursuit of huge production, some people used extensive fertilizers and pesticides in farming, without regarding the reduction of soil organic content. Some people comprehensively adopted high-quality patent crop varieties provided by industrialized countries and did not consider the future rights that might be under monopoly of large international companies. Some people accidentally made large-scale cultivation of genetically modified crops and did not ponder a potentially but serious long-term risks. In short, the process of agricultural modernization had made remarkable achievements, while facing many problems. We must timely find a new way to coordinate the development of environmental service. Otherwise, it would jeopardize the contemporary world, apart from harming our future generations (Dong, 2017).

STATUS OF AGRICULTURAL ENVIRONMENT POLLUTION

Agricultural development brought well-being for human in making contributions to the development and revolution of economy and society. Meanwhile, the high-intensity input in agricultural production, inefficient recycling, plus the cross functioning and cross management, caused very serious pollution in agriculture. Theoretically, China's agriculture pollution problems could be divided into two parts: chronic pollution and acute pollution. Chronic pollution could be further divided into "point source pollution" and "non-point source pollution" based on pollution sources. Point source pollution contained rural pollution shifted from industrial enterprises of township, and county parks in development. As the non-point source pollution and acute pollution incidents involving a wide range and serious status, the key to solve this problem was to prevent it from happening (Peng, 2017).

The "agricultural non-point source pollution" mainly came from the existing unscientific farming system. The situation of "non-point pollution" in Chinese agriculture was grim, which had a serious impact on national food security and environmental security (Liu and Zhao, 2010). The characteristics of dispersion in agricultural non-point source pollution were obvious, and the approaches to pollute were potential and cumulative. Therefore, it had been an extremely arduous task to deal with this type of pollution.

Pollution Caused by Pesticide and Fertilizer

Pesticides and fertilizers were very important in growing crops. Studies indicated that the crop losses caused by insects could be up to 70%, and utilizing pesticides properly could reduce the losses to about 40%. Thanks to China's policy of "reform and opening," the use of pesticides and fertilizers had been growing constantly, leading to the leap improvement in the efficiency and productivity of agricultural production. To some extent, the grain output made great achievement of "7% land has feed 22% population of the total world" come true. Meanwhile, China had successively banned and eliminated 33 kinds of highly toxic pesticides, including the metamorphous, which was widely used in United States and other developed countries. The monitoring data showed that China's exceeding rate of pesticide residues had decreased year by year, from more than 50% in 2002 to less than 10% in 2012. The overall pass rate of pesticide residues in agricultural products was high, with the rate of rice and fruit as 98% and the vegetables and tea as higher than 95% (Zhou, Feng and Liu, 2012).

Despite the huge achievements, there existed serious flaws in utilizing pesticide and fertilizer, referring to the inefficiency and unreasonable use of them. According to statistics, the average amount of farmland fertilizer use reached 360 kg/hm^2, among which, the utilization rate of nitrogen was 25%-30%, the utilization rate of phosphate was 10%-20%, which was 20%-30% lower than the developed countries such as the United States, Germany, and so on (National Bureau of Statistics, 2011). The utilization rates of pesticides and fertilizers were both comparatively low, which had become an important source of environmental pollution in China's agriculture. In some places of China, there was more than 70% of the pesticide and fertilize wasted in crop cultivation. The residuals either remain in the soil, running off with water leakage, causing salinization of arable land and water eutrophication; or remain in agricultural surface, leading to enrichment of toxic substances in human body, which might endanger people's lives (Ran and Zhou, 2017).

The Dianchi Lake in Kunming City, Yunnan Province, with a long evolutionary history of about 3.4 million years, was given the name of "Plateau Pearl." For thousands of years, Dianchi Lake had been the important water source for the survival of local people. But now, due to the water eutrophication, fish could no longer be found. One of the key reasons was that there were large areas of farmland cultivated by pesticides and fertilizers in unscientific ways, resulting in widespread non-point sources pollution. In order re-keep Dianchi Lake in governance, Kunming absorbed 9.611 billion RMB of investment during the "11th Five-Year Plan" period. But in 2009, the COD in Caohai and Waihai, plus the total nitrogen concentration were both inferior V type, and the water quality still had not improved. In the "13th Five-Year Plan," Dianchi Lake should focus on the construction of six major projects, and the planning total investment would be reached 42.014 billion RMB (Ministry of Environmental Protection, 2010). Lessons from Dianchi Lake were profound, leaving a long way to go in pollution management.

The brand "Big Apple of Yantai Fuji," for another example, had long time been attractive because of its yummy taste. Qixia city in Shandong province was its main producing area, where the annual amounts pf apple were more than one billion kilograms. To make more money, however, some local people uses "Tuzet" that without any identification and with high concentration of fungicide, and wraped young fruit with "Asomate' medicine bag, which had direct touch with apples until its maturity. In the end of 2011, the tenth plenary meeting of the Eighth National Pesticide Registration Evaluation Committee was hosted and announced that "Asomate" and other chemical contents had security risks. On March 2012, the government organization personnel of Qixia City took 3 cases of producing and selling drug bags to check about its security and disposed more than 200 million bags of illegal fruits. To ensure people's health, the illegal use of prohibited drugs should be strictly forbidden.

It could not be denied that phenomena of pesticide contamination did exist worldwide, which brought serious detriment to environment. Some pollution problems had been disposed by related organizations. As recorded in the *Silent Spring* written by an American marine biologist, Rachel Louise Carson, who was known as the "green saint," the extensive use of DDT and other pesticides, however, destroyed birds' natural habitats, no birds' singing could be heard any more (Carson, 2011). This book had a very shocking

influence, by exposing many illegals uses of pesticides by U.S. consortia, triggering the world's thinking on the development of environmental protection. This showed that greater efforts should be devoted to reducing agricultural non-point source pollution and recover natural environment (Chen, 2017).

Pollution Caused by Production Waste

In farming, there had been a discrimination of modern technology and traditional practices. Confusion of them would cause contamination. Plastic pollution and straw pollution would be representative cases in this respect. Plastic sheets technology was usually used for covering on the top of crops and increasing production. At present, China's use of plastic sheeting has been ranked 1st in the world. Till to 2011, China's consumption of plastic sheeting had up to 2 million tons, and the number increased 20% in 2012, increased to 2.4 million tons (Pivnenko, Eriksen and Martín-Fernández et al., 2016).

However, as the problems in the production and management till existed, plastic sheets had become persistent organic pollutants (POPs) of toxic properties and resist degradation, which produced white pollution that emerged in many places. As survey showed, the residual film rate was up to 40% with an annual 500,000 tons of plastic sheets pollution. If people use plastic sheets to grow crops constantly for more than 15 years, there would be more than 25.6 kg of plastic film per acre of land. When the amount be up to 3.9 kg per acre, there would be a decrease of 11%-23% of crop production (Chinese Industry Report Research Center, 2012). This demonstrated that the large-scale use of plastic sheets and high ratios of residues would bring hidden trouble to food security. On May 17th, 2004, the International Convention named The Stockholm Convention on Persistent Organic Pollutants entered into force It emphasized that to protect human health and the environment, we need to take measures to reduce or eliminate the persistent organic pollutants, including the international actions. It is imperative to implement the convention resolutely.

Straw pollution mainly existed in countryside areas. Straws were thrown here and there after crop harvest. Later, some were used as building materials, some as fuel or organic fertilizer. Most of the time, however, they were directly burnt by farmers in the field. Statistics revealed that by 2006, the number of crop stalks was up to 650 million tons in China, and more than 50.54% of the straws were simply burned (Ji, 2011). The comprehensive utilization was not only low, but also caused air pollution. In recent years, Sichuan Province, with the largest population in western China, was caught with prominent burning phenomenon of rape and wheat straw after the harvest, causing serious air pollution in Chengdu. For example, in May 2012, Chengdu Meteorological spent money hiring seven satellites, including three American satellites from NOAA, one satellite from AQUA, one satellite from Terra, and two satellites from China, respectively FY-3A and FY-3B satellites.

On purpose of monitoring the phenomenon of straw burning and supervising it timely, the Office of Ministry of Agriculture issued an urgent notice on further strengthening the comprehensive use on straw on June 14th, 2007 (Agricultural office, 2007).. It stated clearly that to make comprehensive use of straw, the straw should not be burnt directly. By doing so, the waste would be turned into treasure, resources utilization would be improved, and farmers' income would be increased. What treasured most was that the environment would be protected and people's physical health would be ensured.

Waste Pollution from Livestock Industry and Rural Life

Livestock farming, occurred based on agricultural development, had been a sign of the prosperity of agriculture. However, since there were many loopholes in management, the pollution in rural livestock industry was serious in recent years. By 2006, the number of national medium-sized livestock farms had reached more than 14,000, the total annual discharge of animal dung was more than 1.9 billion tons (Luo and Ni, 2012). The livestock waste contained nitrogen, phosphorus, cadmium and other trace elements, the enrichment of them in the soil was a kind of environmental pollution. The widespread loss of livestock and poultry manure, results in the environmental degradation surrounding 92% medium-sized livestock and poultry farms. This condition was not only harmful to the surface and underground water,

but also became an obstacle to the development of agricultural planting. According to statistics in 2011, China livestock industry produced 1721 WN/hm^2 nitrogen and 639 P_2O_5/hm^2, which was the largest amount in history, much higher than the maximum load (150kg N/hm^2/) of the state's agricultural livestock manure (Chen, 2011). It became an urgent and serious challenge to solve the emissions of livestock manure.

As the same, due to the deficiencies of management and underdeveloped infrastructure in some rural areas, as well as the limitations in technology, there were piles of life garbage, like eating waste, plastic bags, beverage bottles and solid-state batteries. From August 2006 to November 2007, the National Patriotic Health Committee and the Ministry of Health jointly organized an investigation on rural drinking water and sanitation situation. This was the first time to carry out such large-scale survey research on rural drinking water and sanitation in our country.

On February 18th, 2008, the Ministry of Health announced the results of the survey: the national rural amount of garbage was 0.86 kg for per person per day, and the total amount of waste in national rural areas was close to 300 million tons in one year. Moreover, about 100 million tons of it was piled randomly, especially like the aquaculture waste and straw weed, which caused serious environmental pollution in some areas. On this occasion, people should change the way of dealing with the waste. This would be the main action to ensure people's health, as well as to build a more harmonious living environment (Du, 2011).

In the production, some mercenary people only cared money but safety so that there was many abnormal emission or leakage of poisonous substances that would pollute the environment within a brief time, with many people's lives and property lost, which was the sudden environmental pollution (Wang and Mao, 2011). People should be on alert at any time since this could cause such a harmful effect. For example, at 9:50 on October 18th, 2000, major dam collapse accident happened in the Hongtu concentrator tailings of Dachang Town in Nandan County, Guangxi Zhuang Autonomous Region. A total of 28 people died in the accident, with 56 people injured and 70 houses destroyed to different degree, which caused a direct economic loss of 3.4 million yuan. For another example, on July 3rd, 2010, a leakage happened in the sewage pool of Zijin wet copper mine plant within the territory of Zijin mining group company of Shanghang County, Fujian Province. It led to 9,100 cubic meters of acid wastewater containing copper into the ting river, and made fish almost died out in some areas. About 1.89 million kilograms of fish were dead or poisoned only in the Cotton beach area and the fishery producers had no harvest in the towns of Shanghang County.

At 7:58 on September 8th, 2008, 980 gully tailings dam of Xinta mining co., LTD collapsed in Xiangfen County of Linfen City, Shanxi Province. About 200,000 cubic meters of mud mixed with slag crashed down a mountainside from more than 100 meters, which immediately engulfed the 1.5 km long, hundreds of meters wide area, including the offices of Xinta mining company, part of the local-style dwelling houses and a County fair. The accident caused 277 people died, four people missing, and 33 people injured. The direct economic loss was 96.192 million RMB, which was the deadliest in China's production safety accidents.

The investigation team, established by the State Council dealt with the 980 extremely large tailings dam accident of Xinta mining company of Xiangfen City, Shanxi Province and concluded, worked out a conclusion: Xinta company ignored the national laws and regulations and had illegal construction of tailings, long-term illegal production, a confusion of production safety management; the local authorities at various levels of Shanxi Province didn't perform their duties according to laws in the long-term illegal mining, illegal construction tailings, illegal production and illegal operation of the new company, some staff were not responsible." To comply with the regulations of administrative responsibility on catastrophic accidents passed by the State Council on April 21, 2001, the governor of Shanxi was resigned (Central People's Government of China, 2015).

In short, agricultural pollution emergencies that were sudden, destructive and heavy, were different from the general environmental pollution events. To dispose such events, a prevention plan should be

firstly developed, and the handling must be timely, with measures appropriate and effective. People have some weaknesses in the production, including the extensive management, old facilities, bad living habits, and dereliction of duty. They may cause pollution to the rural environment, and threaten the safety of the public in the rural places. If people don't utilize resources scientifically and behave lawless, there must be the revenge of nature.

CAUSES OF AGRICULTURAL ENVIRONMENTAL POLLUTION

The imperfect economic system was the main cause of agricultural environmental pollution. Especially under the negative impact of overseas, the flaws in China's existing imperfect system stranded out. In addition, some people had the traditional peasant mentality and the living practices, which led to unscientific act that were harmful to agricultural environment. The reasons of agricultural pollution were various, the reasons should be judged under specific condition (Zhang, Nong and Han, 2017)

Transition of Pirate Developing Concept and Informal Expansion

The formation of environmental pollution was not limited to more country or one region, it had the feature of internationalization and globalization. Particularly in industrialized countries, there was structural contradictions in the capitalist system, which was closely linked with environmental pollution. The profit-maximizing capitalist system took the resources plundering as the goal, which was featured by high consumption, high pollution, and indiscriminative digging minerals, and deforestation. In this way, a handful of people could fulfill their selfish lifestyle of high consumption. For example, the tropical forests of Amazon region in Brazil of South America, known as the "lungs of the Earth." But in a very long period, the multinationals from United States, Germany, Britain, Spain and other countries, had plundered the natural resources by large-scale deforestation. "In the last five months of 2007, the deforestation in Amazon region rose sharply, the amount was almost two times in the corresponding period of last year. It had never suffered such wide range of forest loss before. Besides, it led to the deterioration of environment, the fragmentation of ecological environment, the fire hazard and the climatic variation (Butler 2008)."

Since the global fiscal crisis in 2008, the world's leading capitalist economies had been suffering from the "winter season," the defects in its system had exposed at the same time. Which had also hit people's "Faith" to capitalism in those countries. From 2011 to 2012, the pollsters "Global Scan" of Canada and the University of Maryland did a survey on 29,000 people from 27 countries, the result showed that 51% of respondents believed that the capitalist system need to be regulated and reformed. Japanese famous economists Zhong Guyan, who was the adherent of American omnipotence of market and neoliberalism, addressed that the result of collapse of the bubble economy in the United States would force the transition in global capitalism (Chen and Liu 2012). As the history always moved in zigzags way, in the development of economic globalization, some overseas philosophies and practices that were not in line with China's national conditions had been loaded in China.

Affected by the facts stated above, some local departments were eager for quick success and instant benefits, in a chase for high-consuming life. They treated the GNP as deities at all hazards, used the plundering development approach to natural resources. As a result, there were serious soil erosion, the agricultural pollutions by fertilizers and pesticides. Reform should be deepened to abandon the erroneous ideas of "money talks" and "materialism," and to carry out a smooth approach of development.

Mechanism Defects in Administration and Inadequate Supervision

The internal incentive regulations set by the local administrative departments showed that only when the economy grows, the performance on the job is good, and the faster the growth, the better the performance. On one hand, under the interests driven by the assessment indicators, the performance evaluation of local administration will more focused on the economic indicators, instead of the relevant

indicators of environment. The public officials will naturally pay more attention on economic improvements in their daily work, pay less attention or ignore the principles of ecological environmental protection besides the economic efficiency. Meanwhile, the system construction of government agencies is lack of the overall balancing mechanism. The speed-based and quantity-based performance is the only criterion of performance assessment (Dong, 2017).

On the other hand, the institutional settings of "vertical graded responsibility, horizontal multiple management" in environmental protection, from central department to local department, also made the theme decisions, the investors, and the supervisors of environmental protection unclear. The jurisdictions of government departments at all levels had overlapped partially, also omitted some parts. This would lead to slow decision, poor implementation and inadequate supervision of environmental protection in rural areas, which would make the environmental protection policy difficult to get implemented (Gao, 2016).

The ways of desire for quick success ignored environmental protection and indicators, and was regardless of objective constraints ecological conditions, which was one of the reasons causing the ecological pollutions. It was mentioned before that in 2008, there was a large dam incident in Xiangfen County, Shanxi Province. Many years before the accident happened, the tailings dam of Xinta Mining Limited Company had been repeatedly in dangerous situations, people around here had required the company to repair and reinforce it for many times. However, the company was reluctant to invest to deal with the problems. In 2012, some people in Qixia City, Shandong Province used the drug bags with high concentration of fungicides to wrap apples, to sell them at decent prices. Some people worked with masks and gloves, to prevent pesticide infection. Unfortunately, the final consequences were like that, the dam had swept more than 200 lives; the apples with excessive pesticide residues had been sold all over the country, which had endangered people's lives and health (Wang and Zhang, 2017).

Pollution Caused by Traditional Production

There were two sides for Chinese traditional peasant economy. On one hand, it pushed forward the wheel of history in thousands of years of feudal society. On the other hand, it accumulated some narrow, closed and conservative consciousness, and some traditional customs and habits. The root cause of agricultural pollutions, might be the lagging awareness in peasant economy (Dong, 2017).

First, pollution and waste caused by traditional farming or customs. Although the reform and opening police had been implemented for over 30 years, in the western China's vast rural ethnic areas, especially the remote and backward villages, the small farmer mentality of several farmers and herdsmen was still ingrained. Some conservative people continued the lagging traditional agricultural farming ways, which were not only far from intensification and industrialization of agricultural production, but also caused great damages to agricultural resources. For example, as the natural climate condition in Northern China was dry, the water resources were extremely valuable. However, people still used the "flood irrigation" way to farm, which was an extensive irrigation method. The irrigation water was in poor uniformity, and it was wasted a lot. In the long term, flood irrigation method would raise the water table, and it was very easy to make the soil salinization and marsh (Li, 2017).

On April 25th, 2012, in the 26th of the Eleventh National People's Congress, the Minister of Water Resources provided a set of data as follows: At present, the extensive mode in agriculture, had caused the low efficiency in water use. Some areas had the phenomenon of flood irrigation, the water shortage and irrigation water waste also existed. The efficient use coefficient of irrigation water was much lower than the world's advanced level (0.7-0.8); the water productivity (grain yield of per unit water) was less than 1.2 kilograms per cubic meter, while the world's advanced level was about 2 kilograms per cubic meter (Ma and Jiao, 2012). The agricultural administrative department had already banned the flood irrigation behavior, the traditional force of habit, however, was hard to be removed.

Vladimir Ilyich Ulyanov, established the socialist country in history, inherited the revolutionary theory of Marx and Engels. In the construction of Soviet Socialist State, Lenin profoundly explained the

significance of using education to eliminate harmful traditional practices. On May 6th, 1919, he reported that people were very strongly aware of the challenging task, which was to re-educate the masses, to organize and train the masses for popularizing knowledge, to struggle with the heritages of ignorance, uncivilized behavior and rudeness. Finally, he emphasized that people must fight with another new method (Ulyanov, 1919).

Mao Zedong, the first leader of China, had also deeply recognized this problem through long-term practice. Mao Zedong once pointed out that the fundamental problem was to educate farmers. Peasant economy was scattered, according to the experience of the Soviet Union, it took a long time to achieve the socialization of agriculture. Without the socialization of agriculture, there would be no complete and consolidated socialism. The reform and opening policy began in 1978, which indicated that to implement various forms of education in the vast rural areas was the fundamental guarantee to promote the agricultural development (Mao, 1982).

Second, pollution caused by traditional life style. The pollution caused by the habits of traditional life style came mainly from waste of life, which had long been disposed by traditional approach. On one hand, rural residents continued to use the most primitive way to pour the living water. The nutrient-rich water would become a source of environmental pollution. On the other hand, for the disposal of solid waste, people usually took the straightforward way to pile or landfill it. Although the treatments of composting and burning were relatively more quickly and more environmentally friendly, both treatments required harsh external conditions. For example, composting treatment needed to keep the heat of waste to 70 degrees, until to ferment. Only in this way could the waste completely decomposed into inorganic nutrients. Burning treatment required more advanced techniques and facilities, which were difficult to get in many rural areas. Some farmers were reluctant or unwilling to invest to change these constrains. Therefore, the traditional methods of stacking and simple landfilling were inherited, resulting in more and more serious pollution (Jia, 2017).

Contradiction Between Assets Management and Green Agriculture

Green agriculture referred to intensive agriculture and the small scaled farming was unable to achieve this goal, which had become the difficult problem in agricultural production. The individual farming way was suitable for the level of rural productive forces in a certain period. But with the arrival of economic globalization and science and technology internationalization, its limitations were also prominent increasingly. On one hand, the contracted landed by individual farmer was very limited. According to statistics, by 2006, China had 240 million rural households, each household had 0.69 hm^2 of farmland, each labor had 0.29 hm^2 (Jia, Lu and He, 2006).

The limited land resources hindered the organization and scale of agricultural production. On the other hand, driven by the individual interest, this fragmented business model led to irrational use of pesticides and fertilizers, and the faked green agricultural products also surged the overall price level of agricultural products in market. This had not only brought harm to consumers' health, but also hindered the sales and promotion of the real green products. To some extent, this practice affected the enthusiasm of farmers to engage in agricultural production and to keep the traditional extensive farming method objectively.

For some villages in the western region, the individual farmers were engaged in closed farming and cultivation production activities throughout the year. They stopped at the high threshold of sustainable and advanced green agriculture techniques. Firstly, some individual production operations were very extensive. In many villages, the production scale was small, the infrastructure was patchy. Agricultural production remained a relatively simple reproduction and maintained a self-sufficient economy form. The production operations were closed and extensive, farmers did not have the impulses to promote the flow of land ownership.

Therefore, the effectiveness of the crop cultivation was relatively low. Secondly, the sporadic type of agricultural business models was unresponsive for the information. As the information channels in some

rural areas were limited, making a lot of agricultural policies implemented by the government greatly reduced. For example, the recent technology introduced by the government has poor effect in some places, which was not acceptable by rural people. Thus, the high efficiency of new agricultural technologies couldn't be achieved. Meanwhile, many farmers couldn't learn the relevant preferential agricultural policies for several reasons, so they missed the opportunity to enjoy the benefits. Farmers' enthusiasm for production was greatly reduced for the efforts were not paid back (Chen, 2017).

The above defects and shortcomings would not disappear in a short term. Its causes were complex and required specific analysis. For example, some people were difficult to change the traditional production and living habits, there were two reasons: first was the effects from the comparison of cost and benefit. The most basic law of the market economy was to pursue the maximization of economic benefits. When the input costs of green production were greater than the benefits obtained, although the policy was in favor of preventing pollution and developing green agriculture, to survive, agricultural producers would continue the traditional extensive production and waste treatment approaches. For this reason, the traditional mode of production was difficult to be completely abandoned.

Secondly, the popularization of agricultural technology was inadequate. In some rural areas, the level of economic development was lagging, and the infrastructure was poor, the green production techniques and the knowledge of it were not popular, many people followed the traditional way of handling all types of waste. At the same time, because of the technical limitations, people were pushed into the traditional and extensive agricultural production and lifestyle.

In short, the benefits of new production way were insufficient to offset the costs. Along with the knowledge of green agriculture was not well known to people, the promotion of agricultural technology was not enough, these three factors contributed to traditional production and habits and resulted in long-term contamination of the agricultural environment (Zhang, 2017).

COUNTERMEASURES OF ENVIRONMENTAL ISSUES

Environmental situation of agricultural production was directly related to food safety, which involved hundreds of millions of people's lives and health. Therefore, people must put this into first place to ensure that agricultural production had a good environment, and take some strong and effective corresponding measures to solve the problems.

Set Up New Rural Cooperative Mechanism of Green Economy

A new rural production cooperative mechanism based on the rural family-contract responsibility system should be established to further mobilize and organize the broad masses of peasants to develop green economy. As the science and technology of high-tech modern agriculture is a complex system, a single farmer is difficult to successfully implement the green agricultural production and marketing operations. However, the new production cooperation organization is a hub between individual farmer and market, this kind of system can be set up to form an industrial chain of "green production technique and factor suppliers--agricultural cooperative organization--green agricultural products processing and sales market." To give full play to the role of such cooperative organization, can help farmers to solve technical problems, and open the market channels of green agricultural products.

U.S. economist Paul Krugman, the winner of the 2008 Nobel Prize in Economics, created a mathematical model in 1991 to explain the famous theory of "economies of scale." The main idea was that people must focus on a variety of economic factors within a certain geographic space to promote the rapid development of economy (Krugman, 2011). Many domestic and international practices proved that this theory is correct. China is currently building new socialist countryside. Some places have already had evident effectiveness. We need to learn the overseas advanced theory, take Urban-rural integration and comprehensive utilization of resources as a means, to establish agglomerative new rural community of industrial enterprise and agricultural organization, to build a path of scale and intensive agriculture, by

means of gathering the enterprises and agricultural companies that have the large-scale production capacity together.

Reforms of Administrative Sectoral Mechanisms and Regulatory Systems

It is an important incentive way for government officials to set a scientific assessment method. According to the scientific standards, we can value the government employees by including the environmental pollution index within jurisdictions, the implementation and effectiveness of the related environmental policies. In this way, we can give a comprehensive evaluation for their capabilities.

The new regulatory body needs to be reorganized, to promote the environmental management and organizational structure more systematic. The improvement of assessment criteria is to urge and encourage governments to attach importance to agricultural environmental protection, and to reform an aspect of political system. But it is not enough by simply doing this. The institutional settings of "vertical graded responsibility, horizontal multiple management" in China rural areas must be reformed. We need to strengthen the organization construction and capacity building of environmental agencies, to assign certain people to certain work, to avoid the blind spots of duplication and jurisdiction, thus improve the promotion efficiency of green agricultural production (Jia, 2017).

Strengthen the Input for "Green Support"

EU countries reached a consensus on agricultural policy reform in 2005, to abolish the existing subsidies linked with production and to implement the subsidies linked with environmental protection and safety. In the same year, the British began to subsidy the farmers with environmentally friendly production mode. Putting more money into "green support" account became one of the incentives that were widely used around the world.

The administrative need to learn advanced experience from foreign countries to establish several types of green production funds in China, which connects agricultural subsidies with environmental indicators, to give support to farmers that engaged in green agriculture. In addition, the administrative need to implement appropriate penalties to farmers and enterprises that are not following the requirements of environmental protection, using the "forced mechanism" to promote green production. The purpose of subsidies and penalties, direct and indirect incentives is to ensure the production benefit (Wu, 2017).

Strengthen Environmental Education of Farm Workers

Green agriculture is no longer a new concept to the public. Many farmers didn't really understand its specific meaning before and believed in the traditional concept of development. Considering this situation, it is imperative to publicize the green agriculture widely in rural areas, promoting the new production method and life style. The promotion should focus on the ideas of classification control to point source and non-point source pollutions, to guide the rural residents consciously abandon the practice of "pollution first, treatment later." At the same time, we need to figure out the hazards brought by some traditional farming practices, to strengthen the education on the characteristics of sudden environmental pollution accidents, popularizing the knowledge and skills to handle the accident and emergencies (Hou, 2017).

So far, some parts of the western minority areas are still lack of information, which has made the farmers and enterprises unable to obtain the latest guiding philosophy and agricultural technologies. We need to use a variety of possible ways to speed up the transmission of information in rural and pastoral areas, to enhance the transparency of information. The relevant departments need to actively organize the enterprises and farmers to learn about the methods to prevent the point sources and no-point sources pollutions, to minimize the possibility of such pollutions. By learning, we can present the feasible programs, and establish a suitable mechanism of agricultural environmental pollution prevention and monitoring (Dong, 2017).

Promote Rural Infrastructure Construction and Agricultural Technology

In some rural areas, one of the main causes for serious agricultural pollution was the poor infrastructure. This situation led to the information occlusion and inadequate education, which in turn led to the inheritance of the traditional and lagging production habits, lacking outside power to break these constrains. Human consciousness is determined by the material base, it will be easier to strengthen the infrastructure construction, and then to enhance their understanding (Peng, 2017).

Besides, we need to establish and improve the extension system of agricultural technology. The transformation rate of China's agricultural achievements is comparatively not high, one fundamental reason is that the cost of modern technology is large, and there is highly unknown proportion of the economic benefits. Create a new system of agricultural science and technology and promote the full implementation of "who invests, who benefits" mechanism, to truly make the investors share profits according to contributions. Only in this way can we mobilize the enthusiasm of farmers. Only when we promote a comprehensive agricultural production transition from traditional ways to modern ways, can the environment be protected and the production be developed (Ding, Zhang and Cheng et al., 2017).

CONCLUSION

With the development of economic globalization and trade internationalization, the contradiction between the fragmented farming system and agricultural green and healthy development had been very prominent. It called for the further deepening of economic reform in agriculture. Moreover, the environmental management system needs to be improved; currently the management system is lack of effectiveness and thus the underlying cause of environment destruction and ignoring the quality of development by some companies and even the administrative departments. Therefore, it is necessary to further deepen the reform of management system.

In recent years, all the countries are starting to link the agricultural subsidies and environmental protection. Under the influence of cultural quality and traditional habits, the ecological and environmental ideology of China's rural residents is relatively weak. As a result, some farm works show little understanding of agricultural pollution sources and the degree of harm. This lagging social phenomenon must be changed as soon as possible.

In addition, the inadequate infrastructure and new agricultural technology form the main reasons for agricultural pollution. As such, in the process of building new socialist countryside, funds need to be raised from multiple channels and limited funds to be put into the infrastructure construction in rural areas. In short, a better environmental condition should be put into first place to ensure full-speed and high-quality agriculture development, and to make contribution to social development simultaneously.

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