



SEARCH



1. The area/quantity and productivity/quality of farmland being the foundation for humanity survival

Land is the foundation of human survival, agriculture is the basic industry of human society, and farmland closely related to agriculture is one of the most important resources of social and economic development.

Food production capacity is an important aspect of food security, and it is affected by many factors.

In addition to uncontrollable factors such as weather, it is mainly affected by the area/quantity and productivity/quality of farmland and decided by technology, capital investment and management, etc.

Among them, the area and productivity of farmland are the most important factors for securing safety of grain production.

The importance of arable land in social development has attracted the attentions of government all over the world.

The following discussion will take China as an example.

2. The main problems of Chinese farmland

Population in China accounts for 18.84% of the world population.

Early in 1992, Brown, an American economist, raised the question, "Who will feed the Chinese?". It illustrates food safety is not only important to China but also important to the world.

A certain area and productivity of cultivated land is essential condition to ensure food security of the large Chinese population, where protection of farmland must be particularly important.

China is currently undergoing a period of rapid economic development.

During this period, ecological destruction and loss of arable land are particularly serious.

Tang **et al.**'s

paper "**Status, problems and strategy of capital farmland development in China**"

(World Agriculture, this issue) presents survey data which illustrates that Chinese grain production is based on a very shaky footing.

Four key problems exist:

- 1) The area of arable land and reserved cultivated land resources are insufficient; 2) Farmland productivity is generally low and agricultural infrastructure is inadequate;
- 3) The degradation of the farmland ecosystem is accelerating. It faces the three issues of over exploitation, inappropriate utilization, and under-utilization, separately;
- 4) Urban construction is really emphasized;
- 5) Management is overlooked in farmland construction projects.

The problems mentioned above are difficult to solve in a short term.

For many years, the ratio of high quality farmland to the national total has decreased continuously along with China's economic development.

This has been a persistent concern for agricultural development. Tang **et al.**'s paper focuses on this problem.

Tang **et al** proposes that fertile farmland is the essential basis for high crop production.

Which will support the effective roles of top quality seeds and optimal agricultural techniques.

According to this axiom, it has become an essential task for the current stage of agricultural development to protect, build, and make good use of basic farmland.

In this it must solve problems such as the scattered spatial distribution of farms, insufficient facilities and a deficiency in ecological protection.

3. Some reasons for the problems of farmland in China

Except for the shortage of Chinese land resources and a limited increase in the arable land, the following two factors limit the availability of arable land:

1) Farmland converted to non-agriculture uses for conservation

The conservation projects in which cropland is converted to forest or others for ecological protection.

This requires the withdrawing from farmland to wasteland, slopes, wetland, and beaches, which can avoid soil erosion, desertification and other ecological problems.

Based on the Government policy, some croplands must return back into forest, grassland, wetland and beaches for environment protection.

2) Farmland reduction as urban development

Some urban and national infrastructure construction occupies arable land, resulting in a reduction of the farmland area.

3) High quality farmland occupied but poor land given back as compensation

To ensure quantity (without reduction) of the total farmland area, the Chinese Government has introduced a policy of arable land requisition-compensation balance, which requires occupiers of arable land to reclaim a corresponding amount arable land in compensation.

That means “the area balance between the occupied farmland and the compensation from wasteland by reclaim”.

However, high quality/productivity farmland near to cities tends to be used for industry. In compensation, poor quality/low productivity land is often reclassified as capital farmland.

Thus, the area of capital farmland is emphasized but the quality.

This leads to low productivity of the compensation farmland is with little value. The occupation of farmland for urban and national infrastructure construction, directly result in a reduction of cultivated grain acreage and a decline in cultivated land quality.

4. Construction, management and utilization of high quality farmland requires a systematic engineering

From the start of the 21th century, the Chinese Government has determined to promote the large-scale construction of high standard capital farmland.

By 2020, 8-10 million mu(1 mu=0.067ha) of this farmland will be established.

In order to convert traditional agriculture to modern one, comprehensive information and engineering technologies must be used to monitor and manage farmland construction.

Future studies should focus on the establishment of different farmland capital requirements under various natural environments and stages of economic and social development.

The studies should analyze the factors affecting this process and determine solutions to provide valuable information for Government decisions.

5. Government plays a significant role in protecting and constructing capital farmland

1) Land public ownership and Government management

One of the characteristics of Chinese land is public ownership, and thus the Government has an advantage in its unified management, planning, protection and utilization.

In practice, the Chinese Government has played an important role in farmland protection and construction in which it has issued series policies and invested a vast amount of money.

For example, the policies, on rural land rights and on the transfer of management rights of contracted rural lands, are major decisions of the Central Government.

Based on this policy, data sharing platforms on agricultural land resources will be established. Agricultural data will be integrated and the data centre will become one of big agricultural data source.

2) The 1.8 billion mu red line of capital farmland for protection

The implementation of rural land rights is the basis and guarantee of improving a rural and county land management system, and strengthening land transfer and scale operation.

It makes data of arable land area and quality transparent and effectively protects arable land in rural areas.

It also reduces managerial short-term orientation of farmers, and promotes the rational use and management of soils to improve soil quality.

In one word, the arable land data sharing means transparency which will effectively avoid loss by local people occupied.

Another example is that the government policy on "1.8 billion mu (1 mu=0.067ha) red line of capital farmland".

China currently has a population of about 1.4 billion. If the low limit of farmland area is 1.8 billion mu, the per capita farmland is at least 1.29 mu/capita (1.8 billion mu/1.4 billion capita= 1.29 mu/capita) China's average grain yield is about 320

kg/mu, and then the average grain per capita in 1.29 mu arable land is approximately 400 kg/capita.

Studies have shown that per capita grain supply of 370 kg is critical to meet the current food consumption needs.

Therefore, 1.8 million mu red line of arable land could ensure the minimum amount of farmland for food security based on 1.4 billion people in China.

3) Some other policies issued by Government and their effects

In the past 20 years, the Chinese Government has formulated laws, policies and regulations such as “Land Management Law,” “Regulations on the Administration of Capital Farmland”, “Agricultural Land Quality Grading Regulations” (GB/T28407-2012), and “National High Standard Farmland Construction General Plan”.

These are of significance for a rational use of land, the construction of capital farmland and a strong protection of arable land. In recent years, national funds have been spent on land consolidation projects, related projects are strictly implemented.

Their effects are obvious. These practices all demonstrate that the Government is playing a considerable role in protecting cultivated land and constructing capital farmland of high standards.

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Comments