



Foreign Economic Cooperation Center
Ministry of Agriculture

Foreign Agricultural Training Reference Book

Chinese Agriculture and International Cooperation

Yang Yi **Editor**

Zhu Zidong Luo Xiang Guo xin **Subeditor**

China Agricultural Science and Technology Press



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Preface

China is a big agriculture country with a long and glorious history, vast terrain territory and huge population. In the wake of the founding of People's Republic of China, the government always accords great importance to and tries the best to address issues of agriculture, rural area as well as farmers. Especially since the reform and opening-up policy in 1978 was adopted, Chinese government has carried out a series of policies in order to enhance basic conditions of agriculture, increase farmer's income, stimulate comprehensive development of rural area and continuously promote rural reform. Rural economic system is initially formed suitable for development of social productivity in current national situation, with gradual development of agro-productivity, enrichment of agricultural commodity supply, significant increase of farmer's income, substantial improvement of livelihood in rural area and obvious effect of poverty reduction, so that agricultural economy is changed entirely and radically in China. China manages self-reliantly and steadily to meet the subsistence needs of 1.368 billion person, not only providing a strong support to the overall economic and social development in this nation, but also making important contributions to the world's food security and progress in poverty alleviation around the globe.

"If one travels alone, he can travel quite fast. But if we travel together, then we can travel to a further destination." It is more important to teach one how to fish than just give him fish. As the most populous developing country in the world, China has been committed to the developing agriculture as well as conducting agricultural cooperation with other countries and sharing experience and advanced and practical technologies with other developing countries for common development. It is worth mentioning that the experi-

ence sharing and technical training with capacity building as the core have been very well-received among agricultural officials and professionals and have become a typical way of carrying out bilateral and multilateral agricultural South-South cooperation, winning the attention from the international community.

In order to support the implementation of “One Belt And One Road” strategy and “Agriculture Going Global” strategy and relevant training institutions and foreign-aid agricultural experts to conduct foreign agricultural training to help foreign participants to know China’s agricultural development and international cooperation, we have compiled this training textbook. The book knowledge is composed of four parts: General Review of China, China’s Agriculture, China’s Agriculture Development, China’s Agricultural Policies and International Agricultural Exchange and Cooperation of China. It aims to offer the readers the latest information of China’s agricultural development and international cooperation so as to promote the in-depth development of international agricultural cooperation.

During the compilation of the book knowledge, the author have received great support from International Cooperation Department of Ministry of Agriculture of China, Department of Sectoral Policy and Law of Ministry of Agriculture of China, Foreign Economic Cooperation Center of Ministry of Agriculture of China, Center of International Communication Service of Ministry of Agriculture of China and hereby we would like to express our gratitude to the above department and institutions.

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Chapter 1

General Review of China

Section One

Geographical Environment and Administrative Division

China lies in the east of Asia and the west coast of the Pacific Ocean, as its map resembles a golden rooster with its head facing east and tail west. China is a populous country with vast territory, and highly complex and diversified natural and geographical environments. Dating back over 5 000 years, Chinese ancestors have begun to work and multiply on this land, and now their descendants keep developing, utilizing and changing the surroundings year by year.

1. Geography and Climate

(1) Geographical Location

China rests on the east slope of Eurasia, the largest continent in the world, facing the Pacific, the largest ocean in the world. Its entire lay of the land centers on the highest plateau on earth-Qinghai-Tibet Plateau. From west to east, it descends stage by stage, joining China's continental part with the ocean basin of the Pacific Ocean through the vast continent shelf.

China lies in the north hemisphere, in the eastern and central part of Asia, along the west coast of the Pacific, facing the sea to the east and extending into the inland to the west. Its long coastlines make it a country of seas and continent. The land area of China amounts to 9.6 million square kilome-

ters, accounting for one fourth of the land area of Asia, one fifth of that of the world. It is the third largest country in the world next to Russia and Canada. China's sea area covers 4.73 million square kilometers, approximately one third of its land area.

From east to west, China's territory spans longitude of 60 degrees, one time zone, approximately 5 200 kilometers, while it spans about 50 degrees altitude from north to south, about 5 500 kilometers. China borders on 14 countries, with Vietnam, Laos and Myanmar to the south; India, Bhutan, and Nepal to the southwest; Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, and Kazakhstan to the west; Mongolia to the north; Russia and the Democratic People's Republic of Korea to the northeast; and Japan, Republic of Korea, as well as the Philippines, Malaysia, and Brunei across the sea.

The north-south demarcation line in China is the Qinling Mountains-Huai River Line; the area south of that line is referred to as South China, and the area north of that line North China. Geographically, the North consists of the Northeast, North China, and Northwest China. The geographical South consists of the Southwest China, Central-south China and East China.

China's east-west demarcation line is Heihe-Tengchong Line, east of which is referred to as the East China, and west of which West China. Geographically, China's east consists of the Northeast China, North China, Central-south China and East China. China's geographical West consists of the Northwest China and Southwest China. East China has a larger population and economically more developed than West China.

(2) Climatic Features

China's vast territories span many altitudes. Noticeable differences in distance from the sea, height above sea level, diversity in landforms and mountain directions all together result in diversified combinations of climate and waterfall, and colorful climate patterns.

The most part of China lies in the north temperate zone of mild temperature and distinct seasons, ideal for human settlement. Continental monsoons are characteristics of the climate in China. As China lies on the east of Eurasia, the largest continent on earth and sits on the west coast of the Pacific,

close to the Indian Ocean to the southwest, its climate is significantly affected by the continent and ocean. In winter, north wind prevails from land in the north to the sea in the east, while in summer south wind prevails from the sea to the land. Winter winds arise from Asia's inland, carrying chilly and dry weather to most areas in China, which is especially obvious in China's north. In summer, however, winds bring most areas with rainfall and heat. As China's monsoon climate is mostly continental, it is also referred to as the continental monsoon climate.

From September to April of the coming year, dry and chilly winter monsoon blows from Siberia and Mongolian Plateau, driving the temperature in Mohe, Heilongjiang province down to below -30°C . In South China, the temperature stays above 0°C . In places like Sanya, Hainan province the temperature is above 20°C . The temperature difference of the north and south is so striking when the north is all snow white, flowers just begin to blossom in the south. From April to September each year, warm and humid summer monsoon will come from the sea from the east and south, creating a climate of high temperature and abundant rainfall. During this period therefore, high temperature prevails nationwide except for high places like Qinghai-Tibet Plateau, without significant temperature gap between the south and north. In this sense, huge south-north temperature gap, i. e. , warm south and cold north, features the temperature layout of winter in China.

In the capital of China, Beijing, January temperature averages -4°C , while that in July averages 26°C . In freezing winter days, Beijing's temperature will fall below -10°C , while that in summer will exceed 40°C .

2. Landscape and Resources

(1) Landscape

China boasts a vast territory with magnificent plateaus, criss-crossed and stretching mountains, endless deserts, as well as gigantic and rich basins, boundary-less plains, and hilly areas. All these landforms are intertwined and magnificent. Among the 12 mountains higher than 8 000 meters in the world, seven of them reside in China. These mountains mostly run in east-west and northeast-southwest directions, which are Altai Mountains, Tians-

han Mountains, Kunlun Mountains, Karakoram Mountains, Himalaya Range, Yinshan Mountains, Qinling Mountains, Nanling Mountains, Greater Hinggan Mountains, Changbai Mountains, Taihang Mountains, Wuyi Mountains, Taiwan mountain range, and Hengduan Mountains. There are four major plateaus in China, which are Qinghai-Tibet Plateau, Inner Mongolia Plateau, the Loess Plateau, and Yunnan-Guizhou Plateau. China has four major basins, which are Qaidam Basin, Tarim Basin, Junggar Basin and Sichuan Basin, and has three major plains, namely, the Northeast Plain, North China Plain, and the Mid-Lower Yangtze River Plain.

China is a country with countless famous mountains, each featuring magnificence, oddness, smartness or elegance. Top mountains, however, are the Three Mountains and Five Peaks (mountain), each offering unique sceneries and splendid views. Three Mountains refer to Huangshan Mountain, Lushan Mountain and Yandangshan Mountain whereas the Five Peaks refer to Taishan Mountain, Huashan Mountain, Hengshan Mountain, Heng Mountain and Songshan Mountain. The four Buddhist Mountains are Puduoshan Mountain, Wutaishan Mountain, Jiuhuashan Mountain and Emei Mountain. Other well-known mountains are Kunlun Mountain and Wuyi Mountain, among others.

(2) Resources

a. Population Resource

China is the most populous country in the world. By the end of 2014, China's population totals 1.368 billion person, accounting for one fifth of the world's total. China is also a country with the highest population density, averagely 142 persons per square kilometer.

A most distinct feature of population layout in China is high density in the east, and low density in the west. In the east coast areas, population density is over 400 persons per square kilometer; in central areas, the figure is 200 persons, while in the western plateaus, the figure is less than 10 persons persquare kilomefer.

Since 1980s when the reform and opening up started, China's urbanization has accelerated. In 2014, the urbanization ratio of China's population hit 54.77%. However, in comparison with other countries, this figure is rather

low, as 45.23% of its population still lives in rural areas. China's urbanization falls not only behind most developed countries, but many developing countries as well.

b. Land Resources

The absolute number of farmlands, forests and grasslands in China rank among the highest in the world, but the per capita average falls far below the world average for its huge population base.

Farmlands in China total 122 million hectares, accounting for 10.2% of the world's total. This figure ranks the world's second, while its per capita farmland is less than 57% of the world's average. Farmlands are concentrated in the eastern part, such as the Northeast Plain, North China Plain, the Middle-Lower Yangtze Plain, Pearl River Delta, and Sichuan Basin. The Northeast Plain covering 350 000 square kilometers is characteristic of fertile black soil, and is abundant with wheat, corn, soybeans, sorghum, flax and sugar beet. The deep, brown soil in the North China Plain is planted with wheat, corn, millet and cotton. The Middle-Lower Yangtze Plain features flat terrain and has many lakes and rivers, which enable people to plant paddy rice and breed freshwater fish. Hence it is called the "a land flowing with milk and honey". This area also produces large quantities of tea and silkworms. The purplish soil of the warm and humid Sichuan Basin is green with crops in all four seasons, including paddy rice, rapeseed and sugarcane. Its yield per unit area of paddy rice ranks the first in China. The Pearl River Delta abounds with paddy rice that is gathered 2~3 times every year, making it a "Pearl in South China Sea".

195.45 million hectares of forests in China account for 20.36% of the world's total, ranking the fifth in the world, yet the per capita forest area falls less than one fourth of the world's average. The forest coverage nationwide hits 18.2%, it is 60% of the world's average (30.5%), and its forest storage volume is 11.27 billion cubic meters. Excluding that in Hong Kong, Macao and Taiwan, the area of man-made forest totals 46.667 million hectares in China, taking the first place in the world. Most of the forests are found in remote northeast and southwest areas. Among these areas, the largest natural forests are located in the Greater Hinggan Mountains, Lesser

Hinggan Mountains and Changbai Mountain ranges. Major tree species found here include conifers, such as Korean pine, larch and Olga Bay larch, and broadleaf trees such as white birch, oak, Manchurian ash, poplar tree, and elm. Major tree species in the southwest natural forest include the dragon spruce, fir and Yunnan pine, as well as teak, red sandalwood, camphor, nanmu and padauk. Known as a “kingdom of plants”, Xishuangbanna in the south of Yunnan Province is a rare tropical broadleaf forest area in China, playing host to more than 5 000 species.

Grasslands in China cover an area of 400 million hectares, ranking the second in the world and stretching more than 3 000 km from the northeast to the southwest. With the per capita grassland less than 57% of the world average level, most of the grasslands are located in the north and west areas. They are the centers of animal husbandry. The Inner Mongolian Prairie is China's largest natural pastureland, and is home to the famous Sanhe cattle, Sanhe horses and Mongolian sheep. The important natural pasturelands in the north and south of the Tianshan Mountains in Xinjiang are ideal for stockbreeding. The famous Ili horses and Xinjiang fine-wool sheep are raised here.

c. Water Resources

China has under its jurisdiction three million square kilometers of marine area, equivalent to the 30 land area of Zhejiang provinces. China's seas are vast, in terms of geographical range, the marine area spans latitude of about 38 degrees, and longitude of 24 degrees. Bohai Sea, Yellow Sea, East China Sea and South China Sea are linked as a chain of shining pearls. Generally speaking, the natural environment and resources of China's seas are superior with plenty of bio-species and great potential.

China is rich in rivers and lakes, and has over 1 500 rivers with river basin area over 1 000 square kilometers. The distribution of these rivers and lakes is uneven, with both inland drainage and exoreic drainage areas. Rivers can be divided into Exorheic Rivers and inland rivers. Drainage areas of Exorheic Rivers running to the sea approximate 64% of China's land area; those of inland rivers running to either inland lakes or missing in deserts approximate 36% of the land area. Tarim River in southern Xinjiang, for example,

is the longest inland river in China, stretching 2 179 kilometers. These rivers and lakes reserve immense natural resources. Most of major rivers in China come from the Qinghai-Tibet Plateau, so there is a big drop from the river source to its outlet.

Yangtze River is the longest river in China, stretching 6 403 km in length. The river originates from the Tanggula Mountains on Qinghai-Tibet Plateau, flowing through the whole or part of 13 provinces including Tibet. It is the third longest river in the world next to the Nile in Africa and the Amazon in South America. Yellow River is the second longest river in China, which is respected as the “Mother River of China”. It originates from Qinghai, flowing through nine provinces and autonomous regions of Qinghai, Sichuan, Gansu, Ningxia, Inner Mongolia, Shanxi, Shaanxi, Henan, and Shandong. Collecting over 40 important tributary courses and 1 000 rivers and streams, it runs 5 464 kilometers and all the way into the Bohai Sea. Pearl River is the largest river system in southern China, running 2 214 kilometers. It is referred to as one of the seven large rivers in China, along with the Yangtze River, Yellow River, Huai River, Hai River, Songhua River, and Liao River.

This Grand Canal is a famous man-made waterway in the world. Starting from Beijing in the north, the Canal runs through Beijing, Tianjin, Hebei, Shandong, Jiangsu, and Zhejiang provinces to end in Hangzhou in the south. Linking Hai River, Yellow River, Huai River, Yangtze River and Qiantang River systems, it runs 1 801 kilometers. Excavated 785 years ago, it is the oldest and longest man-made canal in the world. It has made immense contributions to the economic, cultural development and exchange between northern and southern China, especially conducive to the rise and boom of the industry and agriculture of the regions alongside. In addition, it plays an important role in irrigation, flood control and drainage as well. In the east route of “South-to-North Water Diversion” project, the Canal serves as the water transfer channel for sending Yangtze River’s water to the north. The Canal and the Great Wall are called the two greatest projects in ancient China, known worldwide.

China boasts numerous lakes, dotting like pearls on the country. Most

important five lakes are Dongting Lake in Hunan, Poyang Lake in Jiangxi, Tai Lake and Hongze Lake in Jiangsu, as well as Chao Lake in Anhui. All of these freshwater lakes are found in the middle and lower reaches of Yangtze River. Saltwater lakes are mostly found on the Qinghai-Tibet Plateau, such as Qinghai Lake, Namco Lake, and Qilin Lake. On Yunnan-Guizhou Plateau, however, lakes are formed mainly through stratum rupture and sinking. For example, Lake Dian in southern suburb of Kunming City in Yunnan province is typically such a lake. Figures about the lake are as follows: surface height of 1 886 meters above sea level, 39 kilometers from north to south, 13 kilometers from east to west, 163.2 kilometers of lakeshore, and 300 square kilometers of space. Therefore it is called "500-li Dian Lake", and is a state-level tourist resort. China boasts numerous long rivers which cover a lot of areas. However, the total water resources from these rivers are unevenly distributed and so inadequate. The water resource per person averages 1 785 cubic meters, less than 1/4 of the world's average.

d. Marine Resources

As a big developing marine nation, China has a coastline of over 18 000 kilometers under the jurisdiction of a marine area of three million square kilometers, an equivalent to 30 land area of Zhejiang provinces that incorporate 6 500 islands. China's seas are vast, in terms of geographical range, the marine area spans latitude of about 38 degrees, and longitude of 24 degrees. Bohai Sea, Yellow Sea, East China Sea and South China Sea are linked as a chain of shining pearls. Generally speaking, the natural environment and resources of China's seas are superior with plenty of bio-species and great potential.

The characteristics of the sea bays in China are as follows: Divided by Hangzhou Bay, the area north of that bay features plain bays which are small in number and large in size, such as the magnificent Liaodong Bay, Bohai Bay, Laizhou Bay, and Haizhou Bay. The area south of that bay features bays characteristic of mountains, hills and bedrocks, which are large in number but small in size. These bays tend to have long and narrow coastlines, namely Sanmen Bay, Luoyuan Bay, and Qinzhou Bay. In general, there are 150 bays with an area of over 10 square kilometers for each.

The Chinese government attaches high importance to development of the marine economy, as it encourages and supports the emerging marine industries in parallel with steady promotion of traditional marine industries. Since 1980s, the Chinese government takes an active position in restructuring its marine industry by optimizing the industry layout, and advocating advanced science and technology. All these efforts result in a high momentum of marine economy growth in recent years. The recent two decades have witnessed the gross output of China's dominant marine industries growing at 25% in yearly average, five times than 20 years ago. At present, there are already 90 marine natural reserves of all levels built and maintained in China. These natural reserves serve to protect marine ecology, such as the coastlines, river mouths, and islands, which are valuable for research, education and nature and history. In addition to such rare and endangered marine animal species as Chinese white dolphin and their habitats, these reserves also protect typical marine ecosystems as mangroves, coral and seaside wetlands.

e. Metallic Mineral Resources

China is among countries of rich metallic mineral resources in the world, and the entire world's known metallic minerals can be found here with proven reserves. Resources with the proven reserves ranking first in the world include tungsten, tin, antimony, rare earth, tantalum, and titanium; those with the proven reserves ranking second include vanadium, molybdenum, niobium, beryllium, and lithium; the fourth include zinc, while the fifth include iron, lead, gold, and silver.

In China, metallic minerals are distributed nationwide, yet relatively concentrated in a few regions. For example, iron mines are mainly found in the three regions of Anshan-Benxi, northern Hebei, and Shanxi; bauxites in Shanxi, Henan, Guizhou, and Guangxi; tungsten ores in Yunnan, Guangxi, Guangdong, and Hunan provinces. Some of the metallic minerals are highly competitive in the world for their large reserve and high quality, namely tungsten, tin, molybdenum, antimony, and rare earth.

China depends to a great extent on its own energy resources for economic development, having an energy self-sufficient ratio above 90%, a figure much higher than many developed countries. China's present energy output

ranks the second in the world, and maintains a powerful infrastructure for energy production and supply. Despite China's rich energy reserves, its energy possession per capita falls far below the world's average for its huge population base.

f. Non-metallic Mineral Resources

As a few countries with complete reserves of non-metallic minerals in the world, China has over 5 000 non-metallic mineral mines with proven reserves. The majority of these mines have rich proven reserves. For example, the proven reserves of magnesite, black lead, blue john, French chalk, asbestos, gypsum, barite, aedelforsite, alum stone, bentonite, and rock salt are in front rank of the world; those of phosphorus, kaolin clay, pyrites, glauber salt, bergmeal, zeolite, pearlite, and cement limestone take important positions in the world; its rock materials of marble and granite boast high quality and rich reserves; especially noteworthy is China's resources of rare earth, which account for 41.36% of the world's total and at least 71% of the world's total reserves. China is the only producer on the earth to offer all the 17 rare earth metals. Of the 92.61 million tons of rare earth mineral, at least a half is deposited in Bayan Obo, Inner Mongolia. In comparison, however, China is relatively short of leopoldite and boron mineral resources.

g. Biological Resources

Animal Resources. As a country with most of the species of the wild animals in the world, China has rich and colorful biological resources. Its vertebrates alone account for 11% of the world total, amounting to 4 880 species. Among which there are 410 species of mammals, 1 180 kinds of birds, 300 kinds of reptiles, 190 kinds of amphibians, and 2 800 kinds of fish. Panda, golden monkey, white-flag dolphin, white-lipped deer, takin, brown eared pheasant, Yangtze alligator, and Crested Ibis are unique animals only found in China; red-crowned crane in the northeast, golden pheasant in Shaanxi, Sichuan and Gansu, blue peacock in Tibet and Yunnan, as well as paradise flycatcher, swan and green parrot are valuable birds; precious species of butterflies are found in Taiwan, Yunnan and Sichuan.

China has also scored progress in building natural reserves, as it has built 460 natural reserves of all levels, covering 2.4% of the territory. A-