

Geography and Climate

By Xiaoping Shen

INTRODUCTION

China is the most populated country in the world. More than 1 billion Chinese people live on a vast land—the third largest in the world after Russia and Canada. From Mount Everest (the world's tallest mountain) to Turfan (the lowest land in the world at 154 meters [505 feet] below sea level) and from the cool-temperate climate in the north to the tropical climate in the south, China includes an extraordinary variety of physical environments. As one of the world's oldest continuous civilizations, the Chinese people have created unique cultural landscapes on this great landmass. This section will introduce both the physical and cultural aspects of the geography of China.

1. LOCATION AND TERRITORY

Geography

China is an east Asian country located in the southeastern portion of the Eurasian landmass and on the western shore of the Pacific Ocean. The territory lies between latitudes 3°50'N to 53°31'N and longitudes 73°E to 135°5'E. It covers about 50 degrees of latitude and 60 degrees of longitude. China is about 5,200 kilometers (3,232 miles) from west to east, and about 5,500 kilometers (3,418 miles) from north to south.

China and the United States are both mid-latitude countries in the Northern Hemisphere. With a very similar longitudinal extent between China and the 48 contiguous U.S. states, China is considerably wider from north to south. The northernmost point of China is located in the middle of the Heilong Jiang River, which is the same latitude as Edmonton in Alberta, Canada. The southernmost point of China is in the Nansha Islands on the same latitude as Cali in Colombia. Comparing the latitudes, Miami—which is almost the southern limit in Florida—is only halfway between Shanghai and Hong Kong.

Area: China covers a land area about 9.6 million square kilometers (3.7 million square miles), including the mainland and islands. The territory of China includes Taiwan, although it is currently administered by governments other than that of the People's Republic of China.

The area of China is exceeded only by those of Russia and Canada. It is slightly larger than the area of the United States (9.4 million square kilometers, or 3.6 million square miles) and is similar to the area of all of Europe. China occupies about one-fifteenth of the total land surface on the earth and one-quarter of the area of Asia.

Seas and Islands: China has four neighboring seas on the east and southeast of the land area. From north to south, they are Bo Hai, Huang Hai (Yellow Sea), Dong Hai (East China Sea), and Nan Hai (South China Sea).

Besides the mainland territories, there are more than 5,000 islands scattered along the east and southeast coast. The largest island is Taiwan and the second largest is Hainan Island.

Time Zones: China's vast land crosses four time zones, similar to the 48 continuous states of the United States. But the dif-

ference between the two countries is that the United States uses four times in four time zones, China uses only one time, Beijing time, for the entire country. Since Beijing is located in east China, people in western China are inconvenienced by this. People in west get up “late” and go to work “late”; eight o’clock in the morning Beijing time is only five o’clock local time in the west. If Chinese people were more equally distributed over the territory, as in the United States, using one time for the entire country would be even more awkward.

Beijing time is ahead of U.S. time between 16 hours (Pacific time) to 13 hours (Eastern time). When it is daytime in the United States, it is nighttime in China. China does not have daylight savings time in the summer. Therefore, the time difference decreases one hour during daylight savings time in the United States. When people in the United States make phone calls to China, they must calculate the time difference.

Hong Kong

Hong Kong is a special administrative region under the central government of the People’s Republic of China. Hong Kong is a port city located on China’s southeast coast near Guangzhou city. The area of the Hong Kong administrative region is 1,072 square kilometers (414 square miles). That includes Hong Kong Island, Kowloon peninsula, nearby islands, and the New Territories north to Kowloon. Hong Kong’s population was 6.67 million in 2000.

Hong Kong was a British crown colony for 155 years between 1842 and 1997. According to the Sino-British Joint Declaration signed in 1984, China resumed sovereignty over Hong Kong at midnight on June 30, 1997. The central government of China handles defense and foreign affairs, and the Hong Kong government is responsible for other governmental functions. The Chinese government has promised that Hong Kong will keep its own currency, (the Hong Kong dollar) and its capitalist market system for fifty years after its return to China.

Macao

Since the 16th century, Macao has been a Portuguese overseas territory in South China. Macao is in the delta of the Zhu Jiang River (Pearl River) and includes two small islands. The area of Macao is 17 square kilometers (6.6 square miles), comprising the Macao Peninsula and the islands of Taipa and Colôane. The population of Macao was 438,000 in 2000.

According to the Joint Declaration on the Question of Macao by the Governments of the People’s Republic of China and the Republic of Portugal signed in 1987, China resumed sovereignty over Macao on December 20, 1999.

Taiwan

Taiwan is a part of China and is currently administered by the Guomindang (Nationalist Party) government. Taiwan is located to the southeast of the Chinese mainland, opposite Fujian Province and is separated from the southeast coast of China by the Taiwan Straits. To the east of Taiwan is the Pacific Ocean. Taiwan Province consists of Taiwan Island, the P’eng-hu (Penghu) Islands, and 80 other smaller neighboring islands and islets. The total area covers 36,000 square kilometers (13,900 square miles). Taiwan had a population of 22.28 million in 2000.

Taiwan was occupied by Japan from 1895 to 1945, and was returned to China at the end of World War II. When the Chinese Communist Party won the civil war and founded the People’s Republic of China, the Guomindang authorities retreated from the mainland to Taiwan in 1949. To this day, the Guomindang government continues to refer to itself as the government of the Republic of China. The delegate from Taiwan held the seat of China in the United Nations until 1971, when the United Nations recognized that the government of the People’s Republic of China was the sole legal government of China. The seat of China in the United Nations is now held by the delegate from the People’s Republic of China. Working channels for nongovernmental contacts have been established across the Taiwan straits since 1992.

Neighboring Countries

China has a land boundary of 22,800 kilometers (14,170 miles) and is bounded by 16 countries: North Korea, Russia, Mongolia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, Kashmir, India, Nepal, Sikkim, Bhutan, Myanmar (Burma), Laos, and Vietnam.

China has 32,000 kilometers (19,888 miles) of coastline (including mainland and island coastlines) on the east and south-east. Across the seas to the east and south-east, the parts of the ocean owned by China touch borders with parts of the ocean owned by the following countries: Japan, North Korea, South Korea, Philippines, Singapore, Vietnam, Brunei, Malaysia, and Indonesia.

2. ADMINISTRATIVE REGIONS

Regional Administrative System

China has three major regional administrative levels: provincial level, county level, and township level. There is a prefecture level between the provincial and county levels, but it does not have full government authority as the three major levels, except for those autonomous prefectures and prefecture level cities. Township is the lowest level in government hierarchy; village and street are communities that have a committee but do not have government officials. China is divided into twenty-three provinces (including Taiwan), five autonomous regions, four municipalities, and two special administrative regions (Hong Kong and Macao) at the provincial level.

Capital: Beijing has been the capital of the People's Republic of China since 1949. It is the political, cultural, scientific, and educational center of China. Beijing is a historical city and has served as the national capital for more than 800 years. Beijing is also a major hub of China's railway, highway, and aviation systems.

Provinces: The province is the first level of regional division in China and is similar to the state level in the United States. A province is a region where either the Han nationality is the majority, such as in most provinces in the east coast region, or where many nationalities live together without any single one enjoying majority status, such as Yunnan or Guizhou. Each of China's 23 provinces has a provincial capital.

Autonomous Regions: When the majority of people in a region are from a single minority nationality, this region is classified as an autonomous region. For example, the Hui nationality is the majority in Ningxia; therefore, Ningxia is a Hui autonomous region. The five autonomous regions are Ningxia *Hui* autonomous region, Inner *Mongolia* autonomous region, *Tibet* autonomous region, Guangxi *Zhuang* autonomous region, and Xinjiang *Uygur* autonomous region. The names in italics are the names of nationalities that have the autonomous authority. The regional government is located at the regional capital.

Municipalities: Municipality is a special term in the Chinese administrative system for large cities that are directly under the central government and enjoy provincial level status, although they have much smaller areas and populations. The four such municipalities are Beijing, Tianjin, Shanghai, and Chongqing.

Cities: The word *city* means a nucleated settlement, multi-functional urban center, including a central business district. But different countries have different criteria to define a city and to distinguish between cities and towns. In China, city (*shi*) is defined as an officially approved urban area also known as a "designated city" (*jianzhi shi*). Urban settlements cannot have the official city status without the approval of the State Council. The criteria that the State Council used to establish cities were first approved in June 1955 and published three months later. These criteria require a clustered population of more

than 100,000 or functioning as an important industrial, mining, administrative, and local economic center. In 1963, the State Council further specified that all designated cities must have a population of at least 100,000.

A city typically consists of a city proper that is divided to several urban districts officially designated as the urban area, some suburban districts with mixed urban and rural functions and residents, and some rural counties under the city's administration that may be predominately agricultural. China had a total of 663 cities in 2000 (not including cities in Taiwan).

City Grade: In China, cities are officially classified into three categories on the basis of the size of a city's non-agricultural population residing in the city proper and in the suburban districts (see Table 1).

- a. Cities with a population of over one million are classified as extremely large cities;
- b. Cities with a population between 500,000 and 1 million are classified as large cities;
- c. Cities with a population between 200,000 and 500,000 are classified as medium-sized cities;
- d. Cities with a population under 200,000 are classified as small cities.

Administrative Rank: In China, cities are not only classified by population size but also ranked according to administrative levels. There are three levels of cities. They are provincial, prefecture, and county. Provincial-level cities are those municipalities directly under the central government as we described under "municipalities." Prefectural-level cities are provincial capitals, such as Guangzhou and Xi'an, and other major cities, such as Qingdao and Xiamen. County-level cities are those originally agricultural counties that converted to city status, when their non-agricultural population reached 80 percent. A county-level city does not have rural counties under its administration as higher level cities have. Each city has a mayor, but the mayor and his salary rank differently according to the city rank they manage. Table 2 shows the changes of number of cities in the three ranks from 1980 to 2000.

Counties: Counties, including autonomous counties, are one of the major levels in China's administrative system. There is a County People's Congress in each county. Counties are agricultural areas in China. If the majority of people in a county are not agricultural residents, the county may be converted to a county-level city. Counties consist of towns and townships. The town where the county government is located is called a county town. Counties in China

Table 1: Urban Center and Urban Population Growth, 1952–1998

City grade	1952		1962		1975		1985		1995		1998	
	No. ¹	% Pop. ²	No.	% Pop.	No.	% Pop.	No.	% Pop.	No.	% Pop.	No.	% Pop.
Extremely large	7	41	12	43	13	39	21	39	32	35	37	37
Large	8	14	18	19	25	24	31	20	43	15	48	14
Medium-sized	21	19	40	20	52	22	93	24	192	29	205	29
Small	117	26	124	18	95	15	179	17	373	21	378	20
Total	153		194		185		324		640		668	

Note:

¹ Number of cities.

² Percentage of population.

Source: China State Statistical Bureau. *Cities China 1949–1998*. Beijing: China Statistical Publishing House, 1999.

Table 2: Administrative Rank of City, 1980–2000

	1980	1985	1988	1992	1996	2000
Provincial	3	3	3	3	3	4 ¹
Prefecture	107	162	183	189	218	259
County	113	159	248	325	445	400
Total	223	324	434	517	666	663

Note:

¹ Not including Hong Kong and Macao.

Sources:

China State Statistical Bureau. *China Statistical Yearbook, 2001*. Beijing: China Statistical Publishing House, 2001.

China State Statistical Bureau. *Cities China 1949–1998*. Beijing: China Statistical Publishing House, 1999.

are not defined the same way as they are in the United States, where counties can include cities or metropolitan areas. For example, Hartford County in Connecticut includes the city of Hartford as well as other towns. There are 1,697 counties (1996) in China (not including Taiwan, Hong Kong, and Macao).

Towns and Townships

Towns and townships are the lowest level in the administrative system. As with city status, town status needs official approval. Officially approved towns are called designated towns. The designated towns normally administer a well-defined and fairly densely populated town area but have no formally demarcated suburban regions, although towns may have some villages under their administration. A township is a rural community either with a small urban center called a market town or without any urban center at all. There were more than 29,800 townships and minority nationality townships and 17,300 towns as of 1995 (not including Taiwan, Hong Kong, and Macao).

Regional Divisions

Conventionally, China is divided into three major regions: east coast region, central region, and west region. It is also further divided into seven regions: Northeast, North, East, Central, South, Southwest,

and Northwest. In this book, the China State Statistical Bureau’s classification in China’s statistical yearbook series is used for the above divisions at the provincial level. The three major regions are:

- **East region**, including twelve provincial-level units (Liaoning, Hebei, Beijing, Tianjin, Shandong, Jiangsu, Zhejiang, Shanghai, Fujian, Guangdong, Guangxi, and Hainan); (Hong Kong, Macao, and Taiwan are listed separately);
- **Central region**, including nine provincial-level units (Shanxi, Inner Mongolia, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hunan, and Hubei);
- **West region**, including 10 provincial-level units (Sichuan, Chongqing, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang).

The seven regions are:

- **Northeast:** Heilongjiang, Jilin, Liaoning;
- **North:** Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia;
- **East:** Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong;
- **Central:** Henan, Hubei, Hunan;
- **South:** Guangdong, Guangxi, Hainan;
- **Southwest:** Sichuan, Chongqing, Guizhou, Yunnan, Tibet;
- **Northwest:** Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang.

Changes of Provincial-Level Administrative Regions

Most provinces and provincial boundaries have remained unchanged since the People’s Republic of China was founded in 1949. Some provincial boundaries were once changed and then changed back later on, such as Inner Mongolia and surrounding provinces and autonomous regions. Tianjin was granted municipality status in 1949 along with Beijing and Shanghai. That was revoked, and Tianjin was returned back to Hebei Province for the period 1958–1967. After 1967, Tianjin regained municipality status.

The biggest changes at the provincial level were creations of two provincial-level units: Hainan Province in 1988 and Chongqing municipality in 1997. Hainan was part of Guangdong Province before 1988. Chongqing was part of Sichuan Province

before 1997. Hong Kong's return added one new category at the provincial level in 1997, the special administrative region. Macao joined Hong Kong in this category in 1999.

3. PLACE NAMES AND CHINESE UNITS

Translating and pronouncing a foreign place name is always a challenging job, especially from Chinese characters to romanized languages. Chinese place names have been translated into romanized languages in several ways. The Wade-Giles system is one of the major systems used for Chinese names, and is still in use in Taiwan (although a modified Pinyin system has become popular in Taiwan in recent years). The English Postal spelling is also used for some names, such as Canton (Guangzhou in Pinyin) and Peking (Beijing in Pinyin). For some Chinese place names, the meaning has been translated; one example is the Yellow River (Huang He). Some names used in English do not follow any of these three systems. Examples include some place names in minority regions, such as Hohhot and Ürümqi.

In 1958, the government of the People's Republic of China adopted *Putonghua* (the pronunciation of Chinese characters based on northern Mandarin) and the Pinyin system (a romanized system to help people pronounce Chinese characters) to establish a standard form of the Chinese language in China. The pinyin system replaced Wade-Giles, the Postal spelling, and translated meanings systems mentioned above. Chinese place names and people's names have been changed to pinyin names since 1958. The system has caught on slowly outside of China. However, pinyin names are in general use in today's world. For those minority place names, their spellings and pronunciations are both kept unchanged, such as Tibet, Hohhot, and Ürümqi. In this book we use pinyin names, with the exception of minority names, following the style

set in the *Map of the People's Republic of China* (published by China Cartographic Publishing House, 1994) and *Webster's Geographical Dictionary*.

Pinyin Place Names and Meanings

Since the pronunciation of one Chinese character is always a single syllable, the Chinese pinyin system is constructed to pronounce Chinese characters one by one. For example, *Beijing* is a name with two Chinese characters, *bei* and *jing*. *Bei* means north, and *jing* means capital; hence, Beijing means northern capital. In the name *Nanjing* (Nanking), *nan* means south. So Nanjing means southern capital. The following page contains some frequently used Chinese characters in place names. If you can remember a few of them, you can determine the meaning of many place names.

Chinese Units and Conversions

In general, China uses the metric system, but does have its own measuring system in use. Some major Chinese units and conversions are listed below:

Chinese unit	metric	English
chi	1/3 meter	1.09 foot
li	1/2 kilometer	0.31 mile
jin	500 gram	1.34 pound
mu	1/15 hectare	1/6 acre

Chinese Place Names

Frequently Used Characters

English	Pinyin	Example
north	bei	Hebei: north of a river (<i>he</i> means river); it is a province located north of Huang He River.
south	nan	Henan: south of a river; it is a province located south of Huang He River.
east	dong	Dongbei: Northeast region.
west	xi	Shanxi: west of a mountain; it is a province located west of Taihang Shan mountain.
mountain	shan	Huang Shan: a scenic mountain in Anhui Province.
mountain	ling	Qin Ling: a mountain in Shaanxi Province.
river	he	Huang He: the second longest river in China.
river	jiang	Chang Jiang (Yangtze River): the longest and largest river in China.
river	shui	Han Shui: a river in Hubei Province.
lake	hu	Qinghai Hu: the largest lake in China.
sea	hai	Hainan: the second largest island south of the mainland.

4. LANDFORM

Geological Evolution

China lies east of the Eurasian Plate that adjoins the Indo-Australian Plate in the south and the Pacific and Philippine Plates in the east. About 1 billion years ago, the land was being formed in northern, northeastern and northwestern China. Besides those areas, much of today's China was covered by the sea. Since then, several major tectonic movements formed and reformed this vast land.

The Yan Shan Tectonic Movement:

The Yan Shan tectonic movement occurred between 100 and 150 million years ago. The name came from the uplift of Yan Shan Mountains in Beijing and Hebei Province. During this movement, most of central and southern China uplifted and became land area. Those land areas joined

northern, northeastern, and northwestern land areas, and unified the present territory of China into a continuous landmass except for the Himalayas, Taiwan, and Tarim Basin.

The Yan Shan movement had great impact on the Chinese physical environment. It determined the broad geological structures and macro-geomorphological features of China. Most major mountain ranges and plateaus were formed during the movement.

The Himalayan Tectonic Movement:

The Himalayan tectonic movement started about 25 million years ago, and is still going on today. The most significant change that this movement has brought is the uplift of the Himalayan Mountains and the Qinghai-Tibet Plateau from the sea-floor to the highest mountains and plateau

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in the world. Even today, the Himalayan Mountains are still growing at the speed of about 1 centimeter per year. Taiwan Island and the folding belts were also created during this movement.

The Himalayan movement was caused by collision between the Indo-Australian Plate and the Eurasian Plate. During its long geological history of more than 200 million years, the Indo-Australian Plate has moved northward and collided with the Eurasian Plate at today's Himalayas. The collision between plates is called subduction. Subduction describes when tectonic plates collide, the heavier oceanic crust is forced beneath the lighter continental material. The plates are destroyed at subduction zones, where the plates are consumed downward, back into the earth's mantle, forming deep ocean trenches. It is similar to when two cars collide: their front ends smash, and one is forced up on the other.

The continuous pushing force from the Indo-Australian Plate meets a firm resistance from the Eurasian Plate. The forces break the colliding edges of both plates and push the area upward. That movement has been the dominant force in shaping the modern Chinese physical landform and climate. It first created the highest plateau in the world, and changed China's landform to three topographic land steps. Second, the plateau blocked the moist ocean air of the Indian Ocean from reaching the central Eurasian continent, creating today's huge deserts and dry areas north of the Himalayas. Third, the plateau also blocked east and west wind movement, then reinforced monsoon climate in southeastern China.

Topographic Steps

China's topography is characterized by high to low elevation from west to east. From east to west, the elevation gets higher step by step, just like stairs. From west to east, or from the top of the stairs looking down, there are three inland topographic steps and one continental shelf step at 4,000; 1,500; 200; and -200 meters (13,120; 4,920; 656; and -656 feet) respectively.

The First Inland Step—Qinghai-Tibet Plateau: This plateau, known as the "roof of the world," is completely above 3,000 meters (9,842 feet) elevation, and most of the area is between 4,000 and 5,000 meters (13,123 and 16,404 feet)—double the height of the Colorado Plateau, at 1,300 to 2,200 meters (4,000 to 7,000 feet). The area of the plateau covers about 2.5 million square kilometers (965,000 square miles). This is about 25 percent of China's land area and is equivalent to the area of Arizona, California, Colorado, Nevada, New Mexico, Texas, and Utah combined.

The Second Inland Step—Central Mountains and Plateaus: The elevation of this step varies between 1,000 and 2,000 meters (3,280 and 6,560 feet), about the height of the Colorado Plateau. The east side of the step is bordered by the Da Hinggan Ling-Taihang Shan-Wu Shan mountain ranges, which are higher than 3,000 meters (9,840 feet). The major plateaus in this area are the Inner Mongolia Plateau, the Loess Plateau, the Yunnan-Guizhou Plateau, and the Alashan Plateau.

The Third Inland Step—Plains: The plains are located in the east coast region and northeast China. The elevation of the area is about 200 meters (656 feet). It is the major agricultural area of China. The major plains are the North China Plain, the Northeast China Plain, the Lower Chang Jiang Plain, the Lower Xi Jiang Basin, and the Southeast Hills and Basins. The largest one is the Northeast Plain, which is 350,000 square kilometers (135,193 square miles) in area.

The Continental Shelf in the Neighboring Seas: This is an extension of the inland topographic steps. The continental shelves in the neighboring seas (Bo Hai, Yellow Sea, East China Sea, and South China Sea) are very shallow and are obviously continuous parts of the continent. The shelves are generally less than 200 meters (656 feet) in depth and are petroleum-bearing.

Major Mountain Ranges

China is a mountainous country. One-third of the land area is mountain. If hills and plateaus are included, then 65 percent

of the land areas are hills, mountains, and plateaus. Five major mountain systems can be identified in China. Those systems form the topographic and geomorphological structure of China.

East-West Mountain System: There are three east-west mountain ranges in China. From north to south, these three mountain ranges are quite evenly distributed about 8 latitude degrees apart. The northernmost is the Tian Shan–Yin Shan–Yan Shan mountain range system. It is located between 40°N and 43°N and extends from Tian Shan at the western border to Yan Shan in Hebei and Beijing near the east coast.

The middle range consists of the Kunlun Shan–Qin Ling–Dabie Shan mountains. They are located between 33°N and 35°N and extend from Kunlun Shan at the western border to the Dabie Shan mountains in Anhui Province.

The southern range is the Nan Ling mountains, located at 25°N to 26°N. Compared to the other two ranges, its west to east extent is very short. It is mainly in Guangxi Province.

North-South Mountain System: There is only one north to south mountain range in China. It consists of the Helan Shan–Liupan Shan–Hengduan Shan Mountains. This range is located in central China and divides the land area into two parts. Qinghai-Tibet Plateau, the roof of the world, is on its west, and medium-height and lower mountains are on its east.

Northeast Mountain System: There are three northeastern mountain ranges in China. The western range is the Da Hinggan Ling–Taihang Shan–Wu Shan Mountain range. It stretches from the northern border of the country to the Wu Shan mountains in the Chang Jiang basin of central China. This range borders the second inland topographic step and divides east and central China into plains and plateaus.

The second northeast mountain range is the Changbai Shan–Qian Shan–Wuyi Shan mountains. Changbai Shan is the border mountain range between China and North Korea. Qian Shan and Wuyi Shan are located near the east coast and stretch

from Shandong to Fujian Provinces. All of the mountains in this range are low elevations at about 1,000 meters (3,280 feet).

Taiwan's mountains occupy two-thirds of the island and extend toward the northeast, the same direction as the island and the underwater folding belt. The Taiwan mountain range was created during the Himalayan movement. Therefore, it is a younger and higher mountain range than the eastern mountain ranges in mainland China. There are more than 60 peaks above 3,000 meters (9,840 feet), with the highest reaching to 3,997 meters (13,110 feet)—the highest point in eastern China.

Northwest Mountain System: The Altay (Altai) mountains and Qilian Shan mountains are both located in northwestern China. The Altay mountain range is at the northern border of the Xinjiang autonomous region with Mongolia and Russia. The Qilian Shan mountains are located mostly in Qinghai Province and stand as the northeast border of the Qinghai-Tibet Plateau.

Arc Mountain System: The Himalayas and several other mountain ranges on the Qinghai-Tibet Plateau stretch from the east of the plateau and then turn toward the northwest. These mountain ranges curve toward the south. The Himalayas range is the most typical one. The Himalayas stand 6,000 meters (19,680 feet) above sea level, and are the highest mountains in the world. Mount Everest, the world's highest peak, is 8,848 meters (29,028 ft) above sea level.

Four Major Plateaus

The four major plateaus are the Qinghai-Tibet Plateau, Inner Mongolia Plateau, Loess Plateau, and the Yunnan-Guizhou Plateau. Except for the Qinghai-Tibet Plateau, all of the other three plateaus are located on the second inland topographic step and at 1,000 to 2,000 meters (3,280 to 6,560 feet) elevation.

Inner Mongolia Plateau: The Inner Mongolia Plateau is the second largest plateau in China and well known for its huge grassland. It is located mainly in the Inner Mongolia autonomous region. The area of the plateau is about 1 million square kilometers. Precipitation drops from east to

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west on the plateau. Therefore, the grassland is very rich in the east, dry in the middle, and arid in the west.

Loess Plateau: Loess is a thick deposit of wind-blown dust. When it accumulates in an area, it gradually develops into a very fine, pale yellow, fertile soil-like material. It covers an extensive area in the mid-latitude area such as in the United States, central Europe, central Asia, and Argentina. The loess-covered area in China totals 600,000 square kilometers (250,000 square miles), about the size of Texas. The Loess Plateau itself covers about 400,000 square kilometers (154,402 square miles). This is the largest loess-covered area in the world. The plateau is located in northern China west to the Taihang Shan mountains and between the Inner Mongolia Plateau and the Qin Ling mountains. The depth of loess is typically 30–50 meters (98–164 feet) but goes as deep as 200 meters (656 feet).

Yunnan-Guizhou Plateau: This plateau is located in southwest China, mostly in Yunnan and Guizhou Provinces. The plateau and surrounding mountains cover about 400,000 square kilometers (154,402 square miles). Covered by limestone and located in humid south China, this plateau contains a variety of spectacular limestone landscapes (Karst topography), such as the Stone Forest in Yunnan.

Three Major Plains

The Northeast Plain, North China Plain, and Middle and Lower Chang Jiang Plain are the three major plains in China. They are all located in eastern China, with elevations between 50 and 200 meters (164 and 656 feet).

Northeast Plain: Located between the Da Hinggan and Changbai Shan mountains, the Northeast Plain covers 350,000 square kilometers (135,135 square miles) and is the largest plain in China. Covered by deep, fertile black soil, Northeast Plain is the most important grain-producing zone in China.

North China Plain: With an area of 300,000 square kilometers (115,830 square miles), the North China Plain mainly follows the lower reach of the Huang He River. Being one of the most densely popu-

lated areas in the world, this plain has a very long history of cultivation and is still the major wheat-producing area.

Middle and Lower Chang Jiang Plain:

The plain stretches east to the Three Gorges and along the Chang Jiang River's so-called golden waterway. This plain can be further divided into four parts: the Lianghu Plain between southern Hubei and northern Hunan Provinces, Boyang Hu Plain around Boyang Hu Lake in northern Jiangxi and southwest Anhui Provinces, Wanzhong Plain in central Anhui Province, and Chang Jiang Delta in Jiangsu and Zhejiang Provinces and Shanghai municipality. This low and flat plain has an elevation of about 50 meters (164 feet) and a dense network of rivers and many lakes. The plain is a center of both agricultural and industrial production.

Four Major Basins

Junggar Basin and Tarim Basin:

Divided by the Tian Shan mountains, the Junggar Basin in the north and the Tarim Basin in the south are both located in Xinjiang Uighur autonomous region. The larger Tarim Basin occupies 530,000 square kilometers (204,633 square miles) and contains the largest desert in China, the Takalamacan. Originating in the Tian Shan Mountains and ending in the Tarim Basin, the Tarim River is the longest inland river in China. Oases are developed along Tarim River. The Junggar Basin is also a dry basin, although 25 to 30 percent of its land is covered by plants, which is higher than in the Tarim Basin.

Qaidam Basin: The Qaidam Basin is on the Qinghai-Tibet Plateau. The bottom of the basin is about 2,500 to 3,000 meters (8,200 to 9,480 feet) above sea level. The Qaidam Basin is a dried-up salt lake; *Qaidam* is the Mongolian word for salt. When the salt lake dried up, it left behind a vast, flat, salty basin. The salt crust—15 meters (49 feet) thick—is a valuable mineral, but nothing grows on it. Temporary workers even build their homes out of salt blocks. Since reserves of oil and coal have been discovered under this basin, more workers may build “salt houses” in this region.

Sichuan Basin: The Sichuan Basin is located in Sichuan Province with an area about 180,000 square kilometers (69,500 square miles). Covered by fertile, purple-

colored soils, this basin supports a population of 100 million and is the most densely populated basin of the four. The basin is known as "The Land of Plenty."

5. SURFACE WATER AND GROUNDWATER

It is estimated that China has 2,812 billion cubic meters (99,235 billion cubic feet) of surface water (including rivers, lakes, glaciers, and marshes) and 800 billion cubic meters (28,232 billion cubic feet) of shallow underground water. The distribution of China's water resources is very unbalanced. East coast regions, especially southeastern and southern regions, have abundant surface and groundwater, but the western part of China, where coal and oil are abundant, desperately needs water.

Rivers

China has approximately 5,000 rivers, with drainage areas (the area drained by a river and all its tributaries) in excess of 100 square kilometers (38.6 square miles). Among them, 1,600 rivers have drainage areas in excess of 1,000 square kilometers (386 square miles). Most rivers flow from west to east and enter the Pacific Ocean. According to the destination of discharge, those rivers can be classified into two types: oceanic rivers and inland rivers. Oceanic rivers end up at a sea or in an ocean; inland rivers end up at an inland lake or dry up in deserts.

The land area of China can be divided into two major drainage areas: the oceanic drainage area and the inland drainage area. The oceanic drainage area occupies about 64 percent of the total land area, and the inland drainage area covers the rest of the land, about 36 percent. The division of the two drainage areas is along the line of mountain ranges starting from the north on the west side of Da Hinggan Ling, turning to the west and the southwest through Yin Shan, Helan Shan, Qilian Shan, Riyue Shan, Bayan Har Shan, Nyainqentanglha Shan, and ending at the west end of Gangdise Shan at the southwest border in Tibet. This line is also generally along the line of 400 millimeters (15.7 inches) annual pre-

cipitation. The western side of the line is in the inland drainage area except for a small area near the northwestern border along the Altay Shan mountain ranges.

Oceanic Rivers: The oceanic river drainage area can be further divided into three sub-areas, according to the ocean that the rivers end up in: the Pacific Ocean, the Indian Ocean, and the Arctic Ocean. Most rivers go to the Pacific Ocean; only Ertix He goes to the Arctic Ocean, and Yarlung Zangbo Jiang and Nu Jiang enter the Indian Ocean.

Most rivers in China originate in the mountainous areas and plateaus in the west. The Qinghai-Tibet Plateau is the original place of superior rivers in China and Asia, such as Chang Jiang, Huang He, Lancang Jiang, Yarlung Zangbo Jiang, and Nu Jiang rivers. The east edge of the second topographic step, from Da Hinggan Ling to Yunnan-Guizhou Plateau, is the source of some of the major rivers in China, such as the Heilong Jiang, Liao He, Hai He, Huai He, and Xi Jiang.

The oceanic drainage area largely overlaps the monsoon climate region. Great annual variation in precipitation produces comparable variations in river discharge and water levels, which has major significance for this area. Rivers in northern China have the largest annual variation, such as Huai He, Huang He, Yongding He, and Luan He. Rivers with very large annual variations in flow create problems for navigation. This is one of the main reasons for the relatively short extent of navigable inland waterways (110,000 kilometers, 68,365 miles) in China.

Although China has 5,000 rivers, seven large rivers account for 1,500 billion cubic meters of surface runoff, or 55 percent of the national total. The basic information about those seven rivers is listed in Table 3.