

图 例

基础地理要素

- 重庆
廷布 省级行政中心
外国首都
- ◎ 内江 地级行政中心
- 毕节 州、盟、地区行政中心
- ◎ 格尔木 县级行政中心
- ▲ 贡嘎山
7556 山峰

- 国界、未定国界
- 省、自治区、直辖市界
- 长城
- 常年河、常年湖
- 运河
- 流域界线

Legend

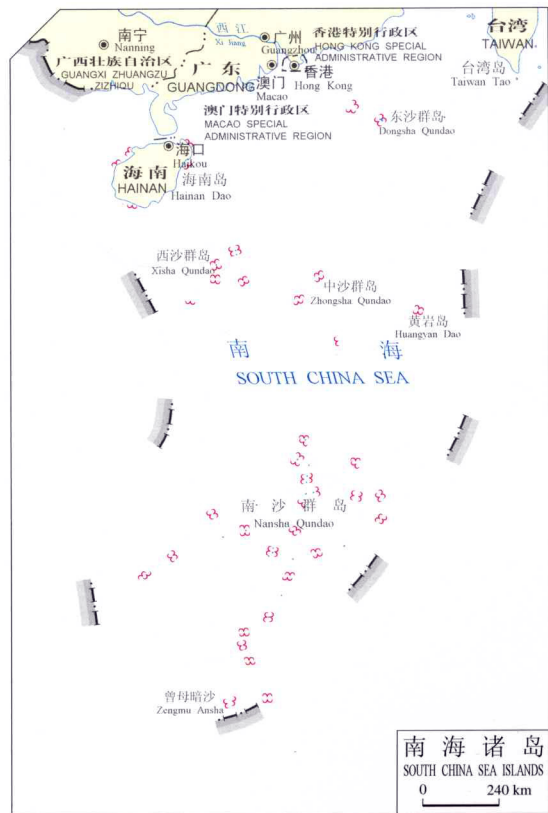
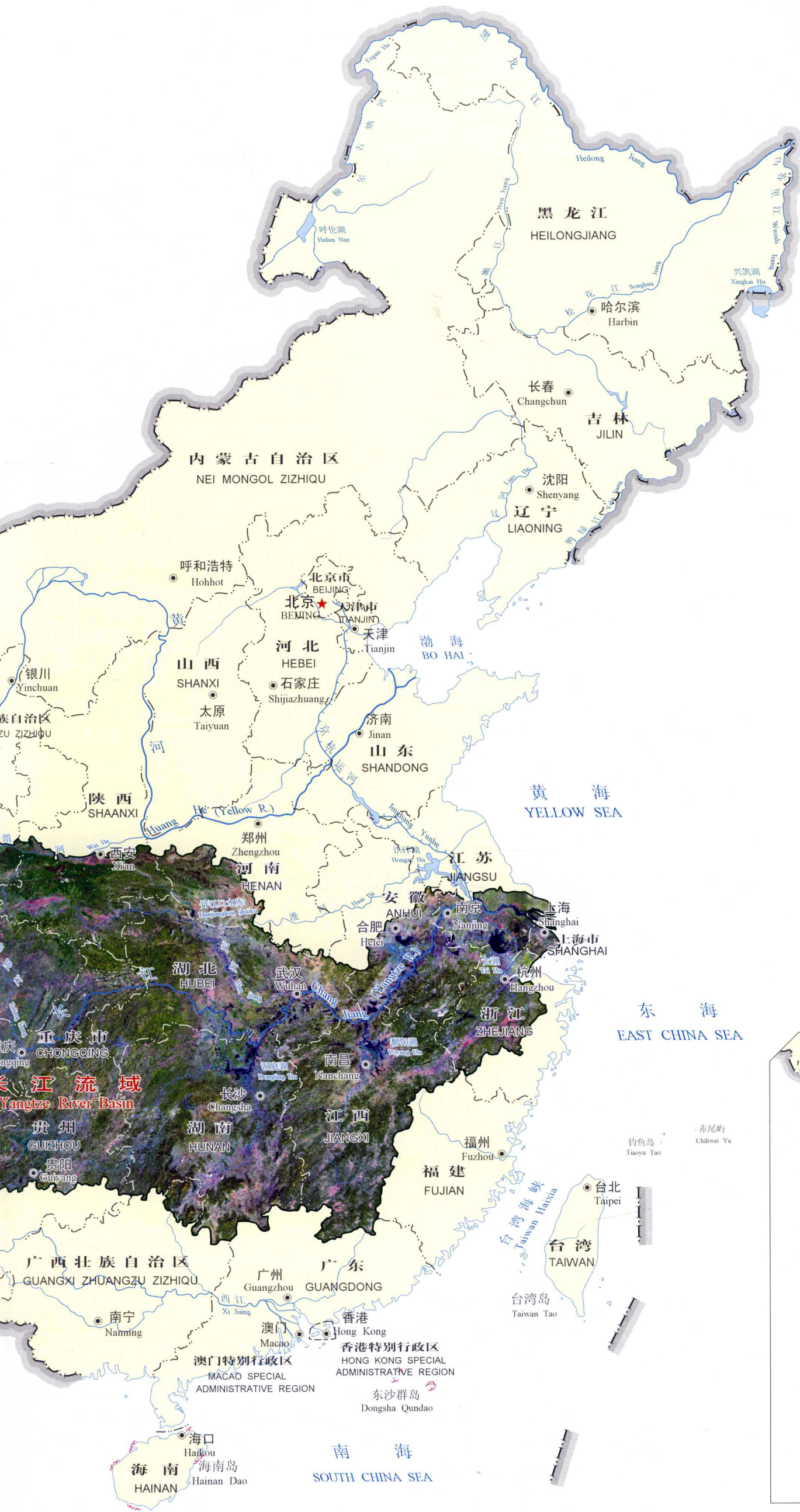
Geographical Features

- Chongqing
THIMBU Province-level administrative centre
Foreign capital
- ◎ Neijiang Administrative centre of prefecture-level city
- 毕节 Administrative centre of autonomous
prefecture, autonomous league or prefecture
- ◎ Golmud County-level administrative centre
- ▲ Konggar Shan
7556 Peak

- National boundary,
undefined national boundary
- Boundary of province, autonomous
region or municipality
- Great Wall
- Perennial river, perennial lake
- Canal
- Boundary of the Yangtze River Basin

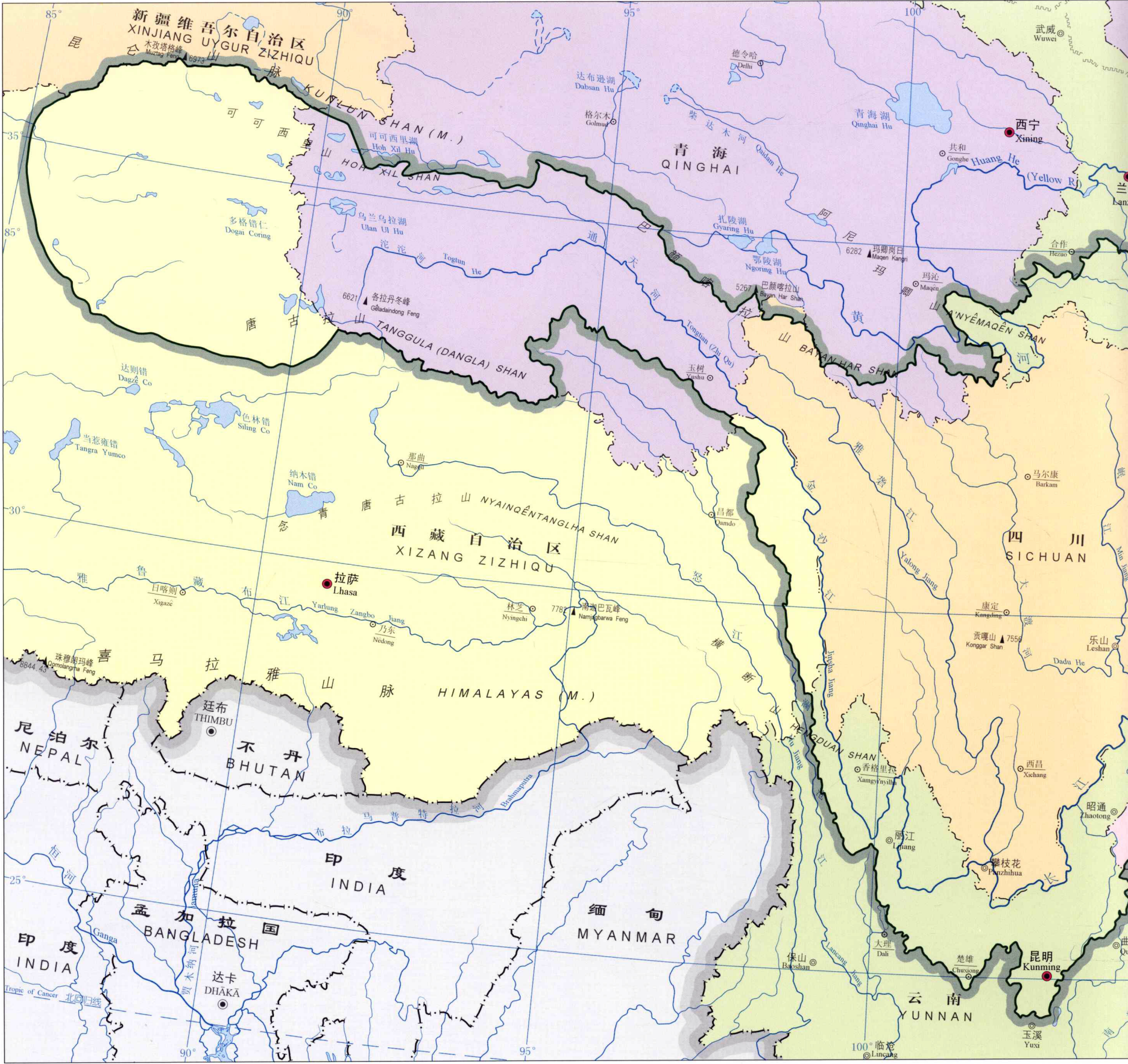
长江流域位置
Location of the Yangtze River Basin in china





比例尺 Scale 1 : 12 000 000 0 120 240 360 480 km

长江流域行政区划
Administrative Divisions in the Yangtze River Basin



- 省级行政中心
Province-level Capital
- ◎ 地级行政中心
Prefectural Administrative Centre
- 县级行政中心
County-level Administrative Centre
- 国界
International Boundary
- 省界
Boundary of Province

长江流域及周边区域共涉及19个省、自治区、直辖市，829个县(市、区)。长江干流流经青海、西藏、四川、云南、重庆、湖北、湖南、江西、安徽、江苏、上海11个省、自治区和直辖市，支流辐辏南北，延伸至贵州、甘肃、陕西、河南、广西、广东、浙江、福建8个省份部分地区，流域总面积约180万km²，占中国陆地面积的18.8%。长江干流宜昌以上为上游，长4 504km，流域面积100万km²。宜昌至湖口为中游，长955km，流域面积68万km²。湖口以下为下游，长938km，流域面积12万km²。在本研究中，为了生态系统和生境的完整性，将羌塘保护区、若尔盖地区、秦岭北坡、浙江钱塘江流域、湖南、江西全部纳入研究范围，总面积为214.3万km²。

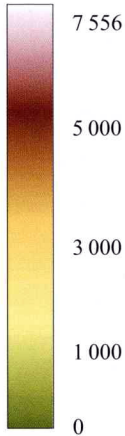
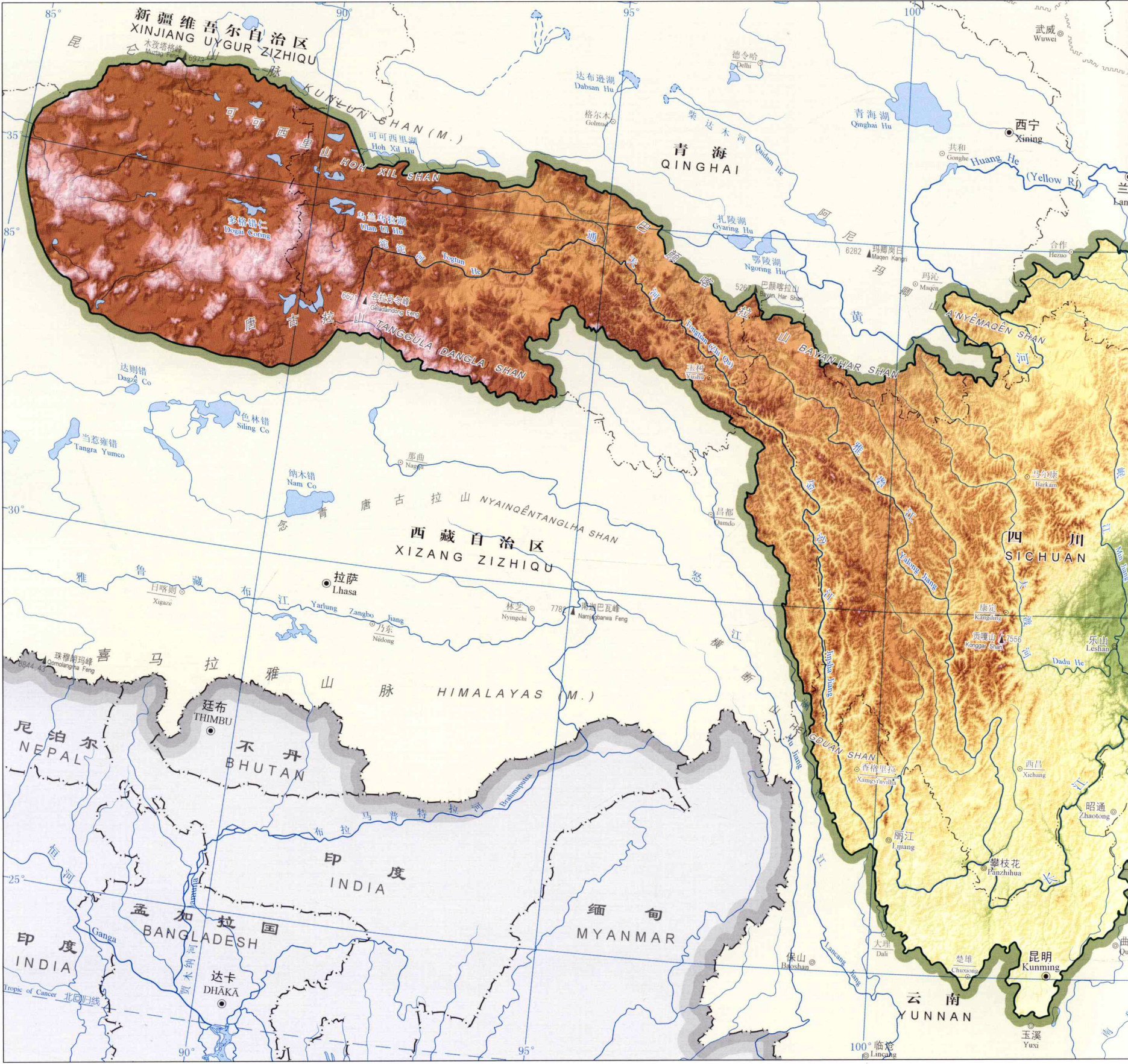


比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

The Yangtze River Basin and its neighbor regions covers 829 counties, cities and districts in 19 provinces. The Yangtze River flows from Qinghai and then through Tibet, Sichuan, Yunnan, Chongqing, Hubei, Hunan, Jiangxi, Anhui, Jiangsu and Shanghai, while the tributaries radiate southward or northward into Guizhou, Gansu, Shaanxi, Henan, Guangxi, Guangdong, Zhejiang and Fujian. The total watershed area is about 1.8 million km², or 18.8% of China's territory. The River can be divided into three sections: the section from Yichang City to the headwaters is the

upper reaches (4 504 km long, drainage area 1 million km²); the section from Yichang City to Hukou County is the middle reaches (955km, 680 000 km²) and the section down from Hukou County is the lower reaches (938km, 120 000 km²). Considering the integrity of the ecosystem and wildlife habitats, this research also covers Qiantang Nature Reserve, Ruo'ergai Marshes, the northern slopes of the Qinling Mountains, Hunan Province, Jiangxi Province and the Qiantang River in Zhejiang, adding up to a combined study area of 2.143 million km².

长江流域地形
Topography in the Yangtze River Basin



长江流域地势西高东低，跨越中国大陆的三级台阶，地貌类型复杂多样。高原、山地、丘陵和盆地占80%以上，平原约占10%。流域地貌可划分为上游深切切割高原区、中上游中切割山地区和中下游低山丘陵与平原区三大区域。上游深切切割高原区内普遍受新构造运动强烈抬升，主要由断块高原和断褶高山所构成，上游主要为中山及中高山区，多数地面海拔在4000~5000m以上，山地多数超过5000m，最高山地(贡嘎山)海拔达7556m。中下游主要由低山丘陵和冲积平原构成，海拔较低，一般在500m以下，湖泊水网发达。

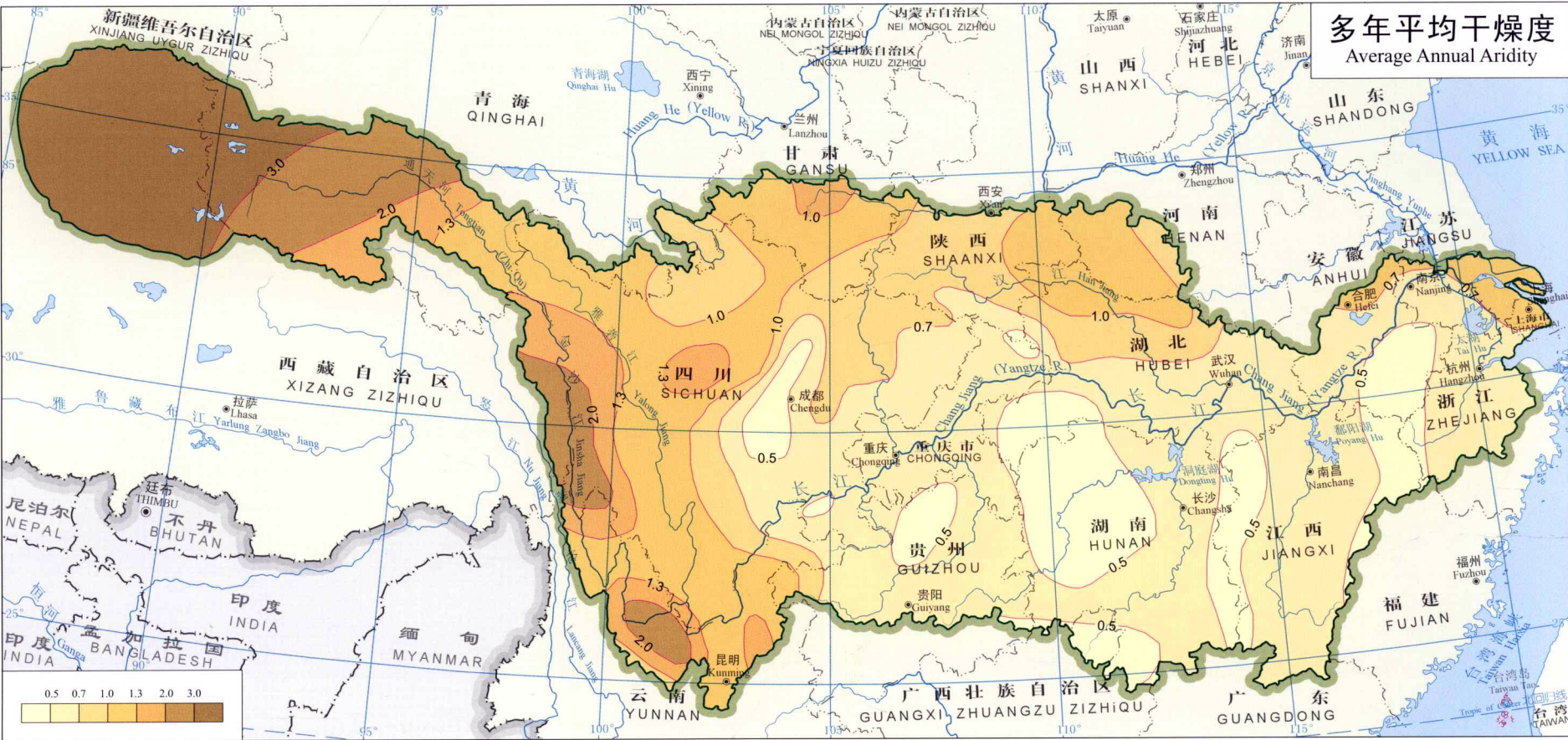
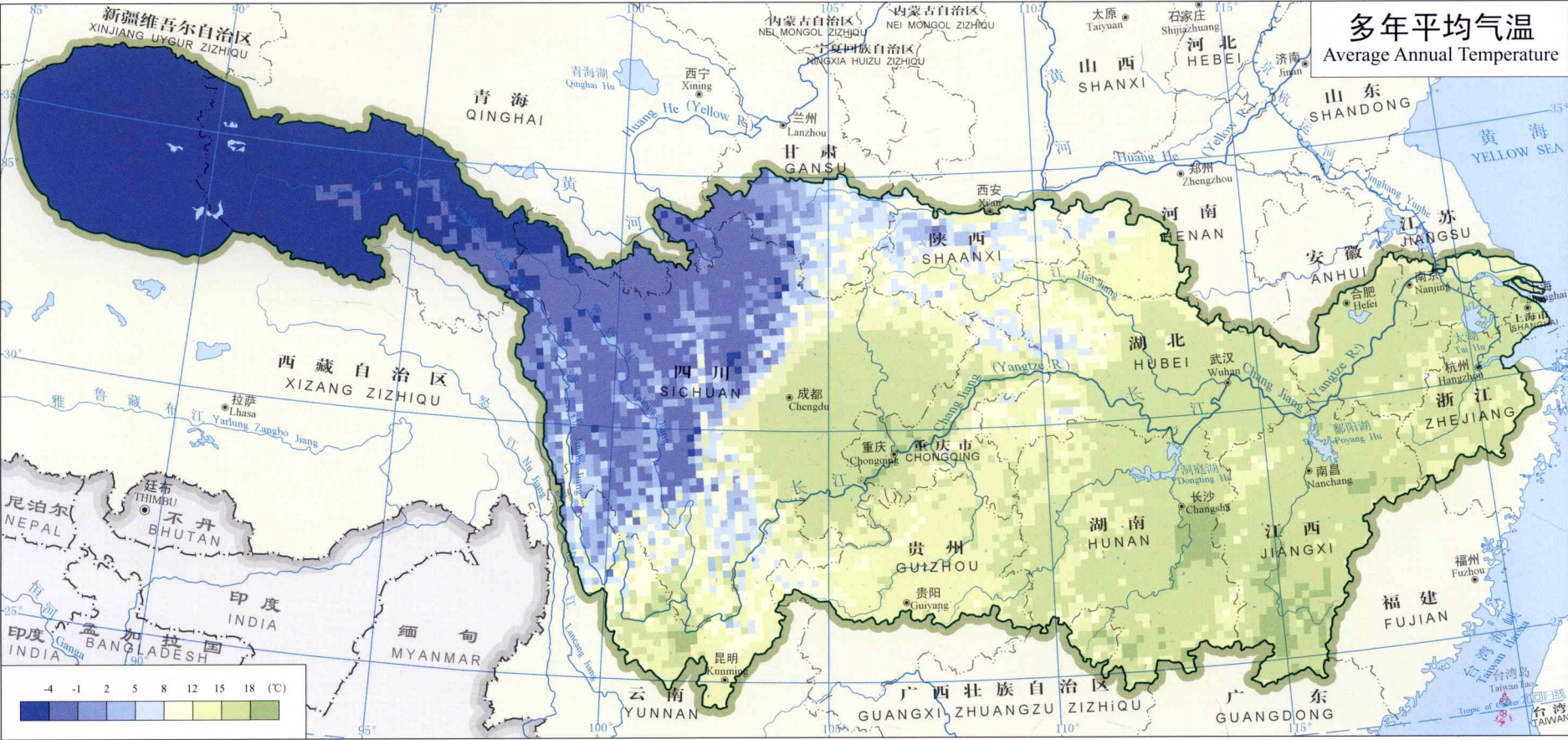


比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

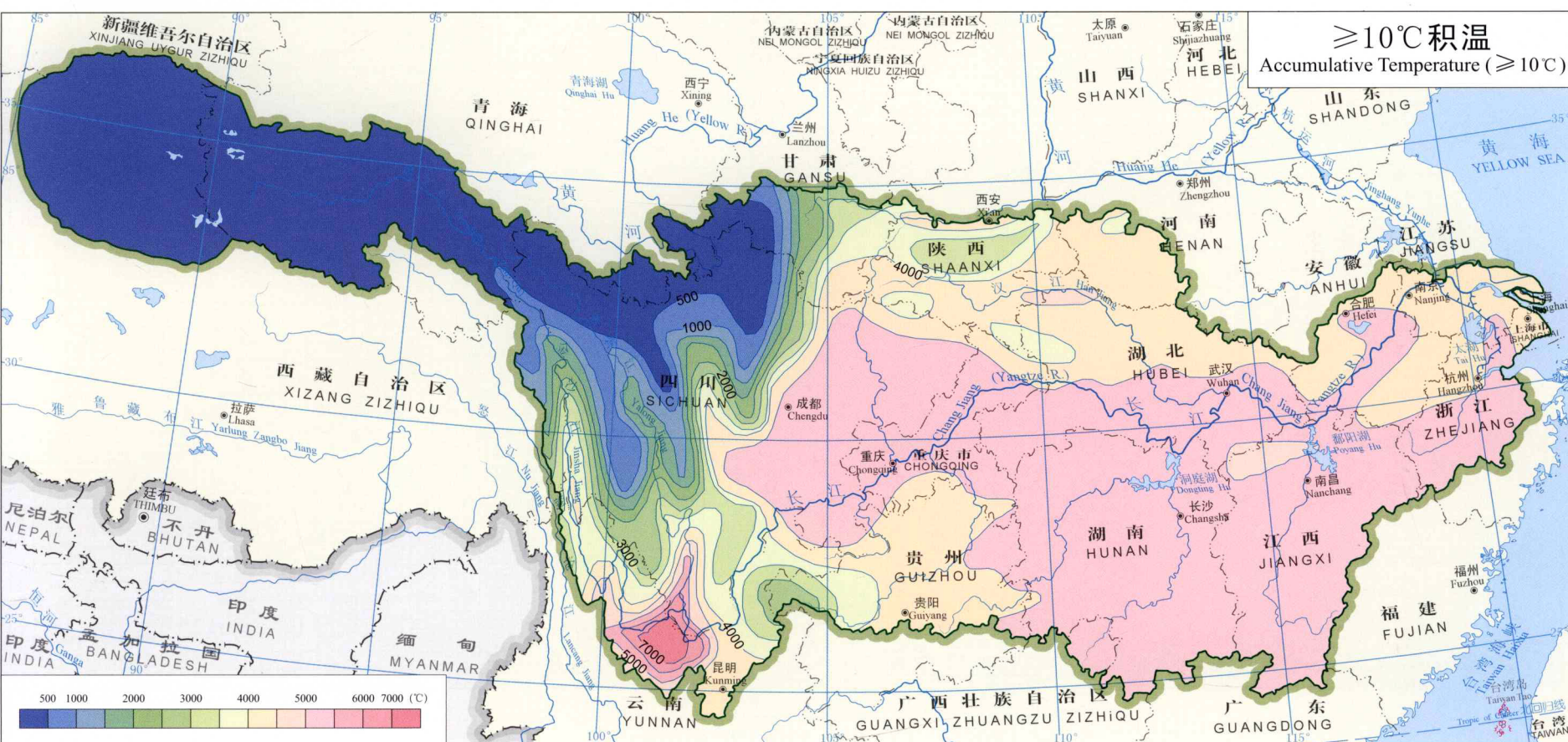
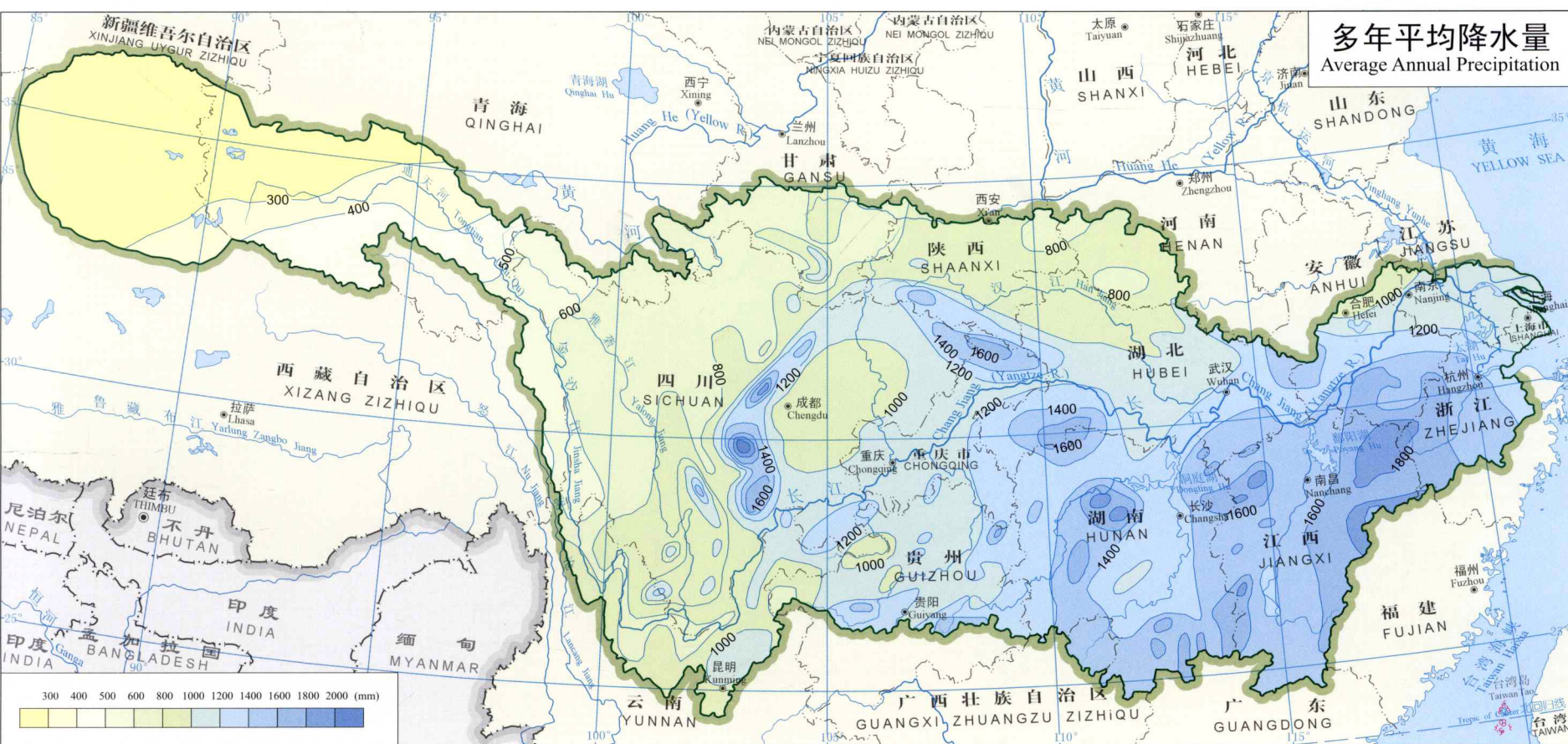
The altitude of the Yangtze River Basin decreases from the high plateau and mountains in its western part to the low plains of its eastern part, straddling the three major terrain steps of the Chinese mainland. Plateaus, mountains, hills and basins make up over 80% of the total Basin area, and plains 10%. The landforms can be divided into three types: deeply-cut plateaus at the upper reaches, the moderately-cut mountains of the upper and middle reaches, and hilly or plain areas in the lower reaches. Specifically, the deeply-cut plateaus at the

upper reaches as the result of vigorous neotectonic uplifting, thereby comprising mainly fault-block plateaus and fault-fold highlands. The upper reaches are high or moderately high mountains with the ground elevation largely over 4 000m. The majority of these mountainous regions exceed 5 000m a.s.l., with the highest peak being Konggga Mountain at 7 556m a.s.l.. In the middle and lower reaches of the Yangtze River, low hills and alluvial plains dominate, most of them less than 500m a.s.l. and with highly developed networks of rivers and lakes.

长江流域气候
Climate in the Yangtze River Basin



长江流域主要位于东亚季风区，具有显著的季风气候特征。长江源头、上游和中下游的气候分别属于高原气候区、中亚热带季风区和北亚热带季风气候区，流域的2/3面积属于亚热带季风气候区。位于青藏高原的江源地区年平均气温约-4℃，上游地区年平均气温4~20℃，中下游大部分地区年平均气温在16~18℃。长江流域平均年降水量1100mm。由于地域辽阔，地形复杂，年降水量和暴雨的时空分布很不均匀，大部分地区年降水量为800~1600mm，江源地区年降水量小于400mm，川西高原、青海、甘肃部分地区及汉江中游北部年降水量400~800mm。

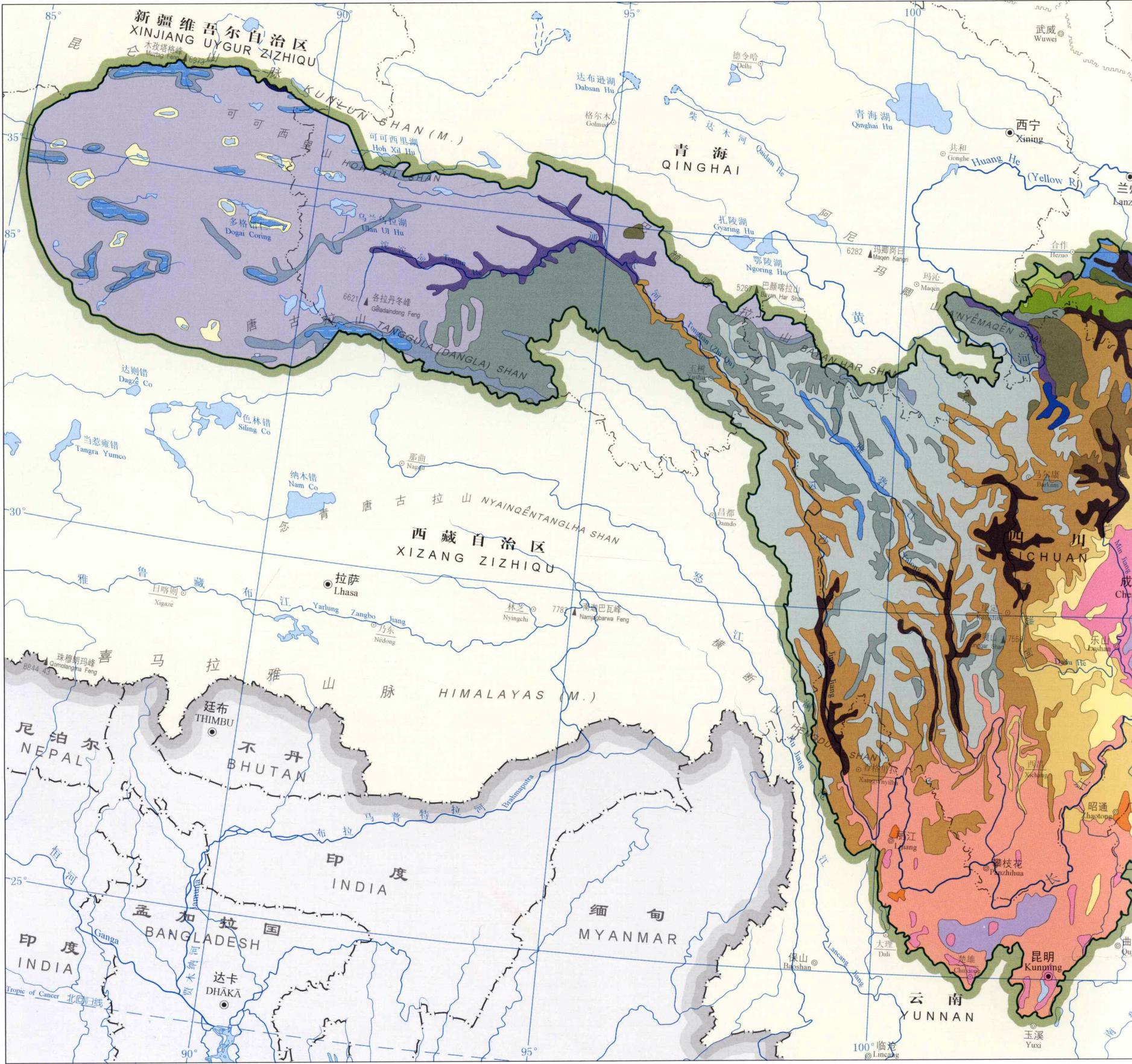


比例尺 Scale 1 : 14 000 000 0 140 280 420 560 km

The Yangtze River Basin is located mainly in east Asia, and therefore has distinct monsoon climate features. The climates of the upper (inclusive of the headwaters), middle and lower reaches of the Basin belong to the highland climate zone, central subtropical monsoon zone, and northern subtropical monsoon zone respectively. In general, two-thirds of the Basin area has a subtropical monsoon climate. The annual average temperature of the headwaters area of the Qinghai-Tibet Plateau is about -4°C , while that of the upper reaches ranges from

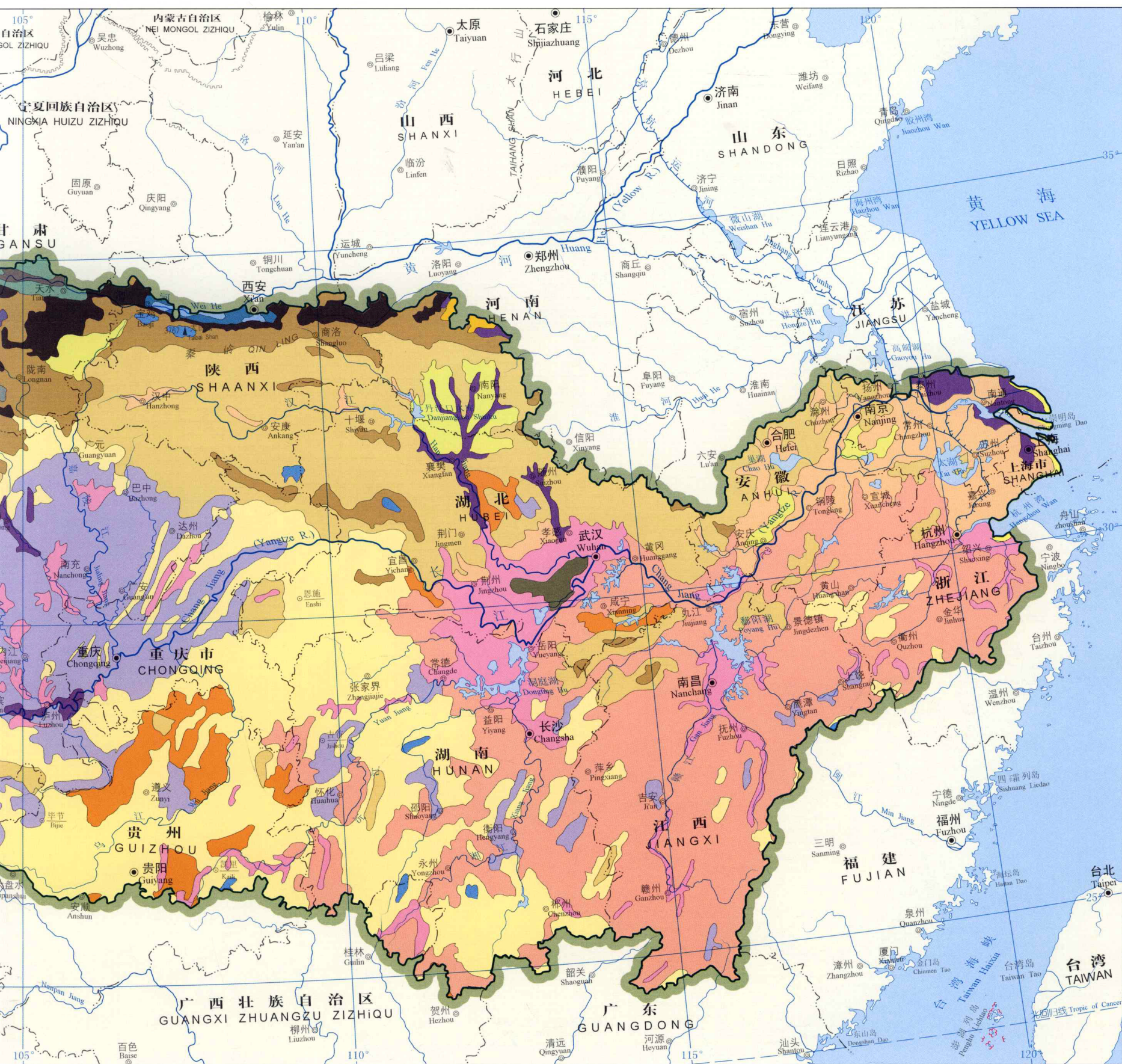
$4-20^{\circ}\text{C}$, and most of the lower reaches from $16-18^{\circ}\text{C}$. The average annual precipitation of the Basin is 1 100mm. However, due to the vast area, complex topography, the space-time distribution of the annual precipitation and storms are very uneven. Most parts of the Basin have annual precipitation of 800–1 600 mm, but the headwaters area has less than 400 mm, while that of the western Sichuan highland, Qinghai, partial areas of Gansu and the northern part of middle Hanjiang River is from 400–800 mm.

长江流域土壤类型
Soil Types in the Yangtze River Basin



- | | | | |
|-----------------------------|---|--|---------------------------------|
| 红壤
Laterite | 瘠土
Stratified old manurial loessial soil | 沼泽土
Marshy soil | 高山草甸土
Meadow soil |
| 黄壤
Loess | 绵土
Cultivated loessial soil | 暗色草甸土
Dark meadow soil | 亚高山草甸土
Subalpine meadow soil |
| 暗棕壤
Dark brown soil | 栗钙土
Chestnut soil | 内陆盐土
Inland salt soil | 高山草原土
Steppe soil |
| 棕壤
Brown soil | 黑垆土
Dark loessial soil | 滨海盐土
Coastal saline soil | 高山漠土
Steppe desert soil |
| 黄刚土
Huanggang soil | 黑钙土
Chernozem soil | 北方水稻土
Paddy soil in northern region | 冰川和雪被
Ice and snow |
| 褐土
Cinnamon soil | 石灰岩土
Calcareous soil | 南方水稻土
Paddy soil in southern region | 湖泊
Lake |
| 灰褐土
Gray cinnamonic soil | 紫色土
Purple soil | 鲜血水稻土
Blood paddy soil | |
| 黄垆土
Yellow loessial soil | 潮土
Fluvo-aquic soil | 寒漠土
Alpine frost desert soil | |
| 黄棕壤
Yellow-brown soil | 山地草甸土
Mountain meadow soil | 亚高山草原土
Subalpine steppe soil | |

长江流域土壤类型具有水平地带性分布与垂直地带性分布相互交错的特点。嘉陵江上游甘肃境内的暖温带为棕壤和褐土，北亚热带为黄棕壤，中亚热带为红壤和黄壤，其分布与纬度基本一致。山地土壤的分布随海拔的上升、生物气候条件的变化而变化，包括有亚高山草甸土、亚高山草原土、高山草甸土、高山草原土、高山漠土等构成的垂直带谱。此外，由于地形、母质、水文地质及人为耕作的影响，使土壤形成地域分布和微域分布特征，如在四川盆地分布有紫色土，在金沙江和雅砻江河谷状分布有赤红壤，在长江下游地区广泛分布着水稻土等。



比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

The soil type distribution of the Yangtze River Basin is a crisscross of horizontal zonality and vertical zonality. The upstream of the Jialing River in Gansu Province, a warm temperate zone, has brown soil and cinnamon soil, while the northern subtropical part has yellow-brown soil and the central subtropical part has laterite and loess, all in general consistent with latitude. The distribution of the upland soils changes with elevation and bio-climatic conditions, including a vertical zoning of subalpine meadow soil, subalpine steppe soil, alpine meadow soil

and steppe desert soil. However, as a result of topography, soil parent materials, hydrogeological conditions and human cultivation activities, the soils of the Basin are distributed with local and site discrepancies, such as the purple soil in the Sichuan Basin, the pockets of latosolic red soil across the valleys of the Jinsha River and the Yalong River, and the paddy soil extensively scattered in the lower reaches of the Yangtze River.

长江流域水系
Water System in the Yangtze River Basin



水系级别 River Class

- 一级河流 First Class River
- 二级河流 Second Class River
- 三级河流 Third Class River
- 四级河流 Fourth Class River
- 五级河流 Fifth Class River

长江水系发育，直接汇入长江的大小支流有7 000余条。流域面积超过1 000km²的河流就有437条，流域面积超过10 000km²的河流就有49条，流域面积超过80 000km²的河流有雅砻江、岷江、嘉陵江、乌江、沅江、湘江、汉江、赣江8条。长江流域湖泊面积15 200km²，其中长江中下游平原湖泊面积为14 073km²，约占全流域湖泊面积的93%。滇北黔西高原湖区包括滇北、黔西以及毗邻的川西一带的高原湖泊，主要是构造湖和少量岩溶湖，总面积约500km²。江源地区湖泊以小型湖泊和咸水湖居多，多为构造湖和冰蚀湖，湖泊面积约400km²。

长江水系有二级流域22个，三级流域45个。本研究还涉及珠江、黄河、澜沧江、钱塘江三级流域13个，研究范围共涉及三级流域共58个。



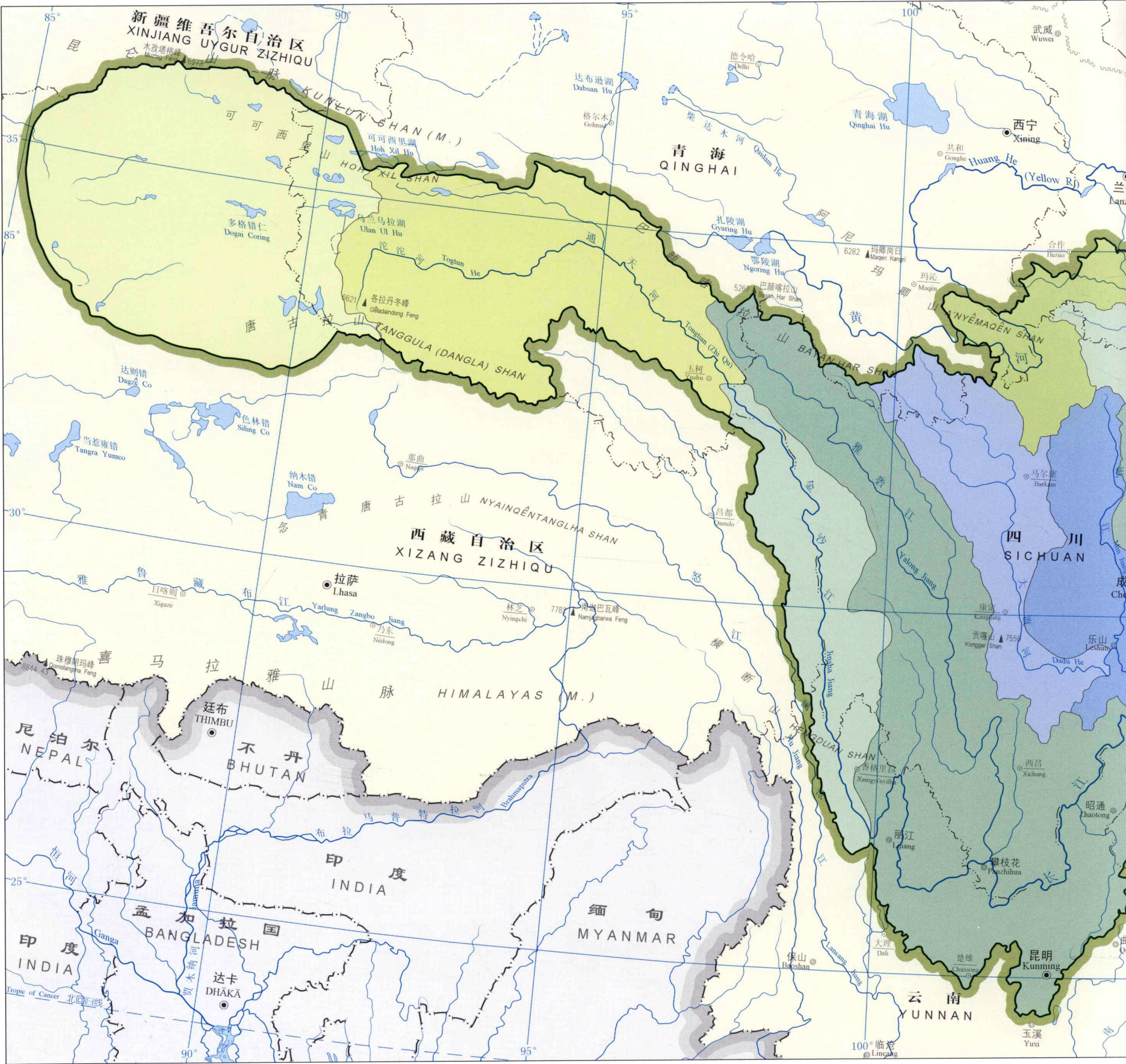
比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

Over 7 000 tributaries of different sizes flow directly into the Yangtze River, of which 437 have a drainage area of 1 000 km² or more, 49 drain up to 10 000 km², and eight, namely, the Yalong, Min, Jialing, Wu, Yuan, Xiang, Han and Ganjiang rivers have a drainage area over 80 000 km². The lake area of the Yangtze River Basin is 15 200 km², of which 14 073 km², or 93% of the total basin lake area, is in the downstream plain area. The high plateau lake areas of northern Yunnan, western Guizhou and

western Sichuan Province total 500 km² of mainly tectonic and karst lakes. The headwaters area contains mainly small saltwater lakes, of tectonic or glacial erosion origin, totaling 400 km².

The Yangtze River has a water system comprising 22 sub-watersheds and 45 tertiary watersheds. This study also covered 13 tertiary watersheds of the Pearl, Yellow, Lancang and Qiantang rivers, bringing the number of tertiary watersheds up to 58.

长江流域水资源
Water Resources in the Yangtze River Basin



单位面积水资源量($10^4\text{m}^3/\text{km}^2\cdot\text{a}$)
Annual Average Water Resource ($10^4\text{m}^3/\text{km}^2\cdot\text{a}$)

- <5.0
- 5.0~10.0
- 10.1~20.0
- 20.1~40.0
- 40.1~60.0
- 60.1~80.0
- 80.1~100.0
- >100.0

长江流域径流总量大, 水资源丰富。长江多年平均入海水量为 $9\,192\times 10^8\text{m}^3$ (1956~2000)。干流宜昌站多年平均径流量 $4\,464\times 10^8\text{m}^3$ (1878~2006), 汉口站多年平均径流量 $7\,354\times 10^8\text{m}^3$ (1865~2006), 大通站多年平均径流量 $8\,909\times 10^8\text{m}^3$ (1951~2006)。长江流域水资源总量 $9\,958\times 10^8\text{m}^3$, 占全国水资源总量的35%, 其中地表水资源量为 $9\,856\times 10^8\text{m}^3$, 地下水资源量为 $2\,492\times 10^8\text{m}^3$, 人均占有水资源量约为 $2\,300\text{m}^3$, 单位面积占有水资源量为 $56\times 10^4\text{m}^3/\text{km}^2$ 。



比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

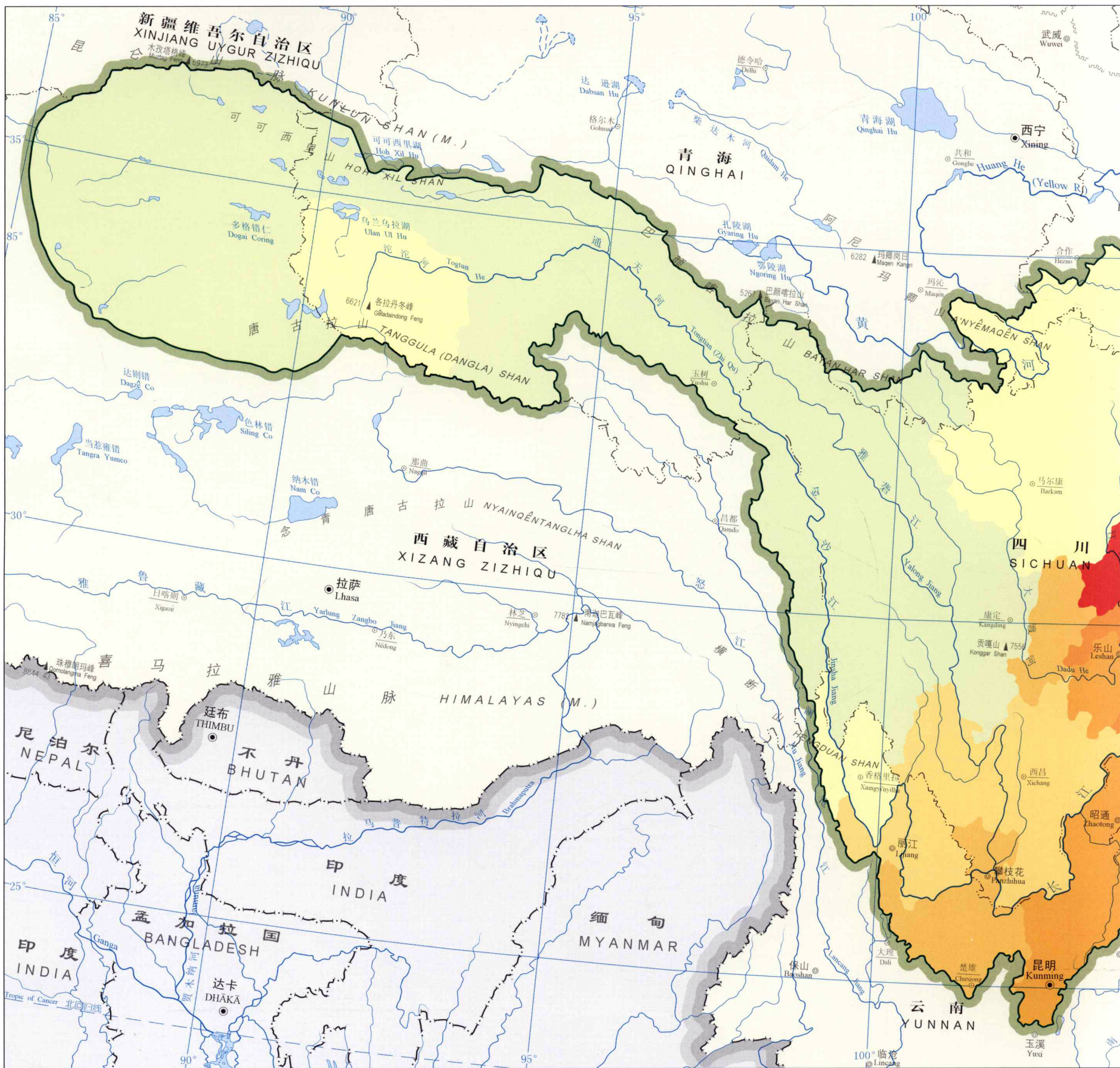
The Yangtze River Basin has huge runoff and abundant water resources. The average annual water discharge into the sea from 1956–2000 was 919.2 billion m^3 . The average mainstream runoff at the Yichang Hydrographical Station was 446.4 billion m^3 (1878–2006), 735.4 billion m^3 at the Hankou Hydrographical Station (1865–2006) and 890.9 billion m^3 at the Datong Hydrographical Station

(1951–2006).

The water resources of the Basin total 995.8 billion m^3 , representing 35% of the national total. In the Basin, 985.6 billion m^3 is surface water and 249.2 billion m^3 is underground water. The per capita water resources is around 2 300 m^3 , while the unit area water resources is 560 000 m^3/km^2 .

长江流域人口

Population Distribution in the Yangtze River Basin

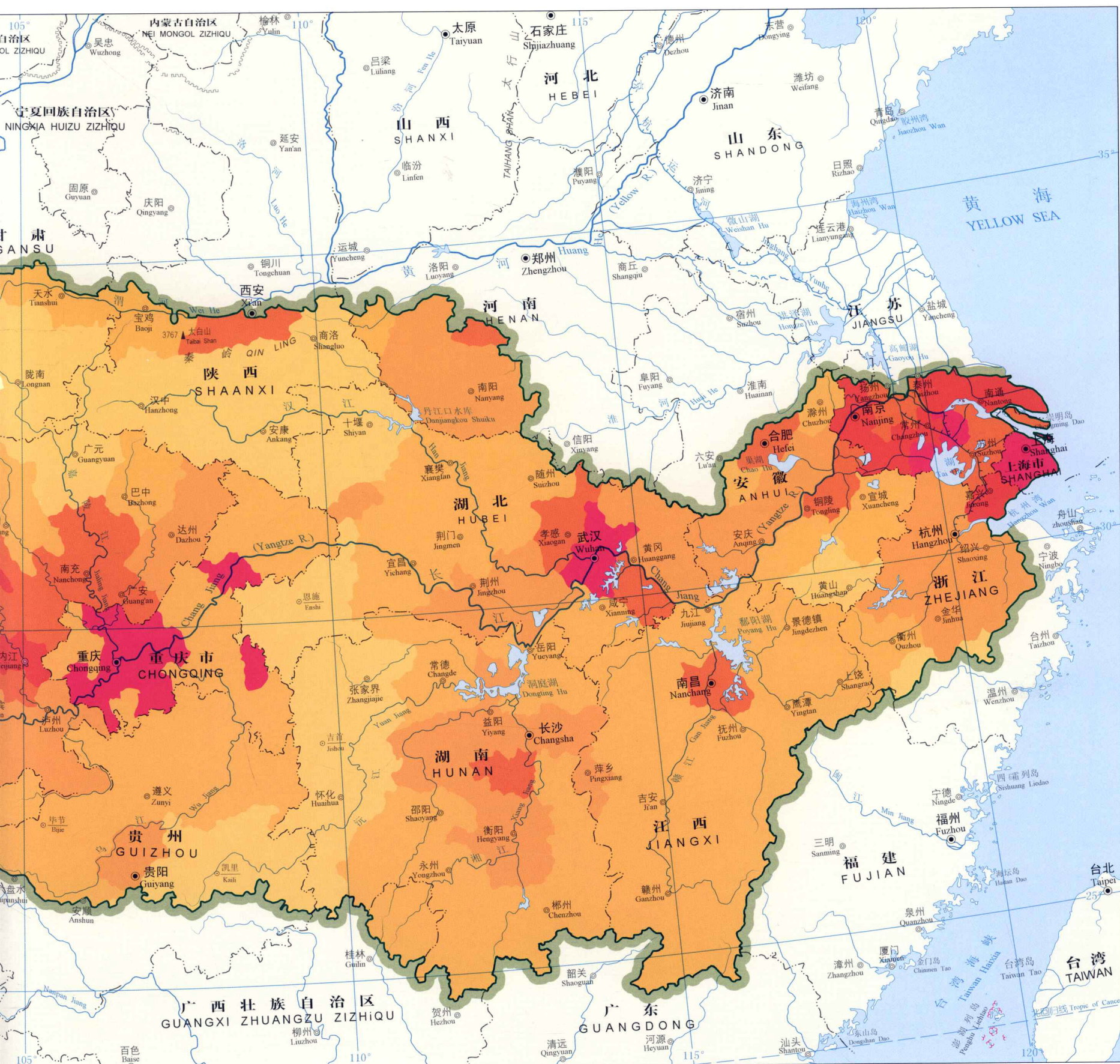


人口密度 (人/km²)

Population Density (persons/km²)

- >1000
- 800~1000
- 600~800
- 400~600
- 200~400
- 100~200
- 50~100
- 10~50
- 1~10

2007年,长江流域人口约4.27亿人,约占全国总人口的1/3,其中农村人口占57.6%,城市人口占42.4%。长江流域人口稠密,平均人口密度为240人/km²,是全国平均人口密度的1.8倍。人口分布从上游往下游递增,人口密度在上游地区为147人/km²,中游地区为309人/km²,下游地区为733人/km²。人口最稠密的地区是长江三角洲、江汉平原和成都平原,人口密度为1200~1500人/km²。在流域总人口中,汉族占94%,50多个少数民族人口2000余万人,其中超过100万人口的有土家、苗、彝、侗、藏、回6个民族,少数民族主要居住在云贵高原、青藏高原、川西、湘西和鄂西一带。



比例尺 Scale 1 : 7 000 000 0 70 140 210 280 km

In 2007, the population in the Yangtze River Basin was approximately 427 million, about one-third of the population of China. Of the above population, rural people accounted for 57.6% and urban residents 42.4%. The population density of the Basin is high, with an average of 240 persons/km², or 1.8 times the national average. The population density increases from upstream to downstream, with 147 persons/km² in the upper reaches, 309 persons/km² in the middle reaches and 733 persons/km² in the lower reaches. The most densely populated areas include the Yangtze River delta, the Hanjiang River Plain and

the Chengdu Plain, with population density ranging from 1 200 to 1 500 persons/km². Of the total population of the Basin, the Han nationality makes up 94%, with the remainder consisting of over 50 ethnic minorities and more than 20 million people (in 2000). Six ethnic minorities, namely, the Tujia, Miao, Yi, Dong, Zang and Hui, each has a population of about one million. These minorities reside mainly on the Yunnan-Guizhou and Qinghai-Tibet plateaus and in the western parts of Sichuan, Hunan and Hubei.