

Chapter 19

Developmental Strategies and Policies of Mountain Areas of West China

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GENERAL SITUATION OF WESTERN CHINA

West China has been defined by the State Council as Chongqing municipalities, Sichuan Province, Guizhou Province, Yunnan Province, Xizang(Tibet) Autonomous Region, Shannxi Province, Gansu Province, Ningxia Hui Minority Autonomous Region, Qinghai Province, Xinjiang Weiwu'er Autonomous Region, Neimeng Gu Autonomous Region, and Guangxi Zhuang Minority Autonomous Region. It has an area of 6,608,300 sq.km and a population of 355×10^6 , accounting for approximately 69 and 27% of the total area and population of China, respectively. West China spans 52° of longitude and 32° of latitude, and its main part is located west of 110° east. It is far from the sea, but shares 14,970 km of boundaries with 14 countries or territories (Shaowu Wang and Guangrong Dong 2002).

West China, with abundant natural resources, such as water power, oil, and coal, has much potential for development. Besides, it is the main region of minorities and a region with the largest population living in poverty.

ECO-ENVIRONMENTAL AND SOCIOECONOMIC CHARACTERISTICS OF WEST CHINA

Large area of mountains and plateau

Mountains (including tableland and upland) account for more than 90% of the total area of West China, and a large part of its area is at altitudes

exceeding 1000m. Western development is essentially the development of the western mountain region. Table 1 shows the area and percentage of mountains by province, municipality, and autonomous region.

Table 1: The area and percentage of mountains by province, municipality, and autonomous region in West China

Province/municipality/autonomous region	Total area/ $\times 10^4 \text{ km}^2$	Percentage of mountain area (%)	Note
Chongqing	8.23	86.9	Including upland excluding tableland
Sichuan	48	90.1	
Guizhou	17	95.1	
Yunnan	38	95.0	
Tibet	120	76.5	
Shannxi	19	84.6	
Gansu	39	77.8	
Ningxia	6.6	54.1	
Qinghai	72	69.9	
Xinjiang	160	56.0	
Guangxi	23	86.0	
Neimenggu	110	48.5	

Put together the Himalayas and Qinghai-Tibet Plateau, Yuangui Plateau, Loess Plateau, and Hengduan Mountains constitute the largest mountain and plateau area in the world. The relative height difference between lower and higher elevations is more than 9000m, forming various types of physiographic regions with different vertical zones. Those variations are responsible for gene-diversity, species’ diversity, eco-diversity, and the corresponding (or consequential) ethnic, cultural, religious, and social and economic diversity. However, poor accessibility and isolation create a variety of constraints to economic and social development of these areas. Besides, the environment of western mountain regions is unstable, fragile, and highly sensitive to inappropriate use patterns. The latter often cause permanent resource depletion.

In contrast, most of East China lies below 1000m, and its main topography is plains like the North China Plain, the middle and lower reaches of the Yangtze River, and the Pearl River Delta.

The natural ecosystem is extremely fragile in West China

Serious drought and scarcity of water in the north-west results from widely distributed fragile eco-environments comprising deserts and loess area.

Large areas of karst topography and mountains, especially high and cold conditions, are found in the south-west. Serious eco-environmental problems have been created due to the improper exploitation of natural resources in those fragile regions. More than 80% of the land suffers from heavy soil erosion in West China. Similarly the figures for grassland degradation, desertified and sloping cropland (25° and above) are respectively 99, 93.2, and 70%. Moreover, rock-desertification in the south-west is more harmful than desertification in the north-west, which is spreading at a speed of 2,500 sq.km per year.

Economic development in West China lags far behind East China

According to the 'Chinese Statistical Yearbook', the gross domestic product (GDP) of China in 2000 was $8,940,350 \times 10^6$ yuan, out of which West China contributed just $1,665,466 \times 10^6$ yuan (18.6%), which is less than the total of Guangdong province ($966,220 \times 10^6$ yuan) and Jiangsu province ($858,270 \times 10^6$ yuan). The mean annual growth of GDP in West China from 1988 to 2000 has been 8.7%—less than that of East China (10%) (Yongxian Yang 2002). The percentage shares in GDP of primary, secondary, and tertiary industry in West China respectively have been 22.3, 41.5, and 36.2%, respectively. The corresponding figures for East China have been 11.6, 45.8, and 42.6%. It is clear that the proportion of primary industry in West China is high and that of secondary industry and tertiary industry very low.

The production level, especially industrial production, in West China is not high. Per capita GDP of Xinjiang is the highest in West China (7,470 yuan) and that of Zhuizhou is the lowest (2,662 yuan). The mean per capita GDP in West China is 4,814 yuan in comparison to 7,078 yuan for the whole country and 13,641 yuan for East China (Table 2). The mean per capita GDP in West China is two-thirds the average level for the whole country and one-third that of East China (Yongxian Yang 2002). This is even lower than the lowest province in East China. The poor technology, the outmoded facilities, the improper production structure, the high proportion of state-owned enterprises, and overall slow pace of development all limit the economic development of West China.

Transport infrastructures are limited

As mentioned earlier, West China has severe problems of access and mobility. The length of highways and railways in West China is 503,000 km and 25,800 km, respectively (1999 data). The length of expressways is more than 2,300 km, the length of navigable inland waterways is 21,700 km, and there are about 600 civil aviation routes. Though it is much

Table 2: Comparison of per capita GDP by province, municipality, and autonomous region between West and East China

Region	Per capita GDP (yuan)	Region	Per capita GDP (yuan)
West China	4,814	China	7,078
Chongqing	5,157	East China	13,641
Sichuan	4,784	Shanghai	34,547
Guizhou	2,662	Beijing	22,460
Yunnan	4,637	Tianjin	17,993
Tibet	4,559	Zhengjiang	13,461
Shannxi	4,549	Guangdong	12,885
Gansu	3,838	Jiangsu	11,773
Qinghai	5,087	Fujian	11,601
Ningxia	4,839	Liaoning	11,226
Xinjiang	7,470		
Guangxi	4,319		
Neimenggu	5,872		

better than before, it still lags far behind the situation in East China. Furthermore, in the north-west the density of railways, highways, waterways, and pipelines is 0.22 km/km², 3.93 km/km², 0.05 km/km², and 0.06 km/km², respectively. These are much lower than the figures for the country as a whole (Shaowu Wang and Guangrong Dong 2002). The basic conditions of transportation by province, municipality, and autonomous region in West China are shown in Table 3.

The population's health is poor

Mountain regions in West China not only have a poorer quality of life but also poorer conditions of public health than East China. Mean life expectancy at birth in West China is only 65 years in comparison to 70 years in East China, according to the census of 1990/92. The mean birth rate and natural growth rate of the population in West China were 17.8 and 10.8%, respectively in 1998, compared to 12.5 and 6.2%, respectively, for East China. The mean death rate in West China in 1998 was 6.9% compared to 6.3% in East China. Similarly, the mean infant mortality rate in West China in 1993 was 59% compared to 27.3% in East China. The causes of death in West China seem similar to the causes in developing countries: infectious diseases, poor health facilities, and general poverty (Suming Wang et al. 2002).

Table 3: Transportation in West China

Region	Railways in operation (km)	Highways in operation (km)	Expressways (km)	Navigable inland waterways (km)	Total civil aviation routes
Chongqing	750	27,200	309	3,000	45
Sichuan	4,654	100,700	747	8,400	140
Guizhou	1,639	33,600	-	2,048	40
Yunnan	1,991	76,000	268	1,324	47
Tibet	-	22,400	-	-	10
Shannxi	1,941	42,200	212		119
Gansu	1,966	35,900	-	1,306	20
Qinghai	1,103	12,800	21	-	10
Ningxia	776	10,000	94	74	10
Xinjiang	3,008	27,200	260	-	60
Guangxi	2,364	51,300	673	5,581	109
Neimenggu	5,647	63,800	-	-	20

NATURAL RESOURCES

Rich in natural resources

West China is a region with almost all types of the natural resources found in China. Water and power resources, reserves of coal, and reserves of natural gas far exceed their availability in other parts of China. Large areas of land have not been used. The unused area of grassland and cropland is about 40–90% larger than that of other parts of China. Bio-resources, climate resources, and tourism resources also play an important role in the economy. The mineral resources—ferrous, nonferrous metals, and industrial minerals are all of great importance. West China can develop key industries such as forestry, animal husbandry, and tourism.

High regional variations in natural resources

Though West China as a whole is rich in various natural resources, their distribution is scattered. For example, iron ore is mainly located in Sichuan and Neimenggu. Non-ferrous metals are mostly found in Yunnan, Gansu, and Guangxi. Coal is mainly produced in Neimenggu, Shannxi, Xinjiang, and Ningxia. Petroleum is concentrated in Xinjiang and Qinghai. Natural gas is found in Xinjiang, Sichuan, and Qinghai; and Ningxia is short of many important minerals except coal. The south-west is rich in water resources while the north-west suffers from lack of water.

Both raw and processed materials have to be transported long distances, which increases the cost.

Poor exploitative condition of natural resources

Most of the natural resources of West China are in regions with many deep-cut valleys and steep mountains. The up-and-down topography makes it hard and expensive to build highways and railways. There is still no railway or expressway in Tibet, which increases costs.

West China has a very harsh climate, most regions are threatened by cold and drought. This also makes it harder to develop natural resources. The mean annual temperature of the Qinghai-Tibet plateau is the lowest in China. The north-west is far from the sea and affected by the height of the Qinghai-Tibet plateau. Its annual rainfall is below 200 mm, which makes the region suffer from serious drought. Annual rainfall in the mid-Zhunga'er Basin, Tarim Basin, east Xinjiang, Alashan, west Hexi, and west Caidam Basin is even below 50 mm, making these regions dry and drought prone.

PAST DEVELOPMENT IN WEST CHINA

West China has experienced four periods of exploitation from the middle of the 19th century until the 1980s.

In the middle of the 19th century, the westernisation movement brought capitalistic manufacturing into the feudal economic system of western China. At that time, industry based on raw materials began. Qingxi Ironworks, built by advocates of the westernisation movement in Zhenyuan County of Zhuizhou, was the first civil industry in West China.

Most industries and some universities were moved to West China during the War of Resistance against Japan. After the war, some were moved back to East China.

During the 'first-five-year plan', after the revolution in the country, many key constructive projects were moved to West China.

In May of 1964, Chairman Mao introduced triple-line construction. A great deal of human resources, material resources, and financial resources were put into development in Sichuan, Guizhou, Yunnan, Shanxi, Gansu, and so on, and many old corporations in coastal areas were moved to the west. For more than ten years, large-scale construction was undertaken. This construction (or development) led to setting of industries to develop and use energy sources, iron and steel, machines, and chemistry. The iron

and steel industry became the forerunner of the national defence industry and became a keystone of change. It established the base of development in West China, and this was supported by developed coastal regions and the whole country after China's Reform and Open Door Policy were put into practice.

These initiatives speeded construction as a part of the development of the West, but did not radically change the poverty situation in West China for several reasons. They emphasised the construction of industry but ignored the development of human resources. While emphasising industries, they ignored links to agricultural development. They emphasised the exploitation of natural resources but ignored the development of other sectors such as education, communications, and markets. Development was targeted through a planned economy and governmental interventions, but ignored the role of markets and price mechanisms.

Particularly during the period of the 'triple-line' construction, industries were established based on national defence considerations instead of economic principles. Many corporations were located in sparsely-populated mountain regions with few complementary industries. This caused low throughput, poor yield, and high transportation costs. The embedded system of national large- or mid-scale corporations was of little use to the local economy. As a result, the disparity between East China and West China grew larger and larger.

Since 1978, reform, the open door policy, and the policy of richer provinces supporting the West have brought some advantages to the West.

Since the 1990s, economic development has been directed to a socialist market economy. Markets are given more and more importance in allocating resources. The new open door policy implied an overall open and regionally balanced economy from south to north and from east to west. During this period, development has been emphasised. However, the economy of coastal regions is growing rapidly, while economic development in the West is still in the stage of low to high as during the 1990s. Broadly speaking, the efforts since reforms have established a foundation for rapid development of West China.

DEVELOPMENT STRATEGY FOR THE WESTERN MOUNTAIN REGIONS OF CHINA

Economic development in mountain regions is the key issue of western development. Five kinds of development strategies are discussed here.

Development of basic infrastructure and service facilities

This is the very basis of mountain area development, especially in view of the poor accessibility and lack of support facilities for industry. Facilities like a public transportation network, highways, railways, airports, natural gas pipelines, internet, telecom, and broadcasting provide opportunities to connect far-flung areas, which helps in local development. The focus on the development of water resources is equally important.

Ten big projects have been in process in the region since 2001, including (i) railway construction between Xi'an and Nanjing (a distance of 955 km, with a total investment of up to RMB 23.2 billion); (ii) railway construction between Chong Qing and Huan Hua (640 km, with an investment of up to RMB 18.2 billion); (iii) highway construction in the West; (iv) a plan to build 10 new airports; (v) building of Light Rapid Transit (LRT) in Chong Qing city (13.5 km, with an investment of up to RMB 3.3 billion); (vi) natural gas pipeline from Shebei to Xining to Lanzhou in Caidam Basin (95km, with a capacity of 2 billion m³/yr); (vii) Zipingpu hydro-project in Sichuan and Shapotou hydro-project in Ningxia (up to RMB 7.5 billion); (viii) returning $0.343 \times 10^6 \text{hm}^2$ to forest by stopping ploughing in and planting $0.432 \times 10^6 \text{hm}^2$ of forest or grassland area; (ix) Qinghai potash fertiliser project; and (x) construction of colleges and universities in West China. Projects to transport natural gas and electricity from West to East commenced and the Qinghai-Tibet railway started in 2002.

Development of human resources

In light of the area's needs and background and the poor skills of human resources in mountain regions, a preferential approach to help human resource development through education, is essential. Development in western mountain regions has lagged behind mainly because of lack of knowledge, technology, information, and education. The development of human capacities through education is a key step.

Several suggestions have been made. (i) Make the best use of the knowledge, information, education, and techniques provided by today's world to boost economic and social development in mountain regions; to increase the capacity of mountain regions to gain external knowledge and to create knowledge as well. (ii) Increase people's ability to absorb knowledge and exchange knowledge. (iii) Shorten the lag in knowledge, information, education, and techniques. (iv) Emphasise quality education from childhood to popularise basic education and professional education and try to develop higher education.

Regulation of industrial structure

It is most important to set up key industries. We should reorient and regulate production, industrial, and economical structures according to the demand of domestic and international markets. In agriculture, economic crops, forestry, and animal husbandry should be the key production activities instead of grain production. Light industry that mainly processes raw products and uses advanced technology should be the focus instead of heavy industry. Development of rising industries like tourism is needed. Industries that use the comparative advantages of mountains must be developed.

Agro-industrialisation in mountain regions needs further improvement by focusing on niche products and integrated agro-processing. Small-scale management with the family as its unit should be changed step by step to large-scale production of items such as fruit, tea, handicrafts, and so on. Industrialisation should focus on issues of production, purchase, processing, storage, transportation, and distribution of farm products and commercial, financial, and trading information.

Tertiary industry should be promoted and taken as a high point of the mountain economy. The share of tertiary industry in GDP needs to be increased. Tourism in the mountains is one such example. It will help other industries such as food, transportation, craftwork, entertainment, and culture.

Allocation of resources through markets

Mountain areas are rich in resources, but their inhabitants are poor. One reason for this is that resources are exploited by outsiders with little gain for locals. Second, the development activities promoted in the past did not involve locals, nor were they concerned with the negative side effects of projects on the environment. Under the new policies, more and more activities and industries should be developed on the basis of market signals, with the involvement of local people.

Sustainable development strategy

Sustainable development means continuing beneficial economic and industrial activities without depleting environmental or natural resources. However, due to the focus on production only, the producers in the region have ignored the environment. Due to lack of capital, knowledge, and so on, people do not protect the environment when they exploit resources. Consequently there has been serious soil erosion in the Loess Plateau, environmental degeneration of headwaters of some rivers such as the

Yangtze and the Yellow River, higher frequency and incidence of sand storms in Gansu and Neimeng and desertification of some areas; more serious Karst rock-desertification in south-west mountain regions; a sharp decrease in wetlands in Xinjiang in the past 50 years from $2.80 \times 10^6 \text{hm}^2$ to $1.48 \times 10^6 \text{hm}^2$ (Hongchi Zhang 2000). Landslide and debris flow hazards in Sichuan and Yunnan have increased. An ecological crisis exists everywhere in the western mountain regions, which not only slows down the economic development of West China but also threatens the ecological security of the country's mid-east.

Sustainable development that focuses on improving the environment should be insisted upon in the development strategies for western mountain regions. Economic activities should be in harmony with eco-environmental improvement. Rural people should be mobilised to join eco-environmental protection and improvement due to the large scale of the task. Meanwhile, these efforts need strong economic support because their benefits will flow only after a long time lag. Otherwise persons suffering from hunger and cold will not stop cutting trees for energy and mowing grass to create farming spaces. Investment of resources as well as application of science and technology will be necessary. This can help achieve high throughput, also helping farmers and herders to reduce poverty.

DEVELOPMENT POLICIES FOR WESTERN MOUNTAIN REGIONS

Policy targets: focused activities

The important target activities include:

- promoting economic growth through introduction of capital and human resources into West China;
- improving the welfare of citizens through social transfers and support;
- improving employment through encouraging the flow of labour, including migration; and
- upgrading the environment through administration and legislation.

At present, the state mainly emphasises the first target—economic growth. The policy should be set to the other target activities mentioned above.

Differentiated development policies for different areas

Central cities

Central cities like Chongqing, Chengdu, Xi'an, Lanzhou, and Wulumuqi are the key developing areas. They need national support; adopting leading-edge supporting policy. The form can be (i) to perfect and fortify

the central town function; (ii) to upgrade the technology and structure of the leading industries of central cities.

Areas with rich resources

Policies should include: (i) development of preferential policies to integrate the resource potential of western special zones with the preferential policies of China, so that more investors can be attracted to the West; (ii) development of a resource protection policy to ensure proper levels and methods of resource exploitation; (iii) protection and restoration of the environment through encouraging local people and careful supervision of the protection and restoration.

Poor areas

Poor areas include the Loess Plateau, the Mengxin drought area, the southwest karst area, and the Qinghai-Tibet Plateau.

The policies are: (i) shifting of relief policy towards development policy; (ii) identification of different policies to invest into areas which are not necessarily the most poor but have the most potential for development ; (iii) use of many support mechanisms, including loans and investment; (iv) formulation of a series of preferential policies such as beneficial loans, tax concessions, relevant development, needed education, and so on.; (v) adoption one benefit/help policy (i.e., specific policy for specific benefit); (vi) obtaining international support.

Border areas

Specific policies and measures are necessary regarding finances, taxation, import-export, and administration in border areas.

Developing a policy for the countryside

It is hard to increase farmers' incomes by raising the prices of farm products because the prices of most farm products in China are already higher than those in international markets. Prices are expected to fall after the further opening of the market of farm products in China. It is almost impossible for the government to solve this problem by giving subsidies. The scope for increasing income through agricultural production (especially cereal crops) in mountain regions is limited. Hence, the alternative approaches indicated below are needed.

- a) Adjust agricultural structures to local conditions and add more value to farm products by further processing to meet the requirements of national and international markets.

- b) Improve the efficiency and productivity of agriculture. This is an essential step towards increasing farmers' income and requires measures related to technology management and enhancing the benefits of larger-scale production. However, these steps are constrained by current levels of agricultural units and their low quality. To achieve large-scale activities and integrated management of land, some policies are needed. They involve transfer of surplus workers to non-agricultural activities, training and skill improvements for workers, security for farmers, and better links to markets.
- c) Execute the land usufruct transfer and private owner operating system to promote industrial development and population regulation in the countryside. Here peasants could lease their land to private owners, who would be responsible for peasants' employment and pay salaries to them. In this way the small farmers evolve a new form of relationship with the owners to develop the countryside and agriculture and increase their income.

Human resource development policies

The quality and capacity of human resources are important in developing the West. This will not only build the technical and management skills of workers, but also in due course have local enterprises in different industries. Formal and technical education, specialised training, and exposure to outside areas are some of the ways to promote this.

Natural resource conservation policies

The western region is rich in natural resources, but their inappropriate use leads to over-extraction and environmental degradation, with negative economic consequences. Environmental restoration should be the central concern of any development programme. Besides the state, the local communities should be actively involved. Funding from banks and other institutions should be mobilised.

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