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Economic Conditions and Approaches to Development in Mountain Regions in South Central China

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The poverty-stricken mountain areas in South Central China face many challenges on the road to sustainable development in the 21st century. Great progress has been made in alleviating poverty in the past decade: while 15 million people in these areas suffered from extreme poverty in 1989, this number decreased to about 6 million by 1996. Cereal production during the same period increased from 50 to 397 kg per capita. But to break away from poverty and raise the standard of living, the region must now enter a new stage of development. It needs to benefit from the transition taking place from a planned economy to a market economy, especially with respect to new domestic market conditions.

There is also a need to raise awareness of the requirements for sustainable development strategies in mountain areas. This will involve industrialization of agriculture, increasing the quality of products in the primary and secondary sectors, developing the service sector, improving infrastructure for transport and trade, and letting the market determine resource use rather than vice versa. The following introduction to the region and its problems is complemented by recommendations for enhancement of economic strategies in the mountain areas shared by Chongqing Municipality and the provinces of Hubei, Hunan, and Guizhou and linked by the Yangtze and its tributaries.



FIGURE 1 Yingyang County in Chongqing Municipality: cultivation on steep hills causes erosion. (Photo by author)

The South Central Chinese mountain regions

A varied, warm, and humid mountain environment

The region discussed here covers 170,000 km² and nine district-level administrative regions in three provinces and one municipality: Fuling, Wanxian, Qianjiang, Yichang, Enshi, Zhangjiajie, Xiangxi, Tongren, and Zhunyi. Geomor-

phologically, the area is divided into four parts: the East Sichuan hills stretching into the west of Chongqing, the mountains ranging from the northeast of Sichuan to the west of Hubei, the Yunnan and Guizhou Plateau, and the hills in the west of Hunan. Mountains—some of them prone to erosion (Figure 1) and natural hazards—cover over 75% of the total area. The Yangtze and its numerous tributaries cut through the area, which features the Three Gorges of the Yangtze, the Lesser Three Gorges of the Daning, the Gorges of the Wujiang, and the Gorges of the Qingjiang (see Figure 2).

Abundant rains (with an annual average above 1000 mm and peaks of 1500–2000 mm on some mountains), wide altitudinal and topographical differences, and generally warm temperatures (annual average 16–18°C) generate a variety of climatic zones from temperate to hot humid. Most valleys have somewhat southern subtropical climatic features, with an average temperature of 18°C, where subtropical and tropical fruits such as litchis, bananas, and longans grow. Although precipitation is abundant in the area and rain-induced floods and debris flows often occur, the region frequently suffers from drought in autumn. This constitutes a great threat to agricultural productivity and the drinking water supply for humans and animals.

The original zonal vegetation in settled areas was subtropical evergreen broad-

leaved forest. At present, nearly all the primary vegetation has disappeared, giving way to secondary forests and agricultural landscapes. With increasing altitude, the vegetation changes to mixed broad-leaved and coniferous forests, followed by coniferous forests and grassy marshland.

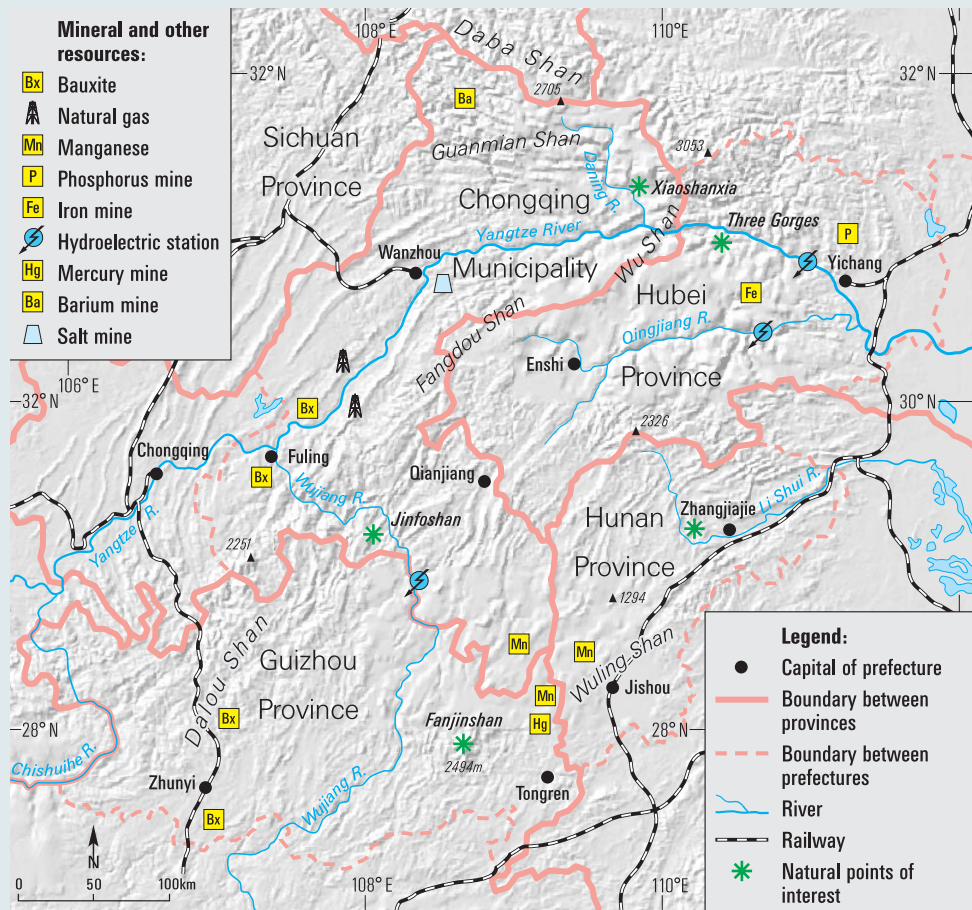
Rich agricultural, mineral, water, and tourist resources

The South Central Chinese mountain area has abundant natural and cultural resources used for tourism, crops, mining, and energy. Historical sites related to the Ba, Chu, and Three Kingdom cultures have a good potential for tourism development. The region's varied geomorphology and subtropical humid monsoon climate have favored the development of spectacular natural landscapes (which have become important tourist attractions, see Figure 3) as well as rich biodiversity (Table 1) and agrobiodiversity. In the area of the Three Gorges, for instance, 2021 of nearly 3000 plant species are cash crops, while in Zhunyi Prefecture, 784 kinds of crops are grown, of which 655 are grain crops. Other important cash crops include fiber, starch, oil, sugar, medicinal plants, fruit, and flowers.

Sixty-five minerals have been explored and partly exploited in the Yangtze basin. The phosphorus reserve is one of the most plentiful in China, and the world's largest salt basin can be found near Wanzhou and Fuling. There are rich aluminum reserves near Zhunyi and Mt. Jinfu. Manganese is so plentiful in the area shared by Chongqing Municipality and Hunan and Guizhou Provinces that these mountains are known as the "Golden Triangle of Manganese." The only significant Chinese witherite mine is located near Chengkou. Lead, zinc, rock salt, and mercury are also more abundant here than in other parts of China, and so is natural gas.

Water resources are bountiful as well, with a per capita average of 5120 m³ (2.2 times the average in China) and a per capita average production of hydroelectric power more than three times the national average. The potential for hydropower in the area is huge (3.823×10^7 kilowatts, ie, 10.2 % of the total national potential); nine large and industrial-scale power stations are under construction.

FIGURE 2 Map of the area discussed in this article. The South Central Chinese mountains are characterized by variety and poverty. (Map by Andreas Brodbeck)



Current economic activities and challenges

Although recent years have seen rapid economic progress in this area (Table 2), it is still considered poor and backward, with a low level of development. The population in 1995 totaled about 36.5 million. Although this constitutes 3.06% of the total population of China, the gross

Area	Number of families	Genera	Species
Three Gorges	182	885	2859
Enshi Prefecture	215	ca. 900	ca. 3000

TABLE 1

Examples of rich biodiversity in the mountain areas of South Central China.

Year	Gross domestic product (in billions of Yuan)	Per capita gross domestic product (in Yuan)
1985	15,066	478.3
1998	121,591	4185.7

TABLE 2

Development of total and per capita GDP from 1985 to 1998, showing more than an eight-fold increase in 13 years (US\$ 1.00 was about 8.2 RMB yuan in 2000).



FIGURE 3 The famous Three Gorges of the Yangtze River are a well-known tourist attraction. (Photo by author)

domestic product (GDP) in 1998 was only 1.53% of the overall Chinese GDP.

Although the ratio between the primary, secondary and service sectors in 1998 was 35.53:37.20:27.27 (an improvement on the ratio of 43.20:33.80:23.00 in 1992), the area is still typically agricultural. Rice, rape, tea, tobacco (Figure 4), and mulberry have become the main agricultural products and cattle, goats, chicken, geese, and ducks the main livestock. Secondary industries include cigarette production, breweries, metallurgy, textiles, chemical and pharmaceutical production, construction materials, mining, and energy production. The service sector consists mainly of tourism, transportation, recreation, and education. Financial services, trade, consulting, and information services are poorly developed.

Increased yields and the development of food processing plants as well as an increase in disaster-free farmland (from 0.2 ha per capita in 1989 to 0.34 ha in 1996) permitted major progress in the struggle against poverty. Infrastructure has also improved significantly: over 90% of towns and villages now have access to electricity, telephone services, and roads. But poverty has not been eradicated, and many new demands and problems have arisen in the past 10 years. Raising the standard of living has become an important new objective, but it is questionable whether the path taken in other parts of China to reach this goal is the right one for this mountain region.



FIGURE 4 Tobacco is a major cash crop in Dejiang County, Guizhou Province. (Photo by author)

Transition from a planned economy to a market economy: Ten years ago, development in this region was still dominated by the planned economy and governmental control. The mountain prefectures' main task was to fulfill economic assignments defined at a higher governmental level. Budgets were allocated accordingly, and poverty alleviation simply meant waiting for relief from the central government. Today, although governmental power still plays a significant role in the policymaking process, the concept of a market economy is taking root. The market is the main force influencing the development of the regional economy, entailing new strategies. This constitutes a major challenge to traditional values and backward economic and social structures in mountain areas (Figure 5).

The need for sustainable development strategies: Sustainable development, which has now become a generally acknowledged aim, will be particularly challenging at a time of economic change. A number of local, specialized, small enterprises are so dependent on local natural resources that they are a cause of environmental degradation and a source of pollution (Figure 6). As these small enterprises play a dominant role in the mountain economy, they need to adapt to the national market as well as develop more environmentally friendly modes of production. Sustainability must also be integrated as a principle in rethinking how township enterprises can be transformed. At present, they are facing severe challenges because their low-quality products cannot meet the changing demand in the domestic market.

Major changes in the domestic market: The domestic market has undergone great change, shifting from one determined by sellers to one determined by buyers. In the mountains, this has posed great difficulties for many products, especially timber. In order to adapt, industries now need to conduct market analyses while simultaneously reassessing the benefits of local production processes. New intensified and specialized mass production plants could make a beneficial contribution to industrialization in mountain

areas, provided they are established with a view to marketing prospects. Products will not generate economic benefits if they are not demand-driven commodities.

Specific needs in mountain areas: Food security was the goal of development in the 1980s and 1990s, meaning that cereal production became the main focus of development efforts. Today, objectives include improving income levels and promoting social progress. This implies a shift in focus from agriculture to development of the secondary and service sectors. Major preparations are needed for further development of the service sector in the South Central mountain region. Poor traffic and transport conditions, insufficient energy supply, inadequate financial resources and technology, and a shortage of professionals are the greatest bottlenecks. Ten years of development have brought improvement but much remains to be done.

New principles and the outlook for development

The following recommendations are based on the brief foregoing analysis of the poverty-stricken mountain areas of South Central China.

Opening up to international competition

Globalization calls for large-scale, specialized production and highly efficient business strategies. There is not much point in establishing self-sufficient economic zones since the market is now the primary influence on economic development. Enterprises and products must be competitive in the global economy. Today, the area under discussion is no longer an independent, self-enclosed economic zone. It must adapt to the international market by focusing on key products and developing specialized, profitable, and environmentally sound industries guided by influential industrial groups.

Industrialization

Industrial development is currently at a preliminary stage. Future goals should include intensification of agriculture, with large-scale agricultural production of cash crops and livestock; flexibility in the rural



FIGURE 5 A rural market that is adapting to the new market economy (Fuling District, Chongqing Municipality). (Photo by author)

labor force to allow more efficient production and favorable conditions for a smooth transition from traditional agriculture to nonagricultural industries; export-oriented production of cash crops; integrating purchase, storage, processing, transport, distribution, finance, and information in the agricultural system; a complete system for processing agricultural products to increase their added value; and cultivation of famous-brand products.

Backbone industries must be defined according to new principles: the focus should be transferred from previous departments of industry and trade to industrial groups and products that are profitable and competitive. For example, making the food industry a backbone of the economy should no longer be a goal. Support should be given to internationally competitive enterprises such as the Maotai

FIGURE 6 Polluted river in Wanzhou District, Chongqing Municipality. (Photo by author)





FIGURE 7 Orange plantation near Jishou in the Tujia Nationality's Prefecture in Hunan Province. Focusing exclusively on oranges in the area has led to overproduction and a waste of resources. Market analysis is needed to adapt to new economic conditions. (Photo by author)

Group and the Xiangquan Group, whose businesses involve not only food but also other products such as medicine.

Resource allocation according to the market

People in undeveloped areas, especially mountain areas, used to believe that development strategies could be based on their rich endowment of natural resources. It was assumed that natural resources conferred advantages over other areas in the competition for economic development. This idea is no longer compatible with current conditions in mountain regions. In a modern economy, resources do not determine market share; the market determines the allocation of resources and thus the direction, scale, and variety of industries in mountain regions.

At present, however, the entire industrial structure in the mountains of South Central China is still based on the exploitation of resources. Though this situation cannot be changed radically within a short period of time, action is urgently needed. In 1997 and 1998, for example, oranges were overplanted in relation to their marketability (Figure 7). As a result, superfluous production rotted away, causing great losses for farmers. Currently, there are good supplies of beef, lamb, pork, chicken, goose, duck, manganese, aluminum, phosphorus, tobacco, tea, wine, silk, flax, and other products, but demand for these products is insufficient. If there is no market, a resource should not be exploited; otherwise, it will be wasted.

FIGURE 8 Local arts and crafts could become the source of new income in the tourist sector. Production of bamboo articles in Yanhe County, Guizhou Province. (Photo by Yang Dingguo)



The industrial sector should focus on enhanced management of advantageous products. The machinery industry should be given priority, with a focus on automobiles, tractors, motorcycles and motorcycle parts, engines, and inland river ships. The food industry, high-performance cement for building dikes and roads, and decorating and ceramic materials are also important. Paper slurry could be developed using local raw materials. Industrial development must focus on variety, high quality, and mass production as well as on the market.

Creating and improving competitive famous brands

A further aspect of the market-oriented approach is to develop famous-brand products and enhance their competitiveness. This strategy has been widely adopted in industry. Famous-brand products can be developed on the basis of existing products that already have a good reputation for quality, such as Maotai (wine), Fuling hot pickled mustard tuber, Jiuquanjiu (wine), Zhunyi Duzhong (Chinese herb), Shizhu Huanglian (Chinese medicine), and Fengjie qicheng (oranges).

Famous-brand "green products," such as mushrooms, bamboo shoots, beef, lamb, pork, tea, and vegetables, could be developed by taking advantage of mountain environments that are pollution-free or less polluted than other areas. Famous-brand products can also be developed through support for existing industrial enterprises that have established a reputation for product quality. Examples include Qianjiang's tobacco, Youyang's *qinggaosu* (Chinese herb), Fuling Taiji Group's Chinese herbs, and Xiushan's electrolytic manganese. In addition, famous-brand biochemical products could be developed from plants while others could be based on arts and crafts such as baldachin, jewelry, and bracelets (Figure 8).

Developing commerce and transport

As already mentioned, economic development in mountain areas has improved in agriculture and industry. Mountain agriculture is a regular source of vegetables, meat, and cereal for urban areas. Economically developed mountain areas have also become important bases for supplying minerals, raw materials, and other prod-



FIGURE 9 Jinfoshan (the Gold Buddha Mountain) in Nanchuan County, Chongqing Municipality, is a spectacular tourist attraction. (Photo by Xu Yun)

ucts. Further development will depend on market expansion.

The following steps could be taken to promote commerce: combining efforts involving commercial companies and local farmers; establishment of specialized wholesale marketplaces; organization of commercial groups specialized in marketing; cooperative relationships with other areas; use of famous enterprises to organize the marketing of products; promotion of fairs; establishment of free commercial zones; and establishment of marketplaces for specialties such as oranges, *huanglian*, *duzhong*, *huangbo* (Chinese traditional herbal medicines).

Distribution of mountain products could be promoted through enhancement of various distribution channels; cultivation of and support for entrepreneurs engaged in commerce who could organize large-scale, integrated transport of commodities; accelerated construction of transportation in mountain areas (including governmental support); better advertising and promotion of products to enhance their reputations; and improvement in the quality of commercial service.

Additional features of development

Several other factors are important to sustainable economic development in the mountain areas of South Central China. The service sector must be increased from 27% of GDP to 30% in 2000 and 50% by 2010. Priority should be given to tourism and trade. Advantages for tourism exist in terms of resources that could be utilized without upsetting the environmental bal-

ance (Figure 9). Transportation, arts and crafts, the hotel and restaurant sectors, entertainment, and cultural activities could be developed through establishment of various tourism zones. Further development of commerce, trade, banking, consulting, and insurance would enhance the service sector.

Township enterprises are now encountering heavy domestic and international competition. They will not survive if they do not transform themselves to focus on commerce, trade, tourism, banking, consulting, culture, information, and transportation, or on local specialties and agricultural produce.

Tourism, natural medicines, hydraulic power, and grass husbandry are likely to be areas of growth in the 21st century. These sectors are all based on scarcely exploited renewable resources that can be utilized sustainably and have the potential to bring great economic benefits to the regional economy.

While mountain regions once aimed to raise income by increasing cereal yields—with minimum social, professional, and technical inputs—the current goal is to attain a comparatively high standard of living. This will be much more difficult. In the present case, it will require comprehensive development of the entire South Central region—not just economic growth but also social progress and improvement of the environment and development of every sector that can compete in the domestic and international markets. Progress of this nature will constitute something revolutionary in the history of China's rural mountain areas.

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