

Chapter 5

Outlines of Strategic Development Planning

Strategic Development Goals

In determining the strategic goals of a region, their importance to national economic development should be taken into account, and the national conditions and resources should also be considered. The region has sufficient social and economic potential to make the goals feasible. The development and reconstruction of the area will play an important role in the economic development of the upper reaches of the Yangtze River and of southwestern China. Because of its rich mineral and energy resources, the establishment of mines and hydropower stations will favourably readjust the structure and distribution of steel and energy resources in southwestern China. Moreover, the rich energy resources are an advantage in developing heavy industries. Therefore, the development of the region is also an important component in the development strategy of the southwestern area.

Since it is a region with minority nationalities and the social economy and culture are less developed than in other areas, proper use of resources, construction of industries, and economic development help in the social development of the area. Therefore, the development of this region must

be in accordance with strategic planning and with the regional development requirements of southwestern China. It should not only guarantee economic self-reliance but also make full use of the local resources, in order to set up a strong mining-metallurgical and energy resource system and form an important base which can support and ensure the development of southwestern China.

Socioeconomic Planning

Any strategic programme should be based on the resource characteristics and economic situation of the region. One important guideline is to make full use of the local resources of the area and to consider the support and cooperation provided by neighbouring areas to regional development.

The main characteristics of the study region are its rich resources, i.e., an abundant energy supply and forest and land resources. Basically, a strategic programme should make full use of these resources to promote the all-round development of the economy. At the same time, it should also take into account the support facilities that must be set up for the full use of resources, aiming at effective coordination of the principal strategic tasks. Primarily, a strategic programme in the area should coordinate exploitation of mineral resources; power supplies; agriculture and forestry; traffic and the environment; and the social, economic, scientific, technological, cultural, and educational development goals should be handled correctly. The main strategy should focus on the exploitation of resources and on comparison of different resources, i.e., minerals, energy, agriculture, and forest resources, so as to determine the dominant development sectors.

Agricultural and forest resources in the region are limited. Because of the rugged topography and deeply cut valleys, only some wide valley sections of the Anninghe and Jinshanjiang rivers and some smaller basins can be used for agricultural purposes. For this reason, agricultural development may be unable to bring about the all-round development of the economy in the region and ensure that it occupies a position of strategic importance in southwestern China. Similarly, although rich in woodland, it is only a potential resource. Furthermore, tree plantation is necessary. Hence, forestry does not play a dominant role in the region's economic development.

Minerals are the most important resource in the region because of their wide variety and abundant reserves. The efficient exploitation of mineral resources can promote the development of metallurgical and raw material industries, further develop processing industries, and result in the formation of an industrial base in the southwest. Moreover, rich coal and hydropower resources provide favourable conditions for mineral exploitation. In the context of a development strategy for the regional economy, exploitation of mineral resources should be chosen as the primary target in order to integrate industrial, agricultural, social, and economic development.

The exploitation of mineral resources will lead eventually to the formation of an industrial base for mining-metallurgical industries, raw materials, and heavy industries. The development of an energy base is possible through the exploitation and use of minerals and the abundant electricity derived from hydropower can be supplied to neighbouring areas, including Sichuan Province and the Yangtze River Valley, to increase the capacity of the electricity corporation of southwestern China or even of the whole nation. Development of hydropower resources can strengthen the economy and enhance the strategic importance of the region.

Agriculture plays a key role in the regional economy. Agricultural land resources are limited, but the development of agriculture is necessary for the successful growth of the mining-metallurgical industries. Transportation is difficult because of the rugged topography, and sufficient farm products cannot be obtained from neighbouring areas easily. Therefore, agriculture and forestry should be developed in the area so as to ensure self-sufficiency, provide raw materials for light and processing industries, and increase export to neighbouring areas.

As stated above, the exploitation of mineral resources, the growth of energy resources, and the development of agriculture and forestry constitute the framework of the regional economic strategy. However, for the steady and continual growth of an economic system, socioeconomic growth and the exploitation of secondary resources, such as light-chemical and building-material industries, must be taken into account. Such resources are limited. A support system consisting of transport; urban construction; environmental harnessing; engineering; and scientific, cultural, and educational undertakings should be developed.

Production Programme

In the second stage of the strategic programme, the dominant fields in each secondary development system should be taken into consideration for growing industries which are gaining in economic prominence. When deciding upon the leading industries, their potential, development feasibility and the role they play should also be considered.

The prominence of minerals is a result of the complex geologic structure and strong magmatic activities which led to the formation of the Panxi Paleo-rift metallogenic zone. A great variety of minerals has been found and these minerals are widely distributed throughout the region. However, they vary in significance and exploitation possibilities. In the context of a strategic programme, it is necessary to select minerals with potential for exploitation and give them investment priority.

Vanado-titano-magnetite is the most remarkable mineral. Its total reserves amount to ten billion tonnes. The iron reserves are the second largest in China and the vanadium and titanium reserves are the largest in the world. There are other associated minerals such as nickel, cobalt, copper, cadmium, and scandium. For this reason, the comprehensive use of vanado-titano-magnetite, including in mining, ore dressing, and smelting, as well as in steel material processing and related industrial fields, should be considered the most important objective in the regional programme.

The area is also considerably rich in non-ferrous metallic ores such as lead, zinc, and copper. Three large lead-zinc deposits, belonging to one of the major lead-zinc metallogenic zones of China, are distributed in the area near Huili and Huidong, and their total reserves amount to several million tonnes. There are large copper deposits with reserves amounting to one million tonnes. In the lead-zinc copper deposits, there are some paragenetic components of gold, cobalt, silver, and molybdenum, etc. The rare-earth deposit here is the only large-scale one in Sichuan Province, and its reserve of heavier rare-earth elements reach several million tonnes, of which the cadmium resource is the most plentiful in China.

There are more than twenty types of non-metallic deposit in the area. Among them, salt deposits and building materials have great potential for future use. In the context of a strategic programme, halo-chemical and building material industries can be developed as secondary link

industries. The salt, halo-chemical industry, and some special raw materials can contribute to the region's economic development.

Hydropower resources in the area reach four million MW and the remaining potential amount is approximately three million MW. Exploitation of the plentiful hydropower resources should be given top priority. The generation of hydropower could meet not only the industrial and agricultural needs of the region but also partially meet the requirements of other areas. This will increase the capacity of the grid network in southwestern China and even throughout the whole nation.

Coal is another energy resource in this region. In spite of limited reserves, coal is valuable because the coal field is close to the vanado-titano magnetite deposits. For the purposes of power supply and cooking fuel, coal mining should be developed. If coal supplies are inadequate in the locality, they should be imported from the neighbouring Province of Guizhou. Vanado-titano-magnetite deposits should be mined to develop the coal industry.

The area is comparatively rich in land resources, especially land for forestry and animal husbandry. However, because of geographical constraints it is impossible to obtain more arable land. The comprehensive development of farming and forestry should be promoted, i.e., developing forestry and animal husbandry on the basis of sufficient production of grain crops and farming products. When food reserves are sufficient in the area the exploitation of minerals and power potentials of the region will ensue. The vast areas of grazing land and fine grass are conducive to the development of animal husbandry which will help to improve agricultural capabilities. Agriculture should be integrated with industry which is crucial for the development of the mining and metallurgical industries.

To ensure the achievement of strategic goals, support and link industries should be developed, for example, building materials, coal, agriculture, forestry, and animal husbandry. In addition, the most important task is to provide power and develop the transportation network. The exploitation of hydropower resources is considered to be one of the main tasks in the development strategy and it can ensure the development of the area. Transportation is not sufficiently developed in the region, therefore, the construction of highways is absolutely necessary. However, from a long-term point of view, building railway lines to outside areas is

also an important task. Moreover, development of air transportation will promote trade in domestic and overseas' products and consequently promote socioeconomic development. Since transportation facilities are inadequate, traffic engineering will be an important problem for regional development.

Urban expansion is the inevitable result of industrial and agricultural development. With the growth of the mining and metallurgical industries, the residential areas around mines or large-scale industrial enterprises will expand and the markets, administrative departments, cultural and educational facilities, and service trades will also develop. There is already an urban system with two municipalities and several counties. It is easier to make programmes for further development on the basis of existing residential centres and city/town facilities. Panzhihua, located on the banks of the narrow Jinshajiang River Valley, has a limited capacity for further expansion. Some new industrial cities have to be built, along with the establishment of a new mining and metallurgical base for utilisation of vanado-titano-magnetite deposits, in order to reduce the population pressure on existing cities.

Environmental conservation is extremely important for regional development. Effective measures should be taken to preserve the fragile, natural environment and to avoid frequent disasters. Environmental management is a key factor in the steady development of the regional economy and society. The main areas of focus are agriculture, industry, and disaster-prone zones. In the wide valley area of the Anninghe River and some intermontane basins, programmes for environmental conservation and disaster prevention and mitigation should be carried out along with industrial and agricultural programmes.

Because of socioeconomic, cultural, and educational backwardness, resources cannot be properly used to promote economic prosperity. Therefore, industrial and agricultural plans should be integrated into cultural, educational, and scientific programmes. Education should be strengthened, especially in primary, middle, and polytechnical schools. Training of local talent is an important measure to ensure that the goals are achieved. Along with the development of industry and agriculture and the construction of cities and towns, science, technology, and higher education should also be developed.

Project Programme

On the basis of the analysis of the two stages mentioned above, the third stage, the project programme can be formulated.

To increase the effective use of iron deposits and to establish ferrous metallurgical industries, it is necessary to enlarge the Panzhihua steel base and vanado-titanio industrial facilities. At the same time, the second phase construction of the Baima, Taihe, and Hongge mines should commence in order to form a mining and metallurgical industries, base for vanado-titano-magnetite around the Panzhihua Steel Plant.

The Ertan Hydropower Station is focal to the development of energy resources in the region. Consequently, the regulating projects of Jinping and Tongzilin along the Yalongjiang River should be established, preparing for the final stages of the Jinshanjiang River scheme as a means to establishing a hydropower base at Ertan.

The objective of industrial development in the region is to exploit non-ferrous metal resources, including zinc, lead, and copper. Some mines are in a favourable situation and can be developed right away (Lalachang Copper Mine and Tianbaoshan Lead-Zinc Mine in Huili and Daliangzi Lead-Zinc Mine in Huidong). To use these resources and develop the area's mining-metallurgical base for non-ferrous metals, the foremost task is to accelerate the construction of smelteries.

Another industrial objective is salt mining to ensure regular salt supplies and to build up facilities for chloro-alkali products. At the same time, it is necessary to use local funds to develop building material industries and light industrial products, e.g., to build cement factories in Jinjiang, Miyi, and Dechang.

To guarantee the efficient construction and operation of major industrial projects, it is necessary to speed up the construction of a series of associated industries, e.g., such as extending the Baoding Coal Mine, electrifying the Cheng-Kun Railway, and building highways and mountain highways. The following medium and small cities should be developed - Panzhihua, Xichang, Dechang, Huili, Yanyuan, Zhaojue, and Huidong. Cultural, educational, and scientific research in the area should be promoted through the development of the urban system and the major

mining and metallurgical enterprises. In environmental management, the first priority should be given to the Anninghe River and Panzhihua, and, at the same time, environmental conservation and disaster prevention programmes should be implemented in other cities.

Territorial Economic Complexes

Recognition of objective and equitable distribution of productive forces and determination of proper principles are important preconditions for national planning. Regional distribution of environmental and natural resources is a prerequisite to productive construction, and it is important to ensure that each region has the best possible combination of activities. Establishing an economic network that focusses on the end product and which is supported by relevant associated industries should be the emphasis of an overall planning strategy.

In different districts of a zone, production priorities should be set in order to promote regional economic development through exploitation of local resources and key industries. Economic development should be promoted throughout the region, taking the distribution of resources and the prevalent economic conditions into consideration. First, the Cheng-Kun Railway and the economic zone along the Anninghe River should be used to promote the overall development of the regional economy.

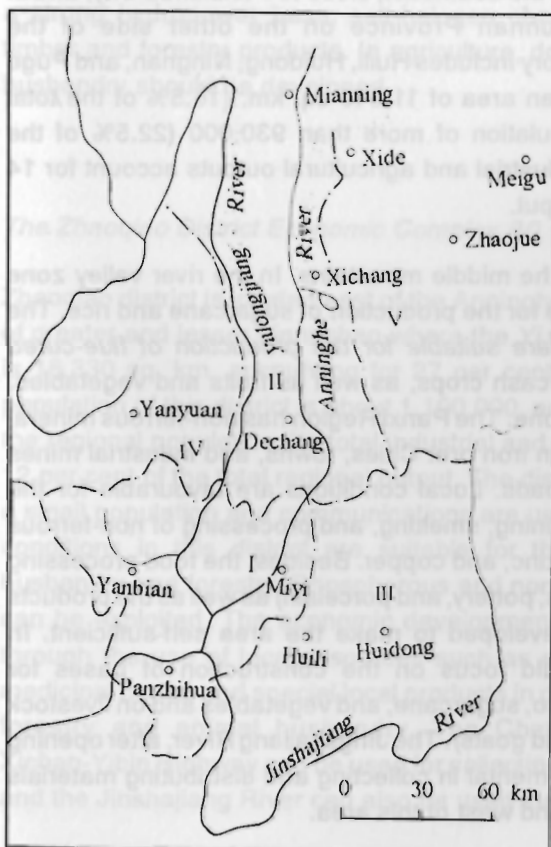
According to the key objective of the strategic programme for the Panxi Region, the territory is divided into five economic complexes in accordance with the distribution of key industries and the natural conditions and resources of different regions (Figure 12).

The Panzhihua District Economic Complex (I)

The Panzhihua district economic complex is located in the south in the zone intersecting the Anninghe, Yalongjiang, and Jinshajiang rivers. The administrative range includes Panzhihua City, Miyi County, and Yanbian County with an area of 7,514 sq.km. (11.3% of the Panxi Region) and a population of 830,000 (20% of the Panxi Region). The total industrial and agricultural output is 55 per cent of the regional output. The mineral resources are rich in this zone. In addition, the hydrothermal conditions are excellent. Transport is convenient because the Cheng-Kun Railway

crosses the district, the Panzhihua Railway branches off here, and, in the future, the Jinshajiang can be used for shipping. Panzhihua City and Panzhihua Steel Base are important support industries for the exploitation of local resources. The Panzhihua Steel Mine, the Baima and Hingge mines, the Baodian Coal Mine, the Ertan Hydropower Station, and the Panzhihua Power Station are the major industries for developing steel, electric power, coal, and non-ferrous metallurgical industries. The use of vanadium and titanium in the production of alloys, as well as the relevant soda chemical, phosphorous, building materials, mechanical, and sugar industries, should be developed concomitantly.

The Anninghe River Valley in Miyi County is the principal agricultural base for the production of rice, sugarcane, vegetables, and subtropical fruits. Panzhihua City is a medium-sized city with quite a high level of culture, education, and scientific development as well as a fairly well-developed commercial system that can help to promote the development of Miyi and Yanbian counties.



The Xichang District Economic Complex (II)

Xichang district is located in the north of Xichang area, which includes Xichang City, Dechang City, and southern Mianning County, with an area of more than 8,000 sq.km. (12.5% of the regional area) and a population of more than 800,000 (19% of the regional population). The industrial and agricultural outputs of this district

Fig. 12: Planning of an Integrated Economic Complex

constitute 13 per cent of the output of the Panxi Region. This district lies near the middle and upstream area of the Anninghe River, where the climate is moderate and rainfall plentiful, and has a wide river valley which is suitable for agriculture. The Cheng-Kun Railway crossing from north to south, together with criss-crossing highways, is an important link connecting the eastern and western areas of this district. The economic complex should aim at agricultural development to increase the production of grain, oil, pork, and vegetables and to develop a major agricultural base. At the same time, local conditions are favourable for timber processing, food, plastics, and light industrial products for daily use. In this district, both the Taihe and Baima mines could be developed as the second steel base in the region.

The Huili-Huidong District Economic Complex (III)

Huili-Huidong district lies in the southeast, close to Panzhihua City, and in the neighbourhood of Yunnan Province on the other side of the Jingshajiang River. Its territory includes Huili, Huidong, Ningnan, and Puge counties. This district has an area of 11,040 sq. km. (16.5% of the total regional area), with a population of more than 930,000 (22.5% of the regional population). Its industrial and agricultural outputs account for 14 per cent of the regional output.

The district falls mainly in the middle mountains. In the river valley zone the warm climate is suitable for the production of sugarcane and rice. The hilly zones of this district are suitable for the production of flue-cured tobacco, maize, and other cash crops, as well as fruits and vegetables. This district is an important one. The Panxi Region has non-ferrous mineral resources and is also rich in iron ore. Cities, towns, and industrial mines are mainly linked by hill roads. Local conditions are favourable for the construction of bases for mining, smelting, and processing of non-ferrous metals such as aluminum, zinc, and copper. Besides, the food processing industries (sugarcane, glass, pottery, and porcelain) as well as the products of light industry can be developed to make the area self-sufficient. In agriculture, attention should focus on the construction of bases for producing flue-cured tobacco, sugarcane, and vegetables and on livestock development (pigs, oxen, and goats). The Jingshajiang River, after opening to navigation, can be instrumental in collecting and distributing materials along the river in the east and west of this area.

The Yanyuan District Economic Complex (IV)

Yanyuan district is located in the west, on the upper reaches of the Yalongjiang River. The territory includes Yanyuan County, Muli County, and the area in the north-west of Mianning. The district has a large area but a small population. The area of the district is about 21,000 sq. km. accounting for 32.5 per cent of the total regional area. The population is about 350,000, accounting for only 8.5 per cent of the regional population. Its total industrial and agricultural output is five per cent of the total regional output. The elevation of this district is high and the climate is moderate, making it suitable for developing forestry and animal husbandry. Forest resources are plentiful, and the Yalongjiang and Jinshajiang rivers provide convenient transportation for wood. The Yalongjiang and Jinshajiang rivers can be exploited to generate electricity. In this district, the prospects for mining salt and brown coal resources are also good. These resources can enable the establishment of a chemical industrial base in the district. The economic development of the district should focus on the construction of a strong hydropower base, salt-halogen chemical centres, and use of timber and forestry products. In agriculture, dry plants, fruits, and animal husbandry should be developed.

The Zhaoqiao District Economic Complex (V)

Zhaoqiao district is located east of the Anninghe River, between the zones of greater and lesser Liangshan where the Yi nationality resides. Its area is 18,330 sq. km. accounting for 27 per cent of the regional area. The population of this district is about 1,190,000, accounting for 29 per cent of the regional population. Its total industrial and agricultural output is about 12 per cent of the total regional output. The district is wide in area but has a small population and communications are underdeveloped. The natural conditions in this district are suitable for the development of animal husbandry and forestry. Phosphorous and non-ferrous mineral resources can be exploited. The economic development of this district is possible through the use of local resources such as animal husbandry, forestry, medicinal herbs, and special local products in order to construct a base for forestry and animal husbandry. The Cheng-Kun Railway and the Xichan-Yibin Highway can be used for collecting and distributing materials, and the Jinshajiang River can also be used for transportation.

The five economic complexes (districts) mentioned above, based on the combination of key industries and local products respectively, with different priorities and characteristics, constitute the total economic complex of Panxi Region. The local specialties of each district can be promoted, avoiding overlapping among different districts and, therefore, this programme is beneficial for regional development.