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# SWOT Analysis and Countermeasures of Industrial Development in Three Gorges Reservoir Area

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**Abstract** Based on the introduction of the general situation of the research area, the SWOT analysis is applied to study the strengths, weakness, opportunities and threats of the industrial development in Three Gorges Reservoir area. The strengths are represented by the following four aspects: abundant agricultural resources, rich tourism resources, rich mineral resources and rich hydro energy. The weaknesses are analyzed from the following three aspects: the backward infrastructure, the acute conflict of the emigration of manufactures and the poor exploitation of advantageous resources. The opportunities of industrial development, which cover the opportunities bought by the guidance of national policies and preferential policies, by the improvement of traffic conditions in the reservoir area and by the completion and operation of the Three Gorges Reservoir Project. From the analysis of poor investment environment, irrational industrial structure and serious shortage of capitals, the threats of the industrial development are analyzed. In order to promote further the industrial development of the Three Gorges Reservoir area, the countermeasures are put forward. In the first place, optimizing the industrial structure and developing leading industries; in the second place, strengthening the construction of infrastructure and improving the investment environment; in the third place, optimizing human resources so as to provide intellectual support for industrial development.

Key words Three Gorges Reservoir area, Industrial Development, SWOT analysis, Countermeasures, China

With the construction of the Three Gorges Project and the implementation of developmental strategy of reservoir emigrants, the industrial structure and spatial arrangement of the Three Gorges Reservoir area have experienced great change. Thus how to improve the industrial development of the Three Gorges Reservoir area has become a very important theme. At present, the industrial development of the Three Gorges Reservoir area does not match the resource advantages. There are still many industries in the economic downturn of the economically concentrated belt of the Yangtze River. SWOT is an analytical method, which is used to determine the strengths, weakness, opportunities and threats of enterprises, so as to organically integrate the strategy of enterprises with the internal and external resources of enterprises. Clear strengths and weaknesses of enterprises can help us to know the opportunities and threats of enterprises and they are of great importance in generating the future developmental strategies. For this reason, by applying the SWOT analysis, I focus on the strengths and weakness of the industrial development in the Three Gorges Reservoir area and the external opportunities and threats confronted by the enterprises. Besides, I conduct systematical analysis and profound research on the developmental momentum of industrial development of the Three Gorges Reservoir area. On the basis of the analysis and research, the countermeasures are put forward.

#### 1 The overview of the research area

The Three Gorges Reservoir area refers to the inundate

Gorges water conservancy projects. The area is in 29°16'N. to 31°25′ N. latitude, 106° 50′ E. to 110° 50′ E. longitude. The Three Gorges Reservoir area extends to Yichang, Hubei in the east. Chongging main city area in the west. It borders the western Hubei Province on the southeast and northeast and borders Sichuan Province and Shannxi Province on the southwest. The area neighbors Sichuan Province and Shannxi Province on the northwest, which include the Wushan County, Wuxi County, Fengjie County, Yunyang County, Kai County, Wanzhou District, Zhong County, Shizhu County, Wulong County, Fengdu County, Fuling District, Changshou District, Yubei District, Banan District, Jiangjin District of Chongqing Municipality and Yichang County, Zigui County, Xingshan County, Badong County of Hubei Province, 19 districts and counties (cities) in total<sup>[1]</sup>. The Three Gorges Reservoir area with rugged landscape, splendid scenery, numerous places of interest, becomes a hot tourist attraction<sup>[1]</sup>.

area submerged by the construction of the key Yangtze Three

## 2 The SWOT analysis of industrial development in the Three Gorges Reservoir area

#### 2.1 Strength analysis

**2.1.1** Rich farm and sideline products. The Three Gorges Reservoir area is located in subtropical and the warm and humid climate is suitable for the growth of crops, cash crops and biological resources. According to statistics, the Three Gorges Reservoir area has 2 021 kinds of economic species, 300 kinds of medical plants, 31 brands of agricultural products. Rich agricultural resources provide the Three Gorges Reservoir area with comparative advantage in developing agriculture products with distinctive local characteristics. According to their resource

endowment and comparative advantage, the Three Gorges Reservoir area is forming the dominant agricultural industries. such as grain and oil industry, citrus fruit industry, mustard vegetable industry, pig livestock industry, traditional Chinese medicine industry, silkworm industry, tea industry, tobacco industry, the chestnut industry and the like. Relying on these industries, the distinctive agricultural processing industry and industrial chain of agricultural processing chain will be formed [2]. 2.1.2 Rich tourism resources. The Three Gorges Reservoir area has unusual geologic structure and profound cultural connotations. Dominated by beautiful and unusual natural landscapes, the Three Gorges Reservoir area integrates the natural landscape and the human landscape as a whole. The Three Gorges Reservoir area is one of the areas with the most intensive tourism resources. As one of the most famous valleys in the world, the Three Gorges Reservoir area has myriad gigantic and high level unusual natural landscapes, historical and cultur-

al sights and unique folk customs. These landscapes blend with

the sights of dam sight, valley and culture.

In relation to natural resources, there are magnificent vallevs, breathtaking rafting rivers, deep Karst caves, shockers, rugged stone forest and cliffs, thermal spring, lakes and the like in the Three Gorges Reservoir area. Besides, after the completion of the water control projects at the Three Gorges Reservoir, a series of rivers shaped by valleys and basins will appear. In terms of historical and cultural landscapes, there are sites and relics of the ancient people, the cultural sites of the ancient Ba people, the ancient military sites and relics, religious and residential architectures, inscriptions on precipices and the stone calligraphies. Moreover, these historical and cultural sites represented the distinctive historic culture of the Three Gorges Reservoir area, for example, the Ba culture, the culture of the Three Kingdoms, Wu culture, Tujia culture, the ghost culture of Fengdu, religious culture and the culture of men who work in groups for towing boats. With reference to folklores, the Three Gorges Reservoir area has its distinctive songs and dances, arts, foods, marriage customs, funerals and the like. It can be seen that the above mentioned are all attractive tourism attractions.

As a main tourism product of China for competing with other countries in the tourism market, the Three Gorges Reservoir area has already owned certain attractions and competition in the international tourism market. With rich tourism resources, the Three Gorges Reservoir area has become the main tourist destination in China.

2.1.3 Rich mineral resources. According to the statistics, the Three Gorges Reservoir area has found out reserves of about 50 kinds of mineral resources, of which the reserves of natural gas account for one third of the total reserves of China, the reserves of mine account for about half of the whole Yangtze River basin, the iron ore reserves account for about one sixth of the total reserves in China and the reserves of barium are the largest in Asia. Other like halite, bittern, limestone, granite, sulfurous iron ore, bauxite and manganese ore are all have certain reserves. The rich mineral resources have great develop-

mental potential with the characteristics of high quality and narrow distribution, which provide adequate resources for the development of related industries.

**2.1.4** Rich hydro energy. The developmental reserves of hydro energy reach 1 021. 2 thousand kw, which provide enough clean and cheap energy for the industrial development in the Three Gorges Reservoir area.

#### 2.2 Weakness analysis

2.2.1 The backward infrastructure. It is well known that good infrastructure is beneficial to economic development. The major landscapes in the Three Reservoir area are hills and mountains and the basic landscape is "seven mountains, water and two fields". The poor geographical conditions and high cost of infrastructure lead to the backward infrastructure of the Three Reservoir area. The backward infrastructure is shown on the following three aspects. Firstly, the infrastructure of irrigation and water conservancy is poor. In ChongQing, there are all together millions of people and livestock have difficulties in drinking water and the quality of drinking water is poor. In Wushan, Fengije and Yunyang, the farmland water conservancy facilities is not complete, most farmlands do not have irrigation facilities. Agriculture in these areas mainly depends on the weather. Secondly, the means of transportation is backward. At present, the transportation in the Three Reservoir area mainly relies on water and common roads and the density and level of the existing road are low. Besides, the roads between counties and towns are not smooth and highway, railway and airport are unavailable. Thirdly, the energy is inadequate. The power supply is tension in the Three Gorges Reservoir area, the phenomenon of load shedding occurs frequently. In summer, only 60% of the total demands of electricity can be satisfied during the peak hours. The reliability of rural electricity supply and rural power system are weak. It can be seen that backward infrastructure is the main factor, which limits the social and economic development of the Three Gorges Reservoir area.

**2.2.2** The conflict of the emigration of manufactures is significant. At present, the industrial structure in the Three Reservoir area is irrational, for example the proportion of the primary industry, secondary industry and tertiary industry is 43:34:23 respectively, far lower than the national average level. The situation of "the primary industry is traditional; the secondary industry is backward; the tertiary industry is young" appears. The agriculture in the Reservoir area is still in the extensive stage. The agricultural foundation is weak, the adjustment of rural industrial structure is slow and the comprehensive production capacity is poor. Limited by the strict requirements of national environmental protection policies and land polices, the scale of industries in the reservoir area is poor and the foundation is weak. In the area, leading industries and specialized industries have not been established and the traditional industries take large proportion. The industrial economies can not effectively drive the increase of local tax revenue and local employment. The tertiary industry in the Three Reservoir area is limited by the primary and secondary industry and the new industrial system has not vet been formed, which result in weak overall

strengthen, slow development, lagged modernization and the large proportion of traditional commerce and transportation service.

After the construction of the Three Gorges Project, the original leading industries and pillar industries have declined. Most enterprises went bankruptcy, stopped production or were taken over or transferred during the process of resettlement and reconstruction. The optimization and reorganization of the traditional industries can not integrate with the new industries well, which leads to the serious problem of the migration of manufactures. In resent years, the industrial investment in the Three Gorges Reservoir area is relatively small and the support capacity of industry is markedly weak, so the conflicts of employment in the area are aggravated and the poverty deepened.

2. 2. 3 The exploitation of the advantageous resources is poor. The Three Reservoir area possesses rich mineral resources, biological resources, water resources and tourism resources, but limited by the backward infrastructure or many other factors, the advantages are not been fully exploited and used. The resource advantages have not been changed into economic advantages industrial advantages and geographical advantages. The industrial chain of storage, processing and some other industries have not been built, which lead to the low efficiency of scale merit, brand awareness and economic benefit<sup>[3]</sup>. For example, as a result of the poor capability of development and processing, the agricultural products such as citrus, navel orange, coptis root and tea have not shown their advantages fully. The process of changing from resource advantages to competitive advantages still needs more time.

#### 2.3 Opportunity analysis

- 2.3.1 Opportunities brought by the guidance and inclination of the national policies. The Three Gorges Reservoir is one of the central areas of the western developmental strategy in China. The implementation of the strategy to develop western regions accelerates the construction of energy, transportation and urban infrastructure. At the same time, it brings the opportunities of introducing advanced technology and talents, adjusting and improving the industrial structure. In order to provide legal and policy support for the industrial development in the Three Gorges Reservoir area, the State Council has formulated The Plan for The economic and social Development of Three Gorges Reservoir area, The Developmental plan of Tourism in Three Gorges Reservoir area and The Decisions on Accelerating the Industrial Development, Solving the Immigration Employment Problem and Promoting the stability and prosperity of Three Gorges Reservoir area. With the implementation of the comprehensive reform of rural and urban areas in Chongging Municipality and formation of mutual help mechanism, counties and districts with weak industrial base in the hinterland of Three Gorges Reservoir area should seize the opportunities of city expansion and improve the healthy development of various industries<sup>[4]</sup>.
- **2.3.2** The opportunities brought by the improvement of transportation in Three Gorges Reservoir area. In order to ensure the orderly work of rebuilding the transportation facilities, China has planed the layout for the transportation construction in the

Three Gorges Reservoir area. The Ministry of Transport provides the policy support for the construction of transportation facilities in the Three Reservoir area, capitals and technologies for the road and bridge projects related to the national trunk lines, special subsidies for ordinary roads. Under such circumstance, the highways and railways along the Yangtze River are under construction and the Yuhuai railway, Dawan railway, Wanzhou airport, Yangtze River Bridge in Zhongxian and Yangtze River Bridge in Fulin are taking effects. The development of transportation greatly changed the waterway traffic pattern in the reservoir area and laid a solid foundation for changing the industries in the reservoir area.

**2.3.3** The opportunities brought by the construction and operation of the Three Gorges Project. Traditional agriculture was the dominate industry in the Three Gorges Reservoir area before the construction of the Three Gorges Project. Besides, the development of the primary and secondary industries was lagged behind at that time. The industries with high efficiency were rare, the low output in the reservoir area led to the low income and the low income resulted in the low capability of collecting the necessary capitals for its development and low capacity of solving the so called Nurkse's "vicious cycle of poverty". After the construction of the Three Gorgers Project, the huge amount of national capitals form the strong force for industrial development in the area and the "fission effect" of the developmental immigration brings new developmental opportunities. Taking the emigrant as an example, at the same time of passing on the original cultural customs and human capitals, the emigrants have access to more advanced production technology and their capabilities of self-accumulation and self-development are enhanced. In addition, the comprehensive benefits of flood control, power generation and navigation of the Three Gorges Project have significantly improved the investment environment of this area. The government invested certain capitals on the construction of the reservoir area and on immigrants in order to develop the unique industries and improve the self-development capability of the industries in the reservoir area.

#### 2.4 Threat analysis

The investment environment is poor and the industrial development of the industries in the area is limited. From the geographical point of view, the poor natural geographical conditions of the area and the frequent natural disasters have become a major threat to investors. It is difficult for the investors to choose safe environment for surviving and developing, so the poor natural geographical conditions have become a major obstacle to attracting foreign investment. From the soft investment environment of view, on the one hand, troubled by economy and low level of education, the reservoir area lacks the talents, who can adapt to the demands of modern industrial development and specialized people, who are familiar to the rules of the industries; on the other hand, the low efficiency of government at all levels and the low level of management constrain the development of the industrial development to some degree. **2.4.2** The industrial structure is unreasonable and the spatial

**2.4.2** The industrial structure is unreasonable and the spatial distribution of economy is imbalance. It can be seen from the

system theory that the structure determines the function. The structure adjustment in the area should be based on the comparison between the background of domestic and international markets and the analysis of the advantages of natural resources. The government should cultivate and support the special industries and pillar industries. Besides, the proportion of the primary, secondary and tertiary industries should be rationally adjusted in order to push the coordinated development of the industries.

From the viewpoint of spatial distribution, there are great discrepancies among counties and districts in the Three Gorges area. Taking Chongqing area as an example, cities like Fuling, Wanzhou and so on, are close to the main city of Chongqing, so their economic growth is faster than other areas. The rest areas are relatively backward by the limitation of energy, transportation and capitals.

2.4.3 The shortage of construction capitals restricts the industrial development. The 18 counties and districts together in the Three Gorges Reservoir area constitute one of the poverty-stricken areas in China. The industrial bases in these areas are weak, the overall economic development is low and deflects often appear in the local finance. In the recent 10 years, various items of investment in the Three Gorges Reservoir area greatly promote the development of the economy in the area. With the decline of the investment, the Three Gorges Reservoir area confronts with the problem of the capital shrinkage. The weak economic basis and inadequate self-accumulation of the Three Gorges Reservoir area greatly restrain the adjustment, optimization and upgrading of industrial structure to a large extent, so the area faces serious capital problems.

In summary, during the process of industrial development of Three Gorges Reservoir area, the advantages and disadvantages coexist. The resource advantages of the Three Gorges Reservoir area have not yet been changed into industrial and local advantages. However, the advantages overweigh the disadvantages, and the opportunities overweigh threats in general, so the area has great potential in industrial development.

### 3 The countermeasures and suggestions of pushing the industrial development

3.1 Optimizing industrial structure and cultivating leading industries According to the Rostovian take-off model, the essence of the modern economic growth is the departmental growth, while the departmental growth starts from the leading department. Then through retrospect effect and prospect effect, the growth of the leading department will expand to other departments, at last the economy in a whole area will be improved. In a nutshell, the leading industry has relatively stronger industrial association and higher growth rate. The development of the leading industry directly affects the economic development of other department. Therefore, combining with the actual situation of the reservoir area and cultivating the special local leading industry are the only way for improving the optimization and upgrading of industrial structure and for promoting the overall strengthen of local economy.

Agriculture-adjusting and optimizing agricultural structure, improving the agricultural market competition. The adjustment of agricultural structure should obey the basic principle of "adjusting the proportion of agriculture, forestry, husbandry, by-industry and fishery and promoting the coordinated development of crop production and animal husbandry". Based on the deep analysis of the agricultural situation of the reservoir area, the government should exploit the advantageous resources, fully make use of comparing advantages and cultivate agricultural advantageous industry and pillar industry. During the adiustment process of agricultural structure, for one thing, the government should focus on the development of efficient ecological agriculture and precision agriculture, for they are not only the needs of realizing the environmental protection, resources exploitation and the increase of famers' income, but also good support for the optimization of agricultural industrial structure; for another thing, the government should promote the development of agricultural products processing industry. For example the agricultural leading industries and the processing chain of agricultural products can be built on the basis of Chinese herbal medicine industry, foodstuff industry, sericulture industry, tea industry, citrus industry, mustard vegetable industry, tobacco industry, pigs and other livestock industry and the like agricultural leading industries. In addition, the related industries in the downstream gather with the industries such as education, research, marketing and so on to form the agricultural development circle with special local characteristics, and then optimizing the upgrading the agriculture of the area. 3.1.2 Industry-expanding industrial system around the domi-

nant industries. In the terms of developing the industries in the area, it should be focused on the subject of technological innovation and products with high added value should be created. The production chain should be extended to lead the industries in the reservoir area to the way of industrialization and to speed up the process of industrialization. During the process of developing industries in the reservoir area, five concepts and five relations should be tackled well. The five concepts are the concept of moral industrial, new industrialization, sustainable development, winning by special features and market opening. The five relations should be properly handled, namely, the relation between traditional and modern industries, the relations between decentralized productions and centralized processing, the relations between big enterprises and small enterprises, the relations between deep processing and rough processing and the relations between foreign big markets and local small markets.

**3.1.3** Tourism-developing tourism and driving the development of related industries. Tourism is the competitive and leading industry in the reservoir area. At present, with rich high grade tourism resources, the industrial base of the region's tourism industry has begun to take shape. The development of tourism in the Three Reservoir area will promote the development of other industries at the same time. For one thing, the expansion of tourism economy can foster the development of agricultural economy and give play to the special functions of agricultural economy in terms of ecological protection, sightsee-

ing and leisure, cultural transmission and so on. For another thing, the development of tourism in the Three Reservoir area can drive the construction of social culture and ecology, explore and exploit the profound culture connotation of the Three Reservoir area and strengthen the culture highlight of ecological environment and ecological decoration of cultural landscape.

- 3.2 Strengthening infrastructure construction and improving investment environment Infrastructure is an essential external condition as well as an important prerequisite for investment and industrial development. During the process of speeding up the assumption of infrastructure, the new infrastructure system, which includes the construction of road, waterways and airlines, should be built in order to improve the transportation conditions of waterways and ports in Yangtze River area. The road and railways with high standard, high density and high grade will be built as well. Moreover, new communication facilities should be available so as to realizing industrial information. At the same time, the facilities of post service, power supply, water supply and the like should be refined in order to create good living conditions. Besides, more efforts should be made to create favorable investment environment. The government should make full use of the existing human resources, introduce competent people, improve political environment, reduce the admittance limitation, provide favorable policies, attract foreign investment and solve the problems of inadequate self-accumulation and some other limitations.
- 3.3 Optimizing human resources and providing intellectual support for industrial development in the reservoir area The Three Gorges Reservoir area is rich in natural resources. but its human resources are in the position of weakness. The comparative disadvantages make the advantageous resources in the reservoir area hard to effectively integrated and transformed to industrial advantages. Based on this, the government should pay attention to the education of ordinary personnel and cultivating of senior talents with creativity. Besides, the government should enhance the culture quality of workers and

introduce talents by the way of multi-channel, multi-level and wide-ranging. The key personnel and urgently needed personnel for the industrial development should be introduced and the diversified mechanisms of personnel training and introducing should be launched.

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