The Strategy Research of Developing the Modern Agriculture Transformation in Resources Exhausted Cities-Taking the Wansheng as an Example

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Abstract: The law of resource industries and resource-based urban development is that the resource-based cities will inevitably experience the process of construction, prosperity, recession, restructuring and revitalization, or extinction. This studies takes the Wansheng district of Chinese Chongqing as an example, starting from the basic conditions of agriculture to analyze the basis for developing the modern agriculture transformation in resources exhausted cities, analyzing the current situation of developing the modern agriculture transformation in the Wansheng district from the agricultural elements, the agricultural conditions and agricultural functions and reaching the conclusions that the scientific planning, overall planning, relying on the government, implementing the policy, adding to the financial and social investment, increasing the investment intensity of infrastructure construction in resource-based cities and strengthening the basic research about the harm to the geological structure, groundwater caused by the deep goaf and extra large pit, increasing the construction about the industrialization of agriculture, agro-processing and agricultural standardization, implementing the development of the modern agriculture’s transformation strategy about the modern agriculture mechanism of company, professional cooperatives and farmers in resource-exhausted cities.

Keywords: Modern agriculture, modern agriculture transformation, resource-exhausted cities, tourism resources, urban and rural development

INTRODUCTION

The law of resource industries and resource-based urban development is that the resource-based cities will inevitably experience the process of construction, prosperity, recession, restructuring and revitalization, or extinction. The resource exhausted city is the city that the development of mineral resource enters into the late stage, later period or the final stage and the cumulative recovery of reserves have reached more than 70% of recoverable reserves (Bang-Cheng et al., 2006). The resource-exhausted cities with the four major characteristics, that are the resource is exhausted, the benefit of industry is declining; the industrial structure is single, resource industries are shriveling; the total economic output is lack, the local financial resources are weak; and the workers whose income is less than the country's urban residents’ per capita level. According to the statistics of Chinese National Development and Reform Commission, there are total 118 resource-based cities in China at present, which is about 18% of the number of cities across the country; the total population is 154 million. According to the type of resource development, these cities can be divided into: the Coal City has 63, the forest industrial city has 21, nonferrous metallurgy city has 12, the oil city has 9, the ferrous metallurgy city has 8 and five other cities. The Fuxin City was identified as the Chinese mainland first economic transition pilot city of the resource-exhausted cities in 2001. In 2008, the list of the first batch of resource-exhausted cities was approved, including 12 cities and regions and the second batch of 32 resource-exhausted cities was determined in 2009. The Chinese central finance will give the 44 resource-exhausted cities financial support of financial transfer payment, the government will also establish resource development compensation mechanism and declining industry assistance mechanisms to develop the continuing alternative industries and through the means and measures to promote the transformation of the resource-exhausted cities, such as strengthening the environmental remediation, environmental regulatory, ecological protection and policy supporting efficiency and others (Geng-Jie et al., 2008).

Owing to these cities have some reasons in the process of development, such as be lack of overall planning, the resources are attenuating and so on, many problems and contradictions are accumulated in economic development, they are mainly the imbalances of economic structure, the continuing alternative industries’ development is weak, the ecological environment has been severely damaged, the
unemployment and poor have a large population and maintaining social stability has a large pressure (Singh et al., 2004). About the resource-exhausted cities how sustainable development, how to effectively cope with the international financial crisis, how to promote the coordinated development of resource-based cities and regional economy and how to promote the transformation of the resource-exhausted cities etc are the focus which are concerned at this stage. Increasing the support efficiency of sustainable development for the resource-based cities, especially the resource-exhausted cities, establishing the institutional mechanisms which are conducive to the sustainable development of resource-based cities is the important measure to protect the supply of energy resources and maintain a sustained, healthy and harmonious development of the national economy (Geng-Jie et al., 2009).

MATERIALS AND METHODS

The guiding ideology to promote the sustainable development of resource-based cities: Taking the basic goals of increasing the employment, eliminating poverty, improving habitat conditions, strengthening social security system and maintaining social stability and with the deepening of reform, the expansion of an open and the independent innovation as the fundamental motivations to develop effective policies and measures, improve the institutional mechanisms, promote the optimization and upgrading of the industrial structure and transform the economic development mode, nurture and expand the continuing alternative industries, improve the ecological environment and promote the comprehensive coordinated sustainable development of resource-based cities and economic society.

The basic principles to promote the sustainable development of resource-based cities: By deepening reform, expanding opening up, establishing and improving the resource development compensation mechanisms and declining industry assistance mechanisms, introducing actively the external capital, technology and talents, expanding the development space of resource-based urban; through people-oriented, coordinating the planning to solve the actual problems concerning the vital interests of the people, thereby achieving the coordinated development of resource industries and non-resource industries, urban and mining areas, rural areas and urban, economy and society, human and nature; through the combination of long-term development and short-term development, treating both principal and secondary aspect to solve the common problems and deep-seated contradictions which are existed in resources cities to build long-term efficient development mechanism and accelerate the economic transformation of the resource-exhausted cities to solve livelihood problems; through government regulation, market-oriented, bringing into play the basic role of the market in resource allocation and stimulating inherent vitality of all types of market players (Guang-Shi, 2007).

The long-term efficient mechanism to promote sustainable development of resource-based cities: Establishing the compensation mechanism of resource development, in the process of resource extraction, following the laws of the market, taking the legal, economic and necessary administrative measures to guide and regulate the types of market players to develop resources rationally and bearing the responsibilities and obligations of the resources compensation, ecological and environmental protection and restoration and other aspects. According to the principles of who develops, who protects, who benefits, who compensates, who pollutes, who governs, who destroys, who repairs, making clear that the enterprise is the subject of liability of resource compensation, the ecological and environmental protection and restoration (Guang-Shi, 2007). For these cities whose resource already or belongs to the brink of exhaustion and these mining, forestry enterprises which are belong to the government, the state gives the necessary financial and policy support to help solve the problems left over by history and to compensate the outstanding accounts of social security, ecology, living environment and infrastructure construction etc.

Establishing declining industry assistance mechanisms, the resource-based cities need to coordinate planning to speed up the restructuring and upgrading of the industrial structure, develop the continuing alternative industries, transfer the surplus production capacity, improve the social security system, strengthen kinds of vocational training for laid-off workers to get re-employed, solve the problems left over by history of resource-based enterprises, protect the resource depletion enterprises to exit smoothly and social stability. For these cities whose resource already or belongs to the brink of exhaustion, the governments at all levels need to perform the supporting policies to help to solve the contradictions and problems of economic depression and workers' unemployment etc, which are triggered by corporate bankruptcy in the resource depletion region.

Improving the price formation mechanism of resource products, accelerating the reform pace of resource price, thereby forming the price formation mechanism of resource products which reflects the resource scarcity extent, the relationship between market supply and demand, environmental governance and ecological restoration cost (Zong-Ming et al., 2004). Formulating the financial accounting approach of resource products’ cost scientifically to include the expense in the cost component of resource products,
such as the expense of getting the mineral rights, the exploitation of resources, environmental governance, ecological restoration, the inputs of safety facilities, infrastructure construction, the withdrawal of enterprises and changing the line of the production for the enterprises etc, improving the compensation system of forest ecological benefit to prevent the enterprises’ internal cost externally and the private costs are socialized (Gao-Di et al., 2003).

RESULTS AND DISCUSSION

Wansheng District was included in the second batch list of resource-exhausted cities by China in 2009. Wansheng District is dominated by coal, the industry a single, the exploitation of State-owned enterprises is a long time, the coal resources are close to depletion, ecological destruction is severely, because Wansheng is not a regional center of the city, the income of urban and rural residents is low, many social contradiction and large stable pressure, these are in line with typical characteristics of resource-exhausted cities and Wansheng is the only resource-exhausted cities in the four municipalities. In order to implement the central policies on the transformation of urban and rural and resource-exhausted cities, in 2010, the Chongqing government put forward that building Wansheng to be a transformed demonstration area of resource-based cities in the western region, an important gathering area of southwest coal and electricity industries, the Cooperation Guiding area of Chongqing and Guizhou Region and the eco-tourism leisure base of Chongqing and giving out the specific task of developing modern service industry and specialty agriculture (Chongqing, 2011).

The basic situation of Wansheng District: Wansheng District is located in east longitude 106.45-107.03° north latitude 28.46-29.06°; which is the transitional mountain between the southeast edge of the Sichuan Basin and Yunnan-Guizhou Plateau, its terrain is high in the east and low in the west, Wansheng District is located in the south of Chongqing, the border of Chongqing and Guizhou, which is 68 km away from the main city of Chongqing. And Wansheng District is located in one-hour economic circle of Chongqing, bordering with Nanchuan, Qijiang County of Chongqing and Tongzi County of Guizhou Province and covering an area of 565.76 square kilometers, the urbanization rate is 72.4%. The total population is 26.90 million, including agricultural population of 13.44 million, non-agricultural population of 13.46 million, each of them is accounted for 49.96% and 50.04% of the region's total population. In 2010 Wansheng District GDP is 40 billion RMB, which is increasing 11.9% compared to 2009, the ratio among the primary, secondary and tertiary industries is 10.8:53.3:35.6. The local budget revenue is 334.56 million RMB, the local budgetary expenditure is 14.1 billion RMB and the region's per capita GDP is 15725 RMB. Wansheng District is very rich in mineral resources and the mineral resources for the exploitation as many as 20 kinds, the coal, limestone, dolomite, quartz sand and other resources are large and with high grade. The coal reserves are 349 million tons, dolomite reserves are 500 million tons. Wangsheng is typical resource-based city and the old mining area of Chongqing. The coal industry dominates in regional economic development from the mining coal and mining since 1938, the production once accounted for 50% of Chongqing, the proportion of coal added value once accounted for as high as 70% of the regional economy, now still occupies 51%, but after 70 years of mining, the coal resources is on the verge of exhaustion.

After the transformation of development strategy, the regional highway achieves a village to village, the patency rate of highway and village’s mastery rate are 100% and the advantage industrial system in the region is at an early formation, Coal chemicals, mechanical processing, building materials and other industries are becoming the transformed substituted industries of Wansheng district. Wansheng’s travel resource is very rich, there are mountain, water, forest, waterfall, the Gap and the hole and mild melt harmonious, rugged danger, steep, odd, tranquil show in one, which is the ecological tourist area and tourism economy test area in Chongqing and is the bright pearl of Three Gorges outer ring tourism line. Wansheg has Chinese most beautiful health Canyon Heishan Canyon, the oldest stone forest WanSheng stone forest in china, the rafting of TongGuTan Canyon and cherry blossom hot spring etc; Wansheng is the Chinese outstanding tourist city. In summary, Wansheng District is a typical resource-based city, underdeveloped mountainous area, the old mining area and the new area of tourism and leisure.

The basic agriculture situation of Wansheng District: Wansheng District now has 57 administrative villages, 507 cooperatives and agricultural population is 13.44 million, 219,558 acres of arable land, among of the land, fields take 71,545 acres, 148,013 acres of soil. Wansheng District all sedimentary rocks, from east to west, the layer of the earth by old becomes new, the Paleozoic outcrops is covering an area of 344.84 km², 60.95% of area size, Mesozoic outcrops is covering an area of 220.92 km², 39.05% of area size. Wansheng District is the transitional mountain between the southeast edge of the Sichuan Basin and Yunnan-Guizhou Plateau, its terrain is high in the east and low in the west, the highest point above sea level in the district is 1,973 m, the lowest elevation is 265 m, the whole district's geomorphology is divided into four categories: the western and central part are the lava hills flat dam topography, altitude is 265-500 m, area is 103.98 km²; the southern part is basin edge low mountain
topography, altitude is 500-800 m, area is 184.26 km²; the eastern part is the basin edge Zhongshan landforms, elevation is 800-1973 m, area is 181.77 km²; the northern part is plateau-like low mountain topography, elevation is 500-991 m, area is 94.8 km². The most regional rivers are Mountain Rivers, the Valleys deep slope steeper, the wide is generally 20-30 m, water depth 0.5-1 m. The River surged in flood season, fast-flowing. The yellow loam accounts for 55.74% of the whole region, distributed in southeast 500-1500 meters above sea level low Zhongshan, the purple soil accounts for 17.85%, distributed in northwest 500-991 m above sea level, the limestone soil accounts for 14.71%, distributed in the central and western part 265-800 m above sea level, rice paddy soil accounts for 10.02%, which is widely distributed, the damp soil accounts for 0.15%, yellow brown takes 1.53%, there is majority of acid thin soil. The region is located in the humid subtropical monsoon climate zone, the regional terrains are different with each other and with apparent dimensional climate characteristics, an average annual temperature is 18.0°C, the coldest is January, the average temperature is 7.4°C, the hottest is July, the average temperature is 28.1°C, the total annual accumulated temperature is 6596.9°C, active accumulated temperature is 5869.6°C, the annual frost-free period is 339 days, the extreme maximum temperature is 41.7°C, extreme minimum temperature is -3.6°C and annual precipitation is 1312.7 mm.

There are many types and quantities of wild animals, livestock gives priority to pigs, cattle, sheep, rabbits, chickens, ducks and geese, the cultivation has silkworms, bees, pigeon, quail etc. The whole region's forest land area is 45.94 million mus, forest green rate is 45% and the species of tree is divided into five major categories and more than 300 kinds, the Masson pine accounts for 83.1% of total grown-up tree. The rural economy total revenue in 2010 is 2.371 billion RMB in whole district and the added value of agriculture, forestry, animal husbandry and fishery is 432 million RMB, the output value of agriculture, forestry, animal husbandry and fishery is 658 million RMB, the net income of farmers per capita is 5079 RMB. Divided by industry, the industry revenues account for 25.12%, wage income accounts for 58.98%, grain output is 52,900 tons, 138,000 tons of vegetable production, oil production is 1052 tons and 3670 tons of fruit production, 7,400 tons of meat production and the output of aquatic products is 1520 tons. The whole district has a total power of agricultural machinery in 2010 is 111,000 kilowatts, annual rural electricity consumption is 58.92 million kWh, 9,100 tons of chemical fertilizer, the area of soil erosion under control is 14,170 ha, irrigated area is 2520 ha, the comprehensive agricultural mechanization level is 25%.

In summary, Wansheng District is typical mountain agriculture; the agriculture is the binary structure gives priority to food and pig, which is in the transitional phase from the traditional agriculture to modern agriculture.

**The analysis of developing the modern agriculture transformation in Wansheng District:** As resource-exhausted cities to develop the modern agriculture transformation, they need to establish modern agricultural development concept, with the main line of co-ordinating urban and rural areas and resource-based cities transformation, relying on agriculture and tourism resources, with the needs of the market as guide, taking farmers' income as the starting point, supported with science and technology, giving full play to the role of multiple functions of agriculture, so that it can build Wansheng into specialty agriculture demonstration area, National leisure Agricultural demonstration Zone, Chongqing's and Guizhou’s agricultural Cooperation demonstration Zone (Qiu, 2009).

The analysis of agriculture elements, Wansheng District has a small scale of agriculture and rural farmland is less, per capita arable land is 0.81 mus, the agricultural added value is only 432 million RMB. Due to the low rate of agricultural commodities, hoping to become rich farmers through traditional agricultural development and promoting the local economy is difficult. Agriculture is a weak industry, development of agricultural industry, rural infrastructure, the building of rural public service system and the building of rural grassroots organization are requiring a lot of manpower and resources, the cultivation of the leading backbone enterprises, the support of rural large breeding and the policy of encouraging farmers’ venture all require the support of the public finances. The stable pressure of Wansheng District people’s livelihood is greater at this stage, the financial base is weak, the agricultural inputs is weaker, the development fund for the agriculture remains the level of 300 million, it is difficult to guarantee agricultural development required. There are 15 leading agricultural enterprises in the region and the willingness to lend is more than 90%, while the real loan from formal financial institutions is less than 30% in every year, most enterprises are relying on private lending to solve the financing problem, the financing way of rural large breeding is mainly the private lending between relatives and friends and only about 20% of rural households can obtain loans from rural financial institutions.

The analysis of agricultural conditions, Wansheng District agricultural soils dominated by yellow soil, the yellow soil’s performances for texture are the characteristics of stick, acid, thin, cold, phosphorus deficiency etc., combined with majority of sloping land, holding capacity of water and fertilizer is poor. The mine goaf area is large, the ecological environment is seriously damaged and the affected area of coal mining subsidence area is over 150 km², which is accounting for
The analysis of agricultural function, the functions of the whole region's agriculture are not comprehensively developed at present, the functions include economy, science, society, ecology, leisure and others, although the specialty agriculture and leisure agriculture have been started, but the food and pig-based dual structure is still dominant (Yu and Zhao, 2009). Wansheng District agricultural functions should give full play to the existing rich local culture, unique folk customs, colorful ethnic features, beautiful rural scenery resources to develop the rural tourism. The whole district has a inadequate versatility of understanding on agriculture at this stage, a strong traditional smallholder farming business, lower grade of farmhouse management, lower grade of enterprise production, lower grade of the holiday farm service, these are leading to visitors’ participation, entertainment, experience are not high, the returning consumption rate is poor.

The strategy of developing the modern agriculture transformation in Wansheng District: Planning scientifically and making overall planning, Wansheng as a resources exhausted city to develop the modern agriculture transformation needs to plan scientifically and make overall planning from the whole perspective, on the basis of existing at this stage, constructing Wansheng Montenegro boutique agricultural demonstration garden to develop three major industries of tea, kiwi and side shoots, combined with the characteristics of regional eight town under the jurisdiction, focusing on the development of the "one town, One Product", "one town one industry", relying on tourist attractions of Montenegro to build national leisure agriculture demonstration zones, construct five leisure bases of Montenegro octagonal town, beautiful mountain village with million flowers, river dam, chairs and paradise valley and the six leisure agriculture parks of urban agricultural sightseeing garden, water conservation technology sightseeing garden, kiwi boutique demonstration tourist park, organic tea sightseeing experience park, the side shoots sightseeing Park and Castle Peak Lake Wetland park. By combining the basic conditions of existing at this stage to fully tap the agricultural and tourist resources and promote the development of rural tourism, leisure agriculture, leisure Tourism Park.

Relying on the government to implement the policy, relying on the government to implement the agricultural policy of resource-based cities transformation is the protection of Wansheng District’s Development. Wansheng needs to implement the agricultural policy of the resource-based cities transformation, transforming the policy into agricultural project, transforming the agricultural projects into agricultural development funds and promoting the replacing industry cultivation in resource depletion region with the implementation of agricultural projects; it needs to implement the policy of agricultural subsidies and works well the related subsidies, such as the grain subsidies, the crop seed subsidies, comprehensive agricultural subsidies, farm machinery purchase subsidies etc; strengthening the supervision and inspection of agricultural subsidies’ objects, types and fund settlement to ensure that the subsidies policies have been fulfilled; implementing the public welfare forest ecological benefit compensation policy and the establishing subsidy systems of plantation, tending, protecting, managing inputs. Financial departments at all levels should co-ordinate the arrangements for the investment in agricultural infrastructure, such as farming, forestry, animal husbandry, fishery, irrigation and water conservancy etc., strengthening agricultural infrastructure; supporting the adjustment of agricultural structure, promoting industrial management of agriculture and improving the agricultural product quality standards and inspecting the system of supervision, agricultural market as well as the information service system, strengthening the construction of agricultural ecological environment protection, supporting the development of poor areas.

Increasing the inputs in financial and social investment, expanding the infrastructure construction investment of resource-based urban, improving the urban functions, so as to create a livable environment, the enterprises should be enough to extract and arrange for environmental compensation and remediation funds regulated by policies, the government should be in full charge and arrange the funds and to ensure that the funds earmarked. Doing well of the planning of land reclamation, allocating part of the funds from the land reclamation fees levied to increase reclamation efforts of abandoned mine land. Preparing the water resources planning scientifically, allocating water resources reasonably and coordinating the life, production and ecological water, when the government is arranging the ecological treatment projects of the land development projects and natural forest protection, returning farmland to forests, small watershed management and soil conservation etc., the government should appropriate tilt to the resource-based cities. Encouraging farmers to raise funds to buy stock or organizing village collective economic organizations, taking portfolio approach of companies and farmers to take part in the modern agricultural investment of special agriculture and leisure agriculture to push forward the Wansheng features’ agriculture and leisure agriculture to develop for the
intensive and large-scale direction. With the combination of exploring the invited investments from overseas and self-financing in the development of leisure agriculture, adopting the many forms of rural households self-done, organized jointly by several households, organized jointly by urban and rural residents, urban residents contract lonely, founded by agric-tourism, the owners contract by lease in piece to carry out the development or cooperation development with farmers demutualization etc to establish the features casual agricultural projects. Vigorously developing the resort base, developing leisure agriculture village around travel circle, exploring and pushing forward to attract investment intensively, attracting social funds and private capital, guiding large enterprises involved in the development and operation, encouraging multi-channel and multi-level financing, encouraging and guiding the various funds and donors.

Increasing the integrated efforts of project funds involving farmers, for example the agricultural industrialization, agro-processing, the construction of agricultural standardization, the Sunshine Project Training of Agricultural Science, the new rural construction, the comprehensive agricultural development, farmers million income projects, poverty alleviation development etc, investing intensively in leisure agriculture and Features agriculture, improving the infrastructure vigorously of the agricultural production and the lives of farmers. The agriculture, water, forestry, tourism and other sectors will give the infrastructure funding priority for development areas of specialty agriculture and leisure agriculture to improve agricultural infrastructure, improving the ecological environment construction. Allowing the large scale of specialty agriculture, leisure agricultural enterprises, farmer professional cooperatives to take a joint venture and associates operated way with the rural collective economic organizations by law, villagers are allowed to use the existing homestead, contracted field to set up agricultural enterprises. Supporting the agricultural enterprises to develop and sort out the barren hills, slopes, improving the rate of land utilization and improving agricultural production conditions and ecological environment to enhance the overall agricultural production capacity (Mazé et al., 2001).

Actively cultivating the circulation market of agricultural products, forming the situation of common development of industrialization leading enterprises, farmer cooperatives, large scale production and marketing and brokers etc. Promoting the modern agricultural development new mechanism vigorously of the companies, professional cooperatives and farmers, actively starting the direct farm of agricultural products, through model pilots which are the supermarkets combined and developed with the agricultural enterprises, farmers cooperatives, agricultural base to establish regional logistics centers of fresh agricultural products, such as tea, kiwi and side shoots, to promote the integration of production and marketing of agricultural products. Expanding the marketing of agricultural products market, strengthening the construction of the standardization of agricultural products wholesale market, transforming the agricultural products wholesale market functions, gradually carrying out the processing and distribution, quality management, specification packaging and information services, developing modern circulation system of agricultural products, expanding the main players in the market, pioneering the external transactions, security trade and other public service platforms.

Strengthening the basic research about the harm to the geological structure, groundwater caused by the deep goaf and extra large pit to develop the governance approaches, continually doing a good job in the governance of coal mining subsidence, organizing to govern the abandoned open pit and other major geological disasters, preventing effectively the occurrence of spontaneous combustion and collapse events. Redouble efforts to preventing the Water level subsidence funnel, land salinization and other problems caused by the increase of oil exploration, speeding up the construction of ecological forest and commercial forest to protect the ecological environment. According to the principle that whoever governs benefits, guiding the social forces to participate in the governance of mine environment, through the forms of the local government and corporate organizes specialized mine governance companies to start the mine management planning and organize the implementation of this planning.

**CONCLUSION**

The sustainable development of resource-based cities needs to adopt a strategy of diversified development to develop the recycling economy, jumping out of the cycle of industrial decline and it’s more need to put the intensive integration strategy into effect in order to find the ways of development and transformation of resources-exhausted cities.

Adjusting and optimizing the industrial structure is an important way and primary task for the transformation of resource-exhausted cities, according to the social economic environment focuses on the supply structure of the resource-based enterprises and non-resource-based enterprises supply structure as the adjusting the industrial structure and playing the guiding role of the policy on the structure of demand, adhering to the feasibility of resource conditions, the consistency both production and marketing, merit-based economic benefits, with the direction of the market-oriented, the industrialization and society to develop a number of high-tech industries selectively and improve the overall competitiveness of the economy. Consolidating the first industrial foundation status of agriculture, promoting the agricultural technological innovation, drawing up the appropriate support policies, reorganizing and
transforming the tertiary industry and accelerating the development of the emerging tertiary industry, vigorously developing individual and private economy to achieve the diversification of the economic structure, making use of resources to cultivate new economic growth point circularly and efficiently to develop alternative industries, only changing the resource advantages for market and product advantages, that can form a distinctive advantage of industry chain, can transfer profits to the related industries and other industries and can be better to promote the sustainable development and transformation of the resource-based cities.

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REFERENCES


