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The Development of Leisure Agriculture Based on Characteristics of Land Resource Utilization

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Abstract Based on analysis of geographical and location advantages of Qiaocheng District, we discussed characteristics of land utilization and local industry. In accordance with these characteristics, it is proposed to explore potential of farming land, speed up transfer of farming land in Qiaocheng District, and develop the leisure agriculture.

Key words Leisure agriculture, Ecological economy, Land transfer, Agricultural tourism culture

In recent years, the leisure agriculture develops rapidly, and modern leisure agriculture is the agricultural development model that integrates leisure, tourism and agricultural production^[1]. According to statistics of the Ministry of Agriculture, in 14 provinces including Zhejiang, Jiangsu, Anhui and Hunan, there is a total of 43 035 leisure agriculture and rural tourism parks. 2 823 enterprises have annual output higher than 5 million yuan, and annual income of 80.67 billion yuan, provide 2 million jobs for 1.595 million farmers, realize increase of farmers' income at 25.72 billion yuan, and bring sales income of agricultural products about 35.25 billion yuan.

Situated in Huang-huai Plain, Qiaocheng District has warm and humid climate, sufficient sunshine, and abundant water resources. It is the political, economic, cultural, and tourism center of Bozhou City. Qiaocheng District covers an area of 2 262.9 km², contiguous to Henan Province, and adjacent to Taihe County and Guoyang County. In land utilization and ecological construction of Qiaocheng District, there are outstanding conflicts and problems, such as serious conflict between construction land index and land demanded by economic development, unreasonable urban and rural land resource utilization structure, low rural land utilization efficiency, and big gap between income of urban and rural residents. Therefore, it is a major task to coordinate the relationship between land, environment and development and guarantee sustainable development of resource and economy of Qiaocheng District. At present, the development of Qiaocheng District has been turned to reasonable transfer of contractual management right of collective land, developing large-scale leisure agriculture, and building coordinated ecological economic structural system through adjustment of land utilization structure. To find out effective approaches of reasonable utilization of land in Qiaocheng District, we put forward following countermeasures: develop leisure agriculture to increase farming land utilization ratio and increase farmers' in-

come; promote rapid development of Qiaocheng' economy; guarantee sustainable development of land resources in Qiaocheng District and coordinated development of land, population, social economy and ecological environment.

1 Resource conditions and characteristics of current land utilization in Qiaocheng District

1.1 Major part of agricultural land is cultivated land, and climatic resources are abundant, suitable for growth of crops Qiaocheng District is situated in Huang-huai Plain, has warm and humid climate, sufficient sunshine, and abundant water resources. Guohe River runs through Qiaocheng District. Major part of agricultural land in Qiaocheng District is cultivated land. By the end of 2010, the total area cultivated land is up to 151 764.23 hm², accounting for 66.82% of the total land area and 81.36% of agricultural land area in the district, suitable for growth of medicinal materials, maize, wheat, and soybean.

1.2 Tourism resources are abundant and land use of scenic spots is relatively large Qiaocheng District is one of the state-list famous historical and cultural cities, and its scenic spots are basically ancient buildings, site of ancient culture remains, medicinal material planting gardens, and planting bases. In Qiaocheng District, there are totally 53 scenic spots, including Dasi Peony Garden, Qiaodong Medicinal Material Planting Garden, Huaxilou (Gorgeous Dramatic Stage), Cao-cao Troop-carrying Underground Road, and Huatuo Temple, etc. The land use scale of tourism industry is relatively large.

1.3 Characteristic industry is varied and planting area is wide Characteristic industry in Qiaocheng District is varied. Medicine, wine, tobacco and phoenix tree are 4 economic posts of Qiaocheng District. By now, it has formed 8 advantageous industries, including traditional Chinese medicine, wine processing, flour processing, cotton textile industry, livestock, vegetable, diamond making, and wood processing. Bozhou City is the first one of four largest China medicine capitals, while Qiaocheng District is the major traditional Chinese medicinal ma-

terial planting, processing and sales base of Bozhou City. According to statistics, the characteristic planting area in Qiaocheng District is about 93 400 hm², taking up 32% of the area under crops.

1.4 Land development and utilization degree is high and reserve land resource suitable for development is not sufficient

The terrain in Qiaocheng District is smooth and land development is easy. The statistics show that the area of utilized land is 220 606 hm², and the land use ratio reaches 97.49%. The rest land, only taking up 2.51%, is mainly rivers and lakes, which are difficult to develop with current science and technology.

1.5 The conflict is outstanding between land demanded by economic construction and supply of construction land

In recent years, Qiaocheng District is in the key period of rapid socio-economic development, and the demand for construction land increases sharply. In 2005, the urbanization level of Qiaocheng District is 36.5%. According to prediction, the urbanization level of Qiaocheng District will reach 62% by 2020. In future, the land demand for urbanization and industrialization will remain at a higher level in a long period. Therefore, it is urgent to find out a development path that suit local conditions of Qiaocheng District. Exploring potential of rural land, encouraging transfer of contractual management right of collective land, and developing modern leisure agriculture are effective approaches to alleviating pressure on land use, promoting economic development, increasing farmers' income, and pushing forward new socialist countryside construction of Qiaocheng District.

2 Development of leisure agriculture based on characteristics of land resource utilization in Qiaocheng District

2.1 Assessment of fundamental resources for leisure agriculture development in Qiaocheng District

2.1.1 Location assessment. Qiaocheng District is situated in Huang-huai Plain, it belongs to the temperate monsoon climate zone, so it has warm and moist climate. Guohe River, a tributary of Huaihe River, runs through Qiaocheng District and forms a natural beauty. Besides, it provides sufficient water source for growth of crops. In this district, the industrial pollution is light; river is clear; trees make a pleasant shade; air is pure and fresh. Pleasant environment and fertile soil are suitable for various crops, especially planting traditional Chinese medicinal materials and raising of livestock and poultry. Superior environmental conditions both inside and outside of Qiaocheng District lay a solid foundation for development of its leisure agriculture.

Around Qiaocheng District, there are many scenic spots, such as Lao-tzu Temple in Guoyang, Digou Ecological Park in Fuyang, White Horse Temple and the Longmen Grottoes in Luoyang, *etc.* With the aid of advantages of Qiaocheng District and outstanding tourism resources in surrounding provinces and cities, and in combination with agricultural culture of Qiaocheng District, it is bound to open up new model of characteristic economic development.

2.1.2 Assessment of leisure and tourism resources. Qiaocheng District has unique model of leisure agriculture. Its superior geographical location, unique soil resources and ecological pollution-free natural environment, especially landscape belt along banks of Guohe River and natural ecological environment in surrounding areas, are greatly favorable to building leisure agricultural model with unique characteristics of Qiaocheng District. Along banks of Guohe River, there are southern magnolia, Cinnamon camphora, golden weeping willow, Osmanthus fragrans, peach, and cherry trees. Combining recreational pavilions, these not only improve city image and grade, but also provide places of amusement and recreation for local residents.

Traditional Chinese medicinal materials of Qiaocheng District enjoy great prestige in the world. Qiaocheng District has over 400 varieties of traditional Chinese medicinal materials, and the largest trading market of traditional Chinese medicinal materials, the daily turnover steadily ranks first in China. Smooth sales channel and convenient traffic expand planting scale of medicinal materials increasingly. Therefore, it is proposed to realize industrialization, centralization, and large scale planting of traditional Chinese medicinal materials, implement integrated operation of production, sales and research. These not only can provide visiting place for scientific research, but also is convenient for sales and process of traditional Chinese medicinal materials, as well as greatly increase resource utilization efficiency.

As a state-list famous historical and cultural city, Qiaocheng is blessed with talented and virtuous people, such as Aesculapius Hua Tuo, Cao Cao (Emperor Wu of Wei), Cao Pi (Emperor Wen of Wu), artist Cao Ba, poet Cao Kun, legendary Taoist sage Chen Tuan, Xue Fengxiang (author of *The History of Peoples*), and famous calligraphist Liang Xian, *etc.* In Qiaocheng District, there are state-level cultural relic protection units, including Gorgeous Dramatic Stage, Caocao Troop-carrying Underground Road, Caos' Tombs, as well as provincial level cultural relic protection units, such as Huazu Nunnery, Morality China Palace, and Baiyi Buddhist Convent, *etc.* Long history and resplendent culture offer lot of cultural heritage and lay a solid cultural footing.

Rural characteristic snack of Qiaocheng District is unique in flavor, and perfect in color, smell and taste. The traditional hand-made mung bean sheets and refined sesame oil can be used as presents for relatives and friends, and used as special products for tourists.

2.2 Factors restricting development of leisure agriculture in Qiaocheng District

The development of leisure agriculture starts later in Qiaocheng District, so there is no experience to learn from. The foundation of leisure agriculture is solid, but it lacks fine projects. It is short of facilities for reception and service of tourism, and personnel quality is not high. In addition, the economic foundation for developing leisure agriculture in Qiaocheng District is weak. Raising funds in many channels is still a principal task at present. Simply depending on its own economic conditions, Qiaocheng District has to make efforts to move forward. Therefore, it is also necessary to invite outside

investment, for example, some influential and powerful groups.

3 Strategy and characteristics of developing leisure agriculture in Qiaocheng District

3.1 Strategy of developing leisure agriculture in Qiaocheng District

3.1.1 Image orientation: Rhythm of Guohe River and home of medicinal materials. "What is water? It is the source of everything. The wise find joy in water." Guohe River is an important tributary of Huaihe River and runs through Qiaocheng from the northwest to southwest. Clear water of Guohe River is the mother river of Qiaocheng; fertile water of Guohe River is the source of life of Qiaocheng. Lao-tzu, founder of Taoism, was born in north bank of Guohe River. Distributed in villages and towns of Qiaocheng District, tributaries of Guohe River provide sufficient water source for agricultural irrigation. Dense woods along banks of tributaries of Guohe River offer fresh air for Qiaocheng District people and create a natural barrier for ecology of Qiaocheng.

Qiaocheng District is a typical base of medicinal material planting. Bozhou herbaceous peony, chrysanthemum, pollen and mulberry bark have been recorded in Chinese Pharmacopoeia. Liu Kai, a poet in Qing Dynasty, once wrote a poem to praise the beauty of Bozhou herbaceous peony. The poem goes like that:

Outside Xiaohuang County, In full bloom is the herbaceous peony.

Seeing everywhere aglow with effulgent sunrise colors,

Every farmhouse is interspersed with so many flowers.

Gentle breeze brings the fragrance.

What a pleasant appearance!

Note: Xiaohuang County is the present Bozhou City

3.1.2 Strategic conception: production, living, ecology and life experience. The development of leisure agriculture in Qiaocheng District should adhere to local characteristics. Agricultural product production and processing should attach importance to transfer, low carbon, and environmental protection, to focus on green and organic products and minimize pollution. Unique local folk custom, deep cultural footing, and easy and simple life style make tourists get relaxed to the utmost extent, breathe fresh rural air, and enjoy unique activities of rural life.

Rural areas are free from pollution and people in rural areas live in harmony with nature. In hustle and bustle cities, some people become ant tribe or sandwich class. They feel mixed-up about life. In this situation, the leisure agriculture in Qiaocheng District can free their lives, respect their appeal for life, experience life, perceive life, and realize value of life.

3.1.3 Strategic objective: demonstration point of the national leisure agriculture and national level ecological zone. It is proposed to build scientific and reasonable agricultural industrial structure and comprehensively raise industrial status of leisure industry on the basis of rich agricultural resources and unique local culture. Besides, it is proposed to explore advantages of location and natural resources, explore resource potential and

expand diversified functions of agriculture, develop high quality and influential recreational and leisure products, and build Qiaocheng District into a national demonstration point of leisure agriculture and state-level ecological zone.

3.1.4 Industrial planning: medicinal material, aquatic products, vegetal and fruit industry. Qiaocheng District has obvious advantage in characteristic agriculture, which lays solid foundation for industrial development of medicinal materials, aquatic products, vegetables and fruits. To effectively promote constant and stable development of leisure agriculture, Qiaocheng District should make clear thinking of development, main points of development, development objectives, and make proper industrial distribution and auxiliary planning.

3.2 Characteristics of developing leisure agriculture in Qiaocheng District

3.2.1 Traditional Chinese medicinal materials: home of medicinal materials. Since Aesculapius Hua Tuo opened up the first physic garden, the planting and operation of medicinal materials have been surpassed over 2 100 years, including Bozhou herbaceous peony, chrysanthemum, pollen and mulberry bark. At present, the medicinal material planting area is over 6.67 million hm^2 , the planting variety is more than 400, and recently, over 200 new varieties are developed. According to survey, merchants of traditional Chinese medicinal materials and cultural tourists account for over 90% of those people visit Bozhou, while few tourists visit natural landscape. Therefore, there is a large market space for developing leisure agriculture.

In the western suburb of Qiaocheng District, Shibali Town has established herbaceous peony garden with a planning area of about 33.33 hm^2 . It is mainly managed by local government. There, merchants and tourists can appreciate the beauty of herbaceous peony flowers and get to know planting and routine management of herbaceous peony. In addition, it can be used as scientific research base. Combined with round tables and chairs, pavilions and small village restaurants, the characteristic garden provides unique experience for tourists.

3.2.2 Vegetable: appetizing and green. Relying on superior natural conditions and rich agricultural products in Qiaocheng District, and taking opportunity of new socialist countryside construction, Wuma Town built rural paradise with demonstration of vegetable technology, creative design of agricultural products, gift package, and experience of rural custom as main parts. The planning area is about 23.33 hm^2 . In the paradise, there are small DIY vegetable gardens, gift houses, farmhouse experience gardens, and recreational zone.

In DIY vegetable gardens, smaller units (with area about 80 to 150 m^2) are divided to provide farming experience for citizens, especially retired people and families that have children.

Characteristic gift houses (each covers an area of 30 to 50 m^2) can select local agricultural products to satisfy demand of people for retuning to nature. Through comprehensive and meticulous selection, characteristic package and deep cultural footing, it is expected to create brand image of Qiaocheng, meet various requirements of tourists, and supply agricultural products for surrounding cities.

Farmhouse experience gardens can make tourists experience real rural life "having farmhouse meal, living in farmhouses, doing farm works, enjoying the pleasure of farm life and buying rural products". Tourists can pick up vegetables in their DIY vegetable gardens, cook by themselves, and enjoy the pleasure of wisp of smoke. Besides, tourists can play on a swing, play cards or other games in experience gardens. Some traditional food processing facilities are added to attract tourists and enhance interaction between local farmers and tourists.

3.2.3 Guohe River: happy fisherman's family. Guohe is mother river of Qiaocheng District. Near Dasi sluice of Guohe River, some fisherman's houses are built, with planning area up to 21.33 hm². Government guides fishermen to improve their fishing boats and provides part of improvement expenses. Fishermen can manage such happy house independently. Tourists can get fully relaxed in these houses and enjoy pleasure of fishing, barbecue in river side, play together around bonfire, and enjoy happiness of unique fisherman life.

4 Countermeasures for developing leisure agriculture in Qiaocheng District

4.1 Organization and administration For developing leisure agriculture in Qiaocheng District, it is proposed to set up a leading group. The leading group is mainly responsible for determining direction of agricultural development, settling of key projects, guiding, coordinating and supervising works of management committee. On the basis of this leading group, a management committee for development of leisure agriculture in Qiaocheng District is founded, to examine and approve planning and implementing proposals, coordinate works of every department, raise funds, and participate in project inspection, public notice administration, as well as invite outside investment.

4.2 Policy guarantee To develop leisure agriculture, Qiaocheng District should adequately implement corresponding policies of Anhui Province and the State, issue local subsidy policies, preferential tax policies, land concession policies, and policies for supporting starting undertaking. For those projects that have better economic, social and ecological benefits, it is required to include them into key construction projects and provide guidance project examination and approval and product certification. Furthermore, it should also carry out public infrastructure construction, environmental sanitary construction, technological service, and fund organization.

4.3 Fund guarantee The development of leisure agriculture needs sufficient fund; thus, it is required to establish diversified and multi-channel investing and financing mechanism. On one hand, it is proposed to take opportunity of new socialist countryside construction and energetic development of agriculture to improve rural and agricultural infrastructure conditions of Qiaocheng District. On the other hand, Qiaocheng District should create favorable policy environment, invite outside investment, encourage agriculture-related enterprises, rural economic organizations, scientific and technological personnel and farmers who have certain economic strength to launch leis-

ure agriculture projects, finally to realize diversified investment and management subjects, and high-efficient utilization of social capitals.

4.4 Mechanism for increasing income through land transfer Qiaocheng District should innovate upon mechanism for increasing income through land transfer.

(i) It is proposed to improve county-level and township-level land transfer trading service center. With the aid of this center, Qiaocheng District can issue land transfer information, land evaluation, signature of contract and consultation of laws and policies; villages can establish service station for rural land transfer, collect land transfer information, participate in evaluation of land transfer income, and help supply and demand parties to conclude land transfer contract.

(ii) Qiaocheng District should perfect land transfer trading mechanism, orient towards market, take the trading center as a tie, and adhere to open, fair and equitable principles, to guide farmers to circulate contractual management right of land and promote optimum allocation of rural land resources.

(iii) Qiaocheng District should promote farmers' stock cooperation, farmers' professional cooperation and collective asset stock cooperation relying on advantages in land and industry, to form diversified, multi-level and multi-form operating service system, raise organizational level of farmers, and improve service level of unified management.

4.5 Science and technology and talents Without scientific and technological support and introduction and cultivation of talents, leisure agriculture will not develop. Therefore, it is required to enhance the cooperation with agricultural R&D institutions, and encourage agricultural technical personnel and agriculture-related enterprises to carry out technological innovation, increase scientific and technological contents of leisure agriculture. Besides, Qiaocheng District should recruit some talents of competent authority, high-level managers, professional talents and creative talents. In addition, it is proposed to strengthen education and training of staff in post, especially of personnel engaged in farming. Furthermore, it should improve comprehensive service level, establish scientific talent appraisal mechanism, and work out and implement talent incentive policy and accountability system. In the course of project implementation and operation, Qiaocheng District should keep in close touch with reputed management enterprises, to provide relevant information and services for development of leisure agriculture.

4.6 Risk prevention Possible risks during the development of leisure agriculture include natural calamities, market risk, investment risk, and technical risk, *etc.* In the first place, situated along banks of Guohe River, Qiaocheng District is subject to floods, which threatens agriculture. Therefore, it is required to enhance construction of farm irrigation facilities and flood control works, strengthen agricultural weather forecast, and encourage farmers to buy agricultural insurance. In the second place, imbalance of market supply and demand, change of consumers' demand, and product security events lead to various market risks. In this situation, Qiaocheng District should

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index. Consequently, in the future assessment work of ecosystem health, there is another convenient and effective tool. The concrete conditions remain to be further studied.

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improve security and quality of agricultural products, develop anti-season planting, and keep diversified industry and multi-variety structure. Also, there is certain investment risk due to ever-changing market, intense market competition, and improper management measures. Qiaocheng District should establish cooperation with surrounding areas, exchange ideas with management personnel, pay close attention to market change, improve market information service channel, and innovate upon management methods. Finally, there are also technical risks due to different environmental conditions and low level of technologies in the course of introduction of new variety and technology. To prevent these risks, Qiaocheng District should firstly promote the new variety and technology in small areas, and then gradually popularize the variety and technology in surrounding areas.

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