

The “Valley Economy” Model of Regional Development: A Case Study of Mountain Areas in Beijing, Northern China

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Abstract: A case study is presented of a regional development model for valley economies in the mountain areas of Beijing, China. The nature and framework of the valley economy model are described and the development of the model, which is specific to the mountain areas of Beijing, is analyzed. Five different valley economy models applied in the Beijing mountain areas are compared. The major purpose of the valley economy model is to develop the regional economy, including the selection of appropriate industries, the allocation of industrial space, the establishment of supply chains and the integration of various industries. Pilot experiments using the valley economy model have been conducted in seven counties (districts) in Beijing: Pinggu, Huairou, Changping, Mentougou, and Fangshan districts, and Yanqing and Miyun counties. Five models for developing the Beijing mountain areas have been explored, including: creative cultural industries, characteristic industry clusters, the promotion of large tourist areas, natural scenic tourism and folk cultural tourism. Each model has its own unique features and potential to help in the regional development of mountain areas.

Keywords: Beijing; Mountainous areas; Regional development; Valley economy model

Introduction

The concept of “valley economy” was formally proposed by researchers in China at the beginning

of the 21st century (Zhang et al. 2009). Regional development in mountainous areas has attracted much attention as a useful framework for planning in areas such as the exploitation of mountain resources, environmental protection, land use and sustainable development (Menshutkin and Klekovski 2001; Wang et al. 2003; Wang 2004; Jiang and Zhang 2006; Long et al. 2006; Balamirzoev et al. 2008). The 21st Chinese Development Agenda prepared in 1992 emphasized the need for the sustainable development of vulnerable ecosystems in mountain areas and 2002 was declared “The Year of Mountains”. Subsequently, much research has focused on environmental evolution, resource development and the ecological protection of mountainous areas (Singh and Mishra 2004; Shafer et al. 2005; Liu et al. 2006; Lundström et al. 2007; Bergmann et al. 2008; Yang et al. 2008; Munyati and Kabanda 2009).

The “valley economy” is a new developmental model for mountain areas (Zhang and Tan 2009; Wang and Wang 2009; Liu and Liu 2010) and has become a guide for the harmonious development of the economic, social and ecological aspects of mountain areas (International Institute for Urban Development, Chinese Government Prosperity Monitoring Center, Beijing 2009; Zhang et al. 2011; Chen et al. 2012; Liu et al. 2012).

Most of the relevant research has focused on the needs and role of the most important industry and the typical modes of development in a valley

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economy (Shi et al. 2009; Zhao 2009; Chen et al. 2010). However, there has been little systematic research, in particular at a regional level, into the scientific problems encountered in the development of a valley economy, such as a proper scientific definition of the scope of a valley, the exact meaning of a valley economy, the best direction for development and the key breakthroughs and dynamic mechanisms (Wang 2010; Liu et al. 2011). As a consequence, there is considerable confusion among government decision-makers and those implementing development plans about the different definitions, objectives and areas of application between the valley economy model and other models for regional development (Li 2009; Zhang et al. 2011). These issues may affect the integrity and effectiveness of economic development, the application of scientific research and could become major obstacles to sustainable development.

The main objective of this paper is to analyze the regional development model for valley economies in the mountain areas of Beijing. First, the importance of the valley economy and its relationship to regional development is considered. We then discuss the introduction of the valley economy model in Beijing mountain areas. Finally, typical models of this type of economic development are analyzed. The aim of this work is to provide a useful reference for regional development, particularly in mountainous areas.

1 Concept Framework of the Valley Economy

1.1 Concept and definition

The idea of valley economy is a new concept and can easily be confused with earlier concepts such as the “basin economy” (Hu 2005) and the “economic valley” (Lin 1996). A valley can be considered as a small basin and a valley economy has some similarities with a basin economy. At the medium scale, a valley is part of a basin; however, basins are large areas and can cover a variety of topographic and landscape categories, whereas each valley in a mountainous area is unique. An “economic valley” is a specific type of micro-economic zone, dominated by agriculture and forestry, with a special emphasis on economic

development. Its general ecological character is obvious, but has little effect on the overall development of the whole valley. A valley economy model is an integrated mountain development concept (Table 1) and is both more scientific and more comprehensive than the idea of an economic valley.

Table 1 Basic features of the valley economy

Feature	Definition
Mountain	Occurs in the valleys of mountain areas, possesses geographical gradient features
Economy	Focus on economy, contain primary industry (leisure agriculture, characteristic forest fruit industry, etc.), secondary industry (mainly in eco-industry parks), and tertiary industry (natural scenic tourism, folk cultural tourism, etc.)
Social	Keep rural features of valley, village system, and independent traditional and social characteristics
Cultural	Promote the traditional culture brand and build the soft power of the valleys
Ecology	Main dominant feature, includes the eco-economy, eco-society, eco-culture, etc.; construct ecological diversity in the valleys of mountain areas

A valley is a unique natural geographical drainage unit in mountain areas. It is a relatively complete and independent geographical system, with upper, middle and lower parts, and left and right sides of the stream or river (Zhang et al. 2009). A valley also attracts industries, a population and resource exploitation; the valley economy is the key factor in the development of mountainous regions. The sustainable development of a valley economy requires the simultaneous rational development and utilization of mountain resources, protection of the ecological environment and integrated socio-economic development. With the current trend for fast urban/rural integration, valleys are becoming the basic geographical unit for competition in regional mountain economies and the achievement of sustainable development is an important competitive element, especially in relatively poor areas.

1.2 Basic framework and features

The valley economy model offers a new way of

developing the regional economy, especially in mountainous areas. A valley is both a geographical unit and a specific economic unit in the regional economy of mountain areas. The development of a valley economy in mountain areas involves interactions between the requirements for space of the economic, social and environmental systems, which are the main factors in regional development. In addition, there is interaction with the economies of the neighboring valleys. A major goal of the valley economy is to develop the overall regional economy, in which it must integrate successfully, by selecting the types of industries, allocating industrial space and establishing industrial chains. A successful valley economy has both a developed industry and a closely integrated economy. In the restricted space available, the economy of an individual valley must be characteristic of that valley, which means that traditional industries may need to be upgraded, with good economic strength being the goal of any development.

The economy of a valley is also important socially because it connects many villages and towns and forms a relatively independent social complex. To some extent, a valley system is a continuous social entity. The development of such an economy cannot be separated from the existing village and social systems. Rather than building small modern towns or developing the valleys according to urban planning standards, the economy of the developing valley must keep its independent rural society distinct from the modern metropolis.

Important cultural and historical artifacts and information must also be protected during the economic development of a valley. Taking Beijing as an example, most existing ancient villages, temples, historical trees and most of the cultural heritage are all in the mountains. This heritage must be accommodated within the development framework and outstanding cultural relics must not be lost. In addition, in recent years, mountain areas have become popular with urban residents as places for recreation; one of the main attractions of these areas is the natural mountain atmosphere. The ecology and landscape are major resources for the development of a valley economy, suggesting a new kind of eco-economics. This means that it is very important to pay close attention to the ecological environment of a valley when

considering its development. A valley economy has strong ecological and environmental continuity characteristics and inappropriate development and human disturbance damages this natural balance. It is therefore necessary to consider the natural attributes of a valley during its economic development, as well as the economic, social and cultural diversity.

2 Study Area

2.1 Selection of study area

The concept and basic framework for the development of an eco-valley and valley economy was first put forward in the Beijing region in 2003 and was recognized and then implemented by the local government (Zhang and Tan 2009). In 2008, at the Second Beijing Mountainous Region Working Conference, the concept of valley economy became part of the agenda of the Beijing municipal government. In 2009, Beijing city invested 3.5 billion yuan to develop valley economy. At this time, the per capita income for farmers in mountain areas rose to 10,518 yuan for the first time, an increase of 160% compared with 2001. Beijing's concept of valley economy has been rapidly promoted as a major breakthrough and has become established as the way forward in eco-conservation and development in mountain areas (Li 2009; Li and Li 2009; International Institute for Urban Development, China Government Affairs Prosperity Monitoring Center 2009; Xia 2009; Liu and Liu 2010).

2.2 Geographical features of the study area

The mountain areas of Beijing (39°26'–41°03' N, 115°25'–117°30' E) are located in northern China and are mainly in the Taihang and Yanshan mountains. As a result of the large drainage areas and the many tributaries of the Daqing, Yongding, Chaobai and Jiyun rivers, many valleys are found in these mountain areas (Figure 1). The mountain areas of Beijing include seven districts and counties (Pinggu, Huairou, Changping, Mentougou and Fangshan districts, and Yanqing and Miyun counties) (Table 2). The total area is about 10,400 km² and includes 83 villages and towns and 1600 village committees.

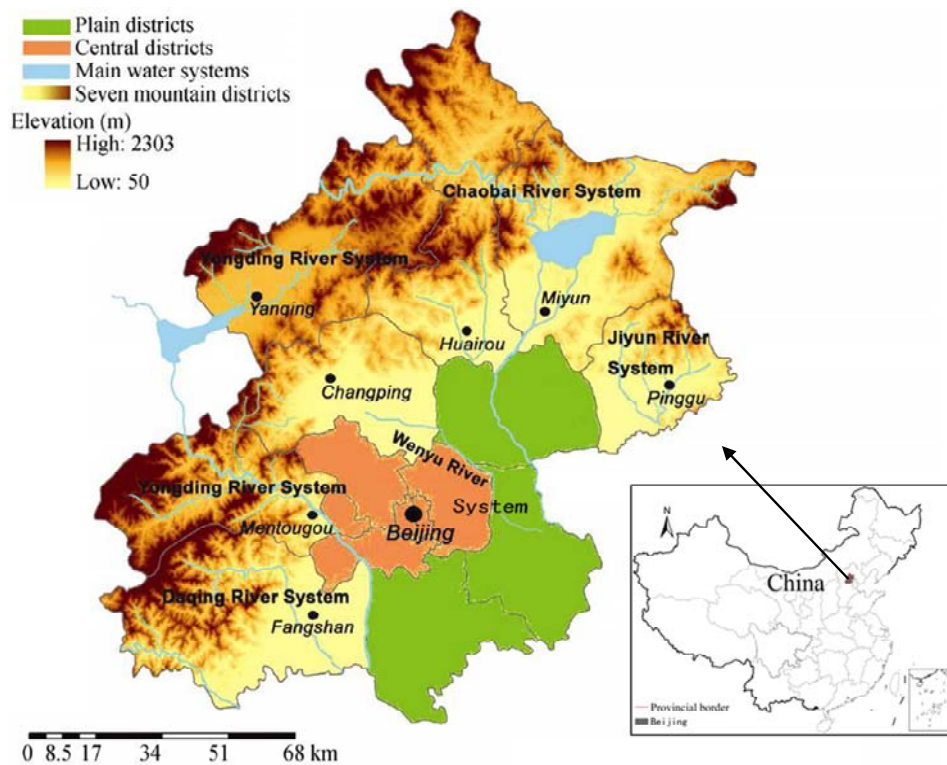


Figure 1 Location and distribution of main valleys in Beijing mountainous areas in northern China (Zhang et al. 2011).

Table 2 Brief introduction to typical areas of valley economy development in Beijing mountain areas

Districts or counties	Mountain area ^a		Resident population ^b		Economy (Yuan)		Name of typical valley economy
	TA	P	T	P	GP	R	
Pinggu	567.2	6.08	41.8	9.13	57,513.1	13,723	Shibawan, Yaji
Miyun	1772.4	19.00	47.1	10.29	41,967.6	14,031	Shicheng, Gubeikou
Huairou	1882.7	20.19	37.1	8.10	172,619.0	14,314	Tang River, Tianhechuang
Yanqing	1451.5	15.56	31.9	6.97	45,624.3	12,991	Qianjiadian, Liujiabu
Changping	896.1	9.61	173.8	37.96	34,476.6	12,924	Laoyu, Qiyuan
Mentougou	1428.9	15.32	29.4	6.42	32,533.3	13,387	Cherry, Rose
Fangshan	1327.0	14.23	96.7	21.12	23,696.9	12,761	Zhangfang, Fozizhuang

Notes: TA- Total area (km²); P- Proportion of Beijing mountains (%); T- Total (million); GP- GDP per capita; R- Rural per capita net income.

^a Mountain areas data from GIS analysis data of Beijing DEM in 2010.

^b Resident population and economy data from Beijing Statistical Yearbook (2012).

2.3 Basic condition of the valley economy in the study area

In the Beijing mountain areas, 164 valleys and 62 mountainous villages and towns have been studied systematically and at least 69 valleys now have development plans in place, accounting for nearly 44.3% of the administrative villages and

28.4% of farmers (Xu and Jin 2009). The hill districts have also adopted valley economy models (Beijing Municipal Commission of Rural Affairs 2010). Economists, sociologists, agriculturalists and other scientists are all paying close attention to these developments. Although the emphasis differs between valleys, attention is mainly concentrated on the selection of industries, ecological services,

infrastructure and technology (Wang and Wang 2009; Li 2009; Li and Li 2009).

These valleys have rich resources for tourism and ecological industries. There are 241 scenic spots, 318 holiday hotels and 639 orchards for self-picking of fruit and sightseeing. In addition, 267 villages can accommodate folk tourism visitors and 8,668 peasant households can offer services for tourists. The valley economy is becoming a dominant model for the development of Beijing's mountain areas.

3 Typical Models of Valley Economy

Five typical valley economy models have been explored in the Beijing mountain areas (Figure 2) based on the different natural environments, industrial heritage, history, culture and the development potential of each individual valley (Beijing Municipal People's Standing Committee Congress 2010; Shi et al. 2009; Qi 2010; Liu and Liu 2010; Chen et al. 2012).

3.1 Creative cultural industry model

In the development of a valley's economy, innovative and creative thinking can help to integrate culture and technology. In relying on the natural, historical and cultural resources to develop cultural and creative industries, mountain areas can help to realize an integration of agricultural production, product processing and cultural diversity. By supplying novelty, uniqueness and innovation, mountain areas can promote the development of a specific economy to create new economic growth and enable farmers to increase their income. This model can transform a cultural advantage into an economic advantage.

As an example, Zhaitang town used western Beijing's ancient commercial culture to develop the valley's tourist economy, with great success (Figure 3). Miyun county's Tanghe valley took "romantic fragrant flowers, landscapes, and the Great Wall" as its unique features, and has built a fashionable, romantic and international Sweet Grass Art Manor at the foot of the Great Wall (Figure 4). In Huairou district, the valley economy took the corn maze and other traditions as a theme and developed a variety of leisure tourism products based around

agriculture. Its profits are about 20 times those generated by traditional agriculture.

3.2 Characteristic industry cluster model

To highlight a valley's special resource value and to promote its overall competitiveness, mountain areas can apply the characteristic dominant industry model. In this model, a valley's resources, combined with ideas of ecology, culture, science and technology, are used to develop specialty products and services with cultural connections. By focusing on the promotion of specialty brands, economic development can be extended. This model can effectively link the characteristic agriculture and creative culture of a particular valley with tourism.

As an example, Lihua valley in Bohai town selected chestnuts as their theme and Huairou district's unique chestnut culture was developed based in the valley's industrial belt from the Sandu River to Bohaisuo. This chestnut culture exploits characteristic local chestnut products, such as *Castanea mollissima* roasted with sugar and Da Ming chestnuts. In a similar manner, Quanshuiyu village in Dahuashan town, Pinggu district cultivated "personalized peaches", such as "zodiac peaches", "beauty peaches", "fuwa peaches" and "birthday peaches". By realizing the ecological value of their characteristic peach resources and their art and economic values, the valley's economy was successfully developed.

In Liulimiao town, Huairou district, a valley economy was developed by holding activities such as the *lianqiaofang* folk culture festival, the *gui* cultural festival and the national BMX Championships. These events created publicity, increased the influence of the town's characteristic resources and enhanced the visibility of its economy. Shentangyu village, Yanqi town, Huairou district made great use of its clear spring water to raise rainbow trout, building a "Special Valley of Rainbow Trout". These characteristic resources were developed in an integrated manner involving tours, food, entertainment and the purchase of locally produced products.

3.3 Model to promote large areas for tourism

This mode takes famous scenic spots as

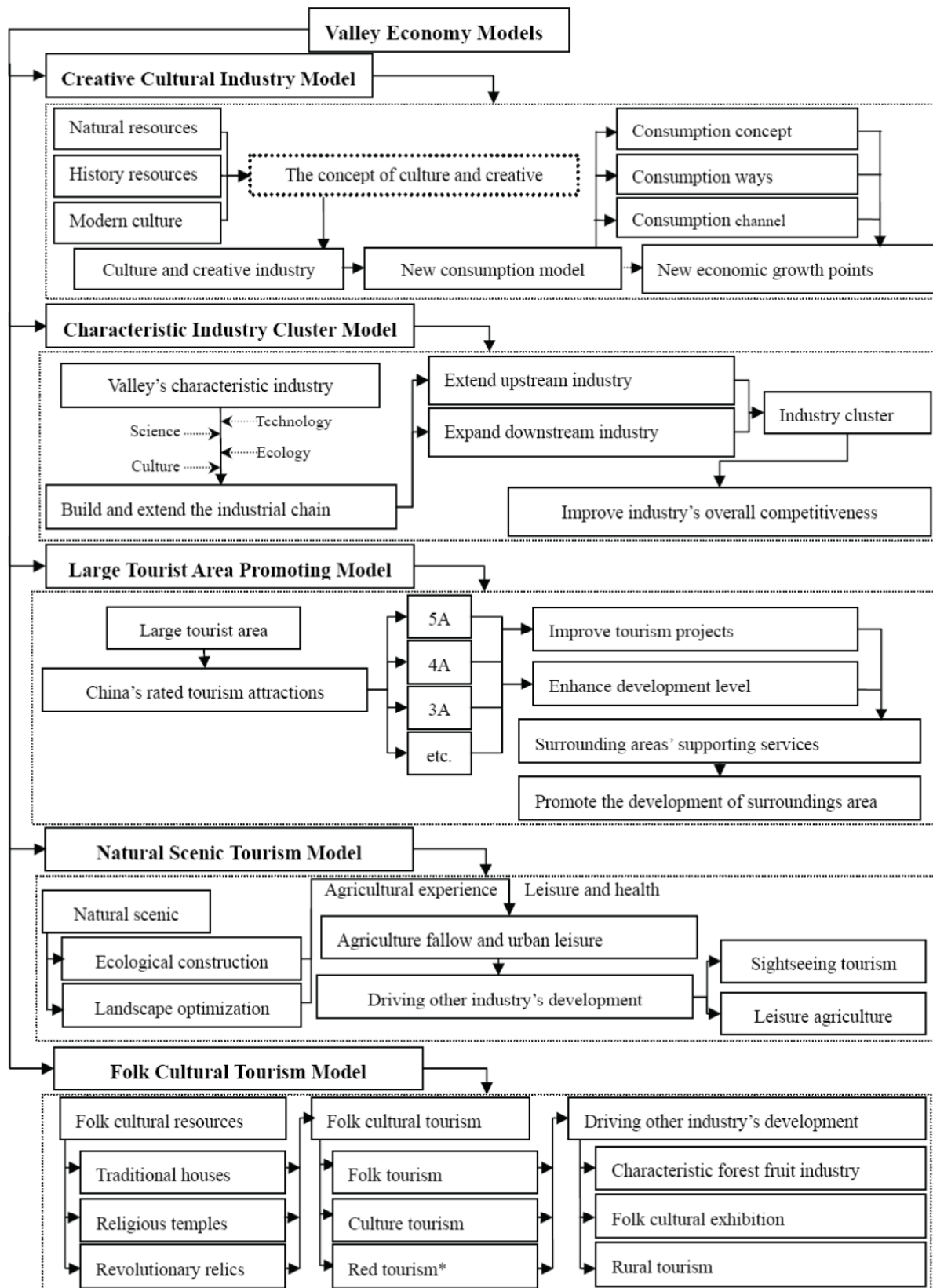


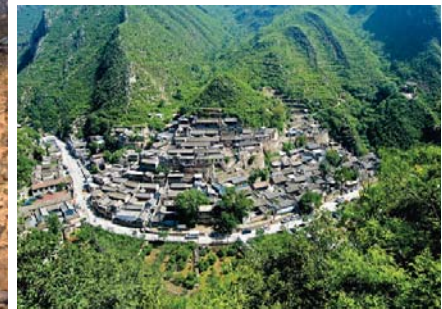
Figure 2 The five different valley economy models discussed in this paper. * Red tourism is a subset of tourism in China in which Chinese people visit locations of historical significance to Chinese communism “to rekindle their long-lost sense of class struggle and proletarian principles” (Li et al. 2010).



(1) Ancient village's entrance



(2) Ancient house's entrance



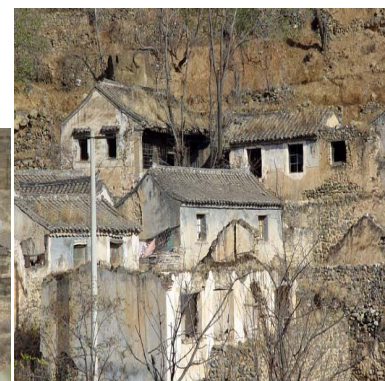
(3) Cuandixia ancient village



(4) Ancient Tea Caravan Route



(5) Ancient villages' spatial pattern



(6) Ancient house's facade

Figure 3 The valley economy landscape in Zhaitang town.



(1) Sweet Grass Art Manor landscape



(2) Great Wall landscape



(3) Reservoir landscape



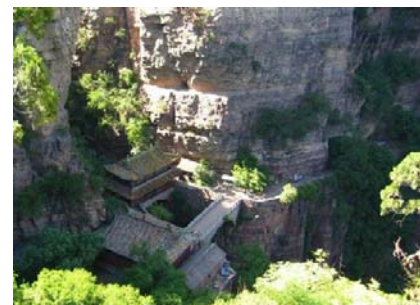
(4) Fragrant flowers landscape



(5) Culture yard landscape



(6) Ancient village's new entrance landscape



(7) Canyon landscape

Figure 4 The valley economy landscape in Miyun county's Tanghe valley.

destinations, developing gardens for fruit-picking, folk villages, hotels, restaurants and other ancillary services.

As an example, Fangshan district promoted the scenic Shidu valley as a destination and developed the valley economy of the "Shidu Landscape Cultural Leisure Corridor". The Yanqi valley combined the Hongluo Temple, Yanxi Lake, the ancient Great Wall and other attractions to create a valley economy branded as the "No-night Valley". The Meigui valley in the Miaofeng mountain areas promoted alpine roses, an incense temple and a cherry valley to create the "Rose Valley" economy of the Miaofeng Mountain. In the Miyun and Fangshan valleys, economic and other forms of support were actively provided to expand leading vineyards and great economic benefits were gained by developing the economy of the valley.

3.4 Natural scenic tourism model

The core of this model is the development of natural landscape tourism based on ecological protection. In recent years, natural scenery, ecological protection, environmental improvement and the creation of an economy based on the local ecology have become favored by the public (Zhang and Tan 2009; Zhang et al. 2011). Mountain areas are important ecological barriers and ecological conservation areas. The development of a valley economy in such areas has to be undertaken in sympathy with the natural ecological environment. In the Beijing mountain areas, tourism, eco-agriculture, and health and leisure activities based on ecological protection and the beautiful natural environment have promoted the development of valley economies and expanded regional businesses.

For example, the No-night Valley in Yanqi town, Huairou county, after the comprehensive management and ecological restoration of the small watershed, has become a focus for leisure and vacations, bringing together hundreds of leisure establishments. In 2008, there were more than 100 million tourists, generating revenues of more than 100 million yuan and increasing the average household income by nearly 2000 yuan. Qianjiadian town, Yanqing county took advantage of the beautiful natural scenery and created the "Hundred Miles of Landscape Gallery Along the

Black-and-White River" brand after carrying out numerous projects such as environmental construction, upgrading and rebuilding scenic spots, strengthening the tourism infrastructure, building landscapes and protecting surface waters.

3.5 Folk cultural tourism model

There are plenty of folklore cultural resources in the Beijing mountain areas. Some valleys actively rely on traditional dwellings, religious temples, revolutionary sites and other folk culture and landscape resources to develop their valley economy. Revived mountain festivals, traditions and other folk cultural resources, along with museum displays of characteristic folk culture, are part of the development of a folk culture industry. At the same time, the development of specialized fruit industries, recreational agriculture and an agricultural science and technology park have all helped to promote the development of a valley economy.

As an example, Zhaitang town, Mentougou district made use of Cuandixia village's ancient building resources in the Ming and Qing dynasties to create a Cuanbai folk culture tourism industry.

4 Summary and Prospects

The valley economy is neither a simple tourism economy nor a simple agricultural economy. Many factors can affect the economic development of a valley (Zhang et al. 2009). It is a complex idea which contains elements of ecology, economy, society, culture, mountains and valleys, and covers all aspects of the development of valleys in mountain areas. In practice, the valley economy is a new development model for the Beijing mountain areas of northern China. In developing valley economies, the mountain areas in Beijing have explored five typical development models (Figure 5).

It can be concluded that the valley economy model is an important approach to overcoming the limitations of development in mountainous areas and can help to improve coordinated development in these regions. The Beijing mountain areas have begun to construct economies based on this model. This paper has outlined the framework for the

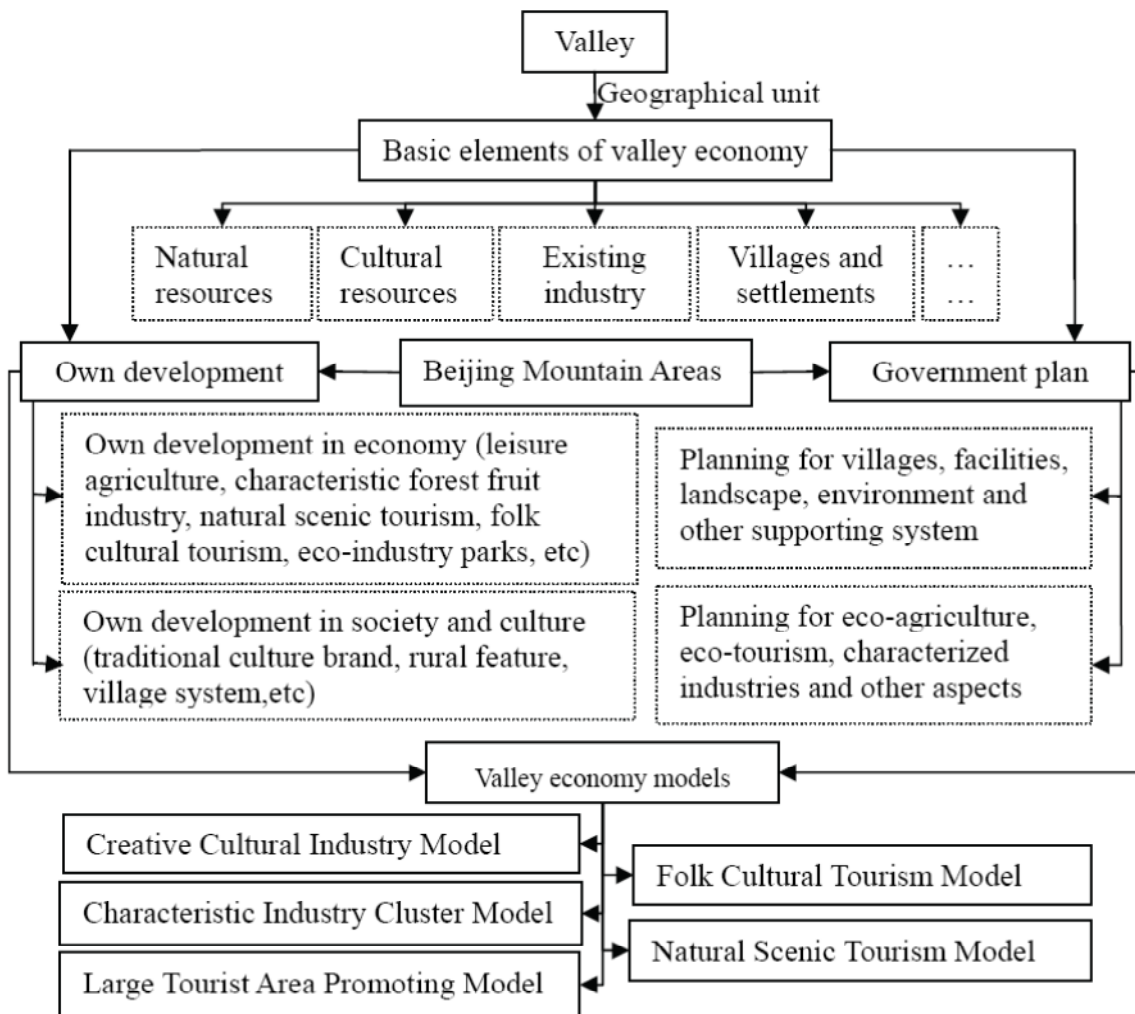


Figure 5 Valley economy model of Beijing mountain areas.

development of valley economy. The development of a valley economy should be approached rationally according to local conditions.

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