



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# Study on "Shigang Pattern" of Ecological Model Village in Taihang Mountains

ZHANG Liang\*, WANG Jun-qin

College of Economics and Trade, Agricultural University of Hebei, Baoding 071000, China

**Abstract** General situation and development conditions of Shigang Village in Shexian County, Hebei Province were introduced, "Shigang Pattern" based on ecotourism was analyzed from 3 perspectives: development objective, overall layout and development pattern. Shigang Village has explored a new rural development road of "eco-agriculture driving tourism industry, and tourism industry in turn promoting modern agriculture" supported by greenhouse vegetable base and Yuquan Water Park. Enlightenment of the construction of ecological model village in Taihang Mountains was obtained as: making plans for instructing scientific decision-making; promoting development of pillar industries based on local conditions; focusing on both material and spiritual civilization, motivating cultural life of the locals; developing advantages and promoting the construction of ecological civilization.

**Key words** Taihang Mountains, Ecological model village, Rural tourism, Shigang Pattern

Ecological model village is an effective carrier for constructing a moderately prosperous countryside, and an exploration of constructing new socialist countryside. It is significant for promoting the coordinated development of rural material civilization, political civilization, spiritual civilization and ecological civilization<sup>[1]</sup>, improving backward lifestyles and living environments of rural residents, and pushing forward the all-around development of various undertakings in rural areas of China. However, construction of ecological model villages is a long-term task requiring further explorations and examinations in theory and practice. "Shigang Pattern" took the way of "urban areas driving rural areas, rural areas in turn supporting urban areas, both of them making integrated progress", which is successful experience for underdeveloped regions getting rid of "the traditional industrialization"<sup>[2]</sup>, and also an excellent example for regions in Taihang Mountains building new countryside and properly settling "issues concerning agriculture, rural areas and farmers".

## 1 General situation and development conditions of Shigang Village

**1.1 General situation** Shigang Village is located at the south bank of Qingzhang River, 8 km southeast away from the county town of Shexian County. It is a picturesque mountainous village backed on Mountain Woyun and facing Qingzhang River<sup>[3]</sup>. There are 887 residents of 260 rural households in the village, and its arable land totals 40.93 ha., vegetable and grain crop planting is the pillar industry of Shigang Village. Construction of Yuquan Lake Park was launched since 2004 by introducing

water from Qingzhang River, this ecotourism sightseeing park was designed with integrated functions such as tourism, leisure, sightseeing and body building. The park receives 0.11 million tourists every year and achieves an annual total tourism income of 1 million yuan and above. In 2005, a hydropower station of 390 kW was built with a total investment of 1.5 million yuan, and collective income of the village achieved 0.25 million yuan<sup>[4]</sup>. Main streets in the village were all paved and designed with green belts, a straw gasification station was built and able to satisfy basic energy needs of local villagers. Tap water and cable TV is available for all households in the village<sup>[5]</sup>. Village Propagation Cultural Station was established by investing more than 0.4 million yuan, artist performance team, sci-tech service team, medical and sanitation team were organized, and all kinds of cultural and entertainment facilities installed. In 2010, per capita net income of the village achieved 6 070 yuan, and the collective income exceeded 1.5 million yuan<sup>[6]</sup>.

### 1.2 Development conditions

**1.2.1 Advantages.** Shigang Village is endowed with many advantages for constructing ecological model village. Located in the depth of Taihang Mountains, the village has only a per capita arable land area of 0.047 ha., but the number is higher than the average of Shexian County (0.04 ha.), which ensures sufficient land resources for agricultural production. Lying by Qingzhang River and only 8 km away from the county town, the village enjoys excellent irrigation conditions, location advantages and unique resources which are all favorable conditions for attracting tourists. It also lies adjacent to Qingquan Temple and Yuquan Lake, both of the scenic spots will also attract tourists to the village. Local villagers have traditional habits and experience in cultivating vegetables, which is a solid foundation for taking vegetable cultivation as the pillar industry<sup>[7]</sup>. Guided by the village collective in the past years, the village collective and local peasants have become capable of investing and enjoyed outstanding economic advantages. All villagers are living inten-

Received: June 3, 2012 Accepted: July 21, 2011

Supported by Project for Humanities and Social Science of Hebei Province (S070420); Livelihood Research Project of Hebei Federation of Social Science Circles (201101017).

\* Corresponding author. E-mail: ndrsczl@sina.com

sively, villagers of 110 households have their own new houses built, and all village roads are regularly planned and perfectly paved<sup>[8]</sup>.

**1.2.2 Disadvantages.** The village has to overcome such disadvantages as backward production facilities, for example, vegetable production in the village mainly depends on middle-scale tunnels, and most of the tunnels built with earth and wood are shabby and need to be updated urgently. Qingzhang River has not been improved comprehensively, and agricultural production is threatened by potential dangers. Lack of advanced technology, the villagers depend only on traditional varieties and techniques for vegetable cultivation, thus are not able to enjoy high benefits brought by new technology. Without effective organization, specialized vegetable cooperative society is far away from developing its potentials. One household is a production unit, and vegetable selling depends mainly on small retailers to buy directly from fields, or peasants themselves to sell by roads or in county vegetable markets.

**1.3 Opportunities** Shigang Village is faced with great development opportunities. First, it enjoys a favorable external environment. Strategies of constructing new countryside brings the village unprecedented advantages, Shigang Village as one of the 8 demonstration village of new countryside construction in Shexian County wins direct instructions and policy supports. Second, it has energetic internal forces. Shigang Village has a favorable foundation and also great development potentials, but also serious weaknesses in facility, technology and human resources, thus construction of ecological modal village should further enhance its advantages and avoid its disadvantages, and overcome all unfavorable factors<sup>[9]</sup>.

## 2 "Shigang Pattern" with ecotourism as the principal line

Shigang Village, by centering on the construction of new socialist countryside and fully developing its geographical advantages, took ecotourism as the principal line for its development and devoted a lot in promoting its eco-agriculture and rural tourism industry. "Shigang Pattern" was formed on the basis of the overall layout, specifically, "vegetable fields in the front, fruit trees at back, fertile paddy fields within the dam, river water for generating power, ecological conditions driving tourism industry, new civilized homeland"<sup>[10]</sup>.

**2.1 Development goals** Based on local conditions, Shigang Village is defined as new ecotourism suburbs with integrated specialized industries, leisure industries and tourism industry. It focuses on the development of ecotourism and is supported by vegetable production. The overall requirement is to center on "ecological leisure", highlight features of pollution-free vegetable production, realize specialized production and management, develop made-to-order farming and industrial integration organizations, attach more importance to popularization of agricultural technology and independent innovation. Natural rural environment and native cultures can be fully used to attract tourists, so as to drive the further construction of new countryside through developing the emerging ecotourism with

integrated functions of sightseeing, entertainment, experiencing and education<sup>[11]</sup>.

**2.2 Overall layout** According to the development goal of Shigang Village, its land is divided into residential area, modern agricultural park, basic farmland, water park and others.

**2.2.1 Residential area.** Located in the village center, residential area covers a total area of 7.33 ha., and the planning is to properly adjust internal land uses in this plot by adopting the pattern of "reforming on the basis of originals"<sup>[12]</sup>. More green spaces should be developed without occupying any more arable land.

**2.2.2 Modern agricultural park.** It includes pollution-free vegetable production area and fruit and vegetable harvest area. The former covers a total area of 20 ha., producing mainly greenhouse vegetables. The latter consists of scattered plots in the village, covering a total area of 6.67 ha.

**2.2.3 Basic farmland.** The 20 hectare of grain crop production land is available for both rice and wheat cultivation. Engineering and technological measures can be applied to ensure high and stable yield of the land and also self-sufficiency of the villagers.

**2.2.4 Water park.** Area of Yuquan Lake can be further expanded to 20 ha., more ecotourism projects can be organized, such as water tour, swimming, boating and farmhouse catering services<sup>[13]</sup>.

**2.2.5 Others.** Green spaces, refuse landfills and agricultural construction lands are included.

**2.3 Development pattern** Shigang Village has invented a successful development based on its greenhouse vegetable production base and Yuquan Lake Water Park, "eco-agriculture drives tourism industry, and the latter in turn promotes modern agriculture". The village shows an image of new socialist countryside "where people learn what they want, are rewarded when they pay, have convenient medical services when they get sick, live in their own houses, and will be looked after properly when they are old". Through constructing the ecological model village, Shigang Village has its special pattern formed and the pattern is characterized by the following features.

**2.3.1 Vegetable production base formed, pillar industries gradually established.** More efforts are devoted in promoting the cultivation of pollution-free vegetables, and expand the production scale, as a result, high-level pollution-free vegetable production base is established, such functions as sightseeing, vegetable and fruit harvesting are added, which lay a solid foundation for sightseeing and ecological agriculture.

**2.3.2 Economic strength greatly enhanced by developing ecotourism.** When vegetable production is gradually developed as the pillar industry of Shigang Village, local water resources are fully used to build Yuhu Lake Water Park, and promote ecotourism. As a result, collective economic strength of the village is largely enhanced, providing material support for the improvement of public service facilities.

**2.3.3 Infrastructure and living environment improved.** Renovation of shabby and dangerous houses is finished, major

roads in the village are re-paved, greening, cleaning and beautification of the village and its neighboring spaces are completed. Drinking water reform project was launched, methane gas introduced to all households, and the improved living environment provided a precondition for the construction of spiritual civilization<sup>[14]</sup>.

**2.3.4** Great progress made in science, technology and culture, quality of villagers largely improved. A training center with complete facilities is established, cable TV and internet is available for all villagers, which greatly enrich cultural life of the locals. Favorable moral outlook of villagers is maintained and enhanced, quality of villagers and cadres improved to guarantee the democratic management.

**2.3.5** Scientific and democratic management realized, all kinds of regulations made. The locals exercise their right to know, participate, manage and supervise effectively through the scientific and democratic decision making. Cohesive force and strength of the village party organization is further enhanced, and villagers show higher satisfaction to the village management, which promotes construction of ecological model village in an all-around way.

### 3 Enlightenment on the construction of ecological model villages in Taihang Mountains

Based on the construction of eco-homeland and enriching peasants project, eco-agriculture and sightseeing was put on the top priority of the village's development agenda to promote its ecological economy, and remarkable progresses were made in the construction of ecological model village. The village was nominated as the most beautiful village of China<sup>[15]</sup>, and awarded as Demonstration Ecological Model Village of Hebei Province many times. It brings important enlightenments to the construction of ecological model village in Taihang Mountains, thus its development pattern is worth further promotion.

**3.1 Making plans for instructing scientific decision-making** Due to the scattered rural settlements in Taihang Mountains and diversified conditions of these settlements, construction of ecological model villages is a complicated and systematic project involving a large scale and great amount of construction. Therefore, scientific plans have to be made first, development concepts sorted out, guiding concepts and major tasks stated to ensure the construction of ecological model villages to go on in the correct direction and definite framework<sup>[16]</sup>. Considering the overall planning made by the local government, these villages have to make their own plans and carry out the construction of ecological model village according to the plans, so as to avoid blind and repeated construction and also resource waste<sup>[17]</sup>. The way of Shigang Village making its planning should be learnt, actual conditions of different villages considered to make practical plans, compile instructions, and propose feasible implementation schemes for the construction of ecological model village.

**3.2 Promoting development of local pillar industries based on actual conditions** To adapt to and accelerate the

development pace of modern agriculture since 1990s, Shigang Village has built itself into the first Tunnel Vegetable Production Village and also the largest pollution-free vegetation planting base in Shexian County by making use of its unique geographical advantages. Natural resources in different regions of Taihang Mountains vary greatly, thus when the successful experience of Shigang Village is borrowed, actual conditions of different regions should be combined, local resources and characteristics used to develop modern agriculture. Pillar industries should be defined first, scientific and technological content of products improved, all origin places of major raw materials must satisfy the ecological environment standards of green products, and all products should be developed in the way of specialization and systematization<sup>[18]</sup>. To improve production and living conditions of the locals, and increase their income, pillar industries should be cultivated according to actual conditions of the local areas, further promote the infrastructure construction and effective construction of new countryside.

**3.3 Focusing on both material and spiritual civilization, motivating cultural life of the public** To improve cultural quality and enrich cultural life of the public, Shigang Village has a high-level cultural propagation station covering a floor area of 500 m<sup>2</sup> built according to the requirements of "one station, eight rooms and three columns". The station is not only a favorable place for holding cultural and entertainment activities, but also a platform for local villagers knowing the latest market information, learning knowledge and laws. In view of the successful experience of Shigang Village, other villages in Taihang Mountains should also follow the way of focusing on both material and spiritual civilization to construct harmonious, civilized and ecological villages. More efforts should be given to the construction of hard infrastructure such as hardening, greening and purification, and the construction should be based on the motivation of the locals' cultural life, cultural activities organized frequently, standardization of democratic management enhanced<sup>[19]</sup>.

**3.4 Developing advantages of the local area, promoting construction of ecological civilization** Shigang Village has devoted great efforts in the development of eco-agriculture, and has invested the most funds ever in the village history to build an ecotourism and sightseeing park on the 20 ha low-lying marshes along the Qingzhang River running through the village. And the park has greatly promoted the construction of ecological model village. Based on characteristics of natural resources in Taihang Mountains, exploring a characteristic development road is an important approach of promoting the development of ecological model villages in the study area. Construction of ecological model village in Taihang Mountains needs the local area to develop landscape advantages of the mountainous areas, highlight their ecological characteristics, and fully use green plants' function of adjusting the environment. Through "establishing a national green product development system and sale network, developing green market, and better satisfy ecological needs"<sup>[20]</sup>, ecological agriculture will be greatly developed.

(To page 85)

lenium in single varieties to achieve the goal of selenium supplement, the content of selenium in cereals can reach 300  $\mu\text{g/kg}$ . The rest may be deduced by analogy: the maximum content of selenium in fruits can reach up to 500  $\mu\text{g/kg}$ ; the content of selenium in vegetables can reach 100  $\mu\text{g/kg}$ . In accordance with the minimum daily intake required at 50 g for calculation, the lowest content of selenium in cereals, fruits, and vegetables is 82.1  $\mu\text{g/kg}$ , 91.4  $\mu\text{g/kg}$ , and 54.4  $\mu\text{g/kg}$ , respectively.

Table 7 Human daily intake of selenium from food

Species	Grain	Meat	Fish	Fruit	Vegetables	Eggs
Weight//g	400	75	75	200	500	50
Content// $\mu\text{g/kg}$	43.36	11.97	14.31	13.85	23.4	14.31
Total// $\mu\text{g}$	17.34	0.897	1.073	2.77	11.7	0.715

In summary, it can be derived that the recommended range of the content of selenium in cereals is 82.1–300  $\mu\text{g/kg}$ ; the recommended range of the content of selenium in fruits is 91.4–500  $\mu\text{g/kg}$ ; the recommended range of the content of selenium in vegetables is 54.4–100  $\mu\text{g/kg}$ .

6 Conclusions

Selenium plays an important role in health protection for the human body. Developing selenium-rich agricultural products becomes a new bright spot of contemporary agriculture. The selenium-rich agricultural product industry brings certain eco-

nomic benefits and provides selenium-supplement agricultural products for the regions lacking selenium, but excess selenium will have a negative effect on human health. We must pay equal attention to economic benefits and social benefits, strictly control the content of selenium in agricultural products, scientifically and safely supplement selenium, and protect the public health.

References

[1] GUO SP, QI L, YU BL. Selenium and brain function[J]. Foreign Medical Sciences: Section of Medgeography, 2005, 26(1): 8–10. (in Chinese).

[2] YANG SL, LI XF. Selenium of trace element of anti-cancer action [J]. Chinese Journal of the Practical Chinese with Modern Medicine, 2006, 19(2): 197–198. (in Chinese).

[3] WANG M, ZHUANG HL. Studies on the standard of supplement with selenium for mankind[J]. Journal of Mathematical Medicine, 2007, 20(4): 549–550. (in Chinese).

[4] YAO XF. Research advance about effects of selenium on human body health[J]. Silicon Valley, 2008(18): 17–18. (in Chinese).

[5] YU SM, DENG Y, ZUO BJ. Effects of selenium on human body health[J]. Food and Nutrition in China, 2010(4): 51–52. (in Chinese).

[6] FANG YM, WANG LW. Selenium, the effective assistant for preventing cancer[J]. Popular Medicine, 2010(5): 46. (in Chinese).

[7] YANG YX, WANG GY, PAN XC. Chinese food components analysis table[M]. Beijing: Peking University Medical Press, 2009. (in Chinese).

[12] Adhere to the people-oriented, creating harmonious She County [EB/OL]. (2010–11–16) [http://travel.hebnews.cn/2010-11/16/content\\_1244034\\_3.htm](http://travel.hebnews.cn/2010-11/16/content_1244034_3.htm). (in Chinese).

[13] The development project of Handan She County Yuquan Lake park on water ecology tour[EB/OL]. (2011–11–25) <http://www.zg-sxzs.com/c/p/91290>. (in Chinese).

[14] Shigang Village, She County is the candidate of “2011 the most charm recreation rural in China” [EB/OL]. (2011–08–10) [http://sx.hd.hebnews.cn/2011-08/10/content\\_2196219.htm](http://sx.hd.hebnews.cn/2011-08/10/content_2196219.htm). (in Chinese).

[15] CHEN J, GE JF. Discussion on ecotourism development model in Taihang Mountain Area of Hebei Province[J]. Journal of Arid Land Resources and Environment, 2010, 24(2): 122–125. (in Chinese).

[16] MENG QN, ZHANG XG. Integrating agriculture development resource, broadening saving-type agriculture road[J]. Rural Finance and Financial Affairs, 2006(11): 19. (in Chinese).

[17] SONG LF. Theory and practice of ecological civilization[J]. Social Sciences in Nanjing, 2007(12): 3–8. (in Chinese).

[18] More than 800 farmers share a family[EB/OL]. (2009–09–01) [http://hd.hebnews.cn/2009-09/01/content\\_783164.htm](http://hd.hebnews.cn/2009-09/01/content_783164.htm). (in Chinese).

[19] HU HM, MA BG. New rural construction under the perspective of ecology civilization[J]. Social Science Research, 2009(4): 109–112. (in Chinese).

[20] YIN SJ. On ecology demand[N]. Guangming Daily, 1998–01–26. (in Chinese).

[21] CHEN MQ, CHEN BH. Realistic question and countermeasure of eco-civilized villages construction in Lishui[J]. Journal of Anhui Agricultural Sciences, 2010,38(34): 19780–19782. (in Chinese).

(From page 82)

References

[1] LI CZ. On ecological and civilized villages and building socialist new countryside[J]. Journal of Shenyang Agricultural University: Social Science Edition, 2007(1): 8–11. (in Chinese).

[2] MI SC. On tourism ecological village pattern in suburb of Beijing [D]. Beijing: Beijing Forestry University, 2007. (in Chinese).

[3] Shigang Village, She County, Handan City, Hebei Province[EB/OL]. (2011–07–07) <http://travel.people.com.cn/GB/226767/226768/15261773.html>. (in Chinese).

[4] ZHANG LP. Record of “economy on water” developing collective economy in Shigang Village[N]. Handan Daily, 2011–08–18. (in Chinese).

[5] ZHANG J. Swear to change Shigang into Jiangnan[N]. Handan Daily, 2007–04–05. (in Chinese).

[6] ZHANG XF. The mazy Shigang in past days and new village in now days[N]. Hebei Daily, 2011–07–09. (in Chinese).

[7] She County advancing rural collective economy development with competition[EB/OL]. (2011–12–29) <http://hbcxzy.hebei.com.cn/system/2011/12/29/010284373.shtml>. (in Chinese).

[8] REN LJ. New residence lightening rural new life[N]. Handan Daily, 2010–09–20. (in Chinese).

[9] XU LM, PENG KM. Discussion on the problem in the construction of civilizational and ecological village in rural and its consideration[J]. Journal of Anhui Agricultural Sciences, 2007, 35(6): 1825. (in Chinese).

[10] JIANG TD, party branch secretary in Shigang Village, She County [EB/OL]. (2006–02–24) <http://news.sina.com.cn/c/2006-02-24/09208290939s.shtml>. (in Chinese).

[11] LI SY, LIU ZJ. Benefit from vegetable basket[N]. Handan Daily, 2010–04–20. (in Chinese).