

Annex 1.

Rice Terraces Systems in Subtropical China

-- Chongyi Hakka Terraces

Location: Chongyi County, Jiangxi Province, China



The People's Government of Chongyi County, Jiangxi Province

August, 2016

SUMMARY INFORMATION

Name/Title of the Agricultural Heritage System (local Name and Translation, if necessary):

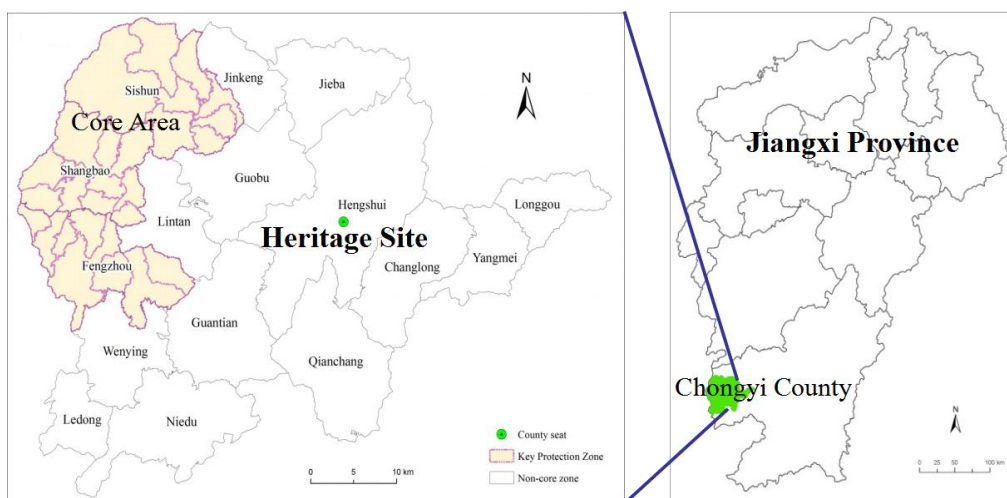
**Rice Terraces Systems in Subtropical China
-- Chongyi Hakka Terraces**

Recommending/applying organization:

The People's Government of Chongyi County, Jiangxi Province, P. R. China

Country/location/Site:

The Chongyi Hakka Terraces is located in Chongyi County, Ganzhou City, Jiangxi Province, China. Bordered by Hunan and Guangdong Province, it is between longitude 113°55'-114°38' E and latitude 25°24' - 25°55' N. Across the county, there are 6 towns, 10 townships, 3 community committees and 124 administrative villages.



Heritage Area: 2206.27 km² (73 km from east to west, and 59 km from north to south)

Core Area: 521.15 km²

Agro-Ecological Zone: Rice cropping terrace of hilly area in Southern China

Topographic Features: Varied landforms, mainly mountains and hills, accounting for 92.73% of the total land area.

Climate Type: Subtropical monsoon humid climate

Approximate Population: 211,500 within heritage area (including agricultural population of 175,000)

Accessibility of the Site to Capital City or Major Cities:

Chongyi Hakka Terraces are 65 km away from the center of Ganzhou city and 63 km from Golden Airport in Ganzhou, connected by an expressway. Xia-Rong Expressway crosses Chongyi and connects it with Chenzhou and other cities in Hunan Province. Besides, it is just 30 km away from Shao-Gan Expressway, and this helps to link the area to all the cities in Guangdong Province. In addition, it is 69 km from Ganzhou railway station and 30 km from Dayu railway station, both of which are linked to the nationwide railway network.

Main Source of Livelihoods:

For sources of rural household income, the farming/agriculture, industry and service sectors account for 87.8%, 1.5% and 10.7%, respectively. In the core area, income from farming and forestry contributes to 78.65% of all rural household income. It supplies food crops (like rice, wheat and corn), various oil-bearing crops, vegetables, fruits and so on. Besides, there are also some native agricultural products such as tea, orange, brier grape, and south jujube.

Ethnicity/Indigenous Population:

Han people (the Hakka) account for more than 99% of the total population, the minority less than 1%, are mainly She(畲). The Hakka derive from the traditional Han in the central mainland. During the past thousands of years, the Hakkas gradually immigrated to south China, especially in some massive movements to the South. These people developed into several particular groups across different provinces in South China and today the Hakka is still an important division of the Han people.

Summary Information of the Agricultural Heritage System:

Chongyi Hakka Terraces cover the whole Chongyi County, spreading between Luoxiao Mountain Range and Zhuguang Mountain Range, and reaching a total area of 2206.27 km², mainly made up of mountains (47.67%) and high hills (45.06%).

The core area lies at the foot of Qiyun Mountain, a national-level natural protection area and also the highest place in south Jiangxi. It is around 521.15 km², across Shangbao, Sishun and Fengzhou, and covers 26 administrative villages. Affected by the subtropical monsoon humid climate, it is hot and rainy in summer, while warm and humid in winter. In the area, the soil, mainly the mud and plaster field, is very fertile. Therefore, there grows 13 traditional varieties of rice like yellow husk glutinous rice, sticky glutinous rice, and sorghum glutinous rice. As to other traditional crops, there are around 26 kinds which include indica yellow millet, chicken feet millet, dog tail millet, ramie and so on. In addition, there are 14 species of traditional breeding animals. Generally, the species of animals and plants are 4,588, which bring a rich biodiversity to the area.

The origins of the Chongyi Hakka Terraces can be dated back to the Southern Song Dynasty, more than 800 years ago. It was commonly constructed in the end of the Ming Dynasty, and completed at the beginning of the Qing Dynasty. The South Jiangxi is a birth place of the Hakka. When the purposeful Hakkas immigrated here, they also brought farming technology and tools. This cultivation culture combined well with the fertile local terrain and evolved into a new “forest - bamboo - tea - village - terrace – stream” mountain agriculture system in which species and landscapes are diverse and people live in good harmony with nature. With various cultivation patterns, a full use of local water, land, and systematic traditional farming and breeding knowledge accumulated by experience, the Hakkas have a good command of eco-technology and effectively maintain the sustainable development of local agriculture.

Chongyi Hakka Terraces are not only an important source of livelihood, but also plays a positive role in sustaining all kinds of social relationships in Hakka rural society. During the course of constructing the terraces, the Hakkas integrated local culture and customs of the minority groups of *She* and *Yao* into their own system to develop a new terrace farming pattern combined with the ethnic styles of the minorities. The cultivation culture is a good example for productive use of hilly

lands in China and even in the world. At the same time, it also makes a great contribution to agricultural revitalization and sustainable development. All these help to promote the development of ecological civilization and increase our national pride.

The government of Chongyi County has a strong and urgent responsibility to protect the Hakka terraces and has taken some actions in order to achieve sustainable development. Besides, the Hakkas are also eager to protect and inherit the agriculture heritage system. More and more of them realize that the land is the very wealth passed from their ancestors generation by generation, and this land is also the place where their culture can be sustained. In future, the protection will start from establishing heritage protection areas to further strengthen civil protection awareness, and enhance the ability to improve cultural consciousness, participate in the decision-making and management. Besides, related policies and regulations will be enforced to form better institutional security and promote the sustainable development of eco-agriculture. Last but not least important, it is necessary to invest more in agriculture technology/ecology and build a multi-channel access to funding.

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Global Importance

Chongyi Hakka Terraces can be dated back to the Nan Song Dynasty, built in the late Ming Dynasty, completed in the early Qing Dynasty, with a history of more than 800 years. It represents one of the great achievements of ancient Chinese agriculture. The protection of Chongyi Hakka Terraces is not only beneficial for a better understanding of the Chinese ancient farming civilization, but also more conducive to the future direction of agricultural development.

The Hakkas combined terracing with forestry and water conservation to form a unique pattern of land-water resource utilization and management. The integration of a variety of cropping patterns, and the effective control of soil erosion to withstand natural disasters, make the Hakkas actively respond to climate change, and protect the livelihood security of local people. Under the background of global climate change, terrace farming systems provide an important insight for policy and society.

Chongyi Hakka Terraces which take advantage of the natural conditions to form an highly functional agricultural ecosystem, uses traditional farming technology and a diversity of cultivation techniques, combines land use with conservation, limits the occurrence of pests, to form a mode of production and circulation of traditional knowledge, beginning with “organic”, followed by “organic”, and ultimately “organic”. This farming method produces a significant economic value, satisfies the material needs of the local residents, and maintains the security of the regional ecology. As a typical representative of rice cropping systems in subtropical mountainous areas, this kind of development model has the vital significance for other similar areas, especially in hilly areas of agricultural development.

The traditional culture of the central mainland integrated with the local hilly terrain, forms a typical representation of Hakka culture. Terraces not only provide the source of livelihood for local people, but also become an important carrier of Hakka culture. Due to living in relatively closed mountains valleys, following a relatively independent and complete terrace social system, the Hakkas gradually formed a unique patriarchal clan system and folk culture. This landscape represents the Hakka

culture like a living museum and exhibition hall facing the world through terraces.

In addition to agricultural products, soil conservation, water conservation, terraces also have the value of protecting biodiversity, landscape maintenance and cultural heritage. The mountain agricultural system formed vertically by a “forest - bamboo - tea - village - terrace - stream” is an ecosystem with abundant diversity of biology and landscape. It not only supports local farming activities and sustains traditional Hakka culture, but also has a unique aesthetic value and reflects the aim of utilizing nature while respecting nature. It is a model of coordinated development between humans and nature.

The development of Chongyi Hakka Terraces embodies many scientific problems, the research and exploration is conducive to understand and reference traditional farming technology. The farming culture of Chongyi Hakka Terraces provides great potential value for the sustainable development of economy, society and environment in the future.



1 Characteristics of the Agriculture Heritage System

1.1 Location and Geographical Conditions

Chongyi Hakka Terraces cover the whole territory of Chongyi County, Jiangxi Province. Chongyi is located in southwest Jiangxi Province, about 90 km from Ganzhou City and bordered by Guangdong and Hunan Province on the south and west. The proposed area is between longitude 113°55'-114°38' E and latitude 25°24'-25°55' N (Figure 1), around 73 km from east to west and 59 km from north to south. Within its area of around 2206.27 km², there are 6 towns, 10 townships, 3 community committees and 124 administrative villages. At the end of 2013, its population amounted to about 211,150 and the majority of residents were of *Han* nationality.

It is mountainous all over the region of Chongyi, and the height gradually becomes lower from southwest to northeast. According to geographic features, all the areas can be divided into mountain, high hilly ground, low hilly ground and valley terrace (Figure 2). Among them, mountain (more than 500 m above sea level) and high hilly ground (between 500 m and 300 m) respectively consist of 47.67% and 45.06% of the land, while the remaining 7.27% area is low hilly ground and valley terrace whose height is less than 300 m. In the county, there are 232 mountain peaks which are higher than 1000 m above sea level, and the highest is Qiyun Peak at Sishun, northwest Chongyi, whose height reaches 2061.3 m, it ranks second in Jiangxi province and the first in south Jiangxi.

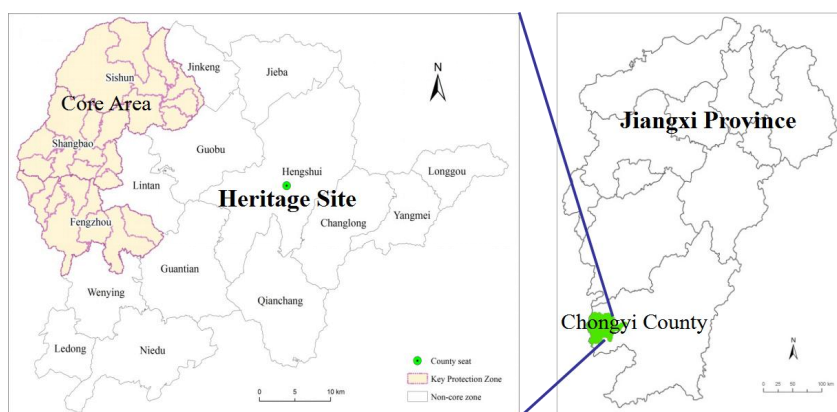


Figure 1 Location of Chongyi

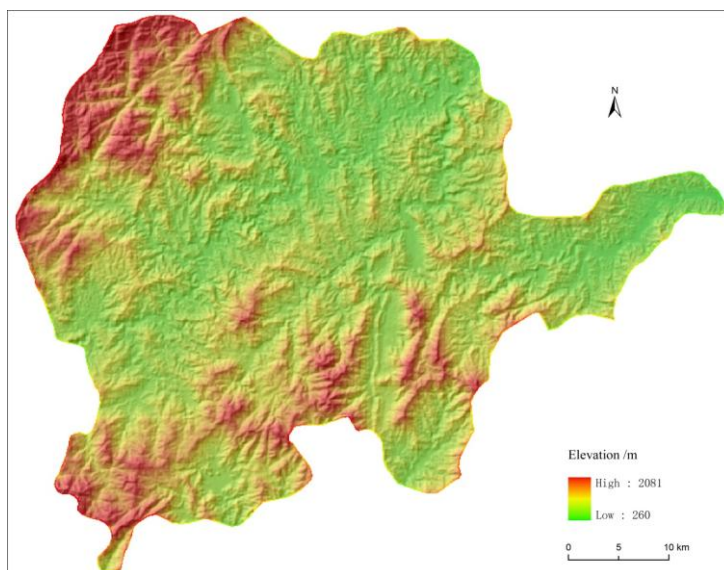


Figure 2 Topographic map of Chongyi

In Chongyi, because of the influence of the subtropical monsoon humid climate, monsoons prevail in winter and summer, and vertical climatic difference and regional climatic difference is very significant. The four seasons are distinguished clearly from each other, and it is warm in spring and cool in autumn, while it is not extremely cold or hot in winter and summer. Annual average temperature is 19.2°C, and the extreme highest and lowest is 38°C and -8°C. Annual rainfall is plentiful, reaching 1602.9 mm, and the average relative humidity is 81%. Besides, in Chongyi, its annual sunshine hours are 1538.5 h and the duration of frost-free period can last for around 290 days every year.

The core area (the key protection zone) involves 3 townships which are Shangbao, Sishun, Fengzhou, with 26 villages (Table 1). The total area is 521.15 km² (Figure 3).

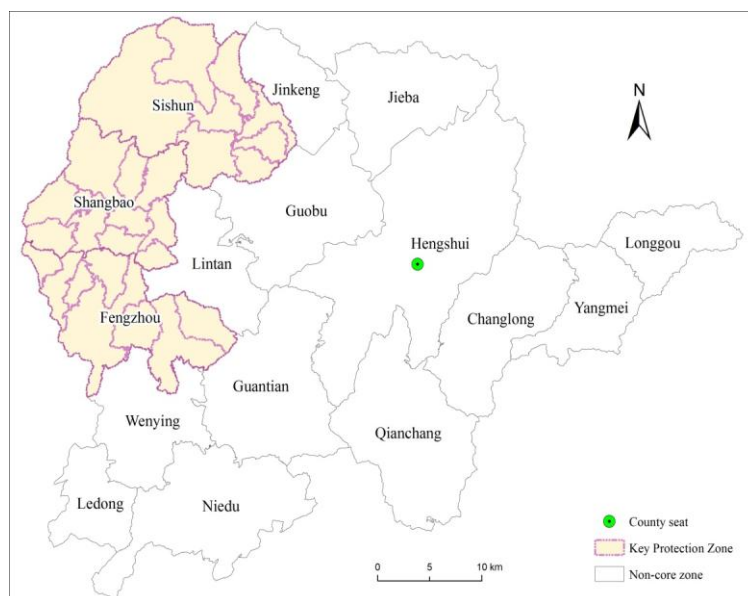


Figure 3 Key protection zones of Chongyi Hakka Terraces

Table 1 Administrative villages in the heritage core area

Villages	village committee under the jurisdiction
Fengzhou	Fengzhou, Jiuling, Xiaokeng, Oujia, Baishi, Tongzi, Yanhu, Guting
Sishun	Sishun, Yanyou, Nanzhou, Changjiang, Shanyuan, Shangzhi, Xindi, Qiyunshan
Shangbao	Shangbao, Meikeng, Jiazi, Shuinan, Zhuxi, Chishui, Lianghe, Zhengjing, Junyuan, Nuanshui

1.2 Food and Livelihood Security

1.2.1 Providing a Variety of Food

(1) Agricultural crops

Chongyi Hakka Terraces provide abundant kinds of food (Table 2). The food mainly includes rice, wheat, maize, millet, sorghum, beans and potatoes and other grain crops, as well as a variety of oil crops, vegetables, melons and fruits. The main oil crops are peanut, rapeseed, sesame. Vegetable and edible fungi include leaf vegetables, Chinese cabbage, cabbages, root vegetables, gourds, solanberries and so on. Fruits are mainly citrus, pears, peaches, grapes.

Table 2 The sown area and crop yields of Chongyi Hakka Terraces in 2013

Items	Area(hm ²)	Area ratio(%)	Yield(t)	Yield ratio(%)
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Grain crops	7421.13	47.58	45510	23.88
Oil crops	602.47	3.86	1353	0.71
Vegetables	2144.8	13.75	43748	22.95
Fruits	5067.2	32.49	93116	48.85
Green manure	360	2.31	6890	3.61
Total	15595.6	—	190617	—

(2) Livestock, poultry and fish breeding

Pig, cattle, sheep and other livestock and fish breeding are integral parts of Chongyi Hakka Terraces agricultural ecosystem. The main varieties of animal husbandry are pigs, cattle, sheep, poultry (chicken, duck, goose and pigeon), and rabbit. (Table 3). According to a preliminary investigation, there are 9 families of fish. Priority is given to Cyprinidae, as well as Cobitidae, Siluridae, etc. Reptiles, crustaceans and shellfish are also bred. Aquatic products reached a total of 1.22×10^4 t in Chongyi County, of which 1846 t, were special aquatic products breeding 1.13×10^4 t, fishing 860 t. The value of aquatic products output was ¥143 million, of which farming contributed ¥135 million, fishing ¥7.74 million¹.

Table 3 The livestock and poultry breeding situation in Chongyi Hakka Terraces ecosystem

Types	Total number	Livestock on hand	Marketing	Yields(t)
Pigs	151400	55700	94700	7996
Cattle	39000	29800	9200	1056
Sheep	13000	4600	8400	135
Poultry	1550200	774600	775600	1163
Rabbit	29100	12500	16600	30
Total	1782700	877200	904500	10380

1.2.2 Providing Other Products

Chongyi Hakka Terraces also provides other products (Table 4). Chongyi mountain tea is a famous green product, with a planting area of 1674.67 hm^2 . In 2013, bamboo was $1.58 \times 10^4 \text{ hm}^2$, including sympodial bamboo 10.3×10^4 plants (such as whangee), Mao bamboo 4.48 hm^2 . There are 33 taxus nursery bases with an area of 200 hm^2 , with a total area of about 6600 hm^2 .

¹ ¥ is a currency sign used to indicate the Chinese yuan (CNY).

Table 4 The area and yield of main forest products of Chongyi Hakka Terraces

Items	Area / number
Tea	1674.67 hm ²
Bamboo	15800 hm ²
Whangee	103000 plants
Mao Bamboo	4.48 hm ²
Taxus	6600 hm ²

In addition, the climate of Chongyi region is suitable for the growth of citrus tree. In 2013, the area of navel oranges was 4915.67 hm² in Chongyi, with navel orange production at 9.1869×10^4 t. Navel orange production in Shangbao, the terrace core area, reaches 861 t. In recent years, with the vigorous development of the agricultural economy, the terraces of spine grape, south jujube, taxus seedlings, oil-tea camellia and so on has gradually formed a period of large-scale planting (Table 5, Figure 4).

Table 5 Special agricultural industry in the townships of Chongyi Hakka Terraces ecosystem

Townships	Special agricultural industry and scale
Sishun	80 hm ² oil tea; one special aquaculture base (turtle) of 3.3 hm ² ; 13.3 hm ² Shangzhi brier grape
Shangbao	206.7 hm ² tea, including 73.3 hm ² Chishuixian; 27.3 hm ² organic rice; leisure agriculture demonstration site
Fengzhou	13.3 hm ² yacon ; 6.7 hm ² cantaloupe; one rabbit breeding base out of which came 10000 rabbits one year; 93.3 hm ² tea; Changfei ecological farm



a. "Mountain terrace"
organic rice



b. Shangbao
"Chishuixian" organic tea



c. Chongyi navel orange



d. "Qi Yunshan" jujube
cake

Figure 4 Characteristic agricultural products

1.2.3 Employment and Income Contribution

Traditional crop farming requires a lot of labor, thus it brings a greater contribution to rural employment. According to Chongyi county statistics, in 2013,

there were 41,603 farmers in the whole county, accounting for 48.71% of the total employment. The data of Shangbao, Sishun and Fengzhou respectively are 50.49%, 48.16% and 52.76% (Table 6). From the yearbook, according to the standard three sector division, 87.82% of rural household income comes from primary industry, 1.52%, from secondary industry and 10.63% from tertiary industry in Chongyi. Agriculture, forestry, animal husbandry and the fishery have income ratios of 63.94:18.82:17.09:0.12 respectively. Various types of data show that planting is the main source of the farmer income in Chongyi. Village collective income and individual farmer income keep growing. In 2013, the village collective economic organization revenue was ¥32.32 million, the farmer per capita income was ¥5956, an increase of 13.3% over the previous year (Figure 5).

Table 6 Employees in Chongyi county and terrace townships

Township	Total Employees	Agricultural employees	Industry employees	Agricultural employment rate/%
Sishun	6535	3147	402	48.16
Shangbao	5431	2742	634	50.49
Fengzhou	4680	2469	1372	52.76
Total county	85416	41603	18449	48.71

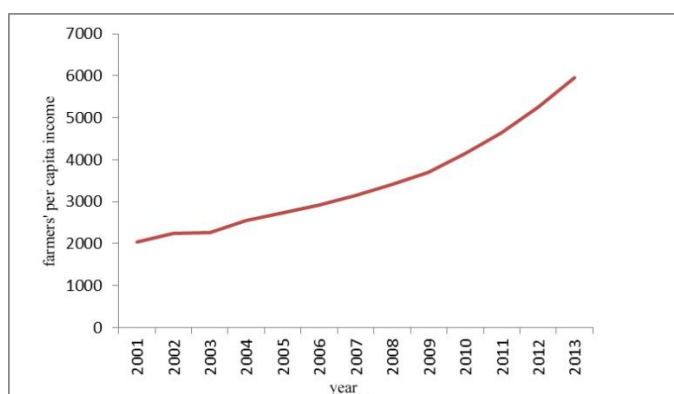


Figure 5 The change trend of farmers' per capita income in Chongyi during the 2001-2013 period.

1.3 Biodiversity and Ecosystem Function

1.3.1 Agricultural Biodiversity

(1) Crop resources

Great varieties of rice grow on Chongyi Hakka Terraces. Over years of

cultivation, seed selection and breeding by the Hakka through the ages, by the end of 2014, 13 traditional rice varieties (Appendix 2 – Schedule 1-1) were still being planted, including *red rice*, *Dahezi rice*, *yellow husk glutinous rice*, *black rice* and *short-legged Dahe rice* et al. In the 21st century, single-cropping hybrid rice varieties are mainly planted due to their stable and high yield, which includes 77 species of 27 series, such as Aiyou series, Nanyou series, Weiyou series, Shanyou series (Appendix 2 – Schedule 1-2) ^[1-3]. Apart from rice, there are 22 varieties of other food crops, such as yam, corn, sorghum, triticites, millet and beans (Appendix 2 – Schedule 1-3) (partly shown in Figure 6)^[1-3].

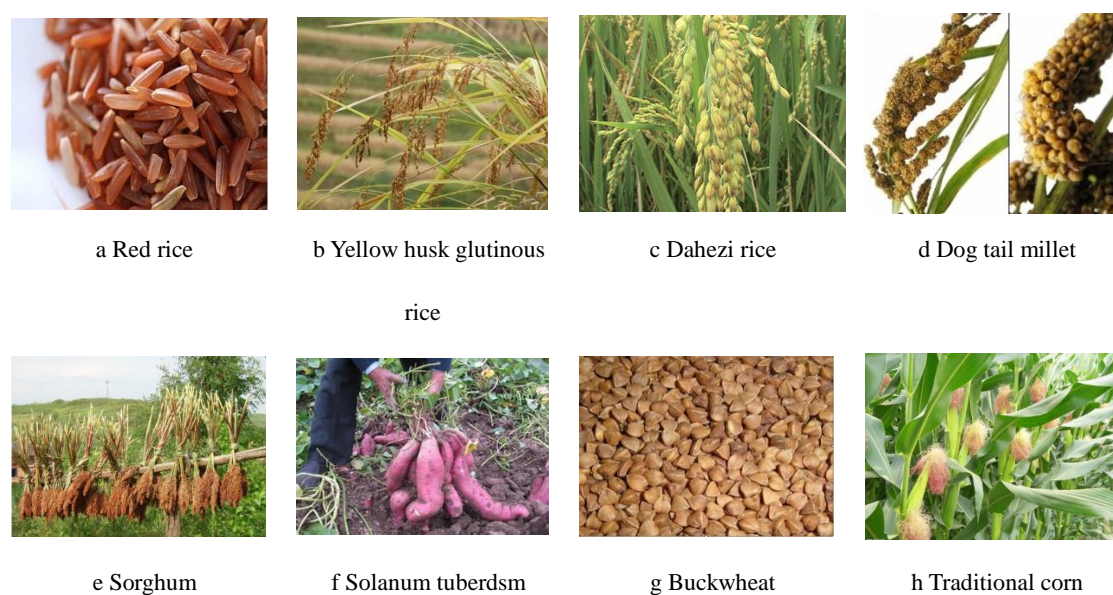


Figure 6 Some of the food crops grown in the Chongyi Hakka Terraces

In addition to the food crops, Chongyi's richly endowed germplasm resources come in a great variety (Appendix 2 – Schedule 1-3) (partly shown in Figure 7)^[1-3]. Fiber crops are divided into cotton and hemp fiber, totaling 8 varieties. Oil crops have 9 varieties, mainly including oil seed rape, sesame, tea-oil tree and peanut. Sugarcane is the major local sugar-yielding crop, which has 2 varieties. Tobacco is also a local crop. There are 10 kinds of vegetables of 48 varieties, including Chinese cabbage vegetables, root vegetables, solanaceous vegetables, melons vegetables, kale vegetables, legume vegetables, green leaf vegetables, tuber vegetables, onion garlic vegetables and aquatic vegetables, of which, featured vegetables include *Amorphophallus rivieri*, *Lagenaria siceraria var.hispida*, *Sechium edule*, *Pachyrhizus*

erosus, *Ipomoea aquatica* Forssk and *Begonia fimbriatipulata*. Fruits are mainly *Citrus reticulate* Blanc, *Citrus reticulata* Blanco cv. Ponkan, *Citrus sinensis* Osbeck, *Myrica rubra* (Lour.) S. et Zucc, *Eriobotrya japonica* (Thunb.) Lindl, *Punica granatum* L and other 13 species. Of them, *Vitis davidii* and *Choerospondias Axillaris* are the featured fruits in Chongyi county. There are 13 kinds of tea, including bitter tea, arbor wild tea, yangling xiumei tea, niedu bitter tea and longgui tea. Green manure crops are of 3 species, mainly *Astragalus sinicus*.



Figure 7 A selection of farm crops on Chongyi Hakka Terraces

Among the crops mentioned above, 26 kinds are traditional, including indica yellow millet, chicken feet millet, dog tail millet, china grass, yellow millet, Jute, konjak, bottle gourd, yam beam, bitter tea and sweet tea (Appendix 2-Schedule 1-4)^[1].

(2) Animal husbandry and fishery resources

The Hakka terraces are home to a wide variety of livestock and poultry (A selection shown in Figure 8), there are a total of 66 species, mainly including pigs, cattle, goats, rabbits, dogs, cats, chickens, ducks, geese and pigeons (Appendix 2 – Schedule 1-5). Of these, pigs have 12 species, cattle 5, goats 10, rabbits 7, chickens 5,

ducks 10, pigeons 5, bees 2, cats 5 and dogs 5 ^[1-3]. Of them, traditional livestock include the traditional spotted pig, yellow cattle, traditional chicken, traditional duck and another 10 kinds (Appendix 2 – Schedule 1-6) ^[1].

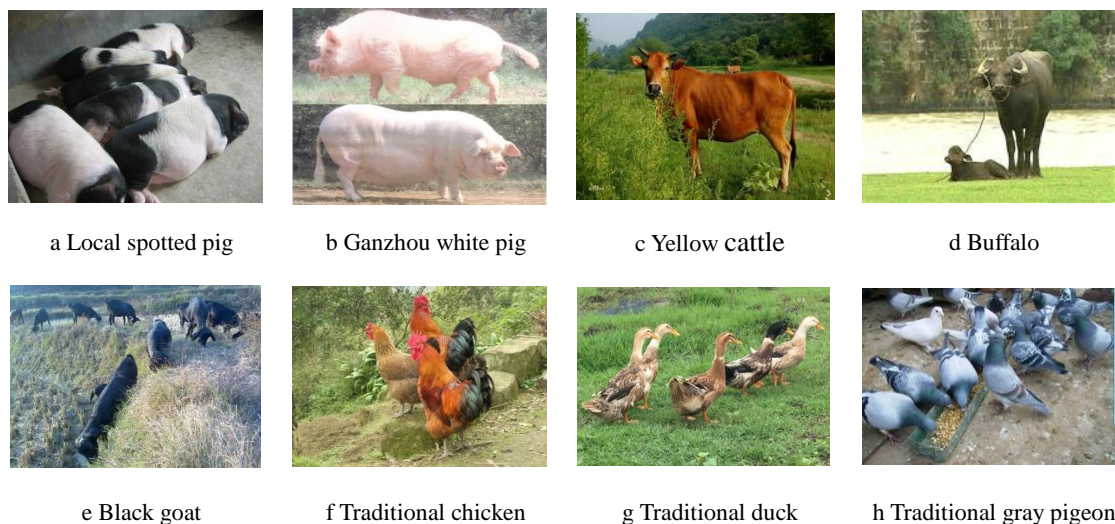


Figure 8 A variety of livestock on Chongyi Hakka Terraces

In terms of fishery, the Hakka undertake aquaculture in reservoirs, pools and lakes. In this regard, fish culture in paddy fields is a representative way of ecological farming *Cyprinus carpio*, *Carassius auratus* and *Misgurnus anguillicaudatus* (*Cantor*). According to preliminary survey, local cultivated fish totally has 28 species of 9 families including *Cyprinidae*, *cobitidae* and *siluridae*. Reptiles, crustaceans and shell-fish are also cultivated (Appendix 2 – Schedule 1-5). Reptiles mainly include *Trionyx sinensis*, *Rana catesbeiana* and *Rana grylio*. Crustaceans include *macrobranchium nipponense*, *palaemonetessinensis*, and *potamidae*, and shell-fish include *corbiculafluminea* and *procambarus clarkii* (partly shown in Figure 9).

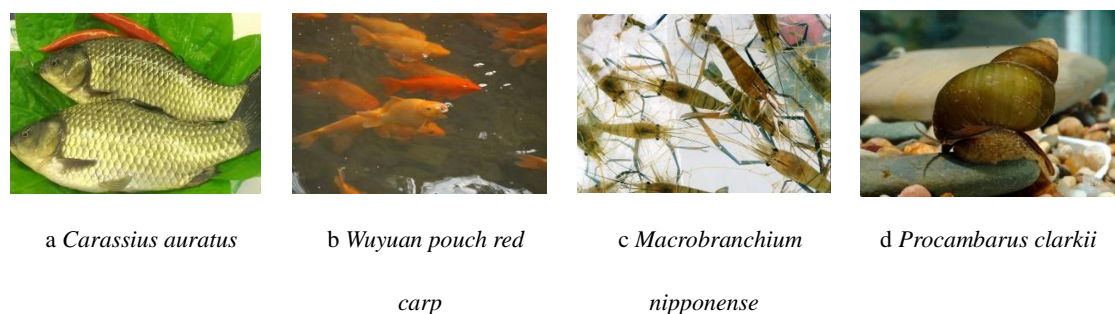


Figure 9 Some fishery resources on Chongyi Hakka Terraces

1.3.2 Agriculture-Related Biodiversity

(1) Wild plant resources

The region within this heritage site boasts extremely abundant ecological resources and biodiversity, which constitutes a natural gene bank of flora and fauna in the subtropical zone. By the end of 2014, there had been a total of 2844 species of higher plants under 1031 genera in 270 families in this region (partly shown in Figure 10) ^[4]. Of them, 3 species are under Level-I National Key Protected Wild Plants, including *Taxus mairei* (*lemee et L'Évl*) *S Y Hu*, *Bretschneidera sinensis* *Hemsl*, *Ginkgo biloba* *L*. Fourteen species are under Level-II National Key Protected Wild Plants, including *Alsophila mertteniana*, *Cinnamomum rigidissimum*, *Castanopsis concinna*, *Fagopyrum dibotrys*, *Fokienia hodginsii*, *Cinnamomun camphora*, *Magnolia officinalis* *subsp. Biloba*, *Toona ciliata* *var.pubsecens*, *Camptotheca acuminata* *Decne*, *Glycine soja*, *Semiliquidambar cathayensis*, *Phellodendron chinense* *var. Glabriusculum*, *Eurycorymbus cavaleriei*, *Cibotium barometze* (Appendix 2 – Schedule 2-1). Of them, 20 species are recorded in *China Plant Red Data Book* (the first batch in 1999), among them, 1 species is endangered, 9 species vulnerable, and 10 species rare (Appendix 2 – Schedule 2-2). As many as 76 species are listed in *the Appendix of CITES (2007)*, among them, the orchidaceae family is the most common (Appendix 2 – Schedule 2-3). Twenty species fall in *the IUCN Red List (2007)*, among them, 5 species are endangered, 8 species vulnerable, 7 species low risk, (Appendix 2 – Schedule 2-4). In total, 88 species are listed in *the China Species Red List (2007)*. Among them, 13 species are endangered, 37 species vulnerable, 38 species under threatened (Appendix 2 – Schedule 2-5).



a *Taxus mairei*



b *Bretschneidera sinensis*



c *Ginkgo biloba* *L*



d *Alsophila mertteniana*

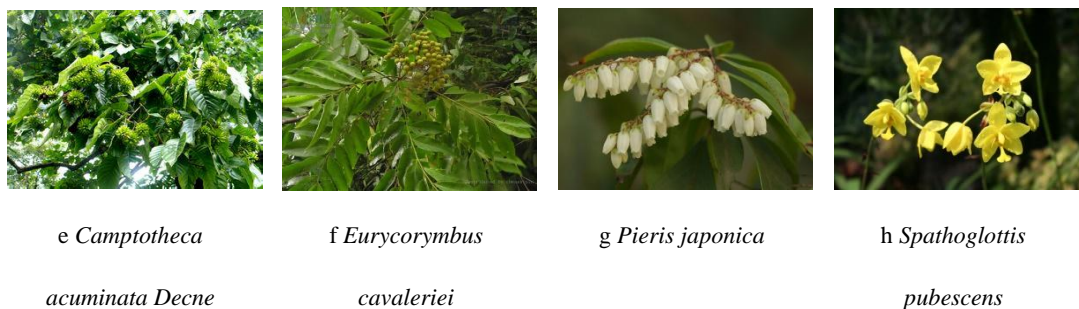


Figure 10 A portion of endangered wild plants on Chongyi Hakka Terraces

Chongyi was one of "Ten Bamboo Counties in China" that was nominated by the Ministry of Forestry, P. R.China in 1996. It is abundant in bamboo resources (partly shown in Figure11), mainly belonging to 23 species, e.g. *Ph. edulis* (Carr.) H. de Lehai, *I. tessellatus* (Munro) Keng f, *Dendrocalamus latiflorus* Munro, *Pleioblastus amarus* (Keng) Keng f, *Bambusa ventricosa* McClure et al (Appendix 2 – Schedule 2-6). In addition, the county is also rich in pharmaceutical plants, the number of which has grown up to 57 spices, mainly including *Rehmannia glutinosa* Libosch, *Pinellia ternata*, *Typhonium giganteum*, *Lonicera japonica*, *Paris polyphylla*, *Broadleaf Mahonia* et al (Appendix 2 – Schedule 2-7).

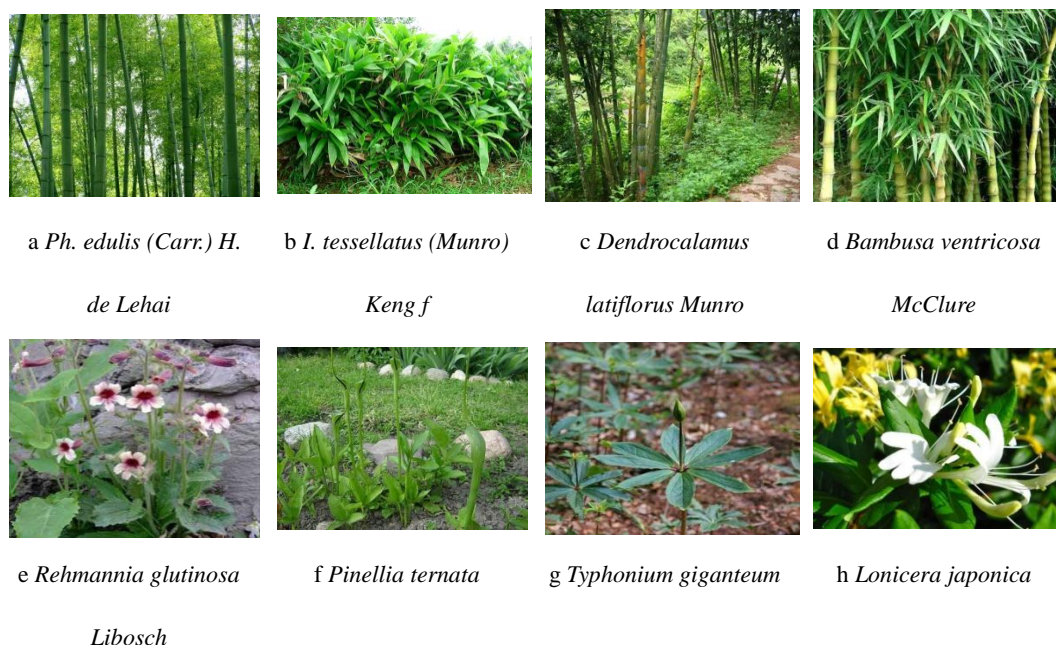


Figure 11 A portion of wild plants in Chongyi Hakka Terraces area

(2) Wild animal resources

There are 1,350 species of invertebrates and 394 species of vertebrates belonging to 101 families in 34 orders in this region (partly shown in Figure 12)^[4]. Six species are under Level- I National Key Protected Wild animals, such as *Panthera pardus*, *Cervus nippon kopschi*, *Python molurus*, *Tragopan caboti*, *Syrmaticus ellioti*, and 50 species are under Level- II National Key Protected Wild animals (Appendix 2 – Schedule 2-8), including *Catopuma temminckii*, *Panthera pardus*, *Capricornis sumatraensis*, *Hoplobatrachus rugulosus*, *Manis pentadactyla*, *Lutra lutra*, *Viverricula indica*, *Viverra zibetha*, *Cervus unicolor*, *Andrias davidianus* et al. 25 species are listed into **China Red Data Book of Endangered Animals (1998)** (Appendix 2 – Schedule 2-9). The endemic species of China are very plentiful with 27 species (Appendix 2 – Schedule 2-10).

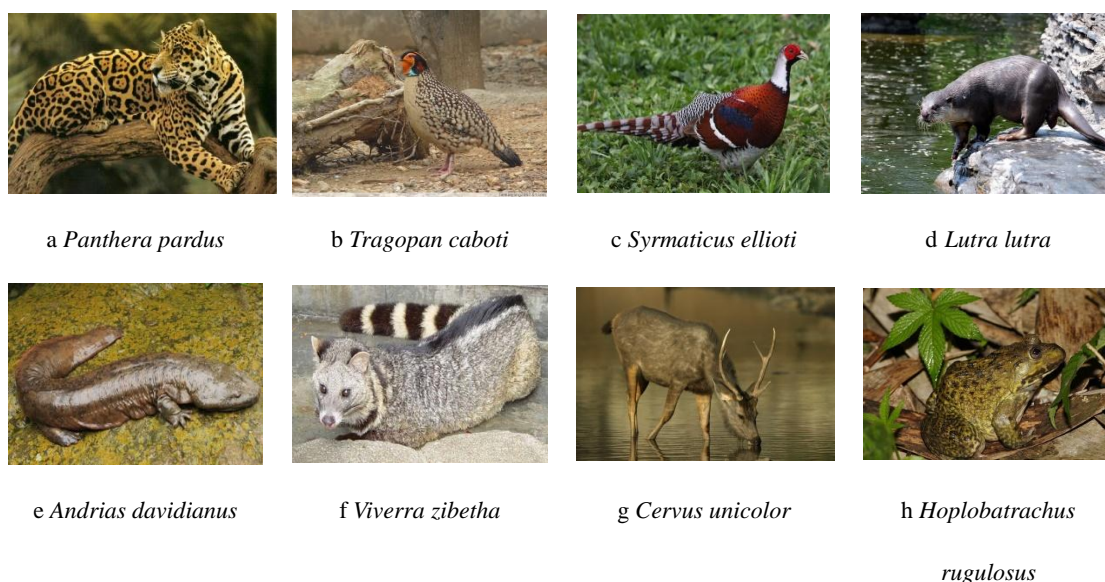


Figure 12 A portion of rare and endangered wild animals in Chongyi Hakka Terraces

(3) Microbial resources

There are a great number of microbial resources which fall into 182 species under 87 genera in 40 families. (partly shown in Figure 13)^[4]. They include 6 species of commonly-seen large edible fungus, i.e. *Auricularia auricular* (Lex Hook) Underw, *Cantharellus cibarius* Fr, *Ganoderma lucidum* (Leyss :Fr) Karst, *Lentinus edodes* (Berk) Sing, *Volvariella volvacea* (Bull :Fr) Sing, *Agaricus silvaticus* Schaeff Ex Fr, *Agrocybe chaxingu huang*, and 20 species of large rare local fungus (Appendix 2 –

Schedule 2-11), such as *Auricularia auricular* (*Lex Hook*) *Underw*, *Agrocybe chaxingu huang*, *Cantharellus cibarius* *Fr* *Ganoderma lucidum* (*Leyss :Fr*) *Karst*, *cordyceps nutans* *Pat*, *cordyceps sobolifera* (*Hill*) *Berk et Br*, *cordyceps sphecocephala* (*Kl*)*Mass*, *Ganoderma tsunodae* (*yasuda*)*Imaz*, *Calostoma cinnabararium* (*Desv*) *Mass*, *Calostoma japonicum* *PHenn*, *Fistulina hepatica* (*Schaeff*) *Fr*, *Dictyophora multicolor* *Bork Et Br*, *Lycoperdon pusillum* *Batsch: Pers*.



Figure 13 A few of the large fungi on Chongyi Hakka Terraces

1.3.3 Ecosystem Functions

(1) Maintenance of biological diversity

Since they were brought under cultivation by the Hakkas, the Chongyi Hakka Terraces have become a large-scale ecological garden, which gave birth to rich biological diversity, and made a good habitat for rare animals and plants. There are 4458 species of plants and animals, including 70 kinds of national protected animals and plants, 44 species of endangered animals and plants. Rice is still the main crop in Chongyi Hakka Terraces. Through 800 years of farming practice, the Hakkas have bred 94 different varieties of rice according to different soil and environmental

conditions at different altitudes. Thirteen varieties are still cultivated. The species diversity and genetic diversity have been improved because of the diversity of cropping patterns and landscape layouts. Rich biodiversity helps to control the incidence of pests and reduce pesticide and herbicide usage today. All those can help to promote the sustainable development of local agriculture.

(2) Climate regulation

The main climate functions are the regulation of temperature and air humidity. There is a perennial flow of water in Chongyi Hakka Terraces. When the water in the forest, bamboo and terraces evaporates into air, it can reduce the temperature and increase relatively the humidity in the surrounding air, meanwhile, the evaporation in the air will fall onto the terraces through rain. Rainwater merges into numerous streams and pools, which form in the terraces as natural green reservoirs. Runoff set by the forest flows into the terraces after being channelled by a network of ditches. The forest, bamboo and terrace fields form a good ecological cycle system, and this can improve the microclimate of the terraces and their surrounding environment. The favorable microclimate environment constituted with woodland, bamboo and terraces all contribute to the whole Hakka terraces system's abundant water, and this is a safeguard for the terraces in adapting to seasonal drought in summer and autumn.

(3) Water conservation

Relying on the mountains, Chongyi Hakka Terraces can effectively reduce the negative impacts of a flood or drought on the agricultural production, for the paddy fields, bamboo, grassland and coniferous and deciduous forest on the terrace slopes, whether large or small, all have the functions of water conservation and can retain and store natural precipitation. Using the alternative method of shadow engineering to compute^[5,6], we can estimate the water conservation of every kind of ecosystem (Table 7), paddy fields can store $6.52 \times 10^8 \text{ m}^3$ water, water conservation in the dry lands is $3.73 \times 10^7 \text{ m}^3$, garden land is $3.37 \times 10^7 \text{ m}^3$, woodland sums up to $6.69 \times 10^9 \text{ m}^3$, and grassland is $6.52 \times 10^7 \text{ m}^3$. The total water conservation of Chongyi Hakka

Terraces reach $7.48 \times 10^9 \text{ m}^3$, so the water conservation effect is very important.

Table 7 The average amount of water conservation of Chongyi Hakka Terraces

Type	Area(hm^2)	Amount(m^3)
Paddy field	4440.17	6.52×10^8
Dryland	254.04	3.73×10^7
Grassland	443.62	6.52×10^7
Gardenland	229.17	3.37×10^7
Forest	45541.12	6.69×10^9
Total	50908.12	7.48×10^9

(4) Soil Conservation

Chongyi Hakka Terraces have unique and good natural conditions in its historic farming patterns. Ground covers through planting crops, trees and bamboo can increase the intensity of soil infiltration, change the slope and runoff coefficient of groundwater, and reduce slope length. Meanwhile, ridges intercept runoff and erosion of sediment produced in the terraces avoids or mitigates runoff. Planting crops, trees and bamboo plays an important role in soil conservation, making the sloping land produce water, soil and fertilizer conservation, which we can call a “three conservation field”. By calculation (Table 8), paddy fields can maintain the soil to $1.73 \times 10^5 \text{ t}$ per year, forest vegetation conserves the soil to an amount of $9.09 \times 10^6 \text{ t}$ per year in Chongyi Hakka Terraces. In addition, dryland, gardenland and grassland also have good soil conservation performances, which is, on average about $1.12 \times 10^4 \text{ t}$ per year. On the whole, the total amount of soil conservation reaches $9.28 \times 10^6 \text{ t}$.

Table 8 Soil conservation amounts in the Chongyi Hakka Terraces

Type	Area(hm^2)	Soil conservation amount(t)
Paddy field	4440.17	1.73×10^5
Dryland	254.04	0.52×10^4
Grassland	443.62	0.74×10^4
Gardenland	229.17	0.38×10^4
Forest	45541.12	9.09×10^6
Total	50908.12	9.28×10^6

(5) Gas regulation

Gas regulation in Chongyi Hakka Terraces is mainly reflected in the fixation of CO₂ and O₂ released from bamboo, coniferous and deciduous forest and from rice, which all play an important role in reducing greenhouse gas concentrations, and in relieving global warming. There are about 5367 hm² paddy field, dry land, grassland and gardenlands in the Hakka terraced area, besides 45541.12 hm² woodland, with annual production of dry matter amounting to 2.28×10⁵ t. According to the photosynthesis equation^[7] (Table 9), woodland annual carbon sequestration is about 1.03×10⁶ t. In addition, woodland can release oxygen 7.59×10⁵ t; paddy fields, dry land, grassland and gardenland enable carbon sequestration 7.44×10⁵ t, while releasing oxygen 5.49×10⁵ t. On the whole, Chongyi Hakka Terraces have a very good gas regulation function, for it can fix 1.77×10⁶ t carbon, and release 1.30 × 10⁶ t oxygen every year.

Table 9 Gas regulation of Chongyi Hakka Terraces

Type	Area (hm ²)	Carbon sequestration (10 ⁴ t)	Oxygen released amount (10 ⁴ t)
Paddy field	4440.17	30.78	22.66
Dryland	254.04	1.76	1.30
Grassland	443.62	3.07	2.26
Gardenland	229.17	1.59	1.17
Forest	45541.12	103.17	75.95
Total	50908.12	177.58	130.74

(6) Environmental purification

Chongyi Hakka Terraces are semi artificial and natural ecosystems, including paddy fields, forest, gardenland and grassland, etc., which has a good environmental purification function, mainly in purifying air. Forest and paddy ecosystems have a very important role in improving local air quality, including SO₂, NO_x, HF adsorption and dust retention and so on. Chongyi Hakka Terraces have 4440.17 hm² of paddy field, and 45541.12 hm² of woodland. From integrated computing (Table 10), it is calculated that it can adsorb about 10060.16 t of SO₂, NO_x, HF, 451.94 t, 166.08 t per year respectively, and dust retention about 1.15×10⁶ t. All these indicate that the environmental purification effect is demonstrable.

Table 10 Environmental purification of Chongyi Hakka Terraces

Type	Area (hm ²)	Adsorption SO ₂ (t)	Adsorption NO _x (t)	Adsorption HF (t)	Dust retention (t)
Paddy field	4440.17	199.80	147.85	2.53	1.47×10 ⁵
Dryland	254.04	11.43	8.45	0.14	0.84×10 ⁴
Grassland	443.62	19.96	14.77	0.25	0.96×10 ⁴
Gardenland	229.17	10.31	7.63	0.13	0.49×10 ⁴
Forest	45541.12	9818.66	273.24	163.03	9.86×10 ⁵
Total	50908.12	10060.16	451.94	166.08	1.15×10 ⁶

1.4 Landscapes, Land and Water Resources Management

1.4.1 Spatial Pattern of Landscape

The dominant types of Chongyi landscape heritage are forest and farmland, which amount to 87.3% and 6.76%, respectively, the other types of landscape have a much lower proportion (Table 11). From the plaque characteristics, the number of plaques (NP) in farmland and building land is 3004 and 2980 respectively, which is larger than other plots; building land has the biggest plaque density (PD); farmland has the biggest landscape shape index (LSI) and largest connectivity score (CONNECT), which suggests farm land is fragmented, Because of the Hakka houses are scattered in the vicinity of the terraces, the shape diversity and border complexity in Chongyi Hakka Terraces, show a similar pattern to that of farmland.

The largest area is of forest, the largest plaque accounts for landscape area ratio (LPI) up to 84.35%, and the degree of cohesion (COHESION) index is 99.975, forest is the largest landscape in Chongyi Hakka Terraces.

Table 11 Plaque type landscape pattern indexes in Chongyi Hakka Terraces

Types	CA (hm ²)	PLAND (%)	NP (number)	PD(number/10 ⁴ hm ²)	LPI (%)	ED (m/ hm ²)	LSI	CONNECT	COHESION
Grass land	1423	0.781	150	0.082	0.183	1.387	16.729	0.107	92.298
Forest	159041	87.306	1270	0.697	84.35 3	54.846	62.601	0.082	99.975
Farm land	12322	6.764	2980	1.636	0.226	20.897	85.544	0.016	91.639
Water	1494	0.820	1078	0.592	0.087	3.809	44.768	0.020	83.677

area									
Garde n land	3208	1.761	1935	1.062	0.075	6.926	55.582	0.018	80.805
Buildi ng land	3766	2.068	3004	1.649	0.277	8.419	62.346	0.010	81.721
Minin g land	643	0.353	365	0.200	0.021	1.306	23.324	0.030	73.797
Bare land	269	0.148	239	0.131	0.011	0.694	19.152	0.067	66.359

Note: CA means plaque type area; PLAND means percentage of the landscape; NP is the number of plaques; PD means plaque density; LPI is the largest proportion of the landscape patch area; ED is edge density; LPI is landscape shape index; CONNECT means connectivity degree; COHESION is degree of cohesion.

1.4.2 Features of Landscape Layout

(1) Continuous distribution of the core area of terrace

The Terrace area accounts for 13.49% of arable land in Chongyi. But in the Shangbao village, 94.5% of farmland is terraced, the total area adds up to 1491.13 hm². Because Shangbao terrace has a large area and concentration, it is recognized as "the largest Hakka terrace" by Shanghai Great World Guinness Book of Records (Figure 14).



Figure 14 Certification of the largest Hakka terraces

(2) Large vertical drop and gradient

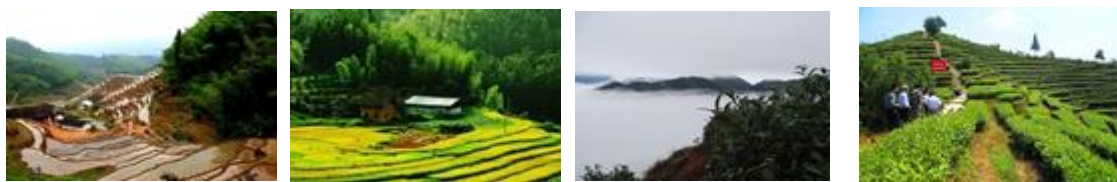


Figure 15 Slope terrace (left and middle) and “Daiziqiu” broken plots (right)

The main groups of terraces are up to 62 layers, the highest altitude is 1260 m, the lowest is 280 m and the vertical drop is nearly 1000 m. The gradient is mainly reflected in the slope at 40 °-70 °, the terrace belongs to the steep terraces (The left and middle of Figure 15). Terraces are mostly broken plots only cultivated with 1-2 row rice. It looks like “Daiziqiu” and “frog hops three fields” due to the high gradient (The right of Figure 15). The landscape pattern not only highlights the function of expanding cultivated area of terraces and improves the land utilization value, but also has high ecological and aesthetic value.

(3) Diversity of landscape elements

Dense forest, bamboo, cascading terraces, the botanical garden and rich decorative style of the Hakka houses combine together to form the distinctive terrace landscape, and shows great diversity of local landscapes. According to the altitudes from high to low, the landscape elements are forest, bamboo forest, tea garden, terrace (with residences), orchard, river (Figure 16-18). Together all landscape elements suggest that the Hakkas have living wisdom to adapt to the local natural environment, and the skill of optimizing local landscape patterns and its functions.



a Forest, bamboo

b Mountain tea garden



Figure 16 Various landscape elements of Chongyi Hakka Terraces

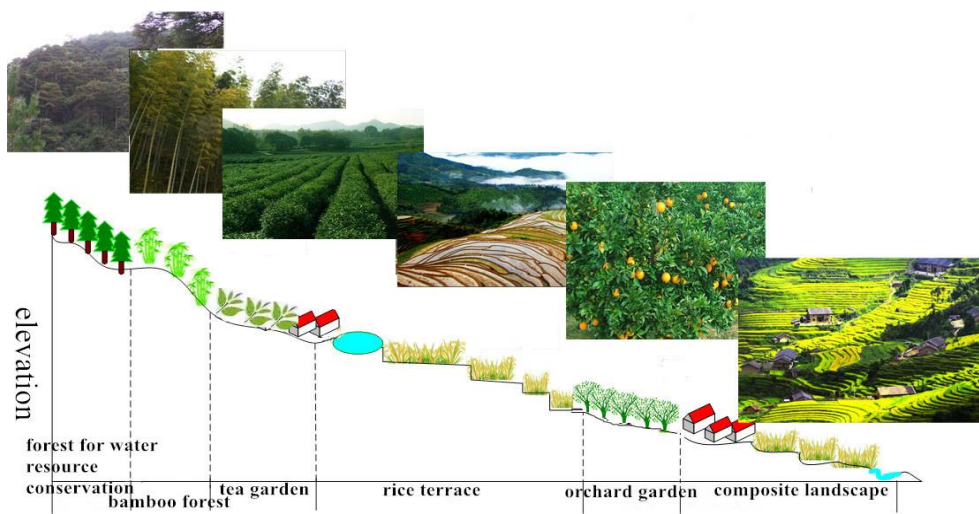


Figure 17 Landscape pattern profile of Chongyi Hakka Terraces



Figure 18 Landscape layout of rice cropping system in Chongyi Hakka Terraces

(4) Located in the central mountain sunny slope

Chongyi Hakka Terraces are located in the southeast of Qiyun mountain extension. The altitude of Qiyun Mountain is 2061.3 m. It has relatively abundant hydrothermal resources, and less chance of frost and drought because of topographical flattening and the formation of a “warm zone” in the middle of sunny slopes. It is a safe belt for cultivating crops.

1.4.3 Utilization and Management of Land and Water Resources

(1) Utilization and management of land resource

Cultivated land and forest land are the main land use types of Chongyi Hakka Terraces (Table 12), the forest land has given priority to bamboo and mixed coniferous broad leaved forest (Figure 19), cultivated land has given priority to paddy rice. Due to the altitude, illumination, temperature, precipitation and other natural factors, Chongyi Hakka Terraces are an area of single-season rice. In order to obtain more economic income and make full use of farmland resources, the Hakkas have invented a wide variety of cultivation modes (Table 13).

Table 12 Land use of heritage sites in the core area (hm²)

Type	Scope of heritage sites	Core area (three townships)
farmland	15158.13	4694.21

including: paddy fields	14159.28	4440.17
dry land	998.85	254.04
gardenland	4179.50	229.17
forest	190532.39	45541.12
grassland	1544.18	443.62
water area and land use of irrigation works	4146.04	436.72
including: water area	4126.57	430.24
irrigation works land	19.47	6.48
building land	5209.83	768.65
the rest	3.69	1.03



Figure 19 Bamboo (the left) and the mixed coniferous broad leaved forest (the right) of Chongyi Hakka Terraces

Table 13 Main cultivation patterns of Chongyi Hakka Terraces

farmland types	farming models
paddy fields	rice (soybean*)-milk vetch、rice-oilseed rape、rice-pea (broad bean)、rice-vegetable (Chinese cabbage、cabbage)、and some fallow.
dry land	sweet potato-vegetable peanut-vegetable corn-vegetable mesona-vegetable crop rotation

* The Hakkas have the habit of planting soybean on the ridge edge of paddy fields, commonly known as "Tiangeng beans" (Figure20). They start seedling at the end of April each year, after rice planting, in shelf-space every 15 to 20 cm, dig holes about 13 cm long, 7 cm wide, 6 cm deep, put the farmyard manure into the corner. The bean seedlings will be vertically planted into the corner of the hole without fertilizer; every hole is planted with 2-3 strains. In late September to early October, the beans will be harvested before the rice harvest.



Figure 20 Planting soybeans on paddy field ridge edges

(2) Utilization and management of water resource

Terraces take the water seepage on the hillside as a source of irrigation, combined with the built canals to guide the rain and the spring water into farmland. Field irrigation generally adopts the artesian irrigation method (Figure 21), and can reasonably allocate water resources. When the fields are higher than the water level, the Hakkas generally use the waterwheel to raise water. Lintan Township has a village by the name of the object - Gaoche village (Figure 22).



Figure 21 The artesian irrigation method



Figure 22 The waterwheel still being used in Gaoche village

1.5 Knowledge Hierarchy and Adaptation Technology

1.5.1 The Traditional Agricultural Knowledge System

(1) Traditional cropping arrangements

According to the local phenomological characteristics, natural environment, soil, crop growth habits, after long-term observation, thinking, and constantly exploring repeatedly by heart, the Hakkas have gradually summarized some proverbs which are easy to understand. They are handed down from generation to generation and can be used to direct production and farming arrangement. In the case of planting rice in terraces (Figure 23), after the Beginning of Spring, the Hakkas refer to “Chun Niu figure” to plan the agricultural program. After the Waking of Insects, they begin to plough and harrow terraces, usually two plows and two rakes, sometimes three plows and three rakes. During the Pure Brightness to Grain Rain, they sow seeds. From the Beginning of Summer to Lesser Fullness of Grain, they transplant rice seedlings. Between The End of Heat and White Dew, they harvest rice.



Figure 23 Traditional farming arrangements

(2) Tillage tools

Tools used in the tillage are the outcome of Hakka culture and the terraces system and also are the artistic crystallization of the Hakkas experience in farming (Figure 24). Due to the particularity of terraced tillage systems, the Hakkas produce numerous agricultural production tools which are well adapted for use in the local terraces (such as plow, grain pile, miller, grinding, seedling ship, windmills, etc.) and agricultural irrigation tools (such as the waterwheel). Plowing with cattle is the main land tillage tool of Chongyi Hakka Terraces, so cattle are the main power source. Before 1958, almost all paddy fields were ploughed through plow and harrow with cattle, and farmers who lacked cattle ploughed fields with people. Nowadays most terraces use modern farming machines, but there are still some smaller terraces using traditional farming technology, such as the plow and harrow pulled with cattle.



a grain pile

b miller

c seedling ship

d windmills



e harrow

f plow

g waterwheel

h threshing bucket

Figure 24 Hakka traditional farming tools

(3) Fertilization

The main fertilizer of Chongyi Hakka Terraces is farmyard manure both human and animal manure, burning plant ash, defatted cakes, stalk ash, lime etc. (Figure 25), and in the minority region there are small areas of green manure (such as green radish, beans, milk vetch, etc.). Shangbao even applies the cattle bone powder, plant ash, etc. In addition, after the harvest in autumn, cattle, ducks, chickens and other livestock are scatter-fed in fields (Figure 26), so that these livestock can forage for grains, and glean seeds and insects in scattered fields. Retrieved rice straw also does not need to be uprooted, but left in the field to ferment together with feces of livestock in winter. It can improve soil fertility, thus ensuring the sustainable development of agriculture.



Figure 25 Retting farmyard manure

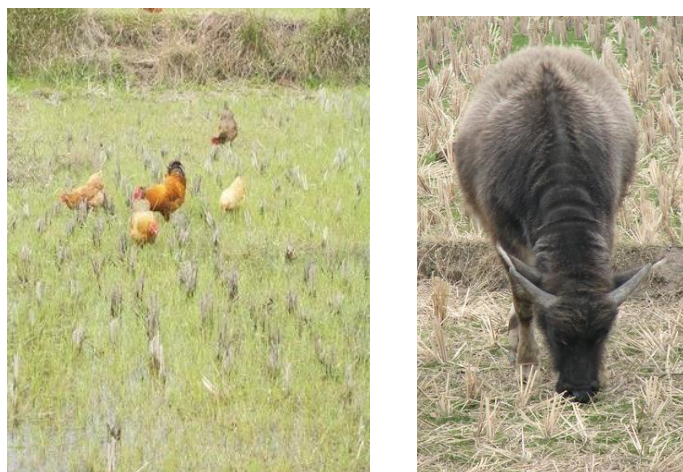


Figure 26 Field gleaning in winter

(4) Prevention and control of diseases, insect pests and weeds

Local traditional prevention and control of diseases, insect pests and weeds are mainly through ploughing in winter, burning the weeds and stubble at the edge of the fields (Figure 27), catching insects artificially, avoiding the high incidence of pests, firing at night, pouring soil pesticides (such as ridge water), scattering lime and plant ash, sprinkling rotenone and defatted cakes of oil tea. Replanting or rotation is adopted on serious areas of pest damage. In addition, the Hakkas reduce pest damage through free-range chickens, ducks, geese, etc. in the fields.



Figure 27 Burning stubble and ploughing in winter

1.5.2 Traditional Agricultural Technology System

(1) Traditional rice cultivation techniques

Upland crops, such as millet, beans, wheat, taro, etc., were mainly planted in Chongyi Hakka Terraces at the initial formation stage. Rice began to be planted along with the gradually improved terraces and development of water retention capacity. There are manifold traditional rice varieties, of which black rice, red rice and Dahezi rice, etc., are still cultivated. Dahezi rice was planted in Chongyi Hakka Terraces, according to “Huichang County annals”, in which the editor wrote “The Dahezi rice are white, the glutinous of greasy and sticky, smooth. It cannot be used for making wine, but is raw material for glutinous rice cake. The pagoda tree flowers are steamed with rice into a delicious cake, called “Huangyuan”. The Hakka have a custom to make “Huangyuan rice crackers”, which is the main reason of Dahezi still being planted. In the case of Dahezi, the main cultivation techniques are selection of rice varieties, sowing and seedling, soil preparation, transplanting, field management, harvest, etc.

Selection of rice varieties: When rice is harvested every year, the Hakkas will choose the best grain as seeds for next year. After collecting seeds, they are put under the sun to dry or tied with a rope hanging high in dry places in order to prevent the seeds damp. The elected seeds must go through three stages including drying, soaking and accelerating germination. Drying seeds—making seeds absorb of sunshine, using ultraviolet radiation to sterilize and kill off the insect pests, removing carbon dioxide and moisture, enhancing permeability, water absorbent and enzyme activation of rice seeds, thus improving the germination rate and germination energy and achieve the uniformity of emergence. Soaking seed—soaking the seeds in cold water for 3-5 days, enables them to absorb enough moisture to be ready for the next step of germination. Accelerating germination—sowing the rice seeds when it germinates.

Sowing and Seeding: Generally, the Hakkas begin sowing on the Waking of Insects around the first day of lunar February. They mainly use the direct seeding methods, and a few choose the method of shovel seedling. The direct seeding method is to sow the buds to the field directly, cultivate seedlings in the field, and fill the gaps from dense to sparse only among individual plants. This method saves both time and labor.

land preparation: Farmers of Chongyi Hakka terraces always adopt the principle of intensive and meticulous cultivation of soil preparation, plow the soil depth of 15-18 cm with a rotary tiller plow and harrow twice or even three times to ensure pool height within one inch and the fertilizer water does not overflow, then, shovel all the tender grass, pick up the weeds in the field as soil fertilizer, and prepare the soil with cattle and other tools, such as the plow and rake.



Figure 28 Ploughing with cattle

Transplanting: Due to the special area and altitude of terraces, transplanting seedlings is mainly done by manpower (Figure 29). Planting depth is about 2 cm, each point plants 3-4 basic seedlings, transplanting seedling must stand up straight, be divided evenly, with about 90000 plants/hm².



Figure 29 Transplanting seedlings

Field management: The Hakkas focus on the following points in field management: ①Shallow water irrigation and intermittent irrigation. In the early rice transplantation, rice root absorption of water and fertilizer are weak, at this time, due to the outside high temperature and strong winds, the rice leaf transpiration is relatively intensive, such that we should immediately set up water availability to

prevent death of the seedlings. Generally, a water height is of 1/2-2/3 depth of rice, not to drown the rice center. Or they can carry on intermittent irrigation when the rice begins to turn green, the depth of the irrigation water is 3-5 cm at this time, until the roots of the rice do not have water or the soil will dry up. ②Field drying. The Hakkas drain and dry the fields from the rice tillering stage to young ear differentiation. ③Calescence and irrigation. During the daytime, water will reduce the temperature in field and affect the growth and development of rice. Therefore, the farmers need to irrigate the field before sunset 1-2 h and after sunrise 1-2 h. ④Check and reinforce the border dike to prevent leakage of water.

Harvest : Chongyi Hakka Terraces are dispersed and various, so it is inconvenient to cut and thresh at the same time. Firstly, cut rice grains in handfuls (Figure 30) are dried for a few days on the wide ridges. Secondly, they are threshed in the threshing bucket (Tong Gang). Beginning from the 1960s, the Hakkas trampled the threshing with their feet to take off the grain, cutting while threshing.



Figure 30 Rice Harvest

(2) Ecological planting and breeding technology in terraces

Rice-fish farming technology. When the Hakkas want to breed fish in paddy fields, they need to heighten and reinforce the terrace ridges in winter. The terrace ridges should be more than 0.4 m high, beaten well, so that it does not collapse or leak. The Hakkas dig a pond at the center of paddy, the pond's area accounts for 8-10% of the total paddy area; the pond's depth is more than 1m, with water depth of more than 0.5 m. This work usually must be done in winter. The pond opens an outlet to the paddy field in connection with the field ditch. The ditch also needs to be excavated

depending on the size of the plots, some open to "+" type, and some open into a "井" type, the ditch is generally 0.3 m depth and 0.5 m wide. At the water inlet and water outlet there is installed a fence to prevent the escape of fish. In general, after rice transplanting 7-15 days, the Hakkas stock fish (3000-4500 fishes/hm²) in the paddy fields, such as grass carp, cyprinoid, crucian, loach, etc. They catch fish 1 week before the rice harvest (Figure 31). Rice-fish farming can effectively eliminate pests, weeds and maintain soil fertility. It also can loosen field soil to promote the decomposition of fertilizer, raise the utilization ratio of the soil surface, reduce costs and save labor, increase fish products to meet people's needs and improve the food diet^[8].

Rice-duck farming technology. The Hakkas generally plant rice in early May when the average daily temperature is stabilized at 5-6°C, and the seeding rate controlled at about 250-300 g/m². They transplant the rice in early June, after transplanting 15-20 days they begin to raise ducks in the paddy fields, recover the ducks at the end of August (Figure 32).



Figure 31 Rice-fish



Figure 32 Rice-duck

1.5.3 The Traditional Technology of Terrace Construction and Maintenance

Chongyi Hakka Terraces come from She fields² (Figure 34), in order to solve the problems of soil and water loss, the Hakkas reconstruct the She fields. The soil in high

² She fields refer to the local tradition of slash and burn, the Hakkas cut down the trees in early spring, and then the night before the rain comes, burn all trees, used as fertilizer, planting the next day, waiting for the harvest without any management. She fields are a primitive way of mountain utilization, because the planting adapts to the downslope and are not built with ridges, whenever the rain pour, the soil washes away causing severe erosion.

places is dug into the low places, the excess mud is used to build the ridge of the field. Because some terraces are high, and access to water is inconvenient; the Hakkas build some ponds in top of the terraces or retain the original forest (Figure 33) in order to maintain water levels. The Hakkas attach great importance to the protection of forests above the top terraces. In the private time of mountains, traditionally, farmers have had an effective management of the forest. A mountain manager protected timber strictly and waste cuttings as well as imperfect timber used as fuel wood. If the people from outside want to cut fuel wood in the forests on top of the terraces, they must go through the manager agreement. The mountains, the village and irrigation are managed strictly by the clansman. It is the strict protection that makes the top of the terraced mountain forests develop into a large “reservoir” to ensure adequate water for the rice planting. After the construction of terraces, the ridges are easily affected by storm runoff, rat pest piercing and livestock trampling, so the terrace ridge should always be checked and trimmed.

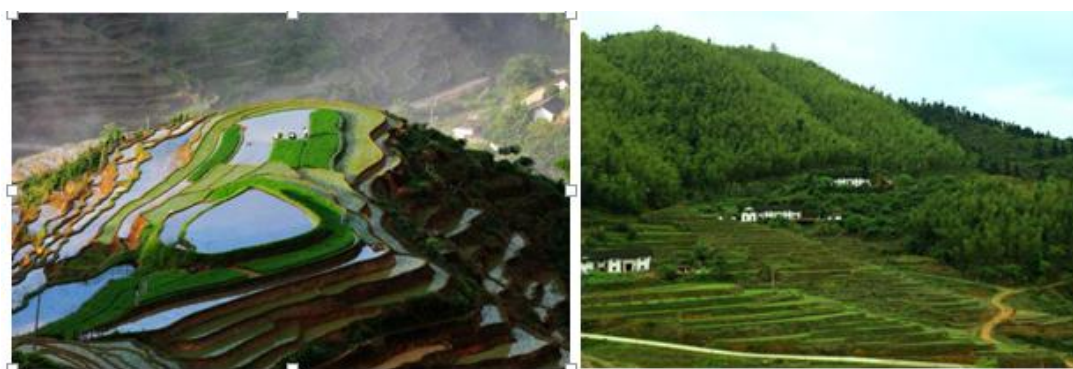


Figure 33 Top pond and hill forests of the Hakka Terraces

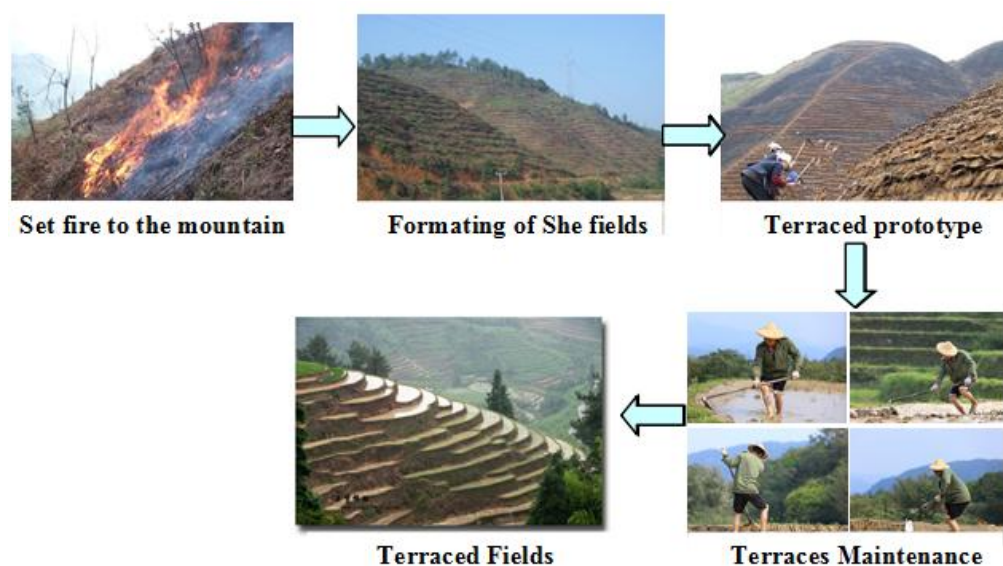


Figure 34 Terrace construction and maintenance

1.6 Agricultural Culture, Value Systems and Social Organization

In history, the Hakka ancestors migrated to Chongyi, opening up wasteland and building up fields along mountains to reclaim the magnificent Hakka terraces. In a long productive life, culture and folk customs of the local *She* and *Yao* ethnic groups are integrated based on the Hakka traditions to develop the agricultural culture of Hakka terraces which features the combination of Hakka and *She* customs with terrace cultivation as the main lifestyle^[9].

The core of Hakka terraces culture is expressed in farming proverbs, farming sacrifices and beliefs, food culture, folk arts, costumes, architecture and folk customs. Of them, six unique cultures, including the Zhudong folk song of the *She* ethnic group, the production of yellow ginger tofu, the making rice wine and dragon lanterns, the spring cattle dance and Gaosheng (a religious activity), are recorded in the list of the intangible cultural heritages of Jiangxi Province.

1.6.1 Farming Proverbs

The Hakka in Chongyi have a good understanding of terraces and follow the law of nature. They express the broad meaning of the “24 solar terms” and experiences

from a history of laboring life in a plain language (Table 14). These proverbs give a vivid image of farmers honouring the farming practices without missing the season. Thus, their farming life is enriched for the Hakka with important spiritual wealth which has a very important practical significance and agricultural value to terrace farming^[10].

Table 14 Classification and samples of farming proverbs of the Hakka in Chongyi.

Type	Sample
Guiding agricultural production	Don't reap the rice at the beginning of winter, otherwise you will harvest less day by day. Don't shovel the oil-tea camellia mountain in spring and summer, otherwise you will harvest less in autumn.
Forecasting weather conditions	If it's sunny in Grain in Ear, it will be rainy when the Summer Solstice comes. If it rains on Frost's Descent, it will always be rainy until the beginning of winter. If it rains at the beginning of winter, there will be less rain or snow throughout the winter.
Methods and techniques of farming	Pointing the plow tip to the cattle head will make it easy to plow. Plowing deeply and raking strongly will bring more harvest.
Traditional green farming experience	Pig manure and milk vetch are boons for plowing. Spreading straw in the field will make it more fertile.

Proverbs on seasons and weather

If it rains at the beginning of spring, the cattle and sheep will be frozen to death. If it rains at the beginning of summer, ditches and ponds will be filled with water. If it rains at the beginning of autumn, ear-like things will appear on the cereal top as an evil sign. And if it rains at the beginning of winter, there will be a heavy snow everywhere.

If it is sunny in mid-spring, pools and ponds will be dry. If it is sunny in midsummer, the rice shoots will be dry. If it is sunny in mid-autumn, dry cereal will be harvested. And if it is sunny in mid-winter, there will be less snow in the remainder of the year.

1.6.2 Agricultural Sacrifice and Belief

The Hakka in Chongyi take geomantic omens (or Feng-Shui in Chinese)

seriously. Agricultural sacrificial rites can be found throughout the farming process, from plowing, rice transplanting, fertilizing to harvesting. The spring cattle dance, Gaosheng (a folk religious activity) and cattle burial all represent different forms of the rites.

Apart from traditional Taoism and Buddhism, Hakka religious belief also involves Confucianism and a variety of folk beliefs with ancestor worship as typical characteristics. A case in point is that cattle are seen as the totem. Local people also honour the traditional concept of respecting the ancestors and the family God. They worship Land God, Door God, Kitchen God, Shangbao Altar God and Lord Wenchang to pray for favorable weather and a bumper harvest ^[3].

(1) Spring Cattle Dance

The cattle dance at the beginning of spring is regarded as an important ceremony that kicks off farming for the year (Figure 35). When the farming season approaches, cattle teams in kin units parade in the village and perform the ceremony of the cattle dance as the worship of the Heaven, the Earth and the God of Nature. A street banquet is held for people to dine and wine together as a sign of unity and to pray for heavenly blessings. The folk dance of cattle reflects the worship and appreciation to the totem of cattle by the Hakka people in Chongyi, and extends their wishes and blessings for a bumper harvest and thriving livestock.

Introduction of Spring Cattle Dance

The spring cattle dance is popular in Shangbao Township in Chongyi County, which is similar to the dragon lantern dance and lion dance. It was introduced by the Tang clan, the new Hakka in Shangbao, from northern Guangdong. The skeleton of the spring cattle is made of bamboo strips before being covered with paper and cloth.

Major features include: one spring cattle, one light board and four festive lanterns. Generally the characters are an old man, a shepherd boy, a village girl, the tea woman, a fisherman, a woodcutter, a farmer, and an intellectual. The dance is accompanied by traditional instruments, and the lyrics can be changed with different historical periods.

The cattle handled by two men can alter the movements at any time to imitate farming and playing.

One or two shepherd boys tease the cattle and speak to it kindly.

The fisherman, looking old with grey hair, holds a fishing pole with a creel on his back.

The woodcutter takes a knife and ax, and shoulders a pole.

The intellectual holds a book and waves a fan.

The tea woman, together with the village girl, often walks among the dancers and cracks jokes with people.

Meanings are expressed by the costumes. The shepherd boy, if wearing a hat, represents a chilly spring – otherwise, a warm spring. The cattle, if painted red, represents drought – otherwise waterlogged. In the traditional performance, folk stories, such as Meeting on the Broken Bridge, Eight Immortals Crossing the Sea, and Liu Hai Gathering Firewood, are always performed to add atmosphere.



Figure 35 Cattle dance at the beginning of spring

(2) Gaosheng

Gaosheng refers to a religious activity that the gentry held for common people to ward off evil and pray for fortune in the event of natural or man-made calamities, such as drought and insect infestations (Figure 36).

Introduction of Gaosheng

Gaosheng refers to a folk religious activity conducted by the commonly-known “Maoshan Taoist” as a part of “ransoming the soul and removing ill fortune”. By way of singing and dancing, it takes on the scenes of setting an altar, practising Taoism, offering sacrifice and calling for aid to ward off evil and eliminate disasters. The lyrics have seven characters to a line. The singing style also features couplets with a symmetrical balance. It sounds like repeated chanting or singing, expressing a sense of reciting prayers. Accompanied by small gongs, cymbals, side drums and tin horns, the music closely follows the lyrics, which heightens the atmosphere of prayer and acts as a transition between melodies.



Figure 36 Gaosheng

(3) Cattle Burial

The Hakka in Chongyi sacredly respect cattle and treat them as family members. Families feel grateful for cattle and honour them in death as well. In the busy season, cattle are fed with carefully brewed porridge in addition to traditional grass and straw. After their death, after having their nose ring removed and body washed, they are lifted by strong men up to the hills and buried beside the terraces where they once worked. Then, burial activity is held for them (Figure 37).



Figure 37 Cattle burial performance

1.6.3 Clan Management

Thanks to the complete clan system in the Hakka culture, a large scale of reclamation is conducted on the local terraces. In this process, the social relationship

maintained by clans is also strengthened. The Hakka in Chongyi are simple and honest, diligent and helpful. They help each other in labor and manage the terraces together.

Rice planting on terraces is typically labour-intensive, entailing a large water demand and complicated procedures from nurturing seedlings to harvesting. The clan can gather strength to acquire as many resources as possible and expand the space for existence to the utmost. With the ancestral hall as the center (Figure 38), clans in Chongyi are led by their chiefs, communicate internally and participate in terrace construction and cultivation as groups^[12]. Moral codes and rules of conduct, such as the clan rules and family rules, are followed to constrain and educate clan members and organize production in a united way. The clan management guarantees the stable and normal expansion of terraces, which ensures the harvest and agricultural development, paves the way for population growth and thus makes the clan expand^[13-14]. Due to the terrace production, the Hakka clan society survives and multiplies in the mountains, and become more entrenched than that in other areas^[13].



Figure 38 An ancestral hall of the Hakka in Chongyi

1.6.4 Food Culture

The Hakka in Chongyi is blessed with abundant food culture and customs. Both the ingredients and cooking skills are filled with wisdom, which present the Hakka's exploration of the nature and inheritance of their traditional culture (Table 15).

Table 15 Hakka Food in Chongyi

Type	Content
Diet	Drinking tea, brewing wine and giving a feast
Food	Rice, bean starch sheets, soy-flour pieces, Huangyuan glutinous rice cakes, sweet potato slices, sweet potato flour and <i>Botrychium virginianum</i> powder
Dish	Enzyme tofu, yellow ginger tofu, stuffed vegetable, konjac paste, steamed pork with rice flour, steamed pork, egg sausage and egg noodles
Cake	Moon cakes, pastry, bean-shaped crisps, waxberry-shaped crisps, orchid-root-shaped crisps, Xiaozao crisps, cloud-shaped slices, bean cake and fried beans

Traditional feasts in Chongyi mainly serve fat, squid and sea cucumber. An old Chinese square table is set for the feast. People take their seats according to their seniority. When distinguished guests come, local families will move the tables outside and put them together to hold the “Hakka long-table feast” (Figure 39). This is the supreme way to entertain guests as a sign of family harmony and unity.



Figure 39 The long-table feast of the Hakka

(1) Cuisines

The Hakka in Chongyi boast a great variety of cuisines (Table 16). Of these, the nine-layer rice cake and Huangyuan glutinous rice cake are made of traditional rice, such as yellow husk glutinous rice, sticky glutinous rice, Dahezi rice, sorghum glutinous rice and short-legged Dahe rice.

Table 16 Introduction of Delicacies

Name	Introduction	Sample Pictures
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Bamboo rice

Mat grass and bamboo tubes are used as containers for rice, making it tastes fresh and delicious, not prone to go sour, and convenient to take out.



Nine-layer rice cake

Rice from the terrace is steamed after being ground, dyed with plant pigments and overlain. The cake looks fresh, tastes delicious with rich nutrition. The four major colors, i.e. green, red, yellow and white, symbols of the four seasons respectively, represents the hope of greening, prosperity and happiness, harvest celebration, and purity and auspiciousness.



Huangyuan glutinous rice cake

Also known as glutinous rice dumplings, this cake is made of Dahezi rice, a traditional species, through a complicated process. It looks either yellowish orange or milky white, and tastes smooth and fresh, not sticky or greasy. It doesn't paste the pot after a long time cooking.



Yellow ginger tofu

This tofu adopts traditional craftsmanship through complicated procedures. Looking gold and tasting tender, it contains more protein, and is taken as a pure green food free from any chemical dyes. The delicious tofu also has the function of enriching blood, clearing heat, detoxing and preventing cough.



Mugwort
glutinous rice
dumplings

The mugwort and glutinous rice are mixed before being steamed or fried. The dumplings look smooth and green, smell fresh, and tastes chewy but not greasy. With the unique flavor, they are helpful to warm the lung and spleen, dispel cold and remove dampness as a health care.



(2) Drinks

Rice wine: As the saying goes that “wine is served first, followed by dishes, then staples”, the unique Hakka wine custom prevails in Chongyi. Wine is commonly drunk in daily life and used as a necessity in entertainment, business discussion, funeral affairs and wedding ceremonies. Local people are used to making rice wine, or watery wine, which is a must-learn for housewives. They follow the brewing process of soaking, steaming, cooling and storing in containers to make the sweet and mellow rice wine.

Tea: The Hakka have been accustomed to drinking tea since ancient times. Tea is an essential beverage in their daily life, which mainly includes black tea, Oolong tea and green tea. Uncaria tea, tea growing on cliffs, midday tea and bitter tea are also their choice. As an important beverage in entertaining, tea is used by the Hakka to toast guests and is served at their arrival.

(3) Traditional Food Processing

Besides preparing various delicacies, the Hakka in Chongyi maintain a host of precious traditional food processing skills, such as the way to make yellow ginger tofu (Figure 40), extract homemade oil (Figure 41), brew rice wine (Figure 42), and make Huangyuan glutinous rice cakes (Figure 43).

Method of making yellow ginger tofu

Making yellow ginger tofu is a traditional skill popular in Sishun Township in Chongyi County, Jiangxi Province. It was handed down by the ancestors of the Li family in Sishun Town. Today, it is included in the intangible cultural heritage list in Jiangxi. Local high-quality soybeans, the main ingredient, are washed, shelled, soaked, ground, filtered and boiled. At the same time, the pickled ginger water is

getting prepared. Then the soybean milk is added to hot water and boiled three times while being stirred. The pickled ginger water is added as the substitute of plaster. The tofu jelly is spooned out and wrapped into little square tofu pieces in square cloth as the mould. These pieces are pressed tightly before being unfolded, then boiled for ten minutes in yellow ginger water that is deemed as the supreme ginger and medicine.



Figure 40 Making yellow ginger tofu

Extracting handmade oil

Extracting handmade oil is recorded in the intangible cultural heritage list for the Hakka in Jiangxi Province. Both the camellia fruit and camellia oil must be dried, unshelled, milled and extracted by hand. Oil makers, generally numbering 3-5, are required to be skilled and strong. Such a traditional way is environment friendly, which avoids industrial pollution. The extracted oil keeps its original flavor and looks clear. Today, old oil grooves can still be seen in many villages. Such a traditional way of oil extraction is disappearing gradually and is being replaced by machines, but oil's cultural value needs to be maintained forever.



Figure 41 Extracting handmade oil

Brewing rice wine

Rice wine has been a favorite of the Hakka for thousands of years. It is made of rice and glutinous rice as the main materials. They are saccharified while being fermented after the yeast is added. It is a mild wine with 10-20% alcohol. It is mellowed with unique aromatic flavor, and rich in nutrition. It contains glucose, dextrin, glycerin, acetic acid, minerals and a little aldehyde and grease. The nutrition mainly includes LM sugar and the extract of peptide and amino acid, which are easily digested and absorbed. That's why the wine is deemed as the "liquid cake". The rice wine, brewed with the unique traditional method and fermented in a traditional way, looks tiny, yellow, and crystal clear, tastes fragrant and has a balance of sweet and sour. It is free from any pigment, flavor or preservative, and functions to enrich blood, aid digestion, invigorate the spleen, benefit the stomach, relax the muscles, stimulate the blood circulation, and dispel wind and dampness. Besides, it is also a tasty flavor in cooking.



Figure 42 Brewing rice wine

Making Huangyuan glutinous rice cakes

There is a saying that "the spring festival will not be celebrated without making Huangyuan glutinous rice cakes". Huangyuan glutinous rice cakes are necessities for the Hakka in southern Jiangxi to celebrate the spring festival. As an important folk activity for the Hakka, making the cakes is regarded as a sign of joy in a bumper harvest and happiness of life. It creates a harmonious and united atmosphere that

leaves a deep impression for the diligent and simple Hakka. In winter, the Huangnian wood that grows in the mountains in southern Jiangxi, together with a few tung shells, fir leaves and sassafras branches, are burnt to ash, soaked in water and filtered in order to make the strong salt ash water. Then, the Dahe rice (or round-grained rice) is soaked, drained, and steamed into incompact grains. When it is cooled off, the ash water and sophora flower water are added to dye it yellow. Next, after being steamed, it is put in a stone mortar, and several men turn around the mortar to smash it with wood sticks, which is the highlight of making rice cakes. Generally, several men are gathered in front of the Zeng ancestral hall with red cloth around their waists and Huangyuan wood sticks in hands. They circle the stone mortar, which is round inside and square outside, and smash the rice in turn to the rhythm of a chant. When the rice is fully smashed, it is taken out and rubbed into different shapes.



Figure 43 Making Huangyuan glutinous rice cake

1.6.5 Folk Arts

The terrace, home to the Hakka, is the origin of their wisdom and artistic inspiration. Traditional colored lantern making, drama and dance, folk songs and ballads, embroidery, wood carving and bamboo handicrafts saturated in the bamboo culture are all the artistic works created by the Hakka. These arts, all involving terraces, vividly describe the life and work of the Hakka in Chongyi.

(1) Folk Songs

Local folk songs have a unique style and their language is easy to understand, with a distinctive theme and character of the place. The Hakka sing songs for work or to express their inner feelings. Among them, the Zhudong folk song of the She ethnic

group (Figure 44) is prevalent in Zhudong village of Nie country in Chongyi. It is the ballad in production and daily life, which is to express feelings. It is sung solo or as a duet, mainly for the performance of work and love life, and has been recorded in the intangible cultural heritage list of Jiangxi Province.

Folk songs in Chongyi

-- for hard work

Poor farm men have to work
whenever it is sunny or rainy,
with broken straw raincoats and hats.

Poor farm women have to work
regardless of being soaked through with sweat,
Bending like an oxbow.

How hard they work!

--Song of Oxen

Touching the ox head will bring a worryless life;
Touching the ox horn will make it obedient;
Touching the ox waist will make it jump over ditches carefully;
Touching the ox belly will see its calving;
Touching the ox hoof will ensure enough to live on
In the coming year.



Figure 44 Zhudong folk song of the She ethnic group

Zhudong folk song of the She ethnic group

Zhudong folk songs of the She ethnic group are performed in both Hakka and Cantonese. Basically, there are four lines with seven characters to each. The first two lines are in rhyme, but the third and fourth are relatively casual. The traditional

songs are passed down from mouth to mouth. They are always improvised to show deep love. Their singing style varies, and the rhythm is free and full of changes. For thousands of years, people in Zhudong have sung for communication, friendship and entertainment.

(2) Folklore

Folklore here is pure and simple, full of rich local flavor. Dialects are used to give a vivid description of characters, landscapes and customs. Cases in point include Legend of Terrace in Shangbao and Turning Kongzhou into Fengzhou, which are both folktales that tell the origin of terrace in a legendary but simple way.

Legend of Terrace in Shangbao

In the late afternoon one day, two crazy men came to a country hut northwest to the Nan'an mansion. They drank 100 bowls of tea and stacked them up. Then they ate 100 bowls of rice, and again stacked them up.

The hostess didn't complain about their eating and drinking too much, but treated them kindly. Gratefully, the crazy men asked her: "What's the name of this place?" The woman replied: "Shangbao, a poor place without farmland, only rocky and barren mountains." The crazy men stacked all the bowls up and clutched their belly: "Strips of farmland on the mountain will make people in Shangbao live in paradise." They took up the kettle to pour on vinasse, murmuring: "Shangbao, Shangbao, mountain ridges see water flow."

The next day, the hostess found her two crazy guests left. She went outside, only to see that water ran everywhere in the barren mountain. The mountain slopes were covered with paddy fields, looking like ladders to climb upstairs, hence the name "ladder field" (or terrace). To memorize the story of the two crazy men, a folk song was composed: "Shangbao is a wonderful place with water running on the mountain top. It is attributed to two crazy men, who bring the terrace and make us live a well-off life."^[3]

(3) Colored Lanterns

Colored lanterns popular in Chongyi include the dragon lantern, carp lantern, incense burning dragon lantern, alligator lantern, goose-headed dragon, lion lantern, qilin lantern, foal lantern, calf lantern and monkey lantern. Dragon lanterns are divided into three segmented dragon (Figure 45), five segmented dragon, seven segmented dragon, nine segmented dragon, purple dragon and snake dragon. The three segmented dragon and the manufacture skills of dragon lantern (Figure 46) have been recorded in the intangible cultural heritage list of Jiangxi Province.

Three segmented dragon

The “three segmented dragon” is a folk colored lantern that began prevailing in Tianxin Village, Guantian Town, Chongyi County under the reign of Emperor Guangxu in the Qing Dynasty. It has a time-honored history of more than 100 years.

In the performance, three performers stand on the 0.64-square-meter square table. With the music and drumbeats, they operate the dragon freely, stepping and jumping. The drumbeats are exciting and the music is of undulating changes. Local farmers regard the dragon as “loach with incense” to describe that the dragon kicks like the short and fat loach stuck with incense. With the advent of the Spring Festival, the three segmented dragon is grandly put on the stage. As the whole year's work depends on a good start in spring, the dragon is a symbol of the great desire of the local Hakka for prosperity in the coming year.



Figure 45 Three segmented dragon performance

Manufacture skill of the dragon lantern

Making a dragon lantern is regarded as an important part of the whole dragon dance. Generally, a dragon lantern is composed of five parts, including the dragon head, dragon body, dragon tail, dragon skin and bead ball. The body is always oddly segmented in large size (more than 13 segments), middle size (7-9 segments) or small size (3 segments). The dragon lantern made by Wang Xiaoliang in Yangmeisi Village, Yangmei Town, Chongyi County feature extraordinary techniques and vivid shapes.



Figure 46 The skill of manufacturing the dragon lantern

(4) Handicraft

Hakka women in Chongyi are adept in embroidery, while the men excel in bamboo weaving. Both the embroidery and weaving come with their own features.

Local women began to learn needlework, cutting and shelling ramie, and spinning ropes and threads in their childhood. When they are 15 or 16, they start to learn embroidery. They make use of colorless silk thread to embroider various kinds of patterns on a garment front, skirt front, shoe upper, shoe pad, swaddle belt and infant's hat to express their blessings (Figure 47). The coin pattern represents wealth, the “万” pattern longevity, and other flower patterns thriving and flourishing.



Figure 47 Embroidery



Figure 48 Bamboo weaving

Bamboo craftsmen can make various kinds of utensils for farm families (Figure 48), such as baskets, rice sieves, bran sieves, flour sieves, paddy baskets and bamboo mats. The bridal sedan chair can be made either. The bamboo skin, after being splitted to expose different original colors, or dyed, is woven into patterns and characters

symbolizing longevity, luck and wealth.

Carpenters can emboss patterns on objects. For instance, the walking stick can be carved with dragon, phoenix, qilin, lion, or elephant patterns and the picture of a century-old man holding a walking stick. A stonemason can make the stones into lions, qilins, elephants, tomb stuffs, gate piers, mortars, mills and spotted stone strips. These animals and characters look lifelike and realistic.

1.6.6 Customs and Habits

(1) Festivals and Seasons

The Dragon Boat Festival, Tomb Sweeping Festival, Ghost Festival, Mid-Autumn Day, Winter Solstice and Spring Festival are most important festivals to celebrate solemnly (Table 17). Of them, sacrifice in the Tomb Sweeping Festival and the Winter Solstice follows strict schedules and rules to show dignity.

Table 17 Festivals and seasons

Festival	Date	Introduction
Spring Festival	From the 24 th day of the last lunar month to the fifth day of the first lunar month next year	Preparations include preserved pork, chicken, duck and goose, various fruits, distilled wine and fried tofu. People go back home for a family reunion no matter how far away they live.
Lantern Festival	On the 15 th day of the first lunar month	Also named as Shangyuan Festival, it features the the dragon lantern, lion dance, martial arts, and spring cattle dance. People visit their relatives and friends or give a show on the streets to celebrate the festival until late at night.
Beginning of Spring	In accordance with the calendar in all ages	At the right moment, firecrackers are set off to welcome the spring, and the spring cattle dance is performed by the Tang family in Shangbao Township.
Double-Second Festival	On the second day of the second lunar month	Also known as the birds' festival. Villagers stick rice cakes on bamboo poles and insert them into farmland to feed birds in the hope that birds don't ruin the crops. As the folk song says, it is on the second day of the second lunar month to stick eagle's beak.

Tomb Sweeping Festival	It used to be the day after the Cold Food Festival in ancient times. Now it is specified in calendars.	As the day for clan members to offer sacrifice to their ancestors, it was as important as the Dragon Boat Festival, Mid-Autumn Day and Spring Festival in the old times, and is still of great importance.
Beginning of Summer	In accordance with the calendar	The transplanting season is marked by eating eggs in the Egg Eating Festival. As the saying goes: "Eating eggs at the beginning of summer makes people stronger to labor."
Dragon Boat Festival	On the fifth day of the fifth lunar month	It turns warm and breeds pestilence. Mugwort leaves, calamus and kudzu were hung on the gate in ancient times, and this time is thus called the Calamus Festival.
Double-Six Festival	On the sixth day of the sixth lunar month	It is hot enough to swim in pools, as the saying goes. Yam balls and taro balls are eaten on the festival, hence the name Yam and Taro Festival.
Ghost Festival	On the 15th day of the seventh lunar month	Also named Zhongyuan Festival. People offer sacrifice for their ancestors and eat sour rice cakes.
Mid-Autumn Day	On the 15th day of the eighth lunar month	Also known as the Reunion Festival. Moon cakes are eaten for the festival.
Double Ninth Festival	On the ninth day of the ninth lunar month	The custom of climbing mountains and picking cornel are not followed here. Rice cakes are eaten for the festival, of which the "nine layer glutinous paste" is commonly seen.
Ancestor Worship Festival	On the first day of the tenth lunar month	This festival is celebrated at the very beginning of the tenth lunar month, hence the name. At this time, crops are harvested and glutinous rice dumplings are eaten to appreciate the hard work of harvest. As the saying goes, on the first day of the tenth lunar month, glutinous rice dumplings are made and farm cattle stop working or, on this very day, calves are let off to run everywhere.
Winter Solstice	In accordance with the calendar	The weather turns cold and the farm families butcher animals for pickled meat. It is said that water collected after the Winter Solstice is anticorrosive and can be used for brewing wine.

(2) Customs of Production

Daily work of the Hakka in Chongyi has many unique customs and rules (Table

18).

Table 18 Customs of production

Type	Introduction
Cattle custom	The 20 th day of the first lunar month is regarded as the “deaf and dumb” day. People lead their cattle pulling the plough to walk around on the farmland as a symbol of plowing the land. This means the cattle are to start working, an indication of the beginning of the spring ploughing. People celebrate the birthday for cattle on the eighth day of the fourth lunar month, when cattle don’t need to work.
Land cultivation custom	During land cultivation, salt eggs are eaten every day. After the work, banquets are held to express appreciation for the hard work, which is called Daoyangdou. Before the 1960s or 1970s, seedlings are laid in the seedling basin with cattle bone powder covering their roots to prevent the loss of fertilizer. That’s why the banquet after land cultivation is called washing the seedling boat.
Harvest custom	Seed-husking is not convenient while reaping on the scattered paddy fields or terraces. The rice is bound into bundles after being reaped, laid on the field ridge to dry for days, and beaten to thresh in barrels. A banquet is held after the harvest to appreciate the hard work, which is called Xitonggang. The rice is dried twice on the bamboo mat. After being dried the first time, it is blown by a windmill to remove impurity and bran, which is called Liangshui. After that, the rice is dried for the second time and, again, bran is removed to acquire dried rice.
Timber shed custom	A banquet is held before chopping bamboos in the mountain, after materials are collected in the warehouse, and on the 1st and 15 th day of every lunar month to appreciate the laborers, which is called Dayaji. There are many rules for working outside. For example, if someone says something taboo before working, he has to stop working for the day and is not allowed to speak for the rest in the morning. Only signs and gestures are permitted for communication.
Paper shed custom	A banquet needs to be held after the bamboo tank is covered when chopping bamboos, when making tender bamboo shoots into paper in the shed, and after the bamboo-shoot paper is made. Also, other rules need to be followed in the paper shed. For example, women are not allowed to enter the shed before the paper is prepared for sales outside. Also, it is forbidden to speak homophones of

“pop” to prevent popping in the process of drying the paper that is made of tender bamboo shoots.

1.6.7 Costume Culture

As the Hakka in Chongyi keep working in the mountainous area for a long time, their costumes both preserve the traditions of their ancestors and carry out reform and innovation under the influence of the She and Yao ethnic groups. The costumes are simple, convenient and practical to wear, and most are in blue, black, gray and white [11].

Casual dress: As for men’s wear, the top features buttons down the front, a shallow collar and long sleeves with narrow cuffs (Figure 49). The bottom has long pants with a wide crotch and shorts (also known as the ox head pants) that are pleated around the waist without a front fly. As for women’s wear, the jacket is a side opening with a right lapel. Underclothes have buttons down the front and long sleeves without a collar. The bottom refers to pants with a wide crotch (pleated pants) and tie-cord pants (the waistband is pleated to fold the tie that is tightened and knitted when the pants are put on.)



Figure49 Hakka costumes

Shoes, hats and headwear: The Hakka hats are very distinctive though lacking variety. In the cold days, men wear skullcaps and scarves, and the old wear the flap cap that Su Wu wore when he herded sheep. Women in their maidenhood wear a

single plait. After getting married, they wear buns which are wrapped with a cherry-decorated handkerchief. The Hakka children wear exquisite lion-topped hats that demonstrate vitality to ward off evils and bear divine meanings in totemic aesthetics (Figure 50).



Figure 50 Hakka kids' hat and lion-topped hat

Patterns on the Hakka costumes follow those of the She ethnic group. Some villages in Chongyi where the Hakka and She culture are well preserved remain home to the traditional costumes that symbolize their cultural icons, such as the phoenix dress, apron and dragon shoes (Figure 51).



Figure 51 Traditional costumes of the She ethnic group in Zhudong

图中文字：凤凰装：Phoenix dress 男子服装：Men's wear

1.6.8 Architecture

The main architectural form for the Hakka in Chongyi is mud huts. They basically follow the traditional style of the Han ethnic group in northern China in ancient times. Mud, wood and stone are the basic materials for building. Rammed earth or mud bricks are laid into the bearing wall, and wood is made into the girder

that is covered with grey tiles. A base is tightly laid with stones and grey bricks. Among all the building materials, including mud, wood and stones, the former constitutes the main body and most fundamental materials of the Hakka building.

Mud huts are suitable to live in. They are stable, firm and not easy to deform. They are the most commonly seen with the most Hakka features. In addition, “Shangsan Xiashan” and “Jiujing Shibating” (Figure 52) are featured mansion-style residence design, which symbolize the archi-culture of the Hakka. They are not only pleasing to eyes, but also contain the profound culture of Feng-shui and the family culture of the Hakka. The most featured historic building in Chongyi is the Aqua Tower in Niedu Township (Figure 53). It was built under the reign of Emperor Chenghua in the Ming Dynasty. The five towers are built with spotted stones that stand surrounded with water. It is regarded as today’s typical Hakka architecture, and the predecessor of the earth building and dragon house.



Figure 52 Jiujing Shibating



Figure 53 Site of the Aqua Tower in Niedu

Hakka architecture - “Shangsan Xiasan” and “Jiujing Shibating”

“Shangsan Xiasan” The Hakka “bamboo house” in one continuous line is gradually developed into a “□” style quadrangle to hold the expanding family. The building, with two horizontal halls and two vertical rooms is generally regarded as the “enclosed house with both horizontal and vertical rooms”. Hence, the quadrangle is the simplest of this kind. There are several names of the “quadrangle-style” residence, i.e. the “double hall residence”, “upper and lower hall” or “front and rear hall”. As for the front, it is named as the gate hall or front hall. The rear is named the upper hall. A skylight is sandwiched between the front and rear halls. According to the number of halls and rooms, it is divided into “three front rooms and three rear rooms” and “five front rooms and five rear rooms”. Generally, the rooms are not set regularly, but they always avoid door open to door.

“Jiujing Shibating”: The compound of ten halls and nine skylights, also known as “Jiujing Shibating”, is one of the enclosed architectural styles of the Hakka, with both horizontal and vertical houses similar to the palace-style residence with the mansion style of the Han ethnic group in Central China. It adopts the most advanced structure of all traditional building techniques that integrate beam lifting with column and tie construction. It is characterized by strict layout, emphasizes orientation, and pays symmetrical attention to the primary and secondary. Thanks to its magnificent appearance, the architecture is endowed with scientific, artistic and practical values.

The compound of “Jiujing Shibating” sees two or three, or at most five halls, standing on the central axis. Fundamentally, it is the vertical merger and expansion of two complete “quadrangles”. The large-sized compound has four houses horizontally and another four vertically, which form a pattern with eight halls facing each other. As for a bigger family, it may be composed of five houses horizontally. The architecture is mostly built by the rich or high officials. If no one in the family got the official rank, they were not allowed to decorate the roof of the gatehouse with upturned eaves. Those with upturned eaves are inhabited by scholar officials, and thus are called mansions.. The main features are several inner halls and skylights.

2 Historic Evolution and Relevance

2.1 Origin and Evolution

The Hakka ancestors moved to Chongyi in the Tang and Song Dynasties (618-1279). But the terrace distribution in Jiangxi Province was first recorded in the *General History and China's Agriculture (Volume Song, Liao, Xia, Jin and Yuan Dynasties)* and *Register of Mounting a Simurgh* written by Fan Chengda in the Song Dynasty (960-1279)^[16,17]. It can be preliminarily judged that Chongyi Hakka Terraces appeared no later than the Southern Song Dynasty, and has a time-honored history of 800 years at least. With the origin and evolution of Chongyi Hakka Terraces, the Hakka ancestors got used to the mountainous areas, survived and multiplied in Southern Jiangxi Province.

In the Southern Song Dynasty (1127-1279), local people made a living by cultivating terraces mainly on the flat slopes in mountain areas and valleys. The terraces were merely dotted on the mountains on a small scale, leaving the higher slopes yet to be cultivated. This was regarded as the original stage of the Hakka terraces. The main characteristics are: that ponds are built on slopes to store rainwater, and the flowing springs were channeled to the terrace through ditches and bamboo conduits. Crops growing on the terrace were mainly long-stalked rice, a single species that was planted for years. As the folk sayings goes, "One single species of rice planted for years makes people bend down with tiredness."

According to *On the Dredging Governance of Chongyi County* written by Wang Shouren (Wang Yangming), a philosopher of Neo-Confucianism and censor of the supervision department in the Ming Dynasty (1368 – 1644), as well as *General Records of Chongyi County* and *Pedigree of the Wang Family in Chongyi* written under the reign of Emperor Tongzhi in the Qing Dynasty (1644 – 1911), during the Ming and Qing Dynasties (1368 – 1911), the Hakka region in southern Jiangxi received a great number of migrants from Fujian and Guangdong, who brought food crops, such as varieties of corn, yams, and cash crops, such as tobacco and beans. This

period is regarded as the Hakka migration from Fujian and Guangdong. To make a living, the migrated Hakka ancestors built houses on the mountain and opened the mountains for farmland. Meanwhile, the imperial court encouraged the reclamation of wasteland for cultivation. According to the *General Records of Shangbao Township*, “in the first year under the reign of Emperor Kangxi (1661), policies were carried out to emphasize agriculture, reward cultivation in remote areas with 4-8 taels of silver for each 0.07 ha. For this reason, a host of families came in, and the number of households rose dramatically from 10 to 50.” In this period, terraces were fundamentally reclaimed. In the 29th year under the reign of Emperor Qianlong (1764) and during the reign of Emperor Jiaqing (1796-1820), massive landslides broke out, resulting in mud and stone slides which inundated farmland. People began to control water and slopes while building terraces.

Since the end of the Qing Dynasty, the Hakka terraces in Chongyi have been stable in scale. In this period, terrace reclamation is associated with mountain and water control. More importantly, complete technology and theories on terrace cultivation have been developed in practice.

2.2 Historic Relevance

2.2.1 An Important Part of the Hakka Cultural System

As the people living on hills, the Hakka are blessed with the wisdom to respect nature and have the pioneering spirit of persistence. They actively adapted to the tough geographical circumstances and formed their unique culture after integrating culture in the south and in the north. They made a marriage of the rice culture and the hilly terrain in the south. The terraces that the Hakka reclaimed and maintained for generations demonstrated the most distinctive Hakka culture in the physical aspect. Terrace cultivation implies the Hakka’s wisdom on changing the natural environment and utilizing the natural resources in a compatible way.. It is also the individualized representation of the “culture in a settled society” in the Hakka culture, and is regarded as the most profound reason for many cultural phenomena such as Hakka

dialects, patriarchal society, folk songs and legends^[18-20].

2.2.2 Maintaining the Sustainable Development of Local Agriculture

The Hakka in Chongyi have preferred to cultivate traditional rice (commonly known as “old rice”) since ancient times. Traditional delicacies, such as the Huangyuan glutinous rice cakes, often use traditional rice as the main ingredient. That’s why the local traditional species are effectively preserved. Diversified modes and technology of cultivation help improve the diversity of species and the genes in the ecosystem, benefit from the control of damage by diseases, weeds and insects, by developing a cyclical way of production and traditional knowledge that begins “organically”, grows organically and ends in an organic form. It is effective to maintain the sustainable development of local agriculture.

2.2.3 Meeting the Needs of Adapting to Climate Change and Making a Living

In Chongyi, a host of migrants to Chongyi have brought intensive needs for local resources. Terrace reclamation and expansion is an inevitable choice when faced with the contradiction between the growing population and insufficient cultivable land. Meanwhile, disasters such as massive landslides and debris flow drive the Hakka to improve their means of terrace reclamation, which is combined with the control of mountain slopes and water. The Hakka ancestors summarized a series of knowledge on farm work and practical skills in their production. This not only an effective way to put the water and land loss under control and prevent natural disasters, but also succeeded in nurturing the Hakka for generations and ensured the eco-security for the local population on the premise of sustainable development of resources and the environment. In the context of global climate changes, the mode of terrace cultivation offers an important inspiration.

3 Contemporary Relevance

3.1 Developing and Revitalizing the Agricultural Economy

The traditional eco-agricultural development of Chongyi Hakka Terraces enjoys more advantages with each passing year. The gross output value of agriculture in 2001-2013 saw a significant growth (Table 19). In 2013, the gross output value of farming, forestry, animal husbandry and fishery reached ¥1,261.18 million, up 7.6%. Of these, that of farming and forestry reached ¥368.95 million and ¥486.35 million, up 7.9% and 6.7%, respectively. According to statistics, the added value of agriculture stood at ¥850.26 million, up 4.3%, accounting for 14.7% of the county's GDP; Agricultural taxation reached ¥57.17 million, up 63.6%, contributing 7.52% of the total local fiscal revenue.

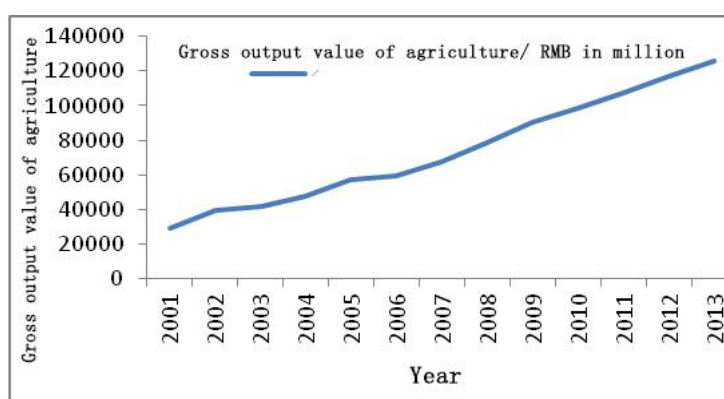


Figure 54 Trend of gross output value of agriculture in Chongyi in 2001-2013

3.2 Effective Utilization of Sloping Land and Hills

Chongyi Hakka Terraces are a sound agro-ecological system that makes full use of local natural conditions. It is built on the basis of full and rational utilization of land and water resources. Reclaiming the gentle slope vulnerable to water loss and soil erosion into terraces not only expands infrastructures such as farmland and ridges, but also effectively increases the infiltration capacity of land and greatly promotes the accumulation of soil nutrients. It is regarded as the marriage of farming culture and a mountainous environment. Such a way of land use adapts to the climate and

mountainous terrain in the south, and thus is regarded as the mode of agricultural production with the supreme productivity and technology in the traditional agricultural production in mountain landscapes, which acts as a valuable demonstration for appropriate development in similar areas.

3.3 Maintaining the Stability of Agro-Ecological System

On Chongyi Hakka Terraces, the mountain agricultural system involving forest, bamboo, tea garden, villages, terrace and water is an ecosystem with rich biodiversity, landscape diversity and harmonious balance between man and nature. It makes full use of functions of forest and bamboo on soil and water conservation, air conditioning and environmental purification. Layers of terraces are changed into reservoirs, making the dried-out slopes into wetlands to store water. Flowing water runs throughout the terraces. Evaporated moisture turns into rainfall above the forest and bamboo. It, combined with the fixed carbon dioxide, released oxygen which impacts on temperature, forms a sound cyclical ecological chain linking forest, bamboo and terraces. This plays a sound regulating effect on the microclimate of terraces, and significantly helps to maintain the stability of agro-ecological system.

3.4 Maintaining a Harmonious Social Order in the Hakka Rural Areas

The Hakka terraces, relatively conserved in mountains, results in an independent and complete social system relying on terraces. The Hakka are born and grow beside the terraces. They are familiar with every single detail of terrace cultivation and management, and are acquainted with the natural rules and social characteristics of surrounding landscapes. The terrace connects the affections of the Hakka with each other. The complete Hakka patriarchal system and rich folklore further strengthens the memory of culture regarding the Hakka terraces. Within each village, people communicate, live and work together. They depend on and take care of each other, helping to form a stable social order. Under this circumstance, social exchange is

found in the homogeneous social network, which results from the cultural relevance of terrace systems, such as the sense of belonging and identity, and the social identity, such as the contact and intensification of social networks ^[22].

3.5 Effectively Inheriting the Hakka's Traditional Farming

Culture

The terrace culture in Chongyi is mainly inherited by traditional means of ancient legends, folklore, revolutionary history and agricultural proverbs. The Hakka's farming technology, religious practice, village regulations and folk conventions, residential architecture, festival celebrations, costumes, performances and literature are all centered on terraces and saturated with the spirit of terrace culture. In the long history of terrace cultivation, the diligent and wise Hakka in Shangbao created many unique cultural art forms, such as the spring cattle culture, wine culture, and tea culture and farming culture, which are filled with deep rural and terrace features. All these come from the experiences accumulated in the long-term terrace cultivation and the daily life of the Hakka. The technology, experience, knowledge and system in the overall Hakka terraces cultivation system are handed down to this day, which accords with the concept of sustainable development and the harmonious co-existence between man and nature.

3.6 Important Scientific Research Value on Multi-Disciplines

The Chongyi Hakka Terraces have maintained the complete traditions on terracing and cultivation, which helps solve the problem of hilly slopes that are not suitable for planting rice. With rich agricultural bio-resources and other eco-environmental resources, it keeps the original way of cultivation, and is blessed with abundant species and landscapes and distinctive land use patterns, and thus has the special significance and value for research. As the origin of Hakka farming work, the Hakka terraces system in Chongyi is of great importance to the research community on farming arrangements, farming tools, system and modes of farming,

cultivation techniques, the reclamation and maintenance of terraces, formation of farming villages, social relationship and cultural development in villages, biodiversity and cultural diversity (Figure 55, 56).



Figure 55 Researchers talk with farmers on the terrace



Figure 56 Researchers visit Li Zonghan (sitting in the middle), a celebrity in Shangbao

4 Threats and Challenges

4.1 Wide Application of Modern Technology Endanger

Traditional Species

With regard to the biodiversity on terraces, as of the end of 2014, there had been an obvious decrease in the cultivated area of traditional rice, an indication of serious loss of traditional rice species and increasing challenges posed to biodiversity. Despite meeting human needs to some extent, traditional crops are handicapped by low yield, high cost, and insufficient intensity of cultivation, inadequate commercialized and organized operation and limited scale and strength of influence. Therefore, they are not equipped with the advantage of scale, and hard to compete with modern agriculture. Meanwhile, due to the simple daily management, many local farmers turned to hybrid rice with high yields in stead of maintaining the traditional species. They began to plant cash crops, such as sweet potatoes and peanuts on a large scale. This results in the shrinking of cultivated land for traditional rice that suffers serious species extinction. Except for a few species, such as the *red rice* and *Dahezi rice*, other traditional long-stalked and short-stalked rice species are almost not planted. Biodiversity is faced with severe challenges. Currently, it is easier to find that paddy fields are changed into dry land, traditional crops give way to cash crops, or even farmlands are left deserted. On the other hand, with the wide application of modern agricultural technology, farmers are prone to use fertilizer and pesticides to save time and labor. This not only damages the local environment, but also affects the inheritance of traditional farming skills.

4.2 Traditional Farming Skills and Tools Are Vanishing

In terms of farming skills and tools, Chongyi Hakka Terraces have paid special attention to intensive farming. The land is ploughed and harrowed twice, or even ploughed and harrowed three times. Tender grass on ridges is weeded as much as

possible, and grass in the farmland is cleared and collected as fertilizer. These years, most farmlands are ploughed and harrowed only once. Some winter vacant land even has rice seedlings transplanted without being ploughed or harrowed. In recent years, grass on ridges is seldom weeded, or the ridges themselves are poorly built. Herbicide is used for weeding, and cultivation is given less care than the traditional way that mainly relies on manpower and animal power with a low degree of mechanization. Some of the traditional farming tools have vanished. Some are vanishing, and some others are still in use (shown in Table 19).

Table 19 Current use of traditional farming tools

Status	Farming tools
Vanished	Paddle wheel and wood wheelbarrow, etc. (Figure 57)
Vanishing	Stone roller, barrel, windmill, stone mortar, rice huller and stone mill etc. (Figure 58)
Still in use	Plough, harrow, wide flat hoe, bar-type flat hoe, field knife, bamboo knife and sickle etc.



Figure 57 Vanished dragon-bone water lift and wood wheelbarrow



Figure 58 Vanishing waterwheel, windmill, barrel and its veil and rice huller

4.3 A Growing Portion of Farmland Is Left Uncultivated Due to Low Comparative Effectiveness of Agriculture

The limited area of farmland in Chongyi accounts for merely 6.87% of the total,

making it impossible to form the comparative effectiveness in terms of yield. Meanwhile, handicapped with the relatively low prices of farm produce, undertaking agricultural production can not produce more benefits than non-agricultural undertakings. As for villages dominated by planting, the 26 administrative villages in three townships in the core region around the heritage site witness the rural net income per capita of ¥1,664, far below the disposable income of urban households (¥17,651). At the same time, agricultural production needs more labor work, which reduces the enthusiasm of farmers for agricultural production. Under this influence, abandoning farming for migrant work or running a small business has become the first choice for farmers. The farmland that is easily cultivated is managed by relatives or friends, while the remote lands that are not easy to cultivate has no choice but to be left abandoned. In addition, in some villages, young people go out to work, leaving their parents and children behind. The left-behind are not capable enough to manage their contractual farmland, leaving part of lands uncultivated. At present, the uncultivated terrace area in the core region surrounding the heritage site reaches 529.23 hm². Within this area, Shangbao Township has its land better protected. But 64.4 hm² terraces are yet to be cultivated.

4.4 Traditional Local Culture Is Changing

With the social and economic development, traditional local culture is affected by modernization. In the context of modernization, traditional modes of agricultural production with relatively low competitive effectiveness is gradually replaced by modern modes of production. What is changing also includes the life style of rural residents, such as eating habits, customs and beliefs, festivals and ceremonies. The adolescents are more influenced by the modern culture than the traditional one. With the cultural shock resulted from urbanization, various folk customs and activities are simply scorned to be so obsolete, preserved, backward and feudal that they must be abandoned. At the same time, in the process of massive migration of rural population, numerous local cultural traditions, cultural activities and concepts that they are born with gradually slide out of people's view. Also, enhanced agricultural productivity

changes the lifestyle of local farmers. There is a cultural discontinuity between the old, who bear the traditional cultural identity, and the young. Many cultural forms lack successors.

5 Practical Considerations

5.1 Ongoing Efforts

5.1.1 Policies and Measures

In 2009, the *Opinions on Accelerating the Transfer of Contractual Rights of Land and Scale Operation in the Rural Areas* (CPC Office and Government Office of Chongyi [2009] No.4) was released by the CPC Office and Government Office of Chongyi. The purposes of the document are to reduce the area of uncultivated land, improve land resource utilization in rural areas, increase the economic returns of agriculture and the income of farmers, and promote the development of rural areas. In 2014, the Chongyi Hakka Rice Terraces entered the second NIAHS list. In the same year, the Leading Group for Applying the GIAHS was set up. The Leading Group, headed by the County Magistrate, was made up of the directors of governmental departments. The office of the Leading Group was set up in the Agriculture and Food Bureau of the County. Five people have been designated to the office to prepare for the application. At the same time, a contract has been signed with the Institute of Geographic Sciences and Natural Resources Research of the China Academy of Science, the experts of which provide professional services for the application.

5.1.2 Brand Building

Building agricultural brands: Chongyi County has obtained the Pollution-Free Agricultural Product Certificate for one of its products, the Green Food Certificate for one product and the Organic Food Certificate for 6 products. The Chongyi Chinese Bramble Grape and the “Chongyi Mountain Tea” are being certified as products with national geographic indication. Statistics show that the output value of these products is as high as ¥433 million, accounting for over 57% of the output value of all agricultural products.

Building cultural brands: In 2012, the Shangbao Terraces were named as the “Largest Hakka Terraces” by the Shanghai Great World Guinness Records. In 2014,

they were among the first to be named by the Ministry of Agriculture as “Beautiful Farms in China”. In 2013, the Shuinan Village of Shangbao became a pilot site of the Ministry of Agriculture’s initiative of building “Beautiful Villages”. Six institutions have been certified as provincial intangible cultural heritage sites, including Gaosheng, the rice wine making technique, the yellow ginger tofu making technique, spring cattle dance etc.

5.1.3 Developing Multifunctional Agriculture

Efforts have been made to attract the rural migrant workers to move back to the rural areas. For example, if they contract over 6.67 hm² of land, they would be treated as leading enterprises and given certain access to credit. The loans would help them cope with seasonal or temporary shortage of funds. They will be given preferential treatment in accordance with relevant policies if they start businesses or engage in secondary and tertiary industries. The development strategies of "One Village One Product" and "One Village One Industry" have been implemented to achieve a reasonable industrial layout according to local situations. Making use of the demonstration effects of people who have made achievements, large-scale farmers, technology leaders and cooperative associations, the development of ingenious agricultural industries will be encouraged, such as the tea industry, greenhouse vegetables and grapes. These are the industries with good economic benefits and great potential. For example, the project of "one thousand mu of eco-rice paddy" was introduced in 2011 to towns and townships, such as the Shangbao Township. China advocates poverty alleviation through tourism. Therefore, more preferential treatment is given to businesses and investors of eco-tourism at the Shangbao terraces and other key tourist sites. For instance, a project has been launched in 2014 to improve the roads in the Shangbao Terrace Tourist Site. Currently, Chongyi County has one provincial leisure agriculture demonstration site-the Shangbao Terrace tourist site, one of the ten Ganzhou "outstanding rural tourism demonstration sites", the Longgou Mengyuan Orange Township, 9 representative leisure agriculture attractions, and 53 agri-entertainment sites.

5.1.4 Advertisement and Education

Several activities have been organized to advertise policies of protecting agricultural heritage and the circulation of rural land. Special focus has been placed on the following policies: *Notice on Identifying National Important Agricultural Heritage Systems*, the *Management Methods of National Important Agricultural Heritage Systems (Trial)*, *Law of the People's Republic of China on the Contracting of Rural Land* and the *Management Methods of Circulation of Rural Land Contracted Management Rights*. Local governments have organized training such as "the organic rice production technology training" and "the new vocation training for farmers". Since 2010, more than ten such training sessions are held each year. The themes of these training sessions are vocational skills for the whole industrial chain. Special attention is given to production management and marketing. They aim to train the farmers on agricultural knowledge, skills and laws, and make them more interested in farming and better at it.

5.2 Potentials and Opportunities for Sustainability and Management of GIAHS

5.2.1 Potentials of the System

The Chongyi Hakka Rice Terraces constitute many elements, such as forests, bamboo woods, tea gardens, farmland, orchards, rivers etc. The system is blessed with biodiversity. Besides being the home to precious wild animals and plants, the system is the source of abundant livelihood provisions, such as the wood and fungi from the forests, bamboo and bamboo shoots from the bamboo woods, tea and fruit from the orchards and tea gardens, rice and soybean (on the field stems) from the terraces, and aquatic products from the river. Traditional agricultural technologies effectively reduce the use of pesticide and fertilizer; improve the quality of agricultural products. Therefore, they are the foundation for producing green and organic products. Besides farming and food processing, leisure tourism, catering, accommodation and other related industries will bloom in the system for its spectacular landscapes and

good ecological environment. These resources, if made good use of, could make the system more attractive to the surrounding markets and bring huge market opportunities. In short, the system enjoys great potentials.

5.2.2 The Government Attaches Great Importance to the System

The protection of agricultural heritage, cultural ecology and traditional villages has long been a priority of the Chinese Government. As early as the 1950s, the State Council approved the establishment of the China Agricultural Heritage Research Laboratory, which studies agricultural history. In 2006, the State Council issued the *Outline of Cultural Development during the 11th Five-Year Plan Period*, which put forward the goals and tasks of cultural development. Responding to the Outline, the Ganzhou City of Jiangxi Province started to build the Hakka culture ecological reserve (in west Jiangxi). In the same year, Ganzhou the Intangible Cultural Heritage Protection Leading Group and Expert Committee were set up. In 2007, the Intangible Cultural Heritage Protection Centre was established. Departments of all levels have been paying much attention to protecting cultural heritage. To protect and develop the traditional villages, the Ministry of Housing and Urban-Rural Development, the Ministry of Culture and the Ministry of Finance organized the first investigation and evaluation of traditional villages across the nation in 2012. The NIAHS initiative was started by the Ministry of Agriculture in 2013. The certification has been conducted two times. A total of 39 systems have been certified as NIAHS, including the Chongyi Hakka Rice Terraces in Jiangxi. The Jiangxi Provincial Government and Chongyi county government attach great importance to the protection of agricultural heritage. They have taken the advice of the experts, organized several seminars and academic exchanges. Commissioners have been sent to visit other sites. In addition, the Chongyi County has designated an organization to prepare for the declaration of globally important agricultural cultural heritage through effective implementation of protection measures and positive publicity after success of the declaration of China's important agricultural heritage.

5.2.3 The Public Pay More Attention to Food Safety

The attention on food supply has gradually shifted from food security to the safety of agricultural products, because of increased agricultural production on an industrial scale. The concern of agriculture has also shifted from ensuring adequate supply to providing ecological and quality products, and ultimately to food culture. Thanks to the increased attention to traditional agriculture, such as the Hakka system, a favourable environment has been created for the alpine se-rich organic rice produced at the Chongyi Hakka Rice Terraces. Although chemical fertilizers and pesticides are common in Chongyi County, a considerable amount of farmyard manure is used in the system. Besides, quite a few traditional methods are used to control pests and diseases, which safeguard food production. With the improvement of public awareness on the importance of traditional agriculture, green agriculture and ecological agriculture, the public's confidence on products from agricultural heritage sites will continue to be strengthened.

5.2.4 Improved Living Standards as Tourists Bring More Opportunities

Due to greatly improved living standards, rural leisure tourism has become many people's optimal choice to relax. Chongyi is located in range of the Pearl River Delta economic zone and the Western Taiwan Straits economic zone. This favourable location, together with its ingenious values and features, makes the system ideal for developing rural leisure tourism, which can attract many tourists from surrounding areas. Chongyi County has a solid foundation for developing tourism, and the timing is perfect. As a result, tourism surrounding the terraces has become an economic focus of the heritage site, even of the whole county.

5.2.5 The Farmers Are Keen on Protecting the System

The main force for protecting the system is local farmers, which is why their actions and attitude are crucial for the protection and inheritance of the agricultural heritage site. Fortunately, they have gradually realized that the land they live on is an invaluable asset that their Hakka ancestors left, and is the root of their culture.

In-depth interviews with the farmers show that they have come to see the adverse effects of modern chemical agriculture on the ecological environment of the terraces. In terms of ecological impacts, the farmers are most aware of the implications of high-yield agricultural technologies, represented by chemical technologies, on the land. Their awareness of land resources is the highest. The farmers' attitude towards protecting the rice terraces and inheriting the culture has been evaluated by the following indicators: willingness to volunteer, willingness to pay and willingness to work. The result shows that, under neutral conditions, the farmers in general are willing to participate in the protection of the rice terraces and the inheritance of the culture. Most farmers are against paying for the campaign, saying that the government should be making most of the investment. Meanwhile, most farmers are willing to volunteer. To sum up, the local farmers have deep feelings about the system, and are willing to protect it. However, they would not undertake more investment due to economic constraints.

5.3 Expected Impacts of GIAHS on Society and Ecology

If the system becomes a GIAHS, the efforts made to protect and develop it will enhance local people's understanding of the traditional knowledge and management approaches. These will improve their capabilities to handle challenges presented by modernization. The combination of traditional culture and innovation will make the modern culture of Chongyi more comprehensive, coordinated and sustainable.

5.3.1 Stronger Awareness of Inheritance and Cohesion

Becoming a GIAHS will make the system more famous, enhance the cultural consciousness and self-confidence of local people, and improve their sense of responsibility on perpetuating the culture and the cohesion of the society. Society, as a result, will become more harmonious and stable. Through the advertisements/promotions ? and activities, the values of Agricultural Heritage and the importance of its protection will be revealed to people from different circles, who then will be more interested in the system's protection and development. People

will also know much more about the system. Traditional Hakka culture and relevant knowledge will be inherited by adolescents by improving their awareness and sense of responsibility for inheriting Hakka culture and protecting Agricultural Heritage. As to females, their social status and self-confidence will be improved by involving more in agricultural product processing, eco-tourism and other related activities.

5.3.2 Higher Levels of Agricultural Industrialization and Rural Income

If the system becomes a GIAHS, Chongyi will develop multi-functional agriculture making use of the brand effects, the climate, soil and ecological advantages. The basic function will be the production of eco-agricultural products, so that the supply of high-quality agricultural products will be safeguarded. There will be more deep-processing. Total agricultural output will significantly increase if the farmers make full use of the bamboo woods and the other crops in the terraces, and plants and animals in the woods. With the core area of the system as a demonstration site, the total agricultural output and grain output may increase by as much as 20%. The allocation of workforce in agriculture, the second and tertiary industries will also change. The farmers working in the second and tertiary industries will more than double, which will lead to sizable income growth. What's more, the rural economy will become more developed and stable in the fluctuating markets. In addition, the development of tourism at the heritage site will give full play to the system's functions. The leisure tourism at the heritage site will promote industrial structure upgrading, and promote the local economy.

5.3.3 Protect Agricultural Ecology and Maintain the Landscape

Becoming a GIAHS will promote the healthy development of the system. The quality of preliminary agricultural products will be safeguarded by various actions to protect the ecological environment of the farmland, and improve the soil and water quality of the system. These include the promotion of eco-agricultural technologies and the construction of large-scale eco-agricultural bases, control of pesticides and fertilizer use, and tillage protection. Becoming a GIAHS will help with the protection

and sustainable utilization of the landscapes at the heritage site. This will also contribute to ecological balance and biodiversity conservation.

5.4 Motivation of the Stakeholders

5.4.1 Motivations of the Local Community

The system represents the majority of livelihood provisions of the local people. It is an important carrier of traditional farming knowledge, technology and culture. The local community has two motivations in making the system a GIAHS, and implementing the protection measures. On one hand, it would promote local economy and increase farmers' income. On the other hand, Hakka have a strong cultural identity, which makes them willing to pass on their ingenious culture through the terrace system. The ingenious clan system of Hakka can be made use of to attract the local community to participate in the initiative. For example, new self-help groups can be set up, such as an association of agricultural and bamboo craft processing. Another example is inviting existing owners of agri-entertainment businesses to found an industrial association.

5.4.2 Motivations of the Chongyi Government

The Jiangxi Provincial Government and Chongyi County government attach great importance to the protection of agricultural heritage. Since the system became a NIAHS, Chongyi has designated an organization to prepare the system for GIAHS through effective implementation of protection measures and promotion. The Chongyi County Government is proactive in the application to become an important agricultural heritage system, because it is an important way to promote the economy and culture, and create more jobs as well as protect environmental resources. Meanwhile the Chongyi county government attaches great importance to the core area of the system. The *Outline of Chongyi County's Social and Economic Development Planning during the Twelfth Five Year Plan Period (2011-2015)* requires that the Shangbao Terraces and other distinct landscapes be placed under

special protection, cultivate alpine rice with high quality, and support organic agriculture and organic products. Besides, Chongyi has set up a leading group for the GIAHS proposal. The *Planning of Protecting and Developing the Heritage System* has been formulated and implemented. The departments have been brought together to prepare for the GIAHS proposal.

5.4.3 Motivations of the Central Government

The Chinese Government believes that the protection of agricultural heritage is conducive to sustainable development. It tries to incorporate the protection of agricultural heritage into the strategy of ecological civilization construction, beautiful countryside construction, environmental protection and cultural industry development. Its support includes regulations, policies and project funding. In 2013, the Ministry of Agriculture started the NIAHS initiative, which has selected 39 NIAHS up till now. The Chongyi Hakka Rice Terraces was selected as a NIAHS in 2014. Besides, the Shangbao Terraces was one of the first to be named “Beautiful Farmland in China” by the Ministry of Agriculture. In 2012, the *State Council's Opinions on Revitalizing and Developing Ganna and other Former Central Revolutionary Bases* was released. It is a clear-cut requirement of the document to "promote sustainable development without sacrificing the environment", and "increase farmers' income through multiple channels, such as leisure agriculture and rural tourism that give full play to the multiple functions of agriculture".

5.4.4 Motivations of the Enterprises

Currently most agricultural products of the heritage site are sold by the enterprises. Lacking prominent brand features, the potentials of the system's agricultural products have not been fully developed. Thus local enterprises and farmer cooperatives hope that the GIAHS initiative would promote local brands, which would increase the added value of their products. In terms of the cooperation mechanisms, the enterprises will cooperate with local farmers and farmer cooperatives to establish the production mode of "farmer cooperatives + farmers",

"enterprise + farmers cooperatives + farmers". On the other hand, the support of government policy or funding will be actively applied for. Besides, with the development of heritage site tourism, related enterprise, associations, cooperatives can work together to explore the landscapes, food, traditional culture and entertainments, so as to attract tourists with sensitive ecological and cultural interests.

5.4.5 Motivations of the Tourists

Nine-layered cake, a cuisine of Shangbao, and the terraces were shown in several TV shows, such as *A Bite of China* and *Hakka Footprint*. Attracted by the cuisine and the landscape, many tourists have come to visit Shangbao, located at the core area of the heritage site. Many professional photographers have also been attracted to the site. Tourists can not only admire the remarkable landscapes, but also experience farming, as well as the food culture. As the neighbouring areas become more developed, the tourists will become more interested in participatory travel.

6. Dynamic Conservation Plan for GIAHS Selected Site

6.1 Ongoing Efforts

6.1.1 Policies and Measures

In 2009, the *Opinions on Accelerating the Transfer of Contractual Rights of Land and Scale Operation in the Rural Areas* (CPC Office and Government Office of Chongyi [2009] No.4) was released by the CPC Office and Government Office of Chongyi. The purposes of the document are to reduce the area of uncultivated land, improve the land resources utilization of rural areas, increase the economic returns of agriculture and the income of the farmers, and promote the development of rural areas. In 2014, the Chongyi Hakka Terraces entered the second NIAHS list. In the same year, the Leading Group for Applying the GIAHS was set up. The Leading Group, headed by the County Magistrate, was made up by the directors of governmental departments. The office of the Leading Group was set up in the Agriculture and Food Bureau of the County. Five people have been designated to the office to prepare for the application. At the same time, a contract has been signed with the Institute of Geographic Sciences and Natural Resources Research of the China Academy of Science, the experts of which provide professional services for the application.

6.1.2 Brand Building

Building agricultural brands: Chongyi County has obtained the Pollution-Free Agricultural Product Certificate for one of its products, the Green Food Certificate for one product and the Organic Food Certificate for 6 products. The Chongyi Chinese Bramble Grape and “Chongyi Mountain Tea” are being certified as products with national geographic indication. Statistics show that the output value of these products is as high as ¥433 million, accounting for more than 57% of the output value of all the agricultural products.

Building cultural brands: In 2012, the Shangbao Terrace was named as the “Largest Hakka Terraces” by the Shanghai Great World Guinness Records. In 2014,

the terraces were among the first to be named by the Ministry of Agriculture as “Beautiful Farms in China”. In 2013, the Shuinan Village of Shangbao became a pilot site of the Ministry of Agriculture’s initiative of building “Beautiful Villages”. Six institutions have been certified as provincial intangible cultural heritages, including Gaosheng, the rice wine making technique, the yellow ginger tofu making technique, and the spring cattle dance.

6.1.3 Developing Multifunctional Agriculture

Efforts have been made to attract rural migrant workers to move back to rural areas. For example, if organizations contract more than 6.67 hm² of land, they will be treated as leading enterprises and given a number of credits. The loans can help them cope with seasonal or temporary shortage of funds. They will be given preferential treatment in accordance with relevant policies if they start businesses or engage in secondary and tertiary industries. The development strategies of "One Village One Product" and "One Village One Industry" have been implemented to achieve a reasonable industrial layout according to local situations. Making use of demonstrations by people who have made achievements--large-scale farmers, technology leaders and cooperative associations--the development of ingenious agricultural industries will be encouraged, such as the tea industry, greenhouse vegetables and grapes. These are the industries with good economic benefits and excellent potential. For example, the project of "*1000 mu of eco-rice paddy*" (1 mu equals 666.7 m²) was introduced in 2011 to towns and townships such as Shangbao. China, and advocates poverty alleviation through tourism. Therefore, more preferential treatments are given to businesses and investors in eco-tourism at the Shangbao terrace and other key tourist sites. For instance, a project was launched in 2014 to improve the roads in the Shangbao Terrace Tourist Site. Currently, Chongyi County has one provincial leisure agriculture demonstration site (the Shangbao Terrace tourist site), one of the ten of Ganzhou’s "outstanding rural tourism demonstration sites" (the Longgou Mengyuan Orange Village), 9 representative leisure agriculture attractions, and 53 agro-entertainment sites.

6.1.4 Advertisement and Education

Several activities have been organized to advertise policies of protecting agricultural heritage and the circulation of rural land. Special focus has been placed on the following policies: *Notice on Identifying National Important Agricultural Heritage Systems*, the *Management Methods of National Important Agricultural Heritage Systems (Trial)*, *Law of the People's Republic of China on the Contracting of Rural Land* and the *Management Methods of Circulation of Rural Land Contracted Management Rights*. Local governments have organized training, such as "the organic rice production technology training" and "the new vocation training for farmers". Since 2010, more than ten such training sessions have been held each year. The themes of these trainings are vocational skills for the entire industrial chain. Special attention is given to production management and marketing. The aim is to train farmers in agricultural knowledge, skills and laws, and make them more interested in farming and better at it.

6.2 Action Plan

6.2.1 Designating Function Zones at the Heritage Site

Planning will be designed to protect and develop the heritage system, from the protection of biological diversity and traditional agriculture to agricultural industrialization and eco-tourism, etc. The layout of the reserve will be adjusted. Function zones will be designated, including a core protection zone (the centre of the heritage system), an ecological reserve, and an area for agricultural landscape presentation and leisure tourism. Strong protection measures will be adopted in the core protection zone, which will be the centre of the development of multi-functional agriculture. A demonstration base will be constructed. These efforts will be gradually expanded to other areas of Chongyi County.

According to their functions, different protection and development targets and paths will be set for the three zones mentioned above. For the core protection area, the main goals are protecting agricultural and germplasm resources, the farmland and

natural ecology, the landscapes, and tangible and intangible culture relating to agricultural history and production. Stringent protection measures will be adopted. Any industry and project that might affect the terrace landscape and the ecological environment will be subjected to evaluation and review. Industries and projects that fail the evaluation and review will be banned. The core protection area of the heritage system covers 3 townships and 26 villages, where the terraces are mainly located.

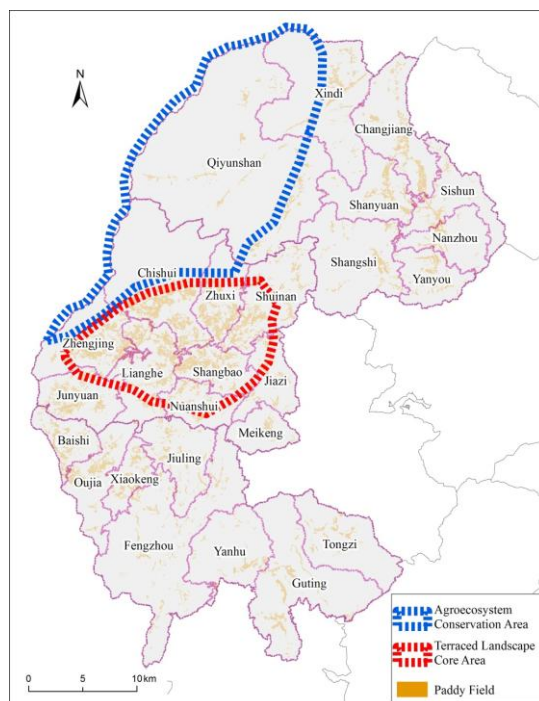


Figure 1 Agro-ecosystem conservation area and terraced landscape core area

As for the ecological reserve, the main function is creating a favorable ecological environment for planting ingenious crops, protecting biodiversity, and restoring natural landscapes (Fig.1). The landscapes in the tourism zone include Chongyi Hakka Terraces, which are directly connected to the heritage system, and natural and cultural landscapes with tourism values (Fig.2). Tourism, the museum, and the selling of agricultural and indigenous products will be located in this zone.

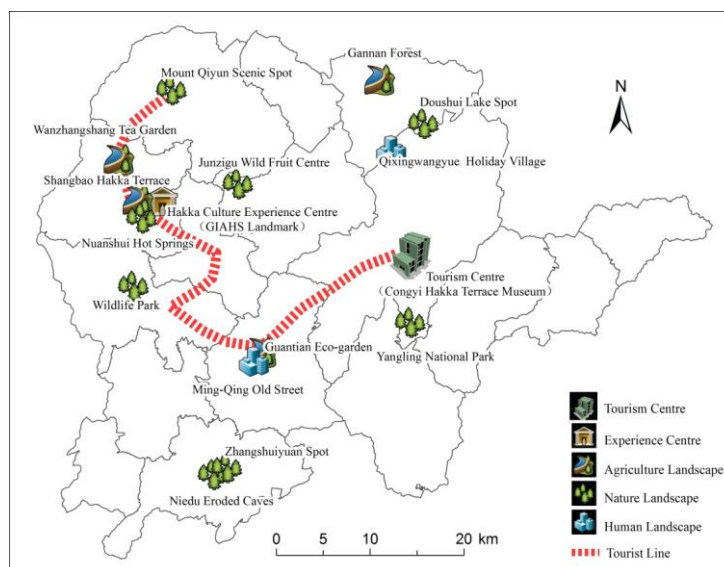


Figure 2 Tourism landscape and tourist line

6.2.2 Protecting the Agro-Ecology

First, efforts will be made to maintain biodiversity, including the protection of the indigenous rice species and germplasm resources, animal and botanic resources, as well as the environment where these resources are located. Some of the tree and animal species in the heritage system are in Category I and II on the State Protection List. There are also 13 indigenous species, for which protection should be enhanced.

Second, efforts will be made to protect the agro-ecology. The Chongyi Hakka Terraces are a comprehensive ecosystem where bamboo, rice, upland crops and livestock coexist. Therefore, the threats to the environment can be reduced by using less fertilizer and pesticides. Sustainable agriculture can be achieved by protecting the ecological environment of the system. To this end, demonstration areas and experiment areas will be set up at the heritage site to provide guidance in traditional farming practices to the farmers. Operation procedures for traditional rice planting will be used. The result will be an ecological circular agriculture mode that is green and efficient.

Third, dynamic monitoring will be conducted, while the experience of the demonstration areas will be promoted. Demonstration areas of ecological protection and traditional agricultural technologies will be set up to explore fundamental protection methods of the system's agro-ecology. A robust agro-ecological and

cultural compensation mechanism will be put in place. In addition, the harmony between the ecological environment and agriculture will be safeguard by maintaining and recovering traditional management approaches and agricultural technologies.

6.2.3 Protecting the Agri-Culture

The value system and cultural consciousness will be appraised and inherited through the following actions. An activity will be organized to select, recognize and award the “Agri-Culture Heritage Model Farmers”. Regular lectures on the history and culture of the system will be conducted for the farmers. An introduction to the culture of Chongyi Hakka Terraces will be added to the textbooks of Jiangxi’s middle and primary schools, and to the education plans.

Second, the traditional agricultural knowledge and technologies will be protected. The *Introduction of Agricultural Knowledge of Chongyi Hakka Terraces* and the *Brochure of Technologies for Chongyi Hakka Terraces* will be compiled and published, for which the target readers will be the farmers. An “Expert Forum on Protecting the Culture of Chongyi Hakka Terraces” will be held regularly. It will facilitate studies and exchanges of technologies and measures of protecting and developing the heritage system. An internship base will be set up for the students of the agriculture academy to study traditional agricultural knowledge and technologies.

Third, efforts will be made to protect the agri-culture and Hakka customs of the heritage system. The “Chongyi Hakka Terraces Agricultural Festival” will be held regularly. At these festivals, the Hakka festivities, religion, traditional folk customs, folk songs and dances, and indigenous food will be presented through products, academic seminars and tourism advertisement. Calendars and postcards will present the heritage. Books about the heritage will be published and symposiums on these new books will follow. A logo for the heritage system will be designed, which will stress two elements, namely the Hakka culture and the agri-culture of the system.

Four, measures will be adopted to protect the culture of Chongyi Hakka Terraces. A Chongyi Hakka Terraces Protection Committee will be set up, consisting of institutions of different levels, including the county government and the villages.

Regulations on the protection of the terraces will be made, and will be aligned with the regulations and rules of local communities where appropriate. Items that embody the culture and history of the terraces will be collected, documented, displayed and protected. These items will be exhibited in Chongyi Hakka Terraces Museum to be built at Chongyi County. The museum will organize regular advertisement. Institutions where people can experience the agri-culture of Chongyi Hakka Terraces will be built, as well as exhibition rooms at the villages.

Five, actions will be taken to protect traditional festivities and folk customs relating to the agricultural production and daily lives of the Hakka. Chongyi boasts seven heritages that are on the Intangible Heritage List of Jiangxi Province. The county will try to get them certified as national intangible heritages. An initiative will be started to select the inheritors of the intangible heritages.

6.2.4 Protecting the Agricultural Landscapes

First, the traditional Hakka villages and other rural landscapes will be protected. The layout of the villages will be improved, as well as the landscapes of the centre empty villages. The village landscapes will stress the Hakka culture and should be harmonious with nature. Public facilities will be gradually improved. For instance, more will be invested in replacing the old toilets with new toilets. Biogas digesters will be promoted. Sanitary toilets will be put in all houses newly built in the rural areas. Garbage processing plants will be constructed to dispose of domestic garbage in a relatively concentrated manner. The level of non-hazardous processing of domestic garbage will be improved. In key towns and townships, the domestic garbage will be categorized. The garbage storage and transportation system will be improved. The project of controlling the pollution caused by livestock breeding will be pushed forward.

Second, efforts will be made to protect the forest landscape and ecological environment. The protection of forest resources will be enhanced, and the stand quality will be improved. More investment will be made in protecting and building natural reserves and forest parks, and in protecting biodiversity and improving the

ecological functions. The focus will be on planting and protecting non-commercial forests, the protection forest of the Yangtze River, the control of water and soil erosion at the middle and small river basins, and the ecological restoration of these basins. A demonstration zone of biodiversity conservation will be built in the Qingyun Mountain National Nature Reserve. A special project will be launched to protect the old trees and famous trees. For example, name tags will be put on the old trees and famous trees, the information for which will be documented.

Third, measures will be adopted to protect the irrigation systems and water landscapes. The project of protecting the Dushui Lake and the water ecology of Niedu Township will be pushed forward. Sewage processing plants will be constructed. The sewage from the areas along the rivers needs to be processed and meet certain standards before it is discharged into the river. No garbage will be allowed to be dumped or stored in the river courses or pools, so as to protect underground water. Quick action will be taken to repair irrigation and water conservancy facilities that are in poor condition. The ridges and ditches in the fields will be repaired without harming the original ecology. There will be a designated fund for a stable team of engineers and for the maintenance and repair of water conservancy facilities.

Four, the terrace landscapes will be protected. Farmers who contract more than 0.67 hm² will be given direct national grain subsidies. Farmers who plant indigenous rice varieties will be entitled to subsidies for superior crop varieties. These and other subsidies will encourage the farmers to protect their heritage through their work.

6.2.5 Developing Eco-Agriculture

First, a survey will be conducted to collect basic data about the farms and protection. The accountability mechanism will be put in place to ensure that the area of the terraces will not shrink, and to reduce the proportion of abandoned fields. Making use of the data about agricultural products and indigenous crop species, a digital database will be set up to monitor, track, and manage the agricultural products and resources.

Second, the certification of Pollution-Free Product, Green Food and Organic Agricultural Product, and Product of Geographic Indication will be promoted. Production bases of these products will be constructed. High-quality and efficient eco-agriculture will be promoted, which has higher comprehensive production capacity and lower pollution, and is better for the ecosystem and environment. The products of these production bases vary as the villages at the heritage site are in different situations. They include alpine se-rich rice, vegetables, tea, Nepali hog plum and Chinese Bramble Grape.

Third, brand building of the indigenous products of the heritage system will be enhanced from the following aspects: eco-product bases, product processing, brand building, quality certification, the extension of industrial chains and the expansion of markets. The focus will be placed on the production and processing of alpine se-rich organic rice, the products of the rice paddy fields (ducks and fish, etc.), bamboo products (bamboo sculptures, bamboo handcrafts, etc.), alpine organic tea, and other indigenous products. Standards will be formulated for certifying the products from the GIAHS/NIAHS. Demonstration zones will be built where traditional crop species are planted and farmyard fertilizer and traditional agricultural technologies are applied. The county will register the logo and patent of the eco-products from the Chongyi Hakka Terraces. The brands of the rice, coarse cereal, fungus, and bamboo products will be built and marketed.

Four, the agricultural processing industries will be promoted. The transformation and upgrading of traditional agriculture will be expedited. This means that agricultural processing and agricultural tourism will be promoted, which will give full play to the functions of agriculture. At the same time, exchanges between Chongyi County and Hunan, Guangdong, and the other counties and cities of Jiangxi will be enhanced to promote regional cooperation on agricultural processing and to stimulate cross-border flow of agricultural production factors.

Five, the innovation of production and operation modes will be promoted. Businesses and investors will be attracted to set up processing enterprises of grain and other indigenous products. They will also contribute to the construction of production

and processing bases for organic eco-products produced from the heritage system. These bases will be located at Shangbao County, Sishun County and Fengzhou County. Trial projects will be launched on the “cooperatives + farmers” and “enterprises + cooperatives + farmers” eco-product production modes, which would extend the industrial chains.

6.2.6 Developing Sustainable Tourism

First, the positioning of tourism at the heritage site will be identified. Tourism of agricultural heritage is incorporated into the tourism development planning of Chongyi County and Ganzhou City. Boutique travel routes will be designed. The layout of tourism resources will be improved. Chongyi will strive to become a national demonstration site of leisure agriculture and rural tourism, selected by the Ministry of Agriculture and the National Tourism Administration.

Second, the marketing of the tourism brand will be stepped up. The landscapes and products of the system will be embedded in or made into daily items for modern consumers. Cartoons and comic games about the production and daily lives at the heritage site will be made. The lives of local people will be made into TV series, micro-movies and movies.

Third, the tourism infrastructure will be built and improved. The directions, themes and targets for the tourism development of the villages will be clarified. The tourism facilities of several villages will be improved. The tourism facilities of Shuinan Village and Chishui Village will be improved. The style of the facilities will be more in line with the environment and the culture of the heritage site.

Four, farmers' involvement will be encouraged. A balanced benefit allocation mechanism will be put in place to attract high-quality capital while protecting the farmers' interest. Regular trainings on tourist reception and related knowledge will be conducted. These will strengthen local farmers' awareness of tourist reception and the protection of the terraces. The policy of “Culture Model Farmers” will be introduced. In-depth travel at the heritage site will be promoted.

Five, more tourist products will be designed and promoted, including

agricultural experience, sight-seeing, cultural experience, leisure tourism, science and education, festivities, performance and photographing. Story-telling shows will be created in the terraces. Stage performances will display the culture. Ingenious souvenirs will be marketed (such as alpine se-rich organic rice, high mountain tea in small packages, and bamboo handicrafts).

Six, information systems will be developed. A website will provide comprehensive tourism information on Chongyi Hakka Terraces. The information will be updated on a daily basis. Hardware (such as terminals for inquiry and Wi-Fi) will also be improved to meet the demands of tourists on DIY trips. Panorama pictures of four seasons will be put online, so that the tourists can learn about the landscapes of the terraces at different seasons, altitudes and locations. A tourism monitoring system will be launched to collect real time information about tourist safety. The system will also function as an early warning system. APPs of tourism at Chongyi Hakka Terraces will be developed for different IT platforms (such as ISO and Android).

Seven, efforts will be made to protect the ecological environment of the tourist sites. One measure is using new energy, environmental friendly materials, and environmental protection technologies that realize low-carbon tourism and operation. Food will be made into semi-prepared form before being taken into the core protection area, thus easing the burden on the environment. Assessment of the villages' capacity of tourist accommodation will be conducted, the results of which will be used to control the number of tourists. Tourism will be concentrated in some villages. By avoiding tourism in all the villages, the burden on the eco-system can be controlled. A mechanism will be built to compensate and transfer the tourism income to those villages in which the development of tourism is not supported. In addition, conditional ecological compensations will be sought from the national, provincial and municipal governments for the heritage site.

6.2.7 Capacity Building

To better protect and develop the heritage system, the cultural consciousness, decision making, operation and management capacity will be improved.

First, cultural consciousness will be improved through the following actions. Advertisements and activities will be organized to improve the understanding of the values and importance of protecting the heritage system. This would attract people from all walks of life to join in the campaign. The protection and development of Chongyi Hakka Terraces will be reported in the government's work report, which will let more people know about the heritage system. As a result, the public, especially the farmers, inheritors, and corporate employees, will be more interested in the protection and development efforts.

Second, decision-making capacity will be improved. Efforts will be made to help the decision makers managing the heritage system stay on top of whole enterprise. The capacity of personnel to understand and implement the policies will be improved. As a result, the decision makers will have clear thought in the protection and development of the heritage system. They will listen to the opinions of local farmers when making related policies. As for the farmers, during policy making they will be able to provide suggestions while considering their own situations and the situations of their villages.

Third, the operation and management capacity will be improved by attracting talented people, making innovations, giving lectures, and organizing trainings. Due to these efforts, the professional and management skills of the decision makers will be strengthened. The innovation capacity of the enterprises will be improved. The farmers will be able to get involved in more than one type of business. Ultimately, there will be more professional technicians and product researchers relating to government officials and corporate managers. There will be technicians who advise about technologies, markets, and decision making.

6.2.8 Building Multi-Stakeholder Partnerships

Local Community: The ingenious clan system of Hakka can be made use of to attract the local community to participate in the initiative. For example, new self-help groups can be set up, such as the association of agricultural and bamboo

craft processing. Another example is inviting existing owners of agro-entertainment businesses to found an industrial association.

Chongyi County Government: Chongyi has set up a leading group for the GIAHS proposal. It works vigorously to obtain policy and fiscal supports from the Central Government. The *Planning of Protecting and Developing the Heritage System* has been formulated and implemented, as well as related regulations and management methods. The governmental departments at all levels have been brought together with the towns and townships to prepare for the GIAHS proposal.

Enterprises: In terms of the cooperation mechanisms, the enterprises will cooperate with local farmers and farmer cooperatives to establish the production mode of "farmer cooperatives + farmers", "enterprise + farmers cooperatives + farmers". On the other hand, the support of government policy or funding will be actively applied for. Additionally, with the development of heritage site tourism, related enterprise, associations, and cooperatives can work together to explore the landscapes, food, traditional culture and entertainments, so as to attract tourists from neighbouring areas.

6.3 Expected Results of the Action Plans

6.3.1 Ecological Benefits

The implementation of the planning will increase the ecological benefits of the heritage system. For instance, the use of chemical fertilizer and pesticides will be cut by more than 70%. To be more specific, the amount of chemical fertilizer will be lowered from 6,000 t to 1,800 t; and pesticides from 37.1 t to 9.5 t. This can be attributed to the promotion of eco-agricultural technologies and the large-scale construction of eco-agriculture bases. These measures will gradually make chemical fertilizer and pesticides unnecessary in the core protection zone. Demonstration and experiment zones will be set up at the heritage sites. Farmers will receive guidance in traditional agricultural approaches: farmyard manure, soil preparation, seedling, sowing, field management, pest and disease control, harvesting, etc. Two to three

technical procedures concerning traditional rice cultivation will be established. Traditional agricultural technologies of rice planting, and green and efficient eco-agricultural modes will be disseminated. The implementation of the planning will help maintain the water quality at the heritage site, where tests have been conducted on the water quality of 17 river sections. The results of the pollution criteria show that the water quality of all the sections is better than Grade III (according to the Environmental Quality Standards for Surface Water). The drinking water for the cities all meet water quality standards. The water quality is good. The planning stipulates measures which will protect the ecological environment and improve the soil and water quality of the farmland, which in turn will maintain the quantity and quality of the preliminary agricultural products. The protection of the terraces will maintain several eco-functions, which will help to conserve agricultural biodiversity, including rice varieties with different features, as well as all sorts of animal and botanic species. Other eco-functions of the heritage system that will be significantly improved include water and soil conservation, environmental decontamination, and atmosphere conditioning. The planning will increase the overall benefits of the heritage system by more than 20%. Biodiversity will be considerably improved. The fertility of the farmland will go up by more than 10%. The planning will not only reduce the investment of production materials and labour, but will also protect the ecological environment. What's more, the environmental cost of 666.7 m² of farmland will be reduced by more than ¥10. These will make possible the sustainable development of the Chongyi Hakka Terraces. In addition, the planning is conducive to the maintenance and sustainable utilization of the terrace landscapes.

6.3.2 Economic Benefits

If the system becomes a GIAHS, Chongyi will develop multi-function agriculture making use of the brand effects, the climate, soil and ecological advantages. The basic function will be the production of eco-agricultural products, so that the supply of high-quality agricultural products will be safeguarded. There will be more deep-processing, which will increase the farmers' income. The

implementation of the planning will strengthen brand building of eco-agricultural products. It will also eliminate the usage of chemical fertilizer and pesticides in the core protection zone. Due to the improvement in quality, the rice price is expected to increase by 20%, which will improve the farmers' living standards. Compared with 2015, total agricultural output is expected to increase by 50% if the farmers make full use of the bamboo woods and the other crops in the terraces, and the crops and livestock in the woods. With the core area of the system as a demonstration site, the total agricultural output and grain output are going to increase by as much as 20%. The rural economy will become more developed and will be able to remain stable in fluctuating markets. In addition, the development of the heritage site will drive the development of agricultural processing and infrastructure construction, which will also boost the economy of the county.

The development of tourism at the heritage site will give full play to the system's functions. The leisure tourism at the site will promote industrial structure upgrading the local economy. As a result of the implementation of the planning, the tertiary industry will be driven forward by the development of leisure tourism, tourism surrounding the agricultural heritage and sight-seeing.

6.3.3 Social Benefits

The Chongyi Hakka Terraces embody rich production experience, traditional technologies and the philosophy of harmonious development between mankind and nature. Modern agriculture can learn much from the system. The protection and development of the Chongyi Hakka Terraces will enhance local people's understanding of traditional knowledge and management approaches. These will improve their capabilities to handle challenges presented by modernization. The combination of traditional culture and innovation will make the modern culture of Chongyi more comprehensive, coordinated and sustainable.

The actions in the planning will make the system more famous, enhance the cultural consciousness and self-confidence of local people, and improve their sense of responsibility as they inherit the culture and the cohesion of the society. According

to the planning, many advertisement and education activities will be held. Knowledge about agricultural heritage will be taught in all the middle and primary schools of the county. Thanks to these efforts, about 50% of the people in the core protection zone and 80% of the leaders of all levels will know about agricultural heritages. Of the middle school students and pupils, 80% will know about agricultural heritages. The development of the heritage system will drive the development of local companies and result in re-allocation of the labor force among agriculture, secondary industry, and tertiary industry. As to females, their social status and self-confidence will be improved by involving them more in the agricultural product processing, eco-tourism and other activities.

6.4 Funding

Capital supports will be obtained from several channels, which will go into the exclusive fund designated for the protection and development of the agricultural heritage. Following are the main financing channels.

Ecological compensation: Ecological compensation plays an important role in developing industries related to the heritage system. The compensations for these industries (such as organic agriculture, tourism, etc.) will mainly be paid through government transfer. When deciding the amount of the compensations, the following factors will be considered: reasonable evaluation of the eco-functions of the heritage system, the direct investment of the farmers in protecting the ecology of the heritage system and their opportunity costs.

Integration with the initiatives of building new countryside and beautiful villages: China attaches great importance to rural affairs. The building of new countryside is one of the local governments' top priorities, while the building of beautiful villages has become a national development strategy. The Central Government requires governments at all levels to set up exclusive funds for these two initiatives, which can be leveraged to finance the protection of the agricultural heritage. This arrangement will promote the protection of the agricultural heritage and the building of rural areas at the same time.

The resources of the initiative to alleviate poverty by developing tourism can be leveraged to develop the heritage system. In 2012, *the State Council's Opinions on Revitalizing and Developing Ganna and other Former Central Revolutionary Bases* was released. In 2013, *the Opinions on Supporting Tourism Development at Ganna and other Former Central Revolutionary Bases (CNTA [2013] No.1)* was released by the National Tourism Administration. The document required the National Experiment Zone of Alleviating Poverty through Tourism to be set up in Ganzhou City. It also instructed that in the experiment zones, tourism products should be designed to make use of the competitive edges of the area. According to this instruction, red tourism, rural tourism, eco-tourism and folk cultural tourism have been put forward. The heritage system offers indigenous resources for eco-tourism and agricultural tourism. Therefore, the funds for related poverty alleviation can be used to develop tourism surrounding the heritage system.

Preferential policies will be implemented, while more investment will be made. The protection of the heritage system will be a key issue on the agenda of the CPC committee and government of Chongyi County. Fees will be designated for the daily operation of the campaign. Not only will the funds for rural development be used, but also poverty alleviation funds will be leveraged. In addition, funding can be obtained in the form of labour supports. The government should be supported in the key aspects, such as loans, financing, reduction and exemption of taxes and administration fees, water, electricity and land supply. Key leading enterprises will invest money in building their production bases, so that the community of interests will take shape.

In addition, financial and policy supports will be obtained from the World Bank and the Ministry of Agriculture. The leading enterprises will be encouraged to support the farmers with a proportion of their income. The Chongyi people who have migrated to foreign countries will be encouraged to invest in their hometown. In short, funding will be obtained from multiple channels.

6.5 Mechanism Building

Relevant departments will accelerate the approval and implementation of the *Planning of Protecting and Developing Chongyi Hakka Terraces, an Agricultural Heritage System*. Responsibility will be assigned as soon as possible.

The *Management Methods of Protecting and Developing Chongyi Hakka Terraces Agricultural Heritage System* will be formulated as soon as possible. The document will clarify the policies and measures for the protection and development of the heritage system. Examples include preferential policies and stimulations for related industries, and approaches like monitoring, examination, period reporting, rewarding and punishment.

The Management Method of Using the Logo of Chongyi Hakka Terraces Agricultural Heritage System will be formulated. It will stipulate the governing department, approval procedures, terms of use and evaluation methods.

A stimulation mechanism will be set up. Stringent evaluation will be conducted, the result of which will be used to decide the rewards and punishment. Government at all levels should implement effective stimulation policies. Rewards and honorary titles will be given to the departments, farmers, enterprises, farmer agents, scientists and technicians who make prominent contributions to protecting and developing the Hakka terraces. Especially those farmers who plant indigenous species will receive subsidiaries. The capacity of contributing to the protection and development of the heritage system will become an important criterion in nominating government officials for the core protection zone.

6.6 The Plan of Measures and Actions

6.6.1 Protecting the Agro-Ecology

Task	Measures, Actions and Targets	Implementing Department	Year
Protecting biodiversity	A database will be built that store the basic data of the core protection zone, which will be analysed periodically. The evaluation will be performed by experts hired.	Agriculture and Food Bureau	2015-2017
	Signs will be put up in the terraces of the 16 towns and townships at the heritage site. They will be put on the protection list. Responsible persons will be identified. Information such as crop species, the amount of farmyard fertilizer and chemical fertilizer applied will be collected periodically.	Agriculture and Food Bureau	2015-2020
	The area of the indigenous crops will be expanded. Clear subsidiary standards will be made. ¥900/hm ² of fiscal subsidiaries will be given to farmers of the terraces for three consecutive years.	Agriculture and Food Bureau	2020-2025
Protecting the ecology of the fields	Guidance of traditional agricultural approaches will be given to the farmers. Two to three technical procedures concerning traditional rice cultivation will be made. One to two traditional agricultural technologies of rice planting, and green and efficient	Agriculture and Food Bureau	2020-2025

	eco-agricultural modes will be disseminated.		
	Projects in the core protection zone of the heritage system will be strictly monitored. Destructive operation and construction activities will be banned. At the same time, punishment measures will be established.	Commission of Development and Reform	2015-2017
	The environment of the village at the core protection zone will be improved. There will be concentrated disposal of domestic garbage, which will gradually cover 100% of the domestic garbage. This will reduce the pollution caused by domestic garbage, as well as impacts on the landscapes. Meanwhile, sewage processing will be improved.	Environmental Protection Bureau	2015-2017
	The villagers are encouraged to manage the forests, villages, terraces and water at the heritage site according to the regulations and rules of their villages. Twice a year, lectures on legal issues will be given to the officials and the public to enhance their awareness of the laws.	Township Governments	2017-2020
	The local people will be encouraged to develop agro-entertainment businesses, restaurants, inns, and stores of indigenous products. Five of these will be built every year to provide services for eco-tourism	Tourism Bureau	2017-2020
	The environmental impact evaluation policy will be improved. All projects in the	Commission of	2017-2020

	protection zones will be subjected to evaluations of environmental impacts, including ecological impacts. Approval must be obtained before the projects are launched.	Development and Reform	
	Farmyard manure and green manure will replace chemical fertilizer. Other biological technologies used to prevent and control pest and disease include bonfire, raising fish and ducks in the rice paddy fields. Through these measures, the usage of chemical fertilizer in the core protection zone will be reduced by 70% by 2020. By 2025, chemical fertilizer and pesticide will no longer be used at the core protection zone. As for the other areas of the heritage site, the usage of chemical fertilizer and pesticides will be lowered by more than 70%. This means that the amount of chemical fertilizer will be lowered to 1,800 t, while that of pesticides will be lowered to 9.5 t.	Agriculture and Food Bureau	2017-2025
Monitoring and disseminating experience	Building beautiful villages will be planned. The villages will try to be selected as pilot projects of the Ministry of Agriculture's initiative to build beautiful villages.	Agriculture and Food Bureau	2020-2025
	One show about the heritage system will be made every year, and will be publicized through TV, internet, lectures, outdoor advertisement and other advertisement media.	Bureau of Culture, Radio, Film and TV	2015-2017
	Online promotion and e-commerce will be used to find high-profile clients for the quality products from the heritage system (alpine rice, high mountain tea and etc.).	Agriculture and Food Bureau	2020-2025

	Six to nine stations will be constructed at the heritage site to monitor the protection and restoration of the terraces.	Agriculture and Food Bureau	2020-2025
	Every other year, a contest on knowledge about the heritage system will be held through TV, internet or other forums.	Bureau of Culture, Radio, Film and TV	2015-2017
	Twice a year, agricultural technicians will give lectures in governmental departments and schools.	Bureau of Culture, Radio, Film and TV	2015-2017
	At the key tourist sites with favourable conditions, tourist facilities of traditional building styles will be restored or built.	Tourism Bureau	2020-2025
	During the planning period, the pollution criteria of the surface water will be kept under the levels of Grade III. All the river sections need to meet this requirement. Good water quality will be maintained.	Environmental Protection Bureau	2015-2017

6.6.2 Protecting the Agri-Culture

Task	Measures, Actions and Targets	Implementing Department	Year
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Developing cultural consciousness of the heritage system	An activity will be organized to select, recognize and award the “Agri-Culture Heritage Model Farmers”. Farmers who make special contributions will be nominated for the selection of model farmers organized by the UN Food and Agriculture Organization.	Agriculture and Food Bureau	2015-2025
	Periodic lectures (two to three times per year) will be given at the villages to introduce the history and culture of Chongyi Hakka Terraces to the farmers.	Bureau of Culture, Radio, Film and TV	2015-2025
	Introduction of the culture of Chongyi Hakka Terraces will be added to the textbooks of Jiangxi’s middle and primary schools, and the education plans.	Bureau of Education	2017-2025
Protecting traditional knowledge and technologies relating to the heritage system	The <i>Introduction of Agricultural Knowledge of Chongyi Hakka Terraces</i> and the <i>Brochure of Technologies for Chongyi Hakka Terraces</i> will be compiled and published. The target readers of these books will be farmers. Therefore, they will be clear and easy to understand. The information will be presented in vivid forms.	Bureau of Science and Technology	2017-2025
	The “Expert Forum on Protecting the Culture of Chongyi Hakka Terraces” will be held regularly. It will facilitate studies and exchanges of technologies and measures of protecting and developing the heritage system.	Bureau of Science and Technology	2017-2025
	An internship base will be set up for the students of the agriculture academy to study traditional agricultural knowledge and technologies.	Agriculture and Food Bureau	2017-2025

Protecting the agri-culture and Hakka customs of the heritage system	The “Chongyi Hakka Terraces Agricultural Festival” will be held regularly. At these festivals, the Hakka festivities, religion, traditional folk customs, folk songs and dances and indigenous food will be presented through products, academic seminars and tourism advertisement.	Bureau of Tourism	2020-2025
	Calendars and postcards presenting the heritage will be made, and handed out for free.	Bureau of Culture, Radio, Film and TV	2015-2025
	The <i>Chongyi Hakka Terraces Agricultural Heritage</i> will be published and symposiums on the book will be held. The book is going to give a comprehensive, systematic and multi-dimensional description of the inheritance, protection, and development of the Hakka terraces culture, as well as of the achievements.	Agriculture and Food Bureau	2020-2025
	A logo for the heritage system will be designed, which will stress two elements, namely the Hakka culture and the agri-culture of the system.	Agriculture and Food Bureau	2015-2017
Protecting the tangible heritage	Items that embody the culture and history of the terraces will be collected, documented, displayed and protected. These items will be exhibited in Chongyi Hakka Terraces Museum to be built at Chongyi County. The museum is going to organize regular advertisement.	Bureau of Culture, Radio, Film and TV	2015-2017

	An institution where people can experience the agri-culture of Chongyi Hakka Terraces will be built at the government building of Shangbao Township. Traditional agricultural knowledge of Hakka terraces will be presented in vivid forms, such as miniature landscapes, radio and video clips.	Bureau of Culture, Radio, Film and TV	2020-2025
	Exhibition rooms of agricultural heritage will be set up in Shuinan Village, Chishui Village and other key villages of tourism. The exhibition rooms, together with traditional festivities and performance, will present the agri-culture from different perspectives.	Bureau of Culture, Radio, Film and TV	2020-2025
Protecting the culture of Chongyi Hakka Terraces	The Chongyi Hakka Terraces Protection Committee will be set up, which will be made up of institutions of different levels, including the county government and the villages. The interests of all the parties will be considered, while special focus will be placed in protecting the interests of local farmers. A mechanism that involves the public and experts in the protection will be developed. The responsibilities of the governmental departments will be clarified.	Vice magistrate in charge of the affairs relating to agricultural heritage	2015-2017
	A non-governmental organization will be set up under the government's management and guidance. The organization will organize non-governmental activities related to the agri-culture, as well as cultural and education activities.	Bureau of Culture, Radio, Film and TV	2015-2017
	An exclusive fund will be set up to protect Chongyi Hakka Terraces. Funding will be	Bureau of	2017-2025

	obtained from the governments, collectives, and donations from the public. Management of the fund will be enhanced to ensure it is used exclusively in protecting the heritage system.	Finance	
	Regulations for the protection of the terraces will be made, and will be aligned with the regulations and rules of local communities where appropriate.	Agriculture and Food Bureau	2020-2025
Protecting the intangible heritage	Chongyi boasts seven intangible heritages that are on the Intangible Heritage List of Jiangxi Province. The county will select one or two of them and get them certified as national intangible heritages.	Bureau of Culture, Radio, Film and TV	2017-2025
	An initiative will be started to select the successors of the intangible heritage.	Bureau of Culture, Radio, Film and TV	2017-2025

6.6.3 Protecting the Agricultural Landscapes

Task	Measures, Actions and Targets	Implementing Department	Year
Protecting	The layout of the villages will be improved, as well as the landscapes of the centre vacated	Bureau of	2015-2025

traditional Hakka villages and other rural landscapes	villages. The village landscapes will stress the Hakka culture and should be harmonious with nature.	Housing and Urban-Rural Development	
	The water supply improvement project will be completed to ensure water safety in the rural areas.	Bureau of Water Resources	2017-2020
	Public facilities will be gradually improved. For instance, more will be invested in replacing the old toilets with new toilets. Biogas digesters will be promoted. Sanitary toilets will be put in all houses newly built in the rural areas.	Bureau of Environmental Protection	2020-2025
	Garbage processing plants will be constructed to dispose of domestic garbage in a relatively concentrated manner. The level of non-hazardous processing of domestic garbage will be improved. In key townships and villages, the domestic garbage will be categorized. The garbage storage and transportation system will be improved.	Bureau of Environmental Protection	2020-2025
	The project of controlling the pollution caused by livestock breeding will be pushed forward.	Bureau of Environmental Protection	2017-2020
Protecting the forest	The protection of forest resources will be enhanced, and the stand quality will be improved. More investment will be made in protecting and building natural reserves and forest parks,	Bureau of Forestry	2015-2025

landscape and ecological environment	and in protecting biodiversity and improving ecological functions. The focus will be placed on planting and protecting non-commercial forests, the protection forest of the Yangtze River, the control of water and soil erosion at the middle and small river basins, and the ecological restoration of these basins. A demonstration zone of biodiversity conservation will be built in the Qingyun Mountain National Nature Reserve.		
	A special project will be launched to protect the old trees and famous trees. For example, name tags will be put on the old trees and famous trees, the information for which will be documented.	Bureau of Forestry	2015-2020
Protecting the irrigation systems and water landscapes	The project of protecting the Doushui Lake and the water ecology of the Niedu Township will be pushed forward.	Bureau of Water Resources	2015-2020
	Sewage processing plants will be constructed. The sewage from the areas along the rivers needs to be processed and meet certain standards before it is discharged into the river. No garbage will be allowed to be dumped or stored in the river courses or pools, so as to protect underground water.	Bureau of Environmental Protection	2015-2025
	Quick action will be taken to repair irrigation and water conservancy facilities that are in poor condition. The ridges and ditches in the fields will be repaired without harming the original ecology.	Bureau of Water Resources	2015-2017

	A fund with stable supports will be designated for the maintenance and repair of water conservancy facilities and a stable team of engineers will be formed.	Bureau of Water Resources	2017-2025
Protecting the terrace landscapes	Farmers who contract more than 0.67 hm ² will be given direct national grain subsidiaries.	Agriculture and Food Bureau	2015-2025
	Farmers who plant indigenous rice varieties will be entitled to subsidies for superior crop varieties.	Agriculture and Food Bureau	2015-2025

6.6.4 Developing Eco-Agriculture

Task	Measures, Actions and Targets	Implementing Department	Year
Collecting basic data of the heritage system	Making use of the data and information about eco-products that have already been collected, a database will be built at the County, while sub-databases will be built in all the towns and townships.	Agriculture and Food Bureau	2015-2017
	The accountability mechanism will be put in place to ensure that the area of the terraces will not shrink, and to reduce the proportion of abandoned fields.	Agriculture and Food Bureau	2015-2025
Promoting product	Standards of eco-products of the heritage system will be made. An organization will be designated to oversee the development of eco-products to ensure they are of high quality.	Agriculture and Food Bureau	2015-2017

certification and building production bases	The certification of Pollution-Free Agricultural Product, Green Food and Organic Agricultural Product will be promoted. Two to three organic agriculture demonstration bases will be constructed at the three townships in the core protection zones. Alpine rice, organic tea and bamboo will be planted at these bases.	Agriculture and Food Bureau	2015-2017
	Beginning at late 2020, the experience from the organic agriculture demonstration sites at the core protection zone will be promoted to the other towns and townships of the county. Efforts will be made to continue the development of quality eco-agricultural products. The proportion of organic, green and pollution-free products will rise above 60%. The area of organic rice paddies will grow more than 400 hectares (about 10%).	Agriculture and Food Bureau	2018-2020
	The output of products that have been certified as Pollution-Free Agricultural Product, Green Food, Organic Agricultural Product, and Product with Geographic Indication will be increased. The number of products that are certified will also be increased.	Agriculture and Food Bureau	2015-2025
	Famous and high-quality eco-rice brands will be promoted.	Agriculture and Food Bureau	2015-2025
Brand building of the	Three to five experimental fields and model farmers will be selected from the Shuinan Village, Chishui Village, Lianghe Village, Zhengjing Village and Zhuxi Village. These fields and the production will be monitored closely to improve product quality.	Agriculture and Food Bureau	2015-2017

indigenous products of the heritage system	Standards will be formulated on certifying the products from the GIAHS/NIAHS. The certification will be promoted.	Agriculture and Food Bureau	2015-2025
	Demonstration areas will be built where traditional crops are planted, farmyard manure is applied and traditional agricultural technologies are used.	Agriculture and Food Bureau	2015-2025
	A professional marketing team will be set up. The popularity of the heritage system will be improved by promotions conducted through radio, TV, micro blog, forums and other platforms.	Bureau of Culture, Radio, Film and TV	2015-2025
Accelerating the development of agricultural processing	Market research will be conducted to promote agricultural processing.	Agriculture and Food Bureau	2015-2025
	Bamboo products and handicrafts will be promoted. When making bamboo into tools and appliances used in production or daily life, their cultural values should be stressed so as to increase the added value.	Bureau of Forestry	2015-2025
	The handicraft industry will be industrialized. Inheritors of the yellow ginger, Zhuoxi rice wine and bamboo dragon lamp making skills will be trained.	Bureau of Culture, Radio, Film and TV	2015-2025
Innovation of	Tax cuts, subsidiaries and economic returns will stimulate enterprises in the secondary and tertiary industries to invest in agriculture. Existing agricultural enterprises will continue to	Agriculture and Food Bureau	2015-2025

production and operation modes	enjoy cuts in taxes, administrative fees, and interest rates.		
	Market research on the surrounding provinces and cities will be conducted. The products will be promoted to these markets through the dealers.	Agriculture and Food Bureau	2017-2020
	The export channels of quality products will be expanded using overseas market research.	Agriculture and Food Bureau	2021-2025
	All parties are encouraged to improve the scale and normativeness of specialized agricultural cooperatives from different perspectives and using different forms. There will be model cooperatives which have good results.	Agriculture and Food Bureau	2018-2025

6.6.5 Developing Sustainable Tourism

Task	Measures, Actions and Targets	Implementing Department	Year
Positioning of the tourism	Tourism for agricultural heritage is incorporated into the tourism development planning of Chongyi County and Ganzhou City. Boutique travel routes will be designed. The layout of tourism resources will be improved.	Bureau of Tourism	2015-2025
	Chongyi will strive to become a national demonstration site of leisure agriculture and rural tourism, selected by the Ministry of Agriculture and the National Tourism	Bureau of Tourism	2017-2025

	Administration.		
Marketing the tourism brand of the heritage system	The landscapes and products of the system will be embedded in or made into daily items for modern consumers.	Bureau of Tourism	2017-2025
	Cartoons and comic games about the production and daily lives at the heritage site will be made.	Bureau of Tourism	2017-2025
	The lives of local people will be made into TV series, micro-movies and movies.	Bureau of Tourism	2017-2025
Designing tourism facilities	The directions, themes and targets for the tourism development of the villages will be clarified. The tourism facilities of several villages will be improved.	Bureau of Tourism	2015-2020
	The tourism facilities of Shuinan and Chishui Village will be improved. The style of the facilities will be more in line with the environment and culture of the heritage site.	County Bureau of Tourism	2015-2020
Involvement of the farmers	A balanced benefit allocation mechanism will be put in place to attract high-quality capital while protecting the farmers' interest.	Bureau of Tourism	2015-2020
	Regular trainings on tourist reception and related knowledge will be conducted. These will strengthen local farmers' awareness in tourist reception and the protection of the terraces.	Bureau of Tourism	2015-2025
	The policy of "Culture Model Farmers" will be introduced. In-depth travel at the heritage	Bureau of	2017-2025

	site will be promoted.	Tourism	
Tourism products	Different tourist products will be designed and promoted, including agricultural experience, sight-seeing, cultural experience, leisure tourism, science and education, festivities, performance and photographing.	Bureau of Tourism	2017-2025
	Story-telling shows in the terraces will be created. Performance will also be put on the stage to display the culture.	Bureau of Tourism	2017-2025
	Ingenious souvenirs will be put forward (such as alpine se-rich organic rice, high mountain tea in small packages, and bamboo handcrafts).	Bureau of Tourism	2015-2025
Tourism informatization	A website will be put online to provide comprehensive tourism information on Chongyi Hakka Terraces. The information will be updated on a daily basis.	Bureau of Tourism	2015-2017
	Hardware (such as terminals for inquiry and Wi-Fi) will be improved to meet the demands of tourists on DIY trips.	Bureau of Tourism	2020-2025
	Panorama pictures of four seasons will be put online, so that the tourists can learn about the landscapes of the terraces at different seasons, altitudes and locations.	Bureau of Tourism	2020-2025
	A tourism monitoring system will be launched to collect real time information about tourist safety. The system will also function as an early warning system.	Bureau of Tourism	2020-2025

	APPs of tourism at Chongyi Hakka Terraces will be developed for different IT platforms (such as ISO and Android).	Bureau of Tourism	2020-2025
Protecting the ecological environment of the tourist sites	New energy, environmental friendly materials and environmental protection technologies will be used to realize low-carbon tourism and operation.	Bureau of Tourism	2020-2025
	Food will be made into semi-prepared form before being taken into the core protection area, thus easing the burdens on the environment.	Bureau of Tourism	2020-2025
	Assessment of the villages' capacity for tourist accommodation will be conducted, the results of which will be used to control the number of tourists.	Bureau of Tourism	2020-2025
	Tourism will be concentrated in some villages. By avoiding tourism in all the villages, the burden on the eco-system can be controlled. A mechanism will be built to compensate and transfer tourism income to those villages in which the development of tourism is not supported.	Bureau of Tourism	2020-2025
	Conditional ecological compensations will be sought from national, provincial and municipal governments for the heritage site.	Bureau of Environmental Protection	2020-2025

Reference

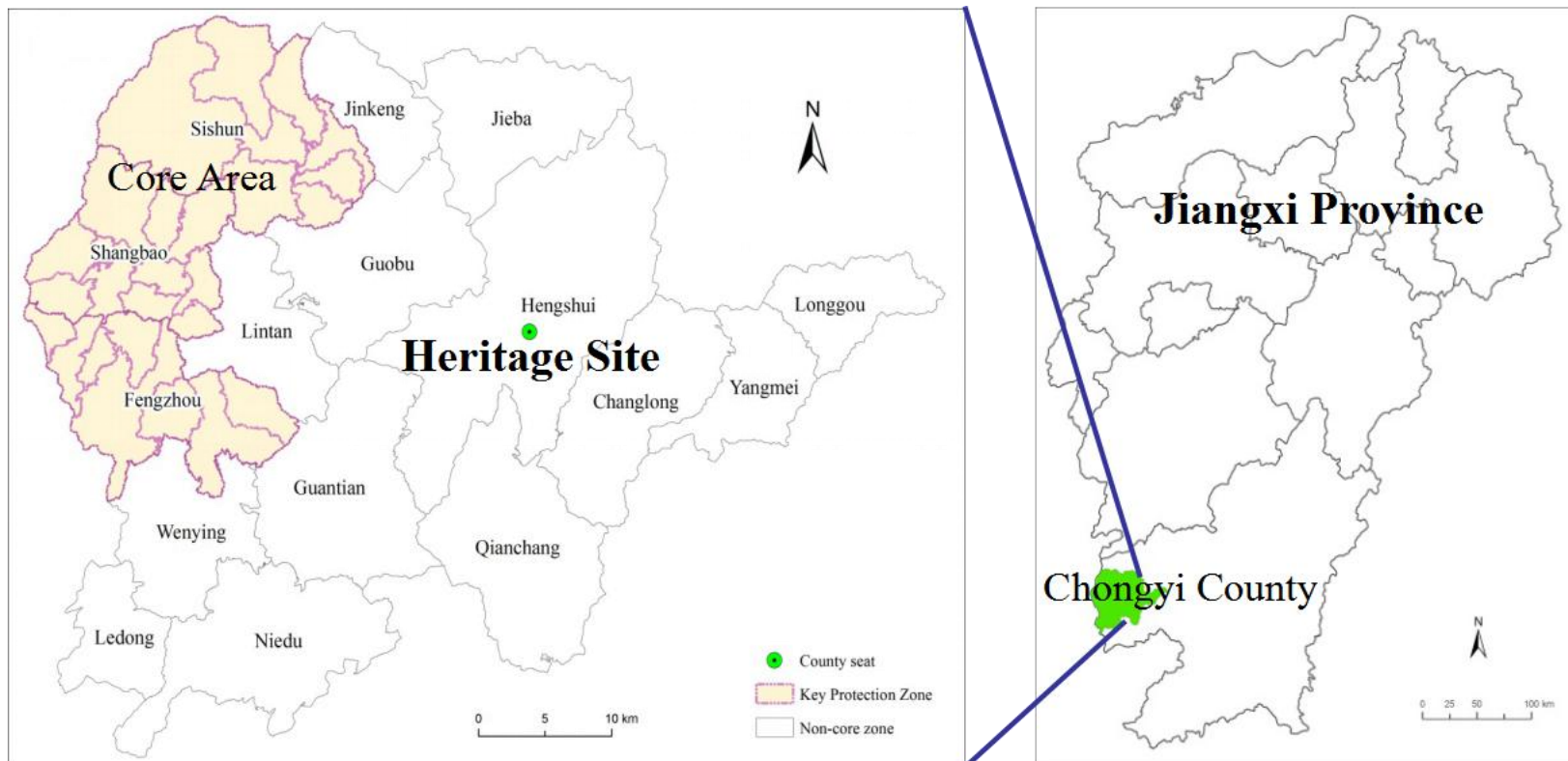
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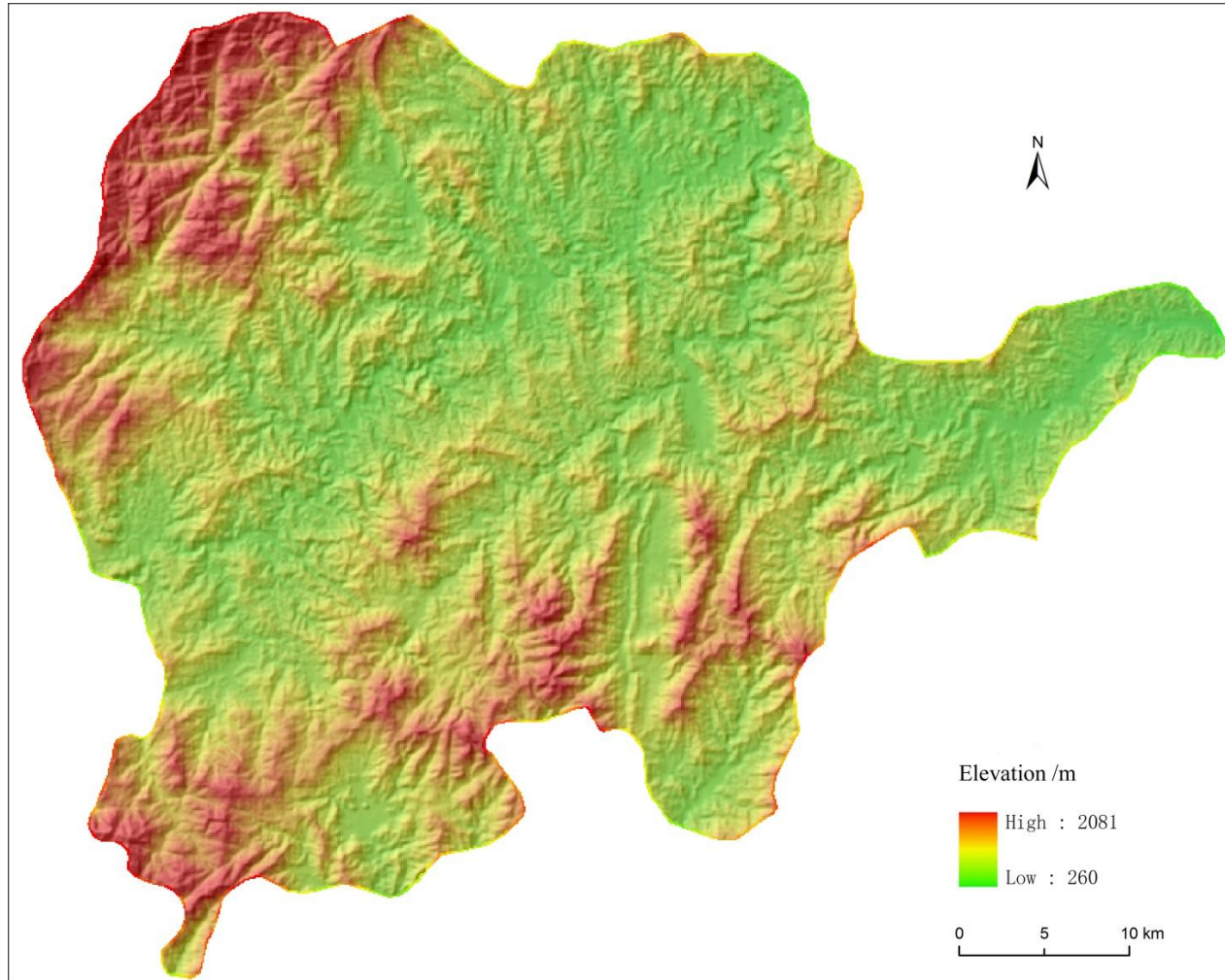
Appendixes

1. Location and Boundary Maps

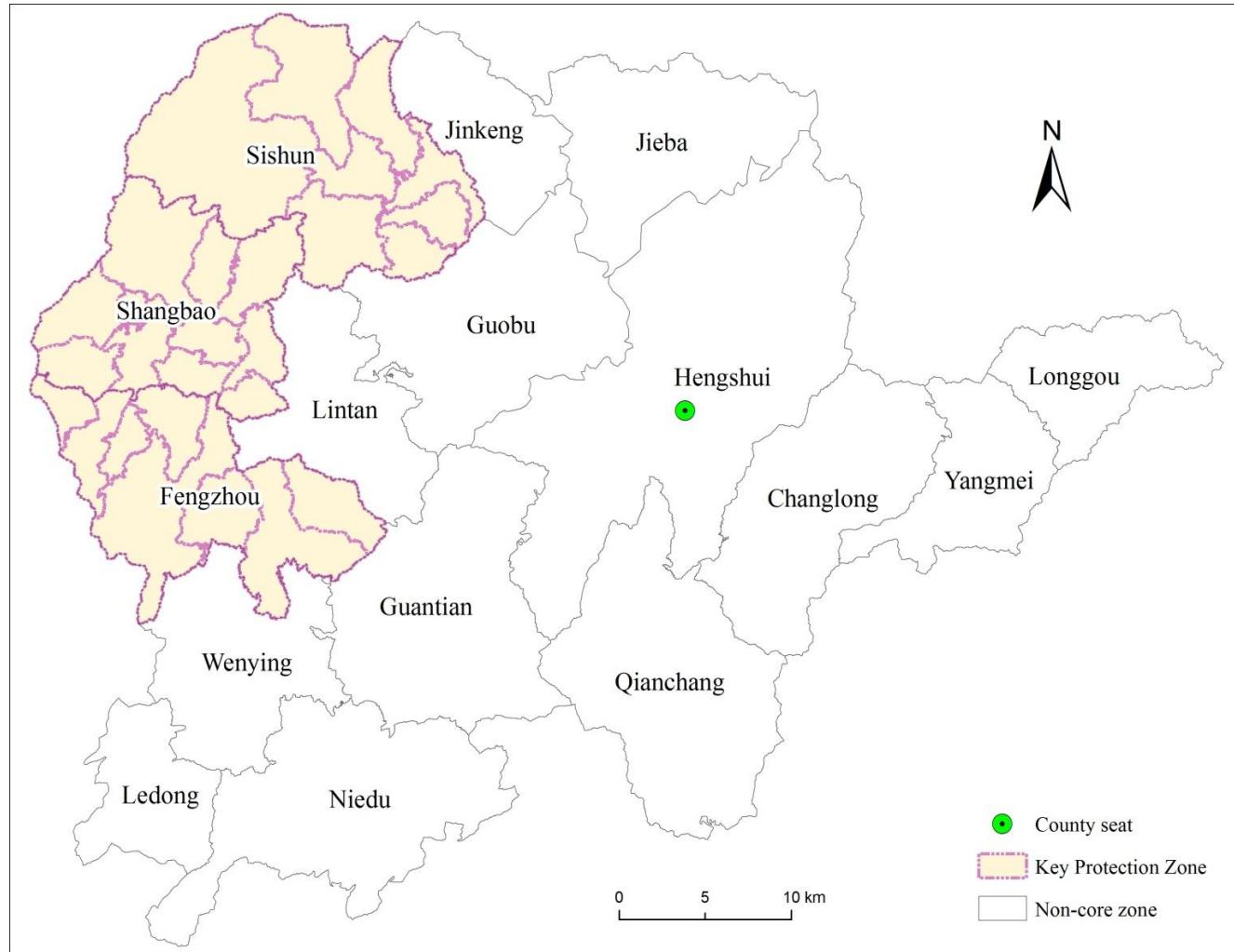
Map 1: Location of Chongyi County



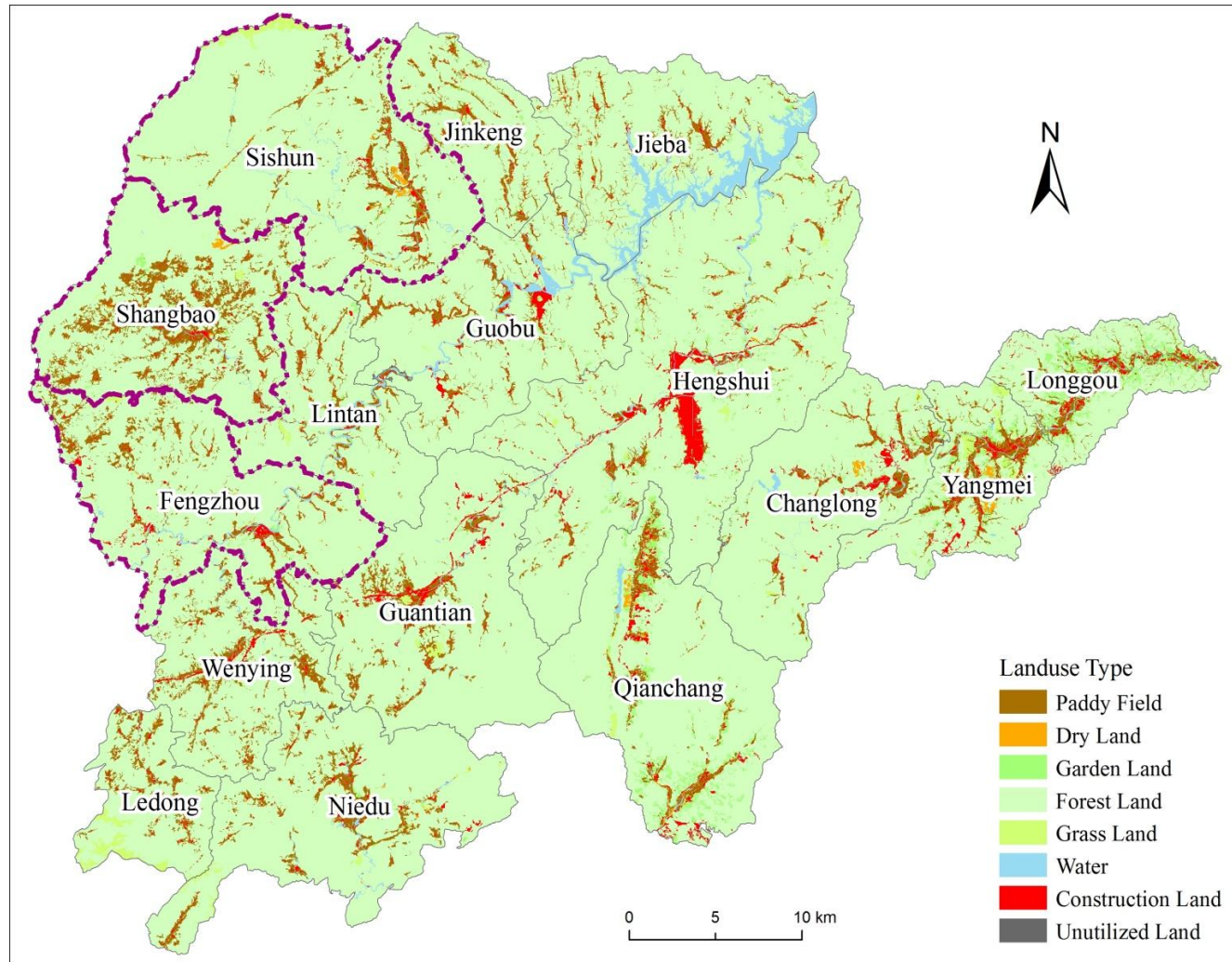
Map 2: Topographic Map of Chongyi County



Map 3: Zoning Map of Chongyi Hakka Terraces



Map 4: Present Land-Use Map of Chongyi



2. Biodiversity Listing on the Hakka Terraces in Chongyi County

1 Agricultural Biodiversity

(1) Crop Resources

Schedule 1-1 Traditional rice varieties on the Hakka terraces in Chongyi County

Number	Local varieties Name (Latin Name)	Number	Local varieties Name (Latin Name)
1	<i>Oryza sativa</i> 'Nantehao'	8	<i>Oryza sativa</i> 'yellow husk glutinous rice'
2	<i>Oryza sativa</i> 'Lucaihao'	9	<i>Oryza sativa</i> 'black rice'
3	<i>Oryza sativa</i> 'Bairizao'	10	<i>Oryza sativa</i> 'Mazhan glutinous rice'
4	<i>Oryza sativa</i> 'Changyaozao'	11	<i>Oryza sativa</i> 'dahezi rice'
5	<i>Oryza sativa</i> 'pearl short rice'	12	<i>Oryza sativa</i> 'sorghum glutinous rice'
6	<i>Oryza sativa</i> 'short-legged nantehao rice'	13	<i>Oryza sativa</i> 'short-legged Dahe rice'
7	<i>Oryza sativa</i> 'red rice'		

Schedule 1-2 Hybrid rice varieties on the Hakka terraces in Chongyi county

Number	Germplasm type	Local Varieties Name(Latin Name)
1	Aiyou series	<i>Oryza sativa</i> 'Aiyou2hao'
2		<i>Oryza sativa</i> 'Aiyou3hao'
3		<i>Oryza sativa</i> 'Aiyou6hao'
4	Nanyou series	<i>Oryza sativa</i> 'Nanyou2hao'
5		<i>Oryza sativa</i> 'Nanyou3hao'
6		<i>Oryza sativa</i> 'Nanyou6hao'
7	Weiyou series	<i>Oryza sativa</i> 'Weiyou2hao'
8		<i>Oryza sativa</i> 'Weiyou3hao'
9		<i>Oryza sativa</i> 'Weiyou6hao'
10		<i>Oryza sativa</i> 'Weiyou8hao'
11		<i>Oryza sativa</i> 'Weiyou8hao'
12	Siyou series	<i>Oryza sativa</i> 'Siyou2hao'
13		<i>Oryza sativa</i> 'Siyou3hao'
14		<i>Oryza sativa</i> 'Siyou4hao'
15		<i>Oryza sativa</i> 'Siyou6hao'
16	Shanyou series	<i>Oryza sativa</i> 'Shanyou2hao'
17		<i>Oryza sativa</i> 'Shanyou3hao'
18		<i>Oryza sativa</i> 'Shanyou4hao'
19		<i>Oryza sativa</i> 'Shanyou6hao'
20		<i>Oryza sativa</i> 'Shanyou8hao'
21		<i>Oryza sativa</i> 'Shanyou63'
22	75P-12 series	<i>Oryza sativa</i> 'WeiA×75P-12'

Number	Germplasm type	Local Varieties Name(Latin Name)	
23		<i>Oryza sativa</i> 'NanA×75P-12'	
24	Kezhen145 series	<i>Oryza sativa</i> 'ShanA×Kezhen145'	
25	The other series	<i>Oryza sativa</i> 'Ilyou58'	
26		<i>Oryza sativa</i> 'Ilyouming86'	
27		<i>Oryza sativa</i> 'Ilyou906'	
28		<i>Oryza sativa</i> 'Fengliangyou1hao'	
29		<i>Oryza sativa</i> 'Teyou70'	
30		<i>Oryza sativa</i> 'Shanyou122'	
31		<i>Oryza sativa</i> 'Liangyoupeijiu'	
32		<i>Oryza sativa</i> 'Zhongyou253'	
33		<i>Oryza sativa</i> 'Shanyou82'	
34		<i>Oryza sativa</i> 'Ilyou46'	
35		<i>Oryza sativa</i> 'Shanyou46'	
36		<i>Oryza sativa</i> 'Ilyou441'	
37		<i>Oryza sativa</i> 'Ilyou1273'	
38		<i>Oryza sativa</i> 'Qingjiang1hao'	
39		<i>Oryza sativa</i> 'Ilyouhang1hao'	
40		<i>Oryza sativa</i> 'Guodao1hao'	
41		<i>Oryza sativa</i> 'Guodao4hao'	
42		<i>Oryza sativa</i> 'Ilyou416'	
43		<i>Oryza sativa</i> 'Weiliangyou527'	
44		<i>Oryza sativa</i> 'Dyou527'	
45		<i>Oryza sativa</i> 'xianong2hao'	
46		<i>Oryza sativa</i> 'jinyou207'	
47		<i>Oryza sativa</i> 'jinguiyou99'	
48		<i>Oryza sativa</i> 'feiyou98'	
49		<i>Oryza sativa</i> 'denong2000'	
50		<i>Oryza sativa</i> 'denong316'	
51		<i>Oryza sativa</i> 'ganxin203'	
52		<i>Oryza sativa</i> 'luliangyou996'	
53		<i>Oryza sativa</i> 'eyou2hao'	
54		<i>Oryza sativa</i> 'Tyou898'	
55		<i>Oryza sativa</i> 'nongyou1506'	
56			<i>Oryza sativa</i> 'shenliangyou5814'
57			<i>Oryza sativa</i> 'peiliangyou288'
58	<i>Oryza sativa</i> 'tianyoun3301'		
59	<i>Oryza sativa</i> 'nei5you 8015'		
60	<i>Oryza sativa</i> 'Yliangyou 1hao'		
61	<i>Oryza sativa</i> 'yueyou108'		
62	<i>Oryza sativa</i> 'jinyou463'		
63	<i>Oryza sativa</i> 'Tyou5128'		
64	<i>Oryza sativa</i> 'wufengyouT025'		

Number	Germplasm type	Local Varieties Name(Latin Name)
65		<i>Oryza sativa</i> 'nongyou225'
66		<i>Oryza sativa</i> 'jiayou1251'
67		<i>Oryza sativa</i> 'tianfengyou19'
68		<i>Oryza sativa</i> 'wuyou308'
69		<i>Oryza sativa</i> 'xieyouzhou282'
70		<i>Oryza sativa</i> 'xinrongyou254'
71		<i>Oryza sativa</i> 'xinrongyou2260'
72		<i>Oryza sativa</i> 'qianliangyou2180'
73		<i>Oryza sativa</i> 'fengyuanyou2297'
74		<i>Oryza sativa</i> 'ganxin688'
75		<i>Oryza sativa</i> 'taiyou99'
76		<i>Oryza sativa</i> 'shenliangyou5814'
77		<i>Oryza sativa</i> 'teyou627'

Schedule 1-3 The other crop resources

Number	Germplasm type	Detailed Type	Local Varieties Name (Latin Name)	
1	The other food crops	Yam	<i>Solanum tuberosum</i>	
2		Corn	<i>Super sweet corn</i>	
3		Sorghum	See Schedule 1-2	
4		Triticites	See Schedule 1-2	
5		Millet	See Schedule 1-2	
6		Bean		<i>Glycine max</i> (Linn.) <i>Merrx</i>
7				<i>Glycine Willd</i> 'Qingpidou'
8				<i>Lablab purpureus</i> (Linn.)Sweet
9				<i>Glycinemax</i> (L.)merr
10				<i>Glycine Willd</i> 'Bairendou'
11			<i>Vigna umbellata</i> (Thunb.) Ohwi et Ohashi	
12	Fibre crops	Hemp fiber	See Schedule 1-2	
13		Cotton		<i>Gossypium</i> 'Humian204'
14				<i>Gossypium</i> 'Bomian2hao'
15				<i>Gossypium</i> 'Daizi15hao'
16				<i>Gossypium</i> 'Eguangmian'
17				<i>Gossypium</i> 'chicken.feet cotton'
18				<i>Gossypium</i> 'the long-staple cotton'

Number	Germplasm type	Detailed Type	Local Varieties Name (Latin Name)	
19	Oil crops	Oil seed rape	<i>Brassica rapa (campestris) L</i>	
20			<i>Brassica napus L</i>	
21		Sesame	<i>Semen Sesami Nigrum</i>	
22			<i>Sesamum indicum L</i>	
23		Tea-oil tree	<i>Camellia oleifera Abel</i>	
24		Peanut	<i>Arachis 'Yuenanhong'</i>	
25			<i>Arachis 'Yuexuan58'</i>	
26			<i>Arachis 'Liuyuebao'</i>	
27	Sugar-yielding crop	Sugarcane	<i>Saccharum sinense</i>	
28			<i>Yellow fruit cane</i>	
29	Stimulant crop	Tobacco	<i>Nicotiana tabacum L</i>	
30	Vegetables	Chinese cabbage vegetables	<i>Brassica chinensis L</i>	
31			<i>Brassica rapa chinensis</i>	
32			<i>Brassicachinensis L</i>	
33			<i>Brassica camperstris ssp.pekinensis</i>	
34			<i>Brassica rapa pekinensis</i>	
35			Root vegetables	<i>White Radish</i>
36		<i>Daucus carota</i>		
37		<i>Brassica juncea var</i>		
38		<i>Zingiber officinale Roscoe</i>		
39		Solanaceous vegetables		<i>Lycopersicon esculentum Mill</i>
40				<i>solanum melongena</i>
41				<i>Capsicum annum L</i>
42		Melons vegetables		<i>Cucumis sativus Linn</i>
43				<i>Balsam pear</i>
44				<i>Benincasa hispida (Thunb.) Cogn</i>
44				<i>Benincasa hispida (Thunb.) Cogn. var. chieh-qua How</i>
45				<i>Cucurbita moschata (Duch. ex Lam.) Duch. ex Poiret</i>
46				<i>Luffa cylindrica</i>
47			<i>Cucurbita pepo L</i>	
48			Kale vegetables	<i>Brassica oleracea var. capitata</i>

Number	Germplasm type	Detailed Type	Local Varieties Name (Latin Name)	
49			<i>Brassica oleracea L. var. botrytis L</i>	
50			<i>Brassica alboglabra L. H. Bailey</i>	
51		Legume vegetables	<i>Pisum sativum L</i>	
52			<i>Lablab purpureus (Linn.) Sweet</i>	
53			<i>Leguminosae</i>	
54			<i>Vigna unguiculata</i>	
55			<i>Vigna Savi 'Siyuemei'</i>	
56			<i>Vigna Savi 'Dongmei'</i>	
57			Green leaf vegetables	<i>Spinacia oleracea L</i>
58				<i>Lactuca sativa</i>
59		<i>Amaranthus tricolor</i>		
60		<i>Graveolens</i>		
61		<i>Foeniculum vulgare</i>		
62		<i>Brassica chinensis var chinensis</i>		
63		<i>megarrhiza Tsen et Lee</i>		
64		<i>Capsella bursa-pastoris</i>		
65		Tuber vegetables	<i>Solanum tuberosum</i>	
66			<i>Colocasia esculenta (L) .Schott</i>	
67			<i>Colocasia esculenta</i>	
68		Onion garlic vegetables	<i>Allium porrum</i>	
69			<i>Allium fistulosum L.var. giganteum Makion</i>	
70			<i>Allium sativum L</i>	
71			<i>Alliaceae 'Seasons garlic'</i>	
72			<i>Allium cepa</i>	
73			<i>A. tuberosum Rottl. ex Spreng</i>	
74			<i>Allium chinense G.Don</i>	
75		Aquatic vegetables	<i>Nelumbo nucifera G</i>	
76			<i>Ipomoea aquatica Forsk</i>	
77			<i>Zizania latifolia (Griseb.) Stapf</i>	
78	Fruit and tea	Fruits	<i>Citrus reticulata Blanc</i>	
79			<i>Citrus reticulata Blanco</i>	

Number	Germplasm type	Detailed Type	Local Varieties Name (Latin Name)
			<i>cv. Ponkan</i>
80			Navel orange(<i>Citrus sinensis Osbeck</i>)
81			<i>Pyrus spp</i>
82			<i>Amygdalus persica L</i>
83			<i>Prunus salicina Lindl</i>
84			<i>Choerospondias Axillaris.</i>
85			<i>Prunus armeniaca</i>
86			<i>Myrica rubra (Lour.) S. et Zucc</i>
87			<i>Diospyros kaki Thunb</i>
88			<i>Castanea mollissima</i>
89			<i>Vitis vinifera</i>
90			<i>Vitis davidii</i>
91			Loquat (<i>Eriobotrya japonica (Thunb.) Lindl</i>)
92			<i>Citrus maxima</i>
93			<i>Actinidia Chinensis</i>
94			<i>Crataegus pinnatifida Bunge</i>
95			<i>Punica granatum L</i>
96			<i>Heleocharis dulcis (Burm. f.) Trin</i>
97		Tea	<i>Yunnan large leaf tea</i>
98			<i>Fuding white tea</i>
99			<i>Shangmeizhou</i>
100			<i>Yunnan Camellia assamica var. Bitter tea</i>
101			<i>Shangraodamianbai</i>
102			<i>Fuyun6hao</i>
103			<i>Jianghua Camellia assamica var. tea</i>
104			<i>Yangling xiumei tea</i>
105			<i>Niedu Camellia assamica var. Bitter tea</i>
106			<i>Longgui tea</i>
107	green manure crops		<i>Astragalus sinicus</i>
108			<i>Raphanus sativus L</i>
109			<i>Brassica campestris L</i>

Schedule 1-4 The other traditional crop resources

Number	Detailed Type	Local Varieties Name(Latin Name)	
1	Potato	<i>Sweet potato</i>	
2		<i>Ipomoea batatas</i>	
3		<i>Potato crop 'Huaxinshu'</i>	
4	Traditional corn	<i>Zea mays 'Traditional corn'</i>	
5	Sorghum	<i>Sorghum 'Gaogan Chinese sorghum'</i>	
6		<i>Sorghum 'Aigan Chinese sorghum'</i>	
7	Triticites	Barley	<i>Hordeum vulgare L</i>
8		Wheat	<i>Triticum aestivumLinn</i>
9		Buckwheat	<i>Fagopyrum esculentum Moench</i>
10	Millet	Indica yellow millet	<i>Setaria Beauv ' indica-rice yellow millet'</i>
11		Glutinous rice millet	<i>Setaria Beauv 'Glutinous millet'</i>
12		Chicken feet millet	<i>Setaria Beauv 'chicken-feet millet'</i>
13		Dog tail millet	<i>Setaria italica(L.) Beauv</i>
14		Yellow millet	<i>Panicum miliaceum L</i>
15	Hemp fibers	China grass	<i>Boehmeria nivea (L.) Gaudich.</i>
16		Jute	<i>Corchorus capsularis L</i>
17	Local peanut	<i>Traditional Arachis hypogaea Linn</i>	
18	Konjak	<i>Amorphophallus rivieri</i>	
19	Bottle gourd	<i>Lagenaria siceraria var.hispida</i>	
20	Yam beam	<i>Pachyrhizus erosus</i>	
21	Chayote	<i>Sechium edule</i>	
22	Ipomoea aquatic	<i>Ipomoea aquatica Forssk</i>	
23	Gynura bicolor	<i>Begonia fimbristipulata</i>	
24	Sweet tea	<i>Leaf of Strigose Hydrangea</i>	
25	Bitter tea	<i>Mallotus oblongifolius</i>	
26	arbor wild tea	<i>Tea 'arbor Wild tea'</i>	

(2) Animal Husbandry and Fishery Resources

Schedule 1-5 Varieties of animal husbandry and fishery resources

Number	Germplasm Type	Detailed Type	Local Varieties Name (Latin Name)
1	Husbandry resources	Pig	<i>Sus scrofa</i> 'Yushan pig'
2			<i>Yorkshire</i>
3			<i>Berkshire pig</i>
4			<i>Landrace</i>
5			<i>Sus scrofa</i> 'Subai pig'
6			<i>Sus scrofa</i> 'Ningxiangshire'
7			<i>Duroc</i>
8			<i>Ganbai sows</i>
9			<i>Large Yorkshire crosses</i>
10			Cow
11		<i>Holstein cattle</i>	
12		<i>Crossbreed cattle</i>	
13		Rabbit	<i>Angora Rabbit</i>
14			<i>West germany Rabbit</i>
15			<i>Japanses white</i>
16			<i>Crossbreed Rabbit</i>
17			<i>Long hair Rabbit</i>
18			<i>Conymeat rabbit</i>
19		Goat	<i>Xinjiang fine wool sheep</i>
20			<i>Caucasian Merino</i>
21			<i>Shanxi milk-producing goats</i>
22			<i>Chengdu grey goat</i>
23			<i>Henan jilt the lamb</i>
24			<i>Grey goat</i>
25			<i>Wanzai goat</i>
26			<i>Yichun goat</i>
27			<i>Black goat</i>
28		Dog	<i>Poodles dog</i>
29			<i>Hound</i>
30			<i>Saarloos</i>
31			<i>Patrol dog</i>
32		Cat	<i>Felinae</i>
33			<i>Black cat</i>
34			<i>Gray cat</i>
35		Chicken	<i>Numididae guinea fowl</i>

Number	Germplasm Type	Detailed Type		Local Varieties Name (Latin Name)
36		Duck		<i>Black chicken</i>
37				<i>Phasianus colchicus Linnaeus</i>
38				<i>Rose Chick</i>
39				<i>Oxyura vittata</i>
40				<i>Aromatic duck</i>
41				<i>Peking duck</i>
42				<i>Jinding egg duck</i>
43				<i>Shaoxing egg duck</i>
44				<i>Crossbreed duck</i>
45				<i>Big sheldrake</i>
46				<i>Cherry Valley ducks</i>
47				<i>Xingguo grey duck</i>
48				Goose
49		<i>Black brown goose</i>		
50		Pigeon		<i>White Pigeon</i>
51				<i>Gray Pigeon</i>
52				<i>Black pigeon</i>
53				<i>Royal Homing Pigeon</i>
54		Bee		<i>Apis mellifera Ligustica Spinola</i>
55		Fishery resources	Fishes	Cyprinidae
56	<i>Inpaichthys kerri</i>			
57	<i>Carassius auratus</i>			
58	<i>Stone crucian</i>			
59	<i>Carassius auratus cuvieri Temminck et Schlegel</i>			
60	<i>Pengze crucian</i>			
61	<i>Mylopharyngodon piceus</i>			
62	<i>Ctenopharyngodon idellus</i>			
63	<i>Hypophthalmichthys molitrix</i>			
64	<i>Hypophthalmichthys nobilis</i>			
65	<i>Gutoufang fish</i>			
66	<i>Magalobrama Terminalis (Ric hardson)</i>			
67	<i>Erythroculter Ilishaeformis</i>			
68	<i>Rhodeus sinensis Gunther</i>			
69	<i>Wuyuan pouch red carp</i>			
70	Siluridae			
71	Cobitidae			<i>Misgurnus anguillicaudatus</i>

Number	Germplasm Type	Detailed Type	Local Varieties Name (Latin Name)
			<i>(Cantor)</i>
72		Synbranchid -ae	<i>Monopterus albus</i>
73		Clariidae	<i>Clarias fuscus</i>
74			<i>Ge Clarias fuscus</i>
75		Bagridae	<i>Pelteobagrus fulvidraco</i>
76			<i>Leiocassis longirostris</i>
77		Serranidae	<i>Epinephelus</i> sp
78			<i>Siniperca chuatsi</i>
79		Gobiidae	<i>Ctenogobius giurinus</i>
80		Cichlidae	<i>Oreochromis spp</i>
81			<i>Tilapia nilotica (linnaeus)</i>
82			<i>Red Tilmpa</i>
83		Reptiles	<i>Trionyx sinensis</i>
84			<i>Rana catesbeiana</i>
85			<i>Rana grylio</i>
86		Crustaceans	<i>Macrobrachium nipponense</i>
87			<i>Palaemonetes sinensis</i>
88			<i>Potamidae</i>
89		Shell-fish	<i>Corbicula fluminea</i>
90			<i>Procambarus clarkii</i>

Schedule 1-6 The traditional domesticate animal

Number	Local Varieties Name	Latin Name
1	Traditional chicken	<i>Gallus 'Traditional Gallus gallus '</i>
2	Traditional duck	<i>Anas 'Traditional ducks anatidae'</i>
3	Traditional goose	<i>Anser 'Traditional goose'</i>
4	Traditional gray pigeon	<i>Traditional columba</i>
5	Traditional cat	<i>Traditional Felinae</i>
6	Lacal yellow dog	<i>Canis lupus familiaris 'local yellow dog'</i>
7	traditional spotted pig	<i>Sus scrofa 'traditional spotted pig'</i>
8	Shangyou pig	<i>Sus scrofa 'Shangyou pig'</i>
9	Ganzhou pig	<i>Sus scrofa 'Ganzhou white pig'</i>
10	Buffaloes	<i>Traditional bubalus</i>
11	Yellow cattle	<i>Traditional Catullus</i>
12	Traditional goat	<i>Traditional Capra</i>
13	Traditional rabbit	<i>Traditional Leporidae</i>
14	Local bee	<i>Apis cerana cerana Fabricius</i>

2 Agriculture-Related Biodiversity

(1) Wild Plant Resources

Schedule 2-1 National key protected wild plant species

Number	Species	Family	Level of Protection
1	<i>Bretschneidera sinensis</i>	<i>Bretschneideraceae</i>	I
2	<i>Ginkgo biloba</i> L	<i>Ginkgoaceae</i>	I
3	<i>Taxus mairei</i> (lemeé et L'Év.) S Y Hu	<i>Taxaceae</i>	I
4	<i>Alsophila mertteniana</i>	<i>Cyatheaceae</i>	II
5	<i>Cinnamomum rigidissimum</i>	<i>Lauraceae</i>	II
6	<i>Castanopsis concinna</i>	<i>Fagaceae</i>	II
7	<i>Fagopyrum dibotrys</i>	<i>Polygonaceae</i>	II
8	<i>Fokienia hodginsii</i>	<i>Cupressaceae</i>	II
9	<i>Cinnamomum camphora</i>	<i>Lauraceae</i>	II
10	<i>Magnolia officinalis</i> subsp. <i>biloba</i>	<i>Magnoliaceae</i>	II
11	<i>Toona ciliata</i> var. <i>pubescens</i>	<i>Meliaceae</i>	II
12	<i>Camptotheca acuminata</i> Decne	<i>Nyssaceae</i>	II
13	<i>Glycine soja</i> .	<i>Papilionaceae</i>	II
14	<i>Semiliquidambar cathayensis</i>	<i>Hamamelidaceae</i>	II
15	<i>Phellodendron chinense</i> var. <i>glabriusculum</i>	<i>Rutaceae</i>	II
16	<i>Eurycorymbus cavaleriei</i>	<i>Sapindaceae</i>	II
17	<i>Cibotium barometze</i>	<i>Dicksoniaceae</i>	II

Schedule 2-2 Species recorded in China Plant Red Data Book

Number	Species	Family	Level of Protection
1	<i>Fokienia hodginsii</i>	<i>Cupressaceae</i>	vulnerable
2	<i>Tsuga chinensis</i> var. <i>tchekiangensis</i>	<i>Pinaceae</i>	vulnerable
3	<i>Tsuga longibracteata</i>	<i>Pinaceae</i>	vulnerable
4	<i>Parakmeria lotungensis</i>	<i>Magnoliaceae</i>	vulnerable
5	<i>Tsoongiodendron odorum</i>	<i>Magnoliaceae</i>	rare
6	<i>Cinnamomum micranthum</i>	<i>Lauraceae</i>	vulnerable
7	<i>Coptis chinensis</i> var. <i>brevisekala</i>	<i>Ranunculaceae</i>	vulnerable
8	<i>Dysosma versipellis</i>	<i>Berberidaceae</i>	vulnerable
9	<i>Glycine soja</i>	<i>Papilionaceae</i>	vulnerable
10	<i>Semiliquidambar cathayensis</i>	<i>Hamamelidaceae</i>	rare
11	<i>Castanopsis concinna</i>	<i>Fagaceae</i>	endangered

Number	Species	Family	Level of Protection
12	<i>Castanopsis kawakamii</i>	<i>Fagaceae</i>	rare
13	<i>Artocarpus hypargyreus</i>	<i>Moraceae</i>	rare
14	<i>Phellodendron chinense var glabriusculum</i>	<i>Rutaceae</i>	vulnerable
15	<i>Eurycorymbus cavaleriei</i>	<i>Sapindaceae</i>	rare
16	<i>Bretschneidera sinensis</i>	<i>Bretschneideraceae</i>	rare
17	<i>Tapiscia sinensis</i>	<i>Staphyleaceae</i>	rare
18	<i>Halesia macgregorii</i>	<i>Styracaceae</i>	rare
19	<i>Changnienia amoena</i>	<i>Orchidaceae</i>	rare
20	<i>Pteroceltis tatarinowii</i>	<i>Ulmaceae</i>	rare

Schedule 2-3 Species listed into the Appendix II of CITES (2007)

Number	Species	Family
1	<i>Cibotium barometze</i>	<i>Dicksoniaceae</i>
2	<i>Taxus mairei</i>	<i>Taxaceae</i>
3	<i>Amitostigma gracile</i>	<i>Orchidaceae</i>
4	<i>Arundina graminifolia (D. Don) Hochr</i>	<i>Orchidaceae</i>
5	<i>Anoectochilus roxburghii</i>	<i>Orchidaceae</i>
6	<i>Bletilla striata (Thunb.) Rehb. f</i>	<i>Orchidaceae</i>
7	<i>Bulbophyllum inconspicuum Maxim</i>	<i>Orchidaceae</i>
8	<i>B. kwangtungense Schltr</i>	<i>Orchidaceae</i>
9	<i>B. pectenvenersis</i>	<i>Orchidaceae</i>
10	<i>Collabium chinensis</i>	<i>Orchidaceae</i>
11	<i>Calanthe densiflora Lindl</i>	<i>Orchidaceae</i>
12	<i>C. alismaefolia</i>	<i>Orchidaceae</i>
13	<i>C. discolor Lindl</i>	<i>Orchidaceae</i>
14	<i>C. graciliflora Hayata</i>	<i>Orchidaceae</i>
15	<i>C. gracilis Lindl</i>	<i>Orchidaceae</i>
16	<i>C. masuca (D. Don) Lindl</i>	<i>Orchidaceae</i>
17	<i>Cleisostoma paniculatum</i>	<i>Orchidaceae</i>
18	<i>C. tsoongiana Tang et Wang</i>	<i>Orchidaceae</i>
19	<i>Cephalanthera erecta (Thunb.) Bl</i>	<i>Orchidaceae</i>
20	<i>C. falcata (Thunb.) Lindl</i>	<i>Orchidaceae</i>
21	<i>Changnienia amoena Chien</i>	<i>Orchidaceae</i>
22	<i>Coelogyne fimbriata Lindl</i>	<i>Orchidaceae</i>
23	<i>Cymbidium ensifolium (L.) Sw</i>	<i>Orchidaceae</i>
24	<i>C. faberi Rolfe</i>	<i>Orchidaceae</i>
25	<i>C. floribundum Lindl</i>	<i>Orchidaceae</i>
26	<i>C. formosanum</i>	<i>Orchidaceae</i>

Number	Species	Family
27	<i>C.fioribundum var.pumilum</i>	Orchidaceae
28	<i>C. goeringii (Rchb. f.) Rchb. f</i>	Orchidaceae
29	<i>C. kanran Makino</i>	Orchidaceae
30	<i>C. lancifolium Hook</i>	Orchidaceae
31	<i>Dendrobium moniliforme (L.) Sw</i>	Orchidaceae
32	<i>D. nobile Lindl</i>	Orchidaceae
33	<i>Dendrobium lohohense</i>	Orchidaceae
34	<i>D.wilsonii</i>	Orchidaceae
35	<i>Eulophia campestris</i>	Orchidaceae
36	<i>Epigeneium fargesii (Finet.) Gagnep</i>	Orchidaceae
37	<i>Epipactis thunbergii A. Gray</i>	Orchidaceae
38	<i>Eulophia sinensis Miq</i>	Orchidaceae
39	<i>Galeola faberi Rolfe</i>	Orchidaceae
40	<i>Goodyera biflora (Lindl.) Hook. f</i>	Orchidaceae
41	<i>G. foliosa (Lindl.) Benth. ex Clarke</i>	Orchidaceae
42	<i>G. henryi Rolfe</i>	Orchidaceae
43	<i>G. repens (L.) R. Br</i>	Orchidaceae
44	<i>G. schlechtendaliana Rchb. f</i>	Orchidaceae
45	<i>Habenaria ciliolaris (L.) Krianzl</i>	Orchidaceae
46	<i>H. dentata (Sw.) Schltr</i>	Orchidaceae
47	<i>H. fordii Rolfe</i>	Orchidaceae
48	<i>H. hystrix Ames</i>	Orchidaceae
49	<i>H. petelotii Gagnep</i>	Orchidaceae
50	<i>H. rhodocheila Hance</i>	Orchidaceae
51	<i>Herminium lanceum (Thunb.) Vuijk</i>	Orchidaceae
52	<i>Liparis bootanensis</i>	Orchidaceae
53	<i>Liparis inaperta Finet</i>	Orchidaceae
54	<i>L. nervosa (Thunb.) Lindl</i>	Orchidaceae
55	<i>L. odorata (Willd.) Lindl</i>	Orchidaceae
56	<i>L. pauliana Hand.-Mazz</i>	Orchidaceae
57	<i>L. petiolata (D. Don) Hunt et Summerh</i>	Orchidaceae
58	<i>Malaxis microtatantha</i>	Orchidaceae
59	<i>Microtis unifolia (Forst.) Rchb. f</i>	Orchidaceae
60	<i>Nothodoritis zhejiangensis Tsi</i>	Orchidaceae
61	<i>Oberonia japonica (Maxim.) Makino</i>	Orchidaceae
62	<i>Oberonia iridifolia</i>	Orchidaceae
63	<i>Peristylus goodyeroides (D. Don) Lindl.</i>	Orchidaceae
64	<i>Phaius flavus (Bl.) Lindl</i>	Orchidaceae

Number	Species	Family
65	<i>P.formosana</i>	<i>Orchidaceae</i>
66	<i>Ph. tankervilleae</i> (Banks ex L'Herit.) Bl	<i>Orchidaceae</i>
67	<i>Pholidota chinensis</i> Lindl	<i>Orchidaceae</i>
68	<i>Platanthera minor</i> (Miq.) Rchb. f	<i>Orchidaceae</i>
69	<i>P. tipuloides</i> (L.) Lindl	<i>Orchidaceae</i>
70	<i>Pleione bulbocodioides</i> (Franch.) Rolfe	<i>Orchidaceae</i>
71	<i>Spathoglottis pubescens</i> Lindl	<i>Orchidaceae</i>
72	<i>Spiranthes sinensis</i> (Pers.) Ames	<i>Orchidaceae</i>
73	<i>Tainia dunnii</i> Rolfe	<i>Orchidaceae</i>
74	<i>Thrixspermum saruwatarii</i>	<i>Orchidaceae</i>
75	<i>Tulotis ussuriensis</i> (Regel et Maack) Hara	<i>Orchidaceae</i>
76	<i>Vrydagzynea nuda</i> Bl	<i>Orchidaceae</i>

Schedule 2-4 Species listed into the IUCN Red List (2007)

Number	Species	Family	Level of Protection
1	<i>Cunninghamia lanceolata</i>	<i>Taxodiaceae</i>	LR
2	<i>Fokienia hodginsii</i>	<i>Cupressaceae</i>	LR
3	<i>Cephalotaxus fortunei</i>	<i>Cephalotaxaceae</i>	LR
4	<i>Cinnamomun micranthum</i>	<i>Lauraceae</i>	LR
5	<i>Dysosma versipellis</i>	<i>Berberidaceae</i>	VU
6	<i>Impatiens obesa</i>	<i>Balsaminaceae</i>	EN
7	<i>Actinidia chrysantha</i>	<i>Actinidiaceae</i>	VU
8	<i>Actinidia stellato-pilosa</i>	<i>Actinidiaceae</i>	EN
9	<i>Semiliquidambar cathayensis</i>	<i>Hamamelidaceae</i>	LR
10	<i>Castanopsis concinna</i>	<i>Fagaceae</i>	VU
11	<i>Castanopsis kawakamii</i>	<i>Fagaceae</i>	LR
12	<i>Fagus longipetiolata</i>	<i>Fagaceae</i>	VU
13	<i>Artocarpus hypargyreus</i>	<i>Moraceae</i>	VU
14	<i>Iles chuniana</i>	<i>Aquifoliaceae</i>	EN
15	<i>Eurycorymbus cavaleriei</i>	<i>Sapindaceae</i>	LR
16	<i>Bretschneidera sinensis</i>	<i>Bretschneideraceae</i>	EN
17	<i>Tapiscia sinensis</i>	<i>Staphyleaceae</i>	VU
18	<i>Halesia macgregorii</i>	<i>Styracaceae</i>	VU
19	<i>Changnienia amoena</i>	<i>Orchidaceae</i>	EN
20	<i>VHabenaria fordii</i>	<i>Orchidaceae</i>	VU

Schedule 2-5 Species listed into the China Species Red List(2007)

Number	Species	Family	Level of Protection
1	<i>Pinus taiwanensis</i>	<i>Pinaceae</i>	<i>NT</i>
2	<i>Tsuga longibracteata</i>	<i>Pinaceae</i>	<i>VU</i>
3	<i>Cephalotaxus fortunei</i>	<i>Cephalotaxaceae</i>	<i>NT</i>
4	<i>Cephalotaxus sinensis</i>	<i>Cephalotaxaceae</i>	<i>NT</i>
5	<i>Fokienia hodginsii</i>	<i>Cupressaceae</i>	<i>VU</i>
6	<i>Taxus mairei</i>	<i>Taxaceae</i>	<i>VU</i>
7	<i>Gnetum parvifolium</i>	<i>Gnetaceae</i>	<i>NT</i>
8	<i>Castanopsis concinna</i>	<i>Fagaceae</i>	<i>EN</i>
9	<i>Castanopsis kawakamii</i>	<i>Fagaceae</i>	<i>VU</i>
10	<i>Coptis chinensis</i> var. <i>brevisepala</i>	<i>Ranunculaceae</i>	<i>VU</i>
11	<i>Dysosma versipellis</i>	<i>Berberidaceae</i>	<i>VU</i>
12	<i>Parakmeria lotungensis</i>	<i>Magnoliaceae</i>	<i>VU</i>
13	<i>Tsoongiodendron odorum</i>	<i>Magnoliaceae</i>	<i>VU</i>
14	<i>Cinnamomun micranthum</i>	<i>Lauraceae</i>	<i>VU</i>
15	<i>Litsea foveolata</i>	<i>Lauraceae</i>	<i>EN</i>
16	<i>Litsea hunanensis</i>	<i>Lauraceae</i>	<i>EN</i>
17	<i>Neolitsea ellipsoidea</i>	<i>Lauraceae</i>	<i>VU</i>
18	<i>Neolitsea shingningensis</i>	<i>Lauraceae</i>	<i>EN</i>
19	<i>Bretschneidera sinensis</i>	<i>Bretschneideraceae</i>	<i>VU</i>
20	<i>Semiliquidambar cathayensis</i>	<i>Hamamelidaceae</i>	<i>VU</i>
21	<i>Ilex chuniana</i>	<i>Aquifoliaceae</i>	<i>EN</i>
22	<i>Ilex fukienensis</i>	<i>Aquifoliaceae</i>	<i>VU</i>
23	<i>Tapiscia sinensis</i>	<i>Staphyleaceae</i>	<i>NT</i>
24	<i>Acer cordatum</i>	<i>Aceraceae</i>	<i>NT</i>
25	<i>Acer tutcheri</i>	<i>Aceraceae</i>	<i>VU</i>
26	<i>Acer wilsonii</i>	<i>Aceraceae</i>	<i>NT</i>
27	<i>Eurycorymbus cavaleriei</i>	<i>Sapindaceae</i>	<i>VU</i>
28	<i>Reevesia pycnantha</i>	<i>Sterculiaceae</i>	<i>EN</i>
29	<i>Blastus cogniauxii</i>	<i>Melastomataceae</i>	<i>EN</i>
30	<i>Pieris formosa</i>	<i>Ericaceae</i>	<i>VU</i>
31	<i>Pieris japonica</i>	<i>Ericaceae</i>	<i>VU</i>
32	<i>Rhododendron eudoxum</i>	<i>Ericaceae</i>	<i>VU</i>
33	<i>Rhododendron rhuyuenense</i>	<i>Ericaceae</i>	<i>VU</i>
34	<i>Rhododendron subflumineum</i>	<i>Ericaceae</i>	<i>VU</i>
35	<i>Halesia macgregorii</i>	<i>Styracaceae</i>	<i>VU</i>
36	<i>Styrax macrocarpus</i>	<i>Styracaceae</i>	<i>EN</i>

Number	Species	Family	Level of Protection
37	<i>Phellodendron chinense</i> var. <i>glabriusculum</i>	Rutaceae	VU
38	<i>Anoectochilus roxburghii</i>	Orchidaceae	NT
39	<i>Arundina graminifolia</i>	Orchidaceae	NT
40	<i>Bletilla striata</i>	Orchidaceae	VU
41	<i>Bulbophyllum kwangtungense</i>	Orchidaceae	NT
42	<i>Calanthe densiflora</i>	Orchidaceae	NT
43	<i>Calanthe discolor</i>	Orchidaceae	VU
44	<i>Calanthe graciliflora</i>	Orchidaceae	VU
45	<i>Calanthe tsoongiana</i>	Orchidaceae	VU
46	<i>Cephalanthera erecta</i>	Orchidaceae	NT
47	<i>Cephalanthera falcata</i>	Orchidaceae	NT
48	<i>Changnienia amoena</i>	Orchidaceae	EN
49	<i>Coelogyne fimbriata</i>	Orchidaceae	NT
50	<i>Cymbidium ensifolium</i>	Orchidaceae	VU
51	<i>Cymbidium faberi</i>	Orchidaceae	VU
52	<i>Cymbidium floribundum</i>	Orchidaceae	VU
53	<i>Cymbidium goeringii</i>	Orchidaceae	VU
54	<i>Cymbidium kanran</i>	Orchidaceae	VU
55	<i>Dendrobium moniliforme</i>	Orchidaceae	EN
56	<i>Dendrobium nobile</i>	Orchidaceae	EN
57	<i>Epigeneium fargesii</i>	Orchidaceae	NT
58	<i>Epipactis thunbergii</i>	Orchidaceae	EN
59	<i>Galeola faberi</i>	Orchidaceae	NT
60	<i>Goodyera biflora</i>	Orchidaceae	NT
61	<i>Goodyera foliosa</i>	Orchidaceae	NT
62	<i>Goodyera henryi</i>	Orchidaceae	NT
63	<i>Goodyera repens</i>	Orchidaceae	NT
64	<i>Habenaria ciliolaris</i>	Orchidaceae	NT
65	<i>Habenaria dentata</i>	Orchidaceae	NT
66	<i>Habenaria fordii</i>	Orchidaceae	NT
67	<i>Habenaria hystris</i>	Orchidaceae	VU
68	<i>Habenaria petelotii</i>	Orchidaceae	NT
69	<i>Habenaria rhodocheila</i>	Orchidaceae	NT
70	<i>Liparis inaperta</i>	Orchidaceae	NT
71	<i>Liparis nervosa</i>	Orchidaceae	NT
72	<i>Liparis odorata</i>	Orchidaceae	NT
73	<i>Liparis pauliana</i>	Orchidaceae	VU

Number	Species	Family	Level of Protection
74	<i>Liparis petiolata</i>	Orchidaceae	NT
75	<i>Microtis unifolia</i>	Orchidaceae	NT
76	<i>Nothodoritis zhejiangensis</i>	Orchidaceae	EN
77	<i>Oberonia japonica</i>	Orchidaceae	NT
78	<i>Peristylus goodyeroides</i>	Orchidaceae	NT
79	<i>Phaius flavus</i>	Orchidaceae	NT
80	<i>Phaius tankervilleae</i>	Orchidaceae	VU
81	<i>Pholidota chinensis</i>	Orchidaceae	NT
82	<i>Platanthera minor</i>	Orchidaceae	NT
83	<i>Platanthera minor</i>	Orchidaceae	NT
84	<i>Pleione bulbocodioides</i>	Orchidaceae	VU
85	<i>Spathoglottis pubescens</i>	Orchidaceae	VU
86	<i>Tainia dunnii</i>	Orchidaceae	NT
87	<i>Tulotis ussuriensis</i>	Orchidaceae	NT
88	<i>Vrydagzynea nuda</i>	Orchidaceae	VU

Schedule 2-6 Major bamboo species in Chongyi county

Number	Species	Number	Species
1	<i>Ph. edulis</i> (Carr.) H. de Lehai	2	<i>I. tessellatus</i> (Munro) Keng f
3	<i>B. multiplex</i> (Lour.) Raeschel ex J.A.et J.H.Schult cv. Yellowstripe	4	<i>B. multiplex</i> (Lour.) Raeuschel ex J. A. et J. H. Schult. cv. Fernleaf
5	<i>Pleioblastus amarus</i> (Keng) Keng f	6	<i>Ph. heteroclada</i> Oliver
7	<i>Indosasa crassiflora</i> McClure	8	<i>I. glabrata</i> C. D. Chu et C. S. Chao
9	<i>B. pervariabilis</i> McClure	10	<i>Ph. nidularia</i> Munro
11	<i>Dendrocalamopsis oldhami</i> (Munro) Keng f	12	<i>Indocalamus latifolius</i> (Keng) McClure
13	<i>I. parvifolia</i> C. S. Chao et Q. H. Dai	14	<i>I. longianritus</i> Hand.-Mazz
15	<i>Dendrocalamus membranaceus</i> Munro	16	<i>Fargesia fractiflexa</i> Yi
17	<i>Bambusa gibba</i> McClure	18	<i>Phyllostachys bambusoides</i> Sieb. et Zucc
19	<i>Bambusa ventricosa</i> McClure	20	<i>Ph. nigra</i> (Lodd. ex Lindl.) Munro var. <i>henonis</i> (Mitif.) Stapf ex Rendle
21	<i>Fargesia spathacea</i> Franch	22	<i>Dendrocalamus latiflorus</i> Munro

Number	Species	Number	Species
23	<i>Sasa longiligulata McClure</i>		

Schedule 2-7 Major pharmaceutical plant species in Chongyi county

Number	Species	Number	Species
1	<i>Rehmannia glutinosa Libosch</i>	2	<i>Corydalis turtschaninovii Bess</i>
3	<i>Atractylodes macrocephala</i>	4	<i>Gastrodia elata</i>
5	<i>Coydalis decumbens</i>	6	<i>Mentha haplocalyx Briq</i>
7	<i>Dendranthema morifolium</i>	8	<i>Eucommia ulmoides Oliver</i>
9	<i>Coix chinensis Tod</i>	10	<i>Magnolia officinalis Rehd</i>
11	<i>Fructus aurantii</i>	12	<i>Coptis chinensis Franch</i>
13	<i>Codonopsis pilosula</i>	14	<i>Poria cocos</i>
15	<i>Lonicera japonica</i>	16	<i>Platycladus orientalis</i>
17	<i>Kadsura interior</i>	18	<i>Euphorbia hirta</i>
19	<i>Tupidanthus calyptratus Hook</i>	20	<i>Thunbergia grandiflora</i>
21	<i>Diphasiastrum complanatum</i>	22	<i>Viscum coloratum</i>
23	<i>Rumex madaio MakinoR daiwoo Makino</i>	24	<i>Sargentgloryvine Stem</i>
25	<i>Ribes davidii Franch</i>	26	<i>Mahonia fortunei</i>
27	<i>Wikstroemia indica</i>	28	<i>Parabarium micranthum</i>
29	<i>Polygonatum sibiricum</i>	30	<i>Scutellaria barbata</i>
31	<i>Origanum vulgare Linn</i>	32	<i>Pinellia ternata</i>
33	<i>Arisaema heterophyllum Blume</i>	34	<i>Typhonium giganteum</i>
35	<i>Polygonatum odoratum</i>	36	<i>Psychotria serpens Linn</i>
37	<i>Curcuma longa</i>	38	<i>Paris polyphylla</i>
39	<i>Broadleaf Mahonia</i>	40	<i>Stephania tetrandra</i>
41	<i>Daphniphyllum calycinum Benth</i>	42	<i>Bauhinia championii</i>
43	<i>Pterolobium punctatum Hemsl</i>	44	<i>Tripterygium wilfordii</i>
45	<i>Citrus medica L var sarcodactylis Swingle</i>	46	<i>Gardenia jasminoides Ellis</i>
47	<i>Uncaria tomentosa</i>	48	<i>Clematis chinensis</i>
49	<i>Elephantopus scaber</i>	50	<i>Ardisia brevicaulis Diels</i>
51	<i>Dysosma versipellis</i>	52	<i>Semiliquidambar cathayensis Chang</i>
53	<i>Acanthopanax gracilistylus</i>	54	<i>Tetrastigma hemsleyanum</i>
55	<i>Rhizoma Smilacis Glabrae</i>	56	<i>Sophora flavescens</i>
57	<i>Mesona chinensis Benth</i>		

(2) Wild Animal Resources

Schedule 2-8 National key protected wild animal species

Number	Species	Family	Level of Protection
1	<i>Neofelis nebulosa</i>	<i>Felidae</i>	I
2	<i>Panthera pardus</i>	<i>Felidae</i>	I
3	<i>Tragopan caboti</i>	<i>Phasianidae</i>	I
4	<i>Syrmaticus ellioti</i>	<i>Phasianidae</i>	I
5	<i>Python molurus</i>	<i>Boidae</i>	I
6	<i>Cervus nippon kopschi</i>	<i>Cervidae</i>	I
7	<i>viverricula indica</i>	<i>Viverridac</i>	II
8	<i>prionodon pardicolor</i>	<i>Viverridac</i>	II
9	<i>Macacathibetana</i>	<i>Cercopithecidae</i>	II
10	<i>Manis pentadactyla</i>	<i>Manidae</i>	II
11	<i>Cervus unicolor</i>	<i>Cervidae</i>	II
12	<i>Capricornis sumatraensis</i>	<i>Bovida</i>	II
13	<i>Hoplobatrachus rugulosus</i>	<i>Ranidae</i>	II
14	<i>Cuon alpinus</i>	<i>canidae</i>	II
15	<i>Martes flavigula</i>	<i>Mustelidae</i>	II
16	<i>Milvus migrans</i>	<i>Accipitridae</i>	II
17	<i>Circus cyaneus</i>	<i>Accipitridae</i>	II
18	<i>Accipiter virgatus</i>	<i>Accipitridae</i>	II
19	<i>Pitta nympha</i>	<i>Pittidae</i>	II
20	<i>Centropus sinensis</i>	<i>Cuculidae</i>	II
21	<i>Centropus bengalensis</i>	<i>Cuculidae</i>	II
22	<i>Macropygia unchall</i>	<i>Columbidae</i>	II
23	<i>Pucrasia macrolopha</i>	<i>Phasianidae</i>	II
24	<i>Lophura nycthemera</i>	<i>Phasianidae</i>	II
25	<i>Asio otus</i>	<i>Strigidae</i>	II
26	<i>Strix leptogrammica</i>	<i>Strigidae</i>	II
27	<i>Ninox scutulata</i>	<i>Strigidae</i>	II
28	<i>Asio flammeus</i>	<i>Strigidae</i>	II
29	<i>Glaucidium brodiei</i>	<i>Strigidae</i>	II
30	<i>Glaucidium cuculoides</i>	<i>Strigidae</i>	II
31	<i>Tyto longimembris</i>	<i>Tytonidae</i>	II
32	<i>Accipiter virgatus</i>	<i>Accipitridae</i>	II
33	<i>Accipiter soloensis</i>	<i>Accipitridae</i>	II
34	<i>Accipiter nisus</i>	<i>Accipitridae</i>	II
35	<i>Spilornis cheela</i>	<i>Accipitridae</i>	II
36	<i>Accipiter gentilis</i>	<i>Accipitridae</i>	II
37	<i>Sizaetus nipalensis</i>	<i>Accipitridae</i>	II

Number	Species	Family	Level of Protection
38	<i>Aquila clanga</i>	<i>Accipitridae</i>	II
39	<i>Circus melanoleucos</i>	<i>Accipitridae</i>	II
40	<i>Falco amurensis</i>	<i>Falconidae</i>	II
41	<i>Falco peregrinus</i>	<i>Falconidae</i>	II
42	<i>Falco tinnunculus</i>	<i>Falconidae</i>	II
43	<i>Microhierax melanoleucos</i>	<i>Falconidae</i>	II
44	<i>Falco peregrinus</i>	<i>Falconidae</i>	II
45	<i>Falco coiumbarius</i>	<i>Falconidae</i>	II
46	<i>Buteo buteo</i>	<i>Accipitridae</i>	II
47	<i>Aviceda leuphotes</i>	<i>Accipitridae</i>	II
48	<i>Lutra lutra</i>	<i>Mustelidae</i>	II
49	<i>Viverra zibetha</i>	<i>viverridac</i>	II
50	<i>Andrias davidianus</i>	<i>Cryptobrachidae</i>	II
51	<i>Catopuma temminckii</i>	<i>Felidae</i>	II
52	<i>Hydropotes</i>	<i>Cervidae</i>	II
53	<i>Elaphodus cephalophus</i>	<i>Cervidae</i>	II
54	<i>Carabus (Apotopterus) davidi</i>	<i>Carabidae</i>	II
55	<i>Carabus (coptolabrus) lafossei</i>	<i>Carabidae</i>	II
56	<i>Cheirotonus jonsoni</i> Jordan	<i>Euchiridae</i>	II

Schedule 2-9 Species listed into China Red Data Book of Endangered Animals (1998)

Number	Species	Family
1	<i>Manis pentadactyla</i>	<i>Manidae</i>
2	<i>Neofelis nebulosa</i>	<i>Felidae</i>
3	<i>Panthera pardus</i>	<i>Felidae</i>
4	<i>Cuon alpinus</i>	<i>Canidae</i>
5	<i>Felis bengalensis</i>	<i>Felidae</i>
6	<i>Viverra zibetha</i>	<i>viverridac</i>
7	<i>Capricornis sumatraensis</i>	<i>Bovida</i>
8	<i>Lutra lutra</i>	<i>Mustelidae</i>
9	<i>Rana hanluica</i>	<i>Ranidae</i>
10	<i>Paa spinosa</i>	<i>Ranidae</i>
11	<i>Platysternon megacephalum</i>	<i>Platysternidae</i>
12	<i>Chinemys reevesii</i>	<i>Bataguridae</i>
13	<i>Pelodiscus sinensis</i>	<i>Trionychidae</i>
14	<i>Amphiesma craspedogaster</i>	<i>Xenopeltidae</i>
15	<i>Elaphe carinata</i>	<i>Colubridae</i>
16	<i>Elaphe mandarina</i>	<i>Colubridae</i>
17	<i>Enhydria chinensis</i>	<i>Colubridae</i>
18	<i>Enhydria plunbea</i>	<i>Colubridae</i>

19	<i>Elaphe p. porphyracea</i>	<i>Colubridae</i>
20	<i>Ptyas korros</i>	<i>Colubridae</i>
21	<i>Bungarus m. multicinctus</i>	<i>Elapidae</i>
22	<i>Naja atra</i>	<i>Elapidae</i>
23	<i>Deinagkistrodon acutus</i>	<i>Viperidae</i>
24	<i>Gloydius brevicaudus</i>	<i>Viperidae</i>
25	<i>Ptyas mucosus</i>	<i>Colubridae</i>

Schedule 2-10 Species belonging to the endemic species of China

Number	Species	Family
1	<i>Muntiacus reevesi</i>	<i>Cervidae</i>
2	<i>Mogera insularis</i>	<i>Talpidae</i>
3	<i>Amphiesma craspedogaster</i>	<i>Xenopeltidae</i>
4	<i>Eumeces chinensis</i>	<i>Scincidae</i>
5	<i>Eumeces tlegans</i>	<i>Scincidae</i>
6	<i>Tropidophorus hainanus</i>	<i>Scincidae</i>
7	<i>Takydromus septentrionali</i>	<i>Lacertidae</i>
8	<i>Amphiesma craspedogaster</i>	<i>Colubridae</i>
9	<i>Oligodon ornatus</i>	<i>Colubridae</i>
10	<i>Opisthotropis latouchii</i>	<i>Colubridae</i>
11	<i>Pareas stanleyi</i>	<i>Colubridae</i>
12	<i>Sinonatrix aequifasciata</i>	<i>Colubridae</i>
13	<i>Sinonatrix annularis</i>	<i>Colubridae</i>
14	<i>Sinomicrurus kelloggi</i>	<i>Elapidae</i>
15	<i>Macropisthodon rudis rudis</i>	<i>Colubridae</i>
16	<i>Pachytriton brevipe</i>	<i>Salamandridae</i>
17	<i>Leptolalax liui</i>	<i>Megophryidae</i>
18	<i>Megophrys brachykolos</i>	<i>Megophryidae</i>
19	<i>Vibrissaphora liui yaoshanensis</i>	<i>Megophryidae</i>
20	<i>Amolops ricketti</i>	<i>Ranidae</i>
21	<i>Hylarana adenopleura</i>	<i>Ranidae</i>
22	<i>Hylarana guentheri</i>	<i>Ranidae</i>
23	<i>Hylarana latouchii</i>	<i>Ranidae</i>
24	<i>Odorrana schmackeri</i>	<i>Ranidae</i>
25	<i>Odorrana versabilis</i>	<i>Ranidae</i>
26	<i>Pelophylax nigromaculatus</i>	<i>Ranidae</i>
27	<i>Rana hanluica</i>	<i>Ranidae</i>

Schedule 2-11 Species of the common-seen edible and rare large fungus

Species	Species
<i>Auricularia auricular (Lex Hook) Underw</i>	<i>Tremella fuciformis Berk</i>
<i>Cantharellus cibarius Fr</i>	<i>Volvariella volvacea (Bull :Fr) Sing</i>
<i>Lentinus edodes (Berk) Sing</i>	<i>Agrocybe chaxingu huang</i>

<i>Agaricus silvaticus</i> Schaeff Ex Fr	<i>Cordyceps nutans</i> Pat
<i>Cordyceps sobolifera</i> (Hill) Berk et Br	<i>Ganoderma tsunodae</i> (yasuda)Imaz
<i>Cordyceps sphecocephala</i> (Kl)Mass	<i>Calostoma cinnabararium</i> (Desv) Mass
<i>Calostoma japonicum</i> PHenn	<i>Fistulina hepatica</i> (Schaeff) Fr
<i>Tremella foliacea</i> Pers:Fr	<i>Poria cocos</i> (Schw)Wolf
<i>Ganoderma lucidum</i> (Leyss :Fr) Karst	<i>Schizophyllum commne</i> Fr
<i>Laetiporus sulphureus</i> (Fr) Murrill	<i>Cryptoporus volvatus</i> (Peck) Shear
<i>Boletinus cavipes</i> (Opat) Kalchbr	<i>Lycoperdon pusillum</i> Batsch :Pers
<i>Dictyophora multicolor</i> Bork Et Br	