Annex 2.

Rice Terraces Systems in Subtropical China
-- Longsheng Longji Terraces

Location: Longsheng County, Guangxi Zhuang Autonomous Region, China

The People’s Government of Longsheng County, Guangxi Zhuang Autonomous Region
August, 2016
### SUMMARY INFORMATION

| Name/Title of the Agricultural Heritage System (local Name and Translation, if necessary): | Rice Terraces Systems in Subtropical China -- Longsheng Longji Terraces  
(Longji Terraces received their name for the terraces looks like a dragon's scales, while the summit of the mountain range resembles the backbone of the dragon) |
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Recommending/Applying Organization:</td>
<td>The People’s Government of Longsheng County, Guangxi Zhuang Autonomous Region, P. R. China.</td>
</tr>
<tr>
<td>Country/Location/Site:</td>
<td>The Longsheng Longji Terraces are built along the slope winding from the foot to the top of Longji Mountains located at N25°42′33″-25°50′15″, E 110°04′06″-110°11′52″, in the Longji Town, Longsheng All-Nationalities Autonomous County, Guangxi Zhuang Autonomous Region.</td>
</tr>
<tr>
<td>Accessibility of the Site to Capital City or Major Cities:</td>
<td>With convenient transportation, The Longsheng Longji Terraces are about 20 kilometres from the Longsheng County Town, about 80 kilometres from the Guilin City, about 50 kilometres from the Guilin Liangjiang International Airport, linked by National Road 321.</td>
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<tr>
<td>Approximate Surface Area:</td>
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</table>
The Longsheng Longji Terraces cover an area of about 101 Km$^2$, among which the terraced fields are 101 hectares. The three main sections of the Longsheng Longji Terraces are Ping’an Zhuangzhai (Peace Zhuang Ethnic Village) Terraced Fields, Longji Guzhaungzhai (Dragon's Backbone Ancient Zhuang Ethnic Village) Terraced Fields, Jinkeng Hongyao (Gold Pit Red Jade) Terraced Fields, and they make up the core protection areas of GIAHS.

**Agro-Ecological Zone:** Traditional terraced fields zone of mountainous multi-nationally

**Topographic Features:**

The Longsheng Longji Terraces are built along the sleep slopes with small plots, forming series of sharp successively receding flat surfaces or platforms. The local landforms are variable, crisscrossed by high mountains and gullies and thereby dotted with many independent hills. The cyclic basin landscapes of various sizes are thus formed, with animated alternated presentations of mountain ridges, mountain tops, coiling terrace lines, etc, when seen from far or near, horizontal or vertical angles and at different heights.

**Climate Type:** Subtropical monsoon climate

**Approximate Population:** 13,989

**Main Source of Livelihoods:** Income from the cultivation of field crops, fruits and vegetables, and tourism.

**Ethnicity/Indigenous Population:** The Longsheng Longji Terraces area is a multi-nationality district, with Zhuang people (6,078) and Yao people (5,517) as majority, and Han people (2,303), Miao people (63) and Dong people (28) as minority.

**Summary Information of the Agricultural Heritage System**

Longsheng Longji Terraces, Guangxi, China, received its name because the terraced fields resemble a dragon's scales, while the summit of the mountain range looks like the backbone of the dragon. It is a priceless legacy inherited from the forefathers of Zhuang and Yao peoples who applied the traditional Chinese
philosophical conception of "unity of heaven and earth" together with their wisdom and talents to the mountainous areas to create wonders. As a "living specimen" representing how the ancients adapted to and made use of the nature, and a mountain area use system with a good ecological environment and high economic value, it can be called a typical example of important agricultural achievement highlighting the harmonious development of man and the nature.

Longsheng Longji Terraces are of long standing. Longji Terraced Fields and the agricultural production based on it can be traced back to 2,300 years ago. In the long span of years, local people have established a complete set of technological knowledge system of agricultural production and the regulations and conventions for guaranteeing a sustainable development of the system and developed a "forest-above and fields-below" pattern of irrigation and water and soil conservation for coiling terraced fields. The LTA area has a pleasant climate, with the original vegetation intact, which is favorable to the survival and multiplication of diverse varieties of animals and plants: hence a virtuously cycled complex eco-system boasting of a high integration of man and the nature. The LTA area is now listed as a pilot area of the Chinese National Wetland Park Program.

For the past over two thousand years, the Longsheng Longji Terraces have been blended into the life of the local people in terms of lifestyle, diets, customs, wedding and funeral rites. With the inter-dependence and evolution of the above elements, a regional ethnic culture with striking features has been thus formed with the rice culture represented by rice terrace farming, the apparel culture typified by the North Zhuang costume, the architectural culture embodied in the stilt houses or pile dwellings, the stone culture signified by the tablet inscriptions and flagstone paths, the song and dance culture reflected by Wan Songs and bronze-drum dances, the ethnic autonomous culture embodied in the village elders system, the dietary culture symbolized by the "Longji Sibao" (Four Longji Local Specialties--Yunwu tea, pepper, fermented liquor and fragrant glutinous rice), and various festival custom cultures and religious cultures. Altogether with Longsheng Longji Terraces, they
make up the peculiar, rich and colorful humanity resources and represent the harmonious cultural agglomerations of multi-ethnic dwellers in the southwestern China.

The proposals of Longsheng Longji Terraces to be listed as Globally Important Agricultural Heritage Systems (GIAHS) and the proposal of Nationally Important Agricultural Heritage Systems (NIAHS) was made in 2013 by The People's Government of Longsheng County, and Guangxi Longsheng Longji Terraces were listed in the second NIAHS list in May, 2014, which both have provided an opportunity and platform for the protection and development of the Longsheng Longji Terraces. With the concerted efforts made by the local governments and people, the Longsheng Longji Terraces will further promote the protection of important agricultural heritage in China, showcase the ancient terrace farming civilization and wisdom of China, and ideally reflect the brilliant culture and ethnic ways of life and customs of Zhuang, Yao and other peoples.
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1 Characteristics of the Proposed GIAHS

Longsheng Longji Terraces, Guangxi, China, means spectacular landscape and earthly products and nature's treasures offered by the forefathers of Longji peoples who applied the traditional Chinese philosophical conception of "unity of heaven and earth" together with their wisdom and talents to the mountainous areas to create wonders. As a "living specimen" representing how the ancients adapted to and made use of the nature, and a mountain area use system with a good ecological environment and high economic value, it can be called a typical example of important agricultural achievement highlighting the harmonious development of man and the nature. It is characterized by the following features:

1. Long history of agricultural production. The primitive japonica rice had been grown in the Nanling Mountainous areas where Longsheng County is located 6,000-12,000 years ago, one of the source-lands of cultivated rice in the world. Terraced farming had been formed in the Qin and Han Dynasties. The Longsheng Longji Terraces had been developed as massive projects in the Tang and Song Dynasties, and the existing scale had been realized in the Ming and Qing Dynasties. So, the Longsheng Longji Terraces are at least 2,300 years old, and hence deserve the name of “Home of World Terrace Fields”. With the herculean efforts and grueling toil of thousands of years, the multiple pieces of sloped planes in the mountainous terrain had been turned into series of successively receding flat platforms, cultivable and picturesque, reflecting the wisdom of the forefathers of local peoples, who had accomplished a pioneering undertaking in making use of and transforming the nature.

2. Plentiful Crop Seeds Germplasm Resources. In the exploitation of the resources of the Longsheng Longji Terraces areas by the local peoples, most of the mountainous areas have been preserved in their original forms for only the slopes with thick surface soils have been plowed, and abundant primeval forests have been protected in cutting slopes into steps-like terraces in the name of guarding the holy mountains and head-water forests. Under such a way of using resources, the ecological status has remained intact, a good forest vegetation has been formed with
an organic habitation of more than a thousand of plant species such as arbors, bushes, herbs, ferns and mosses, and a complete animal-plant eco-system has been preserved. In this area, there are 2 national first-class protected tree species, 2 national first-class protected wild animal species, 6 national second-class protected tree species, and 29 national second-class protected wild animal species. Under the independent acclimatization in a very closed environment, over 30 agricultural species resources with unique regional features have been established such as Longji fragrant rice, Longji peppers, Longji teas, phenix chickens and green jade ducks, all of which have been certified as "National Geographical Indication Agri-Products" by the Ministry of Agriculture of China.

Table 1: Major Crop Varieties in the Longsheng Longji Terraces

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Name</th>
<th>Region</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Rice</td>
<td>GL</td>
<td>Glutinous</td>
<td>Horse-tail glutinous</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Red Su Glutinous</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Guangxuan 3</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Red Rose Early</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Unit 1</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Shanyou 63</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Xinhe 9</td>
</tr>
<tr>
<td>Rice</td>
<td>Long</td>
<td>Glutinous</td>
<td>Honglisimiao</td>
</tr>
<tr>
<td>Rice</td>
<td>round</td>
<td>Glutinous</td>
<td>Home Tonghe</td>
</tr>
<tr>
<td>Rice</td>
<td>round</td>
<td>Glutinous</td>
<td>Bleached Round</td>
</tr>
<tr>
<td>Rice</td>
<td>Glutinous</td>
<td>Glutinous</td>
<td>Rongpabai</td>
</tr>
<tr>
<td>Rice</td>
<td>Glutinous</td>
<td>Glutinous</td>
<td>White Home Glutinous</td>
</tr>
<tr>
<td>Rice</td>
<td>Glutinous</td>
<td>Glutinous</td>
<td>White Home Glutinous</td>
</tr>
</tbody>
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### Corn

<table>
<thead>
<tr>
<th>Variety</th>
<th>Origin</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Corn</td>
<td>Longsheng County</td>
<td>Local Old</td>
</tr>
<tr>
<td>White Horse Teeth</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Du'an 2</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Guidan 16</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Taizhen</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Guangxi Sweet566</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Guangxi Glutinous 518</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
<tr>
<td>Jade Beauty Head 602</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
</tbody>
</table>

### Potato

<table>
<thead>
<tr>
<th>Variety</th>
<th>Origin</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>Redskin Yellow-core</td>
<td>Longsheng, Ziyuan, etc.</td>
<td>Local Old</td>
</tr>
<tr>
<td>Whiteskin White Core</td>
<td>Longsheng, Ziyuan, etc.</td>
<td>Local Old</td>
</tr>
<tr>
<td>Areca-Nut</td>
<td>Longsheng, Ziyuan, etc.</td>
<td>Local Old</td>
</tr>
<tr>
<td>64-283</td>
<td>Longsheng, North Guangxi</td>
<td>Introduced</td>
</tr>
</tbody>
</table>

3. Magnificent Terraced Fields Landscape. From the water rushing river valleys up to the cloud-floating mountain peaks, the early terraced fields people cut with fine craftsmanship the slopes into layers upon layers of chains and belts with graduated terrace steps for the purposes of more effective farming, following strictly the contours of the mountains. Rivers running in the valleys, waterfalls plunging down from the edges of vertical cliffs, and coiling terrace lines crawling from the mountain foot up to the mountain top, a world-class special natural eco-landscape has thus been set up with the unity of purposefulness, regularity and orderliness as manifested in the recreation of ecology through those breathtaking terraced landscapes. In a word, Longsheng Longji Terraces are worthily “The World’s Best Terraced Fields”.

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3
4. Ethnic Culture with Distinct Characters and Rich Local Colors. For the past over two thousand years, the Longsheng Longji Terraces have been blended into the life of the local people, penetrating into their lifestyle, diets, customs, wedding and funeral rites, forming a regional ethnic culture with unique characteristics. Here, the typical multi-ethnic culture of North Guangxi is well preserved such as the rice culture represented by rice terrace farming, the apparel culture typified by the North Zhuang costume, the architectural culture embodied in the stilt houses or pile dwellings, the stone culture signified by the tablet inscriptions and flagstone paths, the song and dance culture reflected by Wan Songs and bronze-drum dances, the ethnic autonomous culture embodied in the village elders system, the dietary culture symbolized by the "Longji Sibao" (Four Longji Local Specialties--Yunwu tea, pepper, fermented liquor and Fragrant glutinous rice) , and various festival custom cultures and religious cultures. They typify the multi-ethnic culture of North Guangxi. Here, the Zhuang and the Yao are kind and plain, following graceful ancient customs, with men doing farm work and women engaging in spinning and weaving. Many precious cultural relics and historic sites and rich ethnic tradition and customs are retained in the ancient Longji villages. Altogether with Longsheng Longji Terraces, they make up the peculiar, rich and colorful humanity resources.

5. However, due to environmental pollution, seeds germplasm drain, insufficient labor force, unfavorable national conditions, etc, the transmission and protection of the Longsheng Longji Terraces are under serious threat. At present, the
Party Committee and the People's Government of the Longsheng County have made the protection and management planning in according with the requirement on the protection of NIAHS set by the Ministry of Agriculture, and are making more efforts at excavating, protecting and transmitting the heritage, in order to enable the Longji Terraced Agro-System to play more important role in promoting the farmers income and agricultural modernization of the minority ethnic regions of North Guangxi on the basis of maintaining the excellent ecological conditions. In conclusion, it is of great significance to implement dynamic protection and adaptive management of the Longsheng Longji Terraces by listing it as one of GIAHS projects.

1.1 Food Security and Livelihood Security

1.1.1 Food Security

The Longsheng Longji Terraces is distributed among 11 villages including Longji, Ping’an, Zhonglu, Dazhai, Little Village, Mahai, Heping, Daliu, Baishi, Huangjiang and Jiangliu, with a total population of 13,989, a total terraced fields area of 1,174 hectares, a total food output of 5,737 tons, 411 kg grains per capita: thus food security of self-sufficiency has been realized. Under the independent domestication in a very closed surroundings, over 30 agricultural species resources with unique regional features have been established such as Longji fragrant rice, Longji peppers, Longji teas, phenix chickens and green jade ducks, all of which have been certified as “National Geographical Indication Agri-Products”.

1.1.2 Livelihood Security

Raised in the Longsheng Longji Terraces are not only rice, but also tea, Momordica grosvenori, alpine vegetables, fruits, among others, with mountain-forest-terrace-compound management, according to the different soil zones at different elevations. Recently, the development of specialty agricultural industry is being enhanced, with the production bases of environment-friendly products, green products and organic products under construction. A bulk of characteristic agri-products such as longji pepper, phenix chickens, green jade duck, Longji tribute tea, tonghe long-rice, Longji fermented liquor, Momordica grosvenori, wild
mushroom and bamboo shoots have provided a raw materials for agricultural industrialization, which is conducive to the wealth acquisition of local farmers.

The economic development used to be sluggish, causing a low level of income per capita, in the Longsheng Longji Terraces areas. In 1993, the slogan of "propoor tourism" was put forward and the tourism development was treated as the pillar industry in the Longsheng Longji Terraces areas. Splendid terraced fields, classical local-style dwelling houses, pleasant ambient conditions have provided the favorable conditions for tourism, vitalized the local economy and pushed forward the local economic development. At present, the single cropping system is adopted with high-quality scented rice as major crop, for the terraced fields serve mainly for sight-seeing purposes, which necessitates that other crops not be cultivated in the terraced fields in spring and summer, and in slack winter season, oilseed rapes are grown mainly for ornamental purposes to adorn the winter scenery of the terraced fields.

Table 2: Industrial Output Value Composition of Longsheng Longji Terraces (%)

<table>
<thead>
<tr>
<th></th>
<th>Farming</th>
<th>Forestry</th>
<th>Animal Husbandry</th>
<th>Fishery</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>41.42</td>
<td>26.09</td>
<td>21.39</td>
<td>5.43</td>
<td>5.67</td>
</tr>
</tbody>
</table>

1.2 Biodiversity and Eco-System Service Functions

1.2.1 Wildlife Biodiversity

When the resources of the Longsheng Longji Terraces areas are tapped by the local peoples, most of the mountainous areas have been preserved in their original shapes for only the slopes with thick top soils have been cultivated, and abundant primitive forests have been protected in cutting slopes into steps-like terraces in the name of defending the holy mountains and head-water forests. Under such a way of opening up resources, the ecological status has remained intact, a good forest vegetation has been formed with an organic habitation of more than a thousand of plant species such as arbors, bushes, herbs, ferns and mosses, and a complete animal-plant eco-system has been preserved. In this area, there are 2 national first-class protected tree species--Taxus chinensis var mairei and Metasequoia glyptostroboides, 6 national second-class protected tree species--Cyathea spinulosa,
Ginkgo biloba, Phoebe bournei, etc. 2 national first-class protected wild animal species--Python molurus and Moschus berezovskii, and 29 national second-class protected wild animal species--Syrmaticus elliotti, Andrias davidianus, Echinotriton asperrimus, Hoplobatrachus chinensis, Geoemyda spengleri, etc., 38 Guangxi protected wild animal species--Muntiacus reevesi Ogilby, Muntiacus Crinfrons Sclatar, etc. Among them, Taxus chinensis var mairei is one of the ancient tree species descended from the Quaternary Glacier, with a history of 250 million years on the earth, and is universally recognized as one of precious natural anti-cancer medicinal plants. (See Appendix 7 for details)

1.2.2 Agri-Biodiversity

In the very closed environment of the Longsheng Longji Terraces far into the Shiwandashan Mountains, many unique agri-germplasm resources have been evolved through the acclimation of thousands of years, with fruit trees like pear, plum, yang mei, citrus, loquat, blueberries, medicinal plants like Eucommia bark and Amur cork tree bark, Mangnolia officinalis bark and Lysimachia foenum-graecum Hance, oil-bearing crops like camellia and tung oil tree, beverage type plants like tea tree and Momordica grosvenori, wild vegetable varieties like bamboo shoots, bracken, water celery, Houttuynia cordata and duck feet vegetable (artemisia lactiflora root), spice plants like octagon and Chinese prickly ash, ornamental plants like azalea and orchid, crops like indigenous rice (tonghe long rice and aromatic glutinous rice series), sweet potato, taro, corn and pepper. There are also abundant endemically bred livestock such as swine, cattle, sheep, chicken, duck, goose, bamboo rat, giant salamander. The ari-products of the Longji Area are characterized by fine quality, nutritious elements and peculiar flavors. As described above, five products have been certified as "National Geographical Indication Agri-Products" by the Ministry of Agriculture of China, a rare case of such high density and variety in China.
1.2.3 **Eco-System Service Functions**

Headwaters and Hydroenergy: The Longsheng Longji Terraces belongs to the main drainage basins of the Heping (Peace) River, which originates from the Fuping Packet behind the Little Village in the Golden Pit Scenic Spot of the Longsheng Longji Terraces. The annual precipitation of the Heping River drainage areas is 1,650 mm, higher than 102.5 mm, the average annual precipitation of the whole county. The ground volume of runoff is 39,124 m³. Better eco-benefit is gained from the rich water resources than in the other areas of the Longsheng County by the Longji people. Wherever there is water, irrigation canals and ditches were dug by the earlier people of the Longji, and near them, the long and narrow belts of terraced fields, were carved in the slopes with lines orderly as well as rich in varieties, from the river valleys to the clouds-curling up mountains, from the sides of luxuriantly green forests to the rocky cliffs. The vegetation on both sides of the terraced fields are well preserved, and the evergreen forest vegetation such as arbors, bushes and grasses are distributed in the cubic climate formed at different elevations and following the various contours of the mountains, making up an artificial eco-system with terraced fields embraced by forests. Water and soils are well held within the rands of rice terraces, beneficial to the
water and soil conservation, and the waterhead also provides the hydroenergy for power stations for the downstream regions.

Forest Oxygen Bar: At the National Forest Tourism Festival on the 10th of October, 2015, the Longsheng All Nationalities Autonomous County was confirmed as one of the first batch of "National Forest Tourism Demostration County", only one ever laureled with such a title in Guangxi. At the same time, the Longsheng County was also named as one of "China Forest Oxygen Bar Units". Now, the forest coverage rate of the Longsheng County as a whole is 79.1%, and the forest coverage rate around the Longsheng Longji Terraces is even higher than the average of the whole county.

Eco-Rural Tourism: The tourism has been greatly boosted through many years’ efforts by the Longsheng County at full exploitation of forest tourism resources, rearrangement of related cultural resources, increasing in the support and funding of tourism industries, and the forest, terrace farming culture and hot springs have been cultivated into the local pillar industries. Now, the Longsheng Longji Terraces Scenic Zone, the Longsheng Hotspring Scenic Zone, and the Huaping National Natural Reservation Zone have become one of the hottest famous eco-tourism spots in Guangxi.

Home of Longevity: According to A Monitoring and Appraisal Report of Longsheng Environmental Resources released by Institute of Geographic Sciences and Natural Resources Research, China Academy of Sciences, as of the end of 2013, among the total population of 179,300 of the Longsheng All Nationalities Autonomous County represented by the Longsheng Longji Terraces Area, consisting of the five nationalities of Miao, Yao, Dong, Zhuang and Han, there are as many as 9,117 old people aged 80 and above and 19 very old people aged 100 and above, over-fulfilling the national standard requirement of China Home of Longevity.

1.3 Knowledge System and Technological Technologies

The agricultural production in the Longsheng Longji Terraces has a history of more than 2,300 years. A unique terraced farming system has been developed and a
complete set of agricultural technological knowledge system and the regulations and conventions for guaranteeing a sustainable development of the system have been formulated by the Longji people.

1.3.1 Three-Dimensional Layout of Fields, Villages and Forests

In the stereoscopic arrangement of forests on the mountain top, villages on the mountain sides and terraced fields on the sides of villages and at the foot of the mountains, the water and soil conservation is balanced with the eco-system. The climate type of the Longsheng Longji Terraces area is subtropical monsoon climate, with sufficient rainfall. Influenced by rainstorms, the most serious disaster is mountain torrents, which would collapse the terraced fields, swamp the crops and erode the water and soils in the mountain land. However, the vegetation, water and soil in the regional environment of the Longsheng Longji Terraces have been well preserved. In the exploitation of land resources, Zhuang, Yao and other peoples, out of adequate consideration of the natural geographical conditions, have treated the mountains into three sections: forests on the mountain top, villages on the mountain side and terraced fields on the sides of villages and at the foot of the mountains. The high ranges between the elevation areas of 1,100m-1,916m are forest zones, and below the zone, the evergreen forest vegetation such as arbors, bushes and grasses are distributed in the cubic climate formed at different elevations and following the various contours of the mountains. The terraced fields are distributed between the elevation areas of 350m-1,100m, making up an artificial eco-system with terraced fields embraced by forests, which is significant to the water and soil conservation and soil improvement.

Village Geographical Knowledge: The climate on the sides of the mountains is mild, warm in winter and cool in summer, and hence is favorable for human settlement and dwelling in villages. The first people of the Longji chose the groove-like grounds on mountain sides as the site of villages, with the convenience for both daily life and productions such as daily water supply, mild climate impact with ventilation but not too big and humidity proper, and occupation not cramming into the terraced fields.
1.3.2 **Agriculture Irrigation Knowledge and Technology**

Water Conservation Design: The position of water taking, the relation of flow rate to the area of irrigable fields and water sloping proportion are all relevant to the construction of terraced fields. The Longji primitives did a good job in the water conservation knowledge acquisition. The current water sloping is reasonable, neither washing too much nor depositing too much; the flow rate is also proper. On the remote mountain top, the elevated water pipeline made of linked moso-bamboos with the membranes between the internodal regions removed is to deliver water. At the foot of the mountain, water carts and water-powered trip-hammers are built with craftsmanship, and, with the power of water, they are used to process grains into clean, fine flours or rice, for convenient human consumption.

![Photo 6: Elevated Moso-Bamboo Water Pipeline in the Longji Terraced Field](image)

![Photo 7: Water-Powered Trip-Hammers in the Longsheng Longji Terraces Area](image)

Steep Slop Terraced Fields Building Technique: The Longsheng Longji Terraces Ridges are not built with stones, and their stability becomes very critical. The existing Longji terraced fields all have a good stability. It is the ancestors of Longji people’s craftsmanship that had made the terraces both stable and beautiful. Some of the older generations of the Longji people are still skillful in this technique but not the young, who are expected to do more work in the inheritance and summary of this technique. The terrace building on clay slopes follows the following steps: The forest is firstly slashed and burned into grassland, and then mud blocks (usually containing grass roots) are dug out from stiff surface clay soils with inclinations and sizes of different fracture sections properly controlled in digging, especially the inclination of the section as the outward section of the terraced well managed. When each step is added...
in graduation, inner layers must be filled up properly with the same or similar firmness in both filling layers and non-filling layers. Hence, terrace building is a herculean, time-consuming project. Fertile mud should be retained, and rocks are burned red and poured cold water on to break them into pieces. Straight moso bamboos with the hollow inside cleared through are used as a level or Vertical principle of equicrural triangle is used to make the fields plain. The stability of the terraces depends on daily maintenance. Long drought can cause cracking, and cracking, if not filled up in time, will cause the terraces to collapse when flooded. Therefore, the Longji people always do a good job in maintaining the terraces.

1.3.3 Management Technology of Seeds, Fertilizers, Water and Soil

Plant and Animal Breeding: The first people of Longji did not only introduce the indigenous plant and animal species from where they first reclaimed the land, but also bred and improved plant and animal species or even domesticated the plant and animal species into famous agri-products, e.g. the Longji tea was derived from wild big-leaf tea through transplantation and selection, and becomes one of the Chinese National Protected Geographic Indication Species. Other Chinese National Protected Geographic Indication Species include: Longji pepper, phoenix chicken, jade green duck and rice seeds. Magu cold water glutinous rice, the most popular species grown by the Longji people ancestors, but its seeds had been missing since hybrid rice was extended. Now the popular local rice varieties are red glutinous rice (fragrant glutinous rice), baidou glutinous rice (rongpabai rice), tonghe rice, etc.

Fertilizer Source: The fertilizers of the Longsheng Longji Terraces mainly come from the barnyard manures dropped by cattle, horse, sheep and pig raised. The process of producing barnyard manures is: animal barns with roofs are built on the edges of one's own rice fields, far from the villages. The barn grounds are covered with tender grasses, hays, straws or tree leafs cut from the mountains or the sides of terraces. After a period of time, the mixed manures of grass and animal droppings are dug out of the barns, and are fermented, turned over and well rotted until they are carried into the terraced fields as fertilizers. Another way of fertilization is called "cutting grass", cutting young grasses and collecting leafs on the mountains and then
bury them under the furrows of paddy fields. Still another way of fertilization is to shovel out turf clay, dry it under the sun and burn it into turf ashes. This system of farm manure fertilization is better than the modern fertilization system in that it is more beneficial to crop growth and soil permeability maintenance.

Cultivation Power: Farm cattle or horses have been used to plough and harrow the fields. In busy seasons or in narrow fields, man power is used to plough the field or harrow the fields with hoes, or harrow the fields in pairs. The two-ploughing-three-harrowing system is adopted in the cultivation of the terraced fields.

Recycling Management System of Water and Fertilizer: Despite their narrow size, the terraces have their peculiar functions, that is, soil and water are very well held within the rice fields by the ridges of the terraces. With the conservation of the soil and water, the foundation for the survival and development of the Longji people is thus maintained. Villages are built on the sides of the mountains with the forests behind the villages to the tops of the mountains. Such a layout is beneficial to the conservation of water sources, and streams and springs in the mountains are supplied with water throughout the year, ensuing the human, animal and plant consumption and the irrigation of terraces. And the animals and plants in the forests can provide the meat and vegetable for people. Though some soil nutrition are taken away by the crops raised in the terraces, soil nutrition is also reinforced by some humus accumulated in the forests carried in the downstream water reinforces the soil, and the organic manurer built up from the feeding of cattle, horse, sheep, pig, chicken and other animals. The farming practice and experience with flexible adjustment to the different conditions and the technical system of cultivation of two-ploughing-three-harrowing system are well established. The latter system activates the soil and is conducive to the nutrition balance of the soil.

1.3.4 Mutual-Aid Oriented Village Stipulations and Conventions

The resident of the Longji area are mainly Zhuang people and Yao people, with family as the basic social unit and clan and kinship as the basis for social structure. Some village stipulations and conventions have been formed centering on
guaranteeing the stable evolution of the Longsheng Longji Terraces as well as the management and protection of the terraces. Worshiping ceremonies for mountain gods and mountain prohibitions, among others, are used to protect the forest and water sources above the terraces. And the production songs of twelve months are used to give instructions and guidance on the life and production of various villages.

The People in the Longji Terrace Areas are simple and sincere and enjoy a harmonious life of all ethnic groups. Some roads are paved and bridges are built by farmer volunteers for no pays. Grey hairs are respected, at wedding ceremonies or funerals, old widows, widowers or singles are invited to dinners without presenting any gifts, the seniors are let to go first on the road, and the labor exchange system is still maintained, for example, if any family is short of hands in building or renovating a house, fellow villagers will volunteer to help, a turn-taking help equal to every villagers, with no need of pays, but only a dinner. The above scenes are frequently seen, and the above mutual help system and sharing public property and no infringing private property are still well preserved.

1.4 Agri-Culture

The Longsheng Longji Terraces is a priceless legacy inherited from the forefathers of Zhuang and Yao peoples who applied the traditional Chinese philosophical conception of "unity of heaven and earth" together with their wisdom and talents to the mountainous areas to create wonders. As a "living specimen" representing how the ancients adapted to and made use of the nature, and a mountain area use system with a good ecological environment and high economic value, it can be called a typical example of important agricultural achievement highlighting the harmonious development of man and the nature.

The agri-culture of the Longji Terraces are characterized by the following features:

1.4.1 Long History of Agricultural Productions

The primitive japonica rice had been grown in the Nanling Mountainous areas where Longsheng County is located 6000-12000 years ago, one of the source-lands of
cultivated rice in the world. Terraced farming had been formed in the Qin and Han Dynasties. The Longsheng Longji Terraces had been developed as massive projects in the Tang and Song Dynasties, and the existing scale had been realized in the Ming and Qing Dynasties. So, the Longsheng Longji Terraces are at least 2,300 years old, and hence deserve the name of “Home of World Terrace Fields”.

The historical scene of the Longji areas is recorded in the poem A Report to Zhang Zhongqin When Passing the Xing’an County by the famous poet Zhang Xiaoxiang in the South Song Dynasty:

"Introduction: When going outing a couple of days ago, I saw the seedlings withering in the fields, but when passing the Xing’an County today, I witnessed the plants flourishing under irrigation, prospective big harvest scenes meet my eyes on every side. The efficient governance by efficient governors were thus evidenced, so I immediately reported this to the secretary officer Zhang Zhongqin", the poem goes:

The wooden water wheel spinning, whose wooden pipes standing high;
Young rices are being nourished by ever-new water, whose surplus having grass to satisfy.

It is the magistrate that sprays the dew, whose manner of carrying out is thunder-like;
I would charge my glass with a spoon of this new water, and drink a toast to our white knight.

The villages, small, big, and Zhonglu, the center of the Longji Terraces, of the Longji area used to be governed by Xing’an County, showing that the Longsheng Longji Terraces had taken good shapes in the Song Dynasty.

According to The Annals of Longsheng County in the 26th year during the reign of Daoguang (1864) of the Qing Dynasty, "The Longsheng County covered an area with over 300 li in diameter, and the County Town was in the center, radiating over 100 li into all directions within the county, and in between there are hundreds of lofty mountains, high ranges and steep cliffs, with little plains or clearings." With elevations from 300m to 1,900 m, and 30 li from east to west, the Longji areas have a dozen of villages distributed on the steep slopes of the mountains. Due to the
limitation of flat fields, cutting the slopes into graduated terraces step by step is the only choice. Wherever there is water, irrigation canals and ditches were dug by the earlier people of the Longji, and near them, the long and narrow belts of terraced fields, were carved in the slopes, from the river valleys to the clouds-curling up mountains, from the sides of luxuriantly green forests to the rocky cliffs. As described in a Song Dynasty poem, "Water drops, thought little, are collected by cupping our hands; mountains, despite being towering into clouds, are carved into farmland", showing how the natural resources are ingeniously harnessed by the local people for their very survival.

1.4.2 Rice Culture with Unique Features

The grueling toil and hardship in cultivating rice terraces by the ethnic groups in the Longsheng area were described in Liu Xifan's Ling Biao Ji Man (A Cultural History of Aboriginals in Guangxi) in the period of the Republic of China. "farmland was reclaimed by the aboriginal peoples by the streams in the flourishing forests in the depth of mountains. From the foots of the mountain to the mountain sides, the the slopes were cut into layers upon layers of chains and belts with graduated terrace steps for the purposes of more effective farming, with the height between terraced steps like low city walls. Following the contours of the mountains, coiling terrace lines crawling from the mountain foot up to the mountain top were often protected by clouds and fogs. You could hardly perceive the farmers loudly urging on an animal even a few feet away in the cloud. Han people called them “terraced fields” after their resemblance with staircases. Digging such terraced fields involves a mighty project. The cold water on high mountains is only suitable for the growth of glutinous rice. The aboriginals began to plough the field not with cattle but with hoes turning over soils in spring, relying only on their physical strengthen. In the evolution of agriculture, spades and hoes were firstly used and then followed by plows. But those aboriginals today still stuck to those clumsy ways of ploughing, partly for their conservativeness, partly for the limited size of terraced fields, allowing no space for the movement of cattle. Those people close to Guizhou occasionally “plough the fields in threes” with two men pushing the plow parallelly and the third man holding
the plow behind, what strenuous manual labor! ” What is recorded in Liu Xifan's works is a realistic representation of the rice farming in the terraced fields of Longji, and the historical description of the terrace culture, the arduous task of digging the terraces, mountain spring-water irrigation, the cultivation of glutinous varieties of rice, limited field space, and manual ploughing labor are based on the the Longji rice farming realities. Till today, the Longji terraces and the traditional cultivation are all well preserved.

The rice cultivation culture is the core of the Longji culture, and also the mainstay of the local ethnic culture. Through the transmission of the Longji Terrace Culture generation after generation, the historical and cultural memories involving kinship conceptions, spiritual beliefs, customs and habits are also absorbed into the terrace culture, the local history as well as social values are all engraved in the minds of all ethnic groups, and the social identity and cultural consciousness is thus bred intuitively. On this basis, the local kinship, villages and traditional livelihood centered around rice production are sustained and developed. All in all, the Longji terrace culture covers not only the rice-centered agricultural production and its related culture, but more importantly, the emotional sublimation and unique life significance derived from the rice culture soaked in every corner of the local social life.

The geographical features of the Longji Terraces have forged the practice and habits of Zhuang and Yao peoples in their land reclamation, conservation and irrigation. The worship of mountain gods and the inscribed tablets of entering mountain prohibitions are used to protect the forests above the terraces, the woodcutting and other methods are used to reasonably distribute and make uses of the water resources, and the terraces are renovated collectively at the fixed days each year.

The traditional ways of cultivations are still preserved today, including the ways of father-son cultivation, brothers cultivation, married couples cultivation. The existing ploughing tools and ploughing scenes are conducive to better understanding and interpretation of the classics such as The Book of Songs and Zhou Li (The Rites of the Zhou Dynasty)
Varieties of rice had been bred and preserved through the ancestors’ effort at opening up waste lands and moving the rice growth on plains to the mountain slopes, following local conditions, and the condition-oriented planting experience and two-ploughing-three-harrowing technique system have been accumulated. The twelve steps of cultivation including digging, breaking, ploughing, harrowing, supporting (ridges), sowing, transplanting, weeding, secondary weeding, brushing path, catching pests and cutting are used to breed the peculiar varieties of rice such as tonghe rice, fragrant glutinous rice, red glutinous rice, black glutinous rice, dark-green glutinous rice and white glutinous rice. The traditional characteristic farming techniques such as ploughing, harrowing, sowing, transplanting, cutting, mountain springwater irrigation, growing glutinous varieties, physical ploughing and harrowing are still kept today. In a word, the traditional agricultural practices in the Longji Terraces are just a living agricultural folk-custom museum.
1.4.3 Complete Production Technology System

Agricultural production is almost the only way of making a living for the local Longji people. A complete set of adaptive techniques of agricultural production had been formed on the basis of the production experience accumulated through the production practices of thousands of years by their forefathers, which includes:

(1) a perfect system of production of forests on mountain tops, villages on mountainsides and terraced fields at sides or foot of villages.

(2) a complete system of irrigation construction and management techniques.

(3) a reasonable traditional technical system of water, soil and fertilizer conservation and application.

(4) rich resource of crop seeds germplasm.

(5) relevant folk conventions and stipulations to ensure the sustainable development of the system.

1.4.4 Ethnic Culture with Distinct Characters and Rich Local Colors

For the past over two thousand years, the Longsheng Longji Terraces have been blended into the life of the local people in terms of lifestyle, diets, customs, wedding and funeral rites. With the inter-dependence and evolution of the above elements, a regional ethnic culture with striking features has been thus formed with the rice culture represented by rice terrace farming, the apparel culture typified by the North Zhuang costume, the architectural culture embodied in the stilt houses or pile dwellings, the stone culture signified by the tablet inscriptions and flagstone paths, the song and dance culture reflected by Wan Songs and bronze-drum dances, the ethnic autonomous culture embodied in the village elders system, the dietary culture symbolized by the "Longji Sibao" (Four Longji Local Specialties--Yunwu tea, pepper, fermented liquor and fragrant glutinous rice) , and various festival custom cultures and religious cultures. They make up the peculiar, rich and colorful humanity resources and represent the harmonious cultural agglomerations of multi-ethnic dwellers of North Guangxi. Here, the Zhuang and the Yao are kind and plain, following graceful ancient customs, with men doing farm work and women engaging in spinning and weaving. Many precious cultural relics and historic sites and rich
ethnic tradition and customs are retained in the ancient Longji villages. Golden Bamboo Zhuang Village is referred to as a model of North Zhuang people by the UNESCO, Huangluohong Yao Village is categorized in Shanghai Guinness Book of World Records as the "Longest Hair Village". All those cultural relics and records, together with the terraces, constitute the rich, peculiar humanities resources.

Table 3: Traditional Cuisine of the Longji Terraced Areas

<table>
<thead>
<tr>
<th>Types</th>
<th>Ingredients and Cuisine</th>
<th>example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooked Dish</td>
<td>vinegar-pepper, fresh and raw, cold-resistant, humid-resistant;</td>
<td>Raw fish, rice flour meat, boxthorn leaf egg soup, etc.</td>
</tr>
<tr>
<td>Prickled</td>
<td>Vegetable pricked with salt with ginger, fermented soya beans, etc. as additives</td>
<td>egg plant skin, white pepper, Longji chopped pepper, etc.</td>
</tr>
<tr>
<td>Preserved meat</td>
<td>Animal meats pricked or smoked or fire-cured</td>
<td>Preserved meat, baked fish, dried salted duck, etc.</td>
</tr>
<tr>
<td>snacks</td>
<td>Snacks as take-away or eaten between meals made from fern root, tonghe rice, glutinous rice, corn, etc.</td>
<td>Fern cake, Gulin noodles, Luoshifen (snail powder), etc.</td>
</tr>
<tr>
<td>Tea</td>
<td>Longji tea, wild tea, Momordica grosvenori, insect shit tea, etc.</td>
<td>Longji Green Tea, Longji Red Tea, Momordica grosvenori tea, insect shit tea, etc.</td>
</tr>
<tr>
<td>Liquor and wine</td>
<td>Brewed with tonghe rice through soaking, boiling, and sealed jar fermentation</td>
<td>Longji fermented liquor (Oriental Magic Water), Sweet dregs wine, rice distilled spirit, etc.</td>
</tr>
</tbody>
</table>

The Longji mountain people have deified the lofty mountains that exert significant influences on their terraced farming as holy mountains, such as the mountains above the ancient Zhuang villages, protect them, and hold sacrifice ceremonies to worship them. For the convenience of production, they chose the suitable sites of village construction, conferred the title of holy trees to the trees.
around their villages, and protected and worshiped them, permitting no profane and destructive actions against them. They use the mountain entrance stipulations to protect the forests above the terraces and the production songs of twelve months and other folk wisdom to guide their lifestyle and farming.

1.5 Value System and Social Organization

1.5.1 Value Effect of Social Employment

The Longsheng Longji Terraces cover a range of 7 villages inclusive of Longji Village, Dazhai Village, Little Village, Zhongliu Village, Jinjiang Village, and Mahai Village. The Heritage site constitutes the basis of livelihood of 14,000 people and the protection of the site has a direct impact on their lives and an indirect impact on the life of over 30,000 people of the nearby places including the Longji Town and the Lingsheng County-Town. Now, the sightseeing tourism is being enhanced, in addition to the plantation of rice in summer and autumn at the main scenic zones of the Longsheng Longji Terraces, and in slack winter season, oilseed rapeseed are grown mainly for ornamental purposes to adorn the winter scenery of the terraced fields.

The agri-product processing industry of the Longji Terraces areas mainly includes 7 tea processing factories and 3 Longji pepper processing factories, influencing the employment and income of over 10,000 people. The development pattern featured by leisure and sightseeing tourism, green and non-polluting, help protect the original ecology physiognomy and the traditional agricultural technique of the Longji Terraces.

1.5.2 Promotion of Guilin Tourism

The Longji Terraces spot is one of the important international tourist destinations
in Guilin. As pointed out in the Development Planning Outline of Famous Scenic Spots of Guilin International Tourism (2012-2020), the construction of the tourist industry of the Southwest Guilin pathways must be sped up, especially the key tourist counties like Yangshuo, Xing’an, Longsheng, Ziyuan and Lipu. The eight world-class tourist exquisite spots such as Longsheng Longji Terraces Scenic Zone must be given priorities, “A world-class ethnic eco-cultural tourism demonstration base should be set up through enhancing the Longji Terraces and building the business chain of ethnic customs and eco-tourism.”

![Photo 14: Honors Awarded to the Tourism of the Longji Terraces Area](image)

1.5.3 **Regional Direct Economic Value**

A national level traditional agro-system integrating the terraces sightseeing, leisure travels, folk culture hand-on experience and scenic resources protection has been formed in the Longsheng Longji Terraces area, with the Longsheng Longji
Terraces as an important resources for the agricultural and tourism incomes of the Longsheng County. In 2015, 709.4 million visitors have been received, and 6.339 billion yuan (RMB) have been earned, with year-on-year growth of 20.97%, in the tourism industry of Longsheng County featuring the Longji Terrace Scenic Zone.

1.5.4 Social Organization

There are a dozen of tourist companies in the Longsheng County including Longji Company, Longji Canyon Drifting Company, Hotspring Company and Pengzu Mountain Company, with a total social tourism investment of 2.2 billion yuan (RMB) in 2014 and 20,000 direct employees and 50,000 indirect employees. The administrative authority "Longji Scenic Zone Management Bureau" under the People's Government of Longsheng County and the enterprises specializing in the Longji Terraces Scenic Zone have been set up, a perfect system both administration and management.

The hardware facilities of the Longji are perfect, with 1 four-star hotel, 1 two-star hotel, 2 three-star hotels, more than 600 stilted farmhouse hotels, providing altogether 15,000 beds and 700 dining rooms of ethnic flavors. Large parking lots, stages for folk dances and songs and vendor corridors for ethnic handicrafts souvenirs. For the sake of travel safety, special shuttle bus service are exclusively adopted, with over 100 sight-seeing buses. Cable cars service has been officially started and battery tour cars will be soon operated. In order to provide a fine quality service and environment, the software construction is also improved. Hotline call and complaint call services have been in place, and a high quality term of tourism workers have been established. An official website of the Longji Terraces Scenic Zone has been set up, and the information of the scenic spot can be searched in the site. Attention is also paid to the eco-environment protection and sustainable development of this scenic spot while the tourism is being developed.

1.6 Landscape and Water and Soil Conservation Management

1.6.1 Forest Eco-Landscape

The Longji Terraced Field Agro-System is located in the mid-subtropical
ever-green vegetation zone, with 79.1% forest coverage rate, highest altitude of 1,916m and lowest altitude of 300 m. Under the influence of micro-climate and different soil and water environment caused by elevation and land form, the vegetation types in the mountains are diversified, displaying an organic agglomeration of over 1,000 plants such as arbors, bushes, grasses, ferns and mosses, and constituting a perfect forest vegetation system and a complete forest eco-system. The forests above the altitude of 1,700m feature the subtropical deciduous broad-leaved mixed forests; at the attitudes of 1,300-1,700m, broad-leaved trees in the families of Fagaceae, Magnoliaceae, Lauraceae and Ericaceae, forming a mid-subtropical mountain deciduous broad-leaved mixed forests; at the attitudes of 800-1,300m, broad-leaved trees as primary, and economic forests of pines and Chinese firs as secondary; at the attitudes of 300-800m, Chinese firs, masson pines, tea-oil trees, tung trees, moso bamboo, and various broad-leaved trees.

The Longji area is rich in water resources. Water, flowing over a sharp vertical drop in the course of a stream or river in the dense fog on the high mountains, forms many waterfalls, for example, the waterfall series near Xiabu Neighborhood, Zhonglu Village. Such a pure natural eco-system landscape with the distant view of mist-shrouded high mountains, and the nearby view of streams, springs and waterfalls, is praised by visitors as the China's Oxygen Bar and the honorary titles such as "National Forest Tourism Demonstration County" have been awarded the Longji Terraces Scenic Zone.

1.6.2 Magnificent Terraced Fields Landscape

On the Longji Ridges, where there is streams, there are terraced fields of various shapes and sizes. The long, coiling terrace lines crawling from the mountain foot up to the mountain top and the tremendous momentum created by the highest altitude of 1,180m, the lowest attitude of 380 m, sharp, vertical drop of 800m, and an area of 174 hectares, make the Longji Terraces one the best scenery and outperform all the other terraced fields in the world. The early terraced fields people cut with fine craftsmanship the slopes into layers upon layers of chains and belts with graduated terrace steps for the purposes of more effective farming, following strictly the
contours of the mountains, and with the unity of purposefulness, regularity and orderliness. In the longitudinal directions of slopes, terraced layers ascend step by step; in the horizontal directions, each patch of paddy fields shows off its natural contour lines following the shape of the mountains. Those long curves and squiggles loom as if colored silken bands are dropping from the sky. Gold-Pit Terraces are also wellknown for their animated imageries, small hills with terraces wound around them looking like sea snails, big mountains with terraces circling around them resemble pagodas, series of connected terraces patches remind us of animal patterns--eagles spreading their wings, nine dragons playing with beads, hundred of animals paying homage to the phoenix, etc. Some look as if seven planets revolve around the sun, some are typical terrace shapes, a few have special-shaped ridges just like laces on our cloths.

The Longji Terraces area is in the subtropical zone, with four distinctive seasons, and apparent mountain climate. The terrace change their colorful looks in different seasons and in different weather, silver strips in spring, green waves in summer, golden pagodas in autumn and a groups of dragons playing with water in winter.

Within one season, terraces also change their looks very often: “with the height between terraced steps like low city walls, following the contours of the mountains, terraces wind their ways from the mountain foot up to the mountain top protected by clouds and fogs. You could hardly identify the the farmers loudly urging on an animal even a few feet away in the cloud.” [Liu Xifan, Ling Biao Ji Man (A Cultural History of Aboriginals in Guangxi) A paradise on earth indeed!

1.6.3 Water and Soil Conservation Management

The vegetations, evergreen in four seasons, on the both side of the Longsheng Longji Terraces are well preserved, forming an artificial eco-system enveloped by forests. Mountains streams and springs are generated by the mountain vegetations, with series of waterfall alive all year long. Soil and water are very well held within the rice fields by the ridges of the terraces, which is very good for the conservation and improvement of the soil and water.

Villages are built on the sides of the mountains with the forests behind the villages to the tops of the mountains. Such a layout is beneficial to the conservation of
water sources, and streams and springs in the mountains are supplied with water throughout the year, ensuring the human, animal and plant consumption and the irrigation of terraces. And the animals and plants in the forests can provide the meat and vegetable for people. Though some soil nutrition are taken away by the crops raised in the terraces, soil nutrition is also reinforced by some humus accumulated in the forests carried in the downstream water reinforces the soil, and the organic manurer built up from the feeding of cattle, horse, sheep, pig, chicken and other animals. The two-ploughing-three-harrowing system system activates the soil and is conducive to the nutrition balance of the soil. The organized collective maintenance of ditches and canals is performed regularly at the fixed period each year, ensuring the sustainable operation of the water and fertilizer system.

The geographical features of the Longji Terraces have forged the practice and habits of Zhuang and Yao peoples in their land reclamation, conservation and irrigation. The worship of mountain gods and the inscribed tablets of entering mountain prohibitions are used to protect the forests above the terraces, the woodcutting and other methods are used to reasonably distribute and make uses of the water resources.

Photo 15: The Longji Terraces and the Ancient Zhuang Villages
2 Historic Relevance

Longsheng Longji Terraces are of long standing. Longsheng Longji Terraces and the agricultural production based on it can be traced back to 2,300 years ago. In the long span of years, local people have established a complete set of technological knowledge system of agricultural production and the regulations and conventions for guaranteeing a sustainable development of the system and developed a “forest-above and fields-below” pattern of irrigation and water and soil conservation for coiling terraced fields, which is a crystallization of the Chinese traditional agricultural philosophy and wisdom characterized by the high unity of man and nature and virtuous cycles. For the past over two thousand years, the Longsheng Longji Terraces have been blended into the life of the local people in terms of lifestyle, diets, customs, wedding and funeral rites. And all the aspects of the terrace culture are mutually dependent, and multiplied, with far-reaching influence.

2.1 Livelihood Inheritance and Development

The Longji Terraces have been the main source of income and since their first reclamation and of great significance for the livelihood security for local people. The Longji Terraces areas have been listed as one of the key projects of mid-western tourism resources development and eco-environment protection in China, one of the eco-demonstration zones. The Longji Ancient Zhuang Villages was categorized in National Ancient Villages List in 2008, and the Longji Terraces area was awarded Famous Villages (Towns) of National Characteristic Sightseeing Tourism in 2010. The annual revenue has reached 530 million yuan (RMB). With strong tourism industry of Guangxi as a comprehensive resources support behind, the Longji eco-tourism has become another major income source for local farmers.

2.2 Social Edification and Norms

The Longji Terraces area is a local native society of multi-ethnic groups, with Zhuang people and Yao people as majority and Han people, Miao people and Dong people as minority. Here all peoples live a simple, honest and harmonious life. The Chinese traditional values, virtues, moral codes, such as loyalty, trustfulness, filial
piety, seniority submission, kinship love, modesty, self-discipline, self-restraining, mutual help, and public courtesy have been passed down from generations to generations. The traditional moral standard, folk conventionalities, lifestyles, social structure and world outlook formed around the terrace culture have exerted great influences on the growing-up and the moral maturity of the young generations. In the reproduction of morality, The new social is established through the imitation, acquisition and criticism of the older generation by the young generation, and the traces of social behavior of the older generation can be felt in the new social behaviour, and the culture is thus inherited and the social behavior is standardized.

![Photo 16: Hanging Clothes Festival of Red Yao People in the Longji Terraces Areas](image)

### 2.3 Collective Memory and Inheritance

As a historical record of about 2,300 years, the Longji Terraced Field Agro-System is a sign of the special local culture. Shared beliefs, thinking patterns and behavior modes are formed through collective activities, memorial ceremonies, festivals and other social conventions, and the culture is thus passed downs generation by generation. All the worshiping rituals popular today are the outcome of the cultural transmission. All the historical and cultural memories are integrated into the terrace culture, including the clan conceptions represented by Liao clan and Wei clan, religious beliefs, folk ways and manners, and the local history as well as social values are all engraved in the minds of all ethnic groups, and the social identity and cultural
consciousness is thus bred intuitively. On this basis, the local kinship, villages and traditional livelihood centered around rice production are sustained and developed.

The Longji terrace culture covers not only the rice-centered agricultural production and its related culture, but more importantly, the emotional sublimation and unique life significance derived from the rice culture soaked in every corner of the local social life. The Zhuang and Yao peoples of Longji have been cherishing the local ethnic culture full of magnificent carriage just as they do with terrace building and protection. Everywhere in the Longji Terraces, the miraculous brightness of Zhuang and Yao peoples is glittering. All those lofty mountains, dense forests, sea of clouds, together with profound cultural connotation of the Longji Terraces, have been inherited in a way of collective history memories.

Table 4: List of Immovable Cultural Relics in the Longji Terraces Areas

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Content</th>
<th>Place</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hundreds Years Old Houses</td>
<td>Residence building</td>
<td>Nine house of more than 100 years old: 1. Li Zhiguo' Home (about 160 years old); 2. Liao Zhixie' Home (about 130 years old); 3. Liao Shihan's Home (about 140 years old); 4. Hou Yujin's home (about 150 years old); 5. Pan Tingfei's Home (about 110 years old); 6. Hou Jialv's home (about 130 years old); 7. Hou Dehui's Home (about 150 years old); 8. Hou Rongming's Home (about 130 years old); 9. Hou Rongquan's home (about 130 years old).</td>
<td>Hou's village, Liao' Village, Ping Village (Containing Pingduan)</td>
<td>Eco-Museum has conducted renovation to the 7 old houses, now in good repairs.</td>
</tr>
<tr>
<td>Pavilion (Quan Pavillion)</td>
<td>Public building</td>
<td>Existing: Breeze Pavilion, Peace Village Pavilion, Hou's Pavilion, Baqian Pavilion, Dragon Spring Pavilion, Clear Spring Pavilion, Tile Kiln Pavilion, etc.</td>
<td>At the entrances of villages</td>
<td>Complete (Eco-Museum has commissioned their renovation)</td>
</tr>
<tr>
<td>Three-fish One-head Stone Carving</td>
<td>Stone Carving</td>
<td>Three-fish One-head Stone Carving signifies the unity of Liao, Hou and Pan Clans</td>
<td>At the Bridgehead of Wind and Rain of Liang's Village</td>
<td>Cracked tablet, but the Carvings are distinguishable.</td>
</tr>
<tr>
<td>Stone Village</td>
<td>Public</td>
<td>2 Stone Village Gates (Erected during the reign of Emperor Guangxu)</td>
<td>Liao's Village</td>
<td>Complete (Eco-Museum has conducted renovation)</td>
</tr>
<tr>
<td>Gate</td>
<td>Ten-Thousands Years Gate, Fujian Gate</td>
<td>has commissioned their renovation</td>
<td>Pingduan Village</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Pingduan Stone Tablet</td>
<td>Record</td>
<td>1. Bamboo Shoots Digging Prohibition Tablet: order from Anji County Magistrate to prohibit digging bamboo shoot to protect bamboo forests, set up in the 17th year of the reign of Emperor Qianlong 2. Longji Village Codes Tablet, set up in the 29th year of the reign of Emperor Daoguang; 3. Flourishing Foliage Tablet for Notice, set up in the 17th year of the Republic of China; 4. Fengxian Yongding Codes Tablet: the government codes regarding the labor service, set up in the 11th year of the reign of Emperor Xianfeng.</td>
<td>Pingduan Village</td>
<td>Inscriptions on Tablets are vague. Tablet 3, broken into two pieces (already repaired by Eco-Museum). Tablet 4 is smashed to pieces, unable to recover.</td>
</tr>
<tr>
<td>Kangxi Suppressing Badits Tablet</td>
<td>Record</td>
<td>Set up in the 6th year of the reign of emperor Kangxi. An important historical proof for Qing government's army camp for suppressing the local bandits.</td>
<td>Peace Village, roadside.</td>
<td>complete</td>
</tr>
<tr>
<td>Peace Water Stone Vat</td>
<td>Pool</td>
<td>Set up in the reign of Emperor Tongzhi, signifying the Longji Zhuong's consciousness of fire prevention.</td>
<td>Liao' Village</td>
<td>complete</td>
</tr>
<tr>
<td>Stone Tablet Bridge</td>
<td>Bridge</td>
<td>Nayuan Stone Bridge, Upper and Lower Stone Bridges, Pan's Stone Bridge, Hou's Stone Bridge, Liao's Stone Bridge, Layu Stone Bridge, Laqiang Stone Bridge, etc.</td>
<td>Everywhere in villages</td>
<td>Some intact, others with cracks.</td>
</tr>
<tr>
<td>Village Behavior Prohibition Tablet</td>
<td>Prohibition</td>
<td>Set up in the second year of the reign of Emperor Daoguang, prohibiting the villagers to be thieves.</td>
<td>Hou's Village</td>
<td>Incomplete tablet, vague inscriptions</td>
</tr>
<tr>
<td>Longsheng County Tablet</td>
<td>Record</td>
<td>Set up in the 9th year of the reign of emperor Guangxu, recording the selection of Toujia in local imperial exams, inheritance affairs, official position responsibilities, etc.</td>
<td>Liao's Village</td>
<td>Vague inscription</td>
</tr>
<tr>
<td>Yiguli Tablet</td>
<td>Worship tablet</td>
<td>Set up in the first year of the reign of Emperor Tongzhi, recording the worshiping of Guangfu King, Moyi King and Sanjiang Prince by the people of the three villages. Pray to be blessed with peace, security and happiness.</td>
<td>In Front of Lian Zhifu's Home in Liao's Village</td>
<td>Vague inscription on the broken surface.</td>
</tr>
<tr>
<td>Hydrangea Tablet</td>
<td>Cultural symbol</td>
<td>With Hydrangea pattern on the front side, at the water pool for extinguishing purpose</td>
<td>Pingduan Village</td>
<td>Broken</td>
</tr>
</tbody>
</table>
3 Contemporary Relevance

3.1 Eco-System Service

Biodiversity Protection: There are rich biodiversity, with unique fine quality rice varieties and many kinds of germplasm of plants and animals. One of the important functions of the Longsheng Longji Terraces is to protect the local traditional crop varieties as well as the eco-environment of the area and its biodiversity, especially the genetic diversity of all the living things via on-site protection. And the maintenance of the biodiversity of local varieties of living things is also the basis of agri-culture diversity.

Water and Soil Conservation: The climate type of the Longsheng Longji Terraces area is subtropical monsoon climate, with sufficient rainfall. Influenced by rainstorms, the most serious disaster is mountain torrents, which would collapse the terraced fields, swamp the crops and erode the water and soils in the mountain land. The vegetation on both sides of the terraced fields are well preserved, and the evergreen forest vegetation such as arbors, bushes and grasses are distributed in the cubic climate formed at different elevations, following the various contours of the mountains, which is beneficial to the water and soil conservation. Besides, water and soils are well held within the rands of rice terraces, and the local people pay a lot of attention to the protection of terraces by renovating the collapsed fields, prohibiting the construction of houses in the fields, and conserving the water and soils.

Photo 17: Water and Soil Conservation of the Longji Terraces

Water Source Conservation: The vegetation is well preserved out of protecting the rocky mountains and water source forests, which have a strong power in refeeding
water and soul and comforting the climate. Plentiful forests serve have guaranteed the consumption of water of terraced fields, man and animals. Rice terraces are a kind of man-made wetland. The rice farming in terraces will not cause water and soil erosion, on the contrary, the long-term water availability in terraces helps to improve the moistening effect on the environment. The living and production condition of "water is as high as mountains" is formed in the favorable environment, with running water in the mountain at different attitudes ensuring the consumption of terraces farming, man and animals.

Forests can conserve the water source, counteract the flood peak, extend the water supply time and quantity (release the drought). Such a capacity is manifested in three ways, water entrapment on the tree top, water holding by plant litters and water storage in non-capillary pores in soil. The old-growth forest above the terraces is the place water is best nourished. Red soil dominates the traditional the Longji Terraces, and the parent rock that generates soil is sandshale. The soil of the Longji Terraces is fertile, rich in organic matter, with good air capacity, drainage and water source nourishing ability. Water source is well conserved also because of the strong primordial quality of evergreen defoliate broad- leaved mixed forest and evergreen broad-leaved forest, high coverage of vegetation and diversified plant colonies.

The whole Longsheng County including the Longji area is one of the Key Protection Zones of Fine Quality Drinking Water of China, therefore, it is beneficial to the downstream water quality guarantee to enforce the effective protection of natural eco-resources of the Longji Terraced areas.

Climate Regulation: There is an organic habitation of more than a thousand of plant species such as arbors, bushes, herbs, ferns and mosses in the Longji Terraces Forest Eco-System, and various microclimates have been formed by forests at different altitudes, influencing the surroundings. The drainage system in the Longji Terraces Area is well developed, characterized by mountain streams, and because of the strong primordial quality of evergreen defoliate broad-leaved mixed forest and evergreen broad-leaved forest, the high coverage of vegetation and diversified plant colonies, and the strong cooling radiation at night facilitating the coagulum formation
of fog, dew and rime, the general humidity and precipitation are increased.

Nutrient Recycle: In the exploitation of land resources, Zhuang, Yao and other peoples, out of adequate consideration of the natural geographical conditions, have treated the mountains into three sections: forests on the mountain top, villages on the mountain side and terraced fields on the sides of villages and at the foot of the mountains. The climate on the sides of the mountains is mild, warm in winter and cool in summer, and hence is favorable for human settlement and dwelling in villages. Such a layout of the forests behind the villages to the tops of the mountains is beneficial to the conservation of water sources, and streams and springs in the mountains are supplied with water throughout the year, ensuing the human, animal and plant consumption and the irrigation of terraces. And the animals and plants in the forests can provide the meat and vegetable for people. Terraces are built layers upon layers around the villages, convenient to irrigation and farm manure transport and application in the fields and, in the final analysis, beneficial to rice growth. Under such a structure of forests-streams-terraces, reasonable, regulable nutrient recycle is realized and a system agriculture with a high unity of man and nature is highlighted.

3.2 Material and Goods Production

Food Guarantee: The Longsheng Longji Terraces has a total terraced fields area of 1,174 hectares and a total population of 13,989. Rice is major crop of terraced farming, and a total food output is 5,000 tons. The continued cultivation of rice in the system can ensure 411 kg grains per capita for 14 000 farmers: thus food security of self-sufficiency has been realized.

Livelihood Guarantee: Thanks to the agro-system resources diversity and biodiversity of the Longsheng Longji Terraces, the products produced or gathered from the natural resources maintain the basic livelihood of the Longji peoples. The rice terrace production system specific to Longji area plays an important role in the sustainable development of agriculture, and efforts are made to develop the local green food processing industries of rice, tea, Momordica grosvenori, pepper, wild vegetable, fermented liquor, phoenix chicken, green jade duck, etc. to speed up the
eco-environment and eco-village construction, and to realize the sustainable development of the processing industries of feature products of traditional agricultural system, so that the stronger livelihood security is maintained for the Longji people.

3.3 Development of Multi-Functional Tourism

3.3.1 Employment and Income Increase

The Longji Terraces Eco-System has become a ready source of money for the local farmers, and the farmers in the region of 10,000 have lived a quite well-off and comfortable life through terraced farming, agri-products processing and tourism. At the opening of the Second Longji Terraces Festival in June, 2013, the Signing Ceremony of Investment Promotion and Capital Introduction of Longsheng County was held, and six projects had been signed, with a total investment of 576 million yuan (RMB), relating to mineral production, forestry, tourism, etc. All of these will help optimizing and upgrading Longsheng industrial structure and lengthening its industrial chains.

3.3.2 Tourism Development

Under the promotion of the People's Government of Longsheng County, leisure agriculture travel service system is being perfected, with intensive distribution of tourism resources. In 2008, Golden-Bamboo Village and Dazhai Village were both awarded the first batch of 15 National Scenery Villages and 8 Classical Scenery Villages in China. In 2010, the Longji Village, Longsheng County was categorized in the list of Famous Villages (Towns) of National Characteristic Sightseeing Tourism. Through a decade of tourism development, the Longji Terraces Scenic Zone has become a national AAAA-class tourist spot and a national demonstration spot of agricultural tourism.

Three scenic zones have been built: Peace Zhuang Terraces Scenic Zone, Gold-Pit Red Yao Terraces Scenic Zone, and Longji Ancient Zhuang Village Terraces Cultural Scenic Spot. The Peace Zhuang Terraces Scenic Zone is the first scenic spot among the three, rated as one of Classical Scenery Villages in China in 2007, home to the sceneries of “Seven Planets Revolving Around The Sun” and “Nine Dragons and
Five Tigers”. In Longji Ancient Zhuang Village Terraces Cultural Scenic Spot, the stilted wooden farmhouses are built on the slopes, looking like hangers suspended on both sides of dragon's waist, and still, the village encircled by layers upon layers of terraces just like growth rings of a tree. Here is the birthplace of North Zhuang in Guangxi, and also represents the Stone-Inscription Culture in Guangxi. Everything in Longji is in their ancient, original style. Seven hundreds years-old houses are still in good repair, one of them being at least 150 years old. The Longji Ancient Zhuang Village was chosen as one of National Eco(Community)-Museum Demonstration Spots by the State Administration of Cultural Heritage in 2011. Now, one of the hundreds year-old houses and exhibition hall is open to the tourist for free. Besides the three major scenic zones, there are many other folk culture tourism villages including Golden-Bamboo Zhuang Village, a National Scenic Village, and Huangluo Yao Village, the Number One Long-Hair Village in the World, open to the public, and soon Little Village and Zhonglu Village will be open.

The idyllic terrace landscape, the peaceful, and quite eco-environment of human settlement, have attracted more and more tourists for sightseeing and leisure holidays from home and abroad. Far away from hurly -burly cities, eating and sleeping in the farmhouses, close to the nature, all the urban pressures are relieved, and you are immersed in a pastoral life. This is why it is a must for the domestic and foreign tourists to Guilin. The Longji Terraces is a Shangri-La in China, a paradise on earth!

3.3.3 Mecca for Photographers

Too many gifts from the nature, ethnic groups of hospitality, romantically charming sceneries all year long, and so on, are all the exquisite elements for photographers. A primitive eco-treasure house for photography with abundant themes and content awaits your exploration and discovery: ancient villages on slopes, weather-beaten stilted farmhouses, zigzagging stone-tablet paths, gorgeous ethnic costumes, Yao ladies combing their hairs, aboriginal folk dances, ploughing terraces, picking tea-leaves, and the festivals like June 6 Clothes Hanging Festival (lunar calender) of Red Yao people every year: all those scenes are the dreams of photographers.
3.4 Scientific Research

With the social development, people’s cognition on the Longji Terraces is not limited to the agricultural value, but is concerned with its scientific research value in the fields of environmental sciences, ecology, natural resources sciences, history, etc. especially in view of its diversified germplasm resources of plants and animals.

There are many national first-class protected plant and animal species such as Taxus chinensis, silver fir, giant salamander, even perhaps black bear, South-China tiger, a valuable resource for protection. There are also plentiful ancient tea trees, and various kinds of tea tree resources. As tea tree germplasm is characterized by germplasm diversity, it is of significance to study, protect and improve the tea germplasm. Longji phoenix chicken and jade green duck are the peculiar poultry species specific to the Longji area, so the protection of them helps enrich the species gene pool of our country.

Some traditional rice varieties with local characteristics have been retained due to long-term cultivation, such as white dou glutinous rice, red fragrant glutinous rice, tonghe glutinous rice, etc. Among them, fragrant glutinous rice is wellknown for its fragrance, smelling fragrant even in pounding rice, and is a rice indispensable in making new year glutinous rice cake and engagement glutinous rice cake. Tonghe rice is characterized by disease-resistance, drought-resistance and frost-resistance. Despite
being referred to as tonghe rice (same stalk rice), tonghe rice is divided into many varieties, e.g. golden, flax-red, purple-black, and black. Tonghe rice varieties can be found in cold-water field, rush water field, white-tile clay soil field, and sandy clay soil field. The diversity and characteristics of the traditional rice are an important resource for rice variety improvement, and hence their value of protection and research.

Recent years have witnessed increasing academic interests in the Longji Terraces research: scholars conducted researches on the historical investigation, genetic resources, eco-functions, social structure, and economic status, with the academic scopes or perspectives of folk lore, history, anthropology, tourism studies, among others. The hottest issues are the Longji Terraces protection, the social historical transformation of the Longji people, the Longji tourism development, community participation, etc. For instance, some scholars deal with the internal relationship between rice culture and the Longji terraces landscape from the angle of ecology, some are concerned with the primitive original water recycling in the Longji Terraces, while others explore the survival mechanism and protection of the Longji terraces and the extension of terrace building techniques, investigate the mechanism of longevity, or offer the suggestions for protecting the Longji rice culture and writing proposals for the World Culture Heritage.

3.5 Promotion of Ethnic Solidarity and Social Harmonious Development

Multi-Ethnic groups of Zhuang, Yao, Dong and others live in compact communities in the Longji Terraces area. The same ethnic group share the same village, common beliefs, habits, customs, production modes and lifestyles, which is beneficial to the unity and harmony of all the members of the same village.

Therefore, for the construction of new socialist rural society, it is of significance to protect and develop the Longji terraces eco-agriculture and its supplementary industries under the principle of seeking protection in development and development in protection, to promote the income increase of the local farmers and to optimize the
mountain area industrial structure. The systematic protection of the agricultural heritage of the Longji Terraces agro-system is conducive not only to the protection of time-honored rice cultivation and the fine quality germplasm of the Longji area, but also to increasing the popularity of the Longji Terraces agro-system, strengthening the development of the Longji tourism industry, so that the social economic development, and the harmonious development of man, nature and society will be all put in motion.
4 Threats and Challenges

4.1 Fine Quality Germplasm Loss

Under the shock wave of the market economy, the trend of reforming the natural forest into mono-cultural mono-species forest for economic purposes reduced the species diversity of the forest and possibly would cause the drainage of germplasm. The protection of ancient tea trees in individual villages is insufficient as evidenced by the phenomenon of cutting down the hundreds years old tea trees.

4.2 Weakening of Traditional Beliefs by Modern Civilization

The ancient settlement closely related to the terrace landscape is losing its heritage ingredients caused by commercialization under the impact of modern culture and tourism, as evidenced in the weakening traditional values and conceptions of all the ethnic groups, seldom holding the traditional worshiping rituals, say, the paying sacrifice to mountain gods. In sum, the heritage of folk faiths, folk habits and customs bread through terraced farming and living in ancient villages for the past thousands of years is facing a serious threat under modernization.

4.3 Weak Consciousness of Agriculture Heritage Protection

At present, the cognition and consciousness on the value of the Longji Terraces Agricultural Heritage are still inadequate, and its protection remains at the level of the terraces landscape protection and eco-protection, without sufficient attention to the cultural heritage protection of the Longji Terraces Agro-System. This lacking is manifested as follows: the economic value is focused, other multiple values are ignored, especially the value and its inheritance of eco-culture and folk culture related to the Longji Terraces, causing possibly the disrupted collective memory until no cultural self-awareness can be awakened. As social economy development and urbanization accelerate their speed, agricultural heritage is under the double threats of human-caused destruction and natural destruction. Young people worship the prevailing custom and cultural tendency, reluctant to engage in heavy farming labor, or to study the terraced farming techniques, showing no interest in folk arts. The
cultural legacy of father-son or master-pupil transmission may fail to be handed down further because of lacking successors.

4.4 Massive Outflow of Right Age Labor

Under the impact of the market economy, the educated youths migrate to the cities to work, unwilling to do onerous farm labor in terraces. Moreover, as the traditional farming production involves long cycle length, big input, but low return, and the high economic stimulus from local tourism industry attracts the large quantity of labor into tourism services, the successor labor force is quite lacking for the terrace farming. At present, the farm labor in the terraced areas is mostly undertaken by farmers in their 50s, and those in their late 50s and early 60s are even the major laborers. The severe problem is how to sustain the traditional farming in the terraces as the current laborers get older and older.

Recent years saw the shortage of farm labor force, waste of water resources, land use competition and so on, and the serious threats faced by the inheritance and protection of the Longji Terraces. According to the field survey, some terraces began to cave in, or be abandoned, or go out of water-field cultivation into dry-field cultivation. The number of collapsed spots in the Longji Terraces reached 409, whose acreage occupying 7.14% of the total water-field. The full-time farmers in their 60s made up 62.5%, belonging to semi-labor force. Most of farm labor is left to the stay-at-home daughter-in-laws or shared by themselves and their spouses. It is obvious that the massive part-time farm labor outflow caused the serious shortage of labor.

If this problem is still overlooked and no effective protective measure are taken, the Longji Terraces will disappear just like the terraces along the coasts of North Africa and the Mediterranean Sea and those in France and Central American countries. According to the field investigation, the group 9 leader Ms Pan Rongfen said worriedly, "no young men are willing to cultivate the terraces dug out by our forefathers, the fields are left in the cold, out of repairs. Nobody cares crumbled terraces and broken canals. If we go on like this, no one will raise crop dozens of
years in future."

Table 5: Impact of Modern Farming Implements on Traditional Farming

<table>
<thead>
<tr>
<th>Age</th>
<th>Using new crop seeds</th>
<th>Using Modern Farming Implements</th>
<th>Tourism Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 40</td>
<td>28%</td>
<td>32%</td>
<td>67%</td>
</tr>
<tr>
<td>40–60</td>
<td>49%</td>
<td>28%</td>
<td>52%</td>
</tr>
<tr>
<td>Over 60</td>
<td>22%</td>
<td>0%</td>
<td>36%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Elementary or below</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Part-time farmer</th>
<th>Full-time farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>30%</td>
<td>44%</td>
<td>26%</td>
<td>2%</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>0%</td>
<td>22%</td>
<td>76%</td>
<td>24%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>22%</td>
<td>45%</td>
<td>55%</td>
<td>26%</td>
<td>37%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identity</th>
<th>Part-time farmer</th>
<th>Full-time farmer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2%</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>24%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>26%</td>
<td>37%</td>
</tr>
</tbody>
</table>
5 Practical Considerations

5.1 Prospect

Since the Global Important Agricultural Heritage System (GIAHS) was initiated by FAO in 2002, 16 agro-systems in 11 countries have been categorized as pilot projects in the world. In the past 10 years, governments, international organizations and scholars from many countries were committed to the protection of agricultural heritages. The application for China Important Agricultural Heritage System was started by the Ministry of Agriculture in 2012. The People's Government of Longsheng County began the application of the Longsheng Longji Terraces as GIAHS and NIAHS in 2013. And Guangxi Longsheng Longji Terraces entered the list of the second NIAHS in May, 2014, which has provided, undoubtedly, an opportunity and platform for the protection and development of the Longsheng Longji Terraces.

5.1.1 Multi-Functionality and Rural Eco-Tourism

As the society progresses, people no longer restrict their understanding of the Longji Terraces in their agricultural value, but regard it as a resource of diversified plant and animal germplasm with the research value in the fields of resource sciences, ecology, environmental sciences, history studies, etc. Besides, with its magnificent and spectacular landscape and its seasonal variations of sceneries, the Longji Terraces allow a touring days of over 300. Moreover, for the past hundreds of years, the Longsheng Longji Terraces have been blended into the life of the local people in terms of lifestyle, diets, customs, wedding and funeral rites, generating a local culture with strong characteristics. The precious terrace landscape and local culture remains give rise to the unique tourism resource of the Longji Terraces, and with them the rural eco-tourism has earned the Longji terraces an important in the competitive tourism industrial world. Recently, the local government is much concerned with the reasonable planning and construction of the Longji rural eco-tourism, and has started the protective exploitation of the Longji Terraces.

5.1.2 Sustainable Development Through Protecting Agricultural Heritage

The declining traditional culture in the cultural surges of the modern society is
now returning and attached importance to. The profound local cultural traditions have taken shape through a long historical sedimentation in the history of the Longji Terraces, and the belief of respecting history and tradition have been handed down from generations to generations. The cultural memes in the local Longji terrace culture have never been disrupted, providing a golden opportunity for the local development. The protection and transmission of ethnic culture is emphasized in the construction of the Longji Terraced Field Agro-System, without doing any harm to the folk customs. Thanks to this protection, a large number of travelers from home and abroad are attracted to enjoy the natural and humanities sceneries like the folk dances and lang hairs of Huangluo Yao Village, Golden Bamboo Village, Primitive Original Minority Ethnic Folk Customs, and others.

5.2 Ongoing Efforts to Promote GIAHS

5.2.1 Government Initiatives to Apply for GIAHS

Since the application of the Longsheng Longji Terraces as GIAHS and NIAHS was initiated, the leaders at all levels of the Longsheng County have paid high attention to the application, and a Leadership Group for the application was set up, with the head of the county as the group director, the deputy head of the county responsible for the heritage application as the vice director, the leaders of various departments of the county related to the application as group members. Application discussion meetings have been held many times, a training class has been offered to acquire the knowledge of agricultural heritage protection, academic conferences or forums on agricultural heritage protection have been participated, the various activities on the theme of agricultural heritage have been involved such as "China Agri-Culture Exhibition" hosted by the Ministry of Agriculture, and the experience of the pilot projects and candidate projects of GIAHS have been drawn for reference: all these efforts help ensure the smooth application of the application of the Longsheng Longji Terraces as GIAHS.
5.2.2 Reving Up Publicity with a Multi-Level Regional Media Campaign

With collaborated efforts by the local governments and the CCTV, the Longji Terraces have been given special coverage in the CCTV column programs such as Native Soil, Service for You, and Synthesis Skill Bulletin. Various festivals, cerebrations and promotional ceremonies have been sponsored by the local governments or related government organizations: the First Longsheng International Terrace Cultural Festival--China•Big Guilin Tourism Guangxi Hunan Primitive Eco-Folk Culture Festival, series of events or activities like Ploughing Festival, Torch Festival, Longji Golden Autumn Tourism Cultural Festival. Active involvement in the Third China Guilin International Tourism Fair, Advertisements on CCTV and People.Cn, Showcases held in other provinces, all these efforts effectively boost the prestige of the Longji Terraces. The Longji Terraces’ own website was also set up to
enhance the online marketing. Cooperations with the neighboring scenic spots were also strengthened to realize the shared advertisement, shared tourism routes, shared tourists transportation and the other related strategies for the win-win purpose. In 2013, commissioned by the People's Government of Longsheng County, the TV program featuring the application for National Leisure Agriculture and Rural Tourism Demonstration County by Guangxi Longsheng All-Nationality Autonomous County--the Longji Terraces--Ladders to the Heaven was shot by Guantxi TV. The Longji Terraces Cultural Festival were held during the dragon boat festival every year. The Longji Terraces Writing and Photography Competitions were also hosted. The history, cultural and ecological values, the opportunities and challenges of protection and development, the paths of sustainable management and the production techniques, processing techniques, anecdotes, local culture, lifestyles and customs of the Longji Terraces were discussed in depths. All these publicizing and communicating endeavors help let more people know the old and mysterious Longji Terraces Agricultural Heritage System.

5.2.3 Setting Up Longsheng Longji Terraces Protection Zone and Eco-Museum

Under the unified arrangement and coordination, field surveys on the Longji Terraces Eco-System are conducted by different government departments and agencies including agriculture, forestry, cultural heritage, and media, comprehensively recording, registering, photographing, filing, taking protective measures for key relics. The surveys cover measuring the quantity of wild animal and plant resources, ancient tree age, and terrace acreage, and collecting the folklores, folktales, ballads, rituals, craftsmanship, and material records of culture about the Longji Terraces. Now, the Stilted Farmhouses of Zhuang People, North Zhuang Costume, North Zhuang Two-Part Melody Songs, Longji Zhuang Rice Culture and Longji Fermented Liquor have been enrolled in the List of Metropolitan Level Intangible Cultural Heritage.

5.2.4 Conducting Preliminary Survey and Research

In 2003, a protective mode of joint venture of ethnic cultures was initiated by Guangxi, and the construction projects of Guangxi Ethnic Eco-Museums was started, that is, to set up 10 professional eco-museums in different districts radiated from the
Guangxi Ethnic Museum under the principle of "on-site protection of cultural heritage". In 2006, the construction of the Longji Zhuang Eco-Museum based the protected zones of three natural villages of Hou Clan, Liao Clan and Pan Clan in the Longji Village was approved by the Culture Department of Guangxi Zhuang Autonomous Region. In 2011, Guangxi “1+10” Ethnic Eco-Museums were all completed and opened. In the same year, The Longji Zhuang Eco-Museum was named as one of the first batch of five Eco(Community)-Museum Demonstration Spots by the State Administration of Cultural Heritage in 2011. Ever since then, the Longji Terraces have been a living agro-folk-custom museum. The Longji Ancient Zhuang Villages was categorized in National Ancient Villages List in 2008, and the Longji Terraces area was awarded Famous Villages (Towns) of National Characteristic Sightseeing Tourism in 2010. The Longji Terraces Area has been approved to be one of the key projects of the Midwestern Tourism Resources Development and Eco-Environment Protection by the State Government. It has become a state-level eco-demonstration zone and traditional agro-system that integrates terraces sightseeing, leisure holiday, folk custom experiencing, and landscape resource.

5.2.5 Protecting Geographical Indication Products and Extending Technical Specifications

The Longji Pepper and the Longji Tea proposed by the Longsheng County were both confirmed as China National Agricultural Geographical Indication Products by the Agri-Products Quality and Safety Center and the Expert Commission of Agricultural Geographical Indication Products in 2013, 2014 respectively, a following-ups of the Longsheng Phoenix Chicken and the Longsheng Jade Green Duck with the same honor. Previously, The Longsheng Longji Fragrant Glutinous Rice is being applied as the National Geographical Indication Product. In addition, the food quality of the Longji Terraces is further improved through the extension of high mountain cultivation and breeding and non-pollution cultivation technique. And the technique training to the local farmers have been provided, and various information platforms are employed for to popularize the agricultural technology.
5.2.6 Making Support Policy and Promote Longji Terraced Fields Agri-Products Related Industries

The Development Plan of Two-Tea-One-Fruit+Characteristic Breeding (2013-2018) and the financial support policies for the Two-Tea-One-Fruit+Characteristic Breeding and for the expansion of agri-production size have been made by the People's Government (Two-teas: Longji tea and sasanqua; one-fruit: Siraitia grosvenorii; characteristic breeding: phoenix chicken and jade green duck). The agri-products of the Longji Terraces are highlighted by sasanqua, the Longji pepper and the Longji tea as the key project, and the products are marketed to the southwestern China, and their product quality has been upgraded from popular commodities to non-pollution products, green products and organic products. In recent years, Sasanqua Farmers Specialized Cooperative, Tea Specialized Cooperative, Longsheng County Agri-Products Purchase and Sale Farmers Specialize Cooperative and other dozens of specialized cooperatives have been set up. The Longji Terrace agri-products processing factories mainly include 7 tea processing factories, involving the employment and income of 5 000 farmers.

5.2.7 Developing Longsheng Longji Terraces Eco-Tourist Industries

The Longji Terraces tourism has been paid great attention to by the People's Government of Longsheng County. In 1993, the slogan of Poverty-Aid By Tourism was put forward by the Longsheng County, treating tourism industry as the pillar industry for the poverty-relief in Longji. The local economy has been activated and sped up by tourism. In 2006, the Longsheng County was ranked as China Cultural Tourism Leading County, and the Longsheng Scenic Spot, the National Agricultural Tourism Demonstration Spot. The Longji Ancient Zhuang Villages was categorized in National Ancient Villages List in 2008, and the Longji Terraces area was awarded Famous Villages (Towns) of National Characteristic Sightseeing Tourism in 2010. The Longji Terraces Area has been approved to be one of the key projects of the Midwestern Tourism Resources Development and Eco-Environment Protection by the State Government. The Guangxi Longsheng Longji Eco-Mesuem was chosen as one of the first batch of five National Eco(Community)-Museum Demonstration Spots by
the State Administration of Cultural Heritage in 2011. The Longji Terraces have become a living agri-folk-cultural museum.

The Longji Terraces Protection and Development Plan was approved by the People's Government of Longsheng County in May, 2014, and the Overall Plan of Guangxi Loangji Scenic Zone (2013-2030) and the General Plan of Leisure Agriculture and Rural Travel of Longsheng All-Ethnic Autonomous County (2014-2020) were completed at the same time. The Protection and Management Methods of the Longji Terraces of Longsheng County, Guangxi Zhuang Autonomous Region was stipulated and effected in August, 2013, for the purpose of effectively protect the Longji Terraces farming culture and terraces tourism resources, effectively protecting and reasonably exploiting the terraces resources, and promoting the coordinated development of local economy.

Guangxi Longsheng Longji Terraces were listed in the second NIAHS list in May, 2014, and the Longsheng All-Ethnic Autonomous County was rated as National Leisure Agriculture and Rural Tourism Demonstration County in December, 2014.

The Longsheng All-Ethnic Autonomous County was entered in the first batch of National Forestry Tourism Demonstration County at China Forestry Tourism Festival on October 10, 2015, the only one in Guangxi, and the Longsheng County was also listed as the China Forestry Oxygen Bar Unit.

The Symposium of Guangxi Longsheng: The Home of World Terraces was jointed hosted by the People's Government of Longsheng County and Guilin University of Science and Technology. The history, protection and development of the Longji Terraces had been delved into from the perspectives of archology, history, ethnology, landscape science, etc, by the 18 scholars from China Academy of Social Sciences, China Tourism Academy, Sichuan University, Huazhong Agricultural University, Nanjing Agricultural University, South China Normal University, Guilin University of Science and Technology and so on. And their achievements at the symposium were published after the event.
The experts verified and concluded that the Longsheng Terraces are large size and are the important agricultural heritage with world-class value of landscape. There are 18,158 hectors farmland in Longsheng, with 14,931.8 hectors of water-field among it. They are distributed in various towns between the altitudes of 200m-1,450m. The terraces with an inclination of 6° and above make up 96% ; those with an inclination of 15° and above, 80%; those with an inclination of 25° and above, 46.69%. There are 9 places of connected terraces of more than 100 hectors, with Sishui Connected Terraces Grand Canyon of 637.3 hectors, and the Longji Connected Terraces of 1,174 hectors. All those terraces have big vertical drops, and numerous steps, with the largest number of steps of 1,100, and the largest drop of 860 m among the connected terraces. The Longsheng Terraces are characterized by incomparable beauty of size, harmony, line arrangement, rhythm and fractal, they are the masterpiece of eco-wisdom and a model of man and heaven unity and they deserve the title of the Kingdom of Terraces.

According to the experts, the Loangsheng Terraces has a long history of agricultural production. From the angles of archology and historical studies, the primitive japonica rice had been grown in the Nanling Mountainous areas where Longsheng County is located 6,000-12,000 years ago, and they are one of the source-lands of cultivated rice in the world. Terraced farming had been formed in the Qin and Han Dynasties. The Longsheng Longji Terraces had been developed as massive projects in the Tang and Song Dynasties, and the existing scale had been
realized in the Ming and Qing Dynasties. So, the Longsheng Longji Terraces are at least 2,300 years old, and hence deserve the name of “Home of World Terrace Fields”.

The experts pointed out that the protection of the Longsheng Terraces is of great importance to the social-economic development of the Longsheng County. They appeal for strengthening the researches on terraced farming culture and terraces ecology, doing a good job in the protection of terrace ecology and culture, protecting the biodiversity of agro-system of the terraces areas, developing the Longsheng Terraces cultural and sightseeing heritage tourism to increase the farmers income, all for the purpose of sustaining the prestige and development of Longsheng Terraces for the future and for the benefit of the future generations.

5.3 Further Initiatives to Promote GIAHS

5.3.1 Implementing “Plan” Construction Project and Perfecting “Management Method”

The construction projects stipulated in the Guangxi Longji Terraces Agro-System Protection and Development Plan should be implemented with efficiency. Leadership should be strengthened, the favorable policies of land and taxing should be perfected and implemented, the social investments should be introduced in the above projects, the government financial input should be increased, and the construction projects in the "Plan" should be smoothly carried out.

The Protection and Management Methods of the Longji Terraces of Longsheng County, Guangxi Zhuang Autonomous Region is an important local government guarantee for the protection of Longji Terraces as a would-be GIAHS. And those methods must be improved. In the revised edition this time, the overall protection of the Longji Terraces Agro-System is enhanced.

5.3.2 Delving Deeply into the Traditional Agri-Production Technology of Longsheng Longji Terraces

The prevailing agricultural production mode is only a periodic product in the development of agriculture, without any systematic verification. Some of the existing modes also bring negative impact on the eco-environment while it boosts the
productivity. Some impacts have endangered the biodiversity and the human survival. And the reasonable center of the agricultural heritage that has lasted more than two thousand years merit our exploration, protection and improvement. The key point of the protection efforts should be to protect the traditional agricultural production practices and experience in the Longji Terraces Agro-System. As the core of the traditional agricultural production experience, the conception of unity of man and heaven and sustainable development is emphasized. Nature is exploited wisely on the basis of valuing it, so that the zero discharge to the nature is realized. Those traditional wisdom and experience have been preserved in the minds of those villagers of at least 70 years old, social group that should be the focus in our investigation and protection. They are too old to be postponed for interviews for oral histories for the existing knowledge. Oral history and multi-media methods can be employed to record the Longji Terrace farming techniques that have been inherited for the past two thousand years.

5.3.3 Reorganizing and Protecting the Seed Germplasm of Longji Terrace Crops

Some traditional rice varieties with local flavor have been preserved in the long history of rice cultivation in the Longji Terraces. However, they are named with different terms, and the traits of the species or varieties are not described in writing, to say nothing that some varieties are endangered. For example, among the Longji fragrant glutinous rice including red fragrant glutinous rice, tonghe glutinous rice and fragrant glutinous rice, which is the most fragrant? How to cultivate them so that they are more fragrant? Common names of glutinous rice are misleading, with homophones or homonyms. The tonghe glutinous rice also falls into many types, suitable to different conditions. All these questions need to be answered through identification, appraisal, testing, categorization, description of their traits and uses. Bleached round glutinous rice and home-grown tonghe glutinous rice are facing extinction. It is urgent to explore, select, strengthen and protect them.

5.3.4 Inheriting and Promoting Longsheng Longji Terraces Culture

The folk manners and ways of the Longji Terraces areas should be protected and transmitted so that the smooth application for the Longji Terraces as GIAHS can be
ensured. Folklores, folktales, ballads, religious rituals and other folk customs related to the terraces have been passed down through generations. Now, the Stilted Farmhouses of Zhuang People, North Zhuang Costume, North Zhuang Two-Part Melody Songs, Longji Zhuang Rice Culture and Longji Fermented Liquor have been enrolled in the List of Metropolitan Level Intangible Cultural Heritage. North Zhuang Costume has been categorized as Guangxi Intangible Culture Heritage, and the Longji Terraces Building Technique is being proposed for Province Level Intangible Cultural Heritage. The Longji Terraces and their intangible cultural heritage have been a composite part of the local people in their daily life and work. The Longji Terraces agricultural heritage festivals can be taken as most important cultural festivals, and themes related to the worshiping ritual of the Longji Terraces can be chosen as the themes for hosting cultural festivals. All those activities have their remarkable local characteristics, can better reflect the core value of the agricultural heritage, and can also serve as entertainments. The Longji Terraces Farming Culture Exhibition and Cultural Museum construction should be the key construction projects of agricultural heritage protection. Attempts should be made to systematically gather, re-edit the raw materials such as objects, photos, based on the history, development and traditional farming life, and ethnic culture features, to highlight the Longji Terraces agricultural heritage and awaken the people's awareness and cognition on the traditional agriculture.

5.3.5 Developing Important Tourism Products of GIAHS Zone

The development of the tourism resources of the Longji Terraces Agricultural Heritage based on its protection includes the construction of the key projects of major tourist sites, e.g. landmark scenery renovation, farmhouse repairs, and agricultural heritage landscape road-paving, tourists paths paving, and the service system in the scenic zone should be improved, in order to turn the site of the Longji Terraces Agricultural Heritage into a tourist zone with special flavor integrating the agricultural heritage experiencing, sightseeing, and folklore culture appreciation. The development and distribution of tourism products in the zone should be readjusted according to the trend of the local tourism. Several exquisite tourism products should
be completed, and the eco-environmental quality of the zone should be monitored and supervised, to realize the unity of development and protection.

5.3.6 Heigtening the Cognition of All Interested Parties on agricultural heritage

The protection of agricultural heritage is related to many interest groups and many academic disciplines, and involves the cooperation and participation of many parties. Among the interest groups, government departments, especially the agricultural departments play a crucial role. Agricultural departments should recognize the contribution of agricultural heritage to the agricultural modernization, eco-sustainable development as well as the new rural construction. Consensus should be reached at government levels regarding the feasibility and significance of the protection project of agricultural heritage to push a smooth implementation of the protection project. The agricultural departments at provincial and state levels' roles in the leadership and coordination of the project, research institutes' role in providing scientific support and local governments' role in operating the protection project should be given a full play. Researches, conferences and science popularization events should be hosted to raise the consciousness on the protection efforts, especially on the part of the local farmers.
6 Dynamic Protection Outline of Guangxi Longsheng Longji Terraces

6.1 Outline Compilation Basis

6.1.1 A Series of Policies Have Been Made for Protecting and Developing the Longsheng Longji Terraces

The People’s Government of Longsheng City, Guangxi Zhuang Autonomous Region pays great attention to the exploration of the value of the Longsheng Longji Terraces Agricultural Heritage, has enacted a series of policies and regulation and important measures, and makes attempt to make a proposal for the Global Important Agricultural Heritage. On the basis of a comprehensive survey and scientific analysis, the Protection and Development Plan for the Longsheng Longji Terraces Agricultural Heritage has been worked out, which is of great significance to promoting the sustainable management of the Longji Terraces, the protection of the biodiversity and the inheritance of cultural system of the Longji Terraces area, the guaranteeing of food provision and livelihood safety, and the sustainable social economic development. The Overall Plan of Guangxi Loangji Scenic Zone (2004-2020) (2004), The 12th Five-Year Plan of National Economy and Social Development of Longsheng All-Ethnic Autonomous County (2011), The 12th Five-Year Plan of Agriculture (Crop Cultivation) of Longsheng All-Ethnic Autonomous County (2011), The 12th Five-Year Plan of Forestry Development of Longsheng All-Ethnic Autonomous County (2011), The Management Methods of Terrace Cultivation and Maintenance of the Longji Terraces Scenic Zone (2013), and other related official documents have been formulated and implemented, all taking the Longji Terrace Agricultural Heritage protection and development into those government plans and regulations.

(1) Institutional Guarantee: First, a complete set of legal regulations have been enacted for the heritage protection. For the purpose of protection, Guangxi Guilin Longji Terraces Protection Management Regulations have been formulated, which provides a detailed requirement and control on the protection of the Longji Terrace Agricultural Heritage, and confirms the penalties on the damage actions on the
heritage, and hence the Longji Terrace Agricultural Heritage protection is legally warranted. Second, the favorable policies have also been made including financial input, land and tax policies. In the financial input policies, increasing input is performed by financial departments at all levels, the protection and development of the Longji Terraces are supported through interest subsidies, credit guarantee and assistance by financial departments, and emphasis is laid on the feature projects' reforming and upgrading and cultivating new projects. In the land policies, the paid time-limited land right circulation system for farmland and construction land is employed to provide the land resources necessary to the sustainable development of leisure agricultural travels. Within the contract term of land, farmers are encouraged to transfer their contracted land to the big specialized farmer and specialized cooperatives, and the reasonable use of vacant houses, homestead and collective construction use land for the leisure agriculture travel development is recognized. In the tax policies, tax cuts and exemption are adopted for the enterprises engaging in the projects of agricultural infrastructure construction, agricultural information service system development, agri-products development, agri-tourism, forestry tourism, holiday leisure, eco-tourism and other enterprises related to the integrated leisure agricultural resources development. Tax reduction system is pursued for common investment projects, and for those leisure agriculture projects with big investment, tax exemption is carried out for the investor for the first year, and tax reduction for the following years. Tax reduction is also pushed to all the residents engaging in tourism in the areas of the Longji Terrace Agricultural Heritage Demonstration, for the purpose of heritage protection.

(2) **Organizational Guarantee:** First, the Longji Terraces Management Organizations are established at county level, responsible comprehensively for the protection and exploitation of the terraces within the zone, and the relevant departments and township governments are also responsible for this endeavor in the function of their positions. Second, village-level organizations construction are also to be enhanced. The heritage site organization consisting of villager autonomous body, village committee and village farmers specialized collectives should be set up and the
local residents' enthusiasm and awareness are increased to realize the community collective management and ensure the smooth and effective performance of the heritage protection measures and policies. Finally, the information exchanges between functional department of governments, research institutes, universities, and local residents are to be enhanced to provide the information guarantee for the protection of the Longji Terraces Agricultural Heritage.

(3) **Technique Guarantee:** The standards of techniques for crop cultivation and animal husbandry in the Longji Terraces should be accomplished, and the production technique procedures and crop and animal breeding and raising codes should be enacted in accordance with the quality requirements of the relevant agri-products and the technical integration and demonstration of them should be conducted within the heritage protection zone. Scientific research on the heritage protection, especially comprehensive scientific surveys, should be conducted as a priority task of protection, on the Longji Terraces Agricultural Heritage, monitoring the Longji Terraces Resources status, collecting and editing the materials concerning the heritage, and exploring the reasonable protection measures. Now, the relevant researches have been conducted systematically such the investigation on the biodiversity of the heritage site, leisure agricultural tourism development potential prediction, etc. But efforts are to be made to further the researches in collaboration with domestic research institutes and universities to provide more foundations for the scientific protection of the heritage site.

(4) **Funding Guarantee:** Fund raising channels should be expanded the local governments at township and county levels to realize the pluralism in safeguarding fund input, and to provide sufficient funding to the protection. Part of funding support for the eco-products or characteristic industry in the state agricultural policies should be drawn for supplement. Besides, the financial departments of local governments can set up specialized fund for the protection and development of the Longji Terraces Agricultural Heritage, collect the social capitals of various sources, including the enterprises and farmers specialized collectives in the Longji Terraces areas. The supervision and inspection should be enhanced to guarantee the rationality, safety and
efficiency of fund use by the relevant government departments on regular basis.

6.1.2 Guiding Principles have been Defined for the Future Work

(1) Protection First and Exploitation Moderate. As a new kind of heritage, the agricultural heritage represents mainly the harmony and dynamic balance between the long-time human production, life and the nature, highlighting the co-survival of man and their environment and the sustainable development conception. The fact that the functions of the Longji agri-system has been maintained through its internal recycling mechanism under the condition of no agricultural chemicals used for the past 800 years and more, and has provided the Longji Terraces products that integrate the functions of staple food, fruits, medicinal herbs, ornamental use, environmental protection and so on is of great significance to the human food safety guarantee and sustainable agricultural development. At the same time, the conception of sustainable development contained in the Longji Terraces folk customs has enabled the Longji Terraces to be handed down from generations to generations. Therefore, in the protection and development of the Longji Terraces Heritage, the principle of "protection first and exploitation moderate" should be adhered, and through maintaining the completeness and stability of existing terraces, safeguarding the local folk ways and manners, and conserving entirely the forests, the tourism quality existing in the Longji Terraces Zone should be stabilized, and new scenic spots should be pioneered in the places where conditions are mature, in order to achieve the sustainable development of ecology, economics and society of the heritage site.

(2) Overall Protection and Coordinated Development. Agricultural heritage is a social-economic-natural complex eco-system, involving both tangible and intangible heritage qualities in terms of ecology, environment, landscape, culture and technology. The holistic consideration of the Longji’s complex eco-system is necessary for the Longji Terraces Heritage protection, and the development of the Longji Terraces Heritage also necessitates a holistic consideration of the Longji’s complex eco-system to achieve the balanced development of all its sub-systems.

(3) Dynamic Protection and Functional Development. Dynamic protection is a new protection method proposed in view of the dynamic factors contained agricultural
heritages, and hence is one of the strategic principles of GIAHS protection stipulated by FAO. Simply speaking, there should be no more close-ended protection of agricultural heritage, but new protecting channels should be explored in the development, and the core of dynamic protection is focusing protection in development and seeking development in protection.

The Longji Terraces is a kind of living, multi-functional agricultural production system, and its functions should be expanded on the basis of the dynamic protection of its agri-biodiversity and cultural diversity, to raise its system efficiency and adaptability to a higher level. Through conserving the existing water-source forests and landscape forests, restoring worshiping mountain gods and holy trees rituals at some scenic spots, the total optimization of the scenic zone functions can be realized and the traditional ethnic culture can better promoted.

(4) Muti-Party Participation and Interest Sharing. The agricultural heritage protection is preceded by muti-party participation and interest sharing, the interested parties of the agricultural heritage should be identified, the responsibilities and missions as well as the prospective interests in the protection should be defined, and an interest-sharing mechanism should be established to initiate the enthusiasm and guarantee the fair distribution of interests of all interested parties of the agricultural heritage. Muti-party participation and interest sharing serves as a guarantee principle for the protection of agricultural heritage. The protection and development of the Longji Terraces Agricultural Heritage involve many interested parties and require the active participation of all parties. For example, a virtuous circle of village business and terraces productions can be achieved via autonomous village administration with villagers' participation. The existing practice of “Happy Rural Inns” can be continued to let tourists eat and lodge in the villagers' families, so that both the initiatives of related parties and the incomes of terrace farmers are increased. Besides, a proportion of admission fees returning to the villagers can be adopted step by step to serve as incentive for the local farmers to stick to terrace farming.

6.1.3 Mult-Value of Guangxi Longsheng Longji Terraces Have Been Investigated

(1) Eco-Value. The Longji Terraces Agro-System has a high eco-value, which
includes: 1) Biodiversity protection: One of the important functions of the Longji Terraces area is to maintain the biodiversity through the protection of local rice varieties and the Longji Terraces’ eco-environment, especially through the local farmers' on the spot protection of crops’ genetic diversity. 2) Water and soil conservation: The climate type of the Longsheng Longji Terraces area is subtropical monsoon climate, with sufficient rainfall. Influenced by rainstorms and typhoons, the most serious disaster is mountain torrents, which would collapse the terraced fields, swamp the crops and erode the water and soils in the mountain land. The vegetation on both sides of the terraced fields are well preserved, and the evergreen forest vegetation such as arbors, bushes and grasses are distributed in the cubic climate formed at different elevations, following the various contours of the mountains, which is beneficial to the water and soil conservation. 3) Water Source Conservation: The vegetation is well preserved out of protecting the rocky mountains and water source forests, which have a strong power in refeeding water and soul and comforting the climate. Plentiful forests serve have guaranteed the consumption of water of terraced fields, man and animals. Rice terraces are a kind of man-made wetland. The rice farming in terraces will not cause water and soil erosion, on the contrary, the long-term water availability in terraces helps to improve the moistening effect on the environment. 4) Climate Regulation: There is an organic habitation of more than a thousand of plant species such as arbors, bushes, herbs, ferns and mosses in the Longji Terraces Forest Eco-System, and various microclimates have been formed by forests at different altitudes, influencing the surroundings. According to the statistics, the yearly average of temperature for many years in the Longji area is 17.1°C; the average temperature of the hottest month (July), 25.4°C; the average temperature of the coldest month (January), 7.1°C; the annual average sunshine duration, 1,223.3 hours; annual precipitation, 1,650 mm; relative humidity, 82%; frost-free season, 314 days. 5) Nutrient Recycle: In the exploitation of land resources, Zhuang, Yao and other peoples, out of adequate consideration of the natural geographical conditions, have treated the mountains into three sections: forests on the mountain top, villages on the mountain side and terraced fields on the sides of villages and at the foot of the
mountains. The climate on the sides of the mountains is mild, warm in winter and cool in summer, and hence is favorable for human settlement and dwelling in villages. Such a layout of the forests behind the villages to the tops of the mountains is beneficial to the conservation of water sources, and streams and springs in the mountains are supplied with water throughout the year, ensuing the human, animal and plant consumption and the irrigation of terraces. And the animals and plants in the forests can provide the meat and vegetable for people. Though some soil nutrition are taken away by the crops raised in the terraces, soil nutrition is also reinforced by some humus accumulated in the forests carried in the downstream water reinforces the soil, and the organic manurer built up from the feeding of cattle, horse, sheep, pig, chicken and other animals. The farming practice and experience with flexible adjustment to the different conditions and the technical system of cultivation of two-ploughing-three-harrowing system are well established. The latter system activates the soil and is conducive to the nutrition balance of the soil. Besides, the moderate application of fertilizers also improve the nutrient balance of the soil.

(2) Economic Value. The economy of the Longji Terraces area consists of agriculture as primary and forestry as secondary, with a slow development for a long time and hence a low income per capita. In 1993, the slogan of Poverty-Aid By Tourism was put forward by the Longsheng County, treating tourism industry as the pillar industry for the poverty-relief in Longji ever since. The local economy has been activated and sped up by tourism. The agri-product processing industry of the Longji Terraces areas mainly includes 7 tea processing factories, influencing the employment and income of over 5,000 people. The Heritage site constitutes the basis of livelihood of 14,000 people and the protection of the site has a direct impact on their lives and an indirect impact on the life of over 30,000 people of the nearby places including the Longji Town and the Lingsheng County-Town. The magnificent terraces, classical farmhouses, colorful folklores, fine environment, etc, all provide a favorable conditions for leisure agricultural tourism, conducive to the farmers' getting rich. Form the perspective of resource exploitation of the Longji Terraces area, at the opening of the Second Longji Terraces Festival in June, 2013, the Signing Ceremony
of Investment Promotion and Capital Introduction of Longsheng County was held, and six projects had been signed, with a total investment of 576 million yuan (RMB), relating to mineral production, forestry, tourism, etc. All of these will help optimizing and upgrading Longsheng industrial structure and lengthening its industrial chains.

(3) Social Value. Thanks to the agro-system resources diversity and biodiversity of the Longsheng Longji Terraces, the products produced or gathered from the natural resources maintain the basic livelihood of the Longji peoples. Multi-Ethnic groups of Zhuang, Yao, Dong and others live in compact communities in the Longji Terraces area. The same ethnic group share the same village, common beliefs, habits, customs, production modes and lifestyles, which is beneficial to the unity and harmony of all the members of the same village. In order to engage in the terrace production, all the villagers in the same village worship mountain god and holy trees, dredge the cannels, pave and repair roads, bringing to more harmony to the village. As each patch of terraces is a narrow belt, the traditional ways of cultivations are still preserved today, including the ways of father-son cultivation, brothers cultivation, married couples cultivation, the former way beneficial to the harmony of the big family, and the latter way, to the marital harmony, especially when the couple exchange the roles and positions in the ploughing, sex equality is highlighted. Family is a basic unit of labor, but for reclaiming the wild land, transplanting the seedlings, cutting crops, carrying wooden logs, etc, which involve a group labor, a turn-taking help system is adopted: the fellow villagers will volunteer to help, a turn-taking help equal to every villagers, with no need of pays, but only a dinner, and with no need of equal labor exchange. Therefore, the full development of the Longji Terraces Eco-Agriculture and its supplementary industries is a significant way of making fortune of local farmers, and also an ideal channel to upgrade the level of mountainous regional industries, and hence is beneficial to the new rural construction of the socialism.

(4) Cultural Value. The Longji Terraces have become a special cultural sign, recording the two thousand years of history. The mountain villagers of the Longji Terraces have formulated their common thinking and behavior patterns in accordance with traditions and experience, in the group activities, worshiping formalities and
festival. Through the transmission of the Longji Terrace Culture generation after generation, the historical and cultural memories involving kinship conceptions, spiritual beliefs, customs and habits are also absorbed into the terrace culture, the local history as well as social values are all engraved in the minds of all ethnic groups, and the social identity and cultural consciousness is thus bred intuitively. On this basis, the local kinship, villages and traditional livelihood centered around rice production are sustained and developed. All in all, the Longji terrace culture covers not only the rice-centered agricultural production and its related culture, but more importantly, the emotional sublimation and unique life significance derived from the rice culture soaked in every corner of the local social life.

(5) **Scientific Value.** With the social development, people's cognition on the Longji Terraces is not limited to the agricultural value, but is concerned with its scientific research value in the fields of environmental sciences, ecology, natural resources sciences, history, etc. especially in view of its diversified germplasm resources of plants and animals as a living specimen. Multi-Ploughing ways had been practiced since the Spring and Autumn Period and such traditional ways of cultivations are still preserved today, including the ways of father-son cultivation, brothers cultivation, married couples cultivation. The existing ploughing tools and ploughing scenes are conducive to better understanding and interpretation of the classics such as The Book of Songs and Zhou Li (The Rites of the Zhou Dynasty). Recent years have witnessed increasing academic interests in the Longji Terraces research: scholars conducted researches on the historical investigation, genetic resources, eco-functions, social structure, and economic status, with the academic scopes or perspectives of folk lore, history, anthropology, tourism studies, among others. The hottest issues are the Longji Terraces protection, the social historical transformation of the Longji people, the Longji tourism development, community participation, etc.

(6) **Demonstration Value.** The Longji Terraces are delicately designed, and in harmony with the surroundings, and show unique value in the aspects of biodiversity protection, soil and water conservation, water-head enrichment, climate regulation
and adaptation, pest and weed control, and nutrient recycling. Through the development of more than two thousands of years, the Longji Terraces area is eco-friendly, environmentally beautiful, and famous place of longevity, hence it has a significant role of demonstration.

(7) **Educational Value.** As the eco-civilization construction progresses, with the limitation of forest resources bearing capacity, the contradiction between the mountainous people’ relying on surrounding for livelihood” and environmental protection is becoming more and more acute, and how to achieve the harmonious development of man and nature on the limited land has become a problem. The development of the rice cultivation system as well as other related industries in the Longsheng Longji Terraces as Longji people’s main way to adapt to the rough environment of the mountains provides a new thinking path for the modern development. Moreover, there are a lot of mountain entry prohibitions for the protection of the forest in the Longji area, the worshiping rituals of mountains gods and holy trees and other folk customs, all of those respective behavior for the nature has deep implication for today’s environmental protection, hence its high educational value. There are also many ancient stone inscription tablets with important history value preserved in the ancient villages, e.g. the magistrate’s governmental notice and order stone inscriptions in the reign of emperor Qianlong in the ancient Zhuang villages have a long history and profound historical connotation, especially with deep anti-corruption significance.

(8) **Unique Value.** The Longji Terrace is a priceless legacy inherited from the forefathers of Zhuang and Yao peoples who applied the traditional Chinese philosophical conception of "unity of heaven and earth" together with their wisdom and talents to the mountainous areas to create wonders. As a “living specimen” representing, it shows how the ancients selected the fine seeds and used the agri-techniques, and is a fine eco-system of preventing the water and soil erosion, a mountain land use system with high economic value, and, more importantly, a model for the harmonious development of man and nature. Compared with the similar resources abroad, the Longji Terraces show a remarkable uniqueness and creativeness.
6.1.4 Protection Zone and Core Zone of the Longji Terraces Have Been Defined

The Longsheng Longji Terraces are built along the slope winding from the foot to the top of Longji Mountains located at N25°42'33" -25°50'15" E 110°04'06" -110°11'52" in the Longji Town, Longsheng All-Nationalities Autonomous County, Guangxi Zhuang Autonomous Region. In its broad sense, they can be called the Longsheng Longji Terraces. With convenient transportation, The Longsheng Longji Terraces are about 22 kilometres from the Longsheng County Town, about 80 kilometres from the Guilin City. According the statistics from the relevant department of the Longsheng County, there are about 14,931.8 hectares of terraces in Longsheng County, among which the Longsheng Longji Terraces covers an area of about 1,174 hectares, accounting for 6% of the total terraces. The Longji Mountain is named after its resemblance of dragon’s back. The left side of the mountain is the Sang River, and the right side, the Longji Terraces, cut by the early Zhuang and Yao people. The three main sections of the Longsheng Longji Terraces are Ping'an Zhuangzhai (Peace Zhuang Ethnic Village) Terraced Fields, Longji Guzhaungzhai (Dragon's Backbone Ancient Zhuang Ethnic Village) Terraced Fields, Jinkeng Hongyao (Gold Pit Red Jade) Terraced Fields, and they make up the core protection areas of GAIHS.

The Longji Terraces consist of seven administrative villages--Longji Village, Peace Village, Big Village, Small Village, Zhonglu Village, Mahai Village, Golden River Village, and part of Peace Village, Big Willow Village, White Stone Village, Yellow River Village and River Willow Village, with total area of 101 km². For boundary, see Fig. 2 Regional Composite Map of Guangxi Longji Terraces.

According to the agricultural heritage characteristics and the features of the Longji Terraces Agro-System Resources, and the requirement on the protection and development, the protective zone is subdivided into four functional zones: the Longji Terraces Landscape Protection Zone, the Longji Terraces Eco-Restoration Zone, the Longji Ancient Village Protection Zone and the Longji Sightseeing Travel Zone.

6.2 Further Initiatives to Promote GIAHS

The local governments have adopted a series of measures to promote the
protection and development of the Longji Terraces Agro-System, protection measures including: agri-eco protection, agricultural protection and agricultural landscape protection, and development measures including: eco-product development, leisure agricultural tourism development as well as cultivating the cultural consciousness. (See Table 2)
Table 1: Protection and Development Action Plan of the Longsheng Longji Terraces

<table>
<thead>
<tr>
<th>Content</th>
<th>Action Plan Keypoint</th>
<th>Responsible Department</th>
<th>Implement Time</th>
<th>Detailed Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germplasm survey and rescue</td>
<td></td>
<td>Forestry Bureau</td>
<td>2013-2022</td>
<td>1. Conduct surveys, categorize and number the plant germplasm of the Longji Terraces, gather detailed information, set up wild plant resource data bank. 2. Take prompt measures for serious drained, unbalanced growth, quantity shrinking germplasm to prevent the extinction of rare plant germplasm.</td>
</tr>
<tr>
<td>Strengthen agri-eco Protectio n</td>
<td>Survey and Restoration of Existing Water-Head Forest</td>
<td>Agricultural Bureau, Forestry Bureau</td>
<td>2013-2022</td>
<td>1. Investigate the existing water-head forests, analyze their functional status, put forward good measures, stipulate perfect water-head forest protective measures. 2. Choose suitable site to build small size reservoir, to ensure the terrace farming and residence water supply, and to improve the terrace production and sightseeing effect.</td>
</tr>
<tr>
<td></td>
<td>Survey on existing residential housing and need trend</td>
<td>Construction Bureau, Tourism Management Bureau</td>
<td>2013-2022</td>
<td>1. Survey on existing residential housing and need trend, set up residential housing development plan, standardize the building of residential houses. 2. Survey the flow rate of tourist, control the size of tourists, so as not to exceed the reception capacity of the scenic spot.</td>
</tr>
<tr>
<td></td>
<td>Household Refuse Treatment</td>
<td>Environmental Protection Bureau</td>
<td>2013-2022</td>
<td>Unified dumping and burying of household garbage in garbage treat site. Garbage collecting spots are set up for every 60 m service semi-diameter, sanitation workers are allocated, manures from</td>
</tr>
</tbody>
</table>
public toilets are uniformly via equipped drainage system.

Condition permitting, all the waste water of villages or towns in the protection zone are to be discharged to the waste water treating factory. When reaching the standard of water quality, the treated water can be used in irrigation, plant and animal breeding or even recycled for use. Other waster water that cannot be discharged to the waster water treatment factory is to be let off after it is treated in septic tank, biochemistry tank and bio-gas tank.

### Content

<table>
<thead>
<tr>
<th>Action Plan Keypoint</th>
<th>Responsible Department</th>
<th>Implement Time</th>
<th>Detailed Measures</th>
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<tbody>
<tr>
<td>Strength Survey and Gathering Agricultural Heritage in the Heritage Site</td>
<td>Broadcasting and TV Bureau, Cultural Bureau</td>
<td>2013-2015</td>
<td>1. Extensive survey should be conducted on traditional farming culture, folklore, folk artists, ethnic craftsmanship skills, folk custom, ethnic mountain songs and rhymes, folk proverbs, all kinds of ancient buildings, etc. 2. Their evolution history and changes should be described, for the purpose of better and further protection.</td>
</tr>
<tr>
<td>Offer the Longji Terrace cultural protection</td>
<td>Broadcasting and TV Bureau,</td>
<td>2016-2017</td>
<td>The Longji Terrace cultural training classes should be held on regular basis to deepen the understanding of agricultural heritage and its significance and enhance the pride and</td>
</tr>
</tbody>
</table>
1. Compile and publish the Longji Terrace cultural material with the Longji Zhuang Eco-Museum as a research institute. 2. The Longji Terrace Farming Cultural Exhibition and Cultural Museum should be set up. Cultural Plazas should be built in Big Village, Lingji Village and other villages. The antiphonal mountain folk song singing event should be resumed.
<table>
<thead>
<tr>
<th>Content</th>
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<tbody>
<tr>
<td>Basic Investigation and Protection Method Studies of the Longji Terraces</td>
</tr>
<tr>
<td>Strengthen</td>
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<tr>
<td>Landscap</td>
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<tr>
<td>Ancient Building Renovation and Village Outlook Remediation in the Heritage Site</td>
</tr>
<tr>
<td>Apply for the National Characteristic Landscape and Traditional Village</td>
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<td>Construction Bureau</td>
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<td>Construction Bureau</td>
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<td>Tourism Bureau</td>
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<tr>
<th>Implement Time</th>
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<tr>
<td>2013-2015</td>
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<td>2013-2022</td>
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<td>2013-2022</td>
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<tr>
<th>Detailed Measures</th>
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<tbody>
<tr>
<td>1. Conduct detailed survey on the use of the terraces within the protected zone, and set up landscape and buildings data-bank for analysis and appraisal. 2. Institutionalize the special department for monitoring and supervision. Set up the Research Center of the Longji Terraces and Ancient Building Protection, for conducting the proofing of the scenic spots and rural landscape protection.</td>
</tr>
<tr>
<td>1. Systematically conduct ancient building renovation and village outlook remediation in the heritage site, and the tourist reception facilities should be built in accordance with the standard, highlighting local styles. 2. Administrative method is used for strict control of the architecture style instead of at one own choice.</td>
</tr>
<tr>
<td>Apply for the National Characteristic Landscape and Traditional Village and further push the application of the Longji Terraces Characteristic Landscape and Ancient Village, both are used to promote the protection of the agricultural heritage.</td>
</tr>
<tr>
<td>Content Key point</td>
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<tr>
<td>Build Eco-Product Production Base</td>
</tr>
<tr>
<td>Develop Eco-Product</td>
</tr>
<tr>
<td>Build ecological brand</td>
</tr>
<tr>
<td>Push Product Advertising</td>
</tr>
</tbody>
</table>
Government, Relevant Enterprise
Agricultural Bureaus of Longsheng County and Local Towns,
Governments of Longsheng County and Local Towns, Relevant Enterprise and Research Institute

and carry out a multi-level advertising for the traits of the Longji eco-products. 2. Attend or host characteristic agri-products exhibitions to expand their fame and popularity.

Certificate Eco-Products' Quality

Found a certificating committee with UNFAO, State Ministry of Agriculture, Natural and Cultural Heritage Research Center of China Academy of Sciences each offering five members, stipulate standards for agricultural heritage brand and progressively realize the organic certification of the Longji Terrace eco-agricultural products.
<table>
<thead>
<tr>
<th>Content</th>
<th>Action Plan Keypoint</th>
<th>Responsible Department</th>
<th>Implement Time</th>
<th>Detailed Measures</th>
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</thead>
<tbody>
<tr>
<td>Tourism Resources Survey and Appraisal</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>2013-2015</td>
<td>Complete a renewed and comprehensive survey on the tourism resources within the zone of the Longji Terraces and produce a regional tourism resource databank.</td>
</tr>
<tr>
<td>Tourism Products Development Develop Leisure Agriculture</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>2013-2022</td>
<td>The spatial structure and its functional delineation of &quot;two-zone-one-belt&quot; of the Longji Terraces Scenic Zone play a role of guidance for the development of the scenic spot. So their resources features, product positioning and particular project design should be different.</td>
</tr>
<tr>
<td>Leisure Agricultural Travel Routes Design</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>2013-2022</td>
<td>On the basis of existing routes, with the consideration of characteristics of sustainable leisure agricultural heritage tourism, as well as the tourist need of eating, lodging, traveling, purchasing, entertaining, etc, give priority to leisure agricultural sightseeing, &quot;Happy Rural Inns&quot; and the like, and design more tourism routes to be built.</td>
</tr>
<tr>
<td>Base Installation Construction</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>Tourism Bureaus of Longsheng County and Local Towns</td>
<td>2013-2022</td>
<td>1. Planning the main roads in the Longji Terraces Scenic Zone. 2. Tourists foot paths in the Longji Terraces Scenic Zone. 3. Water supply and</td>
</tr>
</tbody>
</table>


<p>| and Local Towns | drainage projects. 4. Public parking lots construction |</p>
<table>
<thead>
<tr>
<th>Content</th>
<th>Action Plan Key point</th>
<th>Responsible Department</th>
<th>Implement Time</th>
<th>Detailed Measures</th>
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<tbody>
<tr>
<td>Cultivate Cultural Consciou...</td>
<td>Popular Science Readings</td>
<td>Educational Bureau</td>
<td>2013-2022</td>
<td>Readings for leaders, handbooks for farmers, textbooks for primary or secondary school, involving agricultural heritage in campus exhibitions or school opening ceremonies: all these vehicles or opportunities can be employed to enhance the local mass' pride and feeling for the Longji Terraces, and the recognition of the importance of protecting them.</td>
</tr>
<tr>
<td></td>
<td>Movie TV Advertising</td>
<td>Broadcasting and TV Bureau,</td>
<td>2013-2022</td>
<td>Invite the famous directors to produce the Video Program The Number One Terraces in the World: the Longji Terraces, Yesterday, Today and Tomorrow in different lengths suitable to be played in different situations, introducing the Longji Terraces Agricultural Heritage and the tourism development there.</td>
</tr>
<tr>
<td></td>
<td>Public Communication Through</td>
<td>Broadcasting and TV Bureau,</td>
<td>2013-2022</td>
<td>1. Publish books on the protection of the Longji Terraces Agricultural Heritage. 2. Invite famous writers, photographers, journalists to create essays, poetry, novels, photos on the protection of the Longji Terraces Agricultural Heritage.</td>
</tr>
<tr>
<td></td>
<td>Net Advertising</td>
<td>Local Government</td>
<td>2013-2022</td>
<td>While using the traditional media like newspaper, broadcasting and</td>
</tr>
</tbody>
</table>
TV, resort to the Internet and auto-media such as micro-blog and micro-movies, so that the Longsheng Longji Terraces Agro-System can be popularized in more vivid color and close to life.

Based on the frequency needed for publicizing, attend, host or sponsor the academic activities and cultural and sports events, such as photography exhibition, and essay competitions.

<table>
<thead>
<tr>
<th>Holding Events</th>
<th>Local Government</th>
<th>2013-2022</th>
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<tbody>
<tr>
<td>Farmers Training in the Heritage Site</td>
<td>Governments of Longsheng County and Local Towns, Relevant Enterprise and Research Institute</td>
<td>2013-2022</td>
</tr>
<tr>
<td>Improve Management Capacity</td>
<td>Governments of Longsheng County and Local Towns, Relevant Enterprise and Research Institute</td>
<td></td>
</tr>
<tr>
<td>Talents Term Construction</td>
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</table>

Farmers training in the heritage site is an important measure of protection, and the farmers' participation in the protection is also a key link. An economic compensation system should be enacted to encourage more residents in the protected zone to engage in bio-products development and join the protection team of the Longji Terraces.

Give full play to the leading role of core farmers in their influence on other farmers, cultivate the farm technician’s service awareness, build up a farmer-centered extension concept. Grasp the elementary skills of interactional training, stick to the principle of combining training and introduction, exploit the function of research term in ensuring the technique’s advance level and practical value. Improve the brand consciousness and management skills of the major readers and the
Encourage the relevant government departments to cooperate with research institutes and universities. Popularize the existing research achievement and new techniques, draw on the advanced technique from other industries, found a specialized breeding basis to purify and strengthen the varieties of crops and provide fine seeds or seedlings for the protected zone. Offer technique guidance to the farmers in the zone, popularize planting experience, upgrade the technique level of individual farmers to a higher level. Build a specialized term for the protection of the Longji Terraces Agricultural Heritage.

Absorb social capitals and expand the fund input. Make and implement funding support policies, found the Fund Committee for Guangxi Longsheng Longji Terraces Protection and Development. A certain proportion of development funding should be allocated.

Introduce the modern high-tech, and monitor and supervise real-time the Longji Terraces management. Set up a digital management system to
| Terraces and Local Towns, Research Institute | be applied to all the relevant functional department, found a police station in the Longji scenic spot, responsible for the local security. |
6.3 Strategies to Cope With Threats and Challenges

6.3.1 Strategies to Check the Drain of Fine Germplasm

Surveys and rescues should be conducted on the ancient tree and other plant germplasm resources in the Longji Terraces area, the germplasm bank of the Longji Terraces and the germplasm restoration and protection planting zone of the Longji Terraces should be both set up. Surveys and restoration should be implemented on the existing water-head forests, suitable sites should be chosen to build small size reservoirs to improve the terrace farming efficiency and satisfy the farmers water need. The residential houses should be built on standardized basis to safeguard the terraces, tourist amount should be controlled not to exceed the reception capacity. refuse recycling facilities should be installed to centralize the waste treatment, to keep the destructive effect on the environment to the minimum, and to promote the restoration of eco-environment.

6.3.2 Strategies to Deal With the Labor Shortage

A complete system of agricultural technique extension and training should be set up to train a specialized service team of agricultural techniques, to upgrade the quality of agricultural technique extension teams and innovate the methods of extension to improve the agricultural production efficiency. An economic compensation system should be enacted to encourage more residents in the protected zone to engage in bio-products development and join the protection team of the Longji Terraces. Tourism talents training should be enhanced to form a professional system with three levels administration, enterprise management and professional service. The income of local farmers should be increased. The development fund for the Longji Terrace and its related industries should be instituted to reward those units or individuals who have made remarkable contribution to the tourism development, brand management, technique extension and innovation and the protection of the heritage site.

6.3.3 Strategies to Reverse the Weakening of Traditional Conception by Modern Civilization

Extensive survey should be conducted on traditional farming culture, folklore, folk artists, ethnic craftsmanship skills, folk custom, ethnic mountain songs and rhymes, folk
proverbs, all kinds of ancient buildings, etc. and their evolution history and changes should be described. The Longji Terrace cultural training classes should be held on regular basis to deepen the understanding of agricultural heritage and its significance and enhance the pride and consciousness of protecting it. The Longji Terrace Farming Cultural Exhibition and Cultural Museum should be set up. Cultural Plazas should be built in Big Village, Lingji Village and other villages. The antiphonal mountain folk song singing event should be resumed, and the traditional mass rituals or worshiping like offering sacrifice to mountain gods should be restored. Leisure agricultural and rural tourism should be promoted so that the wisdom of primitives and the ethnic groups culture can be felt by the modern people in our efforts at the dissemination and transmission of the traditional characteristic culture.

6.4 How to Obtain and Use Funding

6.4.1 Widen Fund Channels, and Realize the Pluralism in Safeguarding Fund Input

In order to obtain sufficient protection funding for the protection of the Longji Terraces Agricultural Heritage, the governments of local towns and counties are to widen the protection funding sources, and set up a multi-channel fund raising. Part of funding support for the eco-products or characteristic industry in the state agricultural policies should be drawn for supplement. Besides, the financial departments of local governments can set up specialized fund for the protection and development of the Longji Terraces Agricultural Heritage, collect the social capitals of various sources, including the enterprises and farmers specialized collectives in the Longji Terraces areas.

6.4.2 Enhance Supervision and Inspection, and Guarantee the Rationality of Fund Use

The supervision and inspection should be enhanced to guarantee the rationality, safety and efficiency of fund use by the relevant government departments on regular basis. First, the fund use status of major projects should be inspected. Second, the implementation of project construction and construction quality contract, the performance of the responsibilities of relevant departments and units, and construction progress and quality should be all inspected. Third, the rectification measures should be checked, and the serious violation of regulations, if not properly corrected or treated, should be handed over
the government department concerned to get solution within deadline. Fourth, the breaking of laws or regulations should be investigated. In order to ensure the reasonable use of the fund, the eco-environment should also be examined to guarantee the smooth implementation of the eco-compensation.

6.5 Organizational Construction at Different Levels

Strengthening the organizational construction at different levels is vital to the protection of the Longji Terraces Agricultural Heritage. The purpose of organizational system construction is to enable the agricultural heritage managers to have a clear conception on the protection and development of the Longji Terraces Agricultural Heritage, so that they provide systematic guidance to the grass-root managers. In making the related policies, the views of the farmers in the protection site should be collected, and the policies should be readjusted dynamically in accordance with the actual situation of the farmers and the local communities.

First, the Longji Terraces Management Organizations are to be established at county level, responsible comprehensively for the protection and exploitation of the terraces within the zone, and the relevant departments and township governments are also responsible for this endeavor in the function of their positions, e.g. Land Resources, Environmental Protection, Housing and Urban-Rural Construction, Transportation, Agriculture, Forestry, Water Resources, Culture, Tourism, Ethnic Affairs, Religion Affairs, Civil Affairs, etc.

Second, village-level organizations construction is also to be enhanced. The heritage site organization consisting of villager autonomous body, village committee and village farmers specialized collectives should be set up and the local residents’ enthusiasm and awareness are increased to realize the community collective management and ensure the smooth and effective performance of the heritage protection measures and policies.

Finally, the information exchanges between functional department of governments, research institutes, universities, and local residents are to be enhanced to provide the information guarantee for the protection of the Longji Terraces Agricultural Heritage.
Appendixes

Fig 1: District Map of Longsheng Longji Terraces
Fig 2: Geographical Composition of Longsheng Longji Terraces
Fig 3: Unit Distribution Map of Longsheng Longji Terraces Natural Landscape
Fig 4: Functional Distribution Map
Fig 5: Agricultural Protection Layout Map
Fig 6: Leisure Agricultural Development Layout Map
7: National First/Second Class Protected Plants and Animals in Guangxi Longsheng Longji Terraces:

National First/Second Class Protected Plants, P. R. China

2 Species of National First Class Protected Trees
   Taxus wallichiana var. mairei
   Metasequoia glyptostroboides Hu et Cheng

6 Species of National Second Class Protected Trees
   Alsophila spinulosa
   Ginkgo biloba L
   Eucommia ulmoides Oliv
   Fokienia hodginsii (Dunn) Henry et Thomas
   Cinnamomum camphora (L. ) presl.
   Phoebe bournei

National First/Second Class Protected Animals, P. R. China

2 Species of National First Class Protected Animals
   Python molurus
   Moschus berezovskii

29 Species of National Second Class Protected Animals
   Syrmaticus ellioti
   Andrias davidianus
   Echinotriton asperrimus
   Hoplobatrachus chinensis
   Geoemyda spengleri
   Aviceda leuphotes
   Milvus migrans
   Spilornis cheela
   Accipiter soloensis
   Accipiter virgatus
   Accipiter nisus
Falco tinnunculus
Falco subbuteo
Tragopan temminckii
Pucrasia macrolopha
Lophura nycthemera
Chrysolophus pictus
Centropus sinensis
Centropus bengalensis
Tyto longimembris
Glaucidium cuculoides
Macaca mulatta mulatta
Macaca arctoides
Macaca thibetana
Lutra lutra
Viverra zibetha
Viverricula indica pallida
Prionodon pardicolor
Capricornis milneedwardsii