

# Study on Protective Development of the Linpan on Western Sichuan Plain

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## ABSTRACT

Western Sichuan Linpan originated from the ancient Shu civilization period and formed in the immigration history period. It has a long history and culture and is the crystallization of the farming culture in Western Sichuan. The article analyzes the composition of the Western Sichuan Linpan, interprets the house, water, forest, and field, analyzes the four main types of the Western Sichuan Linpan, describes the status quo of each type of Linpan, and proposes measures to protect and renew each type of Linpan. The article also exemplifies the protective development of various types of Linpan, aiming to summarize some experience for the protective development of Linpan in Western Sichuan, maximize the value of Linpan and achieve sustainable development.

**Keywords:** Linpan, Protection, Development.

## 1. INTRODUCTION

Western Sichuan Linpan is also abbreviated as "Linpan", and some are even more abbreviated as "Lin". Most of the settlement units are surnames or clan. It is a rural composite life form in which production, life, ecology, and landscape are integrated into an organic whole. Linpan is widely distributed in the southwest of Sichuan, typical of Chengdu Plain Linpan. It is mainly distributed in the second and third circle layers of Chengdu, including Longquan, Pixian, Wenjiang, Shuangliu, Xindu, Xinjin, Pujiang, Qionglai, Dayi, Chongzhou, Dujiangyan, Pengzhou, Qingbaijiang, Jintang and other places. [1]

Most of the forests in western Sichuan are scattered along the fields, with large scattered and small gatherings in a decentralized layout. They are typical natural villages in form. The number of households in different forests is not the same, the small ones are a few, a dozen, or even one, and the large ones are dozens or hundreds.

## 2. COMPOSITION OF WESTERN SICHUAN LINPAN

Western Sichuan Linpan is usually composed of houses, water, forests, and fields, supplemented by various construction facilities and infrastructure.

House: mainly includes the houses of Linpan. The house is a residential building in Linpan. Its architectural style is mainly traditional Western Sichuan houses with white walls and blue tiles. The scale and layout are determined by the size of the homestead, the amount of funds and the actual needs of the residents. There are mainly four basic forms of architectural layout: "—" shape, "L" shape, triple courtyard, and quadrangle courtyard, which can also be used to form a variety of combinations. Linpan buildings are mostly self-built houses of ordinary farmers, and the scale is small and medium. The building structure was mostly thatched huts in the early years. In the later period, the column and tie wooden construction was transformed into a brick-concrete structure with the transformation of rural houses. The number of floors is mainly small blue tiled bungalows and buildings with one to three floors. The building facade decoration elements such as doors, windows, roof ridges, and columns are rich

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in the elements of Western Sichuan residential houses. The courtyard is a courtyard dam, which is a necessary place for farmers to live and produce. Generally, residential buildings and courtyard dams are connected together. The courtyard dams are mostly grain drying, which are divided into open type and enclosed type. The open type is bounded by courtyard walls, roads, fields, forests, water, etc., and the enclosed type is limited by courtyard walls, fences, etc., or surrounded by buildings on all sides to form an inner courtyard and patio. [2]

**Water:** The Western Sichuan Plain is rich in water resources, thanks to the Dujiangyan Water Conservancy Project. The Western Sichuan Plain has a well-developed water system, including the Minjiang River and Tuojiang River, Jianjiang River, Shiting River, Wenjing River, and Xiejiang River tributaries of the Yangtze River. The Linpan is born of water. Without water, the vitality and vitality of the Linpan cannot be displayed. The water system of Linpan mainly includes irrigation canals, streams, weir ponds, and water wells, which constitute a pastoral picture of small bridges and flowing water. There are usually irrigation ditches or streams around the Linpan. Farmers use this water to irrigate their fields. When they were not polluted in the early years, they often used it to wash vegetables and wash clothes. It is an important water source for life and production in the Linpan. The number of weir ponds is also more,

which is more used for raising waterfowl, fish, lotus, etc. Irrigation canal systems usually have four levels of fixed channels: agricultural canals, main canals, branch canals, and bucket canals. The canals are two or three meters or tens of centimeters in width. The canal bodies were mostly naturally formed earth ditches, but now they are mainly made of concrete masonry. The creek is basically a natural form, surrounded by houses and roads. Water wells are the product of people's struggle with nature, and they are also a common method of using groundwater in Linpan in the early years, which freed farmers from dependence on surface water and used them as sources of drinking water. There are usually public wells in Linpan, and farmers' households also dig wells themselves. At the end of the 20th century, shallow groundwater was contaminated. Farmers could only use steel pipe wells to draw water, use electromechanical pumping, build water towers or arrange water tanks at high places, and lay pipes to facilitate water collection at any time. Up to now, most of the Linpan water infrastructure can foster user acceptance. [2]

**Forest:** Forest hides the house layer by layer, opens to the inside and hides it from the outside. It can also form a beneficial microclimate, which is a natural barrier. Linpan in Western Sichuan are rich in vegetation resources, mainly bamboo forests, trees, shrubs, herbs, etc., among which lush bamboo forests and trees are the main ones, and shrubs and herbs are supplemented. The bamboo forest is a characteristic landscape of the Linpan in Western Sichuan and is also a symbolic planting plant in the Linpan. It is closely related to the production and life of farmers. The courtyard is in the forest and the forest is in the field. Where there is Linpan, there is a bamboo forest. Bamboo is a sustainable plant with strong adaptability, convenient planting, high yield, good economic and ecological benefits, and bamboo forests have a wide range of uses, occupying a dominant position in the Western Sichuan Linpan. The main types of bamboo are *sinocalamus affinis*, *bambusa multiplex*, moso bamboo, mottled bamboo, *phyllostachys viridis*, bitter bamboo, etc., among which *sinocalamus affinis* is the most common. Arbors are mostly mixed planting of evergreen and deciduous trees, generally towering, mainly including *metasequoia*, eucalyptus, camphor, willow, sycamore, cypress, saponaria, alder, ginkgo, etc. In recent years, the status of bamboo forests in farm life and production has been weakened. Many farmers cut down bamboo forests and plant fruit trees and seedlings that they believe are more economical, such as peaches, oranges, loquats, grapefruits, grapes, pears, ginkgo, begonia, *osmanthus* etc., tending to be instant. [2]

**Field:** Field is the working place of farmers, mainly composed of cultivated land. The crops in the Chengdu Plain are mainly rapeseed, rice, and wheat, and rice-canola and rice-wheat rotations are used. As the seasons change, the crops constitute a large-scale farming landscape dominated by yellow and green. With the adjustment of the industrial structure, some cash crops have been planted, such as vegetables, fruits, tea, flowers and so on. Since ancient times, farmers in China have used open land to grow vegetables and fruits. "Chengdu General View" contains: During the late Qing Dynasty, there were 78 kinds of vegetables in Chengdu, of which green onion, celery, spinach, white, leeks and other vegetables were available in all seasons. "Sichuan Vegetable Varieties" contains: In 1982, there were 367 kinds of vegetables in Chengdu. [3] Linpan is known for the custom of planting fruits. Many of them are grown in front of houses, inside and outside the yard and dams, and a

few are grown on barren slopes, field ridges, and furrow ridges. Some are planted in pieces, some are scattered, and some are interplanted with vegetables and flowers. There are many varieties of fruit trees, among which traditional citrus fruits, pears, peaches, pomegranates, loquats, persimmons, etc. are the most common, and have gradually formed a fruit industry base. Chengdu has always been called "the city of flowers", and flower cultivation has a long history. During the Republic of China, some farmers used their own land to build small flower gardens. The main flowers were hibiscus, rose, bougainvillea, osmanthus, winter plum, etc., as well as bonsai and potted flowers. In 1984, there were more than 3,000 flower growers in Wenjiang District, covering an area of more than 4,700 mu.

There are also other facilities: such as milling houses, breeding houses, handicraft production houses, agricultural and sideline products processing houses and other productive houses, the village-level cement roads, earth-rock roads, ridge roads, mountain paths and other roads mostly parallel to the water system, public sacred buildings such as ancestral halls, temples, temples, etc., sluices, diversion culverts, bridges, stepping steps, terraces, washing stand, new year pig stand, water tower, grape racks, drying racks, straw piles, firewood stacks, fences, hedges, bamboo fences and other facilities.

### **3. THE MAIN TYPES OF WESTERN SICHUAN LINPAN**

#### ***3.1 Farming Type Linpan***

Farming type Linpan is dominated by agricultural production and is the main type of Linpan in Western Sichuan. Such Linpan is coordinated with dense forests and vast fields. It is the place for farmers to engage in production and life. They have continued the planting tradition for thousands of years. They mainly plant rice, rape, wheat and other crops. They are currently divided into production and sightseeing type.

#### ***3.2 Farm Tourism Type Linpan***

Most of the rural tourism forests are located in the suburbs of cities, near historical sites, and along the banks of the river. Relying on farming culture, the advantages of large forests, good ecological environment, well-preserved traditional buildings, and convenient transportation are used to develop rural tourism and farm stays. Catering and other

services, while meeting the production and living needs of farmers, this style of Linpan can provide urban residents with vacation, sightseeing, and entertainment venues, promote the development of Linpan tourism, expand farmers' sources of income, and generate income for farmers.

#### ***3.3 Special Industry Type Linpan***

The form of special industrial Linpan may not be fully preserved, and even the form of Linpan has been damaged to varying degrees. At the same time, it already has certain special traditional industries, mainly including economic forest and fruit planting, poultry and livestock breeding, etc. In addition to the corresponding economic benefits of these special industries, their tourism value is also extremely high.

#### ***3.4 Ecology Style Linpan***

Most of the ecological Linpan are hollow Linpan, which have basically lost their residential functions with the relocation of farmers. However, they are rich in vegetation resources and has a good ecological environment, or the water system is developed and has abundant water resources. Natural rivers and artificial ditches form some wetlands that connect between land and water, which can exert great ecological value.

### **4. A CASE STUDY OF PROTECTIVE DEVELOPMENT OF LINPAN IN WESTERN SICHUAN**

#### ***4.1 Farming Type Linpan***

The purpose of protecting and renewing such forests is to build a good ecological environment and inherit the history and culture of the Linpan of Western Sichuan, protect the traditional buildings of Western Sichuan residential buildings, optimize the ecological environment and infrastructure, and meet the production and life needs of farmers. Large areas of contiguous crops constitute different shapes and colors, fully embodying the vigorous vitality of crops. Like a natural and beautiful rural pastoral picture, local people can create an environmental landscape of Linpan in Western Sichuan that is compatible with the vast farmland, for people to conduct agricultural sightseeing and inspections, and to serve the development of agricultural modernization.

Wanchun Town is located in Wenjiang District, Chengdu. It has an ancient Shu Yufu culture with a history of more than 4,000 years. There are countless Linpan in Western Sichuan. Among them, the Zhoujia yard in Helin Village is an farming style Linpan. Wanchun Town and Helin Village adopt the construction model of "featured village + Linpan + scenic spot", implement the protective development of Linpan in Western Sichuan, protect native tree species, ancient and famous trees and bamboo forest. Based on the ancient Shu Yufu farming culture, through the renovation and transformation of the courtyard and the environment, hardening roads, changing toilets, sewage treatment facilities, garbage classification, it can develop green ecology, promote standard planting and integrate into creative culture, etc., to create a modern agricultural boutique park that integrates agricultural sightseeing, farm life experience, agricultural production experience, and the inheritance of farming culture. Combining with the "hometown and forest", it is necessary to plan the activities of "Opening the Rice Seedling Door" and "New Rice Appreciation" to enhance the influence of products such as "Helin Rice Fragrant Rice" and promote the integrated development of the agriculture and tourism industry. [4]

#### **4.2 Farm Tourism Type Linpan**

The prospects for the development of this kind of Linpan are good. The protection and renewal of this kind of Linpan needs to strengthen the environmental spatial landscape, create a unique garden landscape, create a characteristic rural tourism environment, build homestays, attract tourists to travel here, and can retain tourists to stay in homestays, which can meet the needs of rural tourism and farm stays.

Xingfu Village, Wanchun Town, adopts the construction model of "characteristic village + Linpan + scenic spot" to protect the ecological environment, protect the natural environment, deeply excavate the ecological value of the original forest floor, pastoral, flowers and trees, water system, etc., and renovate the rural residential environment, improve infrastructure, catering service facilities, and improve reception capabilities, so as to create a happy pastoral that integrates leisure tourism, agricultural tourism consumption, medical care and health, etc. The village introduces train-themed cultural experience parks, rural hotels, characteristic homestays, health care, plan wetland tours, farming experiences,

travel souvenirs, outdoor development, and establishes a cooperative operation model of "collective economic organizations + enterprises + universities + farmers" to promote agriculture Integrated development of business, culture, tourism and sports. [5]

#### **4.3 Special Industry Type Linpan**

Such Linpan is mainly functional production Linpan. The protection and renewal of this type of Linpan is mainly to use the surrounding large areas of fields and develop related characteristic industries based on the existing traditional industries, such as greenhouse vegetables, flower gardens, nurseries, small courtyard processing plants and other characteristic economy, and create a comprehensive agricultural ecological landscape to promote the development of tourism.

The Sichuan-style Bonsai Town, Xianfeng Village, Wanchun Town, is dominated by the flower and tree industry, which is a typical special industrial Linpan. Pioneer bonsai originated in the late 1960s. It is a garden landscape displayed in vessels such as plants and rocks. Its production skills are also passed on from generation to generation. Sichuan-style Bonsai Town adopts the construction model of "characteristic village + Linpan + industrial park", which vigorously develops traditional industries, changes the planting form of bonsai, implements standardized planting, large-scale display, landscape layout, base construction, and taps the advantageous industries of bonsai to carry out cultural and agricultural innovation research and development, and connect with the green road, attract visitors into the park, and create a Sichuan-style bonsai characteristic demonstration park integrating leisure and sightseeing, bonsai display, and sales. It is necessary to rebuild the "Jishan Bridge" and build the Songjiahe Bay folklore and custom corridor to promote the integration and development of agriculture, commerce, culture, tourism and sports. [6]

#### **4.4 Ecology Style Linpan**

The purpose of protecting and renewing such forest trays is mainly to maintain a good ecological environment. For Linpan with abundant vegetation resources, vegetation species can be changed on the basis of existing vegetation resources, and species with higher ecological effects can be added, while using vegetation resources to create suitable

landscapes and facilities; for Linpan with abundant water resources, the waters cannot be landfilled at will. The diversion of water resources can be rationally planned, the wetland landscape can be created, the productivity of crops can be improved, and people can be provided with a place for leisure and vacation.

Qimu River Ecological Wetland Park is located in Chongzhou, Chengdu, which belongs to the ecological forest. The Qimu River Ecological Wetland was originally composed of Qimu River, old river channels, fish ponds, low-lying land, and original vegetation. From the perspective of respecting natural ecology, build water areas, water systems, water networks, etc., the park aims to build natural landscapes and ecological resources that "share water parks, coexist with forests and fields, and resonate between humans and birds", Create an ecological wetland that integrates happiness, leisure, health care, and ecological diversity, and maintain a good ecological environment. It is a must to improve the quality of the wetland water environment through water pollution control projects, use "surface flow + undercurrent + vertical flow + lake area" for governance and ecological restoration, and create a rural tourism route with cultural characteristics of the Linpan region in Western Sichuan with the "most beautiful rural wetland", "healthy food land" and other rural product systems. [7]

## 5. CONCLUSION

Linpan in Western Sichuan is a heritage of farming culture. It is a village with production, life, landscape, and ecology at the same time. It is representative and a practice of human settlement environment construction. It has far-reaching residential value, aesthetic value, ecological value, and humanistic value. However, with the development of urbanization, the Western Sichuan Linpan is gradually disappearing, and the Linpan culture is also disappearing. It is necessary to fully understand the current difficulties and opportunities of the Western Sichuan Linpan, and carry out targeted protection and reasonable development of different types of Western Sichuan Linpan, to better display the value of forest pans, promote its sustainable development, sum up some experience for the protective development of Linpan in western Sichuan, and provide some ideas for the construction of new rural areas.

## AUTHORS' CONTRIBUTIONS

Jing Wang wrote the manuscript, Zhenyu Zhou contributed to revising.

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