

# The Eco-environmental Planning Exploration of the New Countryside in the Hilly Area of Sichuan based on the Coordinated Urban and Rural Development

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**Abstract**—The ecological environment in the hilly area of Sichuan is the important resource of the new countryside construction in this region. Under the guidance of the new requirements on the new countryside construction proposed by the coordinated urban and rural development, the protection and rational utilization of the ecological environment is summarized be to an important way to solve the eco-environmental planning of the new countryside. Relying on the idea of coordinating the urban and rural development, this paper makes an analysis on the relationship between the eco-environmental planning and development of the new rural countryside and proposes the practical suggestions according to the eco-environmental characteristics of the hilly area in Sichuan.

**Keywords**—hilly area of sichuan; coordinated urban and rural development; ecological environment; new countryside

## I. INTRODUCTION

New countryside planning is a great historical task in the process of our modernization drive. The proposal of “coordinating the urban and rural development” promotes the new rural construction and development, which does not only change the long-form traditional development idea of the dual structure in both urban and rural areas [1], but also brings the new countryside construction into a certain urban and rural range to gradually narrow the gap between the urban and rural development through integration planning of urban and rural areas as well as coordinative development and implementing the planning of the ecological construction of large areas.

Sichuan area has a significant influence and plays a leading role in the central and western regions of China. Its new countryside construction is fast progressed according to the local conditions and it highlights the characteristics. The hilly area of Sichuan in particular has a vast area, ranking the second place among four landscape types in Sichuan (mountain, hill, plain and plateaus). With the centralized population distribution, it’s the main farming area. In the process of pushing the eco-environmental construction in the new countryside with the sustainable development as the precondition, the new countryside construction in the hilly area of Sichuan is very typical and its research results have extensive application value.

## II. ADVANCEMENT OF THE COORDINATED URBAN AND RURAL DEVELOPMENT IN THE ECO-ENVIRONMENTAL PLANNING OF THE NEW COUNTRYSIDE

The proposal of the concept of “coordinating the urban and rural development” has experienced a long development period. With the constant improvement of the urbanization rate, the countryside is gradually constructed to be the cities. The traditional dual structure of urban and rural development can not adapt to the development of the new relationship between urban and rural areas [3]. Coordinating the urban and rural development is to play the radiating and leading role of the cities to the countryside and establish the long-term effective mechanism of promoting agriculture by industry and driving countryside by city to promote the coordinated development between urban and rural areas. In the eco-environmental construction of the new countryside, the more important thing is to constantly enrich and update the theoretical research and policy, as shown in Fig.1:

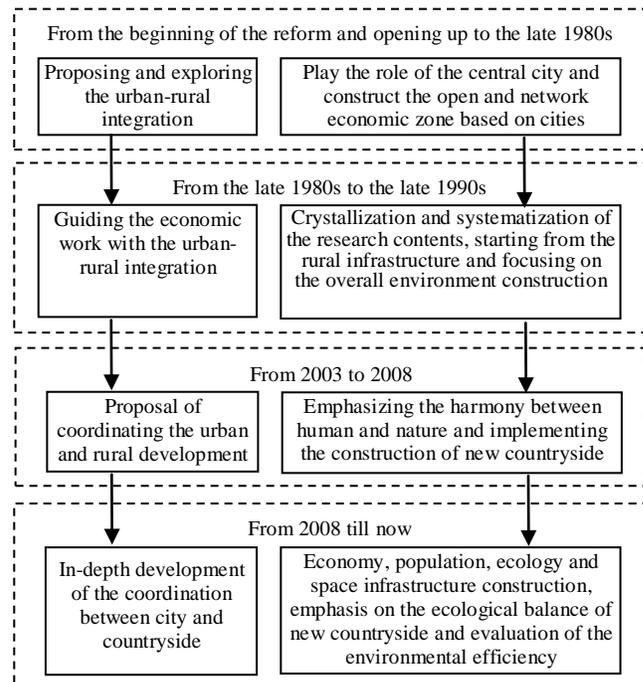


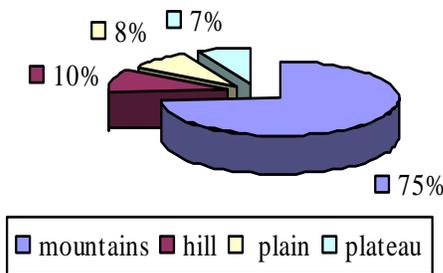
Figure 1. Development of the Coordinated Urban and Rural Development

Thus, with the deepening of the new countryside construction, the concept of regional sustainable development has gradually affected many aspects of the planning and construction of the new rural villages.

### III. THE INFLUENCE OF THE ECOLOGICAL ENVIRONMENT IN THE HILLY AREA OF SICHUAN ON THE PLANNING OF THE NEW COUNTRYSIDE

#### A. General Introduction of the Hilly Area in Sichuan

As a big province in agriculture, Sichuan is one of 13 major grain producing areas in China. The main agricultural areas there are concentrated in the hilly area which accounts for 10.3% of the types of landforms in Sichuan [5], as shown in figure 2. The hilly area includes 68 counties (cities, districts), accounting for 38% of the total in the province. Among them, 21 counties have a population of more than one million, whose area under jurisdiction is 89,000 square kilometers, accounting for 18.2% of the total in the province. The cultivated land is 2.29 million hectares, accounting for 58.7% of the total area in the province [6]. The development of modern agriculture in the hilly area of Sichuan directly affects that of the whole area.



(The chart is drawn according to the general introduction of Sichuan released on the website of the People's Government of Sichuan Province)

Figure 2. Proportions of Different Types of Landforms in Sichuan

#### B. Characteristics of the Ecological Environment in the Hilly Area of Sichuan

- Good natural conditions: the hilly area is concentrated at the bottom of Sichuan Basin. Despite the poor terrain condition, it has certain advantages in the natural conditions, such as climate, precipitation, etc.
- Complex geographical environment: the complexity of water, soil and vegetation determines the sensitivity and fragility of the ecological system.
- The rural settlement form is based on the adaption to the terrain conditions. The weakness of the ecological system and the dispersion of the farming practice in the hilly area of Sichuan make the rural settlement scattered.

### IV. P REQUIREMENTS OF THE COORDINATED URBAN AND RURAL DEVELOPMENT ON THE ECO-ENVIRONMENTAL PLANNING IN THE NEW COUNTRYSIDE

Coordinating the urban and rural development requires

to make a planning construction of the new countryside on the whole. It has the experience accumulated in the long-term research and practice from the perspectives of economy, society, agriculture, population and village construction [5]. In the process of deepening the new countryside construction, the coordinated urban and rural development has new requirements on the eco-environmental planning to adapt to the new round of new countryside construction.

#### A. Forwardness of the Eco-environmental Planning of the New Countryside

Ecological environment is the propriety of the dynamic development. When making the eco-environmental planning, it's necessary to take fully into account the special geographical environment, development level and bearing capacity of resources of the hilly area and define the development goals and coordinate the long, medium and short terms of development.

#### B. Systematicness of the Overall Construction of the New Countryside

Systematicness is the essential requirement for demonstrating the scientificity[2]. The eco-environmental planning is not just to construct the infrastructure and appearance of the new countryside, but also to coordinate the connection and influence between the ecological systems. When protecting the ecological system of the overall environment in the hilly area, it strengthens the ecological management of the economic activities and agricultural production and maintains the ecological balance there.

#### C. Feasibility of the Planning Construction of the New Countryside

The purpose of planning is to provide the model of rational utilization of resources and control the path for the sustainable development[2]. Before the planning construction, it's necessary to define the availability of the ecological environment, determine the optimal building area, building-restricted area and building-forbidden area within the scope, adaptively select our living place according to the natural process and the safety space left for human and decide our construction form and structure [4]. Only in this way can the feasibility be truly implemented.

#### D. Sustainability of the Regional Planning of the New Countryside

Sustainability refers to the ability to satisfy the current needs of this generation and benefits the future generations as well and takes the sound development of ecological environment and minimization of the negative influence on human beings as the target [6]. The regional sustainable development with the new countryside as the planning subject is to study the nature, economy and society in the regions where the villages are located as a whole.

### V. SUGGESTIONS ON THE ECO-ENVIRONMENTAL PLANNING OF THE NEW COUNTRYSIDE IN THE HILLY AREA OF SICHUAN

A theoretical framework can be summarized based on

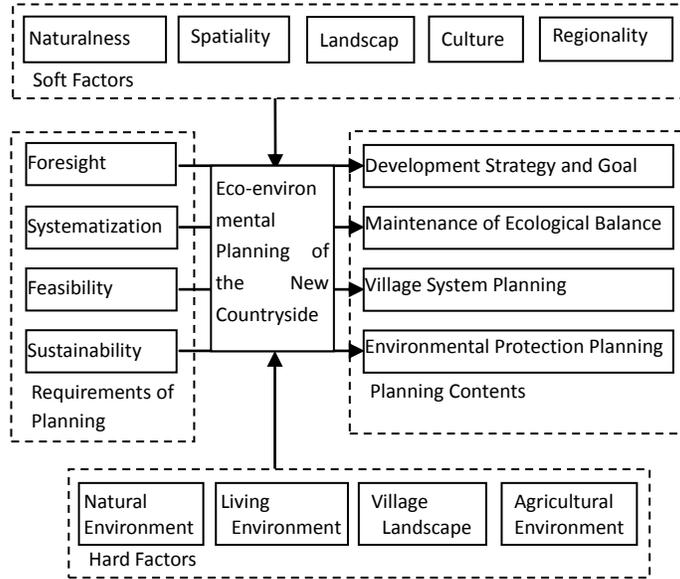


Figure 1. Theoretical Framework of the Eco-environmental Planning of the New Countryside

the requirements of the coordinated urban and rural development on the eco-environmental planning of the new countryside and the required hard conditions and soft factors, as shown in Fig.3.

The eco-environmental planning of the new countryside should take the energy-efficient and environment-friendly road and make researches from the eco-balance of economy, society, culture, environment and other factors according to the special landform features in the hilly area of Sichuan and on the principle of “respecting wishes and interests of farmers, the local historical culture and the environment of the natural ecology” [2].

#### A. Make Planning Based on the Existing Ecology

The ecology in the hilly area of Sichuan is diversified. It's necessary to make the effective integration of the ecological resources through planning the production and living environment on the basis of respecting the existing natural ecological system.

The rural areas have good eco-environmental resources. They strongly depend on nature to obtain the living and production materials. The respect for the local ecological environment can avoid the unlimited challenge to nature, curb the deterioration of the environment in modern countryside and solve the crises of single production model, low production efficiency and unreasonable distribution of resources in the rural areas and realize the integration between the new towns and the rural ecological environment.

#### B. Minimize the Disturbance of the New Countryside Planning on the Ecological System with the Concept of Sustainable Development

The concept of sustainable development is to focus on the harmonious relationship between human and place. The healthy transition and modernization of the new countryside should be paid attention to when making the new countryside development strategies and purposes. It is

important to protect the natural resources and environment on which human beings depend. When developing the development strategies and goals of the rural planning, avoid blind development and occupation of farmland and forest land, make full use of local climate conditions, realize the sustainability of ecological environment and resource utilization and seek a dynamic equilibrium among production, life and development.

#### C. Protect the Ecological Pattern of the Traditional Villages and Highlight the Features of Landscape during Planning

The complicated changing natural factors like terrain, climate, geology, hydrology and vegetation contribute to the special geographical environment and the distinguished village distribution in the hilly area of Sichuan. The protective construction of this traditional ecological pattern can avoid the impact of the urbanized construction model and maintain the rural ecological landscape.

#### D. Take the Ecological Culture as an Integral Part of the Planning Construction

China's special historical background determines our sensitive and profound perception of culture. The fast economic and wealth growth can be quantified, but the cultural heritage and updating need to be carried out with people's behavior perception. Culture can be showed in the form of material and arouse the spiritual resonance through creating the external environment; however, it does not mean wrapping the coat of face project for the traditional culture and solve the cultural thirsty with the material waste. Therefore, the construction of ecological culture must be integrated into the eco-environmental planning of the new countryside to emphasize the characteristics of the regional culture constructed by the ecological environment.

## VI. CONCLUSION

Coordinating the urban and rural development proposes

new requirements for the eco-environmental planning of the new countryside in the new period. The new countryside construction in the hilly area of Sichuan is experiencing changes and updates. Under the guidance of the scientific planning idea, it's conducive to realizing the protection and rational utilization of the rural ecological resources in the eco-environmental construction of the new countryside. On the premise of maintaining the natural ecological environment, only when the ecological service function of the natural system is brought into full play, can it be better to coordinate the ecological interdependence between resources and human beings.

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