

Road Construction in Ethnic Areas from the Perspective of Rural Revitalization

-- Taking Jinyang County in Liangshan Yi autonomous Prefecture, China as an Example

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Abstract. In 2020, China has achieved the final victory in Final Victory in the Fight Against Extreme Poverty, and rural revitalization and targeted poverty reduction have gradually become the center of attention of the whole society. As an infrastructure, rural roads are the most basic guarantee for rural revitalization and the artery of development in rural areas. Jinyang County, Liangshan Yi Autonomous Prefecture, is one of the poorest counties in China. Since Jinyang is located in the mountainous region in the west of Sichuan Province, where the villages show the characteristics of scattered distribution and small scale. Meanwhile, public services and travel in the mountainous village areas can only be based on mountain roads, which brings great inconvenience to people's life and hinders the development of rural revitalization in Jinyang. Therefore, this paper analyzes the current situation and problems of mountain road transportation construction in Jinyang County and proposes targeted measures and suggestions. Taking roads as an entry point, this paper explores the important role of mountain road construction in promoting ethnic areas in order to reveal the close correlation existing between modern roads and social changes of ethnic minorities.

Keywords: Rural Revitalization; Economic Development in Poor Regions; Road Construction.

1. Introduction

In recent years, rural revitalization strategy has become a development direction to which national and local governments attach great importance, among which road construction, as an important part of rural revitalization, plays a vital role in promoting rural economic development and improving residents' living standards. However, due to the difficulty of traffic construction and other reasons, there are still many difficulties and problems in road construction in many areas.

Jinyang County, Liangshan Prefecture, Sichuan Province, as an ethnic region, is blessed with pepper and water resources. However, caught by the complex geographical environment, the difficulty of traffic construction, the single traffic structure, the lack of follow-up maintenance of roads and easy to disease, resulting in population loss, special agricultural products difficult to go out, and other problems. The development of roads restricts the improvement of people's living standards and the development of Jinyang County.

Roads are the arteries of rural revitalization. The construction of roads causes the import of people, logistics, information flow, culture and power into the local society and promotes Jinyang County to gradually move towards open development from its past closedness. The construction of roads not only improves the mobility of the local population and the frequency of mutual contact, but also enables capital to come in and resources to go out, and brings the impact of foreign cultures while promoting local economic development.

At present, the research on the development path of rural revitalization in Jinyang County mainly focuses on the fields of industrial integration, talent introduction, top-level design and basic education, neglecting the fundamental role of road construction for the development of urban-rural linkage, and failing to stimulate the vitality of rural revitalization development from the source.

Therefore, this paper aims to analyze the existing problems of road construction in Jinyang County under the special terrain characteristics from the perspective of basic road construction in the real field, and propose constructive solutions and perfect countermeasures. Through an in-depth study of the problems of road construction in Jinyang County, it explores how to construct a road construction model suitable for the special terrain characteristics of Jinyang County, so as to provide useful

experience and reference for the road construction in Jinyang County and even other similar areas, promote the implementation of the rural revitalization strategy on the ground, and promote the local economic and social development.

2. Current Characteristics and Problems of Rural Road Construction in Jinyang County

2.1 Topographical Features of Rural Areas in Jinyang County

Jinyang County is located in the southeast of the Qinghai-Tibet Plateau at the intersection of the Hengduan Mountains and the southwest edge of the Sichuan Basin, located in the heart of the Liangshan Yi region, the territory is mountainous and connected to the mountains, only 0.23% of the Taiba and flat land, complex and varied landscape, large differences in altitude. The distribution of various resources is uneven, the utilization rate of water resources is low, and the degree of availability of land resources is unstable due to the impact of disasters. Although there are special industries, the industrial structure is single and the productivity level is relatively backward.



Figure 1. Topographic map of Jinyang County

Most of the Yi people gathered in the township are mainly farmers. Although there are special industries of green pepper and white mushroom taro, the development of backward road construction has largely hindered the distribution of special agricultural products out of Jinyang County. Natural conditions restrict the poor conditions of agricultural scale, and it is difficult for farmers in the township to improve their income through scale. The instability of natural economy also leads to the instability of income.

The road development in the past 50 years or so has changed the old farming concept of the people in Yi Township in the past and made the Yi people in ethnic areas more business conscious. Therefore, improving road construction has an important role in promoting the uprooting of poverty and promoting the rural revitalization strategy deep into the hinterland of Liangshan.

2.2 The Current Situation and Problems of Road Construction in Jinyang County

In the just-victorious war against poverty, the transportation industry, as an important entry point for high-quality poverty eradication, has received greater attention from the government. So far, the road construction in Jinyang County has basically realized the access to villages and villages, providing greater convenience for people's travel and communication. However, due to the weak construction foundation, there are still many problems hindering the development.

2.2.1 The Characteristics and Problems of Roads

2.2.1.1 Construction

Since 2015 Jinyang County completed 28 km of upgrading of national road 356, 64.32 km of provincial roads, 126 km of county and township reconstruction roads; 305 km of township oil roads and 636 km of village roads have been completed; as of now, the county has a total road mileage of

1564.674 km, of which, 2 national roads 228.720 km, 1 provincial road 22.649 km, county roads 109.189 km, township roads 329.87 km, village roads 866.842 km, special roads 7.404 km, has completed the construction of a number of roads.

2.2.1.2 Layout

The road network is dense due to topography, mainly concentrated in the county and surrounding areas, river valley areas and between important townships. There are several plateaus distributed in Jinyang County, and the road construction is based on this topographic feature, which naturally integrates the road with the mountain. In addition, the highways reflect the characteristics of concentrated contiguity, linking Jinyang County with the surrounding counties. In addition to the main trunk roads, ordinary roads connecting villages and towns also provide transportation convenience in rural areas.

2.2.1.3 Maintenance

In recent years, Jinyang County has strengthened road maintenance, regularly inspecting and maintaining road surfaces, regularly redrawing markings, improving road facilities from road maintenance, marking maintenance, greening and beautification on both sides of the road, and maintenance and reconstruction of street lights, guardrails and other facilities. However, due to the impact of high passenger flow and geological disasters, the road surface is easy to disintegrate and produce debris, which makes the maintenance work difficult.

2.2.2 Passenger Flow Characteristics

2.2.2.1 Characteristics of Residents' Travel

Due to the backward level of traffic and economic development, and the small size of the county, residents in Jinyang County mainly rely on walking and cycling for daily travel, while car ownership is low and the utilization rate of private cars is low; it is more common for residents to take hitchhikers or coaches for long-distance travel.

2.2.2.2 Spatial Distribution of Passenger Flow

Passenger flow is mainly distributed in the urban areas of the county and near tourist attractions. Compared with the surrounding towns, Jinyang County has a relatively high level of infrastructure construction, which attracts many tourists to stay here; Jinyang County has famous local tourist attractions and folk culture villages, which attract tourists from different places to visit and experience.

2.2.3 Characteristics of Cargo Flow

2.2.3.1 Basic Information of Cargo Flow

Jinyang County is located at the border of Sichuan Province and Yunnan Province, and it is also an important transportation hub connecting Sichuan Province, Yunnan Province and Guizhou Province. There are S217 line highway, S211 line highway, G108 national highway and other roads running through the county urban area, which is convenient for the circulation and transportation of goods. Its highway freight flow is large; freight transport distance is short, generally not more than 300 km, mainly short-distance transport.

2.2.3.2 Spatial Distribution of Cargo Flow

The spatial distribution of freight flow in Jinyang County is mainly concentrated in the urban area and each township. The goods in Jinyang County are mainly agricultural products and livestock products, such as pork and beef, which are mostly consumed by local ethnic customs. These products are mainly sold locally, and some of them are transported to the surrounding areas by road.

2.2.3.3 Time Distribution of Cargo Flow

Due to the mountainous area, the rainy season and winter are prone to landslides and mudslides, while the road conditions are better in summer and autumn, when the road traffic is relatively high.

3. Factors Affecting Road Construction and Improve Countermeasures

In view of the above road construction status and problems, it is necessary to analyze the factors affecting road construction in Jinyang County, take measures and countermeasures in various aspects, promote road construction in a planned manner, improve road quality, and promote economic development and people's living standards. The following is a further analysis of the factors affecting road construction in Jinyang County and the corresponding measures or countermeasures, combined with the specific development of Jinyang County:

3.1 Topography and Landforms

Natural conditions such as complex geographical conditions can increase the difficulty and cost of road construction. Jinyang County is located in the western plateau of Sichuan, situated in the canyon area of sublime mountains, with high terrain and inconvenient traffic, resulting in longer road construction cycle, higher cost and even the need for re-planning, which brings great difficulties to road construction. It is necessary to develop construction plans and technologies that meet the conditions according to the geographical environment, and take special measures when necessary, such as reinforcing the roadbed, digging tunnels, building bridges, etc.; at the same time, for areas with precipitous terrain and complicated landforms, it is also necessary to adopt safety measures, such as adding protective facilities and setting safety warnings, etc., to strengthen road maintenance and repair, to repair road damage in a timely manner, to protect the quality of the road and extend its service life.

3.2 Geological Environment

The area of Jinyang County is mostly mountainous and the geological situation is complicated, so the construction of roads needs to pay attention to the influence of geological environment on road construction, including the foundation soil condition and geological disaster situation, etc. To cope with the challenges of geological environment, it is necessary to strengthen geological survey, design and construction management, adopt reasonable construction plan, establish geological monitoring system, and enhance the research on topography, geomorphology and geology to guarantee the safety and reliability of the roads.

3.3 Climatic Conditions

The climate in Jinyang County is variable, and conditions such as temperature and rainfall have a certain impact on road construction and maintenance. Especially in the rainy season or winter, natural disasters such as landslides and mudslides often occur. Therefore, corresponding road construction measures need to be taken for specific climatic conditions, such as strengthening drainage and anti-slip. In addition, scientific disaster prevention and mitigation plans need to be formulated to strengthen risk management and improve the resilience of highways to disasters.

3.4 Capital Investment

Road construction requires a large amount of capital investment, but the economic development of Jinyang County is relatively backward, the financial income is limited, the situation of capital shortage is quite common, and various funding channels need to be sought. Investment is one of the key factors affecting road construction. In response to this problem, it is necessary to introduce more external funds to support highway construction, increase publicity, expand financing channels, organize government and social forces to participate, strengthen cooperation with enterprises and social capital, and seek more financial support, social support and investment. At the same time to scientific planning of highway construction, focus on prudent and reasonable deployment of funds to ensure maximum efficiency in the use of funds.

3.5 Road Management

Road construction needs scientific management, and if it is not properly managed, it will affect the quality and progress of construction. Jinyang County is located in a remote area, and road construction and management are relatively lagging behind, resulting in poor construction quality and efficiency. It is required to strengthen the introduction and training of road construction and management personnel, improve the efficiency and management level, and also strengthen scientific project management to guarantee the smooth operation of road construction.

3.6 Policies and Regulations

Policies and regulations have an important influence on the planning, approval, construction and management of road construction, and if they are unclear or unstable, the progress of road construction will be affected. Meanwhile, road construction needs to strictly comply with relevant regulations, actively understand and comply with policies, including environmental protection and safety, etc. Considering the restrictions and requirements of national and local regulations, conform to the national industrial policy, establish a sound road construction management system, improve safety norms and standards, and improve the safety and sustainability of road construction according to the requirements of regulations.

3.7 Human Resources and Technical Equipment

Modern highway construction needs skilled engineers and architects, advanced equipment and technology. The lack of these human resources and technical equipment will greatly affect the quality and efficiency of road construction. Jinyang County is weak in science and technology, especially in highway design and construction, where technical talents and advanced equipment are relatively scarce. There is a great need to strengthen human resources training and introduction, adopt advanced equipment and technology, and improve the efficiency and quality of road construction. As a consequence, technical training should be enhanced and the technical level and skills of practitioners should be improved, highly skilled personnel and professional technicians should be introduced and absorbed, scientific and technological innovation should be strengthened, and new road construction techniques and equipment should be researched and developed.

3.8 Population Distribution and Economic Development

Jinyang County has a relatively small population, the population distribution is scattered, economic development is relatively lagging behind, and some villages have not even built roads. By strengthening the construction of transportation infrastructure, roads are built to improve the traffic convenience, promote economic development in the region and enhance regional competitiveness. Road construction must be based on local population and economic conditions. Scientific planning of road construction programs ensures that road construction meets local economic and social development needs, takes into account economic and social benefits, and avoids unnecessary wastage.

Through the implementation of the above measures or countermeasures, the progress of road construction in Jinyang County can be promoted, the quality and efficiency of road construction can be improved, and the economic and social benefits of road construction can be enhanced so as to further promote the development of local economy and society.

4. Conclusion

In conclusion, the development of rural revitalization needs to pay full attention to the fundamental role of road construction. According to the real situation of different ethnic places, it is required to adjust and adapt to them, fully stimulate their endogenous development momentum, and build new economic growth points by combining their characteristic cultures, so that external forces such as modern roads can achieve sustainable "blood-making function" in these economically underdeveloped areas to promote sustainable development of these areas.

Modern road construction is one of the important means to promote the traditional social changes of ethnic minorities. Through the improvement of transportation as well as the conditions of human flow, logistics and information dissemination, it promotes economic and social development and the change of ideology, which can provide new development momentum for minority regions and realize the transformation from solving the problem of food and clothing to moving towards a moderately prosperous society, and from closed ethnic areas to open society more expeditiously.

Looking forward, it is essential to continue to focus on the development issues of ethnic minority regions, promote the subjectivity of their culture, and better stimulate their endogenous development momentum. It should strengthen investment in infrastructure construction and human resource training, and actively promote modernization for comprehensive and sustainable development. Authors suggest that while protecting and inheriting minority cultures, attention should be paid to the integrated development of culture and economy, promoting the coexistence of multiple cultures and the construction of a more inclusive and harmonious society.

The construction of modern roads is a significant means to promote rural revitalization, which needs to be paid attention to and explored in practice. These problems are not only faced by Jinyang County, but are also common to many ethnic minority regions. In the future, it is necessary to explore and study more deeply how to better utilize the main advantages of minority regions in the process of rural revitalization and make full use of modernization to exert endogenous power to achieve sustainable development. Only in this way is it possible to contribute to the revitalization of minority regions and the development of China, and to better realize the main theme of this paper - to promote the revitalization of villages in minority regions based on road construction and to promote the sustainable development of the national economy and society.

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