



Research on Risk Management of Risk Avoidance Relocation and Resettlement in Wenchuan County, Sichuan Province

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Abstract. In order to reduce the risk of geological disasters, it has implemented a disaster avoidance and resettlement project on the basis of engineering governance, monitoring and early warning in Wenchuan County of Sichuan Province in China. However, in some villages, farmers are reluctant to move away from disaster risk areas and hidden danger points, even if they are at high risk of natural disasters in the mountains. The main reason for this is that they are worried that they will face a series of relocation risks after relocation, including land loss, unemployment, and disintegration of social networks. To this end, this paper takes Wenchuan County as an example, takes the family as a unit, deeply discusses the risk management of disaster avoidance and resettlement, helps decision-making bodies and relevant government departments to improve the decision-making level and carry out targeted disaster avoidance and resettlement work in mountainous areas, and serves disaster prevention and mitigation in mountainous areas.

Keywords: Wenchuan County · Mountainous Areas · Risk Avoidance Relocation and Resettlement · Risk Management

1 Introduction

In the process of human civilization, natural disasters have always been present. After the Wenchuan earthquake disaster, it has made remarkable achievements in post-disaster reconstruction in Wenchuan County, Sichuan Province. On the tenth anniversary of the Wenchuan earthquake, General Secretary Xi Jinping went to Yingxiu Town, the epicenter of the earthquake, to inspect and personally experience the lives of the relocated residents after the disaster, and draw a blueprint for the future development of the disaster area. However, due to the superposition of natural factors such as climate change and crustal movement and human factors that do not harmonize the relationship between man and nature, the risk of frequent occurrence of destructive natural disasters such as earthquakes, floods and mudslides is still severe. As an important disaster risk management tool, disaster avoidance relocation and resettlement also has potential social risks. If not planned and implemented properly, relocation is bound to turn into a serious man-made disaster [1]. In order to better play the role of disaster avoidance and relocation

in reducing the risk of mountain natural disasters, it is imperative to improve the risk management level of mountain natural disasters [2]. Residents living in disaster-prone areas, despite the threat of natural disasters, make decisions about whether to relocate based on the risks of relocation, such as the reconstruction of livelihoods, the disintegration of social networks and the poor quality of resettlement housing. Farmers are the main body of disaster relocation, and in dealing with the risk of natural disasters and the risk of relocation and resettlement, they will make decisions on whether to relocate and in what way based on the perception of the two risks and their own behavioural needs. The risk perception of natural disasters by affected residents or the population living in disaster-prone areas is both consistent and common, but also different in terms of disaster type, time, space and socio-economic and cultural background, which requires a more comprehensive and in-depth study of the relevant issues before the development of disaster risk management plans and the implementation of disaster risk reduction strategies.

In 2016, the CPC Central Committee and the State Council issued the Opinions on Promoting the Reform of the System and Mechanism for Disaster Prevention, Reduction and Relief, which proposed that China's future disaster prevention and reduction work should "strive to achieve a change from focusing on post-disaster relief to focusing on pre-disaster prevention" and "from reducing disaster losses to reducing disaster risks". Therefore, the study of risk avoidance and relocation in Wenchuan County, Sichuan Province is of particular significance.

2 Hedging the Risk of Relocation and Resettlement

Wenchuan County, Sichuan Province, is located in China's first- and second-tier transition zone, complex geological structure, strong new tectonic movement, fault structure development, it is very easy to induce flash floods, mudslides, landslides and other disasters due to extreme weather such as heavy precipitation, resulting in high frequency, intensity and multiple disasters, which is particularly serious in the alpine gorge (deep) valley area. In order to reduce casualties and property losses in mountainous areas, Wenchuan County has carried out a large number of evacuation and resettlement work. Policy- or involuntary migration is more at risk than spontaneous and voluntary migration. These risks include loss of land, unemployment, homelessness, marginalization and impoverishment, disease, loss of access to public resources and severance of existing social networks [3]. Due to the different geographical locations of rural households, there are differences in the risk of natural disasters faced by farmers, and the different family backgrounds and socio-economic conditions of farmers, and different farmers have different perceptions of natural disaster risks and relocation risks. The potential relocation risks faced by migrants who have avoided natural disasters are mainly manifested in three aspects: livelihood, social and human settlements.

2.1 Livelihood Risks

Livelihood risks include a decrease in the quantity of per capita land resources (arable land, woodland, grassland, etc.), a decline in the quality of arable land, a lack of available

renewable public resources (e.g. water sources, non-timber forestry resources, etc.), changes in traditional livelihood patterns, a decrease in expected returns, unemployment and underemployment, declining incomes, and increased cash expenditures due to the construction of houses. Farmers who are more concerned about the loss of arable land, the loss of breeding conditions, unemployment, loss of existing public resources, increased liabilities and cash expenditures, etc., the stronger their awareness of the risk of relocation and resettlement.

2.2 Social Risks

Social risks include widening the gap between rich and poor, not convenient to go to school and seek medical treatment, increased morbidity and mortality, disintegration of existing social networks (relatives and friends have less contact or lose contact), marginalization of immigrant groups (if it is not valued, it is excluded, its status is low, and it is not taken care of when it encounters problems), increased social conflicts, and loss of traditional culture. If properly planned and properly implemented, risk-sheltered relocation will not only reduce the disaster risk of the relocated population, but also bring opportunities to comprehensively improve the living standards of the relocated population [4]. If poorly planned and implemented, or not integrated into a comprehensive local risk management strategy, the relocation process of safe-haven migrants is not only unsustainable, but also causes endless troubles to the relocated people, increases social instability, and brings trouble to the government [5].

2.3 Human Settlements Risks

Human settlements risks include the intensification of soil erosion and environmental pollution caused by the development of marginal land resources, the increase of geological disasters such as landslides, mudslides and collapses caused by slope excavation during the construction of houses and roads, the destruction of vegetation caused by the development of land resources, and the deterioration of the living environment due to population agglomeration [6]. The government is responsible for the selection of resettlement sites, the planning of sites, and the design and construction of resettlement houses, but the quality of housing construction is one of the most concerned issues for relocated farmers. Therefore, the poor quality of resettlement housing is one of the main risks faced by relocated farmers.

3 Risk Avoidance Relocation is the Process of Upgrading and Transformation of Settlements

The relocation and resettlement of risk avoidance fully considers the law of the occurrence and development of natural disasters and their potential harmfulness, avoids high-risk areas of disasters, and adopts various disaster control engineering and non-engineering measures to reduce the harm of disasters to settlements, and even seeks ways to turn harm into benefits to build new settlements [7].

3.1 Achieve Socio-economic and Natural Ecosystem Reconstruction

The construction of risk-avoidance relocation and resettlement settlements is an important link related to the sustainable development of risk-avoidance relocation and resettlement communities. The purpose of settlement optimization is to build a composite liveable environment for the purpose of social progress, economic development and ecological environment improvement according to local conditions and building as the core [8]. Settlement optimization takes human settlement safety as the core and disaster management as the starting point, further optimizes the spatial structure of settlements and improves the stability of the ecosystem, and provides a more liveable and beautiful home for the people who have avoided danger and relocated. Risk-avoidance relocation is the process of reconstruction of socio-economic and natural ecosystems of settlements, the core of which is development and the focus and difficulty lies in risk management [9]. At least the following five aspects should be achieved in the following five aspects: First, the regional characteristics of culture and ethnic customs should be protected and highlighted; Second, the infrastructure has been repaired and improved, and facilities such as transportation, water and electricity, postal communications, finance, and disaster shelters are readily available; The third is the combination of urban and rural overall planning, scientific construction, natural environmental protection and artificial environment optimization, and the combination of social and economic recovery and development; The fourth is to gradually establish a modern scientific and civilized outlook on life; Fifth, the community is stable and harmonious, and the national cohesion has been further strengthened.

3.2 Liveable and Sustainable

The safety of the relocation and resettlement of the settlement space, the improvement of transportation and postal communication facilities, etc., make the settlement form a flow of people, resources and information with frequent exchanges with the outside world, and the settlement is more dynamic, vital and more liveable. The construction of safe haven relocation and resettlement settlements widely applies advanced science and technology, which provides the basic conditions for the upgrading and rational layout of ecological industries, and the characteristic ecological agriculture and ecological tourism have been valued and developed, providing strong industrial and employment support for the sustainable development of the settlements [10], which is conducive to the continuous improvement of livelihood problems and risk management, and then forming a benign evolution of settlements.

4 Settlement Risk Governance and Optimization

From the perspective of risk avoidance and relocation, the purpose of risk management is to achieve comprehensive risk monitoring and high standards of disaster prevention and mitigation projects, and the safety of settlements is fully guaranteed and developed, especially the development of settlements and disaster management promote each other and develop in a coordinated manner. Settlement optimization, as the name suggests, is

that the settlement is more scientific and reasonable, that is, the harmony between man and nature is improved, the economic development is more efficient and sustainable, the society continues to develop and progress, and the matching of the three major systems of nature, economy and society is more reasonable. The settlement optimization process is the process of continuously improving the risk management capabilities of the settlement.

Combining risk avoidance relocation and settlement optimization, vigorously develop the ecological economy, gradually gather population and industry into liveable areas, gradually reduce the population and property density in high-risk disaster areas, improve the ecological environment, improve the stability of the ecosystem, and continuously improve the disaster prevention and loss reduction capacity of Wenchuan County settlements. In the process of settlement optimization, risk management can be used as a starting point to minimize various disaster risks, improve residents' risk awareness, and have a profound impact on the culture of hedging relocation and resettlement settlements. The most basic feature of liveable settlements is the benign interaction between human-land harmony and social harmony [11]. In the process of settlement optimization, the risk management function is highlighted, and the psychological safety education and scientific disaster prevention and reduction knowledge and skills are popularized, which will improve the ability of the people to help each other and prevent and control the masses, and will greatly reduce the casualties and property losses that may be caused by various disasters.

5 Main Problems Faced by Wenchuan County's Risk-Off Relocation and Resettlement

5.1 Relocation and Resettlement in Alpine Canyon Areas is Difficult

At present, when Sichuan Province determines the location of the relocation site for risk shelter, the principles followed are the principles of safety, proximity, production and life development [12]. However, in Wenchuan County, a high mountain valley area, resettlement sites that can meet the requirements of building a house site are very scarce. At the same time, after the site is selected, a lot of money needs to be invested in the construction of roads, water and electricity and other infrastructure, which increases the cost and pressure of relocation for both the local government and the rural household.

5.2 The Original Old Houses of Farmers Were Demolished and the Homesteads Were Re-cultivated

According to the provisions of the relocation policy for geological disaster avoidance, the original old houses of farmers must be demolished after relocation and resettlement, and then the homestead land will be restored. However, from the perspective of local practice, some farmers involved in the risk avoidance relocation and resettlement project are difficult to demolish, mainly because: First, in order to retain production houses, some farmers are reluctant to demolish old houses. The distance between the relocated new houses and the cultivated land is relatively far, and the production activities are inconvenient, and some farmers hope to retain part of the production houses near the cultivated

land for stacking production tools, raising poultry and livestock, or temporary rest during the harvest period. Second, at present, there is a general shortage of rural labour, the demand of peasant households for new cultivated land is not as urgent as before, and the reclamation of homestead land is not attractive enough for both the relocated peasant households and the collective economic organizations of the village groups where they are located, and the reclamation requires certain input. Third, some peasant households have no funds and technology to demolish old houses. The demolition of old houses, especially brick-concrete houses, requires specialized technical and equipment support. When farmers demolish old houses on their own, they face both safety hazards and construction waste piling or disposal problems [13].

Based on the above reasons, whether the original housing of farmers after relocation must be demolished still needs to be discussed in depth. From the perspective of the purpose of the risk avoidance relocation project, the purpose of relocation is to eliminate the hidden dangers of disasters, if the old house is not demolished; leaving a safety hazard, the ultimate purpose of the relocation has not been achieved. On the other hand, according to the relevant provisions of China's Land Management Law, rural villagers can only own one homestead in rural areas. Therefore, it is both reasonable and legal for farmers to demolish their old houses after relocation. As for some specific problems faced by farmers during and after relocation, the relevant government departments need to continuously improve relevant policies or formulate new measures to meet the needs of relocated farmers.

6 Conclusion

As an important means of reducing and preventing the risk of natural disasters, risk avoidance relocation also requires disaster risk and comprehensive social benefit assessment of its necessity. Although risk-avoidance relocation can eliminate or reduce disaster risks, relocation itself has certain social risks, especially relocation. Therefore, whether or not residents living in disaster risk areas are relocated requires comprehensive assessment, democratic consultation and scientific decision-making. The increase in population and asset density in disaster-risk areas is an important reason for the increase in disaster losses, so it is important to explore the coordination between the scale and mode of development and disaster prevention and reduction. Through the method of shelter and resettlement, the intensity of human activities can be slowed down and the harm of natural disasters can be mitigated.

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