

Sustainable Livelihood of Ecological Migrants in Qinling-Daba Mountains of Southern Shaanxi

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Abstract The severe environment in Qinling-Daba Mountains has made it not suitable for the long-term residence due to the large amounts of "ecological migrants", and these migrants have moved out of the mountains and changed their economic and life styles, resulting in many problems. In this paper, the problems of "ecological migrants" were analyzed, including the education problem, different life styles, incomplete national protecting measures and policies, with the aim to provide governments with constructive suggestions for the establishment of the education and training system, acceleration of the development of industries (especially the tertiary industry, subsidiary business), and labor transferring, increasing the incomes of "ecological migrants", and making the "ecological migrants" have the financial resources for a long time, thereby better stabilizing the "ecological migrants".

Key words Qinling-Daba Mountains; Ecological migrant; Sustainable livelihoods

Located in Qinling-Daba Mountains, Southern Shaanxi sees frequent occurrence of geological disasters. In order to fundamentally solve the problems of people's living safety and survival and development in the harsh environment in Southern Shaanxi, Shaanxi Province plans to have 2.4 million people migrate from a total of 28 counties in Hanzhong, Ankang and Shangluo in Southern Shaanxi during 2011–2020. The residents involved in this migration account for a quarter of the total population, with the migration scale far exceeding the total migrants in the Three Gorges Reservoir relocation. The construction area of migration goes beyond 100 million m² with a total investment of more than 110 billion Yuan, becoming the largest ecological migration project in China^[1].

"Ecological migrant" has become the core problem of rural Chinese, and how to stabilize the livelihood of immigrants, especially the livelihood of so-

cial vulnerable groups, is an important part to ensure the sustainable development of the society. "Ecological migrants" are a new rising social vulnerable group, and policy poverty survival pattern of "ecological migrants" makes them greatly depend on the government and relevant departments to make good policy coordination, so as to eliminate the poverty of "ecological migrants" as soon as possible. As an important area of poverty alleviation in China, Qinling-Daba Mountains have had a large number of peasants move out of the mountains since the construction of national natural reserve in 2011, and their sustainable livelihood conditions directly affects the regional development and regional balance of China. Therefore, it becomes an important issue for the construction of a harmonious society of China at the current stage to improve the sustainable livelihood conditions of the "ecological migrants" in Qinling-Daba Mountains.

浅析陕南秦巴山区“生态移民”的可持续生计问题

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摘要 陕南秦巴山区的恶劣环境已不适宜长期居住形成了大量的“生态移民”, 这些移民从山区搬出至山外, 经济、生活方式的变化, 造成了诸多问题的产生。该文通过分析“生态移民”存在的教育问题、生产方式不适应、国家保障性措施及政策不健全等问题, 试图通过建立教育培训体系、加大产业尤其是第三产业、副业的发展、劳动力转移等方面给政府提供建设性意见, 增加“生态移民”的收入, 使“生态移民”长久获得经济来源, 从而更好的稳定“生态移民”。

关键词 秦巴山区; 生态移民; 可持续生计

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Definition of Ecological Migration

Opinions are varied to the definition of ecological migrants. Some scholars regard the ecological migration as a kind of spontaneous economic behavior caused by the deterioration of the ecological environment. For example, Gegen Gaowa *et al.* believes that ecological emigration is a kind of economic behavior caused by the deterioration of ecological environment, which damages the short-term or long-term survival benefits of people, thereby forcing people change their living places and adjusting the way of life. Some scholars emphasize the dual role of government behavior on ecological environment protection and economic development. For example, LIU believes that ecological migration is to improve and protect the ecological environment and develop economy, so the people originally in high dispersion living in the environmental vulnerable areas are gathered together in the ways of migration, forming new villages and towns, so as to achieve the coordinated development of population, resources, environment and social society in the ecological fragile areas. FANG *et al.* believes that the ecological migration is to protect the ecological environment in the ecological fragile areas, which is not only to make the immigrants become fairly well-off, but also cannot destroy the short-term and long-term ecological environment in the destination areas, as well as protects the interests of the original residents in the destination areas, and it is a multi-objective migration. Other scholars emphasize not only the purpose of ecological migration to protect and improve the ecological environment, but also emphasize its poverty alleviation nature. The report review of the Institute of Spatial Planning & Regional Economy, National Development and Reform Commission, PRC, also stresses the multiple purposes of ecological migration. They believe that the ecological migration refers to the migration of people in the ecological fragile area or important ecological function areas to other areas with the aim to eliminate poverty, develop ec-

onomy and protect ecological environment, thereby achieving the coordinated development of economy, society with population, resources and environment^[2]. The migration in the Qinling-Daba Mountains is to solve the problems of people's living safety and survival and development in the harsh environment in Southern Shaanxi, so in this paper, ecological migration refers to the migration to improve farmers' livelihood due to the poor ecological environment.

Analysis on the Causes Affecting the Sustainable Livelihood of Ecological Migrants

The term "Sustainable Livelihoods" (SL) refers to a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments (both human and material) for meeting the requirements of the self and his/her household on a sustainable basis with dignity^[3]. Sustainable livelihoods directly affect the regional development and regional balance in China, so it is an important issue for the construction of a harmonious society in current stage how to improve the sustainable livelihoods of the "ecological migrants" in Qingling-Daba Mountains. The unfavorable factors affecting the sustainable development of "ecological migrants" are as follows:

Weak individual transformation ability of ecological migrants, and difficulty in stabilizing the long-term livelihood^[4]

After moving out of the mountains, the migrant farmers changes their survival mode, and they can no longer get the income and assurance through the original production mode, but have to directly participate in market competition using their non-agricultural labor ability. However, the long-term engagement in agricultural production makes the migrant farmers have low educational level and poor professional skills, so their ability to participate in market competition is very limited. They become the natural social vulnerable groups for their pas-

siveness in the migration to other areas and the changes of the survival mode, and employment difficulties become the most difficult problem facing the "ecological migrants".

Misplacement and absence of the factors promoting the development of productive forces with education as the core

Affected by economic concepts and other factors, Qingling-Daba Mountains have relatively low education development level, backward education development idea, insufficient education development potential, and the children of the "ecological migrants" have few chances to get continuing education, re-education and twice education and training, making it hard to improve the employment skills of the regional community effectively, so it is impossible to ensure sustainable livelihoods development of the "ecological migrants" fundamentally.

Deficiency in national protecting policy and protecting funds

Located in southern Shaanxi Province, Qingling-Daba Mountains are affected by the construction of national natural reserve, so farmers' livelihood difficulties are significant. However, the national protecting policy to these social vulnerable groups is still vacant, and there is also a lack of the medical insurance funds and social insurance funds, resulting in insufficient capacity for the sustainable development of "ecological migrants", and making it unable to promote the sustainable development of livelihoods effectively^[5].

Inadaptation of the ecological immigrants to the mode of production labor after the migration

As shown in the survey, before the migration, 61% of the local people get their major income sources by out-migration working, and 32% rely on planting crops, while after migration, the proportion engaged in the above work changes into 81% and 5%^[6]. This shows that after the migration, a large number of migrants have undergone significant changes in the way of production and labor, and the decrease in arable land results in the sharp decrease of the number of farmers planting crops. Many migrants say they cannot adapt to the change. If this

problem cannot be solved effectively, the future income of these migrants will be hard to sustain, and the difficulties of life and production funds will be more prominent.

Suggestions on Strengthening the Livelihood Construction of Ecological Migrants

The government body plays an active role in the process of sustainable development of “ecological migrants”, and it should offer policy assistance from employment training to financial assistance to helping industrial development.

Establishing a comprehensive education and training system, and increasing the accumulation of human capital of ecological migrants

We should understand human capital from the long-term more profound significance, establish long-lasting human capital integrated cultivation system, strengthen and improve the employment skills training of the migrant farmers, change the one-sided and isolated training methods that are not based on the actual environment and ignore the practical conditions, combine training with industrial development and community construction, set up training programs according to the demands of the market and farmers, increase training investment, introduce competition mechanism, choose the training institutions in the way of bidding, establish direct links between training and employment, and encourage the active participation of farmers. We also should update and expand the training contents, and in addition to the employment skills training, we should also help the migrants adapt to the new living environment as soon as possible; innovate training methods, establish training fund for immigration to make subsidies for the job skills training of the migrants or the employing units^[7].

Paying attention to industrial education of “ecological migration”, and enriching the industrial structure of Qinling-Daba Mountains

The “ecological migrants” from Qinling-Daba Mountains have relatively low self-quality and skill level, and

are affected by the traditional concept of survival and the survival environment. After the completion of national natural protection zones, no new industrial model has been formed, so we should improve the industrial education of the “ecological migrants” to promote the development of industrial engineering and the tertiary industry in Qinling-Daba Mountains. Special attention should be paid to supporting the tourism industry, enriching the industrial structure and promoting the development of regional economy.

Encouraging the development of breeding industry, and increasing the income share of sideline products

Since the construction of national natural reserve in Qinling-Daba Mountains, agricultural land have decreased, and the forestry proportion has also decreased significantly. Therefore, in order to maintain livelihoods and promote the sustainable development of regional livelihoods, we should actively encourage the “ecological migrants” to develop the breeding industry, improve the proportion of breeding income in family economic income, and promote the diversity of economic sources of “ecological migrants”.

Encouraging the development of processing industry of farm and sideline products, and improving the self-employed ability of “ecological migrants”

Product processing industry plays an important role in promoting the regional economic development, and it needs the government and relevant departments issue corresponding policies to offer favorable original funds to the “ecological migrants”, and prepare for the entrepreneurial skills training, encourage the “ecological migrants” to develop featured industry and processing industry of farm and sideline products starting from the advantages of protected areas. In addition, the government can also issue the “One Helps One” helping system, encourage social organizations and enterprises to provide operable business ideas for the “ecological migrants”, and provide information related with the market, product research and sales channels, so as to promote the develop-

ment of self-employment of the “ecological migrants” from all aspects.

Encouraging the development of tourism-centered tertiary industry, and promoting the comprehensive development of multi industries

Qinling-Daba Mountains have abundant natural resources and regional advantages which can produce specific economic benefits. Therefore, we should encourage the “ecological migrants” to start from the advantages of the mountainous area, actively develop green agriculture industry, develop the tourism industry-centered tertiary industry. At the same time, relying on the national poverty alleviation funds, the “ecological migrants” can establish tourism industry, tourism products manufacturing industry, tourism guide industry, hotel and catering industry, which can promote the regional economic prosperity and make the surplus labor in the region fully employed, so as to promote the realization of the sustainable livelihood development of the “ecological migrants” in the Qinling-Daba Mountains^[8].

Encouraging the sufficient transfer of labor force, and reducing the proportion of surplus labor force

Surplus labor is an important cause of the survival dilemma of the “ecological migrants” in Qinling-Daba Mountains. So the relevant departments need to pay full attention to the surplus labor problem in the protection zone, actively encourage township enterprises to fully absorb the surplus labor, to fully realize the transfer of labor force. In addition, the government and social organizations also need to provide adequate employment information to the “ecological migrants” in the protection zone, can coordinate with the labor security department to formulate protection scheme for the labor transferring of “ecological migrants”, so as to promote the cross regional transfer of labor.

Conclusion

The harsh environment leads to the rise of “ecological migrants” in Qinling-Daba Mountains. The changes of the original production mode results in the gradual immiserization of the “ecological migrants”, which have be-

come the unstable factors affecting the construction of a harmonious society, and therefore, we should establish the educational training system, strengthen industrial development, especially the development of the tertiary industry, which can drive the economic development in the whole Qinling-Daba Mountains, thereby increasing the economic income of "ecological migrants", stabilize the sustainable livelihood development of the farmers in the ecological migration areas, which is conducive to building a harmonious society.

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Table 5 Statistics on the number of soil particles

Time/s	Ordinary digging shovel	Bionic digging shovel
1.00	125 080	113 276
1.15	114 532	102 545
1.20	107 090	96 078
1.25	96 045	87 033
1.35	84 082	78 057
1.45	75 099	72 350
1.55	68 864	625 97
1.65	62 554	52 107
1.75	53 407	49 831

shovel has improved drag-reducing performance and soil crushing performance compared with the ordinary shovel. Specifically, the average drag-reducing rate in the X direction was 10.41%, and the average drag-reducing rate in the Y direction was 16.28%, and the soil crushing rate was improved by 2.67%. Therefore, the bionic digging shovel has certain extension value. Moreover, this analysis case fully demonstrates the unique advantage of DEM method and its generalizability, and provides certain reference for similar studies.

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