

A Reconstruction of Livelihood Ability of the Worker's Families at State-owned Forest in China's Northeast Region

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Abstract - It is important and necessary to study the living ability of worker families in ecological barrier area during the period of China's forest economy transformation. With i) relevant literature research as basis, ii) questionnaire survey, iii) structural analysis, etc. as methods, iv) the family of employees at the state-owned forest area in China's northeast region as unit, and v) samples from field survey as data, this paper analyzes the influence factors of five capitals related to the worker families' livelihood at the state-owned forest area in China's northeast region. The paper shows that the effective ways to improve living ability of worker families in this region include: i) the expansion of channels for income generation, ii) the accumulation of community livelihood capitals, iii) the enhancement of education and training, and iv) the establishment of mechanism for safety assessment and early-warning for the benefit of worker families livelihood in the region.

Keywords - China's northeast state-owned forest area; worker families; livelihood ability; reconstruction

I. INTRODUCTION

Since 1990s, Chinese government has concentrated efforts to find a resolution to the sustainable development problem of worker families' livelihood at the state-owned forest area, and acquired some achievements up to present. However, the new period has also witnessed increasing livelihood vulnerability for some employees at the key state-owned forest areas. As a forest ecological function area with the biggest acreage, highest latitude, densest state-owned forest, and the most important ecological role across China, the State-owned forest area in northeast region is the largest ecological barrier area for China in addition to its embrace of three kinds of ecosystem such as forest, wet land and grassland. Therefore, it is both important and necessary to study the reconstruction of worker families' livelihood ability in ecological barrier area.

II. RESEARCH METHOD AND DATA RESOURCE

After the designing of survey questionnaire according to the need of research, the author made visits at state-owned forest areas in Mongolia and Heilongjiang province during the period from April 21 to May 11, 2016. The author made investigations on and interviews with 770 worker families in forest area, who live at 21 forestry stations on mountain and bureaus at the foot of the mountain, including Yuejing forest stations and Wuyi forest stations which are scattered in 18 prefectures and cities such as Qinghe, Suileng, Wumahe, Youhao, Keyihe, Yitulihe and Wuerqihan. In doing so, the author obtained the first-hand sample data related to worker families' livelihood, and acquired historical record of typical forest bureau. It is based on the analysis of influence factors on livelihood vulnerability of worker families at state-owned forest area in China's northeast region that suggestions are made in this essay that targeted policy should be formulated in order to avoid

invalid intervention in market as far as possible. The methods adopted by the author include document research, questionnaire survey, empirical analysis and normative analysis.

III. ANALYSIS ON THE LIVELIHOOD CAPITALS OF WORKER FAMILIES AT STATE-OWNED FOREST AREA IN CHINA'S NORTHEAST REGION

Livelihood capitals have different influences on livelihood vulnerability of worker families at state-owned forest areas. The theoretic basis for the essay is the sustainable livelihoods analysis framework put forward by the Department for International Development (DFID) of U.K. According to five capitals of SLA analysis framework, and by exploitation of the field door-to-door survey sample data and interview materials, the author makes a systematical research on the five capitals related to the livelihood of worker families at state-owned forest area in China's northeast region, and provides a necessary practical support for qualitative and quantitative research on livelihood vulnerability of worker families at state-owned forest area in China's northeast region.

A. Analysis On Human Capital Of Worker Families At State-Owned Forest Area In China's Northeast Region.

Human capital includes knowledge level, technical ability and healthy status, and different means of livelihood leads to corresponding livelihood results. As to worker families at state-owned forest area in China's northeast region, human capital refers to the number of family's labor force, family's size, technical level and healthy status, which are the base for and core of livelihood asset.

Age structure: 163,709 people under the age of 35, accounting for 30.71%; 214,404 people aging from 36 to 45, accounting for 40.22% ; 149,262 people aging from 46 to 54, accounting for 28% ; and 5,703 people at and above the

age of 55, accounting for 1.07% (Figure 3-1)

TABLE 3-1 THE DISTRIBUTION OF HUMAN RESOURCES AT STATE-OWNED FOREST AREA IN CHINA'S NORTHEAST REGION

Institutions	Quantity/ Individual	Worker/ individual	Proportion of workers/%
Elementary and secondary schools in forestry area	687	29	5.5
Medical institutions	787	25	5.0
public security bureaus, procuratorates, courts and bureau of justice	154	12	2.3

Education structure: the number of workers at state-owned forest area in northeast region is 533,078. Among them, 799 people received education above graduate, accounting for 0.15%; 28,679 people received education at the level of graduate, accounting for 5.38%; 166,321 people received education at junior college and technical secondary school, accounting for 31.2%; 337,279 people received education at senior middle school education or below, accounting for 63.27%. (Figure 3-2)

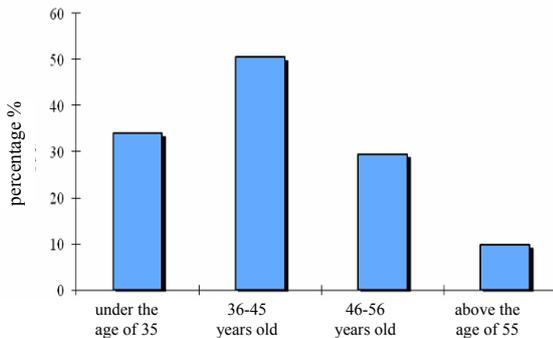


Figure 3-1 Age structure of human resources at state-owned forest area in China's Northeast region

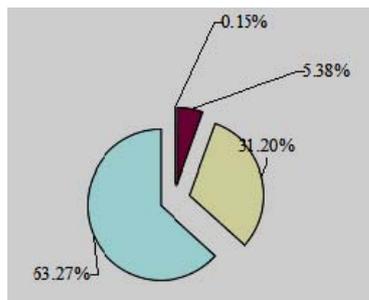


Figure 3-2 Education structure of human resources at state-owned forest area in China's Northeast region (2015)

Education & training: from 2013 to 2015, 113,989 people had taken part in various kinds of training, accounting for 21.38%, which meant that 4.28% of people on average took part in training ever year; and 7,061 people received education in spare time for academic certificate or degree, accounting for 1.32%. There are four reasons for

the formation of such structure of education & training. Firstly, adult labor force of worker family have heavy burden to look after their aged and juvenile living with them. Secondly, workers received a comparatively higher education, and more than half of them received education at senior high school or above. However, worker's training and education had been lagged because of insufficient investment in human resources. Thirdly, the income of worker's family was not high because their income mainly came from salary and wage, and they had few other source of income. Fourthly, worker's families had no strong social capital, and their relatives rarely operated enterprises or being a worker to provide technical service or sell chemical fertilizer and seeds.

B. The Analysis on Natural Capital of Worker's Families At State-Owned Forest Area in Northeast Region

Natural capital refers to the stock of natural resources, namely, the livelihood resource and relevant service. It can be divided into invisible public capital (atmosphere and biological diversification), and visible capital (lands, trees, etc.) and ecologic service which can be directly used for production. Natural capital is directly related to vulnerability background. The livelihood of worker's families have very strong reliance on natural resource, which, as a natural endowment, determines the risk and uncertainty faced by and coping capacity owned by worker's families at forest area.

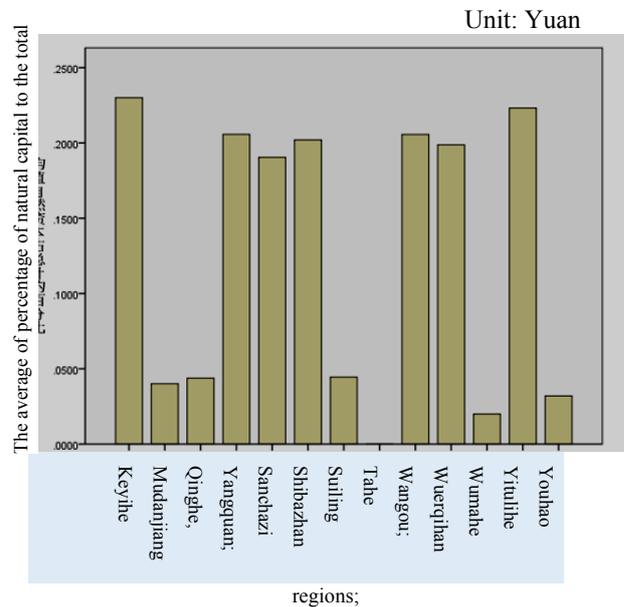


Figure 3-3 Percentage of natural capital to the total capital

It can be seen from figure 3-3 that there are fairly abundant natural resource or rich native endowment in respect of natural resource in places like the Great Khingan Mountains area such as Keyihe, Yitulihe, Wuerqihan, Shibazhan, etc., and the Changbai Mountains area such as

Yangquan, Wumahe, etc. whereas some places such as Tahe, Youhao, etc. lack are short of natural capital. Abundant natural resource is a favorable basis for the combination and reconstruction of local worker families' livelihood ability. Meanwhile, a full development and utilization of such resources requires appropriate policies formulated by the local government and measures taken by local departments in charge of forest industry and the latter's guidance in science and technology as well.

C. Analysis on material capital of worker's families at state-owned forest area in northeast region

Material capital refers to the basic means of production and infrastructures & facilities used by the worker at forest area to make a living. As shown in figure 3-4, all forest bureaus at state-owned forest area in northeast region have relatively abundant material resources, and Suiling Prefecture ranked the first among them. Various means have been used to fully exploit and utilize local favorable resources, and to conduct different kinds of operations. As a result, not only timber is manufactured there, but also workers' livelihood arranged in advance for economic transformation: the dismissed forestry workers were transferred to positions in other industries to help them to rebuild security for livelihood and ability to make livings. Only Keyihe is relatively short of material resources, which has something to do with the resource allocation under the planned economic regime at the early stage of national economy construction after the founding of the People's Republic of China in 1949.

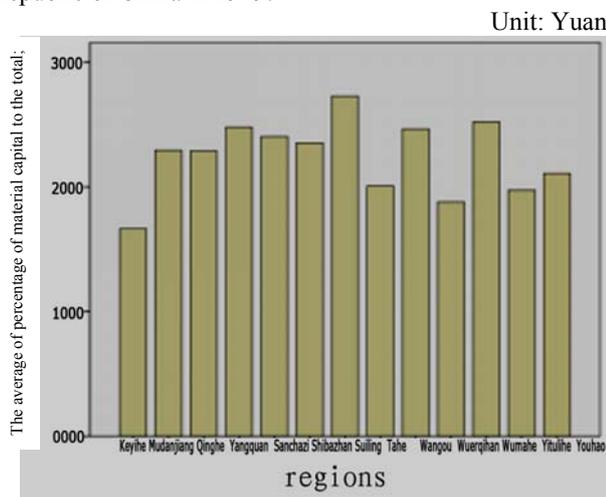


Figure 3-4 Percentage of material capital to the total capital

D. Analysis on financial capital of worker's families at state-owned forest area in northeast region

Financial capital refers to the accumulated and current asset used to realize livelihood target during the process of worker families' daily consumption and production. It mainly refers to money, however, some other material objects can also play the role of accumulation and exchange

like money, and they are composed of quantity of flow and stock. Generally speaking, there are two sources: current stock (deposit, etc.) and regular capital inflow (pension, etc.) (Here, household income is not included in financial capital because income is explained as a variable)

Figure 3-5 shows that, the financial capital owned by worker's families at state-owned forest area in China's northeast region are roughly the same in total amount and relative stable in operation and maintenance, illustrating that the ways of production and life at various regions determines sources and means of local forestry worker's family, and there is no essential difference between and among different regions. This situation is beneficial to design a inclusive plan and policy to rebuild livelihood abilities of worker's families at state-owned forest area in China's northeast region

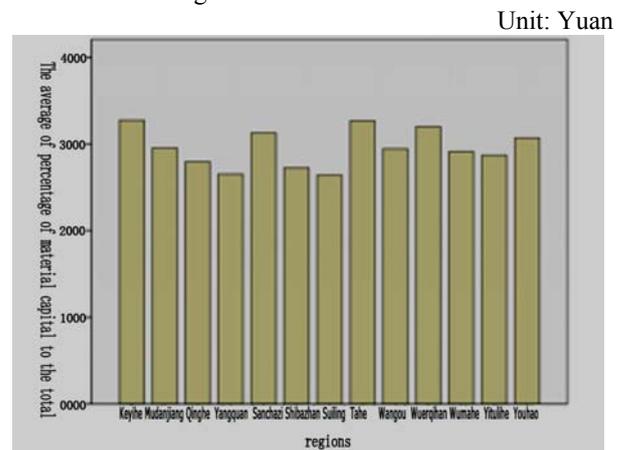


Figure 3-5 Percentage of the financial capital to the total livelihood capital

E. Analysis on social capital of worker's families at state-owned forest area in northeast region

Social capital refers to the social resources utilized and exploited by people to realize livelihood target against the background of livelihood vulnerability. It has three components: social relationship network, social organization and horizontal social connection. It can enhance trust and cooperation capability between and among people, and timely reflect organizations' offer to meet demands. Among the five livelihood capitals, social capital has the closest connection with the outside, and it can be viewed as an outcome of exterior environment constructed by organization structure and rules of order, and vice versa. The relationship between both parts is bidirectional. People made connections through public norms and constraint, and it is easier for people to establish new organization in pursuit of interests for themselves, and to enhance and rebuild livelihood capabilities. Such organization can be represented by forestry cooperative.

Figure 3-6 shows that worker's families at state-owned forests in northeastern region have relatively close relationships and connections with local social organizations in respect of production and living. Sound

organizations and institutions are established by communities and government in the process of the formation and reorganization of all kinds of living capitals. However, the author finds, in her door-to-door field sampling investigations at the Forestry Bureaus of the Inner Mongolia forest areas such as Keyihe, Yitulihe and Wuerqihan in 2016, that, the factors, including information asymmetry between and among local government, community and forestry worker's families, inadequacy of public facilities construction, and the long-term influence of ways of thinking and ideas related to planed economy, have influenced social capital accumulation and income of local forest worker families to some extent, and been an obstacle to the reconstruction of local families' livelihood capabilities to certain degree.

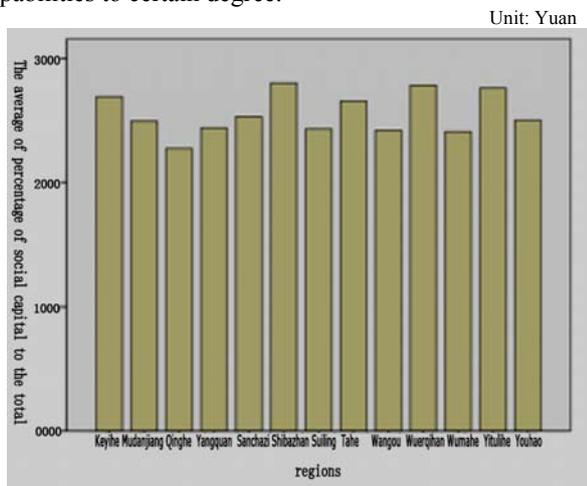


Figure 3-6 Percentage of social capital to the total livelihood capital

F. The influence of income on livelihood of worker's families at state-owned forest area in northeast region

Income is the most direct, obvious and measurable factor to measure the livelihood vulnerability risk faced by worker families at state-owned forest area in northeast region. Hence, it is necessary to make a proper and separate analysis on the income of worker families, besides the five capitals related to families' livelihood.

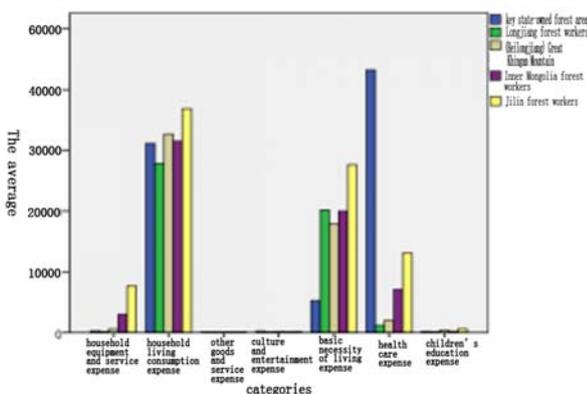


Figure 3-7 Disposable income level of workers' family at state-owned forest area in northeast region

Age structure has great influence on the employment of workers at forest area. In 2013, among adult people under the age of 30 of worker families at forest area , more than 40% were receiving educated and 14% of them were out of employment, which meant that the employment of adult people at state-owned forest area in northeastern region is still a serious problem. Furthermore, retirement began to emerge among people ageing from 40 to 49, the percentage rose to nearly 30% among the people aging from 50 to 59, and those people reaching the age of retirement (60 years old) accounted for nearly 31% of the total population at forest area. All of these people had no social security, which have resulted in huge pressure and burden on local families' lives and people's livelihood development and aggravated the degree of livelihood vulnerability at forest area.

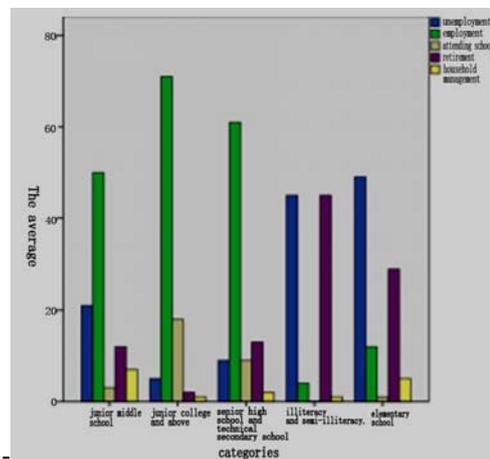


Figure 3-8 Educational level and employment of worker's families

According to the above analysis, there are four kinds of problems at present that have to be settled for the livelihood of worker's families at state-owned forest area in northeast region. Firstly, the relatively low salary is the main resource of income for the workers, and the expense on food accounts accounted for a large proportion of total expenditure; that is to say, their Engel's coefficient is relative high, which means that the worker's families at forest area have no high quality of life and relatively low livelihood level. Secondly, factors such as age, culture, skills, the institutional reform at the state-owned forest area, etc., have led to the low rate of employment, high proportion of unemployment, and heavy pressure in respect of employment. Thirdly, due to the unreasonable allocation of livelihood capitals of worker's families and shortage of individual livelihood capital for most families, the buckets effect have emerged and influenced the allocations and combinations of all other capitals owned by family, and the single weakness may increase the risk of falling into the pit of poverty. Fourthly, social security system is incomplete and deficient, and medical security, pension and other

mechanism unsound and far from being reasonable.

IV. CAUSES OF LIVELIHOOD STATUS OF WORKER'S FAMILIES AT STATE-OWNED FOREST AREA IN NORTHEAST REGION

A. Internal causes

1. the State has no sufficient understanding of the difficult of "three-forests" (forest area, forest worker and forest industry) question.

China has been too optimistic about the achievement from the implementation of the "Natural Forest Protection Program", and not paid enough attention to forest industry over the past years. As a result, China's governments at all levels asked more from forest industry than their giving, not to mention large-scale investment and repayment. The "three-forests" is not only a historic one, but also a question that can be attributed to practical causes. Nonetheless, There is an urgent need to improve the vulnerable status of families' livelihood at forest area, and to enhance and reconstruct their livelihood capabilities.

2. backward ideologies of workers at forest area and insufficient support from the country

Influenced by the long-term planned economy and living at remote mountain and forest, **workers at forest area** have developed world view and attitude featured by relatively closed mind, inertia and some kind of distortion. The idea that "a bit of wealth is perfect and lack of wealth not imperfect" has been deeply rooted in their minds. Furthermore, the problem of surplus labor force with difficulty to transfer to other industries or regions have still been prominent up to present.

B. External causes

External uncertainty factors include diseases, wars and conflicts, natural disasters, economic crisis, fluctuation of world food price and transformation of regimes and systems. The developing area of state-owned forest in China's northeastern region has main feature of backward productivity and relatively low per capita income. Hence, the key for the lowering of livelihood vulnerability during the period of adjustment and transformation is to improve the quality of five livelihood capitals and to reconstruct the livelihood capabilities of workers working at state-owned forest areas.

V. CONCLUSION

The analysis of five livelihood capitals of worker's families at forest area in northeastern region shows that the reconstruction of livelihood capabilities of worker's families at forest area in northeastern region after economic transformation can be started from the following five aspects:

A broadening the channel for income generation in order to increase the income of workers' family

The income will directly influence the livelihood sustainability of worker's family at state-owned forest area. Effective measures should be taken to broaden the channel for income generation, which will be conducive to increase of income and to the reconstruction of livelihood capabilities of worker's family at forest area at the panel of panel of justice.

B reorganizing social capital in order to accumulate community livelihood capital

Putnam believes that as a kind of feature of organization and like other capitals, social capital is also productive, and it enables an objective that is impossible to be realized without its participation to be possible. Means such as cooperation, etc. should be taken to increase the efficiency of rebuilding the livelihood of forest area workers' family.

C strengthening education and training in order to improve the livelihood capabilities of workers at forest area

Education and training are two different aspects to rebuild livelihood capabilities of workers at forest area. According to the features of livelihood capital of worker's families at state-owned forest area in China's northeastern region, China should increase its investment in basic education, and vocational education in order to improve basic skills of human resource capital.

D establishing mechanism for security assessment and early-warning for livelihood of worker's families at forest area

Effective measures should be taken to establish and improve an early-warning system for livelihood vulnerability of worker's families at forest area in order to realize a dynamic monitoring and prediction of livelihood capabilities reconstruction of worker's families.

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