ISCTE Business School
Instituto Universitário de Lisboa

Livelihoods and Sustainable Pathways of Land Lost Farmers in China: A Study on Xingwen County

SHEN Jun

Thesis submitted as partial requirement for the conferral of

Doctor of Management

Supervisor:

Professor Nelson Santos António, Professor Catedrático, ISCTE-IUL, Departamento de Marketing, Operações e Gestão Geral

Co-supervisor:

Professor TENG Ying, Full Professor, University of Electronic Science and Technology of China, School of Management and Economics

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Abstract

In process of China's industrialization and urbanization, how to realize the sustainable livelihoods of land lost farmers has become an urgent problem in society transformation. The thesis constructs Land Lost Farmer Households' Sustainable Livelihoods Framework; defines the sustainability of livelihood pathway from perspective of behavior pattern; studies their livelihood conditions and selection mechanism of livelihood pathways; and proposes suggestions for compensation policies for land expropriation. It concludes that the problems of policies included low standard of compensation, low coverage of social security, and lack of employment support, which led to relatively high dissatisfaction with policies and dependence on the government. For land lost farmers households, faced with land lost shocks, the asset-and-goal-based livelihood behavior is the most important factor to affect livelihood pathway and finally determine livelihood outcome. The livelihood assets base determines the capability to adjust livelihood behaviors, and the goals-oriented livelihood attitude determines the intention of adjusting behaviors. Because of the relatively good base of livelihood assets before land lost, the whole matching rate between assets and behaviors and income increased after land lost, showing the overall improvement of livelihood pathways' sustainability, but the gap among households was widen and livelihood demands were different. Some suggestions are proposed as: to meet diversified demands of households by policy portfolio package to enhance base of livelihood assets; to fully exert the leverage function of policies to motivate active livelihood behaviors; and to optimize external livelihood environment to create more of employment or entrepreneurial opportunities for land lost labors.

Key words: land lost farmers; livelihood behavior; sustainable livelihoods; pathway

JEL Classification: J33 - Compensation Packages; Payment Methods; I31 - General Welfare; Living Standards

Resumo

No processo de industrialização e urbanização vivido nas últimas décadas na China, milhares de camponeses perderam as suas terras, o que fez com que o debate sobre a sustentabilidade de vida destas pessoas se transformasse num assunto urgente para a sociedade chinesa. Esta tese constrói um modelo de Sustentabilidade das Vidas dos Camponeses Expropriados; define a sustentabilidade da trajetória de vida tendo em consideração os seus comportamentos (adaptação entre o comportamento e os ativos disponíveis); estuda as vidas dos camponeses expropriados e a escolha da trajetória de vida utilizando dados provenientes de investigação no terreno, nomeadamente "Casos de Estudo". Esta tese faz também sugestões para as políticas compensatórias da expropriação das terras. A tese conclui que os principais problemas das políticas atuais, são os seguintes: baixa compensação, pouca segurança, insuficiente apoio para obter novos empregos. Estes problemas provocam insatisfação nos expropriados. De acordo com as políticas de compensação, o comportamento baseado nos ativos e objetivos constitui um importante factor influenciador da trajetória de vida e dos resultados. Os ativos e os objectivos de vida determinam a capacidade e a intenção de ajustar os comportamentos. Contudo pequenas diferenças provocam grande diferenciação entre os diferentes tipos de famílias. A tese apresenta algumas sugestões para lidar com os problemas dos camponeses expropriados, por exemplo: aumentar a base dos ativos diversificando o portfólio; exercer plenamente a função de motivar comportamentos ativos de vida; optimizar a envolvente externa e proporcionar mais oportunidades de emprego, incluindo a criação de empresas.

Palavras Chave: Camponeses expropriados; Comportamento de vida, Comportamento de vida sustentável.

JEL Classification: J33 - Compensation Packages; Payment Methods; I31 - General Welfare; Living Standards

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List of Acronyms

CPC	Communist Party of China
CPLE	Compensation Policies for Land Expropriation
DFID	Department for International Development
IDS	Institute of Development Studies
LEF	Land Expropriated Farmer
LLF	Land Lost Farmer
LLFH	Land Lost Farmer Household
LLFHSL	Land Lost Farmer Households' Sustainable Livelihoods
SL	Sustainable Livelihood

Chapter 1: Introduction

Since 1990s, in the process of China's industrialization and urbanization, the non-agricultural demand for land has increased rapidly such as for highways and industries. Substantial suburban land has been expropriated by the government, and more and more farmers have lost their land and become an enormous group of land lost farmers (hereinafter LLFs). Under land lost shocks, changes occurred in the structure and value of their livelihood assets, and the uncertainties increased in their livelihood pathways. However, with the imperfect compensation policies for land expropriation (hereinafter CPLE), sustainable livelihoods (hereinafter SLs) in long run of LLFs might not be guaranteed. It has led to increasing social conflicts and, to some extent, hindered the progress of urbanization. Therefore, how to realize LLFs' sustainable livelihoods has become an urgent problem in the transformation of Chinese society.

1.1 Background of the Research

1.1.1 Land Utility to Farmers in Binary Household Registration System of China

Since 1958, China has established rigid residence management system to control the migration of rural population to urban districts, the binary household registration system of rural and urban division thus formed. According to this system, residents were divided into urban residence and rural residence with unequal employment opportunities and welfare systems. On one hand, the urban non-agricultural residents enjoyed low-priced food, basic supplies as housing, fuel, water, and electricity, as well as secured employment and pension system. On the other hand, rural agricultural residents could not work in urban districts and had to make their living with scanty earnings from land. In this way, land has multiple functions as providing employment, welfare, and social security. As shown in study of Han Jun (2009a: 6), 82.1% Chinese population lived in rural areas in 1978, and the agricultural gross product only accounted for 22.9% of the whole society gross product in that year; the rural residents' per capita net income was 133.57 *yuan* and per capita consumption expenditure was 69.63 *yuan* with food expenditure accounting for 65.8%. Based on Engel's Coefficient[①], farmers were in extreme poverty. In this binary system, farmers would enjoy the urban welfare only after they changed their rural residence to urban residence (in short,

① Engel's Coefficient refers to the portion of food expenses in individual total consumption expenditure.

rural-to-urban). However, such identity change was very difficult. The rural youth could usually become urban residence and obtain urban working positions only by accepting higher education or joining in the army.

Since China's reform and opening-up in 1978, with the introduction of market mechanism and the rise of agricultural productivity, the surplus of agricultural labors appeared. In addition, industrial development produced keen demand for labors. Chinese government relaxed the limitations on rural-urban migration policies by allowing farmers to work in urban districts, but on the premise of unchanged rural household registration and urban supply system. Thereafter, substantial rural surplus labors flooded to urban districts and became the main body of industrial workers in the process of China's industrialization. They were called "migrant workers", referring to labors with rural residence, engaged in non-agricultural production, and living on wage income. In 2007, the quantity of China's migrant workers was over 220 million, accounting over 40% of agricultural employees. They provided important income source for rural households. However, as the residence system of rural and urban division was unchanged, the migrant workers could not enjoy equal employment opportunities and urban welfare. While they living on the wages, land was still their ultimate guarantee for long-term livelihood. "With land in hand, no worry in heart" is the main support for them to work in urban districts. In recent years, Chinese government has started the strategy conversion of "nursing the Agriculture by the Industry, helping the countryside by the city" and implemented farmer-favoring policies. However, owing to the divided rural and urban social security systems, the income gap between rural and urban residents is great. For agricultural households, land has become the carrier of social security endowed to farmers by the government.

Under China's binary system of rural and urban residence, land has multiple utilities to farmers. It not only provides livelihood guarantee, employment opportunities, and direct economic benefits; it also has utilities of offspring inheriting, land value increment, and avoiding high cost for repossession (Wang Keqiang, 2000; Kong Xiangzhi, 2008). To be specific, the six aspects of land utility are as follows:

First, provide basic livelihood guarantee: As basic agricultural production material, land can produce necessities as grains and vegetables to meet basic needs of living. This kind of guarantee is low in level and high in uncertainty.

Second, provide employment opportunities: Agricultural production on land is one of the employment options for farmers. Thus, land provides employment opportunity to realize

labor value and obtain income. Although after China's reform and opening-up, the free flow of rural labors to urban districts increased many non-agricultural employment opportunities, migrant workers still face many problems because of the long-term implemented binary system of rural and urban division. With poor education and lack of skills, most of them were usually engaged in occupations with low reputation and low technology, and had low social status and lack of social network (Wu Zili, 2001). Therefore, most farmers have limited resources and weak ability to live in urban district. Once they lose their land, the shocks to their livelihood pathways will be great.

Third, provide direct economic benefits: Agricultural output from land can not only meet farmer households' consumption needs, but also bring cash flow in market exchange. If rented, land can bring rental income too.

Fourth, incremental value of land: In addition to the normal agricultural earnings, farmers can obtain the incremental earnings from land reformation, usage transform, or other external economic effects. For example, for the incremental value from land transfer, farmers, as owners of collective land, are entitled to obtain corresponding compensation.

Fifth, avoid high payment for repossession: In China's collective ownership system of rural land, due to unclear property right of land, farmers, as collective members, cannot obtain corresponding compensation when they temporarily abandon the right of using land, but they have to pay high expenses when they repossess the land. Therefore, even the land is not farmed to provide direct earnings, keeping the right of using land is a low-cost common practice considering the high opportunity cost of abandoning the right. This is the land utility of avoiding high payment for repossession.

Sixth, offspring inheritable utility: In China's land system, rural land is collectively possessed and the collective members obtain right of using land by sighed contracts with the collective organization (self-operation with a contract of farming). For property rights and use rights of collective land, offspring of collective members have the right of inheritance. They can also enjoy the above-mentioned utilities related to rights of land, which brings the offspring inheritable utility (Kung, 1994).

China's binary system of rural and urban division leads to the multiple utilities of land to farmers. These utilities form the foundation of analyzing the land lost shocks to farmers' livelihoods, determine the scope and extent of the influence to farmers' livelihoods after land lost, and therefore provide the basis of evaluating compensation policies.

1.1.2 The Emergence of Land Lost Farmers under Land Expropriation System

Since 1990s, in the process of China's industrialization and urbanization, the non-agricultural demand for land has increased rapidly such as building highways or industrial factories. The suburban land was expropriated in large scale, and more and more farmers lost their land to become land lost farmers (LLFs). LLFs here refers to the registered agricultural residents who lose entire or partial of their collective rural land with contracted rights when the land is expropriated by Chinese government. As indicated in the study of Pan Jiahua *et al.* (2011:156), the total quantity of LLFs in China has reached 40-50 million with the growth rate of 3 million per year, and the predicted number will reach 110 million in 2030.

Under China's existing land ownership system, land expropriation is compulsory to the group of LLFs. According to China's Land Administration Law, as to the property rights, land is divided into state-owned land in urban areas and collectively-owned land in rural areas, and farmers are given the legal rights of land contracts, land use and collective income distribution. Land is classified as agricultural land, construction land, and unexploited land[①]. To effectively protecting cultivated land, Chinese government severely restricts the change of agricultural land to construction land. If any individual or organization not belonging to rural collectives wants to use the land for construction, "he must apply for the use of state-owned land according to law", that is, the government has the right of land expropriation to transfer collectively-owned land to state-owned land. In this way, the government is endowed the exclusive right to acquire rural land and re-allocate it to users, while the rural collectives and farmers hardly have a voice on land expropriation and compensation.

For the loss caused by land expropriation, whether expropriated for public use or commercial use, China's Land Administration Law requires that "compensation should be paid according to the original usage of the expropriated land". In details, the attachments to and green crops on the land should be compensated according to their actual value. The standard of land compensation fees and resettlement fees is that the combined total should not exceed 30 times the average output value of the three years prior to the expropriation of

[①] Agricultural land refers to the land directly used for agricultural production. It includes arable land, woodland, lawn, irrigation and water conservancy land, and cultivation surface. Construction land refers to land for constructing buildings and structures. It includes land used for rural and urban habitation and public facilities, factories and mines, transportation facilities and water conservancy, tourism destination, and military facilities. Unexploited land refers to land except agricultural land and construction land.

cultivated land, regardless of the location difference and land value increment revenue from changing of land use. With the little compensation, the basic living of most LLFs was affected, and their SLs were challenged (Han Jun, 2009b). Meanwhile, as the government had not provided perfect supporting policies in employment and social security, many LLFs faced with employment difficulties and high livelihood risks. Some of them even turned into the new poor in urban areas. The rural and urban social stability was threatened in China (Gao Yong, 2004). As shown in sampling study of Pan Jiahua et al. (2011: 263), 60% LLFs have difficulties in living; 81% LLFs worry about future life, with 72.8% worrying about pension, 63% worrying about inadequate financial resources, and 52.6% worrying about medical care.

In China, the land is the carrier of social security endowed to farmers by the state government, so when the LLFs lose their land, what they lose is not only the physical entity of land, but also a series of rights attached to land. Corresponding to the multiple utilities of land, farmers' losses includes: basic living guarantee, low cost living method, essential employment positions, stable source of income, and highly valued properties and property rights inheritable by offspring. However, for these losses, the compensation in most regions was with single type (mainly monetary compensation) and low amount, and did not reflect the value of land utilities to farmers and substitute the roles of land. For LLFs, lump sum monetary compensation was insufficient to offset the value losses caused by land lost in employment, income and food security (Han Jun, 2009b). Therefore, land expropriation triggered serious social contradiction and conflicts. As indicated by research data, about 60% farmers' appeals to higher authorities for help were related to land, and 30% were related to land expropriation (Pan Jiahua *et al.*, 2011). Another social problem caused by low standard compensation was that it stimulated the waste and low efficient exploitation of land. According to Outline of the National Overall Plan of Land Use issued in 2008 by China National Ministry of Land and Resources, the total quantity of expropriated but unused land was nearly 2667 square kilometers (about 4 million mu①).

To solve these problems, some scholars propose to change the government's monopoly in land expropriation market and compensate farmers at market price (Huang Zuhui et al., 2002; Zhou Qiren, 2004; Qu Futian et al., 2004; Chang Xiongjin, 2004). However, from the realities of China, the central government takes land as an important means of macro-control and takes cultivated land as strategic resource closely related to grain

① 1 km^2 = 1500 *mu,* 1 *mu* = 666.67m^2

security, so it is not possible in the near future for Chinese government to abandon the control over the land expropriation market (Kong Xiangzhi, 2008). Therefore, in the thesis, we regard the land expropriation system as an external variable, and aim to study the compensation mechanism in existing system background. From this research perspective, there has greater practical significance in solving livelihood problems of LLFs. To improve the performance of CPLE, the key point is to take LLFs as behavior actors in sustainable livelihood framework (LLF). It is only to examine their possessions, thoughts and actions before and after land lost, to understand the land lost shocks to LLFs, and to identify the livelihood needs of LLFs, can we ultimately propose operative policy portfolio package.

1.1.3 Livelihood Shocks Confronted by Land Lost Farmer Households

LLFs are a special group appearing in the process of China's urbanization and industrialization, whose livelihood pathways are influenced by the land expropriation of government. The livelihood pathways mean the paths that LLFs, based on internal livelihood conditions and external environment, choose certain activities to pursue some goals and lead to certain outcomes. We call the change of livelihood pathways resulted from land lost as "livelihood shocks" or "land lost shocks". For land lost farmer households (hereafter LLFHs), these shocks include:

1. Great Changes in Structure and Value of Livelihood Assets

Land expropriation makes the households' original land capital from possession to lost (or majority lost), and brings great change in structure and value of LLFHs' livelihood assets. Under CPLE, the land value is transformed to other capital by various types of compensation.

With the decrease or total loss of land (natural capital), the value of originally land-attached human capital decreased (owing to the exclusiveness of the capital). Original rural-community-dependent social capital was shocked (owing to the change of social network). Cash compensation and pension income obtained from land expropriation might increase family deposit or cash flow (financial capital). Housing resettlement might improve habitation condition and environment (physical capital) [①]. These changes in structure and value of livelihood assets will lead to a series of reactions to urge LLFHs to adjust livelihood goals and behavior choices, and thus produce different changes in livelihood outcomes as income level and livelihood safety.

2. Increased Uncertainty in Livelihood Pathways

[①] The definitions of these livelihood capitals are to be explained in detail in Chapter III.

In the binary household registration system of rural and urban division, land has multiple utilities to farmer households. Therefore, land is the livelihood dependence to either agricultural households, or agricultural combined occupations households and non-agricultural households. However, as the land expropriation by government causes land lost shocks and changes livelihood environment of LLFHs, they are facing both opportunities and challenges and the uncertainty in livelihoods pathways increased.

As to opportunities, the land expropriation makes LLFHs abandon traditional agricultural production and rural life, and enter into cities. They face more market opportunities and more behavior choices. It is helpful to widen diversified sources of family income and makes it possible for LLFHs to share the fruits of urban economic development. As to challenges, on one hand, the low cost living style depending on land products is compelled to change and household consumption expenditure increases greatly; on the other hand, agricultural production activities have to be ceased with agricultural income decreasing to zero. Therefore, livelihood behaviors are urgently to be adjusted and sources of non-agricultural income are urgently to be explored. Confronted these opportunities and challenges, owing to differences in internal and external environment, LLFHs have higher uncertainty in livelihood behavior choices, which will increase the uncertainty in livelihood outcomes and lead to fluctuation of livelihood pathways. For example, diversified source of income might be accompanied with greater gap of income.

With the above-mentioned shocks, what changes have happened to LLFHs' livelihood conditions? How can we evaluate the sustainability of LLFHs' livelihood pathways? What are the key influencing factors? The thesis is to give some theoretical and empirical answers.

1.2 Main Research Work

By constructing SL Framework for LLFHs, this thesis studies livelihood conditions and pathway selection issues of "livelihood assets and goals—livelihood behaviors—livelihood outcomes". Owing to the lack of official data, we made questionnaire survey and depth interview in Xingwen County, Sichuan Province in China, and acquired first-hand data. By research methods of descriptive statistics, regression analyses, and case studies, this thesis discovers livelihood conditions of LLFHs under CPLE, estimates the sustainability of their livelihood pathways, identifies the key influencing factors of livelihood pathways, and proposes some suggestions for the improvement of CPLE.

The thesis has seven chapters. The first chapter is introduction. The second chapter is literature review. It reviews the studies of LLFs' problems in China and SL approaches. The third chapter is research design and methods. Based on literature review, it proposes LLFHSL Framework, proposes hypotheses on the interrelations of factors in livelihood pathway, defines the sustainability of livelihood pathway from perspective of behavior pattern (the matching between livelihood behavior and livelihood capital), and provides intermediate indicator for evaluation of livelihood pathway. The fourth chapter is the survey and data analysis on LLFHs' livelihoods in Xingwen County. Based on actual regional situation and research framework, it explains the design of questionnaire survey, makes descriptive statistical analysis on sample data from three typical projects of land expropriation, discovers LLFHs' livelihoods and policy appeals, and identifies their livelihood behavior features and reasons. The fifth chapter is the statistic study on LLFHs' livelihood pathways. It measures the value of LLFHs' livelihood assets, analyzes the type characteristics of livelihood behaviors, and then evaluates the sustainability of livelihood pathways before and after land lost. Further, by using econometric models, it makes regression analysis on influencing factors of livelihood pathways, and identifies the impacts of livelihood assets and behaviors on income. The sixth chapter is case studies. Based on questionnaire survey, this chapter makes depth interviews with typical LLFHs to obtain detailed data and materials, and further verifies the hypotheses by case studies. The seventh chapter concludes the research results, and proposes corresponding policy suggestions.

1.3 Theoretical Significance and Practical Value of the Research

This thesis has important theoretical significance and practical value. The theoretical significance lies in the following three aspects. First, the research field of SL approaches is extended to the special group of LLFs in China. On the bases of general SL frameworks and livelihood features of LLFHs, the thesis put forward the improved SL framework for LLFHs and studies the changes of livelihood pathways under land lost shocks from the perspective of livelihood assets, behaviors, outcomes and policy influences. Second, in the improved SL framework, the thesis defines the sustainability of livelihood pathway from perspective of behavior pattern (the matching between livelihood behavior and livelihood capital). Comparing with the final indicator of livelihood outcomes, it provides an intermediate indicator for evaluation of the sustainability. By using both of them, we can describe the livelihood conditions of LLFHs more accurately. The indicator of the matching also provides

basis by behavior research for explaining differences in livelihood outcomes.

The practical application value of the thesis is as following: by using survey data of LLFHs in Xingwen County and methods of regression analysis and case studies, the thesis studies the sustainability and key influencing factors of LLFHs' livelihood pathway, reveals the change of livelihood pathways before and after land lost and the reasons, evaluates CPLE based on the sustainability of livelihoods, providing micro basis for policy analysis. Conclusions and suggestions of the thesis are helpful to improve the performance and satisfaction of CPLE.

1.4 Limitations of the Research

The research of the thesis has the following limitations.

First, the realization of SL for LLFHs in China has the general and specific character. The research framework and design are the same, but the contextualization is different. For LLFHs in different regions, their livelihood conditions and pathways are different with the influence of various livelihood environments. Therefore, our conclusions and suggestions based on research of Xingwen County are typically distinctive, and they need to be further verified by enlarging sampling regions.

Second, the valid sample in our questionnaire is only 54, and corresponding pooled data including two groups of cross-section data, before and after land lost respectively, is 108. It is comparatively small to apply econometric models to make regression analysis. Therefore, a larger sample should be used to testify the empirical results.

Chapter 2: Literature Review

2.1 Livelihoods of Land Lost Farmers in China

Under binary household registration system of rural and urban division of China and the government monopoly of land expropriation market, little compensation and no guarantee for long term livelihoods of LLFs have caused wide attention of Chinese scholars. Early studies focus on land system and policy suggestions for guarantee of LLFs' rights and interests. Later researches switch to statistical analysis on livelihoods before and after land lost, and further specified on employment behaviors and their influencing factors.

2.1.1 Compensation Policies for LLFs

Due to rapid and large-scale expropriation of rural collective land by governments, the group of LLFs has come in being in the process of urbanization. Early studies in China mainly focused on system arrangements of land expropriation (Huang Zuhui *et al*., 2002; Zhou Qiren, 2004;Qian Zhonghao, 2004; Han Jun, 2005; Qu Futian *et al*., 2005; Wang Dingxiang *et al*., 2006) and protection of rights and interests for LLFs (Bao Haijun *et al*., 2002; Zhu Mingfen, 2003; Lu Haiyuan, 2003; Chang Jinxiong, 2004). Policy recommendations included reforming land expropriation system, increasing compensation standards, providing employment resettlement and social security system, mainly by qualitative research methods and focusing on system analysis and suggestions.

For example, by analyzing the infringement of farmers' land development rights by expropriations not for public purposes, Huang Zuhui et al., (2002) named two routes options of compensation for land development rights. By the method of equilibrium analysis on China's land expropriation policies, Qian Zhonghao (2004) thought that it is necessary to regulate government expropriation activities, to increase the land compensation standards, to construct social security system and to grant farmers national treatment. The reason is that although there might be rationality in land expropriation institution, policy failures might happen and thus bring loss to the social welfare. As revealed by Qu Futian *et al*. (2005), the main reasons of low efficiency of land resources allocation were basic institutional defects characterized by the missing of land property rights' owners and abuse of land expropriation rights as well as governance defects featured by non-cooperative game

between the central government and local governments on allocation of land resources. Based on comparisons among urban residents, farmers, and LLFs on social security, Bao Haijun, *et al*., (2002) proposed that resettlement fees and land appreciation earnings after expropriation should be the main source of funds for building the social security system for LLFs with retirement, medical care, legal aid services, opportunities of education and training, and the minimum living standard. According to questionnaire data of 255 LLFs from 5 cities of Zhejiang Province in China, Zhu Mingfen (2003) pointed out that the geographical locations, expropriation time, compensation levels and allocation methods were different from place to place, but problems like low compensation standard, distribution chaos, employment difficulty, inadequate social security existed everywhere. Lu Haiyuan (2003) suggested that employment policies suitable to LLFs and social security system should be established in order to let them share the achievements of industrialization, urbanization and modernization.

2.1.2 Livelihood Conditions and Suggestions

Due to a lack of official data, Chinese researchers collected first hand data through field investigation to understand the livelihoods of LLFs. Such researches include: the living standard of LLFs (Lou Peimin, 2005; Han Jun, 2009); cognition and welfare situation (Gao Jinyun, *et al*., 2007; Chen Ying, *et al*., 2007; Lin Lefen, *et al*., 2010); willingness for land expropriation (Qian Zhonghao, *et al*., 2007; Kang Lan, 2009; Mu Xiangli, *et al*., 2009; Zhao Xiaoqiu, *et al*., 2009); willingness to accept compensation (Kong Xioangzhi, *et al*., 2008); and implementation of CPLE involving monetary compensation, employment, and social security (Chen Ying, *et al*., 2009; Han Jun, 2009; Ye Jianping, *et al*., 2010; Lin Lefen, *et al*., 2010; Jin Jin, 2010). Corresponding suggestions had been proposed based on data analysis. Research methods are mainly questionnaire survey and statistical analysis with focus on livelihood outcomes without systematic analysis to livelihood assets, behaviors and outcomes.

For example, Han Jun (2009) pointed out that, although most LLFs' family income increased, the living standard of some LLFHs (mainly pure farming households in traditional agricultural regions) dropped; owing to difficult employment and low social security, long term livelihoods could not be guaranteed; and the government should improve relative systems in employment and social security. Gao Jinyun *et al*. (2007) discussed the change of farmers' welfare during transfer of farm land with the Capability Approach of Sen. He

claims that transfer of farm land had caused a slight decline in the welfare level. Except for the housing condition improvement, the farmers' economic state, social security, community life, environment, and psychological status had deteriorated in varying degrees. The numbers of dependent members in farmers' households, education and social and economic development level in the region were primary factors causing the differences of households' welfare. Based on three sampling villages and according to differences in dependency on land, Lin Lefen *et al*. (2010) conducted a comparative research on LLFs' satisfaction towards the government's compensation policies, employment situation after becoming urban residents, adaptation to the city life, and self-recognition. Kong Xiangzhi (2008) borrowed Contingent Valuation Method, "CVM" in short, widely adopted in environmental economics to make survey for Willingness to Accept, WTA in short, that is, LLFs' willingness to accept compensation. He made empirical analysis to influencing factors of LLFs' WTA and influencing extents of different factors, and proposed the direction to improve CPLE. Chen Ying *et al*. (2009) argued that no matter the land expropriation was in public interests or not, compensation should relate to damage from which the farmers suffer, which was affected by factors like the distance between the land and the city center, abundance of land resources and the proportion of labors.

2.1.3 Livelihood Behaviors of LLFs

Researches on LLFs' employment behavior include land lost labor supply (Cheng Deli *et al*., 2004), LLFs' informal employment (He Jingxi *et al*. 2007), land lost females' employment (Li Qin *et al*., 2007; Sun Liangyuan *et al*., 2007), voluntary unemployment, involuntary unemployment and employment intention (Li Qin et al., 2009), and influencing factors of employment behaviors (Xie Yong et al., 2009). Research methods adopted were mainly empirical verification by econometric models.

Only a few papers dealt with livelihood activities of LLFs from the perspective of employment behaviors. The behaviors include different types of employment or unemployment behaviors (such as informal employment, female employment, voluntary unemployment and involuntary unemployment), their influencing factors, employment willingness, and behavior options (Sun Liangyuan, 2007; He Jingxi et al., 2007; Li Qin et al., 2009; Xie Yong et al., 2010).

By using Logistic Model to verify the influences of factors as human capital, family burdens, and social security level, Cheng Deli *et al*. (2004) studied influencing factors of

LLFs' labor supply intention in rural and urban intersection region of Beijing. He Jingxi *et al*. (2007) analyzed some cases of informal employment of elder LLFs with low education level in Chengdu City and regarded that present guidelines and rules increased the cost of informal employment and were not beneficial to the sustainability of LLFs' livelihood. Li Qin *et al*. (2007) made empirical studies on issues as land lost females' employment, influencing factors on income, and selection of employment patterns. Using the Maddala effect model and survey data of rural landless women from the Pearl River Delta area, Sun Liangyuan *et al*. (2007) analyzed the main factors influencing women employment and training attendance. They concluded as follows: 1. both education and training could improve the employment rate for land lost females; 2. training contributed more to employment, and family incomes did not significantly change the employment conditions of female members of LLFs. With the Logit model and Multinomial Logit model and survey data of LLFs' employment situation in the Pearl River Delta areas, Li Qin *et al*. (2009) did empirical analysis on LLFs' voluntary unemployment, involuntary unemployment and off-farm employment behaviors. It concluded that family incomes and high earnings from sources other than laborer such as collective enterprise dividends were the main reason why LLFs exit the labor market. As for those LLFs of involuntary unemployment, they failed in obtaining jobs mainly because of their age, health, non-farming experience. According to Xie Yong *et al*. (2009), the human capital such as education levels, vocational training, and health conditions, had significant positive impact on the LLFs' employment, while non-labor incomes especially the land compensation fees had a negative effect on employment. There were not significant correlations between the usage of land expropriated, degree of land lost and the employment of LLFs.

2.2 Sustainable Livelihoods Approaches

2.2.1 Livelihoods Approaches

How poverty is understood determines the way policy makers and planners respond to it. Livelihoods mean more than income, encompassing the capabilities, assets (including both material and social resources) and activities for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks; maintain or enhance its capabilities and assets, while not undermining the natural resource base (Chambers and Conway, 1992; Scoones, 1998; Carney et al., 1998, 1999).

Livelihoods approaches are a way of thinking about the objectives, scope and priorities for development. They place people and their priorities at the centre of development. They focus poverty reduction interventions on empowering the poor to build on their own opportunities, supporting their access to assets, and developing an enabling policy and institutional environment. In efforts to apply this rationale, SL approaches work at two levels acting as an overall development objective and an analytical tool (Farrington *et al.*, 2001). The development objective is to enhance the sustainability of people's livelihoods, with a particular focus on the livelihoods of households. The framework aims to improve development activity through systematic – but manageable – analysis of poverty and its causes; taking a wider and better-informed view of the opportunities for development activity, their impact and "fit" with livelihood priorities; and placing people and the priorities they define firmly at the centre of analysis and objective-setting (Ashley and Carney, 1999)

Therefore, core to livelihoods approaches are a set of principles: people matter, contexts are important, a focus on capacities and capabilities, rather than needs, a focus on the responsive and participatory, and a normative emphasis on poverty and marginality (Scoones, 2009).

2.2.2 Comparison of Sustainable Livelihoods Frameworks

From viewpoint of SL, poverty is not permanent and unchanged. It is determined by poverty group's internal conditions and behavior selections in the impact of external environment (Moser, 1996; Chambers, 1995). On this basis, the SL research framework focusing on "assets-availability-activities" is applied in studies of poverty and sustainability by many international institutions. The following comparison is made among research frameworks of Institute of Development Studies (IDS), UK Department for International Development (DFID), CARE and Khanya.

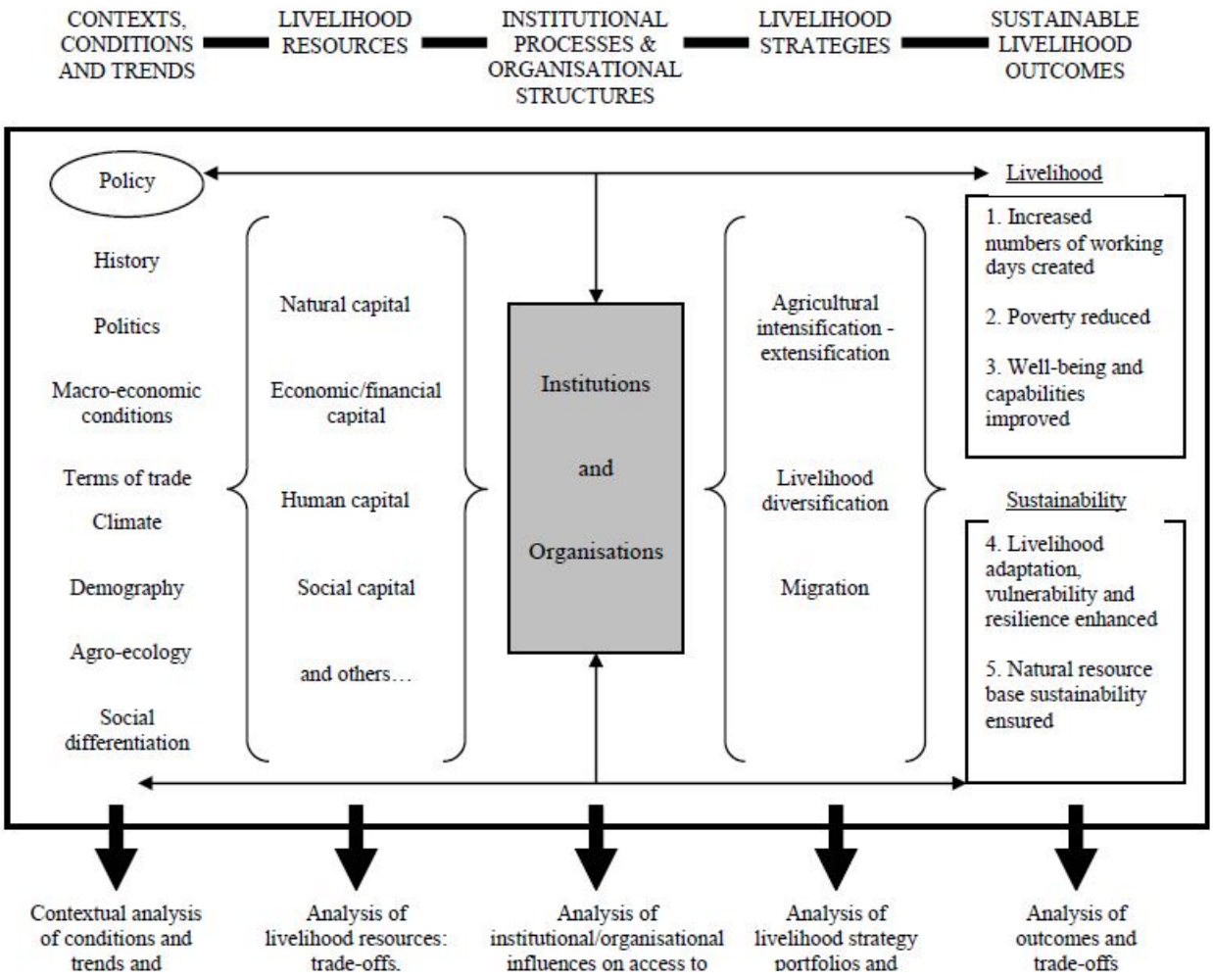
1. IDS' Sustainable Livelihoods Framework

In 1998, IDS published a Working Paper providing an analytical framework for sustainable rural livelihoods that highlighted five interacting elements including contexts, resources, institutions, strategies and outcomes (see Figure 2-1).

What the framework expressed was the question: Given a particular context (of policy setting, politics, history, agroecology and socio-economic conditions), what combination of livelihood resources (different kinds of capital) result in the ability to follow what combination of *livelihood strategies* (agricultural intensification/ extensification, livelihood

diversification and migration) with what *outcomes*? Of particular interest in this framework are the *institutional processes* (embedded in a matrix of formal and informal institutions and organizations) which mediate the ability to carry out such strategies and achieve (or not) such outcomes (Scoones, 1998: 3, italics in original).

Figure 2-1 IDS's Sustainable Rural Livelihoods Framework



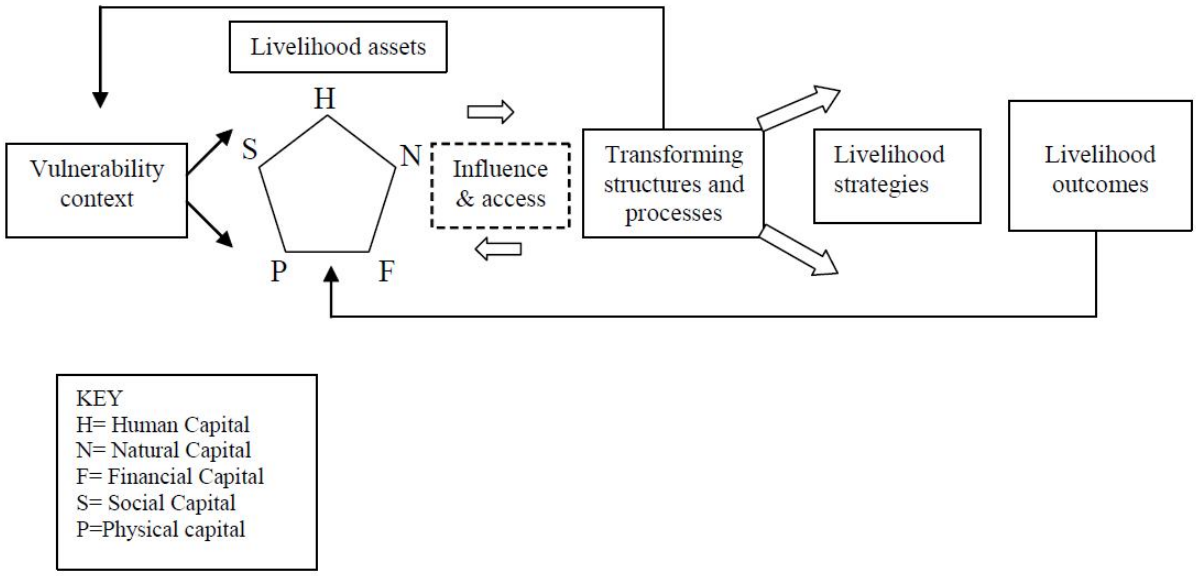
Source: Scoones, 1998

2. DFID's Sustainable Livelihoods Framework

Building on work by IDS and others, DFID published a conceptual framework to aid analysis of the factors affecting peoples' livelihoods (Carney, 1998). In this framework, there are five factors affecting peoples' livelihoods, including livelihoods assets, livelihood strategies, livelihood outcomes, vulnerability context and the policies, institutions and processes (see Figure 2-2). In detail, they are: their access to social, human, physical, financial and natural capital or assets, and their ability to put these to productive use; the different strategies they adopt (and how they use their assets) in pursuit of their priorities; the

priorities that people define as their desired livelihood outcomes; the context in which they live, and factors affecting vulnerability to shocks and stresses; the policies, institutions and processes that shape their access to assets and opportunities[①].

Figure 2-2 DFID's Sustainable Livelihoods Framework



Source: Carney, 1998

People and their access to assets are at the heart of DFID SL framework. Assets can be destroyed or created because of the trends, shocks and seasonal changes in the vulnerability context within which people live. Policies, institutions and processes can have a great influence on access to assets - creating them, determining access, and influencing rates of asset accumulation. Those with more assets are more likely to have greater livelihood options with which to pursue their goals and reduce poverty. The human assets are at the heart of 'asset pentagon'. Drawing on Sen's classic work (1997), Bebbington (1999) developed a 'capitals and capabilities' framework for looking at rural livelihoods and poverty.

Livelihood strategies are the combination of activities that people choose to undertake in order to achieve their livelihood goals. They are also classified as coping and adaptive strategies. Coping strategies have been defined as "often a short-term response to a specific shock such as drought", and adaptive strategies as "a long-term change in behavior patterns as a result of a shock or stress" (Singh and Gilman, 1999: 541). Adaptive strategies may be most relevant to understanding a peri-urban setting, as people and households change their

① Livelihoods Connect.
http://www.eldis.org/go/topics/dossiers/livelihoods-connect/what-are-livelihoods-approaches

strategies to make the most of, or to cope with, changes brought about by urban development (Brook et al., 2000).

Livelihood outcomes are the goals to which people aspire, the results of pursuing their livelihood strategies. They help us understand: the results of peoples' livelihoods strategies in a particular context, why people pursue particular strategies and what their priorities are, and how people are likely to respond to new opportunities or constraints.①

The Policies, Institutions and Processes (PIPs) element of the SL framework covers the complex social, economic and political context within which people pursue their livelihoods strategies. Drawing on work by North (1990) among others, the research of institutional economics are introduced, combined with considerations of environmental dynamics (especially from the "new ecology" perspective) and social, political and cultural contexts, drawing on social anthropology and political ecology (Scoones, 2009).

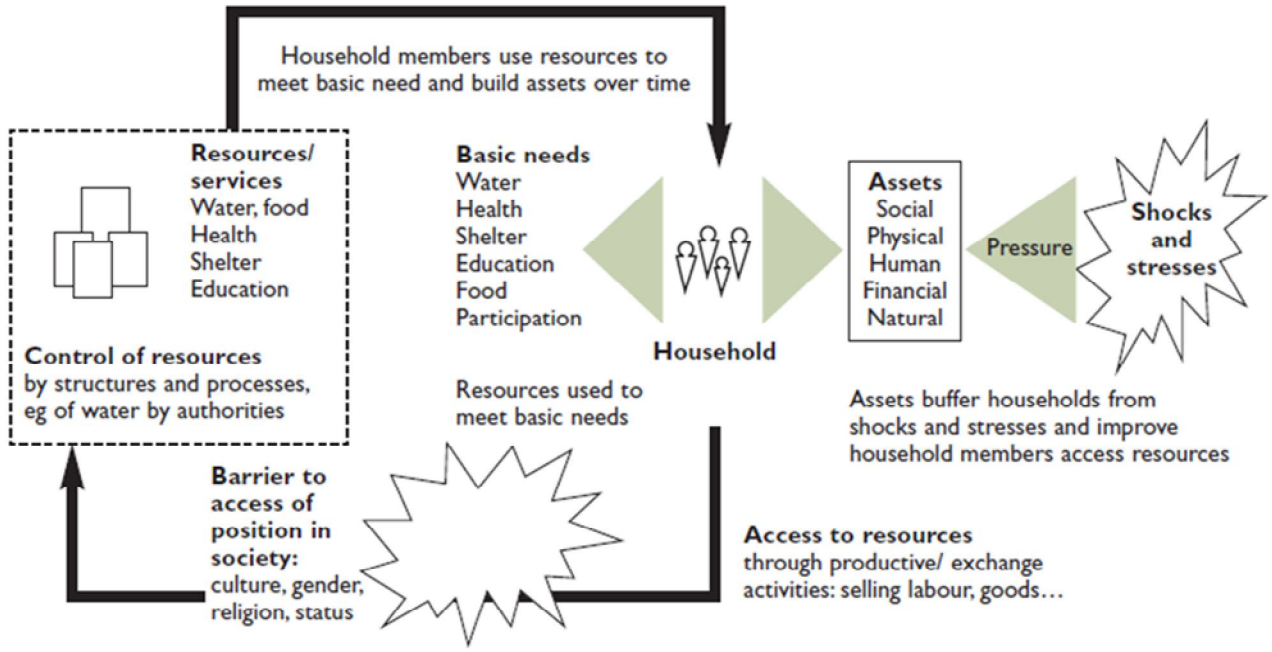
3. CARE's Sustainable Livelihoods Framework

Different from other frameworks, CARE adopted household livelihoods security (HLS) as a framework for relief and development. The HLS model depicted in Figure 2-3 provides a more tangible and practical basis for application purposes (Sanderson, 1999).

Central to the HLS framework are vulnerable households and recognizing the factors that perpetuate poverty. Following the arrows, the household has basic needs. In order to meet these needs, household members access resources. Access is gained through payment or by undertaking productive activities. However, the poor often encounter *barriers* that limit their ability to access resources/service. These barriers might be position in society (e.g. gender, culture, religious or economic status) or controls of resources by *structures* (e.g. government, private sector employers) and *processes* (e.g. laws, regulations). Depending upon the success in overcoming these barriers, household members may be able to access resources, so meeting basic needs and accumulating assets. Assets are used to buffer households against *stresses and shocks* and to increase the ability to *improve access to resources* in the future (Karim, 2002: 32, italics in original).

① Livelihoods Connect. http://www.eldis.org/go/topics/dossiers/livelihoods-connect/what-are-livelihoods-approaches/livelihood-outcomes

Figure 2-3 CARE's Sustainable Livelihoods Framework



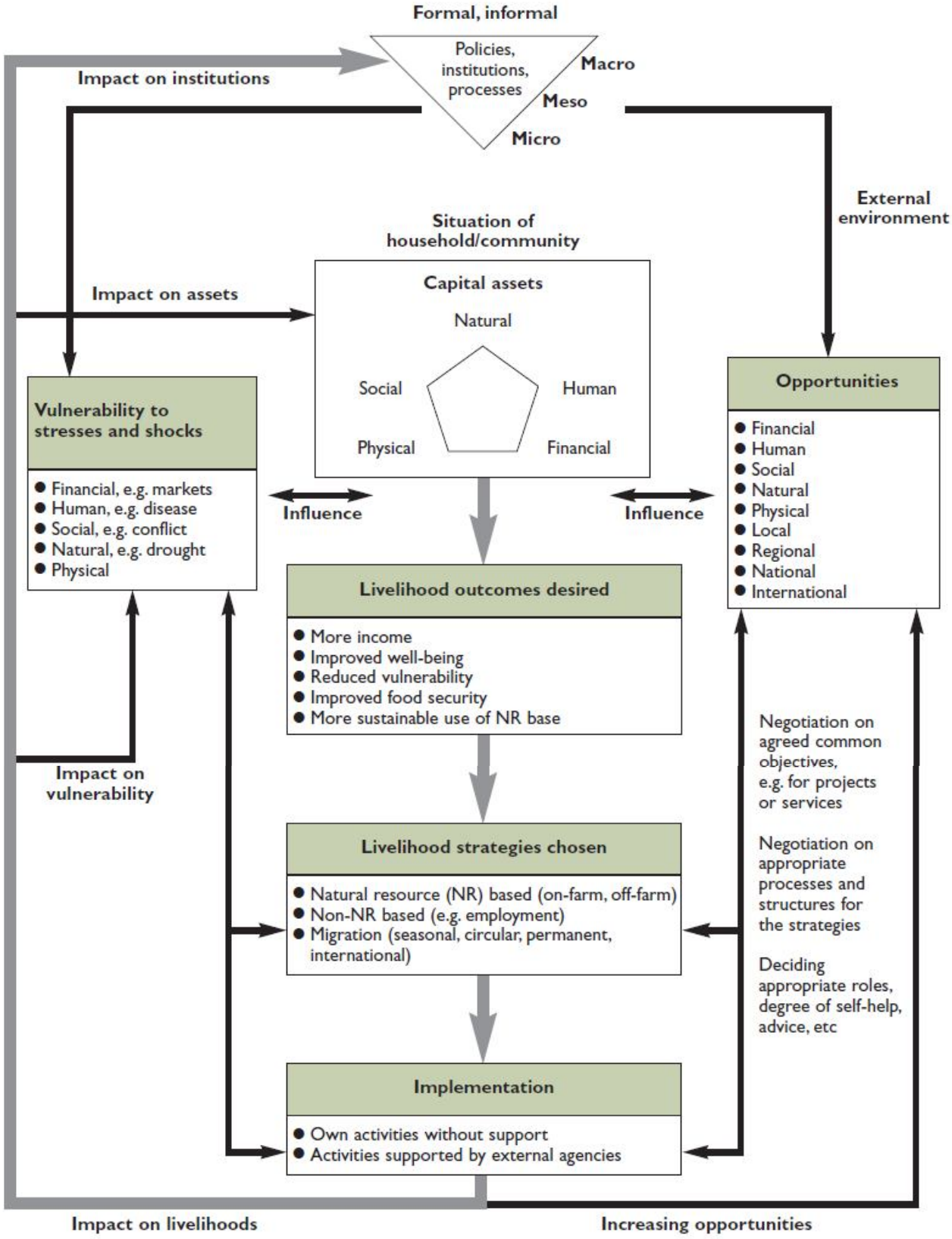
Source: Sanderson D., 1999

4. Khanya's Sustainable Livelihoods Framework

Using an adapted version of the DFID SL framework, Khanya[①] emphasizes the importance of linking local realities to central policies and institutions in its development interventions. In Khanya's SL framework (see Figure 2-4), *opportunities* and *PIP* linkages are given greater prominence. Khanya's approach is similarly founded on the core SL principle but has as its starting point that any intervention should be based on people's strengths and marries the principle of being dynamic with being *flexible.* The process of refining Khanya's framework has been an iterative response to working at different levels with local partners and Khanya's SL approaches have emerged from what is considered to be best practice. As a result, Khanya disaggregated the PIPs section into micro-, meso- and macro-levels. *Opportunities* was included to address opportunities identified outside of communities and is typically addressed through SWOT analysis and incorporated into planning (Karim, 2002: 34, italics in original).

[①] Khanya, established in 1998, works with government, business and civil society, to promote sustainable livelihoods for the rural poor

Figure 2-4 Khanya's Sustainable Livelihoods Framework



Source: Khanya 2001, cited in Karim H. 2002

Khanya focuses on six governance issues and asks how SL principles can help in understanding and addressing power relations. At the micro-level, these are: that poor people are active and involved in managing their own development; there is an active and dispersed network of local service providers. At the meso-level these are: effective, well-managed coordinated services delivered from local government level; upper meso-level providing support and supervision. At the macro-level these are: centre providing strategic direction, promoting equity and oversight; international-national linkages.

These SL frameworks have applied flexibly, in contexts ranging from project and programme preparation, to research and sub-sector reform.

2.3 Application of Sustainable Livelihoods Framework

The SL approaches were initially in the purpose to generate more understanding of rural households, but at present, are for studying livelihoods in urban as well as peri-urban areas (Singh and Gilman, 1999). SL frameworks have been applied and found the following useful key ways: firstly, supporting systematic analysis of poverty and its causes, a way that is holistic – hence more realistic – but also manageable; secondly, promoting a broader and more informative view of opportunities to develop activities and their possible impact; thirdly, placing people and the priorities they define firmly at the centre of analysis and goal-setting (Caroline Ashley and Diana Carney, 1999).

There is only a little application in a peri-urban setting. For example, Tacoli (1998) examines rural-urban interactions and the sustainable rural livelihoods framework, noting that the livelihoods of households in any location often include both rural and urban elements. DFID commissioned a study on poverty and the peri-urban interface (Rakodi, 1999) to guide research in poverty-focused peri-urban natural resource management. The conclusions suggest that there exists a process of increased differentiation or polarization between capitalist and subsistence producers in peri-urban areas. Those who cannot take advantage of the opportunities presented by urban markets include the already land poor, those who have insufficient capital to purchase land and/or intensify production, and those who are excluded from credit and extension systems. Tacoli (1999) reviews the contribution of a number of livelihood frameworks to understanding the opportunities and constraints for low income groups. She points out “understanding transforming structures is especially important in the peri-urban interface (PUI), where institutional fragmentation and rapid change in the roles, responsibilities, rights and relations between different groups and organizations can result in

growing social polarization". She also confirms the belief that "in the PUI, income diversification is likely to be intensified as the proximity of urban and rural labor markets can provide increased employment opportunities". Recent research provides insights into how rural conditions and livelihood strategies are changing, often in response to ongoing processes of economic transformation and urbanization. The research highlights the importance of close connections with urban areas and suggests how policies and programs can support the positive dynamics of change (Dercon et al., 2005; Thanh et al., 2005).

In China, only a few studies of LLFs use the SL framework (Research Team of Social Policies Research Center of Chinese Academy of Social Sciences, 2005; Liu Jiaqiang, 2007; Cheng Deli, 2008; Chen Lei *et al*., 2010). For example, Liu Jiaqiang *et al*. (2007) put forward that LLFs lost their essential social capital and physical capital as soon as they lost natural capital, so the social security system is an important institution capital to secure their sustainable livelihoods. Cheng Deli (2008) analyzed the vulnerability context and structure of livelihood assets of LLFs in urban villages with the SL framework of DFID and pointed out that the cheap rent house economy, informal economy and corporatizing operation of collective economy in urban villages played significant roles in assets accumulation for LLFs. According to Chen Lei and others (2010), the deprival of LLFs' capabilities was the main reason resulting in insufficiency and unbalanced distribution of livelihood capitals. These papers took more qualitative analyses on livelihood capitals, with no further studies on other livelihood factors.

Nonetheless, the sustainable livelihoods approaches were more frequently used in research for the livelihoods of Chinese poor farmers (Li Xiaoyun et al., 2007; Su Fang et al., 2009a, 2009b; Li Jie et al., 2009a, 2009b; Yang Yunyan et al., 2009; Li Jie et al., 2010; Li Shuzhuo et al., 2010; Xie Xuxuan *et al*., 2010). Li Xiaoyun *et al*. (2007) used the measuring indicators of livelihood assets to reflect the farmer household's vulnerability. Su Fang *et al*. (2009b) studied the relationship between livelihood assets and livelihood strategies (farm activity and non-farm activity) with logistic regression model, and suggested that governments should provide more fund and technology support in order to achieve livelihood diversity and strengthen the ability to resist risks for farmers. Li Jie *et al*. (2009a) used the DFID's SL analysis framework and the rural household survey to study the rural livelihood (livelihood capital, strategies and outcomes) in the Western areas after the Slopping Land Conversion Program. Yang Yunyan *et al*. (2009) analyzed the status quo of the livelihood capital of the farming households in the reservoir zone, based

on the data from the field survey of the South-to-North Water Transfer (middle line) Project. From the multinomial logit model results, Li Jie *et al*. (2010) found that the household labor, female ratio, participating the Slopping Land Conversion Program, forest and arable land, and household social networks have significant impacts upon local households' choices of the forestry-related livelihood activities. Li Shuzhuo *et al*. (2010) introduced family structure into the sustainable livelihoods framework for policy analysis, and based on the framework, developed a household model to address the influence of children's education on households' livelihoods. Xie Xuxuan *et al*. (2010) used the Matching DID (difference in difference) regression models to analyze the Sloping Land Conversion Program (SLCP)'s net effect on households' sustainable livelihood.

2.4 Conclusions of Literature Review

In summary, by using SL approaches, only a few researches in China were focused on livelihood assets of LLFs. Little attention was paid on livelihood behaviors, which made policy analysis and suggestions lack micro-level theoretical basis. Meanwhile, the lack of systematic research with SL framework on interacting livelihood factors made it difficult to explain the change of livelihoods and understand the sustainability of livelihood pathways.

In order to fill the gap of existing policy research literatures, the thesis constructs Land Lost Farmer Households' Sustainable Livelihoods Framework, defines the sustainability of livelihood pathway from perspective of behavior pattern, studies their livelihood conditions and selection mechanism of livelihood pathways, and proposes suggestions for compensation policies for land expropriation.

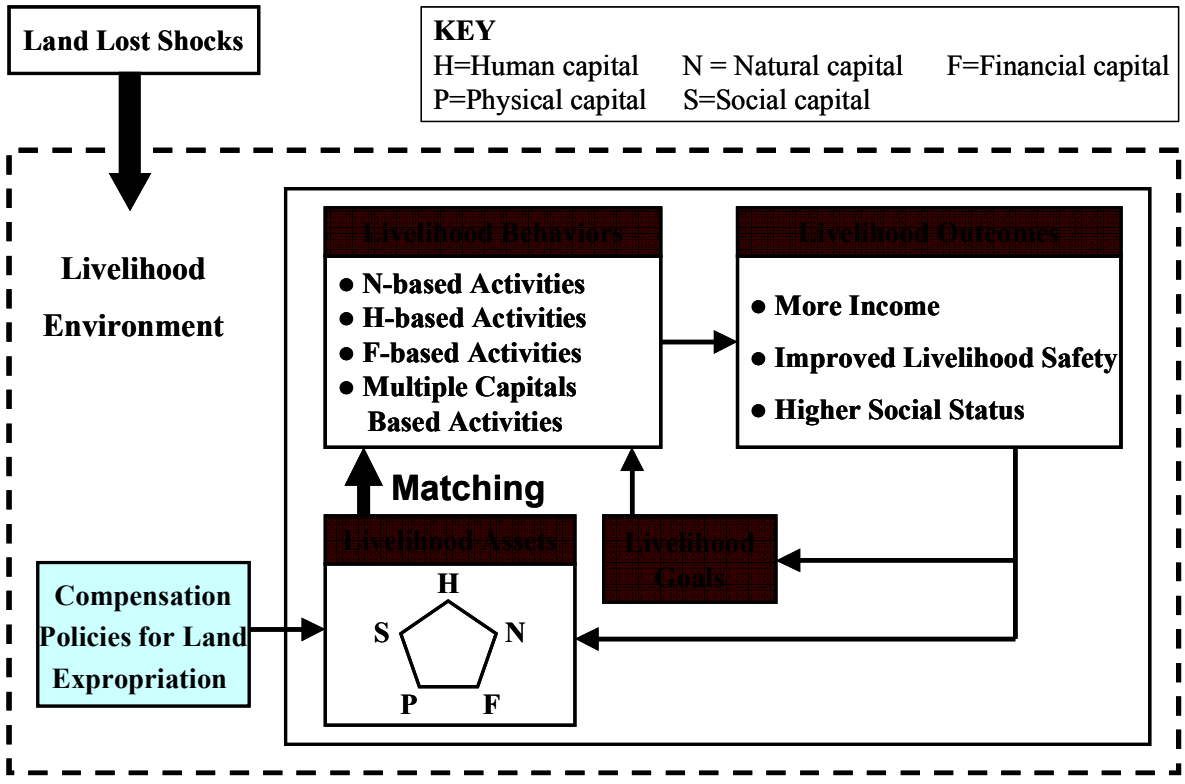
Chapter 3: Research Design and Methodology

3.1 Research Framework

3.1.1 Land Lost Farmer Households' Sustainable Livelihoods Framework

Based on general SL frameworks, Figure 3-1 is the improved Land Lost Farmer Households' Sustainable Livelihoods Framework (LLFHSL Framework). The figure includes the basic factors and components of LLFHs' livelihood pathways and the arrows reflect the interrelations between these livelihood factors. It reveals the pathways how the farmers, with the land lost shocks, choose possible livelihood behaviors to pursue certain livelihood outcomes, according to internal factors of individual livelihood assets, goals, and external factors of CPLE.

Figure 3-1 Land Lost Farmer Household's Sustainable Livelihoods Framework



Source: Scoones 1998, Carney 1998, Sanderson 1999, Khanya 2001

The closed cycle in the figure of "livelihood assets and goals – livelihood behaviors – livelihood outcomes – livelihood assets and goals" is livelihood pathway. In this pathway, LLFHs' livelihood assets inventory and livelihood goals jointly determine the selection of their livelihood behaviors, and produce certain livelihood outcomes; on this basis, livelihood outcomes influence the initial structure and value of livelihood assets and produce new livelihood goals, and thus establish the basis for the next cycle of livelihood pathway. Therefore, this closed cycle has the self-intensifying function, that is: livelihood outcomes differ greatly when livelihood pathways have different situations with positive or negative feedbacks.

Livelihood environment is an important factor influencing LLFHs' livelihood pathways. Among them, policy environment is an important component, which mainly refers to the CPLE made and implemented by the government. Rural households lose their total or majority land because the government expropriates rural collective land. Thus the farmers' livelihood environment changes and the land lost shocks occur. As the institutional arrangement made by the government to compensate for the lost land, the CPLE transforms the structure and value of LLFHs' livelihood assets, and leads to a series of changes in livelihood behaviors and goals. In Chapter IV, we will discover changes in LLFHs' livelihood pathways by comparing these livelihood factors before and after land lost.

In Figure 3-1，the livelihood pathway framework takes whole households of LLFs as research units and consider the influence of household internal structures. The following are two reasons:

First, China rural family members have close relations. The livelihood pathway of individual farmer is dependent on and based on household livelihood pathways. Therefore, the livelihood pathway of LLFHs is a complete research unit.

Second, the household's micro-demographic feature and structure directly affects the LLFs' livelihood assets inventory, livelihood goal, and livelihood behavior selection. First, LLFs' household structure directly determines livelihood assets inventory as labor and land quantity related to household scale and housing quantity. Then, LLFs' household structure affects the utility function and livelihood goals of the household. Households with chidren possibly emphasize education investment and future consumption and thus elevate the rank of livelihood safety goals. Thirdly, labor division in households helps LLFs cooperatively do various livelihood activities. Household structure, especially generation structure, can lead to different livelihood behavior options. For example, the generational support between the

elderly and their children or grand children can help LLFHs to adopt diversified livelihood behaviors (Li Shuzhuo *et al.*, 2010).

3.1.2 Definition of Sustainable Livelihood Pathways: Based on Behavior Pattern

Livelihood behavior refers to the activities that LLFs choose to allocate livelihood assets and undertake some types of activities in order to achieve livelihood goals. Among factors in LLFHSL pathway, livelihood behavior is an initiative element playing decisive role. Based on LLFHs' internal livelihood conditions and external livelihood environment, only when LLFHs choose proper behaviors, they can achieve improved livelihood outcomes and promote positive feedback of livelihood pathway. Otherwise, when LLFHs choose improper livelihood behaviors and cannot adjust promptly, there will be negative feedback of unsustainable livelihood and make the households fall into vicious cycle of poverty. Therefore, the behavior pattern directly determinates whether the livelihood pathway is sustainable and what extent of realization is in livelihood outcomes.

Then, what kind of behavior pattern of LLFHs has sustainability characteristics, and brings continually improved livelihood outcomes? In this aspect, we can use international trade theories for reference. According to Factor-Endowment Theory and the Law of Comparative Advantage①, the differences of factor endowment among nations determine their comparative advantage, which is the basis of labor division and trade. These theories studying on country level also adapt to analysis on household level. The choice of livelihood behaviors is a kind of labor division and exchange among households. As to LLFHs, the endowment of livelihood assets determines the different comparative advantage, and provides foundation for behavior choice. Therefore, in order to maximize the efficiency of asset allocation, and exert the household's comparative advantage, the households should select proper type of livelihood behavior according to corresponding endowment features of their livelihood assets, which are called "the matching". For example, as to a certain LLFH, if human capital has comparative advantage among all livelihood assets, the household should be mainly engaged in the type of activities

① They are classic international trade theories to explain international labor division and trade pattern. The Law of Comparative Advantage proposed by David Ricardo, indicated that a nation should specialize in production and export of the commodities with comparative advantage and import of the commodities with comparative disadvantage. Factor Endowment Theory (H-O Theory), jointly proposed by Heckscher – Ohlin, indicated that factor endowment determines the comparative advantages of different nations and a nation should export the commodity whose production requires the intensive use of the nation's relatively abundant and cheap factor and import the commodity whose production requires the intensive use of the nation's relatively scarce and expensive factor.

dependent on human capital. This means that, when there has the matching between the type of livelihood behaviors and livelihood assets endowment, the allocation of livelihood assets will have maximum efficiency; the outcomes resulting from livelihood behaviors will be the maximum; the households' comparative advantage will be fully exerted; and the SL of the household will be realized. Therefore, we use "the matching between livelihood behaviors and assets" to define the sustainability of livelihood pathway. That is, if the type of livelihood behaviors LLFH chooses matches with endowment of livelihood assets, the livelihood pathway is sustainable. In contrast, if livelihood behavior does not match with livelihood asset endowment, the livelihood pathway is unsustainable. In the above-mentioned example, the LLFH has richest human capital. If the household is engaged in human capital dependent activities, the livelihood pathway is sustainable. The word "matching" in Figure 3-1 reflects the sustainable feature of LLFH livelihood pathway.

From this perspective, when there has the matching between livelihood behavior and asset, the long term effect of behavior choice is the sustainable improvement and maximization of livelihood outcomes. However, from the observable short run, restricted by various internal or external factors, the fluctuation in livelihood outcomes is inevitable. Therefore, when we evaluate the sustainability of livelihood pathway, compared with the long run and ultimate indicator of "livelihood outcomes", the indicator of "matching between livelihood behaviors and assets" is a short run and intermediate indicator. We should use the two indicators in conjunction.

To define the sustainability of livelihood pathway from LLFHs' behavior pattern implies the premise hypothesis that the LLF is a rational economic man. The theoretical study shows that farmers are rational decision-makers. They struggle to seek maximized benefits and minimized risks when choosing their own behaviors. They are "poor but efficient" people with economic rationality (Schultz, 1964). Therefore, we also follow this hypothesis that LLFs are fully reasonable, and their behaviors are rational selections according to objective functions and constraint conditions. The CPLE under land lost shocks transform the structure and value of LLFHs' livelihood assets, and promote LLFHs to adjust their livelihood behaviors. However, restricted by internal and external factors, the results of LLFHs' rational response in behaviors might not correspond to the matching requirement, result in unsustainable livelihood, and violate the original intention of the policy. Therefore, with the hypothesis of rational person, the research focus on LLFHs' behavior pattern provides important micro-level theoretical basis for evaluating and improving policy mechanism. This

also accords with the principle "responsive and participatory" of SL approaches.

3.2 Factors of Livelihoods Framework

The improved framework includes many factors such as livelihood environment, livelihood assets, livelihood goals, livelihood behaviors, and livelihood outcomes. Each factor has some elements. The following defines the LLFHs' livelihood factors and their component variables to provide base for subsequent questionnaire, regressions and case studies.

3.2.1 Livelihood Environment

Livelihood environment is the external factor affecting LLFHs' sustainable livelihood pathway, and is composed of two parts of policy environment and non-policy environment. This thesis focuses on effects of the former.

1. Policy Environment

Under land lost shocks, the policy environment LLFHs faced is mainly the compensation policies for land expropriation (CPLE) made and implemented by local government. These policies are series of institutional arrangements of monetary compensation, social security, employment support, housing relocation and resettlement. They are exogenous variables affecting LLFHs' livelihood assets inventory, livelihood goals, livelihood behaviors and outcomes.

When analyzing the policy environment, we need to answer the following questions: First, what are the existing CPLE? How do they change with time? This needs vertical and horizontal comparison of CPLE issued by various levels of government in order to understand the background and focus of policies in specific situation. Second, what roles have these policies played, and with what concrete effects? The analysis should all dimensional cover contents of economy, society, and environment. Third, what effects the policies have on livelihoods of all LLFHs and different categories? The analysis scope should not be limited to goals declared by the policy, but need depth understanding of policy affects on livelihoods of different types of LLFHs. To answer these questions, we classify and analyze the CPLE as follows:

(1) Monetary Compensation Policy

Monetary compensation policy is the institutional arrangement that government directly pay LLFHs compensation fees for their loss of land. In the way of unitary monetary

compensation, the government grants cash compensation for all the losses, and the LLFs solve their problems of employment and social security by themselves. In the way of comprehensive compensation, in addition to monetary compensation, the government provides non-monetary compensation as employment support and social security. For the loss of land lost, according to the Land Administration Law of China, compensation fees of land expropriation include land compensation fee, resettlement subsidy, and compensation fee for attachments on land and crop seedlings.

In the way of pure monetary compensation, after establishing the compensation standards and verifying the area of expropriated land, the local government calculates the total compensation amount for LLFHs and directly pays them the cash. The measuring indicators of monetary compensation policy include the compensation standard of land expropriation, the area of expropriated land, the total compensation amount, and the way of payment.

(2) Social Security Policy

Social security policy is the institutional arrangement that government provides social security for LLFs by establishing corresponding social insurance system. After land lost, the LLFs have two kinds of identities: urban residents who have change their rural residence to urban residence (rural-to-urban personnel)[①] and rural residents who remain the rural residence. According to Guidance of Improving Work on Employment Training and Social Security for Land Expropriated Farmers issued by Ministry of Labor and Security of China in 2006, classification of social security policies is made according to different LLFs to ensure their living standard not lower than before. To be specific, (1) Land expropriated rural-to-urban personnel adopt the urban social security system. They can join urban insurance for endowment, health care, and unemployment, and enjoy urban minimum life security and medical rescue. (2) Land expropriated rural personnel adopt the rural social security system. They can join rural insurance for endowment and new cooperative health care, and enjoy rural minimum life security and medical rescue. (3) Local government provides the social security fund from resettlement fees and land compensation fees for LLFs. If the two items of fees are insufficient to pay the social security fund, the fund shortage is made up by land value increment revenue.

The measuring indicators of social security policy include insurance type, insurance

[①] Although the land expropriated rural-to-urban personnel have obtained the urban residence, they are customarily called LLFs.

premium amount and security level. Insurance type includes urban social endowment insurance, urban health insurance, unemployment insurance, rural endowment insurance, and new cooperative rural health insurance. Insurance premium amount includes two parts: individual payment and government subsidy. Security level includes level of pension, level of health care and level of unemployment subsidy.

(3) Employment Policy

Employment policy is a series of government measures to provide employment promotion and employment settlement for land expropriated rural-to-urban labors. Employment promotion means that, by providing services as employment consulting, employment directing, employment training, and occupation introduction, the government promotes land lost rural-to-urban labors with employment intention to obtain working positions as soon as possible. The employment training is the keystone in employment promotion, so according to policy regulation, the local government should provide the fund needed for employment training from revenue. Employment settlement includes two aspects: the government directly provides employment positions for land lost personnel and the government supervises the land-using firms to employ the land lost labors priority. These measures help LLFs to confront land lost shocks. However, different from the former two policies, employment policy only applies to land expropriated rural-to-urban labors. That is to say, those LLFs remaining rural residence could not get this policy support.

The measuring indicators of employment policy include employment service types (employment consulting and directing, employment training, and occupation recommendation), quantity of employment positions provided by the government, and quantity of positions allocated by land-using units.

(4) Housing Relocation and Resettlement Policy

Housing relocation and resettlement policy is the institutional arrangement that government compensates the LLFs for the loss of housing relocation in land expropriation. There are many ways of resettlement. If the removed housing is in the urban planning zone, there are two resettlement ways including monetary compensation and new housing provision. If the removed housing is out of the urban planning zone, the resettlement way is that the government provides the housing foundations while the LLFHs build the housing by themselves. In details: (1) the monetary compensation way in resettlement means that the government directly makes monetary payment to the LLFHs according to the compensation standard of housing relocation. These LLFHs solve the housing

problems by themselves. (2) The new housing provision way in resettlement means that the government constructs new houses and distributes them to LLFHs according to housing returning standards. In some regions, the provision of housing resettlement includes not only the house, but also the shop front that provides a new resource of income for LLFHs. (3) the housing self-construction way in resettlement means: the government pays the LLFHs monetary compensation for the removed housing, provides the housing foundations; then, the LLFHs construct their new houses by themselves.

The measuring indicators of housing relocation and resettlement policy include standard of compensation and subsidy for housing relocation, resettlement standard of new housing and shop fronts, and resettlement location that determines the market value of housing and shop fronts.

2. Non-policy Environment

Non-policy environment is determined by other exogenous variables besides policies, which affects the LLFHs' production and living conditions and manners. The measuring indicators include location condition, regional economic development level, cultural conventions, and ecological safety. The location condition determines the proportion of expropriated land or extent of land lost. In plain regions, farmer households may lose their land completely; but in mountainous regions, farmers may lose their land partly. It will lead to land lost shocks with different degrees. Regional economic development level can affect LLFs' employment opportunities and thus influence the income level of different LLFHs. Regional consuming habits can affect land lost labors in types of employment. For example, in regions with higher consumption, it is more probable for LLFs to be engaged in business activities.

3.2.2 Livelihood Assets

Livelihood assets are resource foundation for LLFHs to undertake livelihood activities to seek livelihood goals. Referring to general SL framework, we divide LLFHs' livelihood assets into five categories: natural capital, human capital, financial capital, physical capital, and social capital. We define these livelihood assets and their measuring indicators as follows:

1. Natural Capital

Natural capital is the term to describe natural resource inventory, and extensively means livelihood resource flow and related services. Natural capital can be divided into intangible public capital (such as air and biodiversity), tangible and divisible capital

directly used in production (such as land, water, and trees), and the ecological services they provide (Su Fang, 2009). This research mainly discusses the natural capital type of land resource.

To farmers, the land is the support of natural capital and area of land is the base of natural capital inventory. Land type (field or hills) and land use (planting grains and economic crops, or raising fowls) determine the amount of land earnings and value of natural capital, reflecting the direct use value of land resource. As scarce natural resource, even unused, land possesses its value as natural existence. We call it natural value, and it represents the potential earnings of land. Thus, this is an important aspect to measure natural capital. To LLFHs, the measuring indicators of natural capital include land area, land type, land use, existing land earnings, and potential value.

2. Human Capital

Human capital includes skills, knowledge, working capability and health condition. It determines the LLFHs' capability to realize sustainable livelihood goals by using other capitals and taking livelihood behaviors. Therefore, this is the most essential livelihood capital. Research of World Bank shows that the accumulation of human capital results from education and improvement of health and nutrition; it is either the main goal of development or the means to achieve development (Zhang Yin *et al*., 2010). On one hand, normal education and on-the-job training can increase human capital, working efficiency, and income level (Schultz T. W., 1975; Marlaine E. L. *et al.*, 1980; Joseph M. P., 1994). The study of Gao Mengtao, *et al*. (2006) indicates that human capital shown by education and on-the-job training is the main cause to increase the income gaps among Chinese farmers and its return of investment is remarkably higher than that of physical capital. On the other hand, health is an important component of human capital for farmers and affects the increase of income (Becker, 1964； Grossman, 1972). In China, the revenue of health is higher for rural population than that for urban population (Zhang Chewei, 2003; Liu Guoen, 2004).

To LLFHs, the measuring indicators of human capital include two types: quantity and quality. The quantity indicator is the number of household labors. The quality indicators include average education year of labors, health condition, and job skill. Here the job skill is measured by the employment and business experience or specialty.

3. Financial Capital

Financial capital is the fund people arrange and raise and has two categories: inventory

and flow. Financial capital inventory refers to the household deposit. Financial capital flow includes cash flow, loans from normal or abnormal channels, and unpaid cash assistance. The importance of financial capital rests with that it can be transformed into other types of capital (for instance, using deposit to buy traffic vehicles as motorcycle), or that it is used to get expected livelihood outcomes (for instance, using cash to buy food to guarantee basic needs of living). However, for poor people, financial capital is an asset most difficult to obtain. Lack of financial capital makes the other assets especially valuable to poor people. It is most important to realize this idea when analyzing those LLFHs with hard livelihoods.

To LLFHs, the measuring indicators of financial capital include household deposit, cash income (including employment income, business income, rent income, pension and remittance), stability of cash income, accessibility of loans, and availability of cash aid.

4. Physical Capital

Physical capital is the physical bases households use to support their livelihoods in production and lives. It includes infrastructures and production means such as housing, traffic condition, communication, and health care. The role of physical capital is to help people meet their essential needs and get higher productivity. In reality, lack of infrastructures, basic housing, and essential production materials usually leads to poverty. Lack of infrastructures may decrease the accessibility to market. Without assistance of tools and equipment, people cannot completely realize the potential productivity. Except for meeting essential needs in habitation, housing possesses the utility of value maintained and added as a form of wealth. Therefore, housing is an important kind of capital for farmers, and making money to construct new housing is the biggest dream of most farmer households in China.

As most LLFHs are located in suburb districts with many people and little land, they are not strongly dependent on production materials. Hence, we mainly measure physical capital of LLFHs from two aspects: housing and infrastructure. The measuring indicators of housing include housing area, housing structure (clay and wood, wood and brick, brick and concrete, reinforced concrete frame, one-store or multi-store house), housing use (for inhabitation, doing business, or renting to others),and value of housing. The indicators of infrastructures include road, water and health facilities.

5. Social Capital

Social capital is the social resource LLFHs use to realize their livelihood goals. It includes social resources obtained by joining formal or informal organizations or groups, and the social network or social relationships established among relatives and community

neighbors. The roles of social capital for accumulating other four types of capital are: (1) to increase economic efficiency. For example, the relationship of mutual trust may decrease complex formalities in mortgage and help to increase income and savings rate (that is, financial capital). (2) To effectively improve the maintenance to public infrastructures (such as physical capital of countryside road), because the more people trust each other, the more they are willing to work together. (3) Social network is helpful to promote innovation, development and sharing of knowledge (human capital). Besides, it contributes greatly to sense of happiness by acceptance, sense of honor, and sense of belonging.

In the background of China's traditional culture, social capital plays an important role in determining the availability of other capitals. Researches on guanxi well explain this, which means good connections in China. In countryside, social obligation enables the natural villages, formed by blood and region, to create strong atmosphere of mutual help as the saying goes "one busy family gets the help from the whole village" (Tai Xiujun et al., 2009). After land lost, the LLFHs are facing the gradual change from traditional rural social network dependent on region to urban social network dependent on occupation (Li Fei et al., 2011). Thus, social capital becomes an important support for the transformation of LLFHs under land lost shocks.

To LLFHs, the measuring indicators of social capital include the relationship with urban relatives and friends, the number of family members with special identities or experiences, whether or not joining community organizations, the degree of external support (cash, physical or technical support). Here special identities or experiences mean the background of being village leaders, army men, teachers, and Communist Party of China (hereafter CPC) members.

3.2.3 Livelihood Goals

Livelihood goals are the expectation of people for future production and life style and level, and determine the intention and attitude of people toward work and life. People's pursuit to livelihood goals roots from internal needs. Therefore, we can use Maslow's hierarchy of needs for reference to analyze livelihood goals of LLFHs.

According to this theory, there are five hierarchies in human needs: the physiological needs, the safety needs, the love needs, the esteem needs, and the needs for self-actualization. Among them, the physiological needs are the basic needs to maintain survival, including needs in hunger, thirst, clothes, shelter and sex. The safety needs are the human needs to

ensure one's safety and keep away from threats. The love needs include two aspects of needs: friendship and belonging. The esteem needs are the needs for stable social status, with the hope that the society recognizes individual competence and achievements. The needs for self-actualization are the needs to realize individual dreams and ambition and to exert one's capability to the greatest extent. From the relations among the five needs, they ascend gradually in importance and hierarchy from basic (such as food and housing) to complex (such as self-actualization), and from lower to higher. Generally, once people's lower needs are satisfied (not necessary 100%), they start to pursue the higher needs. Therefore, in this sequence, the pursuits become incentives to motivate actions. However, the sequence of needs is not completely fixed, and people may have several levels of needs in the same period. For the impact on human behavior, there is always a dominant sort of need in each period to determine actions and the power of other sorts of needs is relatively weaker (Maslow A. H., 1943).

In view of Maslow's hierarchy of needs, and considering the livelihood attributes of LLFHs, we classify their sustainable livelihood goals into three categories: more income, improved livelihood safety, and higher social status. They correspond respectively to the physiological needs, the safety needs, the love needs, and the esteem needs. The specific explanations are as follows:

First, the income level of household determines the consumption level to meet daily needs, and provide basis for improvement of living standard and welfare. For most LLFHs, the primary goal is to earn more income.

Second, livelihood safety, in contrast to vulnerability, means the livelihood state of continued stable and keeping away from risks and threats. Improved livelihood safety means higher capability to resist risks, and it closely relates to human capital. According to viewpoints of Bebbington (1999), increased human capital means improved livelihood capability to cope with shocks and challenges and to recover from them. Therefore, with goal of livelihood safety, LLFHs may adopt active livelihood behaviors. For example, by taking part in on-the-job training and learning by doing, it can increase accumulation of their own human capital. By investing in children's education and improving the breeding quality, it can increase the human capital of next generation. In those ways, the sustainable livelihood capability is improved by optimizing the structure of livelihood assets in household. In addition, purchasing insurance is one of the strategies for LLFHs to avoid livelihood risks and get improved livelihood safety. In addition to government compulsory social insurance,

purchasing commercial insurance can be an alternative strategy if affordable.

Third, besides physical pursuits, higher social status is a higher level of livelihood goal for LLFHs. This includes enjoying the same welfare, the equal rights and interests like urban residents, and being respected and socially accepted. The pursuit to this goal derives from the binary household registration system of rural and urban division in China established for many years. Therefore, the LLFHs may actively participate in community activities in order to adapt to new living environment, or pay more attention to children's education in the hope that the offspring can develop into outstanding person with formal and respectable occupations and then upgrade the social status of household.

To LLFHs, land lost shocks bring changes to internal livelihood foundation and external livelihood environment. With the new conditions of production and living, LLFHs adjust their livelihood goals with different emphasis. For instance, to households with limited livelihood assets inventory and low income level, under land lost shocks, their primary goals may be the livelihood safety and more income. To LLFHs with abundant assets inventory and higher income level, the primary goal may be higher social status to integrate into urban society soon.

In summary, the sustainable livelihood goals of more income, higher livelihood safety, and higher social status are the motivation for LLFHs to struggle and choose active livelihood behaviors. The livelihood outcomes reflect the extent of realization for these goals, indicating the gap between reality and ambition. Hence, the outcomes based on these goals provide important basis to evaluate policy performance.

3.2.4 Livelihood Behaviors

Livelihood behaviors are LLFHs' activities to realize livelihood goals by allocating livelihood assets and undertaking activities. In pursuing sustainable livelihood goals, it is important for a household to establish his core resource (assets) and has the capability and flexibility to change his livelihood activities. The higher the adaptability of livelihood behaviors is, the stronger the capability of overcoming or adapting to shocks and pressure, and using favorable conditions to realize the livelihood goals.

Many factors affect LLFHs' selection and adaptability of livelihood behaviors. Internal factors include livelihood assets and livelihood goals. External factors include restraints or opportunities brought by policies systems. Among them, livelihood assets are the basis and premises of livelihood behaviors. If households want to achieve improved livelihood outcomes through active livelihood undertakings, they have to possess different types of

livelihood assets firstly. Households with more assets generally have more selection opportunities or plans, and have the capability to choose among different activities to ensure their livelihood safety. Therefore, the selection of livelihood behaviors depends on the availability of livelihood assets and the combinations and allocations of these assets.

According to livelihood assets basis of different livelihood behaviors, we classify the LLFHs' livelihood behaviors into four categories: natural capital based activities (N-based activities), human capital based activities (H-based activities), financial capital based activities (F-based activities) and multiple capitals based activities (M-based activities).

1. Natural Capital Based Activities

N-based activities are agricultural production activities, mainly dependent on natural capital to obtain agricultural income. This type of activities takes land as major input and includes planting and cultivating activities in agriculture, forestry, grassland farming, and fishery. To be specific, we classify the activities as grains planting, economic crops planting, and breeding. The type of behavior strongly depends on natural capital, and therefore is influenced by the land expropriation greatly. The selection of specific activities by LLFHs depends on the area, type, and earnings of remaining land after land lost.

2. Human Capital Based Activities

H-based activities mean the employment activities, mainly dependent on human capital to obtain wage income from employment. It includes employment not only in agriculture (such as farm worker), but also in non-agricultural (as secondary and tertiary) industries. However, as the level of agricultural industrialization is rather low in China, there are few agricultural employees, so H-based activities mainly mean non-agricultural employment.

In contrast to traditional agricultural activities, this type of behavior takes human capital as main input. As shown by Hu Angang et al. (2001), the labors engaged in non-agricultural employment are usually young, well educated, with specialty, and can be considered as the elite class in rural people of China. Therefore, those undertaking H-based activities are also outstanding among land lost labors with comparatively good human capital basis.

3. Financial Capital Based Activities

F-based activities mean the investment activities, mainly dependent on financial capital to obtain property income or pension. According to the investment object, we classify this kind of behavior into two categories: real investment and financial investment. Real investment mainly means the housing investment activity that LLFHs rent their houses or shop fronts to obtain rents. Financial investment means the activity that LLFHs purchase

endowment insurance to obtain pension. The pension is regarded by LLFHs as a return on the investment of purchasing endowment insurance, so the input-output ratio determines if the family members will buy the insurance. Under this consideration, some members of LLFHs may abandon arranging endowment insurance and make the livelihood risk increase.

4. Multiple Capitals Based Activities

M-based activities are activities of business undertaking, dependent on multiple capitals as human capital, financial capital, and social capital to obtain business income.

By using the research achievements in venture creation (Reynolds et al., 2002) as reference, we classify business undertaking into two categories: survival business undertaking and opportunity business undertaking. The former is the undertaking of small business, with self-employed and a small income. It is a choice when there is hard for people to be employed. For example, when LLFs are difficult to find jobs, they have to obtain income from business undertaking by opening small stores or selling perishables in fresh markets. The latter means the undertaking of venture creation to pursue a business opportunity. Those choosing this kind of activity usually have stable economic base, intention to take risks, and confidence in their capability. By comparison, opportunity business undertaking has more demands for human capital, financial capital, and social capital than survival business undertaking.

Based on classification of livelihood behaviors, LLFHs show differences in behavior selection. Although a household may have many types of activities, the character of behaviors is reflected by the main behavior type that providing the highest income for family. Therefore, based on the behavior characters, we classify LLFHs into four categories:

First, **N-based household** It is mainly engaged in farming activities and the highest income of household is agricultural income.

Second, **H-based household** It is mainly engaged in employment activities and the highest income of household is wage income.

Third, **F-based household** It is mainly engaged in investment activities and the highest income of household is property income and pension.

Fourth, **M-based household** It is mainly engaged in business undertaking activities and the highest income of household is business income.

3.2.5 Livelihood Outcomes

Livelihood outcomes are the outcomes of livelihood behaviors, reflecting the realization

extent of the livelihood goals. Corresponding to livelihood goals, the livelihood outcomes of LLFHs are reflected in three aspects of income level, livelihood safety, and social status.

We measure LLFHs' livelihood outcomes from objective and subjective aspects. As to objective indicators: (1) Income level is measured by household total income and its items. Among them, corresponding to types of livelihood behavior, the income items include agricultural income, wage income, property income (rent income), pension, and business income. (2) As livelihood safety is difficult to measure, we use the possession of livelihood assets to substitute. According to the influencing weights, we can use the weighted average value of livelihood assets to reflect livelihood safety. (3) We measure social status by the situation that LLFHs enjoy equal benefits with urban residents, such as social securities of urban endowments, health care, employment, and public services of education or housing. As to subjective indicators, we use LLFs' own evaluation on their household livelihoods to reflect livelihood outcomes.

3.3 Methodology

This thesis combines theoretical and empirical research. By deduction method, the theoretical research constructs logical model and proposes some hypotheses. The empirical research chooses Xingwen County, Sichuan Province of China as the research region, applies research methods of questionnaire survey, depth interview, descriptive statistics, regression analysis, and case studies to verify these hypotheses.

3.3.1 Theoretical Research

Based on general SL frameworks, the thesis proposes the improved SL framework for LLFHs (that is, LLFHSL Framework), puts forward hypotheses on the logical relations among factors of policy environment, livelihood assets and goals, livelihood behaviors, and livelihood outcomes. Meanwhile, based on the Law of Comparative Advantage Theory and Factor Endowment Theorem, the thesis defines the sustainability of livelihood pathway form perspective of "the matching between livelihood behavior and livelihood asset", and provides intermediate variable to evaluate sustainability.

3.3.2 Questionnaire

This thesis takes Xingwen County as the research object that is located in West China

whose economy is relatively underdeveloped. Why do we choose this kind of region? It is because LLFHs usually are paid favorable compensations under CPLE in developed regions of China. Owing to good basis of livelihood assets and non-policy environment, LLFs in developed regions seldom experience the decrease in income or living standard under land lost shocks. In contrast, in undeveloped regions, both internal livelihood base and external livelihood environment are bad, it is more possible for LLFHs in these regions to get into the negative feedback and unsustainable cycle in livelihood pathways. Therefore, to solve problems of sustainable livelihoods for those LLFHs is more urgent, and choosing Xingwen County as the representative of undeveloped regions has great practical significance.

In addition, the reason to make single-region analysis in Xingwen County, without comparison among different regions, is that our study in this thesis is contextualization. There is obvious difference in CPLE and non-policy environment and has not the comparability among regions.

The design of questionnaire takes LLFHSL Framework as the logic foundation. The questionnaire is divided into three sections as household basic information, land expropriation and compensation situation, and livelihood conditions (see Appendix 2). The section about land expropriation and compensation includes the policy implementation of cash compensation, social security, employment, and housing relocation and resettlement. It also includes the evaluation of LLFHs for policies. By investigating the land expropriation time, we can analysis the influence of land lost time length on livelihood adaptability of LLFHs, and on the short run or long run effects of CPLE. The section of household basic information and livelihood conditions comprehensively reflect the situation of LLFHs in livelihood assets, goals, behaviors, and outcomes. The design of specific question items matches the measuring indicators for livelihood factors and their elements.

According to regional situation of Xingwen County, questionnaire survey on LLFHs is conducted in three typical land expropriation projects with comparatively large-scale. Two projects, Malanwan Community Project and Guangming New City Project, are located in close suburb of the county (within the urban planning zone), and their land expropriation is for the purpose of urban expansion with different time length. The third project, Taiping Industrial Park Project, is located in far suburb of the county (out of the urban planning zone), and its land expropriation is for industrial construction. In the three projects of land expropriation, there are different environment in production and living, and thus, the LLFHs have different livelihood features and pathways. In questionnaire survey, in order to ensure

the diversity of the sample, we took sample from every village of three projects and considered the difference of household structure, land lost time length, portion of land lost, type of employment, and income level.

3.3.3 Descriptive Statistics and Regression Analysis

Based on data of questionnaire survey, through descriptive statistical analysis, the thesis analyzes LLFHs' livelihood conditions, policy appeals and satisfaction evaluation, and corresponding reasons. By using Analytic Hierarchy Process (AHP), the thesis measures the livelihood assets value and evaluates the sustainability of LLFHs' livelihood pathway from the matching perspective.

Based on this, by using econometric models and sample data, the thesis makes regression analysis on influencing factors of LLFHs' income, analyzes the extent of influence to income by different types of livelihood assets and livelihood behaviors before and land lost, and further verifies the relative hypotheses.

3.3.4 Case Studies

Based on questionnaire survey, depth interviews and case studies are made on typical LLFHs from three land expropriation projects to verify our conclusions.

The objects of interviews include the government related to land expropriation and compensation, the village committee or community and the LLFHs. Based on these interviews, we understood the background and policy implementation in the three projects. By case studies on different types of LLFHs, we discovered the characters of livelihood behaviors and pathways, and proposed policy suggestions aiming at sustainable livelihoods from micro perspective.

Chapter 4: Survey on Land Lost Farmer Households' Livelihoods in Xingwen County

Since 1990s, in the process of China's industrialization and urbanization, the government has expropriated substantial suburban lands and made more and more farmers lost their land and become LLFs. At present, the total quantity of LLFs in China has reached 40-50 million with a growth rate of 3 million per year and the predicted number will reach 110 million persons in 2030 (Pan Jiahua *et al.*, 2011: 156). What are the livelihoods of this enormous and special group? Are their livelihood pathways sustainable? Evidently, if LLFs could not realize SLs, the social conflicts caused by land expropriation might grow and hinder the urbanization process in China. Therefore, by choosing Xinwen County as research region and by questionnaire survey and depth interviews, the thesis collects data to analyze these issues under LLFHSL Framework.

4.1 Introduction to Xingwen County

4.1.1 Location and Population Distribution

Xingwen County, Yibin City, Sichuan Province, is located in the southwest of China (See Figure 4-1). It covers an area of 1373.17 km^2 and arable land area of 215 km^2. Xingwen County has a Karst landscape with mountain peaks from 275.6 m to 1795.1 m and is abundant in minerals. Its tourism resources are rich with many famous scenic spots as National 4A Scenery Zone (Xingwen Stone Forest Geopark) and Bowangshan Scenery Zone.

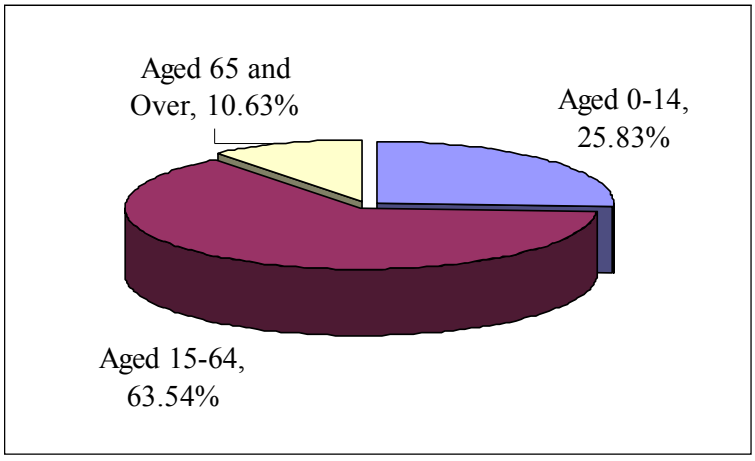
As to population distribution, Xingwen County has 15 towns, 322 villages and 17 ethnic minorities including Miao, Hui, Tibetan and Man. As showed in Data Communique of the Sixth National Population Census of China in 2010, there was 377,162 resident population and 113,721 family households[①] in Xingwen County. The average person per household was 3.27. About the age group, people aged 0-14 accounted for 25.83%, people aged 15-64 accounted for 63.54%, and people aged 65 and over accounted for 10.63% (See Figure 4-2).

[①] The family household in statistics means all the people living together in a house.

Figure 4-1 Geographic Location of Xingwen County

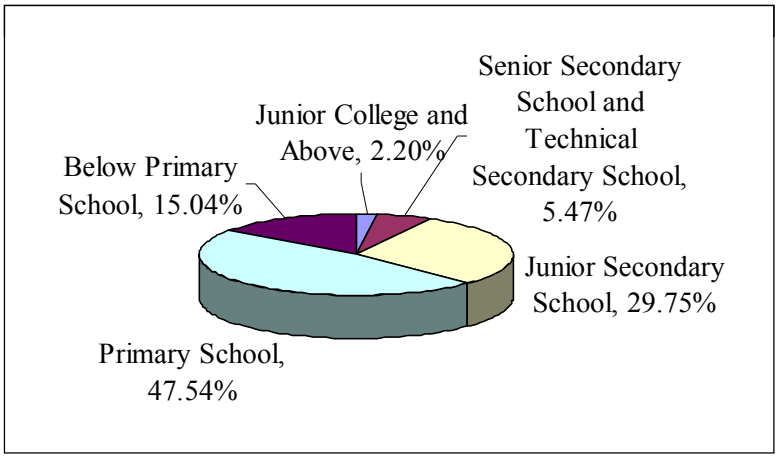
Source: http://map.baidu.com

Figure 4-2 Age Composition of Population in Xingwen County



As to educational attainments in 2010, population with junior college and above accounted for 2.20%, population with senior secondary school and technical secondary school accounted for 5.47%, population with junior secondary school accounted for 29.75%, population with primary school accounted for 47.54%, and population below primary school accounted for 15.04% (See Figure 4-3). Among them, the illiterate population aged 15 and over was 19,497. Compared with Data of Fifth National Population Census of China in 2000, the illiterate rate decreased from 6.94% to 5.17%.

Figure 4-3 Educational Attainments of Population in Xingwen County



4.1.2 Economic and Social Development Situation

During the period of Eleventh Five-year Plan in China (2006-2010), Xingwen County had kept steady and rapid increase in economy and made remarkable progress in society. The goals of Eleventh Five-year Plan had been fulfilled two years ahead of schedule. The GDP of Xingwen County increased from 1.991 billion *yuan* in 2006 to 4.301 billion *yuan* in 2010, with an annual growth rate of 14.4%. The private economy proportion in regional GDP increased from 62% in 2006 to 67% in 2010. The industrial structure had been gradually optimized in the five years (See Table 4-1).

Now in order to utilize the rich mineral resources, the local government is establishing industrial park to promote the exploit of minerals and develop processing industry, and stimulating the development of tourism industry through market promotion. It hosted 1.615 million domestic tourists, and earned 1.837 billion *yuan* in 2010.

Companying with economic growth, the financial resources of local government has increased greatly. The general budgetary revenue increased from 39.04 million *yuan* in 2006 to 200.17 million *yuan* in 2010, with an annual growth rate of 43%. Meanwhile, the income of urban and rural residents grew continuously. As a result, the savings deposit of urban and rural household increased from 937 million *yuan* in 2006 to 2.052 million *yuan* in 2010, with an annual growth rate of 16.97%. During the five years, the annual per capita disposable income of urban households and annual per capita net income of rural households rose by 15.8% and 13.5% respectively and reached to 13,248 *yuan* and 5,027 *yuan* in 2010. At the end of 2010, 89.4% administrative villages had access to roads, 100% administrative villages had access to

networks of electricity and telephone. However, the tap water was available to only 17.4% villages.

Table 4-1 Main Development Indicators of Xingwen County in 2006-2010

Item		2006	2007	2008	2009	2010
GDP	Value (100 million *yuan*)	19.91	25.02	31.53	36.21	43.01
	Growth Rate (%)	10.2	15.1	15.0	15.9	15.7
Per Capita GDP (*yuan*)		5195	6593	8308	9591	11435
Industrial Structure* (%)		33.4: 33.8: 32.8	33.9: 30.6: 35.5	31.1: 34.4: 34.5	27.5: 38.9: 33.6	25.3: 43.2: 31.5
Value-added of Private Enterprises (100 million *yuan*)		12.38	16.06	20.03	23.73	28.83
General Budget Revenue (10000 *yuan*)		3904	5060	8098	13535	20017
General Budget Expenditure (10000 *yuan*)		34482	44049	61652	82722	101665
Savings Deposit of Urban and Rural Households (100 million *yuan*)		9.37	11.23	15.20	16.88	20.52
Per Capita Annual Disposable Income of Urban Households (*yuan*)		6451	8075	10095	11578	13248
Per Capita Annual Net Income of Rural Households (*yuan*)		2861	3484	4068	4402	5027

Note: * Industrial structure is the proportional relations among primary industry, secondary industry and tertiary industry. The proportion is the share of the increment of the value-added of each industry to the increment of GDP.

Source: Bureau of Statistics of Xingwen County, Compiled References of Statistics of Xingwen County for National Economy and Social Development (2006-2010)

Table 4-2 is a comparison of major economic indicators in 2010 between Xingwen County and China. Though the industrial structure had been optimized, the proportion of primary industry was still as high as 25.3%, 15.1 percentage points higher than the national average. Meanwhile, the rate of urbanization and household income were lower than the national average. The rate of urbanization in Xingwen County was 22.67%, not up to half of national average. Per capita annual disposable income of urban households and per capita annual net income of rural households were 13,248 *yuan* and 5,027 *yuan* respectively, only about 69.3% and 84.9% of the national average. Engel's Coefficients of rural and urban households were higher than the national average.

According to these data, it shows that Xingwen County is a typical undeveloped region in China with low level of industrialization and urbanization. However, as shown by various indicators in Table 4-1, Xingwen County is facing high-speed development in economy and society, and has great demand for industrialization and urbanization, which will correspondingly bring great demand for construction land and thus increase large LLFs. Furthermore, the lagging economic and social development adds difficulties for LLFs to cope with land lost shocks. Therefore, it is significant and typical to study LLFs' SL problems by taking Xingwen County as a representative of undeveloped regions.

Table 4-2 Main Development Indicators of Xingwen County and China in 2010

Item		Xingwen County	China
Industry Structure* (%)		25.3: 43.2: 31.5	10.2: 46.8: 43.0
Rate of Urbanization** (%)		22.67	49.68
Per Capita Annual Net Income of Rural Households (*yuan*)		5027	5919
Per Capita Annual Disposable Income of Urban Households (*yuan*)		13248	19109
Engel's Coefficient (%)	Urban Households	38.7	35.7
	Rural Households	56.5	41.1

Note: * Industrial structure is the proportional relations among primary industry, secondary industry and tertiary industry. The proportion is the share of the increment of the value-added of each industry to the increment of GDP.

** Figures of rate of urbanization are preliminary data from "the 6th Population Census of China".

Source: 1. Xingwen County Bureau of Statistics, Compiled References of Statistics of Xingwen County for National Economy and Social Development (2010)

2. National Bureau of Statistics of China, Statistics Bulletin of China for National Economy and Social Development.http://www.stats.gov.cn/tjgb/ndtjgb/qgndtjgb/t20110228_402705692.htm

4.1.3 Compensation Policies for Land Expropriation

1. Compensation Policies for Land Expropriation

At present, the measures implemented in Xingwen County for land expropriation and compensation are based on policies made by governments at four levels: China central government, Sichuan province, Yinbin City, and Xingwen County. The subordinate government policies are the specific implementation of those from superior government. These policies are as follows:

The national law and regulations are "Land Administration Law of the People's Republic of China"（revised in 2004）, "Land Administration Implementation Provisions of the People's

Republic of China"(1998). In accordance with them, governments of Sichuan Province, Yibin City and Xingwen County constituted respectively "Sichuan Provincial Implementation Provisions for Land Administration Law of the People's Republic of China"(2005), "Yibin City Measures of Land Expropriation Compensation and Resettlement"(2001), and "Xingwen County Temporary Measures of Land Expropriation Compensation and Resettlement"(2006). They provide principle stipulations for working procedures in management of land expropriation, compensation and resettlement, for compensation fees and concrete items in land expropriation, for land expropriated personnel resettlement.

In addition, in order to protect the legal rights of land expropriated farmers in economic development, various levels of governments endeavor to consummate relative policies and measures in aspects of land expropriation compensation and resettlement standards, and social security. As to land expropriation compensation and resettlement standards, according to Sichuan Provincial "Proposals for Relative Issues in Adjusting Land Expropriation Compensation and Resettlement Standards" (2008), government of Yibin City constituted "Yibin City Compensation Standards for Land Attachments and Crop seedlings on Expropriated Land" (2008), providing new standards for Xingwen County to implement land expropriation, compensation and resettlement. As to social security, to implement "Notice about Guidelines of Employment Training and Social Security for Land Expropriated Farmers" (2006) constituted by Ministry of Labor and Security, and forwarded by State Council Office, and Sichuan Provincial Office "Notice about Social Security for Land Expropriated Farmers"(2008), Yibin City and Xingwen County governments established respectively "Yibin City Implementation Measures in Social Security for Land Expropriated Farmers"(2011) and "Xingwen County's Notice about Relative Issues on Social Security for Land Expropriated Farmers"(2010) to provide policy reference for promoting LLFs' social security. From the series of policies made by various levels of governments, we find that the main emphasis of policies are on raising compensation standards and enhancing social security.

The procedures of land expropriation in Xingwen County are as follows: (1) Sichuan Provincial Government approves the Land-using Application made by County Government. (2) County Government issues the bulletin of land expropriation. (3) County Government issues the bulletin of compensation and resettlement plan for land expropriation. (4) County Government implements the compensation and resettlement for land expropriation according to agreements signed with LLFHs. (5) The expropriated land is transferred from the rural

collective to government. In the third procedure of "issuing the bulletin of compensation and resettlement plan", the plan includes detailed descriptions as: the name of land-using project; the area of expropriated land; the standards of land compensation fees and resettlement fees, and compensation for attachments to and green crops on the land; the way of housing relocation and resettlement; and the resettlement for rural-to-urban personnel (social security for land expropriated rural-to-urban personnel). Unified Land Expropriation Office in Land and Resources Bureau of Xingwen County implements the specific procedures

Xingwen County's CPLE mainly include monetary compensation, social security, employment support, and housing relocation and resettlement. The standards in policies are raised annually with the economic development. Taking 2010 as example, the following are the implemented compensation standards in policies.

First, standard of monetary compensation (1) Standard of land compensation fees and resettlement fees: According to the principle of combined calculation and distribution, the combined total of land compensation fees and resettlement fees are 30 times the average output value of the three years prior to the expropriation of cultivated land. The national standard of average output value of cultivated land in 2010 was 1450 *yuan*/*mu*. According to this standard, the combined total was 43,500 *yuan/mu* (that is, 65.26 *yuan*/m^2) for cultivated land. The total fees were reduced by half for non-cultivated land. (2) Standard of compensation for green crops on the land: The government implemented a unified compensation standard of 2.18 *yuan*/m^2. There was no compensation for the cultivated land without crops and the non-cultivated land. (3) Standard of compensation for attachments to the land: It followed the uniform provisions of "Yibin City Compensation Standard for Attachments to and Green Crops on the Expropriated Land" in compensation for relocation of buildings and structures, internal facilities of buildings, fruit trees and timbers.

Second, standard of social security For LLFs, only the rural-to-urban personnel were entitled to purchase the basic urban endowment insurance to ensure corresponding security. The premium-paying base was 60% of average wage in local province. The premium costs included two parts: individual costs and government costs, with proportion of 8% and 12% respectively. Those who have paid the premium for 15 years and have reached the retiring age (60 for male and 55 for female) can draw their pensions. To implement this, the government has to calculate number of rural-to-urban personnel[①], appraise specific persons, determine the

[①] According to provisions in Sichuan Provincial "Notice about Adjusting Ratio between Population and Farming Land with Rural-to-urban Households in Land Expropriation for Construction Projects", The

payment standards (See Appendix 3), charge insurance premium, and grant pensions to the eligible ones. According to policy provisions, those keeping rural residence are entitled to join in the New Rural Endowment Insurance. However, as this is still a trial policy in China, it has not been implemented in Xingwen County.

For the above two types of compensation, Xingwen County implemented the pattern of monetary compensation as major and social security as minor. The government pays the lump sum monetary compensation fee first and then the LLFs make the decision for themselves whether to join social endowment insurance to get corresponding security. This pattern means that after the LLFs obtain the monetary compensation, they have to pay the insurance premium by themselves.

Third, employment support: The rural-to-urban personnel within the urban planning zone should be included in the urban community management, and the government should provide the rural-to-urban personnel with free labor skills training (or provide the employment positions in tertiary industry), or let them enjoy the preferential treatment for the unemployed.

Fourth, housing relocation and resettlement: Taking the example of Guangming New City Project, within the urban planning zone, housing relocation and resettlement include two types of resettlement by returning unified constructed housing and resettlement by monetary subsidy purchasing, selected by the relocated farmers. In the former type, the areas of habitation and shop fronts depend on the number of family members and the area of relocated housing. As to the specific location of the housing, it is determined by ballots. For resettlement by returning unified constructed housing, by taking into consideration the existing household population and area of relocated housing, the specific resettlement of residential housing and shop fronts are made in the way of sortition. As to residential housing, if the household has 3 members with the relocated housing over 120 m^2, the resettlement can be an apartment with construction area of 120-146 m^2; and the replacement balance compensation has to be made according to the construction structure of the relocated housing. For example, if the original construction was brick and tile structure, the farmer has to pay the balance between the different construction structures of 180 *yuan*/m^2 when getting the resettled new housing. As to resettlement of shop front, each household can obtain free of charge one shop front on the ground floor facing the street in the residential neighborhood

calculation of rural-to-urban residents in one household should be determined based on the area of expropriated land divided by the area of farming land per capita before land expropriation.

with the area determined by number of family members. To increase the options for relocated households, the local government provides the way of monetary resettlement for relocated farmers within the urban (town, village) planning zone. That is, the relocated households can obtain monetary purchasing subsidies and solve the housing problems by their own. In addition, for the land expropriation projects out of the urban planning zone, the government adopts the way of self-relocation and self-construction. That is, the government provides basic living infrastructure as supply of water, electricity, road and leveled ground at the resettlement site, transfers land to farmers with the standard of 30 m^2 per capita, and the LLFs construct the housing by themselves with the unified appearance design. In addition to housing relocation compensation, the government has constituted regulations in moving subsidies (800 *yuan* per household), relocation and resettlement transition fees (for different types of relocation and resettlement, there are different ways of granting for transition fees), and prizes and punishment in relocation and resettlement.

2. Implementation of Compensation Policies for Land Expropriation

With the rapid development of urbanization and industrialization in Xingwen County, the area of expropriated land has increased gradually. As shown in Figure 4-3, there was 2957.08 *mu* rural collective land to be expropriated during 2006-2010, and made 2929 farmers[①] losing their land to became the LLFs. Per capita area of expropriated land was about 1 *mu*. Here the LLF statistically refers to the person whose cultivated land area is below 0.3 *mu* after land expropriation.

As to monetary compensation, the local government paid 1.16 billion *yuan* for three items as land compensation fees, resettlement subsidies, and compensation for attachments to and green crops on the land, and 17.6 million *yuan* for land attachment compensation. By calculation, we get that per capita compensation fee is 34900-41700 *yuan* and the compensation fee per *mu* is 33400−45000 *yuan*. Taking 2009 as example, per capita living consumption expenditure for rural household was 3669.58 *yuan*. However, per capita land compensation fee was only 39,400 *yuan*, not enough to support 10 years' living if considering inflation. However, owing to demand for land of residence, commercial service and industry, the total area of transferred land in the County in 2009 was 197.24 *mu* with the income of 39.0273 million *yuan* and the average transfer fee per *mu* of 197900 *yuan*. The great difference between land expropriation compensation and land transfer price showed that the standard for land expropriation compensation was too low to solve the long-term

① If the data was taken from earlier period, the number of LLFs here reached over 7000 from 1992.

livelihood problems of LLFs with no consideration of the increased value of land in market price after the land expropriation.

As to social security, during the 5 years, 4163 LLFs have accomplished procedures of rural-to-urban household and bought basic urban endowment insurance. This number is more than the total number (2929) of LLFs in Table 4-3 because it contains the LLFs with social security problems unsolved in the years passed.

Table 4-3 Indicators on Land Expropriation and Compensation of Xingwen (2006-2010)

Item	2006	2007	2008	2009	2010	Total
Area of Expropriated Land (*mu*)	270.92	64.2	370.24	1424.53	827.19	2957.08
Number of Land Lost Farmers (persons)	267	64	354	1300	944	2929
Per Capita Area of Expropriated Land (*mu*/person)	1.01	1	1.05	1.1	0.88	/
Total Compensation Fees for Land Expropriation* (10000 *yuan*)	1004.59	230.7	1235.29	5425.42	3720.91	16722.38
Per Capita Compensation Fees for Land Expropriation (10000 *yuan*)	3.76	3.6	3.49	4.17	3.94	/
Land Compensation Fees (10000 *yuan/ mu*)	3.71	3.59	3.34	3.81	4.5	/
Compensation Fees for Attachments to the Land** (10000 *yuan*)	74.53	7.71	126.44	963.83	584.28	1756.79
Number of Rural-to-urban Personnel to Be Resettled*** (persons)	368	546	257	872	1424	3467
Number of Rural-to-urban Personnel Already Resettled (persons)	0	0	0	1334	2829	4163
Premium for Social Insurance (10000 *yuan*)	1024.6	245.6	1358.5	5858.8	4853.3	13340.8
Expenditure for Employment Training (10000 *yuan*)	8.8	1.9	13.8	60	39	123.5

Notes:

* Total compensation fees for land expropriation include the land compensation fees, resettlement fees, and crop seedlings compensation fees for land expropriation.

** Compensation fees for attachments to the land include the relocation compensation for housing and structures (such as pigsties, kitchens and methane tanks), compensation for building decorations, and compensation for fruit trees and timbers.

*** The number of rural-to-urban personnel to be resettled is calculated by the expropriated land area divided by per capita area of cultivated land before expropriation. However, as the land of farmers is scattered and the land of most households is partly expropriated, the determination of actual resettled people is comprehensively considered by Village Committee or by Villagers Representative Groups based on data of land area and ages of personnel. There was an unconformity between the number of should-be-resettled personnel and the number of actually resettled personnel. The reason was that Xingwen County began to implement social security policy for LLFs since 2008 and the policy was

valid for those farmers who lost land in the past. Therefore, the number of actually resettled rural-to-urban personnel in 2009-2010 included not only the LLFs that year but also those losing land in the past without social security.

Source: Land and Resources Bureau of Xingwen County

In addition, as to employment policy, to improve the capability of employment and to promote them employed successfully, the local government paid 1.235 million *yuan* for employment training for LLFs. However, as the binary division system between rural and urban districts, the employment policies of relative functional departments serve for urban population. Correspondingly, the employment support policies do not serve for rural-to-urban LLFs and not for those keeping rural residence, therefore, the training fees are rather low.

4.2 Design of the Questionnaire

4.2.1 Contents of the Questionnaire

We design the questionnaire based on LLFSL framework. In order to provide data to discover the compensation situation of land expropriation and the livelihood change before and after land lost, the survey is to understand the situation of external livelihood factors of CPLE and internal livelihood factors of livelihood assets, goals, behaviors, and livelihood outcomes, and further to make judgment of the sustainability of LLFSL pathways. According to the actual regional situation of Xingwen County, based on the theoretical analysis, we adjusted some measuring indicators of livelihood factor components.

The questionnaire has three sections (See Appendix 2). The first section is basic information of the LLFHs surveyed. It includes the following information: (1) the scale and structure of the LLFHs surveyed; (2) family members' gender, age, and education background; (3) with (or without) special experience: being (or once) village leaders, CPC members, army men, or teachers); (4) employed or doing business or with (or without) specialties[①]; (5) close relation (or not) with urban relatives; and (6) having obtained (or not) formal credit or financial support. These data can reflect human capital and social capital of LLFs. Among the information, some indicators reflect comprehensive human capital of LLFHs (number of labor in the household, educated years of labors, number of family members with experience of being employed or doing business or with specialties), some indicators reflect social capital (number of family members with special experience); some indicators reflect financial capital

① Specialties here mean certain technical skills as carpenter, mason, electrician, and cook.

(financial accessibility).

The second section is the situation and evaluation of land expropriation compensation to LLFHs, including: land expropriation time, land expropriation area, implementation of CPLE like monetary compensation, social security, employment support, compensation for housing; respondents' appeals to policy; and respondents' satisfaction to policy. Among them, the indicator of policy implementation reflects the conditions of policy supply; the indicator of respondents' appeals to policies reflects the demand for policy; the indicator of respondents' satisfaction to policy reflects the subjective perception of respondents about policy, the external variable, to influence livelihood pathway. The information of policy supply and demand provides data basis for analyzing LLFHs' policy satisfaction, and helps us better understand the influence of policy factors to LLFSL pathway.

The third section is the change in household livelihoods before and after land lost. It includes the following: land information, housing information, family members' employment and income, respondents' evaluation and expectation to livelihoods. Among these information, land area reflects natural capital; housing area reflects physical capital; family income and livelihood evaluation reflect livelihood outcomes; respondents' expectations and attitudes toward future life reflect livelihood goals; employment reflects the type feature of livelihood behavior (that is which behavior type the household belongs to). When a household has multiple livelihood behaviors, the behavior type that provides most income determines the household's type feature of livelihood behavior. Therefore, the specific information of family income structure provides basis for us to classify LLFHs.

4.2.2 Regions and Objects in Survey

The investigation region of this thesis is Xingwen County. The reason to choose county region as the research object is that it is the basic regional unit in China's national economy and it has important status in China's governance space and government levels with regional features. As to governance space, county is the combining site of rural and urban regions with large area and great population. With majority area of rural section, farmers are also majority in population. Therefore, the LLFs' sustainable livelihood problems are more prominent in county region than in urban region. As to government levels, county government is close to the grass roots with mature functions. Integrated with the county's regional economic features, county level government constituted the CPLE and measures in accordance with policies of higher levels of government, and implemented within the region. Therefore, county is a

relatively independent regional unit, and it is essential and feasible to study the LLFs' sustainable livelihood problems based on county region.

Among thousands of counties in China, there are two reasons to choose Xingwen County as the research region. First, as mentioned above in the introduction to Xingwen County, it is an undeveloped region in the period of rapid development of urbanization and industrialization. Hence, with increasing projects of land expropriation and housing relocation, LLFs appear in large numbers and their SL problems are urgent. Second, LLFSL and CPLE are closely interrelated with each other. As the LLFs' compensation problems are sensitive in China, the relative investigation is difficult to make. We have reached agreement on this research topic in cooperation with Xingwen County Government and have obtained substantial support from them, which ensure us to survey and interview successfully in order to obtain sufficient first-hand material and data.

With the above considerations, from January to August in 2011, we firstly obtained the overall information of land expropriation compensation of LLFs in Xingwen County. By interviewing functional departments of Xingwe County's Land Resource Bureau, Social Security Bureau, and Employment Bureau, we understood the evolution and implementation of CPLE. Second, as the major causes to expropriate rural collective land were urban construction and industrial land using, we chose three large-scaled representative projects of land expropriation compensation to focus the study on shocks of large-scale expropriation brought by urbanization and industrialization. They are Malanwan Community Project in old city transformation, Guangming New City Project in city expansion, and Taiping Industrial Park Project in industrial development. Finally, we made questionnaire survey and interviews in each village or community of the three projects. There are seven villages and communities, including: Malanwan Community; Chengyaoyan Village, Minzhu Village, and Qinglong Village in Gusong Town; Shunlong Village, Xifeng Village, and Liangcaoba Village in Taiping Town. Considering the low literacy of respondents, the form of one-to-one questioning was taken and the questionnaire was filled in by investigators to ensure the effectiveness.

We made questionnaire survey on 70 LLFHs in all seven villages and communities and got 54 valid questionnaires. The distribution of LLFHs surveyed s is as follows: 18 from Malanwan Community Project, 18 from Guangming New City Project, and 18 from Taiping Industrial Park Project. Malanwan Community Project experienced many times land expropriation, and the time duration was between 2003 and 2007, thus this community can

better reflect the medium and long-term land lost shocks on LLFHs. But the other two projects can only reflect the short term shocks on LLFHs as the time of land expropriation was during 2009 and 2010.

4.3 Description of the Sample

4.3.1 Basic Conditions of Respondents

Table 4-4 reflects the demographic features of respondents and their families. Among the 54 valid questionnaires, there are 45 male respondents (83.33%) and nine female respondents (16.67%). The age distribution of respondents is as follows: 13 people aged below 40 (24.08%), 15 people aged 40-49 (27.78%), 20 people aged 50-59 (37.04%), and six people aged over 60 (11.11%). The education attainments of respondents are as follows: 18 persons with primary school and below background (33.33%), 30 persons with junior secondary school background (55.55%), 3 persons with high school background (5.56%), and 3 persons with diploma or college background (5.56%).

Table 4-4 Basic Statistics on LLFs Surveyed

Gender	Male	Female		
	45 83.33%	9 16.67%		
Age	Aged Below 40	Aged 40-49	Aged 50-59	Aged 60 and Over
	13 24.08%	15 27.78%	20 37.04%	6 11.11%
Educational Attainments	Primary School and Below	Junior Secondary School	Senior Secondary School and Technical Secondary School	Junior College
	18 33.33%	30 55.55%	3 5.56%	3 5.56%
Family Structure	Single	Couple	Two generations	Three generations
	1 1.85%	2 3.70%	14 25.93%	37 68.52%
Village Leader (or once)	Yes	No		
	20 37.04%	34 62.96%		
Special Identities or Experiences*	Yes	No		
	21 38.89%	33 61.11%		
Employment and Business Experience or Specialty	Yes	No		
	29 53.70%	25 46.30		

Note: * Special identities or experiences mean the background of being village leaders, army men, teachers, and CPC members.

As to background and experience of respondents, 26 persons （48.15%）have special identities or experiences (background of being village leaders, army men, teachers or CPC members), 29 persons (53.70%) have employment and business experience or specialty. In contrast to rural labors of China, these experiences mean that the respondents have better human capital and social capital. Therefore, this group is more capable to get rid of restraint of land and is more flexible in livelihood behavior selection than other farmer groups.

As to family structure of respondents, there are 37 households with three generations (68.52%); 14 households with two generations (25.93%), including three patterns of a couple with children, a couple with grand-children, and a couple with parents; the structure with a couple only or a single only is rare, only 1 household for each (1.85%). This family structure distribution is common in China. As typical organizational type of rural households in China, the three generations' structure (living together, with integrated property) indicates the important role of generation support in rural household livelihood.

4.3.2 Implementation of Compensation Policies for Land Expropriation

The following is information of land expropriation and compensation of LLFHs including land expropriation time and area, and compensation types for land expropriation (See Table 4-5).

1. Land Expropriation Compensation

In the sample of our survey, land expropriation time was during 2003 to 2010. Among them, 13 households with land expropriated in 2003 (24.07%), 5 households with land expropriated in 2007 (9.26%), 9 households with land expropriated in 2009 (16.67%), and 27 households with land expropriated in 2010 (50.00%). Area of expropriated land varies among households. 19 households with land expropriated by below 1 *mu* (35.19%), 22 households with land expropriated by 1-3 *mu* (40.74%), 10 households with land expropriated by 3-5 *mu* (18.52%), and 3 households with land expropriated by 5 *mu* (5.56%). The average area of expropriated land per household was 3.165 *mu*.

2. Monetary Compensation

There are four ways of land expropriation compensation among LLFHs surveyed: monetary compensation, social endowment security, housing relocation and resettlement, and employment support (See Figure 4-4). The monetary compensation is the principal way and social security as supplementary way. As to monetary compensation, each LLFHs surveyed has obtained monetary compensation based on certain standards of compensation. The total

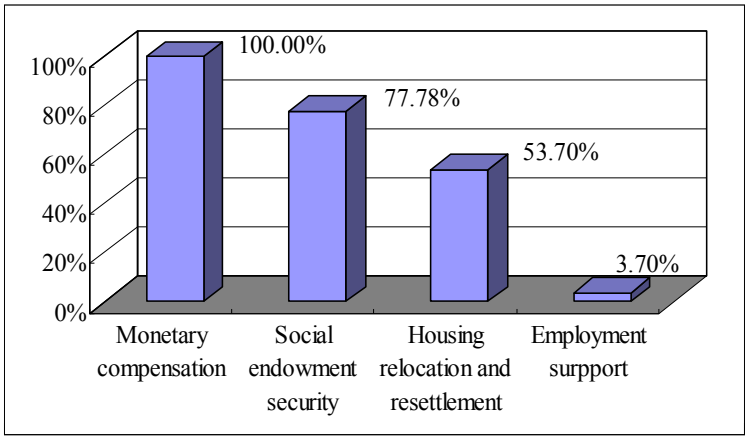
compensation fees vary from 5,000 to 400,000 *yuan*, and per capita fees calculated by number of family members ranges from 1000 to 87,500 *yuan*. Among them, household per capita amount is as follows: 25 households with 20,000 *yuan* and below (46.30%), 14 households with 20,000-40,000 *yuan* (25.93%), 7 households with 40,000-60,000 *yuan* (12.96%), 7 households with 60,000 *yuan* and above (12.96%).

Table 4-5 Conditions of Land Expropriation and Compensation of LLFHs Surveyed

Time of Land Expropriation (year)	2003	2007	2009	2010
	12	6	9	27
	22.22%	11.11%	16.67%	50.00%
Area of Expropriated Land (*mu*)	≤ 1	1-3	3-5	> 5
	19	22	10	3
	35.19%	40.74%	18.52%	5.56%
Type of Compensation	Monetary Compensation	Social Endowment Security	Housing Relocation and Resettlement	Employment Support
	54	43	29	2
	100.00%	79.63%	53.70%	3.70%
Per Capita Compensation Fees (10000 *yuan*)	0.1-2	2-4	4-6	6-8.75
1 quit*	25	14	7	7
1.85%	46.30%	25.93%	12.96%	12.96%
Type of Housing Relocation and Resettlement	New Housing Resettlement	Self-construction	Monetary Compensation	Housing with Unrelocated
	19	10	0	25
	35.19%	18.52%	0.00%	46.30%

Note: * "quit" means numbers of people who declined to answer this item

Figure 4-4 Types of Compensation for Land Expropriation



There are two reasons for the great differences among households in compensation amount. First, households have different areas of expropriated land because of different locations. For example, for Malanwan Project and Guangming New City Project, located in close suburb or center of the County, with limited land and heavy population, the average area per household is 1.3 *mu* and 2.4 *mu* respectively. Whereas for Taiping Industrial Park Project, located in Taiping Town, a traditional agricultural district, the expropriated land is greater with average area per household of 5.8 *mu*. The existing compensation standards do not include the value increase in different locations, and so the differences in total compensation amount among projects are determined by expropriated land areas. According to calculation, the average compensation amount per household is 71,300 *yuan*, 75,700 *yuan*, and 237,400 *yuan* respectively for Malanwan Community Project, Guangming New City Project, and Taiping Industrial Park Project. Second, with or without compensation from housing relocation and resettlement makes differences in compensation total amount among farmers. The monetary compensation fees include those for land, resettlement subsidies, and housing relocation and resettlement. Therefore, the differences are great between relocated households and unrelocated ones. It is calculated that the average compensation amount per household was 99,000 *yuan* for the 26 households without housing compensation and 159,000 *yuan* for the 29 households with housing compensation[①] .

From the overall situation of monetary compensation, the portion of households with per capita compensation fee below 40,000 *yuan* is 72.23%. Per capita compensation fee is only 25,800 *yuan*. However, the corresponding result to this compensation level is the permanent loss of relative rights. Per capita annual living expenditure of rural households in Xingwen in 2010 was 3955 *yuan* and only enough for supporting 6-7 year basic living if not considering inflation. From dynamic perspective, food consumption for LLFHs will increase greatly[②], and the problem of insufficient compensation is more prominent.

3. Social Security

The social endowment security is established through joining endowment insurance. According to the policy regulations, the premium needed should be directly paid from the

[①] In the questionnaire, the data obtained was the total amount of household compensation (including three items of land compensation fees, resettlement subsidies, and compensation for land attachment and crop seedlings) without the single item data of compensation from housing relocation and resettlement. However, the differences in total amount between households with or without housing compensation can still reflect the impact of housing compensation.

[②] As indicated by statistical data of Xingwen County, per capita food consumption expenditure of rural residence in 2010 was 2232.90 *yuan*, while that of urban residence was 3607.77 *yuan*. The latter is 1.6 times of the former.

fund of land expropriation compensation. However, when implementing the policy, Xingwen County Government adopted the way of making compensation first and voluntarily paying premium by LLFs later. That is, after the government amalgamative calculate and grant land compensation fees and resettlement subsidies, the LLFs decide to buy the insurance or not and pay the premium by themselves. The advantage of this way is the diverse options provided to LLFs and flexibility in LLFHs' decision-making. The disadvantage of this way is that the result of self-selection might be giving up joining in the insurance, which is against the initial intension of the policy design for social endowment security. This hidden trouble was verified in the survey. Data from the questionnaire indicated that the coverage of LLFs' Endowment Insurance was not 100%. Only part of family members in 42 households (77.78%) joined in the system. But most insurance applicants are elderly family members, especially those approaching or reaching the retire age. Among the insurance applicants, seldom are labors under 40. 12 households (22.22%) had none family member joining in the endowment insurance after land lost.

Therefore, we further inquired the reasons why respondents did not buy the insurance. 25 persons (46.30%) thought the premium too high for them to afford or reluctant to buy; 17 persons (31.48%) proposed the preference for cash and expectation on farmer-favoring policy of the government; 12 persons (22.22%) thought too distant to the time of drawing pensions and not worthy to buy now. Most land lost young labors would rather get the cash in hand than pay insurance premium[①], because joining in the insurance can produce immediate effect for the elderly only; 5 persons (9.26%) thought unnecessary to buy the insurance and more worthy to keep agricultural household[②]. The idea derives from the increasingly improved farmer-favoring subsidy policies, which, to some extent, added the potential value of agricultural residence. The above-mentioned three reasons cause the low coverage of endowment insurance among LLFs and their long-term livelihoods are not guaranteed. On one hand, land lost makes the land-attached livelihood security no long exist; on the other hand, as shown in the above analysis, the security provided by existing compensation amount is far beyond the substitute of land function. Therefore, the absence of endowment insurance will increase LLFs' livelihood risks and might trigger serious social problems.

[①] According to existing policies, after paying insurance premium for 15 years, males of 60 and females of 55 can start to draw pensions.

[②] According to existing policies, LLFs Endowment Policy is for rural-to-urban LLFs. Therefore, the rural-to-urban residence transformation is the premise of joining the insurance system.

In the survey, all the respondents are covered by rural medical insurance. The reason is that China launched in 2003 a pilot project to implement New Rural Medical Cooperative System. Up to 2010, New Rural Medical Cooperative Insurance has covered 95% rural residents[①]. Xingwen County ranked third in the comprehensive assessment of Sichuan Provincial New Rural Medical Cooperative Implementation in 2010 with coverage of 95.2%. As to the unemployment security, although there are policy provisions in Xingwen County(Among the rural-to-urban personnel with land expropriated, males aged 16-60 and females aged 16-55 can join in the unemployment insurance and can draw insurance amount of 24 months), it is not implemented yet. This makes the unemployed land lost personnel short of basic security and increases the difficulty of LLFHs' smooth transition. The local government proposes that this policy is to be implemented and the major reason for the delay is the insufficiency of the government finance[②].

4. Housing Relocation and Resettlement

As to housing relocation and resettlement, the houses of 29 households (53.70%) were relocated. Among them, 16 households were still in transition period of relocation (accounting for 75.93% of the relocated households). Among the 16 households, 6 households（11.11%） were waiting for new housing constructed by the government, and the other 10 households were preparing for building their new housing in the resettlement zone where the government would constructing the housing base for them. As the monetary compensation standard is too low, none took the way of monetary resettlement.

As to employment support, only 2 persons (3.70%) got policy support. Among them, 1 person obtained credit support for venture creation, and 1 person got support of free training for employment and venture creation, employment information providing, and labor export organizing. As to the reasons why so few LLFs got employment support, we specially paid an interview with director of Xingwe County Bureau of Personnel Service and Employment Promotion. It was introduced that Xingwen County's employment support policies include occupational skills training[③], labor export organizing, and employment financial support

① In China, the coverage of New Rural Medical Cooperative Insurance reached 95% last year. http://news.sina.com.cn/c/2011-03-07/053122065155.shtml

② When establishing LLFs' unemployment security system, the government would provide financial subsidy for LLFs to join in unemployment insurance.

③ Occupational skills trainings rely on Xingwen County's School of Vocational Technology. The major form is customized training (such as special training for employment demand of cement enterprises in Xingwen County). The training contents include agricultural technology training, training for venture creation, and skills training. The trainees are mainly farmer workers, employees in difficult enterprises and unemployed urban labors. Taking 2010 as an example, Xingwen County trained 6037 persons, including 5312 migrant workers, 522 employees in difficult enterprises, and 203 unemployed urban labors.

(such as small amount of mortgaged loans with interest subsidies paid by financial department and labor intensive enterprise loans). But there are no special policies dedicated to LLFs. Although the eligible LLFs can strive for the above-mentioned policy support, as shown by the data, these policies are not aimed at the group of LLFs.

4.3.3 Expectations and Evaluations to Land Compensation Policies

Based on above understandings to implementation of CPLE, we investigated the respondents' opinions to the policies from aspects of expectations and evaluations. (See Table 4-6).

4.3.3.1 Desired Types of Compensation

As to the desired types of land expropriation compensation, except the quitted nine persons (16.67%), most respondents proposed many alternatives in policy expectations. As shown in Figure 4-5, the following is the descending order of intensity in policy expectations: 26 persons (48.15%) for employment support, 19 persons (35.19%) for social endowment security, 12 (22.22%) persons for housing relocation and resettlement, 13 persons (24.07%) for monetary compensation, 7 persons (12.96%) for obtaining support in financial loan or venture creation. Among them, 17 persons (31.48%) took "employment support" as the initial or only choice. If we include venture creation support into employment support, the figure rises to 20 persons (37.04%). This data indicates that, compared with establishing social endowment security (to provide security of future income), solving the employment problem (to provide security of current income) is a more urgent need of LLFs. It is also their essential need to cope with land lost shocks and to guarantee smooth transition. However, as shown in the above analysis, the pertinent employment support is rare and unemployment security system has not been established. Therefore, the deficiency in the two aspects might bring great shocks to farming LLFHs.

4.3.3.2 Policy Satisfaction and Reasons

As to the overall evaluation of respondents to the existing policies, 12 persons (22.22%) thought the policies satisfactory; 8 persons (14.81%) thought the policies fair; 30 persons (55.56%) thought the policies unsatisfactory; 3 persons (5.56%) thought the policies extremely unsatisfactory; 1 person (1.85%) thought the policies indifferent. The rate of dissatisfaction reached 61.12%, showing that the existing CPLE are to be improved.

Table 4-6 Opinions of Respondents on Compensation Policies

Desired Type of Compensation	Employment Support	Social Endowment Security	Housing Relocation and Resettlement	Monetary Compensation	Support for Business Undertaking
9 quit*	26	19	12	13	7
16.67%	48.15%	35.19%	22.22%	24.07%	12.96%
Satisfaction Degree on Compensation Policies	Satisfactory	Fair	Unsatisfactory	Extremely Unsatisfactory	Indifferent
	12	8	30	3	1
	22.22%	14.81%	55.56%	5.56%	1.85%
Reasons of Satisfaction with policies	Improved Housing and Infrastructures	Relatively Reasonable Compensation Policies	Better educational facilities for children	More Family Income	Increased Employment Opportunities
38 quit*	8	4	2	2	1
70.37%	14.81%	7.41%	3.70%	3.70%	1.85%
Reasons of Dissatisfaction with Policies	Compensation Fees Too Low Compared with the Land Value	With No Land, Unemployed	Without Steady Income, No Guarantee for Future Life	Higher Costs of Life, and Increased Daily Expenditure	Imperfect Policies of Housing Relocation and Resettlement
	29	18	14	11	8
	53.70%	33.33%	25.93%	20.37%	14.81%

Note: * “quit” means numbers of people who declined to answer this item

Figure 4-5 Desired Types of Compensation for Land Expropriation

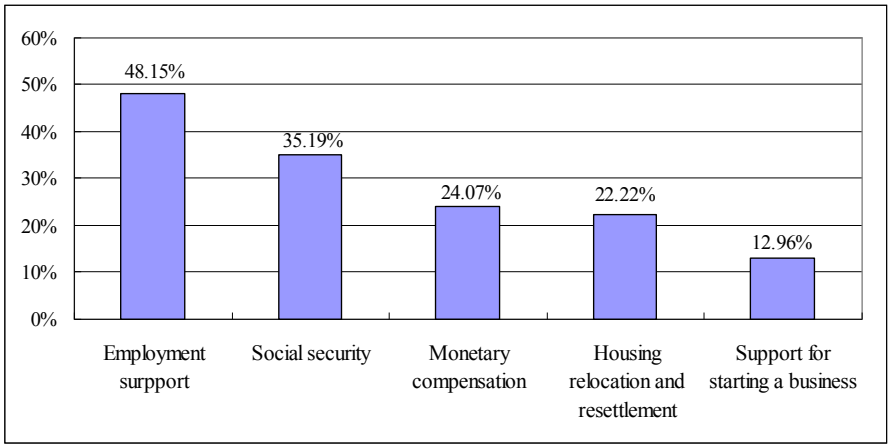
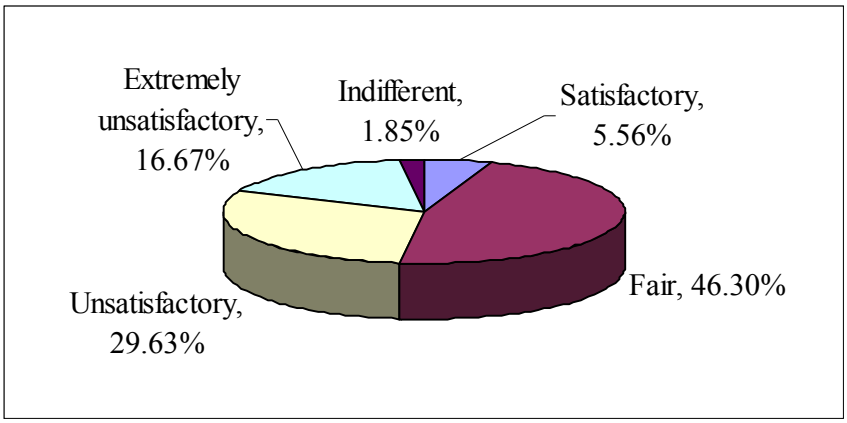


Figure 4-6 Satisfaction Degree of Respondents on Compensation Policies



As to the specific reasons of policy satisfaction, 16 persons answered and among which 1 person chose two reasons at one time. To be specific, 8 persons[①] (14.81%) thought the residential conditions and infrastructure facilities improved; 4 persons (7.41%) thought compensation policies reasonable: 2 persons thought educational conditions for children improved; 2 persons (3.70%) thought compensation policies increased household income; 1 person (1.85%) thought the employment opportunity increased (See Figure 4-7). The data indicates that:

(1) The chief reason for policy being satisfactory is the improved residential conditions.

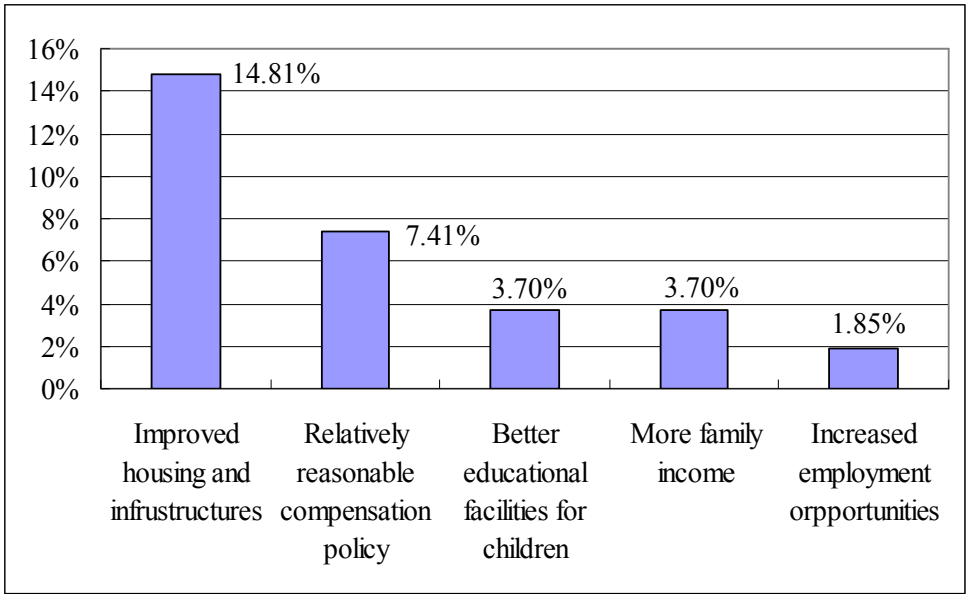
① Among the respondents, 29 persons (53.70%) are involved in housing relocation and resettlement. But only 8 persons (14.81%) had favorable attitude to the policy of housing relocation and resettlement because most households have not been resettled and are still in the transition period of relocation.

In traditional Chinese culture, housing is the indispensable form of assets. For LLFHs, housing relocation and resettlement policy in CPLE provides opportunities of housing renewal. Meanwhile, government unified planning improves infrastructure facilities, upgrades the appreciation potential of the housing, and bring benefits to relocated households.

(2) The 2 persons who thought the policies increased household income were aged and benefited from the stable drawing of pension by joining in endowment insurance. For the elderly insurants, the stable pension stopped the pain of farming and provided continuous endowment security, and thus played important role to substitute land function, and to increase policy satisfaction.

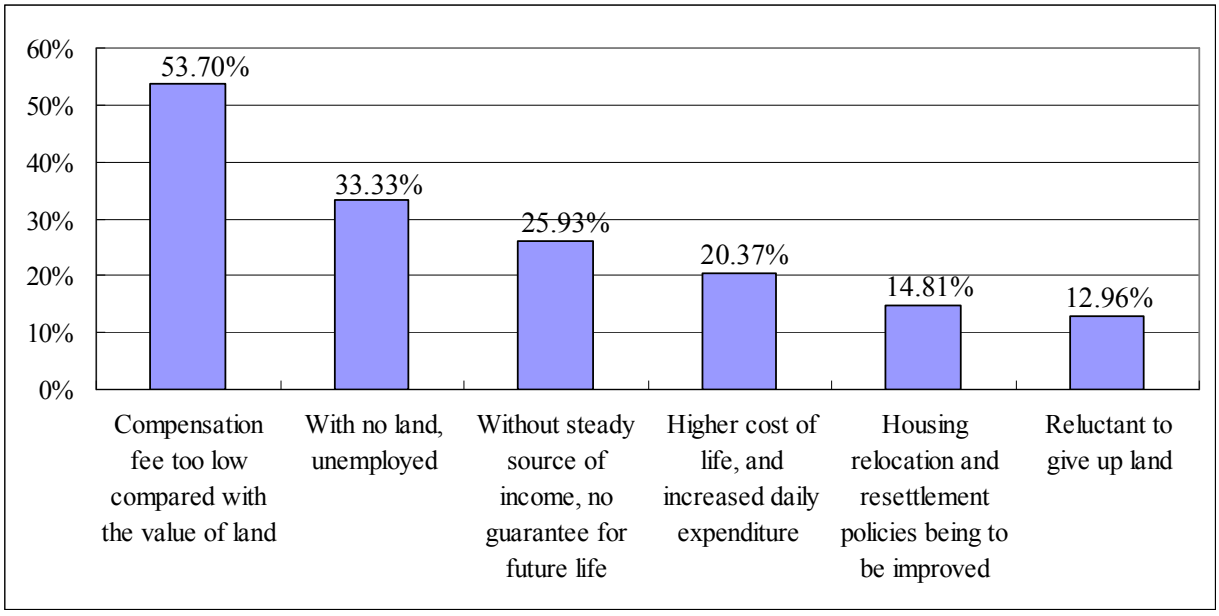
(3) Among the 16 respondents who gave reasons of policy satisfaction, not all of them gave overall evaluation to policies as satisfactory, and some of them gave fair or unsatisfactory. The reasons of policy satisfaction they mentioned are improved living conditions, increased employment opportunities, and improved educational conditions for children. This indicates that the appeals of LLFs to compensation policies are various. Therefore, restricted by local finance, even in short run it is hard to greatly upgrade the standard of monetary compensation, the improvement of conditions in housing, employment and education can help increase LLFHs' policy satisfaction.

Figure 4-7 Reasons of Respondents' Satisfaction with the Policies



As to the specific reasons of policy dissatisfaction, 43 persons (79.63%) gave answers to the question, and most of them chose several answers at a time. The reasons with descending order of chosen frequency are the following. 29 persons (53.70%) thought compensation fee too low compared with the value of land. 18 persons (33.33%) thought with no land, they were unemployed. 14 persons (25.93%) thought without steady source of income, there was no guarantee for future life. 11 persons (20.37%) thought cost of life higher and daily expenditure increased. 8 persons (14.81%) thought housing relocation and resettlement policies being to be improved. 7 persons (12.96%) were reluctant to abandon land. In addition, 6 persons (11.11%) thought compensation from land expropriation was higher in other regions. 5 persons (9.26%) thought the compensation was not sufficient to maintain the living standard before and caused a decline of life quality. 3 persons (5.56%) thought income gaps between households were greater than before. 2 persons (3.70%) thought later land expropriated households got higher compensation. 2 persons (3.70%) thought the land expropriation procedures were not open and the compensation was not transparent. Figure 4-8 reflects the 6 major reasons of policy dissatisfaction

Figure 4-8 Reasons of Respondents' Dissatisfaction with Policies



For the 61.12% unsatisfactory rate to the policies and the specific reasons, the two aspects of explanations are as follows. On one hand, the compensation standards under

monopolized land expropriation lack rationality. Compared with the land utility and living standard, the compensation is too low. On the other hand, the asymmetrical effect in value scales of endowment effect, status quo bias, and loss aversion caused high expectation for compensation and increased dissatisfaction (Kong Xiangzhi, 2008). Here, endowment effect means that the demanded price for lost properties tends to be higher than the price willing to pay for equivalent quantities of property. Status quo bias means the preference of the satisfied status to possess the existing properties, neither selling nor buying. Loss aversion means that the utility sacrifice by losing properties is larger than the utility by obtaining equivalent quantities of property (Kahneman, Knetsh and Thaler, 1991). Owing to the three types of effects, the respondents had higher assessment on the original housing and land, and thus causing their dissatisfaction to the corresponding compensation.

4.3.4 Livelihoods Conditions of LLFHs Surveyed

Land expropriation and compensation changed the living and production environment of LLFHs, and thus led to changes in livelihood assets, livelihood goals, livelihood behaviors, and livelihood outcomes. As the livelihood bases of households are different, the changes demonstrate gaps among LLFHs. According to classification of LLFHs in Chapter III, the following analyses the four livelihood factors and compares among different types of households.

4.3.4.1 Livelihood Assets

Based on LLFHSL Framework, Table 4-7 reflects the livelihood assets of LLFHs surveyed from five aspects of natural capital, human capital, financial capital, physical capital and social capital.

1. Natural Capital

We use land area to measure natural capital of LLFHs. Before land lost, land area of households surveyed was between 0.15-6 *mu*, with the average of 2.51 *mu.* Among them, 29 households had 2 *mu* and above, accounting for 53.71% of all the households (See Table 4-7). After land lost, the residual land area of households surveyed was between 0-4 *mu,* with the

average of 0.39 *mu*. Among them, 42 households (75.93%) had 0.5 *mu* and below; 33 households (61.11%) entirely lose land[①]; only 5 households (9.26%) had 1 *mu* or above. Hence, in short, the natural capital of LLFHs surveyed decreased greatly, and therefore, the possibility of obtaining agricultural income decreased sharply.

2. Human Capital

We use three indicators of number of labors in the household, average years of education, and working skills to measure human capital of LLFHs (See Table 4-7). The number of labors in the household is 1-4 persons before land lost with the average of 2.80 persons, and is 1-5 persons after land lost with the average of 2.81 persons, with little variation before and after land lost. The average years of education is 0-12 years before land lost with the average of 8.31 years, and is 0-13 years after land lost with the average of 8.21 years, indicating the low level of average education received by LLFHs.

We use the indicator of with or without employment or business experiences or specialties to measure working skills. As employment or business experiences can provide labors with more opportunities of learning-in-doing, and can help improve non-agricultural working skills for LLFHs to cope with land lost shocks, we take it as the substitute variable of working skills. As to the number of family members with special identities and experiences, it is 0-4 persons before and after land lost, with the average of 2.04 persons, and a slight increase after land lost. Before land lost, 79.63% households have this background, and after land lost, the portion increased to 87.04%. This indicates that the portion of LLFHs engaged in non-agricultural activities is rather high, and that, with good human capital basis, LLFHs have adjusted livelihood behaviors to cope with land lost shocks.

It is necessary to explain that the reason of the change in the above three indicators is mainly that we set "labors" as healthy population between 18 and 60 years old. With this statistical standard, with the increase of ages after land lost, the young grow up to be labors and the elderly are no longer labors. Therefore, the relative data changed.

① Although parts of entirely land lost households have some residual land of slopes, under China's policy of returning farmland to forest, that is, the farmland unfit for cultivation (with gradient >25°) should be returned to forest, these slopes are mostly turned to forests and hard to bring income for the LLFHs. Therefore, we regard these households as entirely land lost ones.

Table 4-7 Livelihood Assets Conditions of LLFHs Surveyed

Natural Capital	Area of Land (*mu*)		≤0.5	0.5-1	1-2	> 2	Average
		Before Land Lost	4 7.41%	8 14.81%	13 24.07%	29 53.71%	2.51
		After Land Lost	42 75.93%	8 14.81%	4 7.41%	1 1.85%	0.39
Human Capital	Number of Labor Per Household* (person/household)		≤1	2	3	> 4	Average
		Before Land Lost	4 7.41%	19 35.19%	14 25.93%	17 31.48%	2.80
		After Land Lost	6 11.11%	12 22.22%	19 35.19%	17 31.48%	2.81
	Average Education Year of Household Labors (year)		≤3	3-6	6-9	> 9	Average
		Before Land Lost	3 5.56%	8 14.81%	24 44.44%	19 35.19%	8.31
		After Land Lost	5 9.26%	6 11.11%	23 42.59%	20 37.04%	8.21
	Number of Family Members with Employment and Business Experiences or Specialties (person)		0	1	2	3-4	Average
		Before Land Lost	11 20.37%	8 14.82%	18 33.33%	17 31.48%	1.87
		After Land Lost	7 12.96%	8 14.82%	21 38.89%	18 33.33%	2.04
Financial Capital	Monetary Compensation Amount (1000 *yuan*)		5-100	100-200	200-300	300-400	Average
			30 55.56%	12 22.22%	5 9.26%	7 12.96%	13.16
	With Loan or Financial Support Obtained from Formal Financial Institutions		Yes	No			
			38 70.37%	16 29.63%			
Physical Capital	Housing Area (m^2)		0-100	100-200	200-300	> 300	Average
		Before Land Lost	5 9.26%	33 61.11%	6 11.11%	10 18.52%	216.35
		After Land Lost	16 29.63%	21 38.89%	10 18.52%	7 12.96%	177.39
Social Capital	Number of Family Members with Special Identities or Experiences** (person)		0	1	2	3	Average
		Before Land Lost	20 37.04%	24 44.44%	9 16.67%	1 1.85%	0.83
		After Land Lost	20 37.04%	22 40.74%	9 16.67%	3 5.56%	0.91
	Close Contact with Urban Relatives or Friends		Yes	No			
			27 50.00%	27 50.00%			

Notes: * According to Kong Xiangzhi (2008), labors here mean healthy population aged 18-60.

** Special identities or experiences refer to the background of being village leaders, army men, teachers, and CPC members.

3. Financial Capital

Financial capital includes family deposits and credit accessibility. Although the

respondents did not provide direct data of family deposit, the increase in family deposits brought by the lump sum compensation amount is the greatest influence in financial capital of LLFHs. Therefore, we use two indicators of monetary compensation fees and financial accessibility to measure financial capital of LLFHs.

As to monetary compensation fees, as shown in Table 4-7, the compensation amount obtained by LLFHs surveyed is between 5,000-400,000 *yuan* with the average of 131,600 *yuan*. 30 households got 100,000 *yuan* and below, accounting for a half and above in all the households (55.56%); 12 households (22.22%) got 100,000-200,000 *yuan*; 12 households (22.22%) got 200,000-300,000 *yuan*. Known from previous analysis, the reason of great differences among households was the differences in expropriated land area and the housing relocated or not. At to the influence of expropriated land area, in the implementation of compensation policies, the local government raised the compensation standards within the policy restriction by compensating all the expropriated land at the standard of plow land. Even the barren slopes are at the same compensation standard as the fertile plain land. Therefore, the policy is favorable to farmers with much land in Taiping Town, and greatly increased LLFHs' financial capital. But this policy also led to dissatisfaction of close suburb farmers with little fertile land. At to the influence of compensation for housing relocation, although the relocated household got higher compensation amounts, they need to pay additionally for the returned housing (under new housing resettlement) or to construct housing by themselves on the groundwork planned by the government. These are great expenditures after great earnings and have adverse effect on financial capital. To sum up, owing to the two reasons above, even with similar standards, the compensation amount obtained by LLFHs can be greatly different. The difference in the financial capital can lead to different selections in household livelihood behaviors, and can produce different livelihood outcomes.

As to financial accessibility, with no changes before and after land lost, 38 LLFHs surveyed (70.37%) have obtained loans or support from formal financial institutions, mainly in the form of small amount loans from rural credit cooperative, with the major purposes of seeing doctors, and minor purposes of buying production materials as farm tools and pigs, or doing business.

4. Physical Capital

We use the indicator of housing area to measure physical capital of LLFHs. Before land lost, housing area of LLFHs surveyed was 80-600 m^2, with the average per household of 216 m^2 , and over 60% households with 100-200 m^2. After land lost, as the housing of 12 households were relocated but not resettled yet, their housing area was 0, and the average area per household dropped to 177 m^2. For the relocated households who have been resettled, the housing area kept unchanged.

In addition to housing indicators, infrastructure condition is an important indicator to measure physical capital. As reflected by respondents, in the process of land expropriation, the government has improved the infrastructure facilities as roads, water supply and drainage, and health care, which can help increase physical capital of LLFHs. Owing to the lack of data, quantitative analysis can not be made in this aspect.

5. Social Capital

We use two indicators of special identities or experiences and close contact with urban relatives or friends. Among them, special identities or experiences mean the background of being village leaders, army men, teachers, and CPC members. In China's rural society, these backgrounds can enlarge the circle of socialization for family members and can help better obtain social resources, and can effectively reflect the condition of social capital.

As indicated in data, the number of family members with special identities or experiences in LLFHs surveyed was 0-3 person, with the average of 0.83 people before land lost and 0.91 after land lost. Among them, 20 households (37.04%) have none with the background; 22-24 households have one member with the background; the portion with 2-3 family members with the background is rather low. As to urban relatives or friends networks, 50% households have close contact with urban relatives or friends.

From the two indicators, 11 households (20.37%) have neither special identities or experiences nor close contact with urban relatives or friends. The rest nearly 80% households have good social capital. This indicates that most LLFHs have strong capability to resist livelihood risks and to cope with land lost shocks. To the LLFHs without social network support, the local government should give more attention and support in land lost shocks.

4.3.4.2 Livelihood Goals

Based on theoretical analysis in Chapter III, we classify livelihood goals into three aspects as more income, improved livelihood safety, and higher social status. They are reflected by three question items in questionnaire design as respondents' expectation to future life, reasons to be optimistic for future life, and reasons to be pessimistic for future life (See Table 4-8). In the question of expectation to future life, there are five options of steady and guaranteed income, improved life quality, more income, successful children, and higher social status. Among them, the former two items correspond to the goal of more income; the third and fourth items correspond to the goal of improved livelihood safety; and the fourth and fifth items correspond to the goal of higher social status. The answers to reasons to be optimistic or pessimistic can reflect respondents' confidence in realizing livelihood goals and relative reasons.

Table 4-8 Expectation and Opinions to Future Life of LLFHs Surveyed

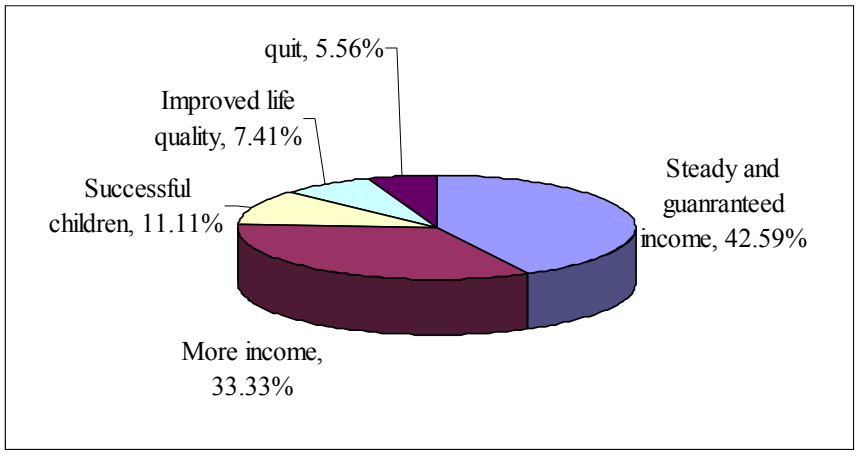
Expectation for Future Life	Steady and Guaranteed Income	Improved Life Quality	More Income	Successful Children	Higher Social Status
3 quit*	40	27	26	21	8
5.56%	74.07%	50.00%	48.15%	38.89%	14.81%
Most Important Livelihood Goal	Steady and Guaranteed Income	More Income	Promising Children	Improved Life Quality	
3 quit*	23	18	6	4	
5.56%	42.59%	33.33%	11.11%	7.41%	
Reasons of Being Optimistic for Future Life	More Favorable Policies	More Hard Work	More Development Opportunities	With Promising Children	Governmental Support in Difficulties
15 quit*	15	15	14	11	3
27.78%	27.78%	27.78%	25.93%	20.37%	5.56%
Reasons of Being Pessimistic for Future Life	Insufficient Government Support	Heavy Family Burdens	Lack of Labor Skills	Low Literacy Level	
19 quit*	17	12	8	7	
35.19%	31.48%	22.22%	14.81%	12.96%	

Note: * "quit" means numbers of people who declined to answer this item

As shown in Table 4-8, as to expectation for future life, except the 3 quit persons, the

other 51 respondents gave multiple answers and ranked by importance. First, according to the frequency of being mentioned, livelihood goals are ranked as: steady and guaranteed income (40 person-times, 74.07%), improved life quality (27 person-times, 50.00%), more income (26 person-times, 48.15%), successful children (21 person-times, 38.89%), and higher social status (8 person-times, 14.81%). Second, from the importance ranking of livelihood goals, among the 51 respondents, 23 persons (42.95%) took steady and guaranteed income as the first goal, 18 persons (33.33%) took more income as first, 6 persons (11.11%) took successful children as first, and 4 persons (7.41%) took improved life quality as first (See Figure 4-9). This indicates that livelihood safety is the primary goal of LLFHs surveyed as guarantee for safety needs, and it is the key to cope with land lost shocks and to realize smooth transition. The second goal of LLFHs is more income as it meets the basic physical needs on economic hierarchy. Whereas love and esteem needs for social status on higher hierarchy are not fully considered. This is related to economic conditions of the LLFHs and related to the Chinese social tradition of discriminating the group of farmers that restricted the pursuit for social status by the group of farmers.

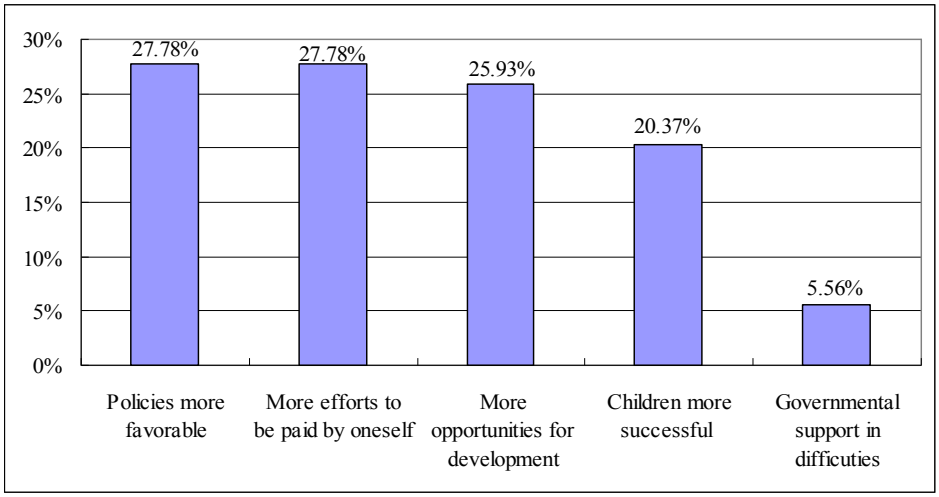
Figure 4-9 First Livelihood Goal of Respondents



Based on the respondents' opinions on livelihood goals, we further interviewed their confidence in realizing livelihood goals and relative reasons to understand their possible attitudes toward future livelihood behaviors. In this aspect, 39 respondents expressed reasons to be optimistic for future life (See Figure 4-9). Among them, 15 respondents (27.78%) thought policies more favorable; 15 respondents (27.78%) thought more efforts to be paid by

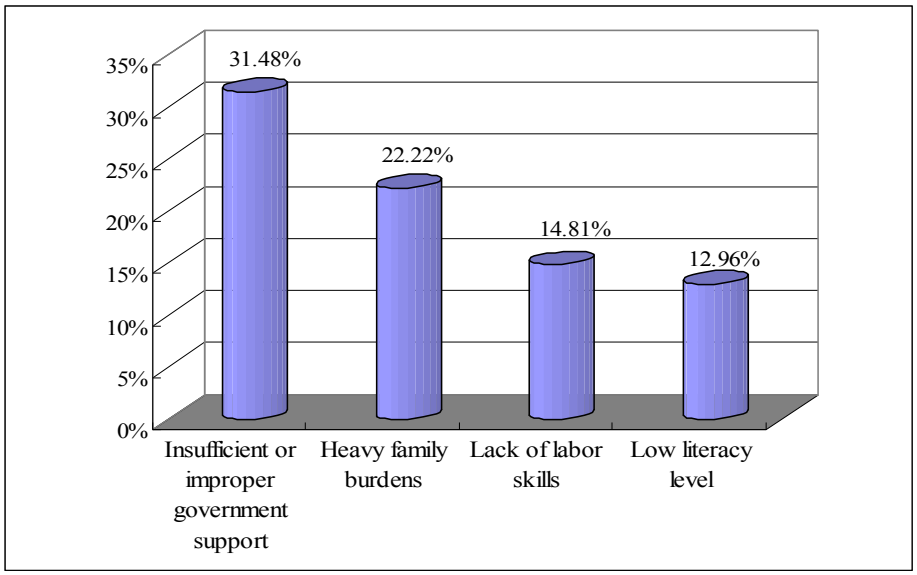
themselves; 14 respondents (25.93%) thought more opportunities for development; 11 respondents (20.37%) thought children more successful; only 3 respondents (5.56%) thought government would support in difficulties (See Figure 4-10).

Figure 4-10 Reasons of Being Optimistic for the Future



In contrast, 35 respondents expressed reasons to be pessimistic for future life (See Figure 4-11). Among them, 17 respondents (31.48%) thought government support insufficient or policies improper; 12 respondents (22.22%) thought family burden too heavy, focusing on endowment, education, and medical care; 8 respondents (14.81%) lack labor skills; 7 respondents (12.96%) with low literacy level.

Figure 4-11 Reasons of Being Pessimistic for the Future



Livelihood goals and attitudes direct the LLFs to select livelihood strategy for future.

Many respondents mentioned at one time reasons to be optimistic and reasons to be pessimistic for future life. Only eight respondents (14.81%) were pure pessimist with pessimistic attitude to future life. Hence, most respondents feel uncertain about future livelihood. It should be taken serious that, optimistic or pessimistic, LLFHs put the opinions to policies in the first place, which reflects the dependent feature of LLFHs in China. Different from the pure market exchange rules in western nations, Chinese government plays the dominant role in promoting economic and social development which makes "seeking government support in difficulties" a common practice in Chinese society. In this circumstance, if policies are improper, the harm of disorder would be great. Therefore, in the process of facilitating LLFHs to realize sustainable livelihood, the government should play guiding role in motivating active livelihood behaviors of LLFHs.

4.3.4.3 Livelihood Behaviors

In land lost shocks, with changes in structure and value of livelihood capital and adjustments in livelihood goals, the behavior selection of LLFHs surveyed may cased on classification of livelihood behaviors in Chapter III, the following are analysis to livelihood behavior patterns before and after land lost.

As shown in Table 4-9, before land lost, 24 households (44.44%) were mainly engaged in N-based activities (farming), with the highest portion. 23 households (42.59%) were mainly engaged in H-based activities (employment), ranking the second in portion. Only 7 households were mainly engaged in M-based activities (business undertaking), accounting for 12.96%. None household was mainly engaged in F-based activities (investment).

Table 4-9 Composition of Livelihood Behaviors of LLFHs Surveyed

Item	N-based Activities (Farming)	H-based Activities (Employment)	M-based Activities (Business Undertaking)	F-based Activities (Investment)
Before Land Lost	24 44.44%	23 42.59%	7 12.96%	0 0.00%
After Land Lost	4 7.41%	31 57.41%	13 24.07%	6 11.11%

After land lost, households mainly engaged in N-based activities decreased to four,

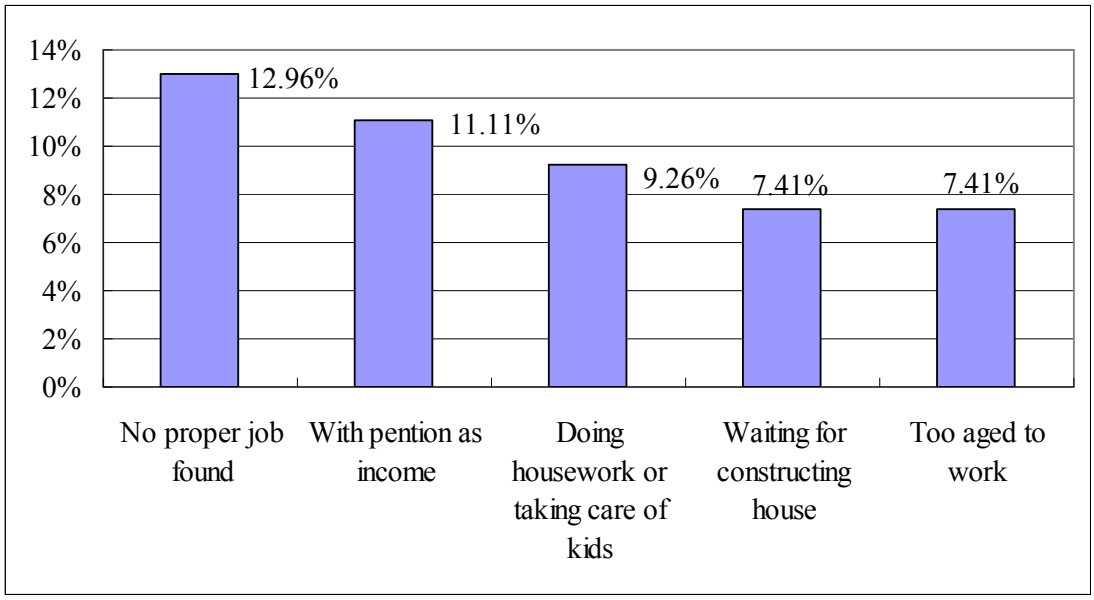
accounting for 7.41% in portion. It makes this type of activities transformed from the most important to least important. Correspondingly, the portions of other three types increased. Households mainly engaged in H-based activities increased to 31, accounting for 55.56% in portion. It makes this type of activities to be the most important; households mainly engaged in M-based activities increased to 13 (24.07%); household mainly engaged in F-based activities increased from 0 to 6 (11.11%). It shows that, land lost shocks urged LLFHs to adjust livelihood behaviors, and the adjustment provides possibility to broaden source of household income and to realize diversified income. We will make detailed analysis to the changes in livelihood outcomes led by these behavior adjustments in next section.

In specific analysis, we found that, among the 6 households mainly engaged in F-based activities, 2 households have labors about 40 years old, giving up jobs to wait for constructing new house and the household temporarily making a living by interest income. In the other 4 households, family members are mainly elders. As they have joined in LLFs' endowment insurance and have started to draw pension, they no longer worked and made the living by pension income. Although we classify the F-based households into two types, their behavior features are quite different. The former is behavior adjustment in short run to cope with land lost shocks and belongs to coping strategy. Whereas the latter is the change of behavior pattern in long run with land lost impact and belongs to adaptive strategy (Singh and Gilman, 1999). Obviously, there are deficiencies in both behavior selections. To the former, restricted by compensation fees for land expropriation, the behavior pattern to make the living by interest cannot maintain livelihood in long run. To the latter, only adaptive to households of elderly as the pension income is rather low and hard to realize the improvement of life quality. Therefore, to the LLFHs in Xingwen County, F-based activities are not positive behavior selection, and therefore we cannot generalize this behavior.

In spite of integrated behavior features, the following contents analyze the impact of land lost shocks from respondents' own behavior changes. As shown in the survey, those stay at home appeared and the number reached as high as 23 persons (42.59%). There are five major reasons (See Figure 4-12). Among them, 7 persons (12.96%) could "not find proper job" with the reason of "aging". Among the 7 persons, except the one aged 41, the others were aged

48-59 which is a difficult group to find non-agricultural employment opportunities after ceasing farming or cultivating by losing land. 6 persons (11.11%) had "pension as income" because they bought endowment insurance and have reached retiring age. 5 persons (9.26%) had to "do housework and take care of kids" and 4 of them were female. This also reflects indirectly the economic improvement of the land lost households to make it possible that the females do the housework only. This indicates that generation support is an important impact factor in livelihood strategy selection among family members. 4 persons (7.41%) were "waiting for constructing the house". Their housing was relocated and has not been resettled yet. They had to temporarily give up jobs and wait to construct their houses. 4 persons (7.41%) were "too aged and reluctant to work". This also reflects indirectly the economic improvement of the LLFHs to make it possible that one can retire when aged. In summary, among the 54 respondents, owing to the first and the forth reasons (See Figure 4-12), 11 persons are involuntarily unemployed and makes "stay at home" the passive choice. This might deteriorate the evaluation of policy satisfaction and might become the hidden trouble to trigger social contradictions.

Figure 4-12 Main Reasons of Staying at Home after Land Lost



4.3.4.4 Livelihood Outcomes

We measure LLFHs' livelihood outcomes from goal and subjective aspects. Goal indicator is LLFHs' income level, and subjective indicator is respondents' evaluation to their own livelihoods.

As indicated in Table 4-10, before land lost, the average annual income of LLFHs surveyed was 27,600 *yuan*, and there was income gap among different types of households. Among them, N-based households (mainly agricultural income) had the lowest income level of 19,100 *yuan*, being 69.2% of the average. H-based households (mainly wage income) and M-based households (mainly non-agricultural income) had similar income level over 34,000 *yuan*, being 1.25 times of the average.

Table 4-10 Income Conditions before and after Land Lost

	All Households	N-based Households	H-based Households	M-based Households	F-based Households
Before Land Lost (10000 *yuan*)	2.76	1.91	3.45	3.44	/
After Land Lost (10000 *yuan*)	3.08	1.58	3.29	4.16	1.05
Change Rate (%)	11.59	-17.28	-4.64	20.93	/

After land lost, the average annual income of LLFHs surveyed increased to 30,800 *yuan* by 11.59%. Changes of different types of households are different. The income level of N-based households decreased to 15,800 *yuan* by 17.28%. The income level of H-based households went down slightly (by 4.64%). The income level of M-based households increased to 41,600 *yuan* by 20.93%. F-based households appeared with little income of 15,800 *yuan*.

As shown from comparison among various types household income, in land lost shocks, the differentiation of LLFHs surveyed is intensified. N-based and F-based households are at lower income level of respectively 51.30% and 34.10% of the average. H-based and M-based households are at similar income level and the latter is 35.06% higher than the average. The income ratio of N-based, H-based, and M-based households increased from 1: 1.8: 1.8 before

land lost to 1: 2.1: 2.6 after land lost. The income level of F-based households newly appeared after land lost is only 0.67 of N-based level.

Based on the classification by livelihood outcomes of behavior and income, this data indicates that livelihood behavior selection plays determining role to household income (to which we make empirical estimation in Chapter V). This means that, for N-based households, accounting for nearly half of the whole before land lost, the decrease or entire loss of land capital led to the fall of agricultural income even to 0. If the households cannot adjust livelihood behavior promptly, or have chosen improper livelihood behavior, their total income will drop and this might threaten their livelihoods in long run.

As to livelihood outcomes, in addition to the goal indicator of income, the following contents measure from two aspects of respondents' perception of life pressure before and after land lost and their evaluation on changes in living standard after land lost (See Table 4-11).

By comparing living pressure before and after land lost, among the 54 respondents, except 1 quitted person, 24 persons (44.44%) thought "no pressure" before land lost but only 8 (14.81%) thought so after land lost. In the distribution of greatest pressure, 10 persons (18.52%) thought "income too low to improve living standard" before land lost, and this figure rose to 17 persons (31.48%) after land lost, with an increase of 13%; 7-8 persons thought "income too low to maintain basic life" before and after land lost, with little change in proportion; 8 persons (14.81%) before land lost and 12 (22.22%) persons after land lost thought "income unsteady" with an increase of 7.4%. Compared with the situation before land lost, the increased living pressure after land lost includes "increased daily expenditure" (6 persons, 11.11%) and "no source of income with job unavailable" (5 persons, 9.26%). After the farmers lose the low cost living style dependent on land, they met the rapid rise in prices in China which leads to a new living pressure for respondents by increased daily expenditure. The perception of the pressure of "no source of income with job unavailable" sufficiently indicates the basic utility of land as farmers' employment guarantee. As many respondents (18 persons, 33.33%) said when they mentioned policy satisfaction: "without land, we are unemployed". If this situation lasts for long period, this pressure will bring great negative effects on families and the society.

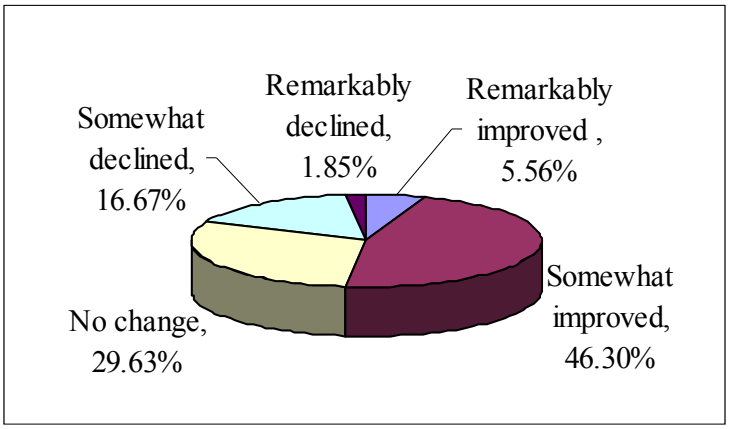
Table 4-11 Respondents' Evaluation on Livelihood Conditions

Greatest Pressure of Life before Land Lost	No Pressure	Income too low to improve living standard	Income too low to maintain basic life	Income unsteady	Tuition of children too high	High expenses to cure diseases of family members
1 quit*	24	10	8	8	5	1
1.85%	44.44%	18.52%	14.81%	14.81%	9.26%	1.85%
Greatest pressure of life after losing land	No pressure	Income too low to improve living standard	Income unsteady	Income too low to maintain basic life	Increased daily expenditure	No source of income with job unavailable
1 quit*	8	17	12	7	6	5
1.85%	14.81%	31.48%	22.22%	12.96%	11.11	9.26%
Change of living standard before and after losing land	Remarkably improved	Somewhat improved	No change	Somewhat declined	Remarkably declined	
	3	25	16	9	1	
	5.56%	46.30%	29.63%	16.67%	1.96%	

Note: * "quit" means numbers of people who declined to answer this item

As to the evaluation on living standard change after land lost (See Figure 4-13), among the 54 respondents, 3 persons (5.56%) thought "living standard remarkably improved"; 25 persons (46.30%) thought "living standard somewhat improved"; 16 persons (29.63%) thought "living standard remained unchanged"; 9 persons (16.67%) thought "living standard somewhat declined"; 1 person (1.85%) thought "living standard remarkably declined". This indicates that land expropriation made only nearly 20% respondents have the perception of a decline in living standard. This coincides with the above income data.

Figure 4-13 Respondents' Evaluation on Change of Living Standard after Land Lost



However, this is not optimistic because it only reflects the short run effects of land expropriation. Among the 3 investigated projects, 77.78% respondents lost their land after 2007 (See Table 4-5). Therefore, in the several years after obtaining lump sum cash compensation, the decline rate of living standard was not so great. However, as proposed in research of HAN Jun (2009), without subsequent new source of income, the decline of living standard in the group of LLFs would be a common phenomenon. In long run, the long-term livelihood status of LLFs is a problem. As shown in the policy satisfaction degree, the unsatisfactory rate was 61.12%, which indicates that LLFs fully consider the long-term impact of land expropriation. Obviously, solving long-term livelihood problems should be the key perspective of government attention in constituting policies.

Meanwhile, by further analysis, we have found that short period of land expropriation was not the only reason to lead the above-mentioned proportion relatively low. Evaluation on living standard change by 12 respondents (22.22%) with land expropriated before 2007 (2003) was not “declined”. This is because they were located in Malanwan Community close to urban district and benefited from urban construction. They had good location conditions and many opportunities to develop with living environment improved. Therefore, in the 8 years after land lost, they could maintain or even improve livelihood situation. However, evaluation on living standard change by 10 respondents with land expropriated in 2009-2010 was “declined”. They respectively belonged to Taiping Industrial Park Project and Guangming New City Project. Before land lost, they mainly did farming with high income from agriculture. After land lost, they had no new source of income. The lump sum compensation fees were used to buy endowment insurance and (or) to construct house by themselves, not to mention meeting the daily expenditure. The rapid rise in prices in the past 2 years increased living cost. These are the causes leading to the decline in their living standard.

4.4 Conclusions of the Questionnaire

Based on the analysis to the data from the questionnaire survey to typical projects of land expropriation compensation in Xingwen County, we get the following information and conclusions.

1. Land Expropriation Compensation Ways and Policy Evaluation

From the compensation ways and policy evaluation, the contents of land expropriation compensation include 4 types of monetary compensation, social endowment security, housing relocation and resettlement, and employment support with monetary compensation as the major way. The problems shown from the investigation were low compensation standard, low coverage of endowment insurance security, and insufficient employment support. This coincides with the conclusions from most studies that show that these are the common problems in Chin's CPLE. These problems decreased the respondents' satisfaction to compensation policies and lead to the high unsatisfactory rate of 61.12%. The three main reasons of policy dissatisfaction are insufficient compensation, unemployment trouble, security deficiency. As to the intensity of policy expectation, the rank is employment support, social security，and monetary compensation. This indicates that, to LLFs, the single method of monetary compensation cannot substitute employment and social security functions. This is also the reason for the respondents to regard "guaranteed and stable income" (livelihood safety) as a more important livelihood goal than "more income". As to housing relocation and resettlement, as the relocated farmers have opportunities to improve residential quality and environment, the LLFHs are mostly satisfied with the policies. Meanwhile, they have high expectation for the resettlement policies, and this makes the efficiency of implementation an important factor affecting policy satisfaction.

2. Livelihoods and their change

(1) Livelihood Assets

Before land lost, the LLFHs surveyed have good basic in human capital and social capital before land lost which provides guarantee for them to cope with land lost shocks. After land lost, the structure of their livelihood assets changed greatly. Land expropriation decreased natural capital; monetary compensation increased financial capital; housing relocation and resettlement affected the physical capital of relocated households; changes of external livelihood environment influenced human capital and social capital. As the above descriptive statistical analysis cannot discover the changes in value with the transformation in structure of livelihood assets, we give quantitative description in Chapter V.

(2) Livelihood Goals

In land lost shocks, the first goal regarded by respondents) is livelihood safety and over half of respondents expressed reasons to be optimistic or pessimistic for future life. For both the optimistic and the pessimistic, policy is the chief factor affecting respondents' livelihood attitudes. This shows that LLFHs are greatly dependent on the government and it makes policy to be an important influencing factor to livelihood pathway. Therefore, restricted by financial resources, the government is hard to increase compensation standard rapidly. The key to upgrade policy efficiency is to exert the directing role of policy to motivate LLFHs to choose positive livelihood behavior to realize sustainability of livelihood pathway.

(3) Livelihood Behaviors

Before land lost, 24 households (44.44%) were mainly engaged in N-based activities (farming), accounting for the highest portion; 23 households (42.59%) were mainly engaged in H-based activities (employed), ranking the second in portion; only 7 households (12.96%) were mainly engaged in M-based activities (doing business); none household was mainly engaged in F-based activities (investment). After land lost, households mainly engaged in N-based activities greatly decreased (four households, 7.41%). The portions of other three types increased. In descending order, they are as follows: households mainly engaged in H-based (31 households, 55.56%), households mainly engaged in M-based activities (13 households, 24.07%), households mainly engaged in F-based activities (6 households, 11.11%). It shows that, land lost shocks urged LLFHs to adjust livelihood behaviors, and the adjustment provides possibility to broaden source of household income and to realize diversified income. We make further verification of the matching between these livelihood behaviors and livelihood assets, and the sustainability of livelihood pathways (See Chapter V and VI).

In addition, from respondents' own behavior responses. After land lost, those who stay at home increased rapidly (23 persons, 42.59%). In behaviors of employment, housing construction and joining in endowment insurance, this group shows the following features: first, the lack of human capital leads to involuntary unemployment. Seven respondents (12.96%) did farming before land lost and could not find proper job because of aging after

land lost. Although the portion is not high, this is the most fragile group in LLFs. With the painful transformation in land lost shocks, they need external support more urgently. Second, "waiting to construct the house" led to income loss. Being in the transitional period of housing relocation and resettlement, 4 respondents (7.41%) dallied at home for 1-2 years to wait to construct their houses. This not only leads to income loss of the household, but also may affect policy satisfaction and trigger unnecessary social contradiction. Because rural households in China regard housing as the most important form of capital, it is vital to improve the efficiency of implementation of housing policy. Third, giving up endowment security increases livelihood risks. As to the reasons for the respondent or family members not joining in LLFs Endowment Insurance, 17 respondents (31.48%) proposed the preference of cash and expectation for government's farmer-favoring policy; 25 respondents (46.30%) thought insurance premium too high for them to afford. As the livelihood uncertainty increases after land lost, absence of endowment insurance can increase LLFHs' livelihood risks. Therefore, the government should pay more efforts on compulsory insurance and financial support.

(4) Livelihood Outcomes

After land lost, the overall income level of LLFHs surveyed increased 11.59%, and over 80% respondents expressed there was no change or increase in living standard. This indicates that land lost has little shocks on most households. However, income differentiation intensified among different types of households. The income ratio of N-based, H-based, and M-based households increased from 1:1.8:1.8 before land lost to 1:2.1:2.6 after land lost. The income level of F-based households newly appeared after land lost (mainly with property income) is only 0.67 of N-based level. This indicates that livelihood behavior selection plays determining role to household income. N-based and H-based activities can bring the household more income. Therefore, the government should intensify the guidance in the two types of activities and give more support in the accumulation of the based livelihood assets.

Chapter 5: Statistic Studies on Land Lost Farmer Households' Livelihood Pathways

Based on descriptive statistical analysis in Chapter IV, in this chapter, first, we apply Analytic Hierarchy Process (AHP) to measure the value of livelihood assets of LLFHs. Then, combined with their income indicator, we evaluate the sustainability of livelihood pathways before and after land lost. Last, by regression analysis, we make econometric study on affecting factors of household income from two aspects of livelihood assets and behaviors.

5.1 Measurement and Comparison of LLFHs' Livelihood Assets

5.1.1 Measuring Method and Indicators of Livelihood Assets

Analytic Hierarchy Process (AHP) is a systematical method of analysis proposed by Prof. Saaty, a scholar in operations research, in 1970s. AHP takes complicated multi-objective decision problems as a system, subdivides the problem or planning issue into its components or levels, and arranges these levels into an ascending hierarchic order. At each level of the hierarchy, the components are compared relative with each other using a pairwise comparison matrix. The result of this systematic process is a set of priorities or relative importance, or method of scaling between the various actions or alternatives. The relative priority weights can provide guidelines for the allocation of resources among the entities at the lower level (Saaty，2005)

Applying AHP, with reference to Su Fang *et al.* (2009), we get the influencing weight value of measuring indicators of LLFHs' livelihood assets (See Table 5-1). The procedures to measure livelihood assets include: first, we standardize the sample data to solve the inconformity problem of indicator types and dimensions. We use linear standardization method to divide the original indicator by its maximum value to get its standardized value I_i. Second, based on affecting weights W_i and standardized value I_i, by calculating the weighted average, we get the integrated value P of each type of livelihood assets, that is, the livelihood asset value. The formula is as follows:

$$P = \sum_{i=1}^{n} W_i I_i \tag{5-1}$$

Table 5-1 Measuring Indicators and Affecting Weights of Livelihood Assets

Types of Livelihood Assets	Measuring Indicators	Affecting Weights
Human Capital	Number of labors	0.398
	Average education years of labors	0.311
	Number of family members with employment and business experience or specialty	0.291
Natural Capital	Area of land	1
Financial Capital	Monetary compensation fees	0.592
	Financial support accessibility (loans or support from formal financial institutions =1, otherwise = 0)	0.408
Physical Capital	Area of housing	1
Social Capital	Number of persons with special identities or experiences*	0.667
	Networks of urban relatives or friends (with urban relatives or friends of close contact = 1, otherwise = 0）	0.333

Notes: * Special identities or experiences mean the background of being village leaders, army men, teachers, and CPC members.

5.1.2 Comparison of LLFHs' Livelihood Assets Value

1. Comparison of All LLFHs' Livelihood Assets Value

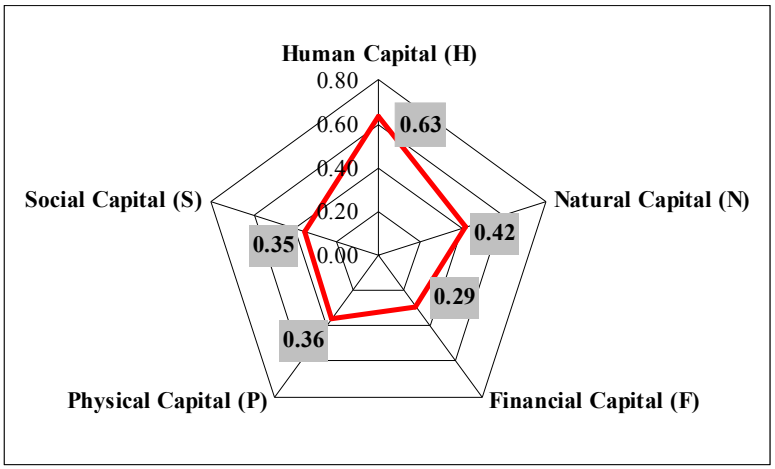
Under CPLE, changes occurred in the structure and value of LLFHs' livelihood assets. Land expropriation first changed the structure of LLHs' livelihood assets, and then by different ways of compensation urged the transformation of livelihood assets value. By using Formula 5-1, we calculate and get livelihood assets asset of LLFHs before and after land lost, and then use the valuation to measure whether these endowment factors of livelihood assets are comparative advantages or disadvantages.

Table 5-2 Data of Livelihood Assets Value of LLFHs Surveyed

Category of Livelihood Assets	Human Capital	Natural Capital	Financial Capital	Physical Capital	Social Capital	Total Assets
Before Land Lost	0.63	0.42	0.29	0.36	0.35	2.05
After Land Lost	0.58	0.10	0.48	0.30	0.37	1.83
Change	-0.05	-0.32	0.19	-0.06	0.02	-0.22

As shown in Table 5-2, before land lost, human capital of LLFHs surveyed was highest (0.63); natural capital was second (0.42); financial capital was lowest (0.29); physical capital and social capital were about the same (See Figure 5-1). Compared with other capital types, the advantage of human capital derives from: first, many people and few land in rural areas in China made labor force a comparative advantage in quantity, and this makes human capital of LLFHs have a higher valuation than other capitals. Second, LLFHs live in relatively favorable locations and have good accumulation of education and skills. LLFHs come into being in the process of industrialization and urbanization and are located in economic developed suburbs in China. They face many opportunities of rapid development in secondary and tertiary industries, and are less dependent on land. Comparing with general farmers, they have better quality of human capital in education and non-agricultural skills (He Xuefeng, 2010). Taking educational level as an example, the average years of education of land lost labors was 8.3 (See Table 4-7), whereas the indicator of China's rural labors was 7.8 as shown in China's Second National General Survey on Agriculture.

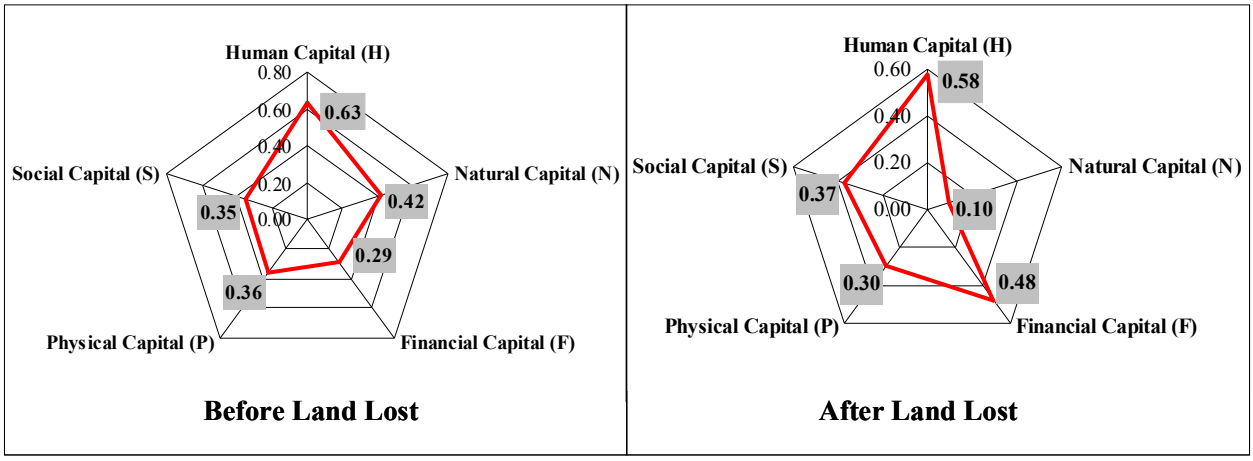
Figure 5-1 Livelihood Assets Value of LLFHs Surveyed before Land Lost



After land lost, great changes occur in livelihood assets of LLFHs surveyed. Natural capital value (0.1) decreased greatly and ranked the last; financial capital value (0.48) increased and ranked second, owing to the obtainment of compensation fees for land

expropriation; human capital value (0.58) dropped a little but still ranked first, which was partially because the decrease of labor quantities in population aging; physical capital value (0.30) also went down a little, owing to some relocated households not resettled yet with no housing area; and social capital value increased a little. Figure 5-2 illustrates the changes of livelihood assets value before and after land lost.

Figure 5-2 Changes in Livelihood Assets Value of LLFHs Surveyed



In short, the total value of LLFHs' livelihood assets decreased from 2.05 before land lost to 1.83 after land lost. This indicates that, during our survey, the basis of LLFHs' livelihood assets was to some extent reduced. As to the reasons, it is not only by insufficient or inefficient compensation for land expropriation, but also led by lagging adjustment of LLFHs' behavior choices. As shown in data, the land lost duration of 2/3 LLFHs surveyed was about 1-2 years (see Table 4-7), housing resettlement was unfinished and LLFHs were still in the transition period coping with land lost shocks. These factors brought negative effects on the accumulation of livelihood assets in short run, and further lowered policy evaluation by LLFHs. Therefore, as proposed in Chapter IV, although the income level of LLFHs somewhat increased, their unsatisfactory rate to CPLE reached 61.12%. As to land lost shocks in long run, we should make further analysis on basis of more data and materials obtained in the future researches.

2. Comparison of Different Types LLFHs' Livelihood Asset Value

By using Formula 5-1, we further calculate livelihood assets value of different types

LLFHs. As shown in Table 5-3, before land lost, the similarity in livelihood assets structure of different types LLFHs lies in that human capital value ranks first with comparative advantage while financial capital value is lowest with comparative disadvantage. Comparing total value of livelihood assets among different types of LLFHs, the descending rank is M-based households (2.34), H-based households (2.18), and N-based households (1.84). As to N-based households, there is a slight comparative advantage in natural capital, but the asset of other four livelihood assets are rather low. As to M-based households, natural capital value is the lowest comparing with other types of households, but their advantage in human capital and social capital are remarkable.

Table 5-3 Livelihood Assets Value of Different Types of LLFHs Surveyed

Household Types		Total Assets	Human Capital	Natural Capital	Financial Capital	Physical Capital	Social Capital
N-based Households	Before Land Lost	1.84	0.55	0.41	0.27	0.32	0.29
	After Land Lost	1.60	0.30	0.27	0.45	0.39	0.19
	Change	-0.24	-0.25	-0.14	0.18	0.07	-0.1
H-based Households	Before Land Lost	2.18	0.68	0.43	0.32	0.38	0.36
	After Land Lost	1.96	0.65	0.09	0.49	0.32	0.42
	Change	-0.22	-0.03	-0.34	0.17	-0.06	0.06
M-based Households	Before Land Lost	2.34	0.75	0.39	0.23	0.43	0.54
	After Land Lost	1.90	0.66	0.06	0.48	0.32	0.38
	Change	-0.44	-0.09	-0.33	0.25	-0.11	-0.16
F-based Households	Before Land Lost	/	/	/	/	/	/
	After Land Lost	1.08	0.21	0.11	0.49	0.06	0.20
	Change	/	/	/	/	/	/

After land lost, natural capital value of LLFHs surveyed decreases greatly; financial capital value increases owing to the obtainment of compensation for land expropriation;

changes in other capitals are different. This makes the total asset value of LLFHs somewhat decreased. The descending sort of livelihood assets value is as follows: H-based households (1.96), M-based households (1.90), and N-based households (1.60). F-based households appear from scratch but rank the last (1.08), because of their human capital value (0.21) and physical capital value (0.06) too low. From various types of households, as to H-base households and M-based households, the decrease in total asset value derives from reduction of natural capital. For N-based households, the decrease in total value derives from reduction of natural capital and social capital. This indicates that the agricultural households originally attached to land are closely related to land and rural society in skills and social networks, and thus they are much more affected by land lost shocks.

Livelihood asset is an important factor in livelihood pathway, and it provides basis and premises for improving livelihood outcomes. However, only by learning the changes in livelihood assets value, we cannot make judgement on changes in livelihood pathway and livelihood outcomes before and after land lost. Therefore, we should combine behavior features to make further analysis.

5.2 Evaluation on Sustainability of LLFHs' Livelihood Pathways

5.2.1 Judgement Method of the Matching

In theoretical analysis in Chapter III, sustainability of LLFHs' livelihood pathway is defined as "the matching between livelihood behaviors and livelihood assets", and having improved livelihood outcomes in long run. Considering the availability of data, we use income level to measure livelihood outcomes, and through analysis on the matching and income, evaluate the sustainability of LLFHs' livelihood pathway in Xingwen County.

Here, "the matching between livelihood behaviors and livelihood assets" refers to a household choosing livelihood behavior patterns by the livelihood assets endowment with most advantage. Therefore, to judge the matching, we should first understand the household's livelihood assets endowment features and livelihood behavior pattern. Livelihood assets endowment features are determined by the household's richest type of livelihood assets.

Therefore, among livelihood assets value measured by Formula 5-1, the livelihood asset type with the highest valuation corresponds to the most advantageous household asset endowment feature. The classification of livelihood behavior patterns is consistent with the previous contents. According to the households' dependence on different livelihood assets, we classify livelihood behaviors into four types (N-based activities, H-based activities, F-based activities, M-based activities). This is the basis we make judgment on the matching. For example, to a certain LLFH, if natural capital value is the highest and major activity is also N-based, the household meets the matching requirement.

It needs to state that M-based activities depend on multiple capitals except natural capital, therefore, when we make the judgment on the matching, we should balance among multiple capitals.

According to the above-mentioned judgment method, we first make judgment on the matching between livelihood behaviors and livelihood assets for each household before and after land lost, and aggregate in household types. Then, combined with income indicator, we evaluate sustainability of the livelihood pathway of various types LLFHs.

5.2.2 Evaluation of the Matching

As shown in Table 5-4, before land lost among the 54 households, 23 households meet the matching requirement between livelihood behaviors and livelihood assets with a matching rate is 42.59%. From different types of households, among 24 N-based households, the matching number are 4 , with a matching rate of 16.67%; among 23 H-based households, the matching number are 13, with a matching rate of 56.52%; among 7 M-based households, the matching number are 6, with a matching rate of 85.71%.

After land lost, the matching quantity increases to 37 households (68.52%) with an increase in matching rate by 26%. From the household types, none of the four households meets the matching requirement; among 31 H-based households, the matching number is 17, with a rate of 54.84%, slightly decreased; M-based households and the newly appeared F-based households have the matching rate of 100%. It shows that LLFHs surveyed have made reasonable adjustments in livelihood behaviors after land lost adapting to the change in

livelihood assets and thus caused the rise in matching rate.

Table 5-4 Evaluation of the Matching Conditions before and after Land Lost

		Total Households	N-based Households	H-based Households	M-based Households	F-based Households
Number of Households Surveyed (household)	Before Land Lost	54	24	23	7	0
	After Land Lost	54	4	31	13	6
	Change	/	-20	8	6	6
Number of the Matching Households (household)	Before Land Lost	23	4	13	6	0
	After Land Lost	37	0	17	13	6
	Change	14	-4	4	7	6
Matching Rate* (%)	Before Land Lost	42.59	16.67	56.52	85.71	/
	After Land Lost	68.52	0.00	54.84	100.00	100.00
	Change	25.93	-16.67	-1.68	14.29	/

Note: * Matching rate is the ratio of quantity of households meeting the matching requirement (matching quantity) to total number of households.

5.2.3 Evaluation of the Sustainability

Based on the matching analysis, combined with income indicator, the following contents give comprehensive evaluation on sustainability of LLFHs' livelihood pathway. As shown in Table 5-5, for all sampled households and different categories, the matching rate and income level change in the same direction. This indicates that, when we evaluate sustainability of livelihood pathway, the two indicators of the matching and income are in conformity. Therefore, indicator of the matching based on behavior patterns is an effective intermediate one to measure the sustainability of livelihood pathway. This verifies our theoretical hypotheses.

As shown in data, although livelihood assets decrease after land lost (See Table 5-3), as most LLFHs promptly adjust livelihood behavior to match with changed assets endowment, the total income increase. As shown in Table 5-5, households' matching rate increases from 42.59% before land lost to 68.52% after land lost, thus makes level of average income per household increase from 27,600 *yuan* to 30,800 *yuan*. This indicates that, to the whole group of LLFHs, sustainability of livelihood pathway has improved. To be specific for household types, with the loss of land, most N-based households change livelihood behavior patterns (see Table 5-4). However, the households still engaging in N-based activities (farming) do not

meet the matching requirement, and level of average income per household decreases from 19,100 *yuan* to 15,800 *yuan*. Therefore, their livelihood pathways are unsustainable.

Table 5-5 Matching Rate and Income before and after Land Lost

		Before Land Lost	After Land Lost	Change**
Total Households	Income (1000 *yuan*)	2.76	3.08	+
	Matching Rate* (%)	42.59%	68.52%	+
N-based Households	Income (1000 *yuan*)	1.91	1.58	—
	Matching Rate (%)	16.67%	0.00%	—
H-based Households	Income (1000 *yuan*)	3.45	3.29	—
	Matching Rate (%)	56.52%	54.84%	—
M-based Households	Income (1000 *yuan*)	3.44	4.16	+
	Matching Rate (%)	85.71%	100.00%	+
F-based Households	Income (1000 *yuan*)	/	1.05	/
	Matching Rate (%)	/	100.00%	/

Note: * Matching rate is the ratio of quantity of households meeting matching requirement (matching quantity) to total household numbers.

** The Change means change direction of relative indicators before and after land lost, with "+" for increase and "—" for decrease.

After land lost, the numbers of H-based households increase to the top one (31 households, 57.41%), but the matching rate of these households is 54.84%, slightly reducing than before land lost. There is decrease in the level of average income per household. The matching rate of M-based households increases from 85.71% to 100%. Therefore, it promotes the great increase in level of average income per household to be the first.

Different from other types, although all F-based households meet the matching requirement, considered with income indicator (level of average income per household was 10,500 *yuan*), the livelihood pathway is not sustainable. To find the reason, the livelihood asset value of this type household is rather low, with the F value relatively high (See Table 5-3). Therefore, taking F as livelihood dependence is not sustainable. Meanwhile, combined with analysis in Chapter IV, the income forms of the 6 households is mainly from slender pension and interest. Without the positive livelihood activities as employment and doing business, it is certain that their income is much lower than other three types of households.

To sum up, we comprehensively evaluate the sustainability of livelihood pathway from two indicators of income and the matching between livelihood behavior and assets. On the whole, over 2/3 LLFHs meet mach demands and have SL pathway, but there is a great gap among different households. The reason is the different livelihood asset basis and behavior selection among different LLFHs. Furthermore, in SL pathway, to improve livelihood outcomes, what are the key livelihood asset factors and behavior selection? This needs further regression analysis. Meanwhile, the analysis to F-based households indicates that, when we evaluate sustainability of livelihood pathway, we should not only balance income indicator and intermediate indicator of mach, but also combine the specific background of the households. In this respect, we make further analysis in the chapter of case study.

5.3 Regression Analysis on Factors of LLFHs' Livelihood Pathways

5.3.1 Variables and Data

Based on the improved LLFHSL Framework proposed in the thesis, and according to the actual conditions in Xingwen County, the variables used in regression analysis are designed as follows (See Table 5-6). Among them, land lost shocks is a dummy variable measured by whether or not the land is lost, with "0" for not lost (before land lost), and "1" for land lost. On basis of the obtained 54 valid sample data, we got two groups of cross-section data before and after land lost. Therefore, the total pooled data is 108. As we have explained other variables in descriptive statistical analysis in Chapter IV, we do not repeat here.

By applying software of Eviews5.0, we make regression analysis as follows on influencing factors to LLFHs' income from perspective of livelihood assets and behavior.

5.3.2 Effect of Livelihood Assets on Household Income

Table 5-7 indicates the effect of livelihood assets on household income. According to traditional function of production, we first added two basic livelihood assets of land area (LAND) and number of labors (LABOR), at the same time, considering the livelihood

features, we added the dummy variable of land lost shocks (IFLOST). The regression results of Model 1 showed that regression coefficients for the three variables are significantly positive and being 0.265, 0.750, and 0.935 respectively. This means that variables of land, labor, and land lost shocks have positive effects on income and the extent of effect passes to increase. As we adopted panel data, regression function's goodness of fit "adjusted R^{2}" is as low as 0.291.

Table 5-6 Variables and Definitions in Regressions

	Variable	Measuring Indicators and Definitions	Variable Symbol
Livelihood Assets	Human Capital	Number of labors	LABOR
		Average education years of labors	AEDU
		Number of family members with employment and business experience or specialty	SKILL
	Natural Capital	Area of land	LAND
	Financial Capital	Monetary compensation fees	CASH
		Financial support accessibility (get loans or support from formal financial institutions =1, not = 0)	FAC
	Physical Capital	Area of housing	HOUSE
	Social Capital	Number of persons with special identities or experiences*	EXPC
		Networks of urban relatives or friends (with urban relatives or friends of close contact = 1, not = 0）	SNET
Livelihood Behaviors	N-based Activities	N-based activities = 1, not = 0	D1
	H-based Activities	H-based activities = 1, not = 0	D2
	M-based Activities	M-based activities = 1, not = 0	D3
	F-based Activities	F-based activities = 1, not = 0	D4
Land Lost Shocks	Land Lost or Not	Land lost = 1， not = 0	IFLOST

Based on Model 1 in Table 5-7, and according to the improved framework of the thesis, we added other livelihood asset variables one after another. As shown by Model 2, variable

HOUSE is significantly positive to income (0.003), but variable CASH is not significant. One explanation might be that in China's imperfect social security system, most compensation fees is deposited by LLFHs and is not transformed effectively to production capital. According to this regression result, we eliminated insignificant variable CASH in Model 3-5. In Model 3, the regression coefficients of the two newly added human capital variables (AEDU and SKILL) are not significant. In Model 4, financial capital variable (FAC) is not significant to income. In Model 5, the two social capital variables have different effects on income. EXPC has positive effect (0.339) while SNET is not significant.

Table 5-7 Effect of Livelihood Assets on Income of LLFHs Surveyed

Independent Variable	Dependent Variable: Household Income (INCOME)				
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	-0.029 （-0.063）	-0.342 （-0.713）	-0.493 （-0.865）	-0.425 （-0.830）	-0.239 （-0.483）
IFLOST	0.935** （2.600）	1.039** （2.548）	1.003*** （2.829）	1.000*** （2.827）	0.928** （2.643）
LAND	0.265** （2.290）	0.249** （2.187）	0.265** （2.318）	0.249** （2.194）	0.219* （1.888）
LABOR	0.750*** （6.129）	0.682*** （5.481）	0.508*** （2.990）	0.681*** （5.524）	0.610*** （4.864）
HOUSE		0.003** （2.439）	0.002** （2.184）	0.002** （2.418）	0.003*** （2.799）
CASH		-0.003 （-0.177）			
AEDU			0.038 （0.650）		
SKILL			0.177 （1.241）		
FAC				0.131 （0.459）	
EXPC					0.339** （2.061）
SNET					-0.393 （-1.406）
Adjusted R^2	0.291	0.319	0.327	0.320	0.346

Note: 1. Estimate method is OLS.

2. The regression coefficients are in the upper rows, and t-statistics are in lower rows (in brackets).

3. ***, **, and * indicate significance at levels of 1%, 5%, and 10% respectively.

Considering the context of land lost shocks might bring changes in the roles of livelihood assets and behaviors, a dummy variable (IFLOST) is defined to measure whether or not household's land is lost, with 1 for land lost, and 0 for not (before land lost). By adding mediating variables of IFLOST multiplying by main explanatory variables, we can testify the interaction effects before and after land lost (See Table 5-8).

As shown in Table 5-8, Model 1 explains the effect of the two basic variables LAND and LABOR on income before and after land lost. Regression coefficient of LAND is significantly positive (0.210), indicating that land had significantly positive effect on income before land lost. Regression coefficient of mediating variable LAND*IFLOST is -0.129, but not significant, indicating that land had insignificant effect on income after land lost. Variable LABOR had significantly positive effect on income before and after land lost but the effect was greater before land lost.

Based on Model 1 in Table 5-8, first, we add variable HOUSE to Model 2. This variable is not significant to income before land lost, but has significantly positive effect (0.0034) on income before and after land lost. This change might be explained from both positive and negative sides. Before land lost, housing, mainly used for habitation by farmer households, had no effect on income. After land lost, from positive side, with improvement of residential conditions and environment, larger area of housing can help increase income of LLFHs (such as rent income); from negative side, the income decreases for relocated households (housing area decreased to 0) who have not been resettled with unstable employment in transition period.

Then, we add two variables of human capital (AEDU) and financial capital (FAC) to Models 3 and 4 in Table 5-8. The results show that: both variables are insignificant to income before land lost, and are significantly positive after land lost. The explanation might be that before land lost nearly half of the households were mainly engaged in agricultural activities (See Table 5-4) and not dependent on the two types of capital; but after land lost, non-agricultural activities (employment and doing business) have higher demands for human capital quality and financial support, and thus their effects are significant. We add two

variables of social capital to Model 5. As shown in the results, before and after land lost, their effects are significant. However, variable EXPC is positive before land lost and negative after land lost. The reason is that the data structure of EXPC is most made of village leaders. Before land lost, this identity could provide sufficient social network support for the increase of income; but after land lost, they are busy on compensation work of land expropriation and give up original livelihood activities, and thus the household income level dropped.

Table 5-8 Effect of Livelihood Assets on Income before and after Land Lost

Independent Variable	Dependent Variable: Household Income (INCOME)				
	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	0.5946 （1.496）	0.3250 （0.826）	0.0961 （0.198）	0.2299 （0.516）	0.4624 （1.181）
LAND	0.2104* （1.671）	0.1871* （1.804）	0.2391** （2.118）	0.1301 （1.299）	0.0819 （0.850）
LABOR	0.6159*** （3.980）	0.6927*** （5.611）	0.6140*** （4.346）	0.7028*** （5.594）	0.5989*** （4.899）
HOUSE		0.0004 （0.331）	0.0024** （2.317）	0.0022** （2.116）	0.0031*** （2.997）
LAND*IFLOST	-0.1294 （-0.450）				
LABOR*IFLOST	0.2311* （1.670）				
HOUSE*IFLOST		0.0034** （2.548）			
AEDU			-0.0198 （-0.3229）		
AEDU*IFLOST			0.1096*** （2.7090）		
FAC				-0.1993 （-0.579）	
FAC*IFLOST				0.6887* （1.871）	
EXPC					0.6105*** （2.750）
EXPC*IFLOST					-0.5291* （-1.896）
SNET					-1.3023*** （-3.793）
SNET*IFLOST					1.7021*** （3.722）
Adjusted R^2	0.259	0.316	0.316	0.291	0.380

Note: 1. Estimate method is OLS.

2. The regression coefficients are in the upper rows, and t-statistics are in lower rows (in brackets).
3. ***, **, and * indicate significance at levels of 1%, 5%, and 10% respectively.

As indicated in the above regression results, livelihood assets are important factors to affect household income, and effects of different types of capital change after land lost. Compared with the situation before, natural capital measured by land area has insignificant effect on income after land lost; variables as human capital quality (AEDU), physical capital (HOUSE), and financial accessibility (FAC) are significantly positive after land lost. Both number of labors and social capital have significant effects on LLFHs' income before and after land lost.

5.3.3 Effect of Livelihood Behaviors on Household Income

According to LLFHSL Framework (See Figure 3-1), an important factor to affect income is livelihood behavior selection based on livelihood assets. Therefore, we add to regression model the dummy variable of livelihood behavior type to testify hypotheses.

In Model 1 of Table 5-9, we add dummy variable D1 to estimate the effect on income by N-based activities. As indicated in the results, the regression coefficient of D1 is significantly negative (-1.143) which means that agricultural activities bring lower income for the household than non-agricultural activities. Model 2 estimates effects on income by three other types of livelihood behavior. Regression coefficients of D2 and D3 are 1.026 and 1.648 respectively and are significant at the level of 1%. This indicates that H-based activities (employment) D2 and M-based activities (doing business) D3 can bring more income than agricultural activities, and D3 contributes more to income. Regression coefficient of F-based activities (D4) is not significant, showing that this kind of activity is not different from agricultural activities in effect on income. Model 1 and Model 2 explain from behavior perspective the income gap among different types of households. Meanwhile, as shown from regression coefficients, livelihood behavior patterns have greater effects on income than livelihood assets. This is in conformity with the indication of LLFHSL Framework: livelihood asset is the indirect affecting factor on income, providing basis and potential for increase of income; livelihood behavior is the direct affecting factor on income. This indicates that, compared with the policies to increase the accumulation of livelihood assets, the policies to motivate positive livelihood behaviors are more effective to improve LLFHs' livelihood outcomes.

Table 5-9 Effect of Livelihood Behaviors on Income of LLFHs Surveyed

Independent Variable	Dependent Variable: Household Income (INCOME)			
	Model 1	Model 2	Model 3	Model 4
Constant	0.4576	-0.4242	0.9750**	0.014523
	（0.907）	（-0.899）	（2.421）	（-0.039）
IFLOST	0.6307*	0.7496**		
	（1.805）	（2.164）		
LAND	0.2731**	0.2959***	0.1632*	0.2297**
	（2.545）	（2.797）	（1.899）	（2.270）
LABOR	0.5561***	0.4708***	0.573344***	0.4347***
	（54.584）	（3.671）	（4.553）	（3.362）
HOUSE	0.0025**	0.0021**	0.0023**	0.0020**
	（2.617）	（2.126）	（2.327）	（2.213）
D1	-1.1433***		-1.3964***	
	（-3.572）		（-4.293）	
D1*IFLOST			0.5803	
			（0.805）	
D2		1.0258***		1.0635***
		（3.160）		（2.987）
D3		1.6481***		0.9972*
		（4.101）		（1.868）
D4		0.0178		
		（0.031）		
D2*IFLOST				0.2885
				（0.695）
D3*IFLOST				1.3659**
				（2.205）
Adjusted R^2	0.395	0.416	0.379	0.415

Note: 1. Estimate method is OLS.

2. The regression coefficients are in the upper rows, and t-statistics are in lower rows (in brackets).

3. ***, **, and * indicate significance at levels of 1%, 5%, and 10% respectively.

To further analyze the different effects before and after land lost, mediating variable of land lost shocks and livelihood behavior patterns were added in Models 3 and 4 (See Table 5-9). In Model 3, D1 is significantly negative to income before land lost and is insignificant after land lost. The explanation is that, after land lost, with the retained average land area of only 0.39 *mu* (See Table 4-7), income is hard to be affected by agricultural activities dependent on land. In Model 4, the variable of H-based activities (D2) is significantly positive to income before land lost, but insignificant after land lost. The explanation is that, with land

lost time of 2/3 households between 2009 and 2010 (See Table 4-5), most LLFs are locally employed during the transition period and these activities are insignificant to income. The variable of multiple capitals based activities (D3) has significant effect on income before and after land lost, and has greater effect after land lost. This explains the great income gap between this type of households and other types of households.

In short, from livelihood behavior patterns, H-based activities (employment) and M-based activities (doing business) are the most important two patterns of behavior to determine household income. Therefore, LLFHs should choose these two types of positive livelihood behavior to obtain improved livelihood outcomes. However, restricted by capital endowments, LLFHs might lack the capability to adjust livelihood behavior and need corresponding capital accumulation at the same time. To the government, it is vital to direct the two types of livelihood behavior and to give necessary support.

Chapter 6: Case Studies

6.1 Three Typical Projects of Land Expropriation in Xingwen County

The objects of the above questionnaire survey and analysis are three typical projects of land expropriation compensation. Among them, Malanwan Community Project and Guangming New City Project, located in the urban district of Xingwen County—Gusong Town, are projects for urban construction land expropriation; Taiping Industrial Park Project, located in Taiping Town northeast to the urban district of Xingwen County, is a project for industrial construction land expropriation (See Figure 6-1). The seven villages and communities involved in the three projects are located on traffic arteries, and are objects of large-scale land expropriation in Xingwen County. Based on questionnaire survey, we made in-depth interviews to acquire materials needed for case study. First, we interviewed relative government departments involved, project local town officials, and villagers' committees to understand the project background and situation of land expropriation compensation. Then, we interviewed some typical LLFs to understand their family background, changes of livelihoods before and after land lost and their appeals for policies in order to discover livelihood features and problems of different types LLFs households.

6.2 Old City Transform: Malanwan Community Project

6.2.1 Introduction to Malanwan Community

Malanwan Community was originally called Malanwan Village, located in the urban district of Xingwen County—Gusong Town, with convenient transportation and completely equipped production and living facilities. There are 5 residents' groups, 517 rural households, 1900 persons as permanent resident population with 30% labors having received professional trainings and 80% labors employed in the county. In 2010, per capita net income of rural households was 5196 *yuan*, 3.4% high than the countywide average level of 5027 *yuan*.

Owing to its location close to urban district, heavy population and little land, per capita cultivated land area of Malanwan Community in 2000 was only 0.325 *mu*, far less than other villages and communities. With city expansion, after many times of land expropriation, per capita cultivated land area was decreased to 0.076 *mu*, with most even collective land in the region expropriated.

Figure 6-1 Location of Typical Land Expropriation Projects in Xingwen County

Notes: ------ is the border of Xingwen County; Gusong Town is the urban district of Xingwen County; S309 is #309 Sichuan Provincial Highway; Taiping Town is located on County Highway, but is not indicated in the map.

6.2.2 Conditions of Land Expropriation and Compensation

Separated by 2000, there were two periods of land expropriation in Malanwan Community (See Table 6-1). The first period was 1983-2000, with land expropriation area of 315 *mu*, involving 345 households and 880 persons and per capita area of expropriated land of 0.357 *mu*. The second period was 2000-2009, with land expropriation area of 432 *mu*, involving 380 households and 1440 persons and per capita area of expropriated land of 0.309 *mu*. The materials and data in our questionnaire and case studies are from the second period.

Table 6-1 Indicators on Land Expropriation and Compensation in Malanwan Project

Item	1983-2000	2000-2011
Area of Expropriated Land (*mu*)	315	432
Number of LLFHs (household)	345	380
Number of LLFs (person)	880	1400
Per Capita Area of Expropriated Land (*mu*)	0.357	0.309
Combined Compensation Fee for Cultivated Land* (*yuan*/m^2)	18	57.1
Number of Rural-to-urban Personnel (person)	179	77
Number of Households with Housing Relocation (household)	0	229

Note: * The combined compensation fee for cultivated land includes three types of compensation as the land compensation fees, resettlement fees, and compensation for the attachments to and green crops on the land

The local government implemented monetary compensation as the main policy, and enacted relative measures of employment, social security, and housing relocation and resettlement. In monetary compensation, the standard increased from 18 *yuan*/m^2 before 2000 to 57.1 *yuan*/m^2 (that is 38,000 *yuan*/*mu*) after 2000, and per capita amount increased from 4295 *yuan* to 11750 *yuan.* Although the standard increased, the compensation of below 40,000 *yuan*/*mu* of cultivated land was far less than the value increment of land in this community.

In employment and social security, there were 179 rural-to-urban LLFs before 2000, accounting for 20.3% of the total LLFs; and 77 rural-to-urban LLFs before 2000, accounting for 5.5% of the total LLFs. The decreased proportion of rural-to-urban personnel resulted from the following facts. In the past, under employment allocation policy, the organizations using the expropriated land managed the rural-to-urban formalities for LLFs and provided urban employment positions for them, so there were many rural-to-urban personnel. At present, under monetary allocation policy, LLFs solve the employment problems by themselves after obtaining land expropriation compensation. In the latter case, the rural-to-urban personnel had the consideration of drawing pensions at an early date by joining in Endowment Insurance for Land Expropriated Rural-to-urban Personnel, and most of them were approaching retiring age. Another reason for LLFs reluctant to transact rural-to-urban formalities is the increased potential earnings of rural residence resulted from the intensified farmer-favoring policies in China.

In housing relocation and resettlement, rural housing of 229 households was relocated

after 2000 with the average area per household of 110 m^2. As it was within the urban planning zone, the government implemented the policy of united construction and housing returning. That is, the government makes monetary compensation to the households according to area and type of the removed housing, and returns the habitation housing and shop front(s) by united construction according to certain replacement standards (See Table 6-2). The relocated households in 2000-2007 had to pay the construction cost for the new housing after obtaining monetary compensation, whereas the relocated households after 2007 could acquire free of charge habitation housing and shop fronts of greater area. The differences derived from two aspects: one is that the relocated housing had better locations and higher market value; the other is the different methods of construction. Before 2007, the construction was made by the government, so the relocated households were requested to pay the construction cost. After 2007, the market operation pattern was introduced. The developers constructed 6-story resettlement housing at the government planned sites and assign free of charge to the relocated households the shop fronts on the ground floor and the habitation on the second floor. The developers sold the habitation on the third floor and above to make profit. In this pattern, the government and LLFs had less capital pressure and the developers were profitable. Therefore, the housing resettlement was motivated to realize the triple-win situation of government, LLFs, and developers[①].

Table 6-2 Plans of Housing Relocation and Resettlement in Malanwan Project

Year of Land Expropriation	Plans
2000-2007	For housing removed below 150 m^2, 1 shop front and 1 habitation apartment should be compensated but the relocated household should pay for the new housing at the construction cost of 350 *yuan*/m^2
	For housing removed above 150 m^2, 1.5 shop fronts and 1 habitation apartment should be compensated, but the relocated household should pay for the new housing at the construction cost of 350 *yuan*/m^2
2007-2009	For housing removed below 150 m^2, 2 shop fronts and 1 habitation apartment should be compensated free of charge.
	For housing removed above 150 m^2, 3 shop fronts and 1 habitation apartment should be compensated free of charge.

① Before the introduction of market resettlement way, owing to shortage of construction capital, part of the relocation and resettlement in Malanwan Community Project was sluggish.

6.2.3 Typical Cases of Land Lost Farmer Households

1. Household A

Respondent A, male, 53, Village Secretary of CPC, is the householder. There are 5 people in the household: the couple, son, daughter-in-law, and 2-year-old grand son. Besides, A has a daughter working at the television station in the neighboring county. As the location was close to urban county, land of Household A was partly expropriated in 1985; and in 2007, in the residual land of 1 *mu*, the cultivated land in plain region of 0.5 *mu* was entirely expropriated with 0.5 *mu* slope land left and having been turned to forest[①]. Household A had habitation area of 500 m^2 with 2 shop fronts with no impact in land expropriation.

Before land expropriation, A had little workload as village secretary. With his medical expertise, he opened a clinic in his shop front and the other shop front was rented. His wife did farming at home, and his son and daughter-in-law were employed in urban county. The annual household income was about 50,000 *yuan*, including 2000 *yuan* of agricultural income (wife), 25,000 *yuan* of clinic income (respondent A), 20,000 *yuan* of employment wages (children), 3,000 *yuan* of rent income. The household was in good economic condition.

After land expropriation, owing to small area of land and the housing not removal, Household A only obtained 19,000 *yuan* of compensation fee for land expropriation. As A's wife was approaching retiring age (52), she paid about 20,000 *yuan* in 2009 to buy Endowment Insurance for LLFs. The other family members did not join in the insurance. One reason is the great capital pressure to join at the same time (about 57,600 *yuan*). The other reason is that they thought too distant to the retiring age and unworthy to pay the insurance premium at that time, and they would rather save the money for other purposes.

When asked about the land lost shocks, A thought there was little shock to his household. His son and daughter-in-law did not do farming before land expropriation, and kept employed with an increased wages of over 30,000 *yuan*. His wife, without doing farming, took care of

① Farmland turned to forest refers to government policy to turn the farmland on slopes unsuitable for cultivation (slope farmland with pitch above 25º) to forest.

grandson. Owing to heavy workload related to land expropriation compensation, A had to close his clinic temporarily and rented the shop front. Although the rent income doubled to 6,000 *yuan*, and wage of Village Secretary of CPC is 5,000 *yuan* (with little work before land expropriation, the annual income of Village Secretary of CPC was only 200 *yuan*, which can be ignored), owing to decreased agricultural and business income, the annual household income reduced to 41,000 *yuan*. However, respondent A thought the decrease was temporary and not to be worried. With the ending of land expropriation compensation, he can open his clinic again, and the business can be more prosperous with the improvement of community conditions. Therefore, A is fully confident for improved living standard.

Even so, A is still unsatisfied with CPLE. He indicated that the land of Malanwan Community, close to urban district with high potential value increment, was treated at the same compensation standard with the remote suburb land according to value of agricultural land produce; and that, owing to the small per capita area of land, the household obtained small amount of compensation. The sweeping approach and low-priced compensation standard is far insufficient to make up the value increment of land. Household A earnestly hopes that the government should consider factors as location, usage and market value of land when constituting land compensation standards to increase the rationality of compensation and to avoid unnecessary social conflicts and contradiction.

As indicated in the case of Household A, before land lost, mainly engaged in M-based activities with good livelihood assets, diverse behavior types, good matching between behavior and assets, diversified source of income, and high and stable income, the household had SL pathway. After land lost, mainly engaged in H-based activities (employment) with most advantageous livelihood behavior ceased, no matching with assets, reduced income, Household A has unsustainable pathway. However, this is the situation in a short run. Owing to the good external market environment, good basis of livelihood assets, and strong capability to improve livelihood behavior in future, this type of unsutainability is temporary.

2. Household B

Respondent B, male, 37, is the householder. There are four people in the family: the couple, his son, and his mother. Household B originally had 1.8 *mu* land used to plant grains,

with 1.5 *mu* expropriated in 2003 and 0.3 *mu* slope turned to forest. In land expropriation, housing of Household B was removed.

Before land expropriation, B and his wife were employed in outer city with annual income of 15,000 *yuan*. His mother did farming with earnings of 2,000 *yuan*. His son went to local primary school and was taken care of by his mother. In summer vacation, the son went to the place where B and his wife were employed to reunite with the parents[①]. As his son lived with grandmother for long term and without parents' care and attention, B thought there were many problems in his son's life, study and emotion, so he was worried about the growth of his son.

After land expropriation, Household B obtained compensation fees of about 57,000 *yuan* and meanwhile had great changes in social security, housing, and employment.

As to social security, although when the land was expropriated in 2003 there was no social security policy for LLFs, the endowment insurance policy implemented in 2009 was adaptable to past LLFs. So, B's mother paid 20,565 *yuan* in 2009 to join in Endowment Insurance for LLFs and started to draw pensions from the next month, with 7,000 *yuan* per year. This stable income not only decreased B's burden to support his mother, but also subsidized the daily expenditure of the household.

As to housing relocation and resettlement, Household B replaced 1 apartment of 126 m^2 by the original rural housing of 200 m^2 and 2 shop fronts (total area of 90 m^2). Although habitation area was less than before, with united planning and construction, the new housing had better location and better equipment of infrastructure facilities, so B thought the living conditions were improved. For the 2 compensated shop fronts, one was rented to get annual rent income of 3,000 *yuan,* offsetting the decreased agricultural income after land expropriation; with the remaining compensation fees as investment capital, another shop front was used to open a grocery store. In total, the annual income of Household B is about 25,000 *yuan*. Therefore, after land expropriation, B and his wife did not go out to work. As B said, "Xingwen County developed fast these years. People have cash in pocket and they are willing

① Local people vividly call the children like B's son as "migrant birds", because they stay behind at home during work days and travel to the place where the parents are employed to reunite with them on vacation.

to consume. Therefore, it is easy to do business. The compensated shop fronts are the basis for us to do business"; meanwhile, "working around home can take better care of kids and parent, and can handle the renting of shop front in order to get stable rent income." On the whole, Household B thought that housing conditions were improved after land expropriation; the compensated shop fronts provided basis for doing business; stable pension and rent income decreased livelihood risks; the family could reunite; and so they were very satisfied with the CPLE.

As indicated in the case of Household B, before land lost, mainly engaged in H-based activities (employment), well matched to livelihood assets, and with stable income, the household had SL pathway. After land lost, owing to good external market conditions, positive livelihood attitudes, prompt adjustment of livelihood behavior with the change of assets, diversified source of income, and improved livelihood safety, the household has increased sustainability in livelihood pathway.

As a representative of the few households[①] satisfied with the policies, Household B is typical to reflect positively the livelihood needs of LLFs. Besides the livelihood goal of more income, there are some other important livelihood goals pursued by LLFs of increased welfare level of habitation quality and family reunion, and higher livelihood safety supported by shop fronts. As the satisfaction of these demands directly influences the evaluation of policy satisfaction, the improvement of policies should be rooted in livelihood needs of LLFs and alternative policy portfolio should be provided. In addition to monetary compensation, the government may be dedicated to improving LLFs' habitation conditions, creating good employment environment, and providing powerful support for land lost labors to be employed or to start business locally. In the policy portfolio, the compensation of shop front had important function. Although it may not bring rather high lump sum earnings, the rent income brings sustainable cash flow to help the LLFs' households to have a smooth transition; meanwhile, it provides physical basis for doing business and it has the functions of inflation proof and appreciation to guarantee long-term livelihoods. The strength of this function

① The questionnaire survey data that was analyzed in Chapter IV indicates that 22.22% respondents are satisfied with CPLE.

depends on the maturity of peripheral markets. The livelihood improvement of Household B greatly benefits from the good location environment of Malanwan Community. However if the market maturity lags, it is hard to rent or self-operate the shop fronts, then this type of compensation provides future rather than current guarantee.

6.3 City Expansion：Guangming New City Project

6.3.1 Introduction to Guanming New City

With the rapid development of urbanization in Xingwen County, there was saturation for the development in main urban district. To expand the development space of the city, the local government planned Guangming New City Development Zone (in short, Guangming New City) in a plain region west to the County beside #309 Provincial Highway with the total area of 1.8 km^2. The positioning of this zone was the new political, economic, and cultural center of Xingwen County with capacity of 20,000 population and the location of County Government. In May 2010, Xingwen County Government formally signed the investment and cooperative contract for development of Guangming New City to promote the marketization development and construction of the new city.

The location of Guangming New City was traditional agricultural zone with per capita cultivated land of 1.2 *mu*. It connected with the old city zone only by one road and the highway network does not formed. The infrastructures of energy, water supply and drainage were not equipped, and the economic development was lagging behind. Villagers major did farming and minor employed locally with per capita net income of 4469 *yuan* in 2010, 11% lower than the county level.

6.3.2 Conditions of Land Expropriation and Compensation

The first lot of land expropriation projects for Guangming New City development started in 2010. The land expropriation scope included partial regions of three villages of Chengyaoyan, Minzhu, and Qinglong, with land area of 1293 *mu*, involving 251 rural households and 1016 persons. The land expropriation made the cultivated land area in this

region decreased from 7430 *mu* to 6137 *mu* at the rate of 17.4% and per capita expropriated land area of 1.27 *mu.* From the specific data of the three villages, per capita expropriated land area ranged between 1.09-1.55 *mu*. (See Table 6-3)

Table 6-3 Indicators on Land Expropriation and Compensation of Guangming Project

Item	Total	Chengyaoyan Village	Minzhu Village	Qinglong Village
Area of Expropriated Land (*mu*)	1293	466	612	215
Number of LLFHs (household)	251	106	98	47
Number of LLFs (person)	1016	427	395	194
Per Capita Area of Expropriated Land (*mu*)	1.27	1.09	1.55	1.11
Combined Compensation Fees for Cultivated Land* (*yuan*/m^2)	/	67.44	67.44	67.44
Number of Rural-to-urban Personnel (person)	643	241	307	95
Rate of Rural-to-urban Personnel (%)	63.29	56.44	77.72	48.97
Number of Households with Housing Relocation (household)	164	74	72	18
Rate of Households with Housing Relocation (%)	65.34	69.81	73.47	38.3

Note: * The combined compensation fees for cultivated land include the land compensation fees, resettlement fees, and compensation for the attachments to and green crops on the land.

The compensation types of this project included monetary compensation, social security, housing relocation and resettlement, and employment support. As to monetary compensation, the compensation standard from three types of fees for each square meter was 67.44 *yuan*, (that is 45,000 *yuan*) without village difference. Although this was the new standard issued in 2010, slightly higher than that of Malanwan Project in 2009, it is still far lower than the market value of land in this region (the auction price of land for the use of commercial and service industries is 1.28 *m yuan/mu*.)

As to social security, 653 rural-to-urban LLFs have joined endowment insurance with the rate of 63.29% in total number of LLFs, and ranging between 48.97%-77.72% among the three villages. As to rural housing relocation and resettlement, 164 households were relocated with the rate of 65.34%. For this, the government provided two alternatives of united construction with new housing returned and monetary

subsidiaries, but the relocated households all chose the former[①]. At present, the planned housing is under construction, and the specific resettlement plan for each household has been determined. Last, as to employment support, the government has provided 130 positions to solve employment problems for some LLFs.

6.3.3 Typical Cases of Land Lost Farmer Households

1. Household C

Respondent C, male, 52, is the householder. There are five people in the family: the couple, son, daughter-in-law, and 3-year-old grandson. In 2010, the total land of four *mu* of Household C was expropriated entirely but the housing was not removed.

Before land lost, C and his wife mainly did farming with an annual income of 10,000 *yuan*; C's son and daughter-in-law were employed in the urban County with an annual income of 25,000 *yuan*. After land lost, Household C obtained compensation fees of 144,000 *yuan*. With 40,000 *yuan* paid to buy endowment insurance for C and his wife，the remaining was saved in deposit as livelihood security. C's son and daughter-in-law are not much influenced and continue to work at the employer with annual income unchanged. However, C and his wife feel great land lost shocks. On one hand, in daily life, the monthly family consumption increased from 200 *yuan* before land lost to 500 *yuan*. The food consumption in grain, vegetable, and meat, which was formerly self-sufficient and produced by land, has to be purchased now and thus consumption expenditure has been increased. On the other hand, C feels reduced and unstable income. As they had strong dependence on land, C said, "although it was painstaking to do farming, the income was guaranteed and we felt at ease; but now without land, we are unemployed, and we have great living pressure."

When being asked the specific reasons of great pressure, C proposed three points. First, though the construction of Guangming New City provided work opportunity, they were aged

[①] This is because the standard of monetary resettlement was too low. According to regulations, the standard is 30 m^2 basic housing area for each family member with the housing subsidy of 1000 *yuan*/m^2. For a household of 3 family members, the monetary purchasing compensation is only 90,000 *yuan*（3×30×1000=90000）which is able to buy at the local prevailing price an apartment of commercial housing of less than 40 m^2, far below the area of resettlement by returning unified constructed housing.

with low literacy and hard to be employed. Second, although the couple bought Endowment Insurance for LLFs, there were several years from the age to draw pension and there was no earnings in short time. Third, after land lost, although they did some retailing of vegetable, they "cannot earn money sometimes" and the income was unstable. The remained compensation fees of 10,000 *yuan* could not provide long-term guarantee. While the income declined, daily expenditure went up sharply. C felt great economic and mental pressure, and was unsatisfied with the policies. As to the issue whether they need support from the younger generation to relieve the increasing economic pressure, C thought they should solve the problem by themselves and should not increase burden for their children. Meanwhile, the elderly couple took care of their grandson to give sufficient generation support to their son and daughter-in-law.

As the economic conditions were not good, Household C still resided in tile-roofed house. C was disappointed at the fact that their housing was not relocated as he felt difficult to improve the habitation conditions by themselves. Therefore, C expected that, in the subsequent land expropriation for the construction of Guangming New City, the housing can be relocated and they can be resettled so that he could move to new house to improve habitation conditions for the rest of life. Therefore, while dissatisfied with the policy, C showed expectation to new policies.

With the feature of aged to be employed and distant to draw pension, C vividly called himself as "person in air", that is, suspended to neither ends (with no job and no pension). He thought most female LLFs aged 40-55 and male LLFs aged 50-60[①] around belonged to this class. Compared with younger or elder LLFs, this group was shocked most. The local government called them "4050" difficult group for employment and hopes to solve the problem by providing positions for them. However, these positions were far from enough. Both the government and these "people in air" hoped that with the development of new city, more employment opportunities would be provided.

[①] According to Endowment Insurance for LLFs, for the eligible ones, the legal age to draw pension is 60 for male and 55 for female.

As shown in the case of Household C, before land lost, mainly engaged in H-based activities (employment) and little in farming, with good matching with assets, stable income, the household had SL pathway. After land lost, employment activities unchanged, owing to lagging development of external market, aged rural labors with low education, difficulties in employment transition, single source of income, and decreased livelihood safety, the household's livelihood pathway is unsustainable.

2. Household D

Respondent D, male, 56, is the householder. There are 5 people in the family: the couple, son, daughter-in-law, primary-school-aged grandson. Household D had 1 *mu* of land left with 1.5 *mu* expropriated in 2009 out of formerly 2.5 *mu*. In land expropriation, their housing of 150 m^2 was removed and the resettlement housing is in construction.

Before land expropriation, Household D did farming for long planting and cultivating with annual income 10,000 *yuan*. After land expropriation, Household D obtained about 120,000 *yuan* compensation fees (including the housing compensation fees). 40,000 *yuan* was used to buy endowment insurance for D and his wife and the remaining 80,000 *yuan* to be saved as deposit. As D's wife had reached retiring age, she started to draw pension of 7,000 *yuan* per year. As same as most young people, D's son and daughter-in-law did not join in the insurance (unworthy to buy at the age).

Owing to the small amount of residual land, only D and his wife did the farming with annual agricultural income of about 2,000 *yuan*. D's son and daughter-in-law found work in firms providing service for the new city construction and get annual wage income of about 30,000 *yuan*. Thus the annual income of Household D reached about 3,900 *yuan*, much higher than the income level before land expropriation. Although the inflation was high, D thought the living standard improved after expropriation.

In short, D thought the CPLE relatively reasonable: solving the elders' endowment problem, increasing the family deposits, habitation conditions improved, and he was satisfactory to CPLE and confident to intensified policy support in future. As to land lost shocks, D thought the external stimulus was like an activator. He said, "In the past, my son and daughter-in-law did not want to go out to find job and made the passable living by on

land. Now the land is less and they had to go out together to earn higher income. So I think it is good to have a little pressure."

While expressing the satisfaction to CPLE, D mentioned his only worry, that is, the resettlement housing not assigned yet. As he said, housing was the most important issue of the family. But the assignment of resettlement housing will be decided by sortition. If unlucky, the housing assigned may be unsatisfactory. Meanwhile, it does also not known whether the shop fronts can be rented smoothly to get stable rent income. D hopes that everything can be up to expectation.

As shown in the case of Household D, before land lost, mainly engaged in N-based activities (farming) with low input in farming, 4 labors detained to scanty land, no matching between behavior and assets, and low income, the household's livelihood pathway is unsustainable. After land lost, by taking employment opportunity brought by new city construction, young labors actively employed, and advantage in human capital exerted to explore new source of income, livelihood pathway of the household becomes sustainable.

From the case of Household D, it is also indicated that, with land lost shocks, as long as the LLFs adopt positive responding livelihood behaviors, the land lost shocks can be turned to external drive to optimize livelihood pathway and to improve household livelihoods. In livelihood pathways of LLFs, getting stable cash flow is an important guarantee to realize livelihood sustainability. Therefore, the roles are important played by the pension income, rent income and the livelihood capitals with wealth feature represented by habitation housing and shop fronts.

6.4 Industrial Development: Taiping Industrial Park Project

6.4.1 Introduction to Taiping Industrial Park

Under industrial development strategy, in order to exert the cluster effect, Xingwen County Government established Taiping Industrial Park in Taiping Town at 6.2 km northeast of urban county, and compiled the park distribution and development planning in 2009-2010 to construct chemical engineering base depending on the abundant mineral resources within

the county territory. According to the planning, the park has two types of zones, processing zone and mining zone with the total land area of 26.2 km^2.

At present, Taiping Industrial Park is in the initiation of development. While inviting investment, the County Government constructs the infrastructure first. In 2009, the construction of the high streets in processing zone was started and the land expropriation has been made.

6.4.2 Conditions of Land Expropriation and Compensation

The land expropriation for the construction of the high streets in Taiping Industrial Park involved three villages in Taiping Town: Shunlong, Xifeng, and Liangcaoba, with total area of was 708 *mu*, 282 households, 1147 persons, and 0.62 *mu* per capita area of expropriated land. The differences among the three villages were great. Shunlong village had the largest total expropriated area with per capita area of 1.26 *mu*. The per capita area of other two villages ranged from 0.30-0.50 *mu* (See Table 6-4).

Table 6-4 Indicators on Land Expropriation and Compensation of Taiping Project

Item	Total	Shunlong Village	Xifeng Village	Liangcaoba Village
Time of Land Expropriation (year)	/	2009	2010	2009
Area of Expropriated Land (*mu*)	708	350	118	240
Number of LLFHs (household)	282	82	80	120
Number of LLFs (person)	1147	277	350	520
Per Capita Area of Expropriated Land (*mu*)	0.62	1.26	0.34	0.46
Combined Compensation Fees for Cultivated Land* (*yuan*/m^2)	/	57.1	67.44	57.1
Number of Rural-to-urban Personnel (person)	183	73	72	38
Rate of Rural-to-urban Personnel (%)	15.95	26.35	20.57	7.31
Number of Households with Housing Relocation (household)	60	31	11	18
Rate of Households with Housing Relocation (%)	21.28	37.8	13.75	15

Note: * The combined compensation fees for cultivated land include the land compensation fees, resettlement fees, and compensation for the attachments to and green crops on the land

The monetary compensation standard was not the same due to the different time of land expropriation. The combined compensation fee for cultivated land including three types of compensation was 57.1 yuan/m2 (that is, 38,000 yuan/mu) in 2009 and 67.44 yuan/m2 (that is 45,000 yuan/mu) in 2010. The compensation standard keeps unchanged in the same year, but far lower than market value of land (in this region, the price of land is 290,000 yuan/mu for the use of commercial and service industries, and 180,000 yuan/mu for the use of industry①). As to social security, 183 rural-to-urban LLFs have joined endowment insurance with the rate of 15.95% in total number of LLFs. The proportion in Liangcaoba Village was only 7.31%, decreased the average figure. The proportion of other two villages was above 20%.

As to housing relocation and resettlement, 60 households were relocated with the rate of 21.28%. As this project is located outside urban planning zone, the government implemented two patterns of resettlement: self-construction and monetary subsidy for house purchasing. For both patterns, the government makes the monetary compensation first. In the former pattern, the relocated households self construct new housing on the site approved by the government and the government provides unified planning and leveled ground or the corresponding fees for ground leveling. In the latter pattern, the relocated households buy new housing after getting the purchasing subsidies (based on household population at standard of 30,000 *yuan*) without the right to apply for house site. As analyzed in previous contents, the low standard of monetary compensation was the reason for all the relocated households to choose the pattern of self-construction.

the, transfers land to farmers with the standard of 30 m^2 per capita, and the LLFs construct the housing by themselves with the unified appearance design. Until August 2011, the relocation sites were fixed and the ground leveling was in process, and all the relocated households were in transition period.

6.4.3 Typical Cases of Land Lost Farmer Households

1. Household E

Respondent E, male, 57, is the householder. There are 4 people in the family: the couple,

① As the project is outside the urban planning district, the market price of land is much lower than that of the other two projects.

a son and a daughter. Household E had 3.2 *mu* of land before, and 2 *mu* expropriated in 2010. The residual 2.2 *mu* was land turned to forest. The housing of 180 m^2 was not relocated.

Before land expropriation, the family members were all engaged in planting greenhouse vegetable and fruit. With annual income of 60,000 *yuan* from agriculture, the economic status was good. After land expropriation, the household got 90,000 *yuan* of compensation and entirely used to buy endowment insurance for the couple. E's wife was 55, and began to draw pension of 7,000 *yuan* per year. Like most young people, considering it unworthy to but at that time, his daughter and son did not join the endowment insurance.

As the family members made living by agriculture for a long time and lack non-agricultural skills, the household dallied at home for one year after land expropriation. With the pension of E's wife as the only source of income, it was not enough to pay the daily expenditure and Household E had to use the deposits. At present, the greatest worry of the family was "with no land, we are unemployed". Thus, their expectation was to exploit their advantages to earn again rich agricultural income. But, as the land exchange market was not locally formed, E thought it too risky to rent land for long term earnings. So he considered to switch to non-agricultural fields which were at his disadvantage. As Taiping Town is a traditional agricultural region and the industrial park is still in construction, there are few employment opportunities and it is hard to find job in the short run.

Therefore, Household E was very unsatisfied with the CPLE. They thought that the feeble compensation was insufficient to offset losses; with agricultural skills nowhere to be exercised, the family income greatly decreased; and the original rich life turned to be stressed with the declined living standard. However, the government did not provide effective policy support in employment. More important, the land lost shocks completely changed their former livelihood pathway. As E said, "if the land had not been expropriated, we could have lived comfortable life with high and stable income from land. How feeble the compensation is! Now we have to restart. It is not easy!"

As shown in the case of Household E, before land lost, mainly engaged in N-based activities (farming) with four labors actively involved in agricultural activities and fully exerting the advantage of land to get high and secured income, the household had SL pathway.

After land lost, owing to lack of non-agricultural skills, few external employment opportunities, lagging adjustment of livelihood behavior, and dependence on pension and interest to make the living, the livelihood pathway is unsustainable.

2. Household F

Respondent F, male, 46, is the householder. There are four people in the family: the couple, a son, and a daughter. The son is a college student and the daughter goes to primary school. The economic conditions of Household F are good. They constructed a frontage two-story house in 1997 of 300 m^2. Another house of 150 m^2 was a bungalow and removed in the land expropriation. Household F formerly had 4.6 *mu* of land, which was entirely expropriated in 2010.

Before land expropriation, F and his wife did farming and cultivation while selling chemical fertilizer in the shop front of their own house, with annual family income of about 45,000 *yuan*, 20,000 *yuan* from agriculture and 25,000 *yuan* from business. After land expropriation, with the big area of land expropriated and the housing removed, Household F obtained cash compensation of 350,000 *yuan*. But F was unsatisfied with the policies in two aspects. First, land was an important source of the former high agricultural income of the household, and so he was reluctant to abandon land. Second, the compensation standard was too low to offset the permanent loss of land. Although they had complaints, they were positive to cope with land lost shocks. As there was no more agricultural income, F increased the input in chemical fertilizer business and the annual income rose to 30,000 *yuan*. F's wife was employed as sanitation workers in urban county with annual wage income of nearly 1,000 *yuan*. As they explored new source of income, the annual income of Household F was unchanged before and after land expropriation and the living standard was not impacted.

Under the social security policy, the couple chose not to join in the Endowment Insurance for LLFs. Not because of high insurance premium, they had two different reasons not to buy the insurance. First, before land expropriation the couple bought urban basic endowment insurance and had paid the premium for 10 years. Second, more important, it was more favorable to keep rural residence. If they want to join Endowment Insurance for LLFs, they must have their residence turned from rural to urban (rural-to-urban). Nevertheless, they

thought that keeping rural residence had higher potential earnings under China's farmer-favoring policy, and it was unnecessary to turn the residence. Obviously, this reflects F's decision trait of a rational person.

To sum up, land lost shocks did not have negative effects on Household F's livelihoods. This should attribute to the couple's definite livelihood goals and positive livelihood attitude. As they regard stable and guaranteed income as vital livelihood goal, they tried their best to explore new source of income to ensure the smooth livelihood transition. Meanwhile, they greatly value children's education and their future development, so they spared no pains to increase income to guarantee their son in college uninfluenced by the land lost shocks. In addition to economic goals, F expressed his desire for a higher livelihood goal of social status. He hoped that his son could settle in a big city after graduation and he was willing to provide possible economic support (such as buying a flat). Thus, the case shows that positive livelihood behaviors play irreplaceable role in SL pathways. As F said, what is it for by complaining? The key is to be self-dependent. There are so many chances now, and hard-working can lead to bright future."

As shown in the case of Household F, before land lost, with good basis of livelihood assets, properly chosen livelihood behavior matched to assets, similar contribution to income by doing business and farming, high and stable income, the household had SL pathway. After land lost, owing to ceased farming, active livelihood attitudes, prompt adjustment of livelihood behavior, intensified advantage in doing business, and increased employment activities, new sources of income explored to keep the income level, the livelihood pathway is still sustainable.

3. Household G

Respondent G, male, 38, is the householder. There are five people in the family: the couple, two young children and the elderly father. Household G had three *mu* of land and was completely expropriated in 2009. The housing was also removed.

Before land expropriation, G and his wife were employed in urban county and did some farming with an annual income of about 36,000 *yuan*, with wage income of 30,000 *yuan* and 6,000 *yuan* of agricultural income. Therefore, they led a comparatively comfortable life. After

land expropriation, Household G obtained lump sum compensation fees of 270,000 *yuan* (including housing compensation fees). They used 20,000 *yuan* to buy endowment insurance for his father and the remaining was saved as deposit to prepare for the construction of new house. His father started to draw pension after joining the insurance and the annual income was 7,000 *yuan,* slightly higher than agricultural income. However, after land expropriation, G and his wife did not go out to work and the family income declined sharply.

When being asked the reason for stopping working, G said it was because of the worry about housing. The original house area is 160 m^2. However, in the following 2 years after housing removed, the resettlement proceeded tardily and the normal life was disordered, so there was no intention to work out. The worry had two aspects. First, the worry was from difficulties in renting housing for transition. After the housing was removed, Household G had to rent housing as habitation. Although the government paid them the transition fee, restricted by the economic development level, there was no local renting market, and it was difficult to find rented source and to fix the duration. Therefore, Household G moved for many times and spent much energy. Second, the worry was about housing resettlement. After land expropriation, the government had not fixed the resettlement site. At present, although the site has been fixed and the ground began to be leveled, some villagers reflected that the quality of the groundwork suffered. It was worried and the project time was uncertain. More serious was that, with the inflation in the recent years, the compensation for housing relocation paid by the government at the standard in 2009 could not pay the construction cost in 2011. Therefore, it has become their major "work" in the two years after the housing removed that they expressed their appeals to the government to expedite the resettlement and to ensure the quality of groundwork. G and his wife were among the "workers" and had no choice but to quit job temporarily. Therefore, G showed great dissatisfaction to the policy of housing relocation and resettlement. He said, "it looks that the compensation was substantial, but there will be little left after the house is constructed. Besides, the cost is going up, and with longer delay, the compensation cannot afford the construction. If the housing problem is not solved, who can have the intention to find job? Without income, who can live a good life?"

About the housing resettlement, G specially mentioned that, at present, the government

had not provided effective communication channels for the relocated households. Although they had reflected for many times to relative departments, there was no direct reply and this added the dissatisfaction. In the survey, we found that most LLFs households hoped that, by housing relocation and resettlement, the living conditions could be improved. Moreover, it was an important aspect to improve policy satisfaction. However, as G said, once the resettlement was lagging, with the production and living order disturbed, the smooth transition of LLFs livelihood would be shocked. The lack of communication channels could stimulate the contradiction and cause unnecessary social conflicts.

As shown in the case of Household G, before land lost, mainly engaged in H-based activities (employment) and little in farming, with livelihood behavior matched to assets, the household had SL pathway. After land lost, waiting to construct house and employment forced to cease, the livelihood behaviors not matched to asset basis, and income greatly reduced, the household's livelihood pathway becomes unsustainable.

This case also indicates that, compared with policy constitution, the implementation was equally important. Restricted by the financial resource, if the compensation standard cannot be raised rapidly, the key to relieve conflicts and increase policy satisfaction was to ensure the prompt and proper implementation of the policies.

6.5 Summary and Conclusions of Case Studies

This chapter studies cases of LLFHs in 3 projects of land expropriation and further verifies the theoretical hypotheses in previous contents. Table 6-5 is a summary of the 7 case studies. As indicated in the results, assets-and-goals-based livelihood behavior is an important factor to affect livelihood outcomes. Only when LLFHs' livelihood behaviors do match with assets, improved livelihood outcomes can be achieved, and livelihood pathway can be sustainable. Therefore, the research on livelihood behavior is very important.

As to LLFHs, when land lost shocks bring changes in livelihood assets, capability of adjustment to livelihood behavior (livelihood assets basis) and intention to adjust (livelihood attitude oriented by livelihood goals) determine the direction of transformation in livelihood pathway. Only when both factors are equipped, optimization and sustainability of livelihood

pathway can be realized. Cases show that, in livelihood asset basis, human capital is the most important form of asset as it determines the value realization of other assets; housing capital provides physical basis for the household to be engaged in higher income business activities, and has functions of inflation proof and appreciation. In addition to livelihood assets, goals-oriented livelihood attitudes determine the direction of LLFHs' livelihood behavior selection; with positive attitudes, restraints of livelihood assets might be broken to promote the optimization of livelihood pathway; while negative attitudes might amplify the impacts of land lost shocks. Besides the internal factors of LLFHs, external livelihood environment is an important factor to affect livelihood pathway and determines the possibility of smooth adjustment in livelihood behavior of LLFH.

In short, based on internal and external factors to affect livelihood behavior, the government should improve the policy in the directions of giving more support in addition to the single monetary compensation, optimizing livelihood environment, facilitating the accumulation of livelihood assets, and guiding positive livelihood attitudes.

Table 6-5 Summary of Cases

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Malanwan Community Project	Household A (Land Lost in 2007)	Before Land Lost	● Land area: 1 *mu* ● Number of labors: 4 persons ● Number of family members being employed or doing business: 3 persons ● Number of farmers: 1 person ● Being as both doctor and village secretary of CPC: 1 person ● Housing area: 500 m^2 (including 2 shop fronts)	(1) M-based activities: opening a clinic in the shop front of the household (2) H-based activities: locally employed (3) F-based activities: rent out shop fronts (4) N-based activities: farming	● Household gross income: 50,000 (1) Business income: 25,000 (2) Wage income: 20,000 (3) Rent income: 3,000 (4) Agricultural income: 2,000 ● Type: M-based household	● Evaluation: livelihood pathway sustainable ● Reasons: good livelihood assets, diverse behavior types, good matching between behavior and assets, diversified source of income, and high and stable income
		After Land Lost	● Land area: 0 *mu* ● Number of labors: 4 persons ● Number of family members being employed or doing business: 3 persons ● Village Secretary of CPC: 1 person ● Housing area: unremoved, 500 m^2 ● Compensation fees of land expropriation: 19,000 *yuan*	(1) H-based activities: locally employed (2) F-based activities: renting out shop fronts	● Household gross income: 41,000 (1) Wage income: 35,000 (2) Rent income: 6,000 ● Type: H-based household	● Evaluation: livelihood pathway unsustainable temporarily ● Reasons: most advantageous livelihood behavior ceased, with no matching with assets, reduced income; however, this is the situation in a short run of transition period. Owing to good external market environment, good basis of livelihood assets, and strong capability to improve livelihood behavior in future, this type of unsutainability is temporary.

Table 6-5 Summary of Cases (cont. 1)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Malanwan Community Project	Household B (Land Lost in 2003)	Before Land Lost	● Land area: 1.8 *mu* ● Number of labors: 3 persons ● Number of family members being employed : 2 persons ● Number of farmers: 1 person ● Housing area: 200 m^2	(1) H-based activities: employed out-of-town (2) N-based activities: farming	● Household gross income: 17,000 (1) Wage income: 15,000 (2) Agricultural income: 2,000 ● Type: H-based household	● Evaluation: livelihood pathway sustainable ● Reasons: livelihood behaviors well matched to livelihood assets, and with stable income
		After Land Lost	● Land area: 0 *mu* ● Number of labors: 2 persons ● Number of family members being employed : 2 persons ● Housing area: removed and resettled, 216 m^2 (1 residential house and 2 shop fronts) ● Compensation fees of land expropriation: 57,000 *yuan*	(1) M-based activities: opening a grocery in the shop front of the household (2) F-based activities: buying endowment insurance, renting out shop fronts	● Household gross income: 35,000 (1) Business income: 25,000 (2) Pension income: 7,000 (3) Rent income: 3,000 ● Type: M-based household	● Evaluation: increased sustainability in livelihood pathway ● Reasons: owing to good external market conditions, positive livelihood attitudes, prompt adjustment of livelihood behavior with the change of assets, diversified source of income, and improved livelihood safety

Table 6-5 Summary of Cases (cont. 2)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Guangming New CLity Project	Household C (Land Lost in 2010)	Before Land Lost	● Land area: 4 *mu* ● Number of labors: 4 persons ● Number of family members being employed : 2 persons ● Number of farmers: 2 persons ● Housing area: 150 m^2	(1) H-based activities: locally employed (2) N-based activities: farming	● Household gross income: 35,000 (1) Wage income: 25,000 (2) Agricultural income: 10,000 ● Type: H-based household	● Evaluation: livelihood pathway sustainable ● Reasons: livelihood behaviors well matched to livelihood assets and with high income
		After Land Lost	● Land area: 0 *mu* ● Number of labors: 4 persons ● Number of family members being employed : 2 persons ● Housing area: 150 m^2 (unremoved) ● Compensation fees of land expropriation: 144,000 *yuan*	● H-based activities: locally employed	● Household gross income: 25,000 (business income) ● Type: H-based household	● Evaluation: livelihood pathway unsustainable ● Reasons: owing to lagging development of external market, aged rural labors with low education, difficulties in employment transit, single source of income, and decreased livelihood safety

Table 6-5 Summary of Cases (cont. 3)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Guangming New CLity Project	Household D (Land Lost in 2009)	Before Land Lost	● Land area: 2.5 *mu* ● Number of labors: 4 persons ● Number of farmers: 4 persons ● Housing area: 150 m^2	● N-based activities: farming	● Household gross income: 10,000 (agricultural income) ● Type: N-based household	● Evaluation: livelihood pathway unsustainable ● Reasons: with low input in farming, 4 labors detained to scanty land, no matching between behavior and assets, and low income
		After Land Lost	● Land area: 1 *mu* ● Number of labors: 4 persons ● Number of farmers: 2 persons ● Number of family members being employed : 2 persons ● Housing area: 0 m^2 (unresettled) ● Compensation fees of land expropriation: 120,000 *yuan*	(1) H-based activities: locally employed (2) N-based activities: farming (3) F-based activities: buying endowment insurance	● Household gross income: 39,000 (1) Wage income: 30,000 (2) Pension income: 7,000 (3) Agricultural income: 2,000 ● Type: H-based household	● Evaluation: livelihood pathway sustainable ● Reasons: taking employment opportunity brought by new city construction, young labors actively employed, and advantage in human capital being exerted to explore new source of income

Table 6-5 Summary of Cases (cont. 4)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Taipingyuan Industrial Park Project	Household E (Land Lost in 2010)	Before Land Lost	● Land area: 3.2 *mu* ● Number of labors: 4 persons ● Number of farmers: 4 persons ● Housing area: 180 m^2	● N-based activities: farming	● Household gross income: 60,000 (agricultural income) ● Type: N-based household	● Evaluation: livelihood pathway sustainable ● Reasons: with 4 labors actively involved in agricultural activities and fully exerting the advantage of land to get high and secured income
		After Land Lost	● Land area: 0 *mu* ● Number of labors: 4 persons ● Compensation fees of land expropriation: 90,000 *yuan* ● Housing area: 180 m^2 (unremoved)	● F-based activities: buying endowment insurance	● Household gross income: 7,000 (pension income) ● Type: F-based household	● Evaluation: livelihood pathway unsustainable ● Reasons: owing to lack of non-agricultural skills, few external employment opportunities, lagging adjustment of livelihood behavior, dependence on pension and interest to make the living, and income greatly reduced

Table 6-5 Summary of Cases (cont. 5)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Taipingyuan Industrial Park Project	Household F (Land Lost in 2010)	Before Land Lost	● Land area: 4.6 *mu* ● Number of labors: 2 persons ● Number of family members doing business: 1 person ● Number of farmers: 1 person ● Housing area: 450 m^2 (2 residential houses)	(1) M-based activities: opening a fertilizer retail store in the shop front of the household (2) N-based activities: farming	● Household gross income: 45,000 (1) Business income: 25,000 (2) Agricultural income: 20,000 ● Type: M-based household	● Evaluation: livelihood pathway sustainable ● Reasons: with good basis of livelihood assets, properly chosen livelihood behavior matched to assets, similar contribution to income by doing business and farming, high and stable income
		After Land Lost	● Land area: 0 *mu* ● Number of labors: 2 persons ● Number of family members doing business: 1 person ● Number of family members being employed : 1 person ● Housing area: 300 m^2 (1 residential house removed but unresettled) ● Compensation fees of land expropriation: 350,000 *yuan*	(1) M-based activities: opening a fertilizer retail store in the shop front of the household (2) H-based activities: employed	● Household gross income: 45,000 (1) Business income: 30,000 (2) Wage income: 15,000 ● M-based household	● Evaluation: livelihood pathway sustainable ● Reasons: owing to ceased farming, active livelihood attitudes, prompt adjustment of livelihood behavior, intensified advantage in doing business, and increased employment activities, new sources of income explored to keep the income level

Table 6-5 Summary of Cases (cont. 6)

Project	Code		Livelihood Assets	Livelihood Behaviors (Rank by Share of Income)	Livelihood Outcomes (*yuan*)	Evaluation on Livelihood Pathway
Taipingyuan Industrial Park Project	Household G (Land lost in 2009)	Before land lost	● Land area: 3 *mu* ● Number of labors: 3 persons ● Number of family members being employed : 2 persons ● Number of farmers: 1 person ● Housing area: 160 m^2	(1) H-based activities: locally employed (2) N-based activities: farming	● Household gross income: 36,000 (1) wage income: 30,000 (2) Agricultural income: 6,000 ● Type: H-based household	● Evaluation: livelihood pathway sustainable ● Reasons: mainly engaged in H-based activities (employment) and little in farming, with livelihood behavior matched to assets, secured income
		After land lost	● Land area: 0 *mu* ● Number of labors: 2 persons ● Housing area: 0 m^2 ● Compensation fees of land expropriation: 270,000 *yuan*	● F-based activities: buying endowment insurance	● Household gross income: 7,000 (pension income) ● Type: F-based household	● Evaluation: livelihood pathway unsustainable ● Reasons: waiting to construct house, employment forced to cease, the livelihood behaviors not matched to asset basis, and income greatly reduced

Chapter 7: Conclusions and Suggestions

Since 1990s, in the process of China's industrialization and urbanization, the non-agricultural demands for land have increased rapidly such as for highways and industries. The government has expropriated substantial suburban collective lands, and more and more farmers lost their land to become an enormous group of LLFs. On one hand, with land lost shocks, changes occur in the structure and value of LLFHs' livelihood assets, and the uncertainty increases in livelihood pathways. On the other hand, in the unitary CPLE, the external support was insufficient for LLFHs to adjust their livelihood pathway, and their SL is facing challenges. This leads to differentiation among households and triggers increasing social conflict and, to some extent, hinders the smooth advance of urbanization in China. Therefore, how to realize LLFs' sustainable livelihoods has become a practical and urgent problem in the transformation of Chinese society.

On theoretical side, the thesis constructs LLFHSL Framework, proposes hypotheses on the interrelations of factors in livelihood pathway (livelihood capital and goals—livelihood behaviors—livelihood outcomes), defines the sustainability of livelihood pathway from perspective of behavior patterns (the matching between livelihood behavior and livelihood asset). On empirical side, the thesis takes Xingwen County, Sichuan Province, China, as the research region. On basis of data and materials obtained from questionnaire survey and depth interview, by research methods of descriptive statistics, regression analysis, and case study, this thesis discovers LLFHs livelihoods in CPLE and their livelihood pathway selection mechanism, and proposes reasonable policy suggestions for the improvement of CPLE.

Based on data analysis of questionnaire survey, the following are the situation of land expropriation compensation and livelihoods of LLFHs in Xingwen County:

1. Land Expropriation Compensation Ways and Policy Evaluation

From the compensation ways and policy evaluation, the contents of land expropriation compensation include 4 types of monetary compensation, social endowment security, housing

relocation and resettlement, and employment support with monetary compensation as the major way. The problems shown from the investigation were low compensation standard, low coverage of endowment insurance security, and insufficient employment support. This coincides with the conclusions from most studies, which show that these are the common problems in China's CPLE. These problems decreased the respondents' satisfaction to compensation policies and lead to the high unsatisfactory rate of 61.12%. The three main reasons of policy dissatisfaction are insufficient compensation, unemployment trouble, and security deficiency. As to the intensity of policy expectation, the rank is employment support, social security，and monetary compensation. This indicates that, to LLFs, the single method of monetary compensation cannot substitute the functions of employment and social security. This is also the reason for the respondents to regard "guaranteed and stable income" (livelihood safety) as a more important livelihood goal than "more income". As to housing relocation and resettlement, as the relocated farmers are provided opportunities to improve residential quality and environment, most LLFHs are satisfied with the policies. Meanwhile, they have high expectation for the resettlement policies, which makes the efficiency of implementation an important factor influencing policy satisfaction.

2. Livelihoods and Changes

(1) Livelihood Assets

Before land lost, the LLFHs surveyed have good human and social capital basis which provides guarantee for them to cope with land lost shocks. After land lost, the structure of their livelihood assets changed greatly. Land expropriation decreased natural capital; monetary compensation increased financial capital; housing relocation and resettlement affected the physical capital of relocated households; changes of external livelihood environment influenced human capital and social capital.

(2) Livelihood Goals

In land lost shocks, over half of respondents ranked livelihood safety as the first goal and expressed reasons to be optimistic or pessimistic for future life. For both the optimistic and the pessimistic, policy is the chief factor affecting respondents' livelihood attitudes. This shows that LLFHs are greatly dependent on the government and it makes policy to be an

important influencing factor to livelihood pathway. Therefore, restricted by financial resources, the government is hard to increase compensation standard rapidly. The key to upgrade policy efficiency is to exert the guiding role of policy to motivate LLFHs to choose positive livelihood behaviors to realize sustainability of livelihood pathway.

(3) Livelihood Behaviors

Before land lost, 44.44% households were mainly engaged in N-based activities (farming); 42.59% households were mainly engaged in H-based activities (employed); the rest 12.96% households were mainly engaged in M-based activities (doing business). After land lost, agricultural activities sharply decreased. The portions of other three types increased. It shows that, land lost shocks urged LLFHs to adjust livelihood behaviors, and the adjustment provides possibility to broaden source of household income and to realize diversified income. From respondents' own behavior responses, after land lost, those who stay at home increased rapidly and this group shows the following features: first, the lack of human capital leads to involuntary unemployment; second, "waiting to construct the house" led to income loss; third, giving up endowment security increases livelihood risks. These provide directions for policy improvement.

(4) Livelihood Outcomes

After land lost, the overall income level of LLFHs surveyed increased 11.59%, and over 80% respondents expressed there was some increase or no change in living standard. This indicates that land lost has little shocks on most households in the short run. However, income differentiation was intensified among different types of households. The income ratio of N-based, H-based, and M-based households increased from 1:1.8:1.8 before land lost to 1:2.1:2.6 after land lost. The income level of F-based households newly appeared after land lost (mainly with property income) is only 0.67 of N-based level. This indicates that livelihood behavior selection plays determining role to household income. N-based and H-based activities can bring more income to the households. Therefore, the government should intensify the guidance in the two types of activities and give more support in the accumulation of the livelihood assets.

Overall, in CPLE, changes in LLFHs' livelihood assets cause them to adjust livelihood

behaviors and produce different livelihood outcomes. As different households adopt different behaviors, there are differences in the matching between behaviors and assets, income, and sustainability of livelihood pathways. The households' matching rate increased from 42.59% before land lost to 68.52% after land lost, and thus pushing level of average income per household to increase from 27,000 *yuan* to 30,800 *yuan*. This indicates that, to the whole group of LLFHs, sustainability of livelihood pathway improved. However, the differences in capability and intention to adjust livelihood behaviors can bring differentiation among different types of households. The livelihood pathways of N-based and F-based households are unsustainable; all M-based households have SL pathway; H-based households have both cases half-and-half.

Further regression analyses estimate the effects of livelihood assets and behaviors on household income. As shown in the results, both number of labors and social capital have significant effects on LLFHs' income before and after land lost; compared with the situation before, natural capital measured by land area has insignificant effect on income after land lost, but effects of human capital quality, physical capital, and financial accessibility are significantly positive after land lost. As indicated in the results of regression analysis, as the direct factor to influence income, livelihood behavior has greater contribution than livelihood assets; M-based activities (doing business) and H-based activities (employment) contribute more to income than N-based activities (farming). Doing business is the most important behavior type to increase family income whereas F-based activities are similar to agricultural activities in the effect of contribution to income.

Based on statistic analysis, we make case studies on seven typical LLFHs in three typical projects of land expropriation. The results show the following findings. First, livelihood assets basis determines the capability to adjust livelihood behaviors, and livelihood attitudes oriented by livelihood goals determine the intention to adjust livelihood behaviors. When CPLE bring changes in livelihood assets and goals, the differences in livelihood behavior selection determine the transforming direction of livelihood pathway. Only when LLFHs' active livelihood behaviors do match with assets, improved livelihood outcomes can be achieved to promote sustainable livelihood pathway. Second, human capital and housing

capital are the most important forms of asset as the former determines the value realization of other assets and the latter provides physical basis for the household to be engaged in higher income business activities. Third, oriented by livelihood goals, only positive livelihood attitudes and active livelihood behaviors can improve the efficiency of asset allocation and optimize livelihood pathway; negative livelihood attitudes and passive livelihood behaviors might amplify the impacts of land lost shocks. Fourth, besides the internal factors of LLFHs, external livelihood environment as location determine the selection space of LLFHs' livelihood behaviors. These are also important factors to influence livelihood pathway.

Based on theoretical and empirical researches in the thesis, we consider that assets-and-goals-based livelihood behavior is an important factor to influence livelihood pathway and to determine livelihood outcomes. Only when LLFHs' livelihood behaviors do match with assets, improved livelihood outcomes can be achieved to promote sustainable livelihood pathway. Therefore, based on internal and external factors to influence livelihood behaviors, we propose the following policy suggestions:

1. Aimed at LLFHs' diversified livelihood demands, while upgrading the compensation standard of land expropriation, the government should intensify the policies in employment, social security, and housing compensation, and provide diversified policy portfolio for LLFHs to direct the self selection of LLFHs to elevate the overall basis of LLFHs' livelihood assets. To be specific, the government should as follows: 1. enhance employment training to improve human capital basis of land lost labors; 2. establish unemployment insurance system to guarantee smooth transition for LLFs; 3. improve social security policies to reduce livelihood risks by establishing compulsory measures of taking social security into compensation of land expropriation and by regulating resettlement feesspecialized as payment for insurance premium of social security; 4. introduce market operational pattern into housing resettlement; and 5. establish good mechanism of communication and coordination between the government and LLFs to improve policy efficiency of housing resettlement.

2. Fully exert the levering function of policy to motivate active livelihood behaviors. To be specific, the government should combine employment training policy and unemployment insurance policy. For example: 1. in order to motivate the land lost labors to actively find jobs

or to accumulate human capital, only the unemployed who take part in government-organized employment training with the completion certificate can draw the unemployment compensation; 2. intensify financial support policy to provide credit aid to participants of venture creation; and 3. add the compensation form of shop fronts into housing resettlement policy to provide LLFs with physical basis of venture creation.

3. Optimize external livelihood environment to create more opportunities of employment or venture creation for LLFHs.

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Appendix 1 Terminology

Terminology	Interpretation
Land Lost Farmer Land Expropriated Farmer	The registered agricultural residents who loses entire or partial collective rural land with contracted rights when the land is expropriated by Chinese government. The term LLFs is usually used in academic research and the term LEFs in policies.
LLFs' Sustainable Livelihood Framework LLFs' Sustainable Livelihood Pathway	The pathway how the farmers, with land lost shocks, choose possible livelihood behaviors to pursue certain livelihood outcomes, according to internal and external factors. It reflects the LLFs' pathway choosing process of "livelihood assets and goals-livelihood behaviors-livelihood outcomes".
Urban-Rural Binary Household Registration System	Since 1958, China has established rigid residence management system to control the migration of rural population to urban districts, and the binary household registration system of rural and urban division has thus been formed. According to this system, residents are divided intourban residence and rural residence with unequal employment opportunities and welfare systems.
Rural-to-urban	In the binary household registration system of rural and urban division implemented by Chinese government, rural residents change their identity to urban residents by transacting rural-to-urban formalities.
Rural-to-urban LLFs	LLFs who have changed their identity to urban residents by transacting rural-to-urban formalities
Compensation Policies for Land Expropriation	According to provisions in China's Land Administration Law and relative regulations, the institutional arrangements of compensation made by the local government to farmers for the loss caused by the expropriation of collective land. The contents of compensation include land compensation fees, resettlement subsidies, compensation fees for land attachment and crop seedlings. The types of compensation include monetary compensation, social security, employment support, and housing relocation and resettlement.

Terminology	Interpretation
Land Compensation Fees	When the government expropriates the land, the compensation for loss of inputs and earnings of land to land owners (rural collective organizations) and land users (registered rural residents with contracted rights for rural collective land). The standard is calculated by 6-10 times of the average annual produce of the land in the three years before expropriation.
Resettlement Fees	The fees granted to rural residents needed to be resettled to solve their living problems after they lose land as the main production material to make the living.

Appendix 2 Questionnaire

Place of survey: _____Village (Community), _____Town Time of survey_____

Dear Respondent,

Hello! This questionnaire is designed to understand the compensation and the livelihood conditions of your family before and after the land expropriation. The information from the survey is used to provide reasonable accordance for improvement in land expropriation compensation policies and corresponding measures. This questionnaire is anonymous and the data obtained will be used for research only and be kept confidential. Please rest assured for the cooperation.

Please tick "√" before corresponding options or write down your answers or the corresponding number in the blank. Please draw "○" for the items you do not know or if no option is applicable to your case. Thank you for your cooperation and support!

SECTION I: Family Information

1. Your gender: a. Male b. Female

2. The total number of your family member and labor**:** _____ and _____ (**persons)**

3. Your family structure: a. couple b. couple and children c. couple and grand children
d. three generations e. single f. couple and parents

4. For basic information of your family, please fill in Table 1:

Table 1 Family Information

Family Member	1. Respondent	2. Spouse	3. Children*	4. Parents*
4-1. Age (X years old)				
4-2. Education Attainment (Code I)				
4-3. Special Identities or Experiences** (code II, the same below)				
4-4. Employment and Business Experience or Specialty ***				
4-5. Close Contact with Urban Relatives		/	/	/
4-6. Getting Loans from or Being Subsidized by Official Financial Institutions		/	/	/

* Please make clear the information of all children and parents. For example, write in age item as son 24, daughter-in-law 22, daughter 16, and farther 70. The same below;

** Special identities or experiences mean the background of being village leaders, army men, teachers, and

Communist Party of China members.

***Specialty means certain skills as carpenter, mason, electrician, cook, and mechanic.

Code I: a. Junior primary school and below b. Primary school c. Junior high school
d. High school and secondary technical school e. Junior college
f. College, university and above

Code II: a. Yes b. No

SECTION II: Land Expropriation and Compensation

1. When has your land been expropriated? _____ (year).

2. _____ *mu* of your land has been expropriated

3. The compensation your family has obtained for the expropriated land includes:

a. monetary (cash) compensation

b. social endowment security

c. employment support (employment or venture creation opportunities provided or credit support）

d. housing relocating and resettlement

4. Please rank the following items by the desired extent:_____

a. Making monetary (cash) compensation b. Establishing social endowment security

c. Providing employment opportunities d. Housing relocating and resettlement

e. Providing opportunities or credit support for business undertaking

5. For cash compensation:

5-1. The cash compensation amount your family has obtained is: _____ (10000 *yuan*)

5-2. The cash compensation: a. is made by lump sum payment b. is made by installments
c. should be paid, but I have not received it.

6. For social security information, please fill in Table 2:

Table 2 Social Security Information of the Household

Family Member	1. Respondent	2. Spouse	3. Children	4. Parents
6-1.Before Land Lost				
6-2. After Land Lost				

a. Joining in New Rural Endowment Insurance

b. Joining in New Rural Cooperative Medical Insurance (NRCMI)

c. Obtaining Rural Minimum Living Allowances

d. Joining in Endowment Insurance for LLFs

e. Joining in Endowment Insurance for Urban Workers or Residents

f. Joining in Medical Insurance for Urban Workers or Residents

g. Joining in unemployment insurance and drawing unemployment benefits

h. Obtaining Rural Minimum Living Allowances

7. The reason(s) why your family members did not purchase the Endowment Insurance for land lost farmers is (are):

a. not eligible for rural-to-urban conditions b. not clear about the policy

c. insurance premium too high to buy or reluctant to buy

d. too distant to the pension drawing age and unworthy to buy now

e. unnecessary, rural household more beneficial f. others _____

8. The employment support your family members have obtained includes:

a. position allocated by organization b. free training for employment or venture creation

c. employment information provided d. organized labor export

e. credit support for employment or venture creation

9. The type of housing relocation and resettlement that your family received is:

a. monetary compensation b. returning new housing

c. self-constructing housing d. housing not relocated

10. The overall evaluation of your household to compensation policies for land expropriation is:

a. satisfactory b. fair c. unsatisfactory d. extremely unsatisfactory e. indifferent

11. Your household thinks the policies satisfactory because:

a. reasonable compensation policies b. more income c. higher living standard

d. improved living conditions and infrastructure facilities e. more employment opportunities

f. enjoying urban welfare with urban household g. better educational conditions for children

h. others _____

12. Your household thinks the policies unsatisfactory because:

a. reluctant to abandon land b. higher living cost and increased daily expenditure

c. after land lost, without stable income, unsecured future life

d. compensation too low to keep the living standard before land lost, dropped living quality

e. compensation fees for land expropriation much lower than the land value

f. compensation fees for land expropriation in other places higher

g. compensation fees obtained by households for later land expropriation higher

h. greater income gap between families

i. without land, unemployed

j. housing relocation and resettlement policies being to be improved

k. social security policies being to be improved

l. land expropriation procedures not open and compensation not transparent

SECTION III: Change in Livelihood Conditions

1. For land conditions of your household before and after land lost, please fill in Table 3:

Table 3 Land Conditions of Your Family

	Land Area (*mu*)	Usage of Land (See the code)	3. Earnings from Land (*yuan*/year)
1-1. Before Land Lost			
1-2. After Land Lost			

Code: a. Planting grains b. Planting economic crops c. Breeding d. Rented
e. as shareholding capital f. Abandoned g. Sent to others for farming
h. Returning farming land to forest

2. For employment conditions of your household before and after land lost, please fill in Table 4:

Table 4 Employment Conditions of Your Family

Family Members	1.Respondent	2.Spouse	3.Children	4.Parents
2-1. Employment Situation before Land Lost (Code I)				
2-2. Duration of Above Situation (year)				
2-3. Employment Situation after Land Lost (Code I)				
2-4. Duration of Above Situation (year)				
2-5. Channels to Be Employed (Code II) *				
2-6. Field of Business Undertaing(Code III)				
2-7. Reason(s) of Staying at Home after Land Lost (Code IV)				
2-8. Reason(s) of Not Being Employed (Code V)				

Code I: a. Farming b. Locally employed c. Employed out-of-town d. Business undertaking
e. Being village leader f. No job to do, staying at home g. Teacher or other formal jobs
Code II: a. Arranged or recommended by the government b. Allocated by organization
c. Found by oneself (from labor market or via newspaper or advertisements)
d. Recommended by relatives;
* Note: If the channels are different before and after land lost, please clarify respectively.
Code III: a. Transportation b. Catering
c. Retailing (selling groceries, perishables, or chemical fertilizers)
d. Dry cleaning store e. Cement or brick factory f. Medicine
Code IV: a. No proper jobs available b. With rent as income, no need to work
c. With pension as income d. Dependent on family, reluctant to work
e. Taking care of housework or kids at home f. Waiting for constructing new house

g. Too age, reluctant to work

Code V: a. Low literacy b. Lack of technical skills c. Too aged

d. Limited locally working opportunities e. Unsatisfied with the trade or pay of the job

f. Poor health g. Others_____

3. For housing conditions of your household before and after land lost, please fill in Table 5:

Table 5 Housing Conditions of Your Family

	1. Area of Housing (m^2)*	2. Type of Housing (Code I)	3. Usage of Housing (Code II)	4. Shop Front (Code III)
3-1. Before Land Lost				
3-2. After Land Lost				

* If you have 2 sets of housing with areas of 80 m^2 and 100 m^2, write 80 + 100 in Area of Housing item.

** If land expropriation of your household is not involved in housing relocation and resettlement, please fill in 2-1 only.

Code I: a. bungalow b. storied house

Code II: a. Entirely self-inhabited b. Entirely rented c. Self-inhabited and rented d. Sold

Code III: a. Self-used b. Doing business c. Rented

4. For the income of your family, please fill in Table 6:

Table 6 Family Annual Income (yuan)

Item	1.Total Income	2.Agricultural Income	3.Wage Income	4.Business income	5.Property Income	6.Pension
4-1.Before Land Lost						
4-2.After Land Lost						

Note: property income includes housing rent and deposit interest.

5. For the living pressure of your family:

5-1. The greatest pressure on your family before land expropriation was: _____

(Please write down the corresponding item)

5-2. The greatest pressure on your family after land expropriation is: _____

(Please write down the corresponding item)

a. Income too low to maintain basic life b. Income too low to improve living standard

c. Income unsteady d. Children's tuition too high

e. Unable to support the elderly family member

f. Medical expenses too high for family member diseases

g. Repayment of debts h. No source of income with job unavailable

i. Increased daily expenditure j. No pressure

6. Evaluation of your family on living standard before and after land expropriation:

a. Remarkably improved b. Somewhat improved c. Not changed

d. Somewhat declined e. Remarkably declined

7. Expectation(s) of your family for future life include: _____

(please rank according to importance)

a. More income b. Stable and guaranteed income c. Improve living quality

d. Children successful e. Higher social status f. Others_____

8. If you and your family are optimistic in future life, the reason(s) is (are): _____

(if not applicable, please move to next question)

a. Government support in difficulties b. Policies more favorable

c. More opportunities to develop in future d. More efforts to be paid by ourselves

e. Children more successful

9. If you and your family are optimistic in future life, the reason(s) is (are): _____

a. Low literacy b. Lack of technical skills

c. Insufficient government support and improper policies d. Heavy family burdens

e. Others _____

Appendix 3 Standard of Endowment Insurance for Land Lost Farmers (2010)

Age	Permitted Premium Payment Duration (Years)	Proportion of Payment (%)	Government Proportion	Individual Proportion	Total Premium (*yuan*)	Premium Paid by Government	Premium Paid by Individuals
18-19	1	20%	12%	8%	3427.56	2056.54	1371.02
20-21	2	20%	12%	8%	6855.12	4113.07	2742.05
22-23	3	20%	12%	8%	10282.68	6169.61	4113.07
24-25	4	20%	12%	8%	13710.24	8226.14	5484.10
26-27	5	20%	12%	8%	17137.80	10282.68	6855.12
28-29	6	20%	12%	8%	20565.36	12339.22	8226.14
30-31	7	20%	12%	8%	23992.92	14395.75	9597.17
32-33	8	20%	12%	8%	27420.48	16452.29	10968.19
34-35	9	20%	12%	8%	30848.04	18508.82	12339.22
36-37	10	20%	12%	8%	34275.60	20565.36	13710.24
38-39	11	20%	12%	8%	37703.16	22621.90	15081.26
40-41	12	20%	12%	8%	41130.72	24678.43	16452.29
42-43	13	20%	12%	8%	44558.28	26734.97	17823.31
44-45	14	20%	12%	8%	47985.84	28791.50	19194.34
46+	15	20%	12%	8%	51413.40	30848.04	20565.36

Notes:

1. Illustration for premium payment duration

(1) According to the duration from aged 16 to the actual age of the insurant in the year of land expropriation, every two incremented year is calculated as one payment year. The residual less two year is not calculated for payment. Therefore, the payment duration of an insurant aged 36 is: (36─16)/2 = 10 year. The payment duration of an insurant aged 37 is: (37-16)/2 = 10.5 year, but it is counted as 10 year. After paying the premium in one lump sum according to the calculated duration, the later premium should be paid every year.

(2) The longest payment duration permitted for LLFs does not exceed 15 years, so the duration for insurants aged 46 and over is 15 year.

2. Illustration for premium payment amount

In Sichuan Province, the premium payment base is 60% of the average wage in the previous year, and the proportion of annual premium is 20% of the base. The premium is divided into two parts as government payment proportion (12%) and individual payment proportion (8%). Therefore, taking the average wage (28,563 *yuan*) of Sichuan Province in 2009 as the payment base, the LLF's premium proportion of endowment insurance in 2010 is: 28563×60%×8%=1371.02 *yuan*. If the payment duration is 5 year, the total premium in one lump sum is 6855.12 *yuan*.

3. Illustration for drawing conditions of pension

When the accumulated duration of premium payment reaches 15 years, those who reach the retiring age (the male aged 60 and over, the female aged 55 and over) can draw their pensions.

Appendix 4 Photos of Malanwan Community Project

Photo 1-2: Resettlement Community

Photo 3-4: CPC Villagers Committee

Appendix 5 Photos of Guangming New City Project

Photo 1: Construction Site

Photo 2: High Street beside Construction Site

Appendix 6 Photos of Taiping Industrial Park Project

Photo 1-4：High Street Construction Site