

Livelihood Vulnerability and Commercial Farming in GMS: Case of Coffee Plantation in Xishuangbanna

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Abstract

Commercial farming is expanding massively onto the lands and forests of local communities in the Mekong region. The commercialization of agriculture can lead to severe environmental impacts, including deforestation and forest conversion, soil erosion, increased flooding, and water pollution and sedimentation. With rubber, sugarcane and coffee plantations expanded in local communities, the commercialization of the small scale farming may also have significant social impacts that transform local livelihoods. This paper employs the Capacity and Vulnerability Analysis (CVA) framework designed by the International Relief/Development Project (IRDP) to explore the impact of commercial farming on livelihood vulnerability. Based on a case study from Xishuangbanna, Yunnan Province, China, this paper examines the impacts of coffee plantations on livelihood vulnerability by analyzing the risks of commercial farming and the capacities of households to deal with current challenges and potential uncertainties. The vulnerability analysis covers a wide range of aspects from physical/material to social/organizational and motivational/attitudinal. The paper concludes with a discussion of the mechanism by which commercial farming affects livelihood vulnerability in the case study. The conclusions provide a helpful context for understanding the social impacts of agricultural commercialization on small holders in the in the Great Mekong Subregion.

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1. Introduction

With the increasing expansion of free market economies and economic integration in Mekong region countries, local rural communities have experienced a rapid shift from self-sufficient, largely subsistence economies, to ones based on commercial farming. With the introduction non-traditional crops, such as rubber, sugarcane and coffee, plantations have massively expanded on to formerly forested lands. This has also led to severe social and economic impacts, and has dramatically transform local livelihoods. This paper is intended to identify the striking vulnerabilities to people at the household level occasioned by involvement in commercial farming, based on a case study of coffee plantations in Xishuangbanna, Yunnan Province, China.

2. Literature Review

There are numerous definitions of vulnerability, which vary with disciplines, focus on different outcomes and may be concerned with different forms of risk. The economics literature, for instance, focuses on sources of economic risk, such as price and wealth-related variability. Disaster management literature, on the other hand, is concerned with focuses on risks related to natural disasters. As a result, there is no holistic definition that can be applied in all situations. The World Bank, with concern for the preservation of livelihoods, takes the position that vulnerability for an individual or a household "can be measured as probability that expected future consumption falls below some minimum level." Moser (1998) defined the vulnerability as the "insecurity of the well-being of individuals, households, or communities in the face of a changing environment." Dercon (2001) defines vulnerability as the likelihood of a "fall below a particular minimum consumption level." Vulnerability is usually perceived as insecurity or sensitivity to changes in the well-being of individuals,

households and communities in the face of new circumstances. Their inability to respond in such a way as to avert negative consequences is called "resilience". Changes that threaten welfare can be ecological, economic, social and political, and they can take the form of sudden shocks, long-term trends, or seasonal cycles. Based on the understanding of these definitions, the concept of vulnerability incorporates both the risk from social, economic, and environmental change on one hand, and the capacities to cope with these shocks on the other hand.

Commercial farming refers to the production of crops for sale as compared to self-sufficient subsistence agriculture whereby the product is largely consumed by the producers themselves and relatively little surplus is available for trade. Commercial crops may be non-food products and are traded through a market system to be consumed by others far from the site of production. In Mekong region, the emerging cash crops for commercial farming in the last two decades have been eucalyptus, oil palm, rubber, coffee, and sugarcane. The introduction of these crops often resulted in monoculture plantations to achieve high yield and efficiency of harvest. The products might be traded and consumed off farm but within the region or enter into the world trade system through the transnational corporations. In recent years, commercial farming expanded quickly into many rural areas in the Mekong region and changed the livelihoods of local community.

It should be noted that vulnerability is not a brand new consequence to the people in Mekong region. Subsistence agriculture systems in the uplands of Mekong region always had their own threat- drought, landslides, disease etc. However, there were local coping strategies that could be employed to avert or mitigate disaster that were largely under the control of the individual farmers. Under the new commercial farming regime, the people are exposed to a whole new set of risks (vulnerabilities) that are beyond their ability to control or perhaps even recognize. Hence it needs to address these risks through a comprehensive framework.

3. Methodology

The findings of this paper were derived from field work in a coffee producing community in Xishuangbanna, China. The Manjingmian village was among the first villages to plant coffee in Yunnan Province beginning in 1995. In the thirteen subsequent years the plantation structure and livelihood of households changed dramatically. A survey in this village included a series of interviews and participatory observations centered on the development of the plantations, the coffee bean trade change, and the impacts of coffee growing to livelihoods.

The CVA (Capacities and Vulnerabilities Analysis) framework, initially designed by the International Relief/Development Project (IRDP), was been adopted in this paper to analyze the information from the field survey. The detailed description of CVA framework can be derived from Anderson and Woodrow (1998) *Rising from the Ashes, Development Strategies in Times of Disasters*. This framework divides threats, vulnerabilities, and capacities into three categories: physical and material, social and organizational, and skills and attitudes. It has long been adopted by the development practitioners to understand the causes of the vulnerabilities and to identify what can and should be done to reinforce (and/or supplement) local management of response. An economic category was added in this framework to evaluate the unexpected vulnerabilities that brought to the communities engaged in the cash crop plantations.

4. Findings

With the promotion from Nestle, a U.S.-based transnational corporation, coffee was introduced to Manjingmian village beginning in 1995, and expanded quickly to each household in the community. The table below reviewed the historical development of coffee plantation in the village.

Tab. 1 Coffee Plantation History in Manjingmian Village

Year	Events
1995	First year of coffee plantation
1998	First harvest, resulted in a rush to convert forest into coffee tree land
1999	A serious frost disaster in which a large quantity of coffee sprouts frozen to death
2002	The coffee price dropped to the lowest point, 39% of the price in 1998
2003	The coffee price rose again
2005	The second rush to convert forest into coffee plantations
2008	81% of forest land in this village had shifted into coffee tree plantation.

4.1 Changes of the Livelihoods in the Coffee Economy

The livelihoods of each household changed dramatically in the process of coffee plantation introduction and expansion. The most noticeable change is that the main cash income source shifted from traditional crops, such as paddy rice and tea, to coffee. By 2007 the income from coffee made up 60% of the total income in Manjingmian village and the income per capita of the village also increased quickly. The economic benefits from the coffee plantation enabled the villagers to reconstruct their houses and purchase vehicles for better transportation from the village to outside. The table below demonstrates in the net income per capita growth in Manjingmian village from 1998 to 2007.

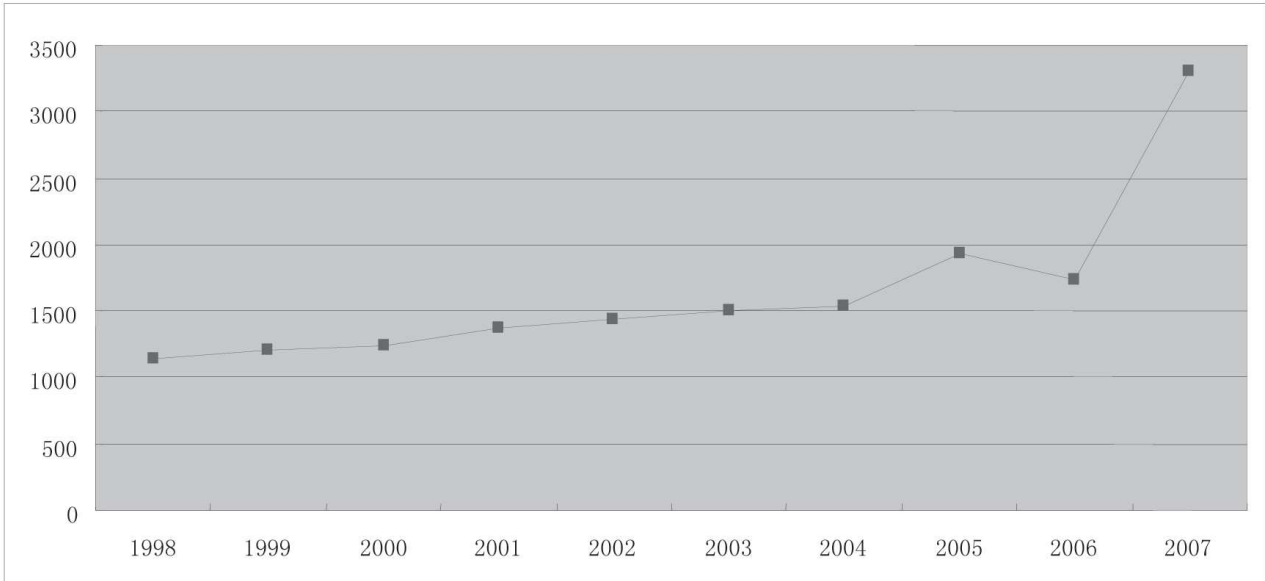


Fig.1 Net Income per Capita Growth in Manjingmian Village (Unit: Yuan-Chinese RMB)

4.2 Emerging Vulnerabilities in the Livelihoods

Although embracing the economic benefit from the coffee plantation, the villagers are confronted with the vulnerability of commercial farming, which challenges the sustainability of their livelihoods. Adopting from the CVA framework, the vulnerabilities in the coffee plantation in Manjingmian village and capacities of the villagers to face these vulnerabilities are examined in the matrix below.

Tab. 2 CVA Matrix for Coffee Plantation in Manjingmian Village

		Vulnerabilities	Capacities
Physical	Forest land	81% forest land has been shifted to coffee monoculture plantation, which will result in many negative environment impacts like soil erosion.	There is lack of awareness of the negative environment impacts among the villagers. The villagers are incapable of coping with these impacts individually.
	water	Drinking water has reduced since the stream from the forest decreased. The pollution of stream of the water is also exacerbated by the increasing use of fertilizer and pesticides.	A new drinking water source from the Natural Reserve Area is available for the villagers, but there is no coping strategy to combat water pollution in the community.
Material	Fertilizer and pesticides	The average cost of fertilizer and pesticides doubled in recent years, and the prices are keeping rising.	Villagers are incapable of affording the higher prices of fertilizer
	Fuel wood	The expansion of monoculture of coffee reduced the availability of fuel wood.	Substituted fuels, like coal, or more consumption of electricity are available for villagers, but with higher costs.
	NTFPs	NTFPs are less available in community forest land, absent in the coffee lands.	Villagers must spend more time to walk farther in the Natural Reserve Area to collect NTFPs.
Economic	Coffee bean price	Price fluctuation in the coffee trade market is dominated by the transnational cooperation purchase.	Villagers are incapable of adjusting to fluctuating prices in the market.
	livestock	Domestic livestock raising for meat consumption and labor use has declined.	Villagers pay more for meat through the market and use tractors for farming and transportation.
Organizational	Technology dependence	Coffee plantation techniques are mainly depended on the Nestle cooperation technique extension.	Villagers are unable to deprive coffee plantation related knowledge and technique from other sources.
	Conflict with government	The conflicts among the villagers and the Natural Reserve Area Administration are intensified.	There is lack of clear strategies to solve the conflicts among the villagers.

The most noticeable vulnerabilities for the villagers relate to the uncertainty of price change in world coffee prices. On one hand, the price of coffee is determined by the transnational corporations rather than the producer. The villagers are incapable of bargaining with the buyers because there are limited channels of coffee marketing available to them. The fluctuation of coffee price will decisively influence the annual income of the households. Meanwhile, the prices of fertilizer and pesticides have risen significantly year by year. The increasing cost will counteract the economic benefit from coffee plantation. The villagers are also unable to exert influence on the price change of the fertilizer and pesticides, although they are using more and more these products. With the little influence on coffee market prices, the strategy for the villagers is only to diversify their crops. Many villagers have already started planting rubber, banana, and other crops as a coping strategy.

The increasing production and living costs also make the current livelihood precarious. The vanishing traditional fuel sources, domestic livestock, and NTFPs from the forest have caused significant increase in the living costs of the villagers. In order to find alternatives, they have to either pay more or spend more time and effort to collect in more remote areas. The collection of fuel wood and NTFPs in the Natural Reserve Area has caused the conflicts between the villagers and protection administration, thus intensifying the tension between the community and local governments.

Although initially promising, the villagers have found themselves on the margin of the coffee trade. Their plantation techniques are relatively unsophisticated since traditional farming knowledge cannot be applied to this new crop and, since there appears to be no alternative market, they are entirely dependent on a single channel making them highly dependent transnational company.

It should be noted that the change in crop production has undermined the environmental bases for their former livelihood, but there is lack of awareness of the consequences community level. The household is apparently unable to mitigate and cope with these impacts.

The dangers that confront the farmers comes relates to the difference in time scale between the short term benefits of planting, harvesting and selling coffee during a period of high prices, and the longer term consequences of price fluctuations coupled with the environmental deterioration that has undercut the traditional subsistence lifestyle. By adopting the CVA framework, the vulnerability influencing the livelihoods of household involved in commercial farming could be observed with the examination of each aspect of the livelihood assets and the consideration of the time scaling issue. If the economic risk occurs in the short-term period, thus it is easier for farmers to recognize. The farmers are capable to of developing effective strategies to mitigate these negative impacts. However, the effects and permanence of environmental degradation takes longer to register in the farmer's living experience. Because the environmental changes are so radical and may not allow their traditional recourse to adversity, the impact could be very severe.

5. Conclusion

In recent decades, commercial farming has expanded quickly into many local communities in Mekong region. The practice of monoculture planting of eucalyptus, oil palm, rubber, coffee, and sugarcane has significantly changed the contexts that traditionally allowed sustainable livelihoods. Together with the increasing economic regional integration, the commercial farming of non-traditional crops tends to expose local farmers to unfamiliar and vulnerable conditions in Mekong region. Although increased income from cash crops may in the short term be considered advantage, it should be noted that the villagers are facing new threats that will result in changes to the environmental, social and economic context that supports them.

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