# CHAPTER VII

# CONCLUSION AND RECOMMENDATIONS

This thesis focuses on the dynamism of local ecological knowledge of the Muong people in Northern Vietnam. In the context of natural, social and economical change in an agrarian transformation process, Muong people's ecological knowledge changes to response to new conditions. The dynamism of local ecological knowledge is reflected in the way in which the local people express their adapted strategies to cope with the changes to favor their livelihoods. In pursuing the main objectives of this study, which are presented in chapter 1, this last chapter pays attention on four interrelated aspects. Firstly it points out the major findings. Secondly it raises some theoretical discussions. Thirdly it makes policy recommendations, which derived from the findings of the study and fourthly it shows some limitations and makes some suggestions for further study.

## 1. The Major Findings

This thesis generated the following crucial findings:

First the empirical evidences from the study indicate that under conditions of changing natural, socio-economic and political contexts, local knowledge as cultural dimension and product of practical experiences changes over period of time. The outside forces in association with the inside forces create demographic change, the changing local resource management and the changing local economy. These are the contexts in which local knowledge undergoes a process of change, in this context, modifying and adjusting to meet modern requirements. Among these forces, state

intervention plays the crucial role in affecting the changing local ecological knowledge. The state policies implemented to change property regime and resource tenure are the most important factors that affecting local resource management. Besides changing resource tenure, the penetration of scientific knowledge through the introduction of high yield varieties and the transference of modern technology directly affects local farming practices and local knowledge. Market intervention creates a context in which commodity production penetrates into subsistence agricultural production. The local economy becomes more open to changes under the influences of market relations. In order to meet market product demands the local people are required to change their knowledge. Increasing population also changes local ecological knowledge. Population increase puts the pressure on natural resources. In the context of population increases while natural resource decreases, people need to find the suitable way to cope with this situation. They have had to choose the adapted knowledge to apply in their farming practices to improve their livelihood.

Second, the study found out that in order to respond to the changing context the local communities adopt many adapted strategies. The adaptability of local knowledge lies on the ability of local peoples to choose suitable strategies to respond to change. This potential of local knowledge is expressed in various ways of adjusting and reacting to the natural and social changes of the local people. In Mai village strategies adapted vary from household to household.. There are three broad strategies that different households in Mai village choose between to apply their knowledge in land use, crop pattern and forest management. These are the commercial strategy, semi- commercial strategy, and subsistence strategy. Among these strategies, the semi-commercial strategy is the sustainable strategy because it is based on the self-reliance potentials of the local people rather than on outside factors. It brings both economical effectiveness and environmental conservation. The commercial strategy is risky because it depends too much on the outside factors. It also pays less attention to soil fertility enrichment as well as sustaining natural resources. The subsistence strategies are the adaptation often

chosen by poor people. It does not bring the high economical effectiveness but it brings high security and stable lives for the poor people. However it focuses on exploiting more natural resources in the same way that people have done in the past.

Third, the study found out that the household production strategies in Mai village are also dynamic. In commercial strategies, for example, the households have adopted the high yield varieties, cash crops and the modern cultivation methods but they are flexible in input use for these crops. This helps them reduce their financial investment and get a greater economic benefit. In the semi-commercial strategy, the households are also flexible in the way they balance the area of subsistence crops and cash crops. In some years they expand the area of cash crop if cash crop brings high benefits. In some other years, cash crop area is reduced. Their flexible ways of balancing cash crop and subsistence crops bring them both high economic effectiveness and high security. It is possible to say that the semi-commercial strategy is the sustainable strategy in the present conditions of the economic development process. In the subsistence strategy, although the households plant mainly subsistence crops some households also plant a small area of cash crop. They plant at the same time both local varieties and high yield varieties to ensure their food security. Thus they are flexible in prioritizing their subsistence demands and their cash demands. One thing it is necessary to point out here is that the households can change their adaptation strategies. In certain periods of time, they can choose among the three mentioned strategies to chose which strategy is suitable for them. A household that had chosen a commercial strategy can change to a semi-commercial strategy or subsistence strategy and vice versa. This is more evidence of the fluid and dynamism of local adaptation strategies and local knowledge as well.

Fourth, the study reveals that the dynamism of household production strategies always goes along with the complexity of knowledge systems, which are applied in the farming practices of the local people. It is possible to say that local people do not

exercise only one kind of knowledge. Households that choose commercial strategies for their agricultural production do not adopt scientific knowledge completely. They flexibly apply the introduced knowledge in order to get the highest effectiveness. The complexity of knowledge systems can be seen more clearly in the households that choose semi-commercial strategy. They tend to mingle scientific and local knowledge in their land use and crop patterns. The households that choose subsistence strategy, mainly apply local knowledge in their agricultural production. However they also modify some suitable elements of introduced knowledge to match to their conditions.

Some villagers responded differently to others toward the changes influenced. This proves that the local community is not homogenous. Community members are differentiated by both human and farm resources such as age, ability, perceptions and economic and social status as well. Each group responds to the changes in different ways. The different adaptation strategies of households toward the changing natural and social conditions reveal the dynamism in the diversity and complexity of local ecological knowledge.

**2. Theoretical Discussion**

In this section I aim to discuss some issues that relating to the dynamism of local ecological knowledge, which are relevant in this study.

First it is about the term "local knowledge". In this study the term "local knowledge" is used interchangeably with "indigenous knowledge" "traditional knowledge" and "farmer's knowledge". However there are several differences between these terms. The term "indigenous knowledge" is preferred by many scholars (Ellen 2001, Agrawal 1991, Chapeski 1996). In the broadest sense "indigenous knowledge" is used to pertain to the knowledge of primitive, native or aboriginal people. It denotes knowledge of peoples – usually small tribal peoples. The term "traditional knowledge"

implies the knowledge that is opposite to modern knowledge. Thus it does not match the purpose of this thesis. The term "farmer knowledge" (Chamber, 1989) is too specific and ignores the diversity of rural residents. In fact a rural community includes many different groups of people, some of them are farmers and some of them are not farmers but they share the common belief and also the common resources of the community. In this study the term "local knowledge" is used to indicate a system of knowledge developed in and appropriated to a particular locality or ecosystem. The local people can be new settlers as well as people who have stayed in the area for along time. In the particular situation of the Muong people of Mai village, as I have mentioned so far, the Muong people in Mai village moved there from other regions set up their village a hundred years ago. Thus the reason for using the term "local knowledge" in this thesis is that this term implies the situated knowledge of local people in a particular region. In that sense it does not matter if the local people are indigenous people or new settlers, farmers or non-farmers. It also de-authenticates the dichotomy between traditional and modern knowledge or indigenous and western knowledge.

Secondly it is important to note that local ecological knowledge is dynamic. The perspectives which see local knowledge as static and lack of will to change in fact ignore the holistic views of knowledge construction. Any kind of knowledge, whether scientific knowledge or local knowledge, is constructed by the dialectical relations between human beings and nature under specific conditions. Once the natural and social conditions change, knowledge is required to change. In other words, knowledge undergoes the changes according to change in the natural and social context. It is evident that local knowledge is not static but dynamic and changes over time.

Third the relationship between local knowledge and scientific knowledge is quite complex. I agree with the idea that local knowledge is scientific in some senses and that local knowledge is not the opposite of scientific knowledge. In many cases it is difficult to point out the differences between local knowledge and scientific knowledge.

In reality local knowledge tends into articulate or mixing with scientific knowledge. It is even more difficult to find out the pure local knowledge. Therefore there is a need to recognize the diversity in the relationships caused by the dynamism of knowledge systems. It is necessary to be aware of the interactions between the two systems of knowledge to apply whichever knowledge is appropriate or combine both of them in sustainable development.

Fourth, local knowledge has many roles in the development process. I agree to the idea of Nygren (1999) and Hobar (1996). Nygren critiques development theories which consider local knowledge as purely an obstacle or as a panacea for sustainable development as biased and essentialist. Local knowledge can not be blamed for underdevelopment and it can not be looked to as the explanation of and solutions to environmental problems. It is important to see local knowledge systems and scientific knowledge systems as complementary sources of wisdom. This understanding is the first step in designing appropriate solutions.

### 3. Policy Recommendations

For policy makers and development officers, top down policies based on knowledge developed by outsiders without the participation of local peoples and ignoring local contexts bring the failure for sure. The suggestion is that instead of looking only for technologies and solutions from outside the community, we first look at what is in the community. The understanding of local natural and social conditions plays a decisive role in the success of those development policies and programs. We need to be aware the importance of local knowledge in giving appropriate solutions. We need to recognize that scientific knowledge systems have the advantage of broadening the base of understanding and providing a much greater array of options to farmers. In order to be effective, the results of scientific knowledge systems must ultimately be

incorporated into the local knowledge systems. At the roots, the interrelated feedback between farmers and scientists is what farming systems research and development tries to accomplish. Local knowledge always changes and also always has limitations. It does not matter whether a practice is reality indigenous or already mixed up with introduced knowledge. We can use whichever knowledge is found to be effective. Or we combine the best of both.

The allocating of cultivation land and forest land to households at the present remains a problem because of the lack of land for new generations. Poor households in Mai village are mostly the families of young couples, which have a large population and not have enough land for cultivation. Moreover, the land allocation policy only pays attention to quantity of land but not quality of land. Therefore the government should has the alternative policy for these problems in order to bring the equality between households and individuals in village.

The appropriate resource management should be our goal in creating new, more effective knowledge systems that merge the positive aspects of local knowledge and scientific knowledge systems. We need to try achieve the holistic understandings that are characteristic of local knowledge systems. The strengths of observation of these indigenous knowledge systems, however, need to be combined with the experimental methods of scientists. We should try to identify the contextualized, holistic knowledge that can be adapted and applied to similar phenomena in other circumstances.

The policy of subsidizing seeds of high yield varieties at the same time brings both positive and negative impacts on local peoples. The positive impacts are high productivity and high economic benefit to fit the big population. However it creates the situation in which farmers are always depended on the state subsidizing seeds because the price of these seeds are still too high for the villagers. The most significant thing is that high yield seeds can not keep for next season. Farmers had to buy it new for every

cropping. High yield varieties also need high inputs of fertilizer, and pesticide. These chemicals have affected both the environment and health. The planting of high yield varieties and mono-cropping has also lead to the decrease of bio-diversity. Therefore the state and scientists should pay attention to improving local varieties to favor the economic advantages and maintain bio-diversity.

The introducing sugar cane to local community at the present gets success. However for long term development of this plants, the sugar- company must concern about national and global sugar markets. It suggests that it is necessary to have the contract between the company and the farmers in planting sugar cane to avoid the risk for both company and farmer to face the market demand. At the same time, the company must consider the roles of state policy. In the case state do not support to the company what do they do with the farmers and their products. Sugar cane also is also a plant needing high fertilizer and high input. The quality of soil will decrease very fast. Thus besides regarding to the economic benefits, the soil conservation also should be count with the concern.

In order to sought the sustainable development as the recent conduction of Vietnamese State it is necessary to have the suitable policies to reach economic development, social equality and environmental protection. There is a need to have a solution for the relationship between improving productivity and ecological and environmental conservation. It also needs to keep the balance between economy-society-culture and environment.

## 4. Limitations and Suggestions for Further Study

Due to time and resources constrains, this study has the following limitations:

First, to carry out this research many methods were used to collect data and information. However local knowledge and the rural community are complex and change over time. Therefore it was difficult to apply these methods properly to serve the purposes of the study in the real situations. It has also been difficult to gather complete information to fully understand the local knowledge within the limitations of time and resources.

Second, this research is carried out in Mai village, a Muong community that is located far from center of a city or township, therefore the intervention of market and development trends seems to be slower compared to other Muong villages. The intersection between rural and urban area was not great. Thus the rural differentiation and other negative impacts of modernization were not strong. Investigation and research for this study were conducted only in Mai village, the village selected. The findings of this research therefore have limitations in that they cannot be compared to that of other Muong villages, especially in respect to resource management forms, as for in some Muong villages they no longer have any forests left.

Third, Muong peoples have close relationships to Thai, Tay, Dao, Viet groups. The study would be more successful if the knowledge of Muong peoples was compared to other ethnic groups to see the similarities and differences between them. This also a way to explore the interrelated culture created in interactions between different ethnic groups. Unfortunately that problem is too big for a masters thesis, so in future research there is a need to study further the interrelated cultural dimensions of different ethnic groups. By that study will have very interesting results.