# CHAPTER V

# CHANGING CONTEXT OF LOCAL KNOWLEDGE IN MAI VILLAGE

Local context plays a decisive role in knowledge change. At any period of time local people and their knowledge always undergos the changes to adapt to changing social, political and economic conditions. This chapter presents the local context of the dynamism of Muong ecological knowledge. I focus on the influences of state, market and Green Revolution on the changing of demography, the form of local resource management and the local economy as three interrelated factors, which bear the dynamism of local knowledge.

## 1 The Demographic Change in Mai Village

Demography is a factor affecting on the change in local ecological knowledge. It is a fact that the higher the population pressure, the more food is needed to feed the large number of persons and the more land is needed for agriculture. It is often suggested that the higher the population density of an area is, the more degraded the natural resources of that area will be. In a context where population increases while natural resource decreases, people need to find suitable ways to cope with this situation. Local ecological knowledge accordingly, has been changed to meet modern requirements.

Demographic change in Mai village derives from both the natural population increase and migrational population increase. Demographic data in Mai village show that the total population in the period from village settlement to 1950 was small. There were 4 households and less than 20 persons at that time. Until 1960, there were 4

households with 25 people. By 1970, there were 7 households with a population of around 66 persons, more than 2.5 times larger than the population in 1960. During the 20 years from 1960 to 1980, the population increased very fast. In 1980, Mai's population was 107 persons grouped in 20 households, 5 times larger than the population at the time of village settlement. This was also the period when forest and land were most seriously degraded. Villagers reported that and their yearly harvests were very bad due to soil erosion. In this period, the forest was cleared and the forest area declined seriously. At the same time Vietnam was involved in an economic crisis. The life of people was very difficult. In the last ten years, the birth rate has tended to decrease as a result of the Family Planing policy. At the present, the total population in Mai village is 163 persons, 8 times more than the total population of the village at the time of village settlement (table 5-1)

**Table 5-1: Population Increase in Mai Village**

| Period | Number of Households | Population |
|---|---|---|
| 1950 | 4 | <20 |
| 1960 | 4 | 25 |
| 1970 | 7 | 66 |
| 1980 | 20 | 107 |
| 1990 | 25 | 122 |
| 2000 | 34 | 163 |

Field Survey, 2001

The distribution of population by age groups in Mai village (the year 2001) is shown in table 5-2

**Table 5-2: Mai Village: Distribution of Total Population by Age Groups**

| Age group | Number of Persons | | |
|---|---|---|---|
| | Male | Female | Total |
| Below 10 years | 9 | 12 | 21 |
| 11-20 years | 24 | 17 | 41 |
| 21-30 years | 21 | 20 | 41 |
| 31-40 years | 12 | 8 | 20 |
| 41-50 years | 6 | 6 | 12 |
| 51-60 years | 5 | 3 | 8 |
| over 60 years | 7 | 4 | 11 |
| Total | 86 | 77 | 163 |

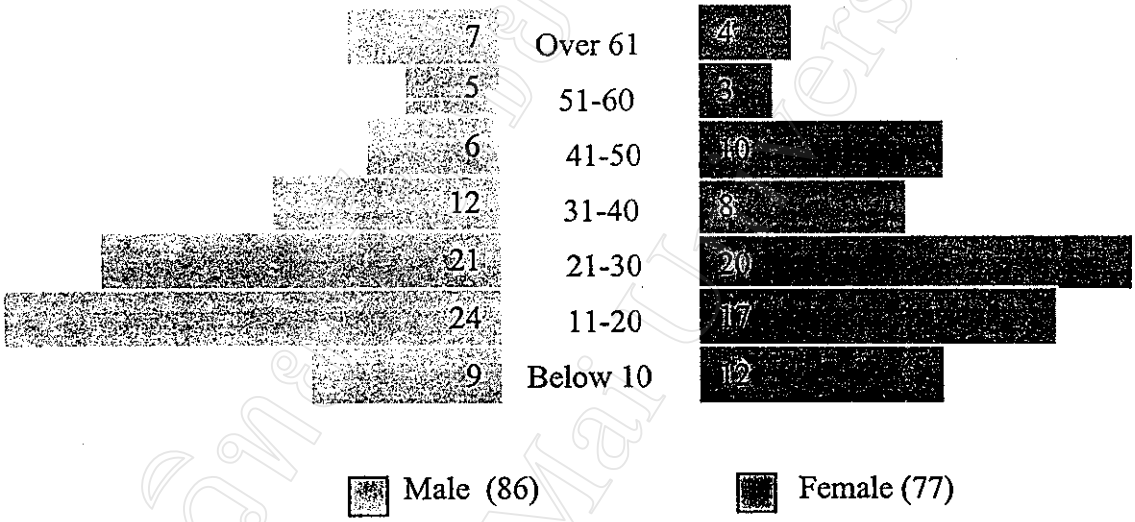
Field Survey October, 2001

From the data in table (5-2) it is clear that Mai village has a young population and a rich of labor force since 62 persons or 36.69% the total population is below 20 years old and the population of working people on the group, those ages from 21 to 60, is 81, accounting for 47.93% of the total population. In reality the number working people in Mai village could be much bigger than that in cities because many Muong children have stopped studying since they were 14 to 16 years old. In some families they contribute the main labor force[1]. The village elders, aged 61 or more, is the smallest group, comprising only 6.05% of the total population. It is also necessary to say that the disabled people, including the mentally ill, blind, and the others, accounted

[1] There is a primary school, which has classes going up to grade sixnear Mai village. Most children in Mai village almost finish their education in this school. Very few of them attend the secondary school in the Commune Center, which is 8 km far from Mai, or the High school in the District Center, which is 15 km far from Mai.

for 10 persons. Some families have 2 or 3 persons. This is a burden to the family and community. The population pyramid of Mai village is depicted in figure (5-1)

**Figure 5-1: Population Pyramid of Mai Village**




The special feature is that males outnumber females in each of the groups and in the total population as well. The only exception is the group below 10 years old. The village as a whole is composed of 86 males and 77 females. The ratio between males and females is 1 and 0.89. This is a difference between the Mai population and that of other villages in the northern mountainous region of Vietnam. Because during the wars, men had died in large numbers, the sex ratio in Vietnam is now 52 females to 48 males or 1.08 and 1.There is an average of 2.54 males and 2.26 females per household. Muong people would rather have boys more than girls. Since 1983 the government allows each family to have two children. In the case that they have two girls they will have one more child hoping it will be a boy. This might a reason for the increasing population.

Another feature that should be explored is the character of households in Mai village. In table 5-3 households in Mai village are divided into cohorts according to their size as measured by the number of persons in each household. There were 34 households and 163 persons in Mai village, with an average of 4.79 persons per household. We can see that the number of people in the 34 households varied between a minimum of 1 to maximum of 10 people. Households, which had 3 or 4 members, were the largest group, with19 households or 55.88% of the total households in Mai. Most of those families were nuclear families, which included the parents and two children. This is a successful result of the Family Planing Program, which the Vietnamese State has been running since the 1980s[2]. Households that had more that 7 members were few. These are traditional families, which have 3 or 4 generations living together, or are families in which the parents were old and therefore not affected by State Family Planing programs.

**Table 5-3: Mai Village: Distribution of Households by Size Groups**

| Size of H.H (Number of Persons) | Number of Households | Percentage of Total (%) |
|---|---|---|
| 1-2 | 1 | 2.94 |
| 3-4 | 19 | 55.88 |
| 5-6 | 8 | 23.53 |
| 7-8 | 5 | 14.71 |
| 9-10 | 1 | 2.94 |
| Total | 34 | 100 |

Field Survey October, 2001

[2] The state allows each family two children. Those who violate this rule are punished.

Among the 34 households of Mai, 4 types of households were identified as shown in table 5-4. It is evident from these figures that the large majority of households were a simple family type or nuclear family consisting of wife, husband and their children. There were 26 households or 76.47% of the total households were composed of such families. This is mainly because after a son gets married in the traditional Muong patriarchal society, he usually leaves his parents and establishes a separate household of his own.

**Table 5-4: Mai Village: Types of Households**

| Type of household | Number of Household | Percentage (%) |
|---|---|---|
| *Nuclear family* | 26 | 76.47 |
| *Nuclear family + Kin* | 3 | 8.82 |
| *Denuded nuclear family* | 2 | 5.89 |
| *Denude nuclear family + Kin* | 3 | 8.82 |
| Total | 34 | 100 |

Field Survey October, 2001

**Definition for the table:**

*Nuclear family*: a married couple with their children (unmarried and married without child)

*Nuclear family + kin*: The nuclear family plus one or more close relatives: e.g: grandchildren, parents of either the husband or wife, a sibling of the husband or wife or a child of a sibling of the husband or wife.

*Denuded nuclear family*: The nuclear family from which one parent is absent

*Denuded nuclear family + kin*: the denuded nuclear family plus one or more close relatives.

The second cause of demographic change in Mai village is migrational population increase. Because of new settlement residents who were moved in due to the influence of Hoa Binh hydroelectric dam construction the population has put more pressure on natural resources in the Hien Luong commune in general and Mai village in particular. Since 1987, 60 households and more than 200 persons have moved into an area close to Mai village as part of state resettlement programs. These households set up a new village, named Luong Phong. The population of Luong Phong village is bigger than that of Mai village. So while the land per capita in Mai village has decreased due to natural growth, Mai villagers have also had to share their limited land and forest areas with newly migrated Luong Phong villagers so it is clear that dam construction has put more pressure on land and forest in Mai village as well as other villages in the Hien Luong commune.

## 2. Changing Local Resource Management under State Intervention

Since 1954, the Northern mountainous region has been a special priority of the government, based on the ideology that mountainous areas, the places where the homes of ethnic minority groups are less developed than the lowlands. The government desires to develop this region so it can catch up to the lowlands. To reach these goals, the Vietnamese government carries out policies of inclusion of ethnic minority groups and provides many of development programs to them. Through these programs the state intervenes more and more in local life. This state intervention is considered a major factor causing change in all aspects of local people's life. In this section I only analyze the factors relevant to the changes in local ecological knowledge.

*Change in Resources Tenure*

Resources tenure is the most important issue in resources management. Resource tenure relates closely to the way in which people apply knowledge to manage

their resources. Resources tenure is always is in the center of struggles between different management perspectives. The different ways of perceiving property create the complexity and diversity of property. Moreover, property is the result of social relations. These social relations are very complex, as can be seen in the different levels of the relationship among the people in society and not only that but they always change over the time, thus property is not only complex but also dynamic. The complexity and dynamism of property relations creates the complexity and dynamism in resources management forms. Therefore changes in property relations and resource tenure connect closely to the changes in local ecological knowledge.

In Vietnam, along with the nation building process has came the state's claim of ownership over resources. None of the local forms of property relations in different regions are officially sanctioned by the state. The law verifies the rights of the state to control over resources. Because it keeps all natural resources in its hand, the state is able to keep control over people. Thus property is used as an apparatus of state power. The state creates a homogenous system rather than allowing diversity and complexity in property regimes. The intervention of the state in the local community is expressed clearly through property relations for all types of resources.

Land is an important issue in the promotion of the social and economic development of the country as the whole, and of the upland areas in particular. Therefore, the Vietnamese Communist Party and the government pay special attention to this issue. After the Indochina war in 1954, the Vietnamese government carried out land reform policies in order to verify the land ownership of the state. Officially no local forms of land property relations were officially sanctioned by the state. During the collective period, the land was managed by co-operatives and state enterprises. In the decollective period, the state formally owned the land, and individuals and households signed contract to use and manage certain areas of land by themselves. In this period, forms of land use and management were paid special attention. Since 1988, the

Government and National Assembly have produced more than 70 official papers related to land policy (Cuc 2001). Land policies have been elaborated in land laws issued in 1988 and 1993. The land law legally confirms that the land is State property. The government allocates plots of land to households in order to support long - term land use. This land policy provides a legal basis to guarantee that state owns land and every one has the right to use that land.

Forest is also a important issue in land laws and plays an important role in the upland development process. The state also claims ownership of forest the same as it claims ownership of land. In the collective period, the forestry economy was mostly based on state forest enterprises and timber exploitation. In the presently, legal regulations on forestry tend to be more oriented to communities. Forestry economics has changed from forest exploitation and timber trade, to forest protection and plantation. Also the community has been recognized as the owner in forest and forest land management.

The changing in resources tenure affects directly to local resource management. The Muong peoples for a long time have their own perceptions of property and resources as discussed in chapter IV. They use their own custom and knowledge to manage resources. Their customary law related to land and forest based on their belief in spirits. This belief contains moral basis and principles, which play the role as social control in adjusting their behavior. In land use, they based on the labor in clear land to verify the land use right and the land ownership. In forest management, forest is considered as common property, which is characterized by exclusive rights and duties of property. This perspective embeds in and reflects durable relationships among members in their community. This exclusive rights and duties of property are shown in management common property that was used to demonstrate the relationship between peoples in community. The exclusive right and duties also emphasize on communal benefit more than the individual one. Thus it reveals the community solidarity and

consensus. The perceptions of Muong people on resources and resource tenure related closely to their livelihood. The ways they use and manage their resources is for their subsistence demand and sustain their livelihood more than other purposes. All members of their community from generation to generation respect these customary laws and informal rules.

When the local property regime is replaced by state land and forest policies, the land use and management system will change. In fact, state policy did not completely replace local custom. Local people did not passive follow state policies. The Muong people in Mai village still remain a part of their own property relation. Although the state verifies ownership to land and forest, land and forest become state's property and are managed by cooperation and state enterprises in fact, state enterprises and cooperative only keep the control in large plots of land. Villagers report that they still clear some small plots of land near forest and apply their customary law in manage these plots. In the mind of Muong people in Mai village, forest is belonged to them, therefore even state claim ownership to forest and forbid cutting trees and exploit forest, villagers responses to this by illegal cutting forest and gathering forest products.

The another way to cope with the constraints of changing resource tenure is reflected through the attitude of villagers toward cooperative, the institution that was responsibility to manage land and forest. Some farmers do not want to joint cooperation. Those farmers want to keep their traditional small farming economy by refusing contribute their land, buffalo, and tools. Due to various reasons such as the poor management ability and the inapprociate technology to local condition, working in cooperation did not meet the subsistence demand of its members. This leads to the fact that the Muong farmers had to do their own strategy to survive. The common attitude of villagers toward cooperative is that they work in cooperation just as their formal matter. Because each household still can keep a small area of land as their home garden according to state policy at that time, Mai villagers invest more labor and capital on that

land while neglect working hard in cooperation. They clear more forest to their swidden fields, do illegal cutting forest for selling, do hunting or gathering food in forest to meet their demand. In the process of finding the way to survive, they had to use their own custom and knowledge, which are not recognized by the state to cope with the new condition. They also combine their knowledge and new technology in order to get high effective.

Thus, although the resource tenure is changed due to the state intervention, it exists at the same time state and local forms of property relation and resources management. On one hand Muong people follow the law and policies of state. One other hand, they practice their own customary laws to support the demand of their livelihood. The response to changing resource tenure reflects the adaptability and adjustment of local people. Local ecological knowledge thus accordingly is in the process of change.

*The Penetration of Scientific Knowledge*

Besides using laws as an apparatus to express its power over resources, the state uses these laws to imposes its ideology and knowledge systems on the local community by favoring methods and views which fit it's own.. Scientific knowledge is effectively used as a tool of the state in resources management and in the many other areas such as infrastructure construction, agricultural development, technological introduction. The penetration of scientific knowledge into the local community is the major factor creating the changing local resource management and dynamism of local ecological knowledge.

The perspective that sees the environment as an outside force or field to be attacked, conquered and domesticated is associated with modern scientific knowledge and the technology transference. Scientific knowledge is used to manage resources and

to dominate nature. Forest, for instance, is a resource that States frequently use science, in the form of "scientific forestry" to manage. Scientific forestry was begun by German forest scientists. This idea was transferred to Asian countries by the footprints of colonialism. In Indonesia the 1865 forestry laws, which declared all unclaimed forest lands as the domain of the state, are credited with being the first forestry laws for Java. These laws have laid the basis for all "scientific forestry" as it is practiced today (Peluso 1992).

Scientific forestry is related closely to the state claims of property rights to forest, because it is claims that the state can better manage forests by using scientific knowledge. The problem is that the state sees the forest only for trees and timber. Therefore if the trees are cut in rotations, trees ideally can grow well and the forest is conserved. In fact, in forests there are not only trees and timbers but also a lot of other non-timber products, which are the subsistence food of local peoples, who live next to forests all their lives. The forest also brings symbolic meaning to the local people. Thus for the same forests, simultaneously with the state managing using scientific forestry focussed mostly on the timber components, local people still practice their traditional forms of forest management. The simultaneous use of state and local forms of forest management creates a context in which two types of knowledge, scientific knowledge and local knowledge coexist.

Since the introduction of scientific forestry during the colonial period, foresters have often been particularly concerned with preventing swidden agriculture, and have not given much consideration to the fact that different kinds of swidden agriculture have different effects. They have not even considered the possibility that swidden agriculture practiced in the right way could be a beneficial method for people to co-exist with nature. The reason is that foresters believe dogmatically that swidden agriculture is harmful for forests and forest is well managed by scientific forestry. Almost of

Southeast Asian governments effectively forbid swidden agriculture by allotting most land under swidden agriculture to state forests.

Similar to the perspectives of the governments of other Southeast Asia countries, the Vietnamese government considers swidden agriculture as the main cause of deforestation and natural resource erosion. In Vietnamese language, the word for dry rice farming/ swiddening is normally preceded by the words 'clearing', but literally it means 'destroying the forest'. This term is also used to denote the process of deforestation. Thus, shifting cultivation is etymologically and analytically linked to deforestation. In fact, according to scholars and researchers, the causes of deforestation seem to be very complicated, not just linked to one particular land use method.

To conserve the natural resources as well as to create the stable living conditions for the minority groups, the Vietnamese government has established a sedentarization policy. In Vietnam, the sedentarization program is called *Dinh canh dinh cu* (fixed cultivation and fixed settlement). This program has been supported by a number of state policies since 1968. More recently, it has become a priority in the Vietnamese government's initiatives for socioeconomic development in highland areas. The sedentarization program strongly affects changes in local ecological knowledge. Since shifting cultivation is forbidden, there is no chance for local people to use their knowledge systems because they are connected with methods of making swidden fields by clearing forests, the ways of preventing soil erosion in hill slope cultivation, and ways of mixing different crops.

Muong people in Mai village practice both rotational cultivation and permanent agriculture. Because of their rotational cultivation they also are influenced by the government's sedentarization program. In fact, the response of the Muong people as well as other ethnic groups toward sedentarization program is a sensitive issue. It took 30 years for the Muong people in Mai village stop practicing swidden agriculture.

Sedentarization was launched since 1968, but it took until the 1990s for the Muong people in Mai village to stop practicing this kind of cultivation. The reasons for them to stop practicing swidden agriculture were various. It has been reported that the soil erosion and forest degradation as a result of population increase was the main reason why swidden cultivation was no longer sustained. Villagers also say that they stopped practicing swidden cultivation because it brought low economic benefits in comparison to permanent agriculture. Planting maize, bean, sugar cane, fruit trees and other plants brings higher benefits than doing shifting cultivation. Moreover villagers reveal that they are afraid of violating state law and policies. Thus in the conditions of high population density while soil and forest are degraded, Mai villagers changed their cultivation methods to sustain production to meet their changing needs. It is clear that the villagers themselves have had to adjust their actions to adapt to the change in natural and social conditions.

Like forests, land, water and other resources are also under the control of state and scientific knowledge is used to manage these resources, for example the construction of dams and large-scale irrigation systems can be found all over the world. The Muong people in Mai village and other peoples in Da Bac district, Hoa Binh province had to suffer directly or indirectly the impact of Hoa Binh dam construction. Due to dam construction, 58,000 peoples had to move their houses to other places (Hirsch 1997). The dam forced them change their livelihood strategies. Their knowledge, which was for generations tied to their landscape and territory is now in danger of being lost., Hypothetically there is at the same time increased potential for combining their knowledge with the other types of knowledge. However in reality when local people had to learn the new knowledge to cope with the new conditions it was a painful process.

Mai village has not directly suffered the impacts of dam construction but they have had to share their limited resources with other peoples. There are the conflicts between

Mai village and a new settlement village - Luong Phong village. Villagers shoot the animals of outsiders when they enter their fields. The reaction of villagers to the dam construction has been expressed through their discontent and their complaints about to what they have had to suffer. Mai villagers blame dam construction for the warming the climate so that apricot trees could not bear fruit.[3] They lost the benefits they previously had from these trees. Incidentally the loss of apricot production explains why villagers have welcomed fruit tree variety replacement program. They have also asked party cadres for more compensation by showing their poverty to state cadres. Villagers well remember what they had to suffer in 1990s. They say that they are really starved. This is painful period in their life. The only way out of their condition is to exploit the forest. They do both illegal cutting of trees for sale and collection of whatever can be eaten in the forest to survive. Forest in Hoa Binh watershed has been put under high pressure and rapidly degraded in this period. Thus the stances of Mai villagers has transformed from peaceful to more violating toward the dam construction.

The penetration of scientific knowledge is also expressed in agricultural development though the Green Revolution. The modern technology and new varieties require a completely different system of masteries, hence different apprehensions of environmental relations. The adoption of modern agricultural technology has led to a wide use of new methods of cultivation. The transferal of modern agricultural technology is a transmission of scientific knowledge. This causes increased dependence on tools, machinery and other industrial inputs. Moreover technology transfer replaces former sustained mutual interactions between people and the environment. In terms of economic benefit, adoption of new technology is expensive to local farmers.

In order to improve the agricultural production, in association with technology

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[3] This apricot tree is a local variety. It grows well only under cool weather and its fruit is preferred by lowland peoples.

transfer, the state introduces new crops to farmers. The local crops step by step are replaced by high yield varieties (HYVs). As the result, local knowledge connected to the local crops is lost. New varieties require new cultivation methods and new technology. Local peoples are required to learn and adopt new knowledge systems This is actually the case in Mai village. The villagers welcome HYV rice and maize. They say that HYVs brings high productivity although they recognize that HYV grains are lower quality than local varieties. They also say that they no longer need to do seed selection and storage because the state subsidizes them to buy new seed year after year. Lastly they say that they have no choice when their demand for food is increasing due to population growth.

The influence of state and scientific knowledge on the changing local knowledge is also expressed in the infrastructure construction such as building school, health care station, road, and electricity. In Mai village a primary school (from 1$^{st}$ to 6$^{th}$ grade) is built in 1980s. Schoolchildren from Mai village are educated there. The teachers of this school are from other districts in Hoa Binh province. Most of them are Kinh people (the major ethnic group in Vietnam). They can speak very little Muong language. Muong language is not taught at the school. The secondary school is located at the commune center, 7 km far from Mai. The high school is in Tu Ly - the district center- 15 km from Mai village. Except the very old people (over 70 years olds) and some women who are illiterate, all villagers get from 3 to 6 years of education. All of villagers can speak Vietnamese fluently as well as their native Muong language. Those peoples who attend more than 6 years education or training programs are very few (Field survey, 2001).

A health care station is also located in the commune center but real medicine and heath care services provided by the station are very poor. The main activities of the health care station are providing basic medicines for the most common and widespread of ills and participating in anti-malaria campaigns organized by health care organizations. There is a district hospital with 10 beds to which Mai villagers can access

but it is in a district center, 15 km from Mai village. The conditions there are much better than in the commune center but still very poor compared to district hospitals in the lowland regions. The local people seem to not be interested in being treated in the healthcare station and hospital. Normally their ills are treated using local medicines issued by shamans or midwives.

Electricity and piped mountain water only came to the village in 1997 even though Mai village lies close to Hoa Binh dam, which has provided two thirds of the electricity for Vietnam since 1985. Now all the households in Mai village have access to these facilities. Having electricity allows the villagers to use electrical appliances. There are 18 television sets, mostly color televisions, in the village. Radios are common and found in every household. .

An automobile road from Tu Ly to Mai village was first built in 1998 but it fell into very bad condition. It took until this year, 2002, to rebuild the road using concrete. This road rebuilding encouraged traders come to Mai village to buy agricultural products. Commerce therefore is more developed. Good road also encourages Mai villagers buy more motorbikes for transportation. There are 11 motorbikes in the village. Some households have two. The families with motorbikes and color televisions are considered as the rich of the village.

### 3. Changing Local Economy under Market Intervention

Since 1986, Vietnam has carried out an economic reform policy in which economic mechanisms have shifted from centralized-planing to market based. The shift from agricultural production to fulfil subsistence needs to commodity production is a radical form of agrarian transformation. The intervention of the market, both national and global, brings the potential to radically transform local economy. In order to meet market demand local people are required change their traditional knowledge.

Traditionally the economy of Mai village is a highly self-sufficient. The agricultural production is for the subsistence demand rather than for cash. The diversity of crop pattern and local species with high adaptability provided the stable life for villagers. In recent years, Mai villagers have been more and more involved in market mechanisms. The introduction of sugar cane as a cash crop is an example.

In 1997, a sugar company was built in Hoa Binh province. This company introduced sugar cane, new technology and new planting methods to farmers in Hoa Binh. The Hoa Binh sugar company is a state company. It receives the direct support of the state and belongs to the Hoa Binh Department of Agriculture and Rural Development. Since 1996, one year before the company was built, Mai village started planting sugar cane as a raw material for Hoa Binh Sugar Company. The co-operative representing farmers signed a contract with the Sugar Company in which the Company provided fertilizer, sugar cane shoots, and technology for planting sugar as a loan at the beginning of cropping. Farmers paid the loan back as sugar cane products at the beginning of harvest.

For the harvest of 1997, the area of sugar cane in Hien Luong was small and there was no automobile road therefore the Company did not go there to collect sugar cane. For the harvest of 1998 the price of sugar on the market was low, and the company again did not collect sugar cane. Thus for the first 2 years Muong farmers in Mai village had to sell their sugar cane by themselves. They had to carry sugar cane on their shoulders to Tu Ly, 15 km far from their homes, to sell it for a very low price. Some impatient farmers cut down their sugar cane and replaced it with other crops. By the 1999 harvest, the automobile road was built, the company came to their village to collect sugar cane frequently, the price of sugar cane was increased and some families become rich through selling sugar cane. Since 2000 the area of sugar cane was increased but the farmers in Mai village still worried about how to get a stable output for their products.

In fact that before 1999 many Vietnamese sugar companies in other provinces especially in the Southern Vietnam went broke because they got no profit due to the low price of sugar on both the national and global markets. The people who had to suffer as a consequence were the farmers.. They had to cut down sugar cane and treplace it with other plants because waiting made their life too difficult. Since 1999, the Vietnamese state has closed it's internal sugar market. Sugar is no longer imported. Vietnam desired to produce 1 million tons of sugar by the year of 2000[4]. Under the affects of these policies, the price of sugar cane has step by step increased. Sugar companies have started to make a profit but these policies, instead of leading to an increase in production compared to demand, have lead to the opposite situation where there is a lack of material for production compared to the demand. . Vietnamese sugar companies compete with each other in buying sugar cane. By January 2002, many sugar companies claimed that they got no profit from sugar because the price of sugar cane was too high. But they still had to run the company to repay loan to the bank and to provide jobs for their workers. If this situation keeps on going for a long time, another crisis will happen in sugar cane production[5]. The price of sugar is higher than the world price of sugar. Sugar Companies can only have profits if the state keeps the price of sugar at high levels like now. But at the same time the very low price of sugar on the world market makes the illegal import of sugar into Vietnam an increasingly attractive possibility and this could bring the internal price of sugar down. So even though international sugar is officially excluded from local markets local people are still influenced by global markets. In the future, due to differences between local and international prices, the Vietnamese government may be forced to remove sugar trade barriers. This will directly involve local farmers in the international commodity production process and will most

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[4] The Vietnamese government allowed the Ministry of Agriculture and Rural Development to start plan to produce 1 million tons of sugar by the year of 2000.

[5] The latest news about sugar can price that I was able to obtain was that in April 2002, the price of sugar cane reached 350,000VND to 400,000VND/ton (two times more expensive than the price in the last year) (nhandan.org.com, April 19, 2002).

surely lead to a huge fall in both sugar cane and processed sugar prices in Vietnam. As reported by the Hoa Binh sugar company, presently more area for sugar cane production is needed. In each season only 40% of the company's total need for raw sugar cane is fulfilled. (Thuan 2001). Competition between state sugar companies and private sugar companies lead to farmers selling a part of their sugar cane in contracts to state companies and the rest they sell to private companies. This makes the lack of raw material more serious. Because of these two factors the sugar company has to depend on state support.

New varieties of fruit trees have also been introduced to local farmers and similar to sugar cane, the output of these fruits is also effected by market mechanisms. In some years local peoples can not sell their products because the price is too low and their products have not been sold because they did not meet the current market trends. The introduction of new fruit varieties has lead to the loss of many local varieties. Accordingly knowledge about thesespecies has also been lost.

The demands of the market are always changing. In recent years, it has tended to turn back to what is called "traditionality". Ecotourism, local handicrafts, local plants and local animals are preferred to modern ones. In Mai village, local pig and sticky rice are special products, which have a large market. Villagers used to raise high yield pig for a long time but now they have turned back to raising their local pigs because their sale can get more economic benefit. Local pig is easy to raise using foods available in their village, and they can sell them easily. Sticky rice has also been paid special attention by the villagers since they can sell it at a high price and it is easy grown in their fields. Thus local people get benefits from their own knowledge and customs and they develop their traditional knowledge even if it is for market demand.

The impacts of the market on the local community are complex. It is possible to say that the overall trend has been that the market creates the negative impacts on the

local people. Commercialization and marketization always contain the risky situations in which local people have had to suffer the unstable conditions. Moreover under the influences of market demands, local knowledge has been treated as a commodity. However in special cases, market demands have contributed to encouraging local people improve their knowledge. Market demands are not only complex but also change over the time. This has created a context for local adaptability and adjustment in which local knowledge accordingly expresses its dynamism.

Presently Mai totally is a farming village in which all households practice cultivation and husbandry. Farming is the main economic activity and the main source of livelihood for Mai villagers. The economic profile shows that the income of villagers comes mainly from dry fields and forests. Paddy fields produce just enough for 2 or 3 months consumption. In the remaining months, villagers have to barter maize to get rice. The current barter rate is 2 kg of maize for 1 kg of rice. In recent years, sugar cane has brought large amounts of cash to villagers. Each household has produced an average of 15-20 tons of sugar cane. The price of sugar cane is at present 280,000 VND/ton (US$ 18.6). Therefore each year a household receives about 4-5 million VND (US$ 300) from sugar cane. This is a large income even if it is compared to lowland farmers. Forestry production is also paid attention by villagers. They participate in plantation programs and projects. Income from selling NTFPs such as bamboo shoots, mushrooms and other wild leaves is also significant. Besides that, villagers also extract bamboo from their home forests to sell to paper companies. However, presently there is no market for this kind of product.

Animal husbandry also plays an important role in contributing to the income of the villagers. Most households raise buffalo to provide rough labor and as a form of saving. On average, each household has 2-3 buffaloes. Some rich households have 5-7 buffaloes. Poor households have no buffaloes. Every household raises both modern and local breeds of pig. It is common for each household in the village to raise some

poultry. These animals are fed using food available from local gardens, fields and forests.

In the village there are two small shops which sell salt, oil, candy, and other necessities of life. Most villagers say that they spend most of their income on food and daily expenditure. Education fees are also a big expenditure for households that have schoolchildren even though the government subsidizes primary school tuition fees. Besides that, on the occasion of births, weddings, funerals, or building new houses for neighbors or relatives, villagers spend a lot of money to help with these events or buy gifts.

In the past, Mai villagers have exchanged in stages of production which required a large concentrated labor and other works which required a large labor force Labor exchange happened both among relatives and among neighbors. Labor exchange was well organized. Although the economic activities mostly happened at the household level the control of the landlord and the community played an important role as well. During the cooperative period, labor was managed by the cooperative. The bureaucratic, centralized regime did not encourage high production by farmers, productivity to labor ratios were low and as a result, economic profits were low. The same centralized regime lead to corruption of the co-operatives. At present, villagers mostly use their household labors then during harvest times instead of conducting labor exchanges, wage labor is hired. Exchange of labor is still kept in special events of families such as house building, weddings and funerals.

**4. Summary**

In this chapter I have presented the changing context of local knowledge in Mai village. I have analyzed the change in demography, local resource management and local economy under the influence of state intervention, market intervention and Green Revolution. It is clear that the state is as the most powerful force for change and plays a decisive role in the changing local resource management and local knowledge. The intervention of the market and Green Revolution has also affected the strategies that local people have chosen to cope with new conditions. It is possible to say that in each situation which arises in the community, the outside forces and inside forces together create a situation in which local knowledge undergoes a process of change, modifies and adjusts to new natural and social contexts.