

## CHAPTER 3

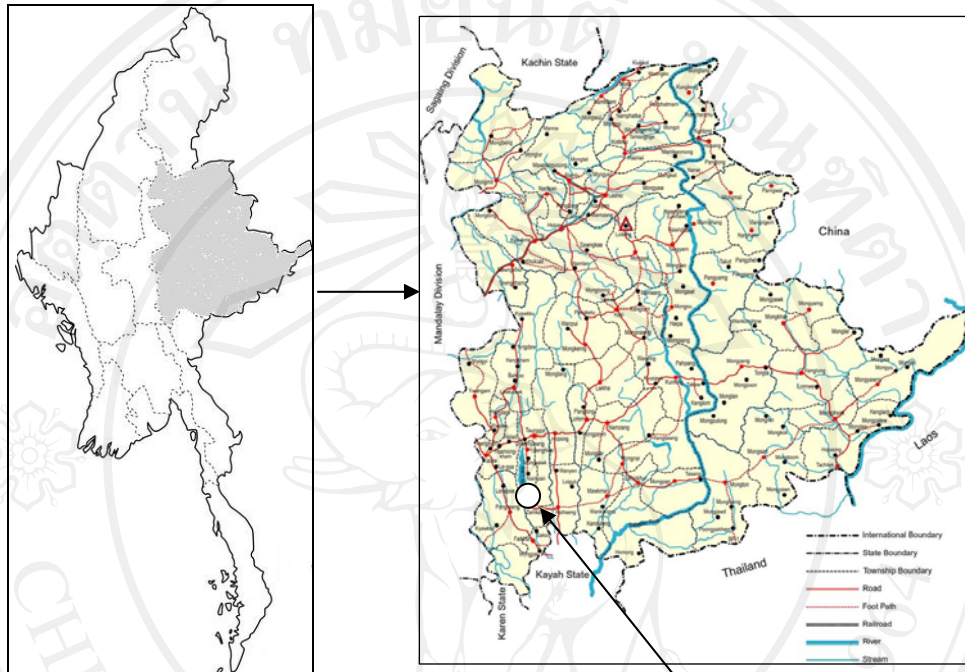
### **THE PA-O COMMUNITY: ADAPTIVE HOUSEHOLD STRATEGIES IN THE DEGRADED FOREST**

In the upland community of Tingyikyat, a Pa-O village, the land and forest are essential assets for the people and play a critical role not only in their local livelihoods but also in the local economy, culture and environment. The villagers' livelihoods are crucially derived from their daily income, which depends largely on land and forest access, so, in addition to being influenced by cultural and political features and these two assets, local livelihoods are also influenced by environmental changes such as forest and land degradation. Since they have had easier access to the market by means of the upgraded road, plus received the benefits that have come with the state community forest project, the household incomes and livelihoods in Tingyikyat villagers have improved and changed. It is important to understand the changes in household economic status and livelihood strategies that have taken place because of changes in the agro-ecosystem in the community. This chapter will analyze the ecological and historical contexts of the Pa-O community, the differentiations in household economic and livelihood strategies, along with the changes that have taken place in the upland agro-ecosystem of degraded pine forest.

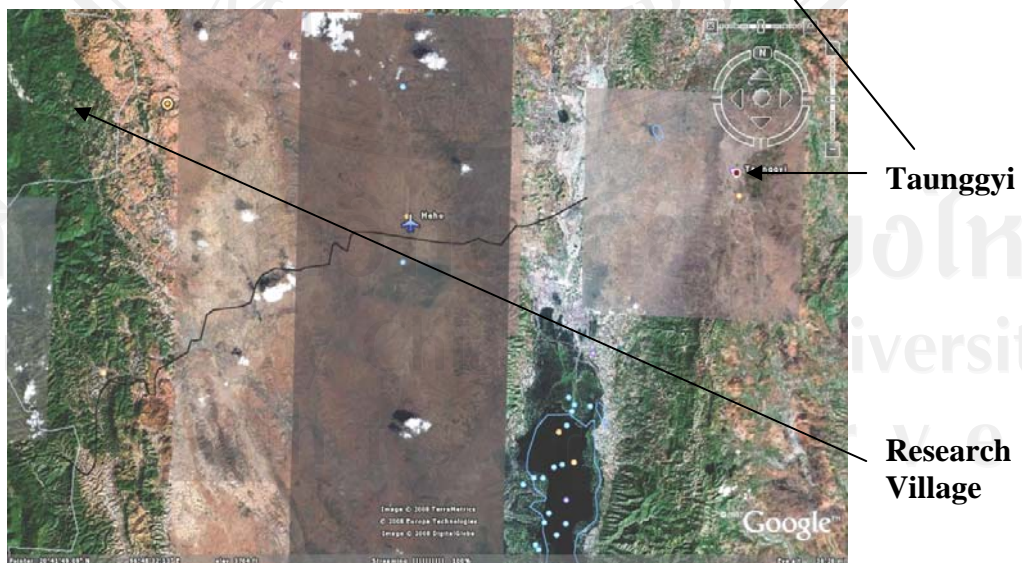
#### **3.1 Upland Agro-Ecosystem in a Degraded Pine Forest**

Myanmar as a whole is a mountainous country, and is surrounded by mountain ranges on all sides except to the south, which leads into the Andaman Sea. Myanmar can be divided into four distinct physical areas: (1) the western mountain ranges, (2) the Shan or eastern highlands and their continuation to the south, (3) the central basin, commonly known as the Ayeyarwaddy basin, and (4) the Rakhine coastal strip. The Tropic of Cancer passes through the northern part of the country, so the northern part – which covers about one quarter of the country, is in the temperate zone and remaining three-quarters of the country is in the tropics, meaning that are different

ecosystems in different parts of the country. Based on the different ecosystems, Myanmar can be divided into four regions: the delta, coastal, central dry zone and mountainous regions.



**Figure 3.1: Maps of Myanmar and Shan State**



**Figure 3.2: Research Site**

Kalaw Township, in which the research village is located, is in the mountainous area of southern Shan State. The general configuration of the village area is undulating, but without steep mountains. The highest average temperature is 34.98 centigrade in May and the lowest is 13.3 centigrade in January; the average annual rainfall is 40 inches. Like many other places in Myanmar, the area generally has three distinct seasons: hot, wet and cold. The hot season usually runs from March to May, and the wet season from the end of May to the end of October, with the southwest monsoon providing the major source of rain for growing traditional upland dry rice. The cold season runs from November to February, and mists are a regular feature during this time, often persisting until nearly noon.

Generally the land in this region is reddish-brown hilly soil with underlying limestone, locally termed as *Taung Myint Myay Ni Taw Myay*. Silt and sandy soils are common in the lower parts of the valleys, while reddish clays are present on the upper slopes. Land can be classified into four: agricultural land, natural pine forest land, residential and unused land. Most of the unused land is abandoned land with exposed rocks. Agricultural land is comprised of both permanent and shifting cultivation land, the latter being situated on degraded forest land. Most of the gentle mountain slopes in this region are already used for cultivation and some areas have been turned into fallow land.

The research village, Tingyikyat, is an upland Pa-O community in southern Shan State, in the eastern highland area of Myanmar. It is a small village located in Kalaw Township, within Taungyi District. The village is about 4.5 miles north of the Kalaw-Tuanggyi road, and 33 miles from Taunggyi itself, the capital of Shan State. The nearest towns are Aungban and Kalaw, each eight miles away from the village. The topography of the region consists of steep slopes and narrow valleys, and being located in the mountainous area of the Shan Plateau, flat areas are limited. The average mean height above sea level is 1220 meters, or 4000 feet.

Tingyikyat community is one of eight villages in the Peyintaung village

group. There are three main upland ethnic groups living in this cluster: the Pa-O, Danu and Taungyoe. Tingyikyat itself consists only of Pa-O people, and it has a population of 279 people and 57 households.

Out of the different agro-ecosystem categories in Myanmar, this village comes under the unfavorable upland rice agro-ecosystem category. These upland cultivated areas contribute three per cent of the total sown area of the country. (Table 3.1)

**Table 3.3: Rice Area Distribution under Different Agro-ecosystems in Myanmar**

Agro-ecosystem	% of Total Sown Area
-Favorable Rice Eco-system	<u>68</u>
- Irrigated lowlands	20
- Rain-fed lowlands	48
-Unfavorable Rice Eco-system	<u>32</u>
-Deepwater	5
-Submergence	9
-Salt affected	3
- Upland	3
- Drought-prone	12
Total Rice Sown Area	8.1 million ha

*Source:* Department of Agricultural Research, Yangon

The land to the west and south of the village consists mostly of gentle slopes, and all the areas to the east are abandoned land with exposed rocks, land previously used for shifting cultivation by the villagers but where cultivation proved impossible since the area is covered with rocks and has scattered patches of thin-layered soil mixed with gravel and is covered in bushes. Such degraded land was originally natural pine forest. The villagers



keep fallow land for the re-growth of vegetation and later cultivation. More recently, owing to the increased population, the land available for cultivation has become limited. With the shorter fallow period and lower yields from their farms, more of the villagers have cut down pine trees to make cultivatable land, and this has resulted in greater forest degradation. In the past, before 1991, the village group was not under the management of the Forest Department, due to security issues and the insurgency. At this time there was no commercial exploitation or logging of the pine and other forest trees by the State in the area. However, soil degradation and loss of soil fertility did occur due to improper land use by the local people, which in turn resulted in decreased productivity of the crops (FREDA, 1998). Only a few areas of residual pine forest are now left on the hills to the north and east of the village, but the pine forest grows sparsely, at only about 50 trees per acre.

**Table 3.4: Land Use Patterns in the Village**

Type of Land	Estimated Area	Percentage
1. Natural Pine Forest	130 acres	15.48 %
2. Degraded Forest Land	350 acres	41.67 %
3. Permanent Slope Cultivation - and Shifting Cultivation Land	250 acres	29.76 %
5. Village Land	100 acres	11.9 %
6. Ponds	10 acres	1.19 %
Total	840 acres	100 %

Source: FREDA

Shifting cultivation areas in Myanmar can be generally classified into two types: (1) the shifting of both fields and residences at various times, and (2) the rotating and fallowing of fields, but with a fixed residence (rotational cultivators). Based on this classification, the Pa-O community in this study

belongs to the rotational cultivation category. On average, each family has about three or four fields, and they often shift their swidden fields into an area outside the village for the fallow periods, then return to the first fields when the forest has recovered. Slash-and-burn cultivation is their principal farming method – under which they burn the forests in order to cultivate. The land upon which they have already cultivated a crop is left uncultivated for five to seven years, to allow the soil to recover. After that period, they come back to use the land again - cutting the trees, burning the site and planting. In this way, they go through a cycle of crop rotation - for a second and then a third time, and so on.



**Figure 3.3: Permanent Cultivation on Degraded Forest Land**

By means of their traditional shifting cultivation practices, the villagers grow *taungya* paddy on the upland rain-fed areas, and seasonal crops such as sesame, groundnut, garlic, ginger, potato and peas on the shifting cultivation areas - the degraded forest land. They also grow *taungya* paddy at the bottom of the slopes, where the rainwater is collected through the use of terraces. It should be noted that wetland rice cultivation is not popular in the farming

activities of the upland Pa-O people, though rice cultivation as a whole is a major occupation and is mainly grown for home consumption. Potato and ginger are the main income crops. The whole village is not self-sufficient in terms of rice and so villagers have to buy rice from the nearby markets in Aungban or Heho, where they exchange their own agricultural crops in return for rice. Other activities, such as hunting, collecting NTFPs, home gardens and animal husbandry, are secondary activities for their household livelihoods.

### **3.2 Pa-O Buddhist Community in the Forest**

Myanmar is a multi-ethnic country, though the concept of an ethnic minority varies among different countries in the world. The concept of 'ethnic minority' is constructed based on cultural aspects and equality among ethnic groups. Based on criteria such as language, culture and ethnic consciousness, different ethnic minorities are defined and distinguished from one another. Based on these criteria, there are 135 ethnic groups recognized by the Myanmar Government. Most of the ethnic minorities live in the mountainous and border areas of the country, and since independence in 1948, Myanmar has suffered from many ethnic conflicts between the successive governments - mainly dominated by by majority ethnic group, the Bamar, and the ethnic minorities.

According to Network Myanmar, of the total population of around 54 million, minorities account for about 40 per cent, at least one-third. After independence, the different ethnic communities had distinct conceptions of what kind of nation Myanmar was to become – especially in relation to the division of power between the center and the periphery. The British colonial legacy of 'divide and rule' had entrenched differences between the Bamar majority and the other ethnic minority groups. The ethnic minority groups have since challenged the State (successive governments) - some asking for autonomy, others for independence. The military government justifies its position by arguing that it is the only institution which can guarantee the unity

of the country. As a result of this policy line, militarization has increased over the past 60 years (Lall, 2009). Smith (1999) argues that such ethnic conflicts are characteristic of weak states, and are usually based on struggles over natural resources. In Myanmar, these struggles over the natural resources have increased in frequency since the late 1980s.

The Government, being aware of the important role of ethnic minorities in terms of the overall integration of the country, as well as its economic and social development, have over the years tried to make ceasefire agreements with the armed ethnic groups. During the late 1990s alone, around eighteen ceasefires were agreed with various ethnic groups, and in 2006, with 25 armed groups. The basic idea is that the ceasefire groups will be allowed to keep their arms and territory until a new constitution is put together, and also, the groups' leaders can re-enter politics and can exploit the natural resources in their area. One result of these ceasefire agreements has been the development of a new economic/institutional framework within which government agencies, ceasefire organizations and non-ceasefire groups are all involved in natural resource exploitation activities, such as logging and mining.

The Pa-O once had their own armed group, the Pa-O National Organization (PNO), which was among those who made a ceasefire agreement with the present government - in 1994. Actually, the Pa-O have had their own party, called the Union of Pa-O National Organization, since 1950, but unlike the PNO, it is a non-armed organization. This organization registered as a political party in order to compete in the general election in 1990, as arranged by the State Law and Order Restoration Council (SLORC), and it won three seats in Parliament. However, as SLORC did not recognize the result of the general election, the party did not have the chance to use its new found power. This party did not register to take part in the general election in November 2010, and so was automatically dissolved according to the rules of the election set by the present government.

As mentioned above, one important organization within the Pa-O ethnic community is the once-armed PNO, which was set up as an



underground organization in 1966 with the objective of fighting the military government and gaining equality for the Pa-O people. The PNO signed a peace agreement with SLORC in February 1991, and planned to compete in the general election in November 2010. However, most of the Pa-O people do not like the PNO because it focuses mostly on its business operations, those allowed by the present government in exchange for signing the peace agreement. The people do not think the PNO cares for them. The whole area, including the research village, was one of the areas under the control of the PNO prior to 1990, and at that time, no stranger could enter their territory and there were even some robberies. As a result of the risky situation, no forestry officers patrolled the area, and there was no proactive management of the forest.

The Pa-O is one of the oldest ethnic groups in Myanmar. The majority of Pa-O people live scattered across southern Shan State, both in the mountainous and plain areas, and also in neighboring Karan and Kayah States. They are the second largest ethnic group in Shan State, and although they are recognized as part of the Shan group by the Government and are comprised of approximately 600,000 people in Myanmar, the group has its own national identity, language, literature and political organization (the PNO).



**Fig 3.4: Pa-O Men and Women in Traditional Dress**

*Source:* 'Pa-O in the Union of Myanmar', published by the PNO in 2007

Culture and language are important criteria in terms of ethnic classification, and the Pa-O people still adhere to their national traditions and culture. The traditional dress of the Pa-O is made from plain black-colored material. The men wear long-sleeved shirts, jackets and baggy pants, and the women wear either a long, loose-fitting blouse beneath a jacket with a short, stand-up collar and a longyi, or a Burmese-style sarong. Both the men and women always wear turbans of a bold color, and they wear their traditional long-sleeved shirts both when they are working and at home. On religious days or on other important occasions such as on their National Day, they wear a new set of traditional costumes. Pa-O National Day falls on the full moon in *Tabaung*, the last month of the Myanmar calendar - typically in March, but it is not a public holiday in Myanmar. The Pa-O people speak both Pa-O and Burmese, but they use the latter to communicate with outsiders. They all speak Pa-O when talking amongst themselves, and they do not like using Burmese, like many of the other ethnic groups in Myanmar. In fact, the Pa-O

do not like the majority of Bamar people, because the present government is mainly formed of them.

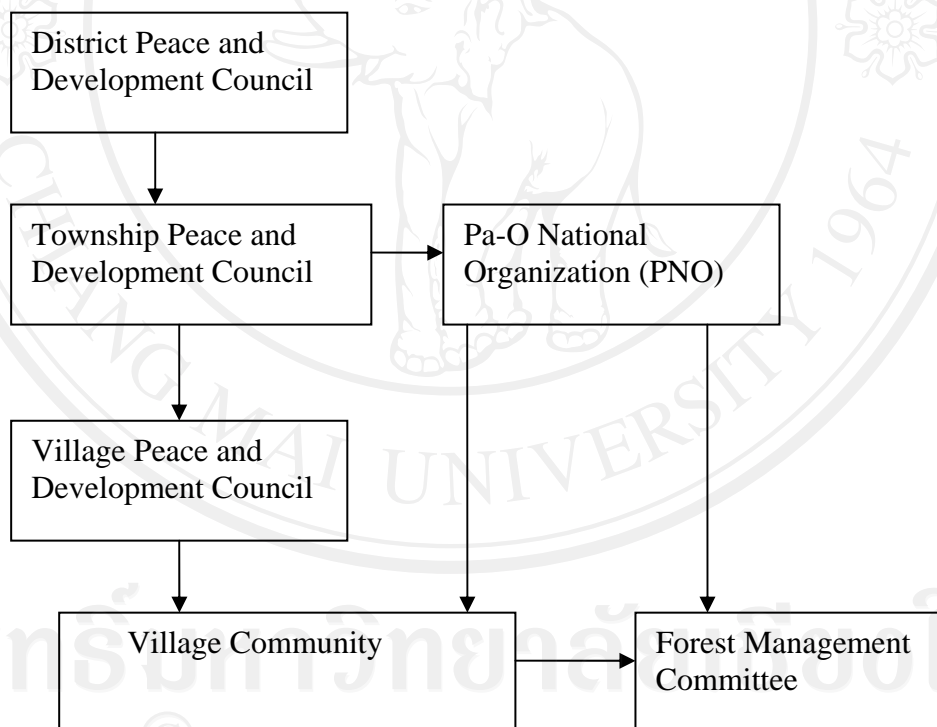
The Pa-O are one of the main inhabitants across most districts within southern Shan State along with other ethnic groups such as the Shan, Palaung, Danu and Taungyoe. These ethnic groups originally selected their settlement areas based on the advantages provided by the environment – and based on an intimate understanding and on experiences accumulated over generations, and these areas became embedded in their culture and ancestry. The Pa-O build their villages near the forest and streams, or creeks. According to the elders of the village, Tingyikyat is an old Pa-O community which was established about a hundred years ago, and consisted of only about twenty households during the 1980s.

In the past, the villagers in the community were all related and from the same bloodlines. The blood relationship was the traditional social unit of all the highland ethnic groups in the past, including the Pa-O; however, due to population growth, intermarriage (such as Pa-O boys marrying a Danu girl) and migration, blood relations have since been replaced by neighbor relations. In fact, such changes in relations within communities have taken place not only in highland communities, but in many rural communities across Myanmar.

The village life of the Pa-O consists mostly of laboring in the field during the day. Early in the morning, both the men and women cook and prepare food for the family, with lunch placed in the baskets. They gather their hoes, cows and buffalos and go to their respective fields, where they weed and harrow using the hoes, and then spend all day carrying out cultivation activities. They take their lunch with them and have a break at mid-day. The elders do the household chores at home, such as collecting the cow dung and placing it in a pit for use as an organic manure. The cattle are herded by hired laborers who happen to be from the poorest households, then allowed to graze in the fields reserved for this purpose. In all, their lifestyle is simple and humble. The villagers do not live in the main living room, which is mainly used for visitors and to store equipment and seedlings. Almost the

whole area of the ground floor is used to keep the cows and cattle. The villagers usually stay and sleep in a small room next to the main living room, or in a separate house. Their kitchens can be found both on the ground floor and first floor.

Customary laws and traditional rules are respected by all; the headman is the Chairman of the formal organization called the Village Peace and Development Council, which comes under the direct control of the Township Peace and Development Council in Aungban, and some village elders are ex-members of the (PNO). The headman manages the affairs of the village and is in position with the agreement of most of the villagers. He is also a representative of the local authority at the grassroots level.

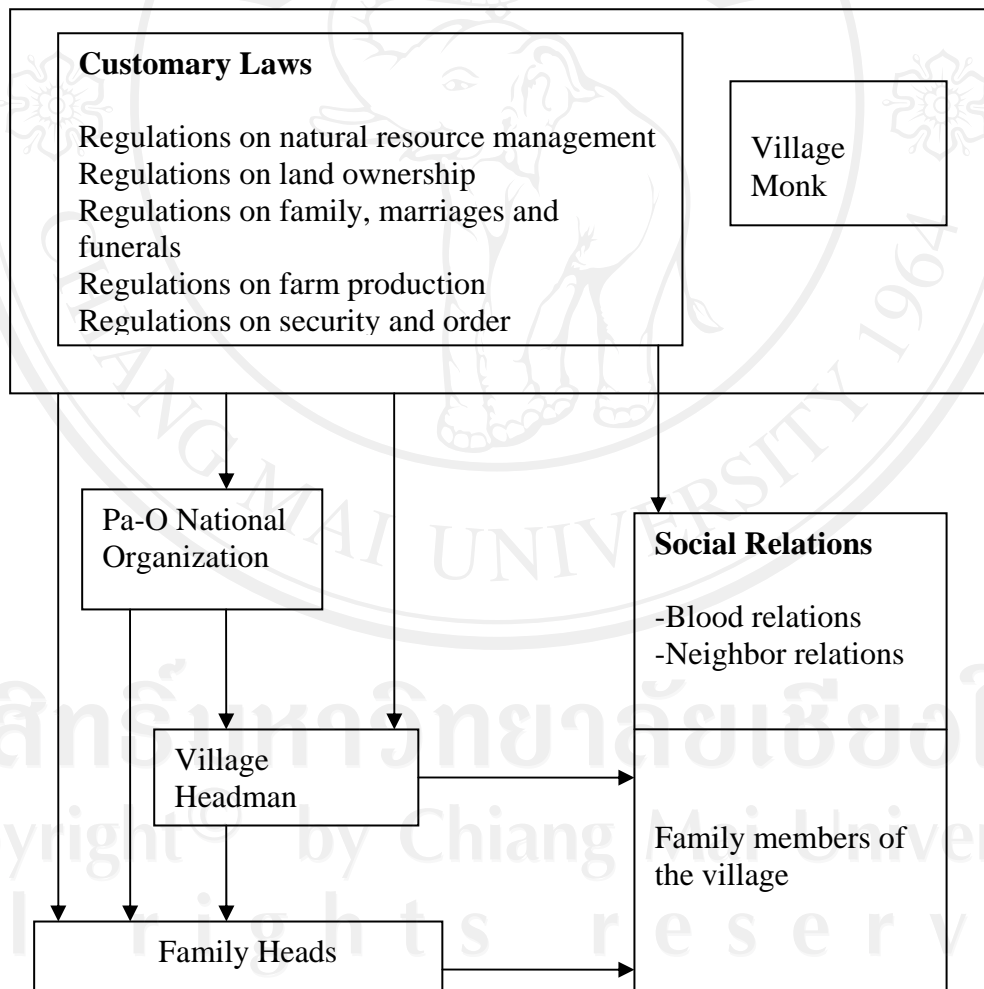


**Figure 3.5: Formal Management System within a Pa-O community**

As in many other rural communities in Myanmar, the village has some social organizations but most of them are not formal, with specific members. Although there is no formal social organization in the village to carry out specific community work, they have their own social institutions established



to create benefits for all community members. They also have their own traditional communal practices and their own local customs which they observe on a daily basis. Communal labor and social and religious affairs are undertaken by all villagers, under the responsibility of the village headman and monk. Most problems and conflicts among the people and between villages are resolved by the headman and by the monks. Generally, there is no class distinction among the villagers, and no one is hampered by social discrimination. Another formal organization in the village is the five-person management committee (which includes the headman) the duty of which is to manage and protect the community forests.



**Figure 3.6: Traditional Management System of the Village**

The PNO website and my documentary research showed that there are two distinct groups of Pa-O people - the lowland and highland Pa-O, who have different ways of life. The lowland Pa-O, as mostly cultivators and land owners, usually have a high standard of living and enjoy a more materially secure and quiet life than the highland Pa-O. The highland Pa-O population is several times greater than the lowland population, and the lowland Pa-O has largely assimilated into Bamar society, adopting many Bamar traditions and wearing Bamar clothes. U Aung Kham Hti - the leader of the PNO, Thamanya Sayadaw - a well-known Buddhist monk and Daw Kyaing Kyaing - General Than Shwe's wife, are well-known Pa-O people. The people in my study village are highland Pa-O, and most of the highland Pa-O do not receive a formal education; however, most of them can read and write due to the monastic education they receive when they are young.

The monastery is the symbol of the Buddhist establishment, a place where religious festivals take place, not only in the Pa-O communities but across Myanmar. Monasteries are the center of culture and traditional customs in Myanmar, and in Pa-O communities, they not only conduct religious ceremonies but also promote morality and social stability among the people. Monks are the most powerful of the village group members and take care to maintain the morality of the villagers. The head monk in my research village even practices caning as a form of punishment against the villagers.

All the Pa-O people in the study village are Buddhist, and whenever they visit each other's houses, the first thing they do is pay homage three times to the Buddha shrine in the house, something I saw several times during my interviews with them. April is the main time for religious practice among the Pa-O people, and similar to the tradition throughout Myanmar, this month is their new year, a time when they stop their farming activities. At this time they go to the monasteries in the village to make offerings and renew their faith, and they believe that doing this will bring them prosperity and good luck for the entire year. At this time the whole village pays religious visits to all the other monasteries in the village group - one village after another, offering food to the monks. There is a big monastery and pagoda in one of the other

villages about five miles away where they celebrate their traditional pagoda festival in October.

As Buddhists, their judgement as to whether they are rich or poor depends on the amount of merit they contribute throughout their lives, and merit-making is an important part of their economic way of life. The Pa-O enjoy their religious festivals very much; they make pilgrimages to distant religious centers to worship and give donations – part of the practice of merit-making. They are frugal when it comes to spending money on their family welfare and food, but are more liberal when it comes to festivals and merit-making. This is their traditional belief - to spend a lot during religious ceremonies during important Buddhist festivals.

Like most rural Myanmar dwellers, they also worship spirits (called *nat* in Myanmar). People regularly offer flowers, fire, water and food by constructing spirit houses next to certain big trees, such as banyan trees. There are three spirit houses in the study village; one is in the middle of the village near a bamboo tree, and the other two are next to big banyan trees near the boundary of the village; however, I did not see any statues or pictures of the *nat* at these two spirit houses. The two things the villagers are most afraid of are the village head monk and the *nat*. They are afraid of doing something wrong in the eyes of the *nat*, so they do not cut down big trees, as they believe there are spirits in those trees. On religious and full moon days they offer water, fire and flowers to the spirits, along with sour fish. No meat is offered to the *nat*.



**Figure 3.7: Spirit House at the Center of Village**



**Figure 3.8: Spirit Offerings at a Banyan Tree outside the Village**





**Figure 3.9: Timber Post Hung with Coconuts and a Bamboo Bow and Arrow for the Spirits**

Pa-O marriages are monogamous and are based on the mutual consent of the couple. Newly-wed couples usually live with the parents but in a separate house until they can set up their own home. According to their traditions, the young man has to plant bamboo shoots during the wet season in order to mark their marriage. The planting of mature bamboo is carried out to announce their marriage to the family and also for their future children to use as a housing material or for income. They believe that if a Pa-O girl gets pregnant before marriage there will be a drought brought upon the village, so to avoid such a problem young couples whose parents do not agree to the marriage elope, returning only after the parents from both sides have agreed to the marriage, a process for which they seek help from a middle man such as the headman or another respected person.

Land is passed on to both the sons and daughters before the parents die, and the house is given to the person who has helped and taken care of them - usually the youngest son or daughter. There are also some older couples who live by themselves, because their sons or daughters separated

after their marriage. The sons or son-in-laws give firewood and rice to these couples.

Although they do not play cards or gamble as a way of earning an income, the villagers do play cards during weddings or funerals in the village, when they play a traditional game called *lay kaung gin* (the four animal game). They accept money at funerals only before the coffin is sent to the cemetery outside the village, and after that, no more money is accepted. When there is a religious ceremony, like a monk reciting Buddha scriptures in the village on certain religious days, one villager goes to charge the electricity battery for the entire ceremony period, and only after the ceremony has finished does he come back to the village.

Like the upland Shan, each Pa-O community or village group has a well-respected and knowledgeable person called a '*Mao*'. The *Mao* may be old or may be in his forties or fifties. At religious ceremonies or village meetings, he preaches to the others by telling stories of the Lord Buddha or from Buddhist literature, or shares his own experiences regarding religious issues. Standing amid a group of people in this manner, he essentially preaches good morals based upon stories of the Buddha's life. The *Mao* is also a social activist for the community, and the monks, *Mao* and headman work together on communal activities; however, these days it is hard to find a preaching *Mao* in Pa-O communities, especially in the lowlands because, according to the elders, only a few young Pa-O people today are interested in such preaching activities or studying about religious issues.



**Figure 3.10: A Mao Telling Pa-O Traditional Stories at a Religious Ceremony**

*Source:* 'Pa-O in the Union of Myanmar' - published by the PNO in 2007

### **3.3 Household Adaptations to the Degraded Agro-Ecosystem**

The livelihoods of human beings are comprised of the capabilities, assets and activities required to make a living (Chambers and Conway, 1991). Livelihoods depend on the quality and quantity of the assets that people are able to own or gain access to, though a single asset itself cannot create a sustainable livelihood. Livelihood strategies may be constructed simultaneously and with multiple objectives; and with different goals, people pursue livelihoods in different ways in different contexts. Local communities also employ different livelihood strategies, which are linked to their cultural practices and biodiversity. Livelihood strategies are developed through people's daily activities, and they use and manage their livelihood resources and environment in order to ensure their survival.

Within the context of natural resource management, local people may come up with adaptive strategies to cope with difficulties during their lives. For them, the most basic response to environmental degradation is to adapt

their lives and systems of production, and livelihood diversification is one such adaptation, one employed to ensure food security. Local people may diversify their livelihoods using many and varied strategies, such as diversifying farm activities and income sources. It is difficult to emphasize the importance of strategies constructed among households; and any given strategy may be less important or even unnecessary for the better-off but very important for the poorer members of a community. All strategies are interdependent, and can include subsistence, market led approaches and a mixture of farming, non-farming and off-farm activities.

In Tingyikyat, livelihood strategies are used by the villagers to generate an income, and the Pa-O there depend, not only on natural resource-based activities, but also on other activities. The two main income sources are agricultural production and forest products. Since the whole village is within the upland natural pine forest ecosystem, the pine trees and forest land are their key livelihood sources, and all village members are forest recipients, and it is their traditional practice to collect firewood for home use or for sale from the pine trees - all year around.

In the past, and with a small population, the villagers were rarely concerned about food shortages because the forests were plentiful and provided many food sources. Pine trees were the villager's main income stream and provided fuel wood for daily use; they produced pine-oil from the tree trunks using local methods and sold the oil and small pine chips for firewood at Aungban market and the other traditional mobile markets. However, the pine forest outside the village has been degraded due to the expansion of their cultivation land over the last two decades. With the onset of forest degradation and a decrease in soil fertility, the villagers have adapted and now use different strategies for their farm-related and forest related livelihoods. An adaptive strategy involves a continuous process of change in terms of livelihoods, either to enhance security and wealth, or to reduce vulnerability and poverty. To understand the adaptive livelihood strategies used by my study villagers, this section will analyze how they have developed different strategies to ensure their daily subsistence needs are met.



During my interviews and group discussions with the key informants from the village, I tried to uncover the changes that have taken place over recent decades in the agro-ecosystem and crop productivity of the village. U Aung Kham, at 75 years-old one of the oldest people in the Tingyikyat Pa-O community, spoke to me about the condition of the forest and crop productivity, as follows:

Before 1988, many pine and other big trees were located near to the village, and it was only a ten-minute-walk to get to the forest. At that time there were wild animals such as tigers, deer, jungle cats, monkeys, peacocks and cranes nearby, and we often went hunting in the forest for food. In those days, cultivatable land was also in abundance. The village did not have so many households, and as part of our cultivation cycle, we could grow crops or paddy and keep land fallow for five or seven years, allowing a re-growth of vegetation for the next cycle. Ginger and potatoes were our main income crops, and we did not use the fertilizers. We were not worried about food shortages because of the good soil conditions and weather. Crop productivity was satisfactory, with an average harvest ratio of 1:15 (a fifteen times return on the crops), meaning if we planted 100 potatoes, we got 1500 from the harvest.

It was between 1988 and 1997 that the villagers started to experience food shortages due to climate changes. Storms and an earthquake hit the village during this period and the weather became unpredictable, with less and less rain. U Maung Aye, a 65-year-old a community forest committee member recalled this time as follows:

I noticed that the pine forest started becoming sparse, but it was still a good source of daily fuel-wood, and we could still make oil from the pine trees and sell it at the market. It took at least one hour to reach the nearest forest from the village, and many of us experienced soil

erosion, which resulted in a decline in crop yields, with the average crop yielding at a ratio of 1:7. We had to clear the land near the forest, which became further away than before. We also started to use fertilizers on our crops due to the lower yields.

From my group discussion, the key-informant villagers agreed that time the village gained an easy linkage to the outside market in 1999 was crucial, due to the road which was upgraded by the FREDA with their participation. At that time, the average crop production rate became 1:20, which was the highest to that point in time. After the road between the the village and the highway road was completed, the livelihoods of the villagers became less dependent on the forest and began to rely more on the market, because they could sell their agricultural crops.

Now, when compared to the past, the livelihoods of the villagers depend more on agricultural production than forest products, with rice farming, growing fruit trees and keeping vegetable gardens being the important sources of household income. Other ethnic people in the hilly regions of Shan State rely on local sticky rice (locally called *kyauk nyin*), but the Pa-O people's main staple food is a brownish raw *taungya* rice. All the villagers grow *taungya* paddy and cook rice for their meals every day.

At present most of the household economic income in the village is generated by agriculture. With the degradation of the forest around the village, the villagers have had to adapt their farming practices, carrying out cultivation activities on both the sloping and the flat forest land. In the past, shifting cultivation helped to ensure food security for the households, because there were not so many households in the village and an abundance of land. Recently; however, the population has grown and so limited forest land is available for cultivation. Since forest land was not under the control of the Forest Department prior to 1990, the villagers could practice their rotating cultivation system to meet their food demands; whereas now, the villagers are not allowed to expand this form of cultivation into the remaining forest areas.

The traditional varieties they plant under shifting cultivation include *taungya* paddy, peas, sesame, ginger, wheat, potatoes and other crops. On the shifting cultivation land, they usually grow *taungya* paddy rice first, then potatoes, peas, wheat and garlic in a rotation system and depending on the soil conditions. Normally, the villagers grow potatoes, rice and niger (a kind of oil-seed crop locally called *Panhnan*) in turn over three consecutive years. Potatoes are first grown using the traditional soil baking method, then after the potato harvest, the soil quality usually drops slightly. The villagers then work the soil and till again during the second wet season ready for growing paddy rice. After the rice harvest they grow niger, since the soil quality is still good, though they work the soil somewhat. After that, they leave the land for one year, then the growing of potatoes resumes as a new cultivation cycle. After the second crop of potatoes, the villagers usually sow niger and wheat during September, before the wet season ends.

The villagers depend on rainwater for their traditional dry rice farming, but recently the village has not received a regular rainfall. They collect rainwater by constructing terraces. Since the land in this area dries very fast, the villagers have never thought of double cropping in the paddy fields, as sowing and transplanting of the rice crops is impossible. The villagers grow *taungya* paddy on the shifting cultivation land in July, when the rain starts, and they also grow some at the bottom of the slopes, then in December they harvest the paddy. Rice is their staple food, but it is not their main income source, as the villagers do not sell rice for cash income; instead it is retained for household consumption.

Regarding household economic differentiation, I analyzed the household's capital assets and daily household income generation activities in order to understand how many poor or better-off households there are in the village. One single capital asset category such as owning a house and land is not enough to determine the condition of a specific family, so I set the following criteria: capital assets (houses and farmland), production capital (cows/buffalos or farm machines) and consumption capital (TVs, Ox-carts, bicycles, motorcycles and trawlerG), as shown in Table 3.5.

In this regard, Tingyikyat Pa-O village can be classified into three socio-economic groups: the poor, the medium-income and the better-off groups. Out of the 57 households, thirteen are better-off households, sixteen are medium-income households and 28 are poor households.

**Table 3.5 Household Classifications in the Village**

Total Household	Poor		Medium-Income		Better-off	
	HHs	%	HHs	%	HHs	%
57	28	52.6	16	24.6	13	22.8

*Source:* Field survey 2010

The poor householders tend to live in simple thatched or bamboo houses which are not properly maintained. Their houses are built using only the essential materials, such as bamboo and thatch, to give shelter to the family from the bad weather. They are either landless or have only one or two acres of farmland to their name, and most of their land has poor soil fertility. Some of them possess bicycles and they usually have no cows/buffaloes, or just one or two.

The medium-income households have wooden or bamboo houses, two or more draft animals, three to five acres of farmland, one radio cassette player and one oxcart or buffalo cart. Some of them possess motorbikes and bicycles. The better-off households meanwhile have two to twelve cows or buffaloes, and eight to nine acres of farmland. Their houses are two-storey brick-and-timber with zinc roofing, and they can afford modern building materials such as brick, zinc sheeting, timber and cement - bought from the town market. The total of eighteen motorbikes in the village belong to the better-off and medium-income households. All the better-off households possess trawler Gs - a multi-purpose machine which can be used for plowing as well as for transportation, plus TVs and VCD players. Two power tillers and three concrete water tanks are also owned within this group. Most of the



better-off and medium-income households have battery electricity, while none of the poor households have electricity.

**Table 3.6: Differentiation of Household Income Sources**

Income Source			Household Income		
Income	Type of Income	Income Details	Better-Off	Medium-Income	Poor
Agriculture	Agricultural Crops	Ginger	✓	✓	✓
		Potatoes	✓	✓	✓
		Fruit Trees	✓	✓	✓
	Animal Husbandry	Chickens		✓	✓
		Cows/ Buffaloes	✓		
Forest Products	Non-Timber Forest Products (NTFPs)	Fuel Wood	✓	✓	✓
		Pine Oil		✓	✓
		Small Timber		✓	✓
		Medicinal Plants		✓	✓
		Bamboo		✓	
Others	Selling Labor				✓
	Collecting Cow Dung				✓
	Renting Cows		✓	✓	
	Renting Farm Machines		✓		
	Transportation Fees		✓		
	Building Houses		✓		
	Hunting			✓	✓
	Selling Labor			✓	✓

Source: Field survey 2010

**Table 3.7: Household Wealth Ranking Criteria in the Village**

<b>Household Group</b>	<b>Percentage</b>	<b>Local Criteria for Classification</b>
Better-off	22.8	<ul style="list-style-type: none"> <li>- Cultivation land of more than 5 or 6 acres</li> <li>- More than 6 cows/ buffaloes, chickens, carts</li> <li>- Food shortage only 1-2 months per year</li> <li>- Enough labor capacity</li> <li>- Two-storey brick house</li> <li>- Farm machines, trawlerG, motorbikes, TVs</li> <li>- Battery-generated electricity</li> <li>- Income from renting cows/buffaloes</li> <li>- Water-collection tanks</li> </ul>
Medium-Income	24.56	<ul style="list-style-type: none"> <li>- 3 or 4 acres cultivation land</li> <li>- 2 to 4 cows/ buffaloes, chickens</li> <li>- Food shortages only 3-5 months/year</li> <li>- Wooden or bamboo house</li> <li>- Motorbikes or bicycles</li> <li>- Battery-generated electricity</li> <li>- Income from hiring cows/buffaloes</li> </ul>
Poor	52.63	<ul style="list-style-type: none"> <li>- Only 1 or 2 acres cultivation land</li> <li>- No or only 1 or 2 cows/buffaloes, chickens</li> <li>- Food shortages about 6 months/year</li> <li>- Not enough for additional expenditure, No motorbikes, TVs</li> </ul>
		<ul style="list-style-type: none"> <li>- Poorly maintained thatched or bamboo house</li> <li>- No labor capacity; a lot of children</li> <li>- No electricity</li> <li>- Sell labor to others for daily wages</li> </ul>

Source: Field survey 2010

**Table 3.8: Classification of Household Socio-economic Status based on Assets**

Asset	Type of Asset	Household		
		Better-off	Medium-Income	Poor
Capital	House	Two-storey, brick, concrete with zinc roof	One or two storey; wooden	One or two storey; bamboo or thatched
	Land (acres)	more than 5	3 to 4	0 to 2
Production	Draft Animals (Cows/ Buffaloes)	more than 7	2 to 4	1 to 2
	Farm machines	✓		
	Home gardens		✓	✓
	Labor capacity	✓	✓	
Consumption	Radios / cassettes		✓	
	TVs/ VCD players	✓	✓	
	Trawler G	✓	✓	
	Ox-carts	✓	✓	
	Motorbikes	s	✓	
	Bicycles		✓	✓
	Electricity	✓	✓	
	Water tanks	✓		

Source: Field survey 2010

**Table 3.9: Classification of Household Livelihood Strategies**

<b>Household livelihood Strategies</b>	<b>Better-off</b>	<b>Medium-Income</b>	<b>Poor</b>
Market-dependent	13	10	-
Mixed market and wage dependent	-	6	24
Wage-dependent		-	4

*Source:* Field Survey 2010

**Figure 3.11: Concrete House of a ‘Better-off’ Household**

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**Figure 3.12: A Poor Family's Bamboo House**

Given the environmental conditions in the area, the selection of crops for shifting cultivation is one way in which the villagers have been able to adapt to the poor soil conditions and limited cultivating area. The villagers' cultivation practices can be differentiated into market-dependent and wage-dependent, as shown in Table 3.7. Since the road to the town was upgraded, their cultivation practices have become more dependent on the market. The livelihood strategies of the poor households are wage-dependent, while the better-off and some medium-income households are more market-dependent. Almost half of the medium-income households use mixed strategies - both market and wage dependent. There are four households that are totally wage-dependent because they do not have enough land for cultivation purposes.

According to my household classification, Tingyikyat community can be regarded as a poor community, because more than 50 per cent of its population is poor. Less than one-quarter of the population has a high living standard when compared to the others. Food insecurity, a lack of cultivatable land, a lack of stored food, low farm incomes and limited school enrolment are the key elements by which this village can be classified as poor.

According to my group discussions, there were two times in the past when the villagers got into big trouble - when their main income crop, the potato, suffered leaf blight disease. At this point the whole village suffered from a food shortage due to the lack of income from the cash crop they rely on the most. Since all households in the village were affected, no one was able to help each other, so during this difficult time, as a short-term response to the food shortage problem, some people borrowed money from the wealthy farmers in other villages, in order to buy rice. They also reduced their food consumption; most of them ate a dry ration of sticky rice (a kind of traditional snack) that takes long time to digest. Those who engaged in heavy work, such as the men, sons and some women ate enough to fulfill their farm work. It is a Pa-O tradition to have a simple lunch or dinner without a large variety of curries, such as baked dry soya-bean-paste or some peppers.

Usually, not only in crisis periods but also during normal periods, it is the practice of the villagers, including the women and children, to go into the forests to collect firewood and bamboo for sale. For the firewood they cut the natural pine trees and pinsein, collect the bark from the pine tree trunks and produce pine oil using traditional methods. It is a tradition of the local Pa-O people to obtain firewood for home consumption or for sale using the natural Pinsein or pine trees around the village or on their farmland. The cutting down of bamboo is undertaken for multiple uses – to help build houses or for use as flooring. However, such activities are labor intensive and time consuming for the women. As time has gone on, these resources have become more scarce and the villagers now have to go further into the forests to collect such items, getting up very early in the morning without breakfast and taking their ration of soya-bean paste. The average income earned from collecting NTFPs depends on the amount they can collect - around 500 to 700 Kyat. As time has gone on, the villagers have complained about the long walks and of being tired from going into the forests, so wish to carry out farming activities if they have the land – as then they can produce enough food for their family.

The poor households often experience a rice deficit - for about six month per year, and their income sources are not stable. Their livelihoods rely

on the limited agricultural production they can generate from their poor quality farmland, from the collection of NTFPs and from working as wage labor at others' farms and from off-farm activities. They can earn an income selling garlic, tomatoes and chili – items growing in their backyards, and in addition from selling their labor to the other households, such as for plowing farmland and grazing the cattle, as well as from collecting cow dung on the open and free grazing ground then selling it to other villagers or to the vegetable growers on the highway. With this kind of job, they can earn up to 1000 Kyat per day, with cow dung sold for 360 Kyat for one basket. For grazing a calf for one month, the cattle owners give the laborers twelve baskets of rice, and according to Pa-O tradition, if a certain cow delivers a baby calf while grazing, that baby calf belongs to the person helping with grazing at the time.

Despite the difficulties associated with changing environmental conditions, most of the villagers have not considered giving up their farming practices, and only a few younger people from the poor families have gone to town to seek other employment such as working at multi-crop trading and wholesale shops (locally called *pwe yone*) and rice milling work in Aungban. The poor householders regularly carry out hunting activities; however, hunting has become more difficult recently due to the scarcity of animals, so is not considered a steady source of income. There is one liquor house in the middle of the village, and villagers sometimes buy alcohol from the town and sell it at this shop in the village. The daily sales volume for liquor is 40 to 48 bottles.





**Figure 3.13: Plowing with a Power Tiller**



**Figure 3.14: Children Help with the Cultivation of Ginger**





**Figure 3.15: Firewood for Household Use**

The ability to access land also varies among the household groups. The size and number of fields they have access to depends on the labor capacity of each household, and those families with healthy and good laborers have a large area of farmland. In contrast, families with a small labor force have a limited amount of land, with the poor having access to less than the medium-income and better-off households. The farmland of the better-off and medium-income households tends to have better soil quality than that possessed by the poor, who also do not have enough labor due to their age or because they have many young children, plus a lack of financial capital to invest in farming. The poor households often have no agricultural land and even when they do, it is often unproductive with low soil fertility.

For a rural community like Tingyikyat village, a lack of cultivatable land means poverty. The main income stream for the landless households is from selling labor to the better-off or medium-income households – doing cultivation work. Some newly-wed couples have no land of their own because their parents could not give them any, plus they have not yet left their parent's house. The parents usually divide the land when their sons or daughters get

married, so the area of land which the new couples receive depends on how much land the parents possess. If their parents do not have any land to give them, the couples borrow land from their relatives in order to cultivate.

When compared to the poorer households, the middle-income and better-off households have more income options, in addition to their agricultural crops; some medium-income households sell bamboo, which they grow inside their compounds. Some better-off households receive income from hiring power tillers to other farmers, and receive transportation fees from the other villagers when taking them to town using their trawler Gs. The cost of hiring a farm machine (power tiller) for one day is 5000 Kyat, and the transportation fee for one person to go to town is 300 Kyat or 100 Kyat for one viss of potatoes. There is one rich household belonging to U Maung Aye, who earns additional income by building houses, because he is a skilled carpenter and stone mason. Some villagers from the poor households work for him at a daily wage rate of 800 Kyat, as and when a house needs building.



**Figure 3.16: Daily Wage Workers Help with House Building Activities**

Since Tingyikyat is a poor community with limited natural capital and financial capital available, social capital is crucial for constructing sustainable livelihoods. Social capital includes the capacity to engage in informal networks constructed within the community. Setting up social networks is a kind of adaptive strategy, especially for the poor, and networks may include relationships among relatives from inside and outside the community. Relationships with friends, neighbors and relatives are significant for all community members, and if a household is poor because of a lack of manpower or a shortage of land or animals, it can ask for help from relatives or neighbors. For instance, 25-year-old Ko Aung Thein does not have enough land to support his family, but has been able to borrow a few acres of land from his friend in order to grow *taungya* paddy and other seasonal crops. He will return the land after one season (after harvesting time) to his neighbor without making a cash payment or by giving him one or two baskets of crops – it all depends on the availability of land from his neighbor. It can thus be seen that social capital and neighbor relations can represent a livelihood strategy for a needy family. In terms of their income streams, the poor households are in the most vulnerable position, as can be ascertained from their property holding and household income sources. The poor do not have a stable income, and investments and savings are not a big priority for them, so so their financial capital is limited, so their other capital, such as social capital, is thus more important.

The development of home gardens is a new strategy for all three household types within the community. Almost every household has a small garden which is used to grow crops for home consumption. In the past, the Pa-O were not familiar with growing vegetables and fruit for sale, because it was difficult to water the plants, plus they did not expect to earn an income from home gardens. Traditionally, vegetables for household consumption were collected from the forests, but more recently the villagers have had to grow vegetables through the home garden activities initiated by FREDA. After FREDA built tube well in the village, the villagers planted vegetables and



fruit trees in their backyards such as bananas, drum sticks, guava, lemons, tomatoes, mangoes, jack fruit and papaya.



**Figure 3.17: Bananas in a Home Garden**

Animal husbandry is another activity carried out within the rural community, and almost all the households in the village raise poultry. The animal production system in the village is mainly based on the rearing of buffalo, cows, cattle and chickens. Buffaloes and bulls are used to help with cultivation, cows are reared for milk and chickens are used for household consumption. For the better-off households, rearing livestock is their preferred way of generating an income, while some better-off families have invested in rearing cattle, as a way of accumulating capital as rearing cattle involves a long production cycle so, is not suitable for the poorer households. The investment capital required for raising cattle is significant, but the net benefit is also high.. The villagers have two types of cattle; working bulls and buffaloes get higher priority treatment as they are stall-fed with chopped grass fortified with cattle feed, and they are kept in clean swept sheds or on the ground floor of their two-storey houses. Cows and the other cattle have to free graze and stay outside the shed, and in total about 80 percent of the cattle free

graze. The medium-income and poor households are also involved in raising chickens

### 3.4 Linkages to the External Environment

Many upland ethnic communities in Shan State have long practiced selling their farm products and crops at the rotating markets held every five days in the villages or towns within each district. Such rotating markets are called *zay nay* which means ‘market day’. Every five days a market day is held in one village or town; for example, if on that day the market is held in a town by the name of Naung Shwe, it is called *Naung Shwe market day*. The people in nearby villages go to that market to sell their crops or buy the daily items they need. For an outsider, it is not easy to understand this system and to know which days will be a market day in each town or village; however, local people know the market days for each village. Such markets are places where all the ethnic groups come to meet each other and exchange information, such as the market price for crops, to find out who wants to buy from them, or announce what they want to buy or sell, such as cattle or seeds. Most of the villages or towns which hold these markets are near to highways, because in this way it is easy to access them from nearby communities. Despite holding a large Pa-O ethnic community, the Peyintaung village group does not have a market day due to the poor or non-existent roads to the village group. As a result, the villagers there go to the markets at Aungban or Kalaw, or in a small village named Kannar which is around seven miles from the village on the road to Taunggyi. Due to the poor condition of the road in the past, the villagers could not go shopping or sell on market days; they used to go to the market by bullock cart (a two-wheeled cart drawn by two castrated bulls). However, now they can use the trawler Gs.

In terms of the administrative structure, the village is under the direct control of the Township Peace and Development Council, which itself is under the centralized control of the State Peace and Development Council. Every Pa-O village in the Peyintaung group has formed a formal local administrative body called a Village Peace and Development Council, for



which the headman is the Chairman. The Chairman has to deal with the township administrative offices in Aungban to carry out any formal activities, and during my third visit to the village in May 2008, the headman was explaining to the other villagers how to give approval (vote) for the newly-written constitution. All of the Pa-O people could give their approval (or not) to the new constitution which was written by the state authorities at the National Convention held over six years.

The physical infrastructure and public services in the research village were not very good prior to 1998, due to its physical isolation and lack of rural development initiatives. Communication and transportation facilities to the village were also very poor, and the local people's livelihoods were difficult. Although the local road was very important for transporting farm products and crops to the nearest market, the condition of the temporary road from the village to the Kalaw-Taunggyi highway was very poor, making it almost impossible to use during the wet season. At this time it took the villagers about six hours to get to the highway by ox-cart from the village.



**Figure 3.18: Villagers on their way to Town Using the Upgraded Road**

In 1998, before the community forest project was introduced, FREDA upgraded the road by leveling the surface, constructing side-drains and rolling the road using bulldozers and road rollers, with the help of the local authorities such as the Department of Construction. Villagers contributed their labor in order to collect the necessary stones, load and unload the stones from the trucks and dig the side drains. Every villager I interviewed talked about the benefits brought by the road, saying they had been motivated by the road improvements and had willingly participated in the road construction project. Now, the road is in good condition and can be used all year round.

The lack of a clean water supply was also a problem for the village in the past; there were two ponds from which the people collected water throughout the year, and the small pond usually dried up in the summer, while the big one near the village became polluted with eroded silt and cattle waste. However, now there are two tube wells in the village, one at the FREDA camp outside the village and the other in the village undertaken – built by FREDA in 1998. Now, some of the better-off households even have their own concrete water tanks, in order to collect rain water for their daily use. Water from the tube well at the FREDA camp is piped down to the central water tank and distributed to the villagers. The better-off households and some medium-income households have electricity which is generated by batteries; and they provide electricity to the poor households using a wiring system. The headman also gives-out electricity from a post located at the village entrance - in front of his house.



**Figure 3.19: Concrete Tank for Collecting Rain Water**

In any family, the level of human capital is directly related to quality of the available labor force. Health care and education are the most important factors for the human capital of any household, and before 1998, there was very limited access to healthcare services and children's education in the village group; for example, there was only one mid-wife for the whole group. The healthcare center was located at 4.5 miles away from the village, and the nearest hospital was fourteen miles away from the healthcare center on the Kalaw-Taunggyi highway. Now, due to improvements in the road conditions and the construction of new trails, the villagers can use the mid-wife services easily and can get to the township hospital faster than before. After digging the tube well and installing the concrete water collecting tanks in the village, a UNICEF program improved the toilet facilities in the village, installing fly-proof latrines in 2000. However, although the State has implemented several projects in support of the poor in remote areas, such as healthcare and education services (including free tuition for students at the primary, middle and high school levels), the priority for poor households is food security.

Illiteracy is usually a problem in the remote mountainous communities like Tingyikyat. The older generation, especially the older men, had a

monastic education when they were young, while the older Pa-O ladies tend to be illiterate. There was no school in the village before 1998; children had to go to the state primary school in other villages, which is 2.5 miles away. During the project, FREDa re-built the village school, since the original school building was in a poor condition. As a result, the Pa-O people now have a better understanding of the value of education than they did before; they send their children to school although they face many difficulties and their living standards are poor. Every household, whether better-off, medium-income or poor, sends the children to school, having raised funds themselves to pay for two hired teachers at a monthly salary of 10,000 Kyat each. The school teachers provide the children with a formal education using the Burmese language, while the monks from the monastery teach the younger children Pa-O language and culture during the summer and during holidays. There are now a total 60 students in the village, ranging from kindergarten age to fifth grade at the village primary school. The two teachers give extra-teaching (tuition) to the children after school for a monthly fee of 500 Kyat per student.

High school enrolment rates usually correlate with income levels, so offer an indication as to a household's standard of living in the community. The better-off and medium-income households have diverse income sources and have savings, so they can control their investments and expenditure, while the poor mainly rely on farming and forest resources, plus have no savings. For the poor, the key aim is to meet their immediate and basic needs, and sometimes they have to use their social capital to do this; borrowing money from their neighbors and relatives. The poor who have very limited resources do not send their daughters to school, as for them, the girls have more important duties to be involved in, such as production activities like helping on the farm and collecting cow dung for sale. As a result, for the poor households the enrollment of their girls at school is not a priority – they consider it ok if a girl can simply read and write and can do basic calculations. In the past, no students went on to middle school in the nearby towns such as Aungban or Heho; however now the villagers from the better-off and



medium-income groups let their children continue their education up to high school. Currently, there are two students from the better-off families studying at the high schools in Aungban. They send their children to the town and let them stay at their relatives' or reliable friends' houses - paying them a suitable fee.



**Figure 3.20: Village Primary School**

### 3.5 Summary

This chapter has described the ecological context of Tingyikyat Pa-O community, the village's history and its infrastructure, and has examined the ways in which the people have applied their experience and skills to access resources and pursue their livelihoods, under the changes that have taken place within the upland agro-ecosystem – and with the degradation of the pine forest. The livelihoods of local people are usually constructed based on a flexible combination of livelihood assets, those that they have access to. The villagers in Tingyikyat depend not only on their natural resource-based activities, but on non-natural resource-based activities for their household livelihoods, with their two main sources of income being access to agricultural production and forest products. For them, the natural resources provided by

the land and forests are valuable assets, providing the basis of their livelihoods. However, with the changes that have taken place in the upland agro-ecosystem over recent years, cultivatable land has become limited and so the villagers have developed adaptive strategies in order to maintain their livelihoods. Differentiation in terms of access to resources has led to different livelihoods being adopted by the households in the community. The amount of cultivatable land available for the households has decreased – across all the household groups – from the better-off to the poor, so NTFPs now provide additional income and livelihood security for the poor.

In order to survive under this new environment, households have had to utilize different assets in different ways, ways suitable to their capacities. Social capital strongly influences the ability to access resources, livelihood activities and the level of vulnerability of people under the influence of an upland agro-ecosystem. Some villagers have thus sought opportunities to develop by adopting new technology within their farming practices; others have earned a living by using their social relations. In terms of important human capital elements, such as health care and education, the villagers now have better access to health care than before, and are now educating their children. Although the older generation within the community is illiterate, almost all the families now send their children to self-funded primary schools. The poor infrastructure in the village and the inability to contact the outside world previously led to physical isolation and a lack of rural development initiatives being implemented; however, now, since the road to the highway road was upgraded, the livelihoods of the villagers have improved due to the improved level of access to the market town, where they can sell their crops.