Community Forestry in Myanmar: *Some field realities*

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ECCDI

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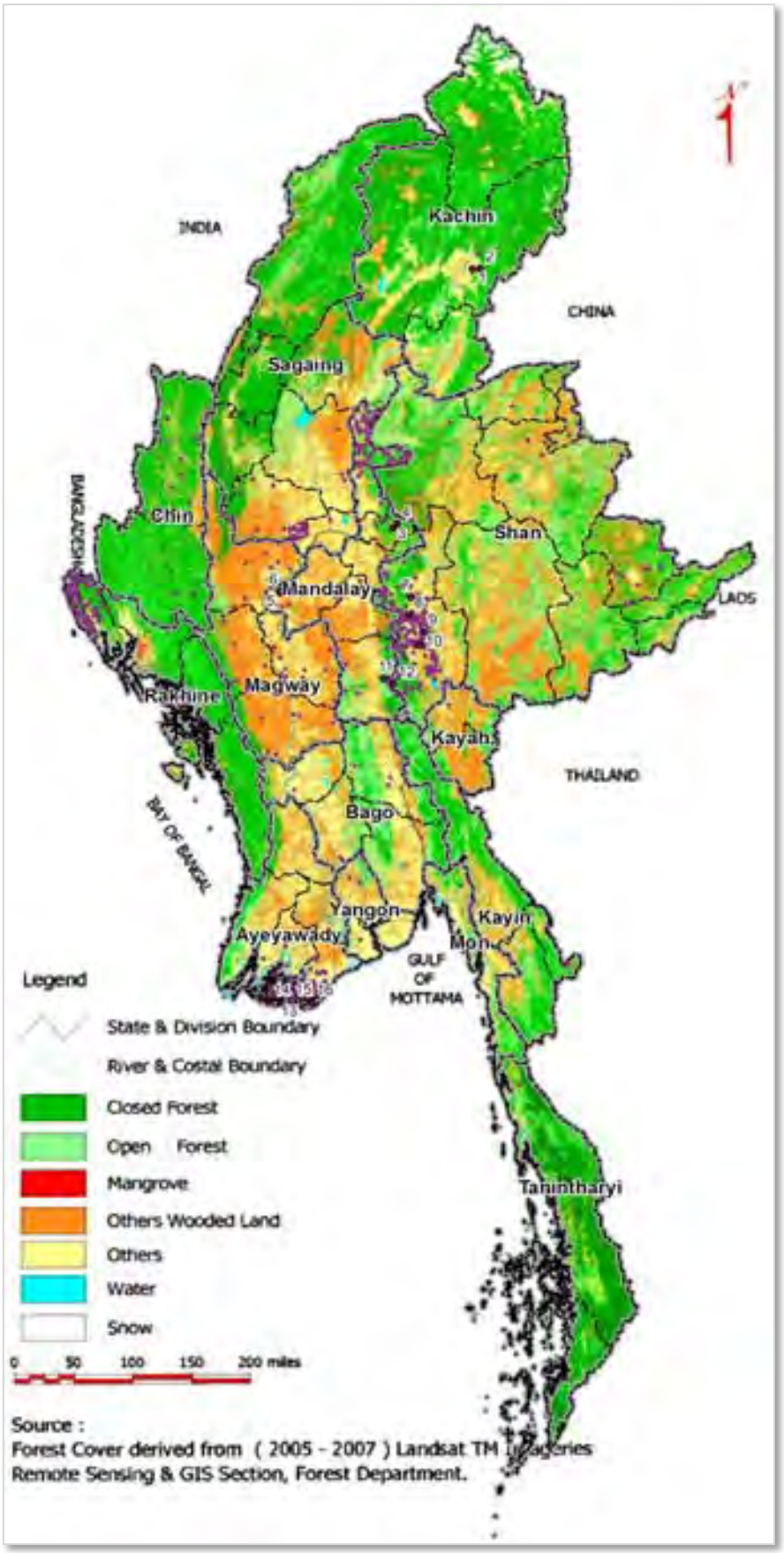


Map 1: Forest cover, location of Forest User Groups and location of study sites (1-16)

INTRODUCTION

Myanmar's Community Forestry programme began in with the Community Forestry Instruction of 1995. Since then over two hundred and fifty Forest User Groups have been formed across the country, and have taken responsibility for controlling, managing and sustainably using a wide range of forest. *How have they faired?*

In an effort to answer that question this paper presents the experiences from 16 randomly selected Forest User Groups across the country. They were visited by a research team in late 2010 during a Community Forestry study conducted by ECCDI, with technical support from the School of International Development, University of East Anglia, under funding support from the Pyoe Pin programme. Full findings from the study are presented in a separate report (Tint *et al.* 2011 *'Community Forestry in Myanmar: Progress and Potentials'*). This companion paper presents the local realities of community forestry experiences on a case by case basis.

The diverse range of stories here show that Forest User groups are struggling against a wide range of challenges, with very limited support in most cases, and only some are able to overcome them effectively. Regional conditions are a key factor, with the dry zone and Shan FUGs struggling much more than the more supportive environmental conditions in Kachin and the Delta.

The study FUGs are discussed here in order from North to South, as shown in Map 1 below.

Kachin has relatively high rainfall and high forest extent, and biodiversity here is very high. However deforestation and forest degradation are taking place at an alarming rate due to over-exploitation of forests and conversion of forests to other land uses, particularly agriculture. Because of the government privatization policy, 'land grabbing' by outsiders is become a serious problem for local people's livelihood security. Local people in many areas are becoming very active in their participation in forest conservation and reforestation, and seeking to protect their resources by getting land tenure through Community Forestry. There has been a large number of applications for Community Forestry handover here, over 50 so far, although so far only a handful have actually received their Certificate.

1) Our first case study, **Wuyan Forest User Group,** shows a dynamic large group proving very effective in protecting and managing its very large 1200 acre forest.
2) Our second group, **Gweyutyan Forest User Group** is nearby, and has a similar positive experience.

Overall these two groups in Kachin, under good NGO support, are becoming highly active, and are even developing local FUG networks.

In **Mandalay**, the dry zone conditions are a much more challenging natural environment both for livelihoods and Community Forestry. Water shortage and limited fertile arable land causes serious hardships for local people's livelihoods. Much agricultural land has become infertile and been abandoned, and many of the better off households have left rural areas so it is often the poorer families that remain. For Community Forestry too conditions are difficult: the dry conditions mean that forests are slow to regenerate. Because of this the 30 year land tenure provided under the Community Forestry Instruction is not so attractive for local people to make the significant long term efforts needed to regenerate degraded land.

3) **Sin Gaun Lay Forest User Group** provides a concerning story of how a handful of outsiders have captured the village land through Community Forestry regulations. They are even flouting the CFI guidelines by converting the forest into private agricultural use, and the Forest Department have not yet acted.

4) **Pyadethar Myothit Forest User Group** is a small, effective group who are using the land for commercial agro forestry production. The members are getting substantial benefits, although non-members have been excluded from sharing benefits so far, leading to friction within the village.
5) **Myaythintwin Forest User Group** had a poor formation process, leaving villagers with a weak grasp of the CF principles. They have been struggling to make progress, and need more outside support to revitalise them.
6) **Letpante Forest User Group** is another weak FUG, functioning in a passive mode and lacking in effective leadership. It also needs back-up and support from the Forest Department.

Overall for Mandalay we can see how the dry zone is a more challenging physical environment for Community Forestry, and this has been compounded by institutional problems, to do with poor formation awareness raising, and stagnation, and village subgroups taking over. Across all the groups here there is a strong need for pro-active Forest Department support.

In **Shan**, ethnic diversity is high, and bio-physical conditions are also distinctly different from other areas. Uplands livelihoods here frequently involve long fallows rotational cultivation, or *taungya*: an agro-forestry system which can be both highly productive and sustainable. However with increasing populations it seems fallow periods are reducing, and cultivated areas are expanding, leading to forest degradation and deforestation. Due to the scarcity of arable land, competition for availability of land is increasing among local people. On the other hand, social capital supporting implementation of community forestry is high compared to other areas.

7) **Mine In FUG** was not formed very effectively, so after the initial 3 year project support period it has struggled to maintain momentum, and is currently relatively stagnant.
8) **Pway Hla FUG** is a 'problem' FUG as no-one seemed to know anything about the FUG that had been formed there, indicating that again the formation process had not been effective.
9) **Lwai Nyeint FUG** was also formed under the UNDP project, and although they worked well during the project period the group has struggled to sustain their efforts and, despite periodic support from the FD, passivity and semi-stagnation has gradually set in
10) **Nar Daung Hla FUG** have worked hard to plant their forest area, but after the project support period ended, due to the slow rate of regeneration, they have gradually lost interest, and outsiders have been taking advantage to cut wood in the accessible areas.
11) **Kone Shine FUG** has been struggling to deal with problems of powerful outsiders visiting the CF and cutting their regenerating trees.
12) **Taung Kya FUG** is a small group which has been effective in regenerating forest areas. However there is a conflict within the village between the FUG members, who are getting many benefits, and non-members, who have been excluded.

The Shan FUGs assessed here indicate the challenges of post project sustainability when there is so little institutional support available for the routine issues of effective forest protection, awareness and mediation of social conflicts.

In **Ayeyawady** mangrove forests once covered most of the delta, with smaller areas of beach and dune forests and semi-evergreen forests on sand ridge areas. But population pressure and poverty have been key factors driving forest clearance for agriculture, and there has been extensive conversion of mangrove forests for agricultural land. Only limited forests remain. However after Cyclone Nargis people became much more aware of the importance and value of mangrove forests, particularly the protection they afford from the risk of disasters from cyclones. And climatic conditions here are highly favourable for the good regeneration of mangroves: high rainfall and temperatures. Furthermore many of the poorest households, such as fishers, have gained from improved forest habitats, due to the increased fish and crabs present.

Box 1: Criteria and Indicators for successful Community Forestry – and our research methods

During the research we developed a set of simple criteria for assessing the performance of the Forest User Groups and some indicators for scoring these as either: good, moderate or poor. Each of the case studies presented here is structured around these criteria & indicators, and the scores are presented in a matrix at the bottom of each case. The criteria are as follows:

1 What was the forest condition prior to Community Forestry?

What was the initial vegetation condition of the area that has been brought under Community Forestry? This is difficult to directly assess, as we have no baseline data, so we have had to rely on discussions with the community. In some cases it is important to note, especially in uplands, that areas that have come under CF may have been under rotational fallows cultivation, and it may not be entirely appropriate to call this 'degraded forest' as it represents a different land use regime.

2 Has the FUG been effectively institutionalised?

Did the formation process lead to the 'take-off' of a well-functioning Forest User Group, in which legitimate forest users became members, the group had a good understanding of the principles and processes of Community Forestry, and was motivated to manage the land? Again, we have relied on FUG members and other community members to assess this.

3 Is the Community Forest protection effective?

Have the FUG members introduced a protection regime to keep forest use within sustainable off-take levels? For both natural regeneration and effective plantation over-use needs to be curbed. We assessed this through both group discussions and field site assessment.

4 What is the Current Forest Condition?

We used composite bio-physical indicators, considering extent of trees and age class, regeneration, ecological condition and so on. We did this through a detailed vegetation survey. Simplifying detailed data into broad categories is not a precise science, but we have done our best! We would refer readers to the main findings paper for more detailed quantitative findings

5 Are there improved livelihood benefits due to Community Forestry?

Patterns of livelihood use of the community forest areas are complex and variable by different groups, and even within households by gender. We summarise here whether there has been a net improvement in the overall level of benefits due to Community Forestry. We have used both group discussions and household interviews to gather this data.

6 Is the Forest User Group equitable?

Are the legitimate users included, and unsuitable people excluded (such as non-community members)? Are the costs and benefits being shared out across the community fairly? Are the poorest having their needs considered? We used group discussions and household interviews to assess this.

7. Is the Forest User Group currently active?

Sustaining the activity level over the longer term is critical to the success of Community Forestry: if protection is relaxed there is a strong risk that outsiders will get the benefits of the communities' efforts, and the forest may decline. We used group discussions and household interviews to assess this.

13) **Nyaung Tabin FUG:** Here the FUG was created when cultivators who had occupied the forest land were evicted. The FUG regenerated the forest and many have been taking benefits – but Cyclone Nargis shattered the community and livelihoods, and it has proved very difficult to regulate fuelwood cutting, so the forest declined.

14) **Byant Gyi Gon FUG** was self-initiated in 1996 by a dynamic villager here. By the time Nargis struck the forest had regenerated and so it could bear the brunt of the impact and protect the village. No-one here was killed.
15) **Te Bin Seik FUG** is an effective group whose regeneration of abandoned paddy fields has led to a range of benefits, particularly improved fishery. Yet the FD has not permitted them to harvest yet according to their coppice management plan.
16) **Wargon FUG** is an example of an effective and successful group, which has regenerated the forest and is sharing benefits equitably, taking measures to ensure even the non-members (typically the poorest fisher households who are not able to give their time) are also receiving a share of the benefits.

The experience in Ayeyawady seems to have been driven partly as a way for the Forest Department to reclaim forest land which had become occupied for rice cultivation. Ayeyawady mangrove forests provide very significant ecosystem services in the sense of storm protection and improved breeding habitats for fish and crabs. Although there seems to be a divergence of interest between the more settled rice cultivators and the fishers, many of whom may be transitory populations, here regeneration seems to be benefiting both.

Overall, successful Community Forestry involves coordinating the efforts of a range of different participants (local people, Forest Department staff, NGOs and project staff) to initiate and sustain a range of activities: managing the protection of forests and sometimes planting of appropriate species, and coordinating harvesting and benefit sharing. In the case studies we have highlighted a number of key policy issues, both strong points in current practice and also limitations and challenges that demand attention. These are summarised here:

Some FUGs are showing highly dynamic performance and are innovating:

- **FUG sub groups and Regional FUG Networks**. The large FUGs in Kachin that we studied are innovating by forming settlement level subgroups to ensure everyone can participate (se Box 2). They are also developing FUG networks to provide mutual support. (see Box 3)
- **Self initiated FUGs**: in the Ayeyawady one of the best FUGs was self-initiated by the village head (see Box 9).
- **Tenure security:** in areas where land appropriation is a threat to livelihood security, local people are motivated to form FUGs in the hope that it will strengthen their claims on the land (see Box 4)
- Mangrove forests, as well as wood products, provide a range of other **ecosystem services** which are of much higher value. Firstly the storm protection which Community Forest mangroves afforded to some villages have been credited with saving numerous lives during Cyclone Nargis (Box 10). Secondly the improved spawning habitats for fish, crabs and other crustaceans provided by mangroves are leading to increased catches, and even increased tax revenues to the Fishing authorities. (Box 12)

However major challenges for Community Forestry that arose in the studies include:

- **Poor quality of formation processes**: in several FUGs, especially in the Dry Zone UNDP areas, villagers have not gained a clear and detailed understanding of the Community Forestry concepts during the formation process.
- **Inclusiveness and equity:** another problem with formation we observed is that in some FUGs only a small part of the community has taken control of the village land, leading to conflicts with the non-members. There is a need for ongoing review of FUG membership arrangements (see Box 5).

- **Sustainability, stagnation and lack of post formation / post project support**: one the fundamental issues that has come out fo this study is that apart from the very best FUGs, most need regular support, and they just aren't getting it, and this is leading to stagnation (see Box 5). Many FUGs that were formed under a donor-supported project struggle once the support has ended. Support is critically important for conflict management within groups and between groups and outsiders (see Boxes 6 and 8). Back-up for enforcing forest regulations is particularly in demand (see Box 7), and if the Forest Department staff don't show support the FUG members can become disillusioned for forest protection and conflict resolution.
- **Not allowing harvesting:** The Forest Department in the Delta area has been reluctant to allow harvesting in the community forest, which can de-motivate the community who have been expecting significant benefits (see Box 11)

Overall we hope that this set of case studies illustrates the fact that Community Forestry is a complex location specific process which offers the promise of 'win-win' sustainable resource management and sustainable livelihoods. But it varies in its outcomes and level of success, with most FUGs struggling due to a lack of systematic support.

We haven't been able to cover everything in this study. There are clusters of Forest User Groups in other areas, particularly Rakhine and in Northern Shan which we were not able to include. (see map 1). Additionally there are two main issues we feel we could not really cover in adequate depth. One is the way tenure and land use changes with Community Forestry. Although we have tried to summarise the pre-Community Forestry situation, this needs more detailed investigation, to understand whether the CF intervention is affecting the previous users of the land. We have also not been able to explore gender issues. It has been the experience in several other countries that when the village land comes under more formal management arrangements as with CF control can shift from women to men, and it can be men's management priorities that prevail, in areas such as management objectives, species choice and so on.

1. WUYAN FUG: *A large, dynamic and innovative group*

The context

This village of about 600 households was established around 45 years ago. It is composed of about half *Lisou* ethnic group, alongside other ethnic groups (*Lawwall, Lachat, Kachin* and others), almost all of whom are Christians.

The village area covers about 2 square miles, and the main livelihoods here is agriculture, mainly the settled cultivation of paddy, maize and mustard on private land. 81% of households are landowners having about 3.7 acres each. There is also some shifting cultivation, especially by the land-poor, and a range of other income sources including petty trading and gold panning.

The pre-Community Forestry situation

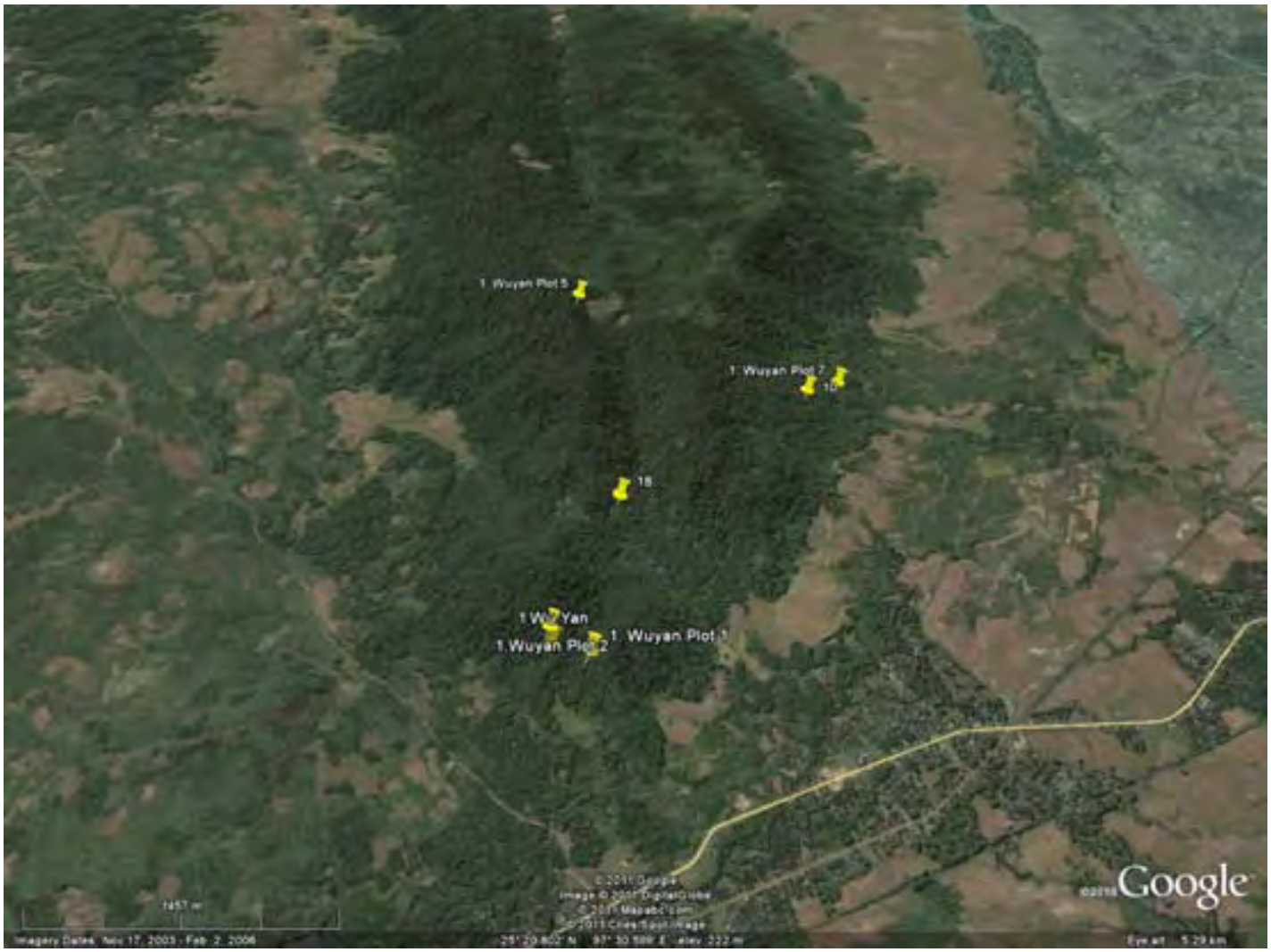
The Wuyan Community Forest is inside the Washaung Reserved Forest area. Before the introduction of CF much of the forest land was under shifting cultivation. People from nearby Myintkyina town have also been depending on this area for their daily firewood, charcoal and other wood needs. Due to population increase the resulting overexploitation had been leading to deforestation in some areas. As a result the forest spring had almost dried up.

The formation process and the FUG institution

In 2006 Ecodev NGO initiated the CF formation process here with support from the Food Security Working Group.

Local people participated as they said they were interested to conserve the forests near their village from illegal cutting and land grabbing from outsiders to protect their food security. In 2007 the CF transfer was approved.

The FUG comprises just under half of the village households (44%). The remaining villagers stayed out of the group at the formation for a number of reasons:



A Google-earth image showing the Wuyan Community Forest and surrounding landscape

- Some had little interest in CF or little confidence in the rights provided under the Community Forestry Instruction 1995.
- Many of the poorest live from hand to mouth and so felt unable to contribute time for CF.
- Other households have careers which are not linked to forest use, e.g. government staff, shopkeepers, and migrant people.

One challenge here has been seen as bringing shifting cultivation under regulation, but this is proving difficult because most of the poor households in the village depend on it to some extent.

The FUG committee holds regular meetings, and all interviewed households said they send at least one member (54% send only a male, 23% male and female, and 23% only a female). At the annual meeting financial status and the progress of works is reviewed, and an annual report is prepared and sent to the Forest Department for necessary action. The FUG submits these progress reports regularly. Almost all the FUG members are confident of the abilities of the Management Committee leaders (94% of interviewed households said so). There are no apparent conflicts here.

Box 2: FUG Sub Groups

Because Wuyan FUG is a large group (263 households), it has created sub-groups to ensure the effective implementation of CF activities. There are sub-group leaders, who present issues that they face in a monthly meeting and make collective decisions.

Forming FUG subgroups is a valuable innovation which could be adopted more widely for larger FUGs.

Since formation, Ecodev NGO has continued supporting Wuyan FUG, including helping non-members to form their own group, supply of seedlings and the provision of expenses for logistics. Shalom NGO is also providing a supporting grant for Community Forestry, and the World Food Program also provides rice as part of its "Food for Assets" initiative. The Forest Department, as far as it can, provides institutional assistance and technical knowhow, however the FD has limited resources to support CF on the ground even with the will to do so.

Wuyan FUG has recently become active in a regional FUG network, local NGO facilitation.

Community Forest protection & management

The majority of households say the main objectives of CF here are assuring local people's basic forest product needs, and also for environmental conservation. The forest management plan was developed by the FUG Management Committee, with the support from Shalom and Ecodev NGOs.

Box 3: Regional FUG Networks

Wuyan FUG is involved in an FUG network with Waimaw FUG and other local FUGs, to exchange experiences and knowledge gained from field implementation. Meetings of the FUG cluster takes place bimonthly in order. Shalom NGO has been supporting the formation of CF network clusters for each township in Kachin, which usually meet quarterly.

Regional networking is a valuable innovation through which FUGs support each other and develop their capacity, rather than depending only on NGOs or the Forest Department.

The 1200 acre hill forest has been split into 3 areas. Natural forest areas are management commonly by all FUG members and the plantation forest areas are conducted by individual households:

- The uppermost 600 acre natural forest area (which is in very good condition) has become a protection watershed forest, from which no products are to be taken. Of this, 100 acres is specifically set aside for medicinal plant conservation.
- The next 300 acres is under protection for regeneration of timber species (*Gmelina arborea, Chukraria tabularis, Cedrela multijuga, Cassia siamea, Amoora wallichii, Aquilaria molaccensis* (Agar wood) and *Gliricidea seprum. Taundema (C. multijuga)*). The FUG members have sown seedlings produced in their own nursery, as well as allowing self-seeding of Non Timber Forest Product (NTFP) bearing species (including those producing leaves for packing and bark for cooking). The villagers hope to start selling timber for income after 5 years.
- The lower 300 acres is under Taungya agroforestry system on individual household plots, where users are cultivating hill paddy and beans for their own consumption and market sale (shifting cultivation in which food crops and forest crops are mixed in planting): they plant specific trees adjacent to crops. Each FUG member has the right to select their land for forest plantation, and the size of the plots (which are on average around 5 acres) is constrained by household's labour availability for cultivation and reforestation. Generally, *Tectona grandis (*Teak*), Xylia dolarbriformis (*Ironwood*), Gmelina arborea* and *Cassia siamea* are grown in their land, with the anticipation for profit from felling after some years.

FUG members establish plantations through an agroforestry system where for the first few years they grow agricultural crops. Members expressed concern about their long-term livelihoods, because when the 5-

year limit for plantation expires they will no longer be able to grow agricultural crops and derive an income from them.

Villagers explained the forest springs are again gives plenty of water

Changes in the forest condition

All villagers agree that the forest is improving after CF, even after just 3 years of implementation. However, illegal cutting from adjacent villages occurs occasionally, and villagers are unable to sufficiently protect the forests from such outsider encroachment.

- Now that the forests are well conserved the water supply from the forest spring has again become available for villagers.
- Furthermore, they all agreed that soil erosion has reduced and soil fertility has improved. Leaves shed from forest trees have augmented the humus layers and enhanced fertility. The tree roots slow the speed of the water current which otherwise would cause soil erosion.

The Wuyan FUG Chair shows off the Community Forest

Livelihood costs and benefits

The main costs experienced by members have been giving the time to establish the group, plan management, plant and protect. The main benefits users mentioned were:

- Improved water supplies from the forest spring
- Firewood, poles and posts are collected from the CF for household use. In practice 54% of surveyed households were getting fuelwood
- Villagers seem to also be moving from grazing animals in the forest to cutting fodder and carrying it for stall feeding: grazing shows a declining trend comparing pre and post CF (29 to 16 families), whereas fodder collection is increasing slightly comparing pre- and post-CF (from 27 to 30 households).
- Timber has also become available for community development, and has been used in school and bridge construction to a greater extent than in previous years.
- Wild food hunting is an additional activity, especially for wild pig (who can be a crop pest) and guinea pig species.

Equity?

37.5% of surveyed households saw CF as important for their livelihoods. One third of interviewed households said there had not yet enough growth to share benefits across everyone. Two thirds of respondents said that the benefit sharing there has been was equitable.

A key factor in this CF is land holding. The rich have more land to grow trees on than the poor who have limited resources. And as poor are living from hand to mouth, they are not able to participate in CF activities fully. Therefore, they cannot derive benefits from the production of firewood, pole and post from individual land allocation.

Sustainability and the future

The majority of FUG members worry over whether they will get back profit from the forests that they have conserved and rehabilitated. They are still doubtful over the security of the land tenure provided by the Forest Department.

Local NGOs are inundated by members with the same question: do they really have the right to benefit from growing teak tree, and how is that right limited?

The Management Committee (MC) has even helped non member villagers form a new CF group on alternate village land, and prepare a CF application to the Forest

Department. In 2010 this second group also got their CF handed over.

Overall this village represents a successful case of Community Forestry. Reasons for its success include:

- Good leadership
- Facilitation of third party NGOs: Ecodev and Shalom
- Good communication with FD and local authorities
- The majority of villagers are middle class, and able to participate in CF. It means that they have land to grow trees; they have extra food while they are planting trees.
- They are very motivated to get secure land tenure for the forest area, and defend it against appropriation by outsiders.

Forest Users reflect on their achievements and plans for the future

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition?	2 FUG Institution-alised?	3 Forest protection effective?	4 Current Forest Condition ?	5 Improved Livelihood Benefits?	6 Equitable?	7. Currently active?
Score*	✖	✓	~	✓	✓	✓	✓

Key: ✖ = poor; ~ = moderate; ✓ = good. (based on composite metrics)

2. GWEYUTYAN FUG: *Protecting the forest against landgrabbing*

The context

Located in Waimaw township, the village has been established for 70 years. It is 1.5 square miles in extent, with 70 households and a population of 260, mostly Kachin (*jeanfal*) people. The households are generally medium income; neither poor nor rich, and all are engaged in a combination of settled and shifting cultivation.

The pre-Community Forestry situation

The forest area covers about 1400 acres of mixed land-use mosaic, including some high forest and other areas under long-fallows rotational cultivation (for paddy, maize, tapioca). There is some hunting here, mainly for birds.

Threats to the forest have come from neighbouring villages cutting for firewood, and sometimes illegal timber cutting by a small local company. The villagers have been using the forest for firewood, and particularly want to conserve supplies against the risk of appropriation or 'land grabbing': this is the immediate driving motivation to participate in CF.

The formation process & FUG institution

The Food Security Working Group (FSWG) conducted an awareness-raising project in the area in which village members participated, and to whom the FSWG staff explained the CF concepts. Then in 2004 the Kachin Baptist Organisation gave a further environmental awareness campaign: some villagers attended and initiated an informal village group.

In 2007 the village applied to the Forest Department for their certificate, with Ecodev NGO providing technical support, and Shalom, a local Community Based Organisation, also helping to motivate and mentor them.

All the households in this small village are FUG members. All are enthusiastic regarding the CF, and the Executive Committee is very active. There are no apparent conflicts and all interviewed members say they are happy to work under the Committee's management. The FUG regularly holds meetings and submits progress reports. Members frequently attend local workshops, and have excellent awareness of CF issues thanks to the NGO support.

Local NGOs continue to provide support for seedlings and other expenses for logistic matters. Shalom NGO is mentoring their CF activities, supporting the forming of CF clusters for each townships which meet quarterly

The FUG are actively protecting the forest against illegal cutting by outsiders, though some still continues.

The Gwi Rut Yang FUG Committee guide our research team to their community forest

Awareness on forest certification was given to the FUG members by 3 trainers who attended a forest certification training course conducted by SSC/SIDA in Sweden.

CF protection and management

The CF area is divided into different sections according to forest conditions (as with Wuyan CF above)

- The top ~300ha of natural forests has been reserved for watershed conservation. It is managed in common by all the FUG members: and no products are taken
- The remaining 320 acres is a regeneration improvement felling area: managed for both-conservation and plantation through agroforestry system. It is a former shifting cultivation area (although it is unclear why the shifting cultivation stopped). The area has been divided into individual plots, to plant forest trees, and collect firewood etc. using the *Taungya* system. FUG members established an agroforestry system of trees and agricultural crops for the first few years, but they will not be able to grow agricultural crops as the trees mature. Timber will be harvested after some years. The plantation forest activities are conducted individually, and the plantation forest area is allotted to each FUG members annually according to their family capacity.
- A further 780 acres will be afforested under the *Taungya* system in due course, when members have enough time

In some non-CF areas shifting cultivation is continuing. Some people also have permanent home gardens from which they sell produce for income.

Only a few FUG members are clear on the specifics of the management plan. Also there is a struggle to progress in managing the large area: the main effort so far has been preparing the CF site, for which 30% of households gave their time and money.

Some seasonal illegal cutting still takes places in some fringes of the CF area, as neighbouring villagers are continuing to encroach and cut their trees.

A google earth image of Gweyutyan FUG in its landscape

A transect walk through the Community Forest

Changes in the forest condition

All households agree the forest condition has been improving after the introduction of CF, and this has led to improved soil fertility and reduced erosion. Gwi Rut Yang 's CF is located in the watershed area of Washaung Dam, and therefore the conservation of forests is likely to contribute to reducing the siltation problems of the dam.

Assessing the Community Forest

Livelihood costs and benefits

The majority of interviewed households believe CF is important for their livelihoods (82%), although overall villagers have not got a substantial income from CF yet.

- Most households (71%) are getting firewood from the forest
- Some are also getting bamboo and other NTFPs.
- Many medicinal plants are growing wild, some are being collected for domestic use, but none marketed.
- Grazing patterns seem to have changed after the CF: with a decline of households grazing from 100% to 58%, and a decrease from 83% to 76% stall feeding.

FUG members reflect with the research team

FUG members question whether they can recoup the profit from teak growing in the CF area in the future.

Equity?

82% of member households feel the benefit sharing system is equitable. Those who don't simply say there has not yet been much tangible benefit yet.

Sustainability and the future

This FUG has set a strong example for neighbouring villages, and now the neighbours to want the CF system. However they need NGO support to get formed. They are operating shifting cultivation in some other areas and want to convert to CF to reduce encroachment and land appropriation threats.

Several factors have contributed to this FUG's success:

- Strong village leadership, combined with good facilitation and support from NGOs like Shalom and Ecodev, and significant support from the Baptist NGO, which is continuing
- Good communication with FD and Local authorities
- Strong motivation of villagers to ensure they have land tenure rights to protect their forest against allocation to outsiders, and the active participation of the majority of the villagers
- The area has good rainfall, which promotes effective regeneration and fertile soil conditions

There is individual plot ownership but collective management.

Box 4: Land appropriation and CF handover in Kachin

Appropriation of land on which local people depend for their food and livelihood security by influential outside private interests has become a common problem in Kachin in recent years. Appropriators are interested in it for rubber, tapioca, sugar cane, banana and other production purposes.

Villagers are therefore seeking to strengthen their control of their village lands, and believe that they can prevent land grabbing if they obtain land tenure rights. This has been the major driving factor for their participation in Community Forestry.

In Kachin 59 CF groups have been supported by Pyoe Pin programme for their formation over recent years. Many villages were facilitated by other organizations.

Yet to date, (mid 2011) in Kachin state only 2 villages have received certification from FD. The rest are still awaiting their CF Certificate. – they have prepared management plans and are managing on a provisional basis. The FD already gave permission saying the application is being processed, but it has not been handed over yet.

Previously the local director of the FD was very willing to encourage local private sector land based business, and this led to much privatisation. Also some companies have been given permission from the national level to occupy forest land, and this has led to delays in the issuing of CF certificates.

A complicating factor here is that almost all lands in Kachin are under the Land Records Department rather than the FD which makes it easier to transfer to private interest, as has happened for instance in the Hukhaung valley. Perhaps half of FUGs have to deal with the Settlement and Land Record Department (this requires Form 105/106 for change of land use / land conversion application). From an administrative point of view FUGs are seeking to use agricultural land for forestry purpose. They applied to the FD and the FD said they have to get clearance from land record dept first. Some villages have already got permission from Land record dept.

CF Signboards

A Gweyutyan Community Forest boundary marker

During the study visit the Gwi Rut Yang FUG members prepared a 'mind-map' of issues relating to Community Forestry

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	~	✓	~	✓	✓	✓	✓

3. SINGAUNLAY FUG: *Outsiders captured village land using CF*

The context

The village has 75 households, the majority of which are *Bamar*. The FUG members, who are not local people, are all Kachin Christians. Incomes here are estimated at around 8.8million Kyats/year, and the main livelihood is shifting cultivation, complemented by hunting, home gardening and casual labour. Transport becomes difficult in the rainy season due to the nearby river.

The pre-Community Forestry situation

The area now under CF was a pine Reserved Forest. But much of it had become degraded some years earlier, apparently through unregulated overuse.

The formation process & FUG institution

The FUG members here are a handful of five incomers who recognised that the value of the village land here near the local town, Pyin Oo Lwin (Maymyo), and have opportunistically used CF to occupy it. They became aware of the CF Instruction through contacts with FD staff, and considered how to take advantage of the opportunity. They sought to organise the villagers, but when others didn't express interest they applied to the District Forest Officer alone, in May 2003. FUG formation was thus 'self-initiated' without external support.

The outside-dominated FUG has thus excluded most of the villagers. Some non-FUG members were unaware of CF information and some members did not believe that benefits would be possible. They initially assumed that CF was not related to village affairs because it was being established in the Reserved Forest land, and was therefore related to the Forest Department. But now they understand the principles of CF and they say that if land nearby the village is available for the establishment of CF, then they want to participate in CF. although they are busy with their regular livelihoods, they don't want others to take over the village forest. Non-member villagers have complained regarding the CF certificate being issued to the FD, but no response is yet known.

A Google earth image of the Singaunlay Community Forest and surrounding area

CF protection and management

Of the village's 400 acres, the CF is 150 acres of natural pine forest near the village. FUG members are conducting CF operations by individual land allotment. The existing trees on parts of the CF site were cleared and replaced with agro-forestry agricultural cash crops, perennial crops, and some trees. Some FUG members are even breeding chickens commercially inside the CF site. The FUG members are planting potatoes and ginger in large blocks of the CF area: it seems to be primarily an agriculture-based business rather than forestry.

The FUG has been clear felling large trees in the natural forest, after which there has been limited new CF plantation establishment. The group have recently begun planting more trees, probably due to FD pressure. About 25% of the CF land has been replanted, but the rest is still vacant. They have planted pine, some *eucalyptus* and *castonapsus*. Other villagers complain these are not appropriate species to maintain the natural forest. FUG members are also fencing the area, and this blocks traditional routes, so is causing conflicts. Overall the forest management practices here are not in line with the CFI 1995: the FD permits only intercropping so regulations are being flouted. Their practices are completely different from the management plan, and the FD can take back land when plans are not followed.

Box 5: Elite capture of village forests and lax FD enforcement against abuses

Here a handful of FUG households are benefiting from using the Community Forest as their personal land, at the expense of the general village. The same pattern of problems is seen across many CFs in the area. Behind this issue is complex political economy: elites may have powerful friends.

Although the opportunistic incomers who have created an FUG here to appropriate village land know that the Forest Department can seize the CF land at any time, they are still flouting regulations. It is unclear why the FD and other support agencies are not challenging the abuses here. Hidden power relations and elite patronage networks may be restraining the proper regulation of FUGs by the Forest Department in this case.

Changes in the forest condition

Our forest survey showed that the forest condition is moderately good. However villagers think that overall the CF activities are having a negative environment impact on the, particularly in some areas. Some villagers say the water supply from the natural spring is declining due to the clear felling of the larger trees. In addition, soil erosion has become steadily more obvious.

Villagers say the FUG members do not follow the CF regulations: they removed remaining forest trees and did not replace them with suitable forest species. They substituted trees with long term agriculture crops, and thereby abused the right of CF provided by the FD.

Livelihood costs and benefits

The exclusion from the forest for non-members, and the loss of benefit flows and environmental services are significant to the community as a whole. There has even been obstruction of traditional pathways because FUG members have fenced individual CF plots.

Equity?

All the benefits from the village land are now going to the small group of FUG members, who cite mean annual incomes from forest products in the order of 576,000 kyats (presumably logging of large trees), and a further 127,500 kyats from agricultural crops. Non-FUG members on the other hand are not getting any such benefits, and have lost the control and use of their land.

Sustainability and the future

This FUG is evidently very dysfunctional and exclusionary, yet the FUG households now even want to extend into further village areas, threatening non members shifting cultivation, and hunting. Many villagers have complained to the FD; but the elites are still able to persist. Non-FUG members want to take part in CF activities to get the opportunities that have been received by the outsider CF members. They want to take control of the remaining land if the FD would allow. Initially they were reluctant to invest efforts as they did not trust the FD would respect the 30 years land tenure right, and their efforts would go to waste. But now they see their mistake, and have begun to trust the FD to a degree, in terms of handover for CF.

Policy implications

- There is a need for closer scrutiny of CF applications to avoid opportunistic outsiders using CF to occupy village land. If this has happened the FUG should be investigated, and dissolved or reformed.
- The FD does not seem to be enforcing regulation against land use change to agriculture.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✘	✘	✘	✓	✓	✘	✓

4. PYADETHAR MYOTHIT FUG: A *small, effective agroforestry group*

The context

The village is in a commuter belt area of the local town of Pyin Oo Lwin (Maymyo). The village therefore has a very large number of households (about 8,000) and a very large population (39,257). Rural livelihoods here are focussed on settled cultivation of seasonal crops. Transportation is generally easy except during the rainy season.

The pre-Community Forestry situation

Before CF implementation, the site was a degraded eucalyptus plantation, with many useless and undesirable plants, including bushes and climbers.

The formation process & FUG institution

The FUG was formed 2000 by the Forest Department, and in 2002 the CF Certificate was issued. The FUG is led by a collective of in-migrants who helped form the FUG and motivated and organised the villagers. It is a small group of just 12 households who are mainly *Lisou* Christians. All have at least basic education, and 25% are college graduates. Although none of the FUG members have any private landholdings they are all of 'medium' wealth rank, claiming to earn a high mean income of around 6.6million Kyat/year.

As it is near a town there seems to be a more individualistic livelihood-oreinted approach, but despite this the group shows strong unity. The Management Committee is proving very effective in successfully organising meetings and managing CF issues, even though they are not recognised leaders of the wider community.

Some non-FUG member villagers did not know about CF and some members did not believe in benefits usage at the initial stage of the FUG's activities. The small FUG membership now feels confident, and that the group is even independent of the need for outside support.

CF protection and management

The ~100 acre site was comprised mainly of a degraded eucalyptus plantation. The FUG runs more like an agribusiness than a normal CF: FUG members are conducting CF operations by individual land allotment. The existing trees on the CF site have been cleared and replaced under an agroforestry system: 'good' hardwood timber species are being planted alongside horticultural species and agricultural cash crops. A range of timber species have been tried: *Gmelina arborea, Cedrela serrata* and *Grevillea robusta* (Sliver Oak) were planted.

Google earth image of the Pyadethar Myothit Community Forest and surrounding landscape

FUG members, buoyed by the success of the *Gmelina arborea* plantation in 2009, are planning to grow more.. Additionally, several different horticultural species have been tried, including agar wood, walnut *Juglans regia* (*Thit Kya*), *jemeny - milina agoria*, cherry, *betula* and avocado. All succeeded except cherry, which was not suited to the conditions here and died. It was replaced last year. They are now growing Agar wood trees and walnut mixed with other trees, which is proving successful: 80% of the community forest has already been planted.

The management plan is potential very lucrative, but depends on a high investment of effort. The current success has been due to the highly active members' entrepreneurial spirit: they don't abandon their efforts even when trees die, instead, they redouble efforts and plant new ones. However human-made forest fires occur frequently, so protection is not entirely successful yet.

Changes in the forest condition

Water is scarce in the CF area, and villagers feel that since the CF was established the micro climate and moisture has improved, and also the soil condition.

Livelihood costs and benefits

The main cost has been the time involved for organising the FUG and the forest site, plus the costs to purchase seedlings, for which the FUG members have paid out over Kyat 100,000 in total. A further cost to members has been the decline in grazing and fodder extraction.

There has been a massive resource benefit to the individual members' households, with the acquisition of ~8-10 acres each. Agricultural crops from the site are bringing in a Kyat 1.7m per year per member household so far, and there is also the future prospect of major agroforestry and timber incomes.

Surprisingly, 63% of households interviewed (i.e. 5 of 8 households) said that they felt the FUG was not significantly important for their livelihood. However it is likely they mean that it is not yet significant yet, but expect will become so.

A visit to the Community Forest plantation area

Discussions with the FUG members

Equity?

The benefits are going to the small FUG membership who have invested their efforts and cash. But the rest of the village have not been involved, and the poor have not been included.

Sustainability and the future

The FUG is highly active. However there is a need to redress the exclusion of most of the villagers

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✘	✓	~	✓	✓	~	✓

5. MYAYTHINTWIN FUG: *In need of Forest Department support*

The context

There are 140 households here, with a total population of 975. Their main livelihood streams are agricultural, particularly toddy farming for *jaggery* production. The mean household landholding is 15 acres and there is virtually no landlessness (3%). Mean annual household incomes are 2 - 2.2m Kyat.

The pre-Community Forestry situation

Before CF activity, the forest site was scrubby bare land. The main driver of deforestation has been fuelwood demand for *jaggery* production, and all the village households also used the barren land for grazing.

The formation process & FUG institution

FUG formation was initiated by the Japanese International Cooperation Agency (JICA) in 2003 in conjunction with the Dryzone Greening Dept. It has been an inclusive FUG, with all villagers becoming members.

Although most of the FUG members understand that the forest is now village owned, there are still several prevalent misconceptions. In the beginning, the FUG Management Committee (MC) was formed from members of the village authority, and since then villagers think that the members of the FUG MC should always be from members of the village authority. Thus, any change of village authority members affects the structure and functioning of the FUG Management Committee. Additionally, the majority of villagers only understand that the CF area was handed over to villagers as communal land; they do not fully understand the fundamental principles of CF.

Following the termination of the JICA project the FUG has cut its activity level drastically. Villagers say they have received saplings from FD staff, and that they are also receiving support from an NGO. But although Forest Department field staff frequently come to the village, they say they cannot now give attention to CF.

CF protection and management

All villagers participated in site preparation of the 33 acre CF: staking, planting native species, patching, weeding and protection. (There is also a traditional spirit shrine to the guardian of the town in a ~10-15ha area of forest and no one cuts there).

As villagers can get firewood from their farm boundary planting, they do not cut trees from CF. There is however an occasional illegal felling problem as neighbouring villagers sometimes come and cut. Villagers don't dare to tackle them because they worry about generating conflict and the risk of violence.

A google earth image of the Myaythintwin forest and surrounding landscape

They think that it would be better if the Forest Department stands behind them. They want the FD to settle this problem one way or another.

Changes in the forest condition

The condition of the Community Forest is now fairly good. After 3 years, the forest has significantly regenerated with both planted trees (which are coming up slowly), and regrowth of the remaining original natural forest (which is doing very well).

Because of the forest improvement:

- The local microclimate is also perceived to have improved
- Soil has improved, with protection from soil erosion and good drainage
- The greening of the village environment has provided aesthetic value

Livelihood costs and benefits

In terms of costs, all the households have given significant time input both for meetings and also for labour input. Furthermore, grazing and fodder collection has been significantly reduced to lessen their impact on regeneration.

During the project period, the villagers received labour payments for some planting activities, which supported their livelihoods to some extent. But so far, no major forest products have become available from the CF. But there are many other opportunities. Fodder (grass and leaf) for cattle is now abundant in summer and can be harvested. Also the few landless can collect wood debris for firewood. A few households say they are getting very high incomes from some NTFP collection (Kyat 131,250/yr mean). Villagers had not realised that they could get further benefits from intermittent forest thinning.

Equity?

All villagers are included in the FUG and what benefits there are seem to be relatively equitably distributed.

FUG discussions

Sustainability and the future

Overall the FUG has been effective in regreening the forest, but now they are facing problems of stagnation and poor effectiveness in protecting. They urgently need help enforcing.

Toddy production for making *jaggery* is a lucrative business here, but it demands significant wood for fuel. Villagers wish to construct a large *jaggery* factory, run either by gas or electricity, which would be more efficient than small scale woodfuel-based production.

Policy implications:

- an alternative energy source for toddy production needs to be established
- FD assistance is needed to combat illegal felling and encroachment
- if more Community Forests, like this one, were to be established in the dry zone, particularly in areas close to villages, it would contribute towards achieving the regreening desired by the central government

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✘	~	~	~	~	✓	~

6. LETPANDE FUG: *A passive FUG lacking leadership*

The context

The village is near Naung Oo town (and also near Bagan). There are 222 households here, with a population of 1175. The main livelihood is farming (63% of households), and there is also toddy palm cultivation, and casual labouring (37%).

The land is fertile, but all of it is controlled by rich families. Average landholdings are 7.18 acres, but 28% of households are landless, and the majority of households are poor.

The primary problem here used to be water availability for agriculture, but since 2003 the village has received Ayeyawady river water for both domestic and irrigation use through a government pipeline and electric pump project. This has liberated time previously spent on water collection for other activities, and has also allowed for the development of alternate livelihood activities, such as livestock development and cultivation of a range of crops. Economic conditions here are improving.

The pre-Community Forestry situation

The forest was previously open access, and due to shifting cultivation and rampant firewood cutting it had become degraded, to such an extent that there was little fodder.

The formation process & FUG institution

The FUG was formed in 2003 with the support of JICA and the Dry Zone Greening Department. No particular training was provided for FUG members, and consequently there are fundamental problems here with villagers' considerable lack of awareness level regarding CF. However members did learn how to plant while planting operations were being conducted through hand on training.

- As firewood can be collected from farm boundary plantations and a small village woodlot, some villagers have been reluctant to participate in CF.
- The FD gave the CF certificate to the local authority rather than the Management Committee. Now the local authority thinks they have the responsibility for CF and people therefore believe this. The FD should have clearly explained the separate roles, but they did not.
- Only the chairperson of the FUG knows there is a 30 year land tenure right; others don't understand the land tenure issues as per the Community Forestry Instruction.
- Some MC members do not even know how many acres their Community Forest is.

Google earth image of the Letpande Community Forest and surrounding landscape

- Villagers know that the CF area belongs to the community, but they have little or no knowledge of how CF functions nor do they know how to manage CF.
- Villagers are unaware of their ability to harvest from CF and are not clear which plantation was established by the FUG and which by the FD.
- Landless casual labourers think CF is for landowners, and not relevant for them. They do not know that livelihood benefits can be available from CF.

There is also a leadership problem here: the current leadership is good but the local authority and CF committee leader is the same person. Villagers say that there used to be regular meetings during the project period, but this has stopped for some years now.

There are no apparent conflicts however.

CF protection and management

Forest management amounts only to protection; they don't have a plan. The protection is however effective and there is no overcutting in the CF.

Changes in the forest condition

The forest condition was perceived by the villagers to have become moderately good. *Kyaung Pan* trees have naturally returned in CF, and the supply of drinking water has improved. Howwever the forest survey team found that overall the forest condition was relatively poor, due to poor regeneration, with only a 36% survival rate for the plantation, and few trees present.

Livelihood costs and benefits

- During the project, villagers obtained money through the World Food Programme cash for work initiative.
- They get fodder for cattle from the CF so villagers can breed livestock, providing an additional income stream.
- Nobody earns money from cutting trees for firewood. Farmers and home garden owners have enough firewood from their own sources, although *jaggery* production uses a considerable amount of firewood. Some landless people collect fallen branches for firewood from the remaining degraded forest areas.
- From 5 years after CF establishment, villagers have been able to collect Kyaung Pan seeds from the forest: these are used for medicinal purposes in China and so there is a good market demand for them: one *viss* of seed sells for 700-800 kyats. November is the peak season for collection.

Interviewing an FUG member

However, most of the villagers do not know they can harvest forest products from CF.

Equity?

It is difficult to say how equitable the FUG is. However it is apparent that more benefits are going to the richer households from seed collection.

Sustainability, the future and policy issues

- Irrigation is critical to the development of the village and major benefits have been derived from the improved water supply.
- There are fundamental problems because a significant part of the population have little or no knowledge of CF principles: there is a communication problem in the group.
- More extension activities are necessary to mobilise and include the poorest.
- The FUG has been shown to be working, but in an essentially passive manner.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✘	~	✓	✘	✓	~	✘

7. Mine In FUG: *A stagnating FUG with a deteriorating forest*

The context

Agriculture is the main livelihood activity: 83% of households have cultivable land, averaging about 5 acres each. Labouring is the other main livelihood, with a few households also trading or undertaking salaried work. The wealthier households have a mean annual income of Kyat 4.1million/year, with medium & poor households each having about Kyat 1million/year income.

The pre-Community Forestry situation

Before implementing CF, the site was bare land, but with good ecological conditions and fertile soil.

The formation process & FUG institution

The UNDP initiated CF here with the Forest Department, forming the group in 1996, and continuously supporting for 3 years after that, supplying financial and technical inputs.

The Management Committee is composed mainly of village elders who donated their own land to establish the CF. Although the FUG worked well during the initial project period, but after it finished and support finished the villagers also lost interest. The FUG has become stagnant: there are no longer any meetings, and no leadership. The previous chair resigned and handed over to a new person who lacks a proper understanding of CF. There have been no follow up activities.

FUG members, even the chairperson and general secretary, lack awareness or understanding of what is required of them. The majority of FUG members do not know that they signed to be a member. There has been poor back-up from the FD.

CF protection and management

With the support of UNDP and the FD, the FUG established the Community Forest and planted trees for the 3 years project support period.

The villagers understood the need to conserve CF areas and their protection was initially effective in reducing the over-harvesting of forest products. No-one went and cut the trees from the CF and shifting cultivation and rampant firewood cutting declined.

A Google earth image of the Mine In Community Forest and surrounding landscape

Box 6: Post-project stagnation of FUGs

The lack of sustainability of local resource management institutions created under a project context is a widespread problem both in Myanmar and internationally. In our study we found several FUGs that have stagnated to various degrees due to the discontinuity in support after the ending of project support. Evidently there needs to be a plan in place for sustainable support, and the Forest Department field office has the best capacity to offer this. If there is no such support then the project may have been in vain.

As the villagers lost interest, gradually people from other villages encroached, cut trees for charcoal-making, and are also now illegally taking firewood. But, to minimise the possibility of any inter-village conflict, nobody in the FUG takes the lead to prevent these illegal activities.

Changes in the forest condition

The forest has regenerated to some extent, although it is still in quite poor general condition. The majority of villagers are nevertheless pleased to have the CF near their village.

Livelihood costs and benefits

The main cost has been the initial time input for organising and planting CF. The main benefits are environmental improvement and a supply of fuelwood to collectors from the neighbouring villages!

Equity?

The FUG is pro-poor to the extent that the land was donated by the rich for everyone's use. However, all villagers are now losing out as the benefits are appropriated by neighbouring villagers.

Sustainability and the future

The villagers are keen to re-organize and revitalise the FUG, but need support to do so.

The Mine In CF plantation

The research team surveying the Mine In Community Forest

Policy implications

- This is a stagnant FUG: it accomplished significant achievements but now with no leadership the group's cohesion is dissipating
- Long term capacity-building is important for sustainability: it requires continuous monitoring and support from the FD
- The FUG could be revitalised with support. Facilitating a local network could play this role, as all local FUGs are facing similar problems. However the FD is the only organisation with a current mandate to take action against illegal cutters, which unfortunately it is not doing.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✘	~	~	✘	~	~	✘

8. PWAY HLA FUG: *A poorly formed, stagnating FUG*

The context

The village comprises 450 households with a population of 1500. Their economic condition is generally quite good: main livelihoods are agriculture, although some poor households rely on casual labour. Water is scare in summer here.

The pre-Community Forestry situation

The Community Forest was previously a moderately degraded pine forest

The formation process & FUG institution

This is a 'problem' village as it seems very little has happened here. The FD initiated formation, but didn't seem to give clear information or raise awareness: instead hand-picking people for meetings. No documents related to CF were available to the village by the FD either. It was unclear to villagers even why it was on the FD list of FUGs: they claimed only the village's chief monk knew about this. But the survey team did not get a chance to meet the monk during their visit. Most of the villagers were unaware of the establishment of CF in their village, knowing only that 'it is a forest conserved by the chief monk'.

Community Forest protection and management

Seedlings were supplied by the FD and were planted by villagers along roadsides, in home compounds and on bare land. But beyond seedling supply there seems to be no support.

The village is however protecting and conserving the forest. The village youth group, who undertake social development, helped with forest conservation. Protection, although happening, is not completely effective as some grazing takes place in CF areas and sometimes there are forest fires.

Changes in the forest condition

Villagers said the forest had improved somewhat, and it is currently in a moderate condition.

Livelihood costs and benefits

There is a regulated harvesting system and forest products extracted from the CF are used for the monastery and domestic use. Villagers cut trees with the approval of a monk. NTFPs such as *Curcuma petiolata*, mushrooms are also being extracted from the CF.

A Google earth image of the Pway Hla Community Forest and surrounding landscape

Equity?

Due to the lack of clarity in the site in general, it is unclear what the equity situation is.

The FUG members reflect with the research team

Sustainability and the future

Overall this is a poorly formed FUG, which has now stagnated - but despite this the forest has improved somewhat.

The youth group want to reform FUG in order to be able to implement CF, demonstrating a high level of interest and passion in the objectives of CF and its activities.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	~	✘	~	~	✓	~	✘

9. LWAI NYEINT FUG: *Post project FD support for forest protection*

The context

This village is located close to Inle lake, has 157 households and a population of 688. The main livelihood activities here are home gardening, especially cultivating tomatoes, and fishing. As villagers usually earn money by agriculture and fishing in Inle lake, they have not been so inclined to seek income from CF.

The pre-Community Forestry situation

The CF area was previously barren grazing land.

The formation process & FUG institution

The UNDP project initiated activities here in conjunction with the FD, and the CF was established in 1997. It was 'orally approved' by the FD at that time and the village formally received their CF Certificate a few years later, in 2000.

All villagers are members of the FUG, and all members participated in the planting activities during the project period.

Only a handful of responsible people lead the FUG, having occasional meetings. Generally, there are no mass village meetings to discuss CF, but annually there is a ceremony in which villagers pay a respect to their Chief Monk, and CF topics are discussed.

There have been very few CF related activities since the UNDP project termination. They have no documents for CF, they have not filed reports to the FD and there is no financial record in terms of CF implementation. Only a few people know about CF, and the remaining villagers do not clearly understand what CF is.

There are no conflicts among FUG members. Although there have been conflicts with neighbours, these have been managed with FD support. The FD has helped in the past, but the villagers say they need more support: as the forest matures they need help to protect it, as sometimes there are incidents of illegal felling. There is a clear risk that if the FD neglects communities, then willingness will decline.

CF protection and management

The CF is a large 600 acre area, currently a plantation mainly of exotic *acacia* species.

The FUG members conducted CF operations (planting, pruning, making fire line, patrolling etc.) during the project years, but have done little since. They are still protecting the CF, although other villagers and outsiders. have been illegally cutting. The FUG have taken action against encroachment and cutting, in collaboration with the FD.

Google earth image of the Lwai Nyeint Community Forest and surrounding landscape

Illegal cutting was combated in coordination with the FD through warnings and the setting of fines.

Changes in the forest condition

Before plantation the area was barren but now it is green and the forest condition on the CF site is reasonably good.

Livelihood costs and benefits

Villagers are happy: they say they love the forest as it makes a green environment near their village. Furthermore, springs have re-emerged and the village enjoys an improved water supply.

There has been no benefit sharing among FUG members from CF yet. However, individual members can harvest trees from CF for their domestic use, with the approval of the FUG chairperson. Households can also obtain firewood from the CF plantation. Priority is given to the poor with regards to the use of the CF products.

Pole, post and timbers from CF are used for development activities in the community, for example, the construction of a primary school and nursery, and firewood for the monastery. Some timbers were sold to purchase an iron roof for the school.

The villagers don't rely much on forest products for their basic needs, but they are aware of the benefits of the forest with regard to environmental conservation.

Equity?

No significant equity issues were identified here.

Sustainability and the future

There is desire and motivation among the villagers to continue CF in a sustainable manner, and they recognise the need to revitalise the group.

The Community Forest is in a variable condition

In some areas of the CF undergrowth and regeneration is relatively dense

The FUG members reflect on the group's achievements and current challenges

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protection effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	7. Currently active?
Score:	✖	~	✓	~	✓	✓	~

10. NAR DAUNG HLA FUG: *Plantations struggling in poor soil*

The context

This village, near Inle Lake, has a population of around 400, in 92 households. Livelihoods here are mostly agriculture (paddy and maize), and after the harvest, women earn money from the production of a traditional rice snack (large thin 'crispies' made from glutinous rice) which they sell in the market. Most villagers also depend on shifting cultivation for their livelihood. They are mainly middle level households who have at least some food surplus for the rainy season.

The pre-Community Forestry situation

The forest land originally belonged to monks, and is relatively infertile. The area was degraded and scrubby before Community Forestry.

The formation process & FUG institution

The CF was initiated by the UNDP around 1997, with the UNDP supporting for planting and other activities. The villagers participate in planting activities whenever the Chairman requests it of them. Most of the villagers are not aware of the details of CF however, they just know that the village owns the forest. Villagers do not understand the CF procedures, rules and regulations.

Until recently the Village Development Committee chairman and the MC Chairman were the same person. However, that previous Chair transferred the MC chair to another leader due to the workload strains of the VPDC position.

There is a recurring problem of neighbouring villages entering the forest and cutting it illegally for firewood. Negotiation between FUG members and the illegal cutters was conducted to overcome this problem. The FD and the local authority were also notified.

CF protection and management

There are two areas in the Community Forest: one area is under the management of the local monks, and the other managed by the community. The management objective in both is for both firewood and greening. They have been planting local pine species. Planting is done in July when the rains come and the soil becomes moist. Equal labour division takes place in every CF activity: the heavy work, like site preparation, is conducted by men and lighter work, like planting, is undertaken by women.

A boundary pillar for the Nar Daung Hla Community Forest

The FUG planted trees with the support of the UNDP during the project's initial year and with the support of the FD for greening purposes, up until 2007.

Despite the FUG's best efforts, after 3-4 years the plantation has generally grown only poorly due to the infertile soil. Because of this the villagers anticipated low benefits, gradually lost interest and desisted tending the plantation. And after the project support ended CF activities have ceased.

Protection of the plantation was originally reasonably effective, but is also restrained by it being located far from the village. There has been illicit cutting, and forest fires occur due to the actions of hunters and firewood cutters. Deforestation near the village is also increasing due to shifting cultivation. Due to landlessness, encroachment in the Community Forest remains an issue.

Changes in the forest condition

With limited soil fertility regeneration has been slow and tree cover is generally patchy and thin, although in the 10 acres with dense forest the soil is superior.

Livelihood costs and benefits

FUG members do not get benefits from CF individually. However the CF supports the following:

- Fuelwood collection (around 30 bullock cart) annually for the monastery.
- Firewood can be collected from the CF.
- Villagers can also obtain some naturally seeding medicinal plants from the CF.
- Some places can be used for grazing ground

Equity?

Monks have the most fertile land where there has been the best regeneration, but since there have been few benefits overall equity is not a serious issue here.

Upper areas of the CF remain well forested

Sustainability and the future

- Looking to the future, the villagers feel they need to revitalise activities and improve plantation efforts
- The FD could have closer monitoring and focussed support for stagnating groups
- They need to be more careful in selecting suitable species for poor site and perhaps they need to soil erosion redressal measures such as check dams / bunding etc.
- Overall the FUG is stagnating but still persisting

Firewood collection from the CF

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institut-ionalised?	3 Forest protect-ion effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	*7. Currently active?*
Score:	✘	~	~	✘	~	~	~

11. KONE SHINE FUG: *Powerful outsiders are illicitly felling the CF*

The context

The lowland village contains 57 households with a population of 198. The main livelihood here is agriculture, especially cultivating paddy, tamarisk and ginger. The village is going to be resettled soon to a higher altitude due to inundation by a new dam, although the forest will be unaffected.

The pre-Community Forestry situation

Prior to CF the area was degraded natural forest (moist deciduous and tropical semi-evergreen).

The formation process and the FUG institution

The UNDP initiated FUG formation here: representatives came to village and raised awareness for environmental conservation. They then explained CF and helped form the institution in 2005.

All households are members of the CFUG (although not all their names are listed in the CF certificate). The majority of villagers have been happy to participate in CF activities. Villagers are not fully aware of the details of CF, but they know *"the forests must be conserved and forest products can be systematically harvested"*.

Box 7: FUG leadership and group cohesion

There has been a leadership continuity problem: the previous and effective leader became head of the village tract, but the replacement person has not yet gained the trust of the community, especially in relation to their management capacity. They also seem to be allocating more benefits to themselves from the forest. This has led to deteriorating relations between the Management Committee and ordinary members. Good leadership skills are in short supply, and second line leadership capacity needs to be developed.

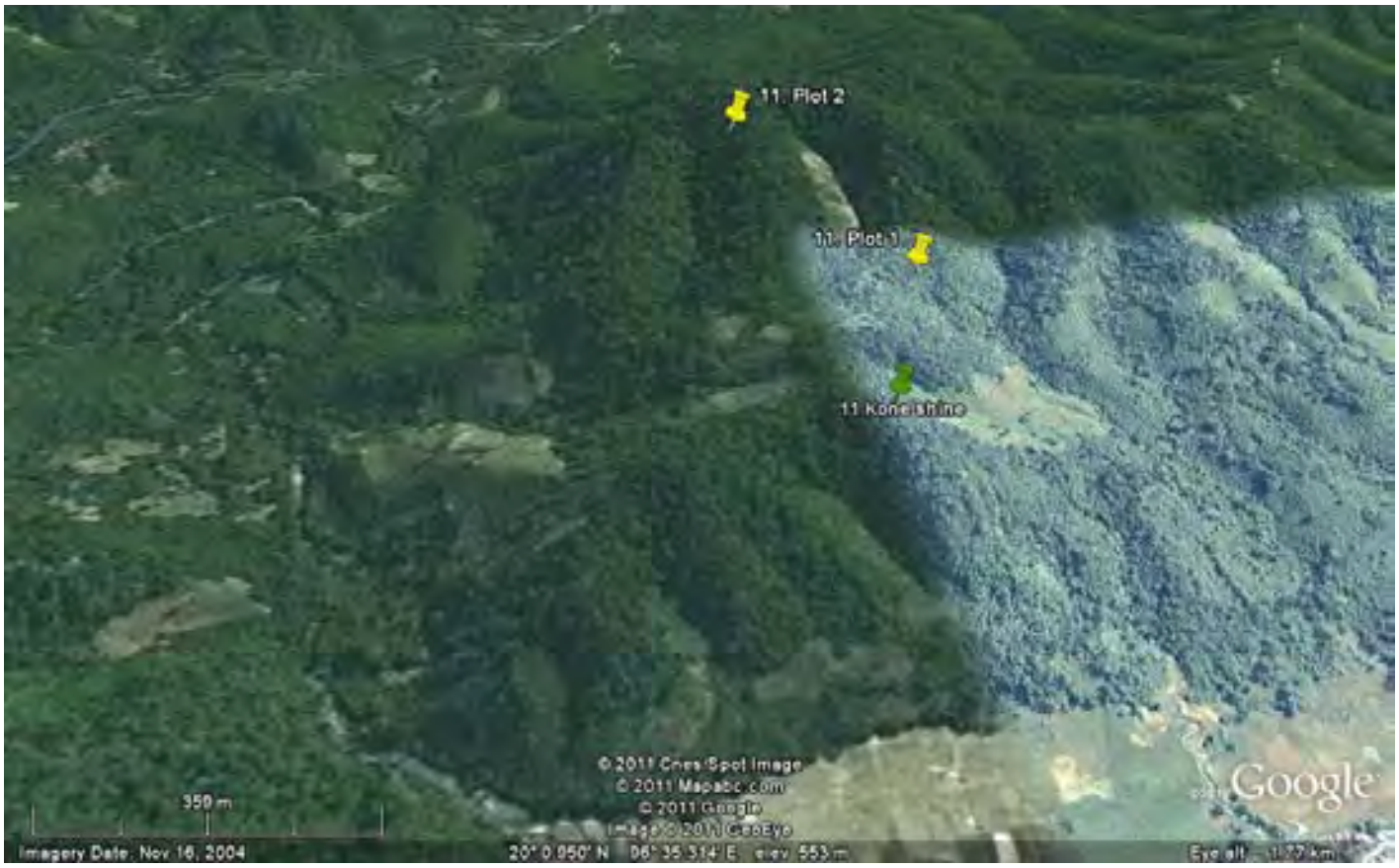
CF protection and management

The CF is 205 acres, mostly remaining natural forest with a small portion of plantation.

Through the UNDP project the village gained the motivation to protect forests for the water source.

As water sources are very important for livelihoods, this is a very common motivation for CF in hill areas. Motivation also came from the need for forest product supply.

Management is collective, manly forestry and in some areas agroforestry. All the members have contributed labour for site preparation, planting, weeding etc. For harvesting, approval must be secured from the MC, and benefit sharing must be proportional.



Google earth image of the Kone Shine CF and surrounding area

But as alternative firewood sources are available near the village (dense natural forests), no villagers cut in the CF.

Box 8: How to stop powerful groups from cutting regenerating forests?

The main problem in this area is widespread illegal cutting. Sometimes the Pao Liberation Organisation, a 'ceasefire organisation' come and cut and neither the village nor the FD can challenge and stop them. Prevention is therefore very difficult. Stronger back-up is needed.

Illegal cutting also takes place occasionally from other villages. There has also been some shifting cultivation.

Changes in the forest condition

The 205 acre natural forest, although threatened by illicit extraction, has improved somewhat to become moderately good, and is now home to a wide array of wildlife, including bears, wild pigs and monkeys.

Livelihood costs and benefits

Forest products from CF have been used for the development of village affairs. Timber is extracted and harnessed for community development, selling and using the money for village roads, the primary school, traditional music instruments, construction of pagodas, utensils for common use for ceremonies and so on.

Pole, post and timber from CF were also used for the reconstruction of houses.

Villagers claim a substantial income from NTFPs like elephant foot yam, turmeric, cardamom, bamboo and thatch which are collected from CF.

Equity?

The situation has in general become less fair, with the Management Committee members apparently taking the majority of benefits. Outsiders also benefit through illegal harvesting.

Sustainability and the future

Overall the village is active but has weak leadership and faces the serious challenge of powerful groups operating illicit felling.

Main issues:

- How can the forest be protected against illegal cutting by outside groups? The FUG needs stronger coordination and support from the FD and influential organisations at the District / township level.
- Even though communities are willing to get involved in CF, local leadership talent is in short supply. It is a '2nd line' problem and current leaders should be thinking of training up their replacements.

Assessing regeneration in the Community Forest

FUG members review their achievements

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition?	5 Improved Benefits?	6 Equitable	7. Currently active?
Score:	✘	✓	✘	~	✓	~	✓

12. TAUNG KYA FUG: *Inequitable land allocation affecting forest management*

The context

The village has 183 households, and a population of around 1000. The majority of villagers are Karens, and the main livelihood here is agriculture, especially harvesting of tamarisk (turmeric) and banana. Additional livelihoods include shifting cultivation, and also collection and selling forest products, especially elephant foot yam.

The pre-Community Forestry situation

Before the establishment of CF the area was used by all the community for shifting cultivation, and so became a mosaic fallows landscape.

The formation process & FUG institution

Twelve households organized privately to take the 230 acre area as a CF site. In the beginning no-one else was interested so the 12 pioneered alone, occupying a fertile forest area where there was more already established natural forest in the mosaic. FUG members thought that a restricted FUG membership would be good for management and cohesion, so other villagers were not allowed to become members. Consequently the other aspirant villagers became dissatisfied.

The UNDP project facilitated formation, and the FD gave assistance for two years after the establishment of CF. In the beginning the UNDP also supported villagers with 'food for work' rice donations for them be able to perform CF. In addition a revolving fund and loan system was initiated to assist the CF.

Most of the villagers do not understand what CF is. They know only to harvest NTFP from the forests for their daily livelihood. The FUG has submitted no annual progress reports to the FD and have no communication with the FD at all.

There is a major conflict in this village between the members and non members. The FUG seems to be a case of 'elite capture' by the more influential people. The other villagers want to participate, use the land and get benefits from NTFP and planting crops through agroforestry. However their requests have not been accepted. The pioneer group prefer to maintain a small group which they see as the optimum size, and say they could not manage a larger group.

Therefore the current FUG suggests that non members form a group elsewhere: Around the village there are many wastelands, but, naturally, the prospective FUG participants don't want to take these. They think it would be fair to get a share of the 'good' forest area.

Google earth image of the Community Forest and surrounding landscape

Box 9: Agroforestry land allocation conflicts

There is also conflict heer within the FUG over Agroforestry land allotment. The land allocation was decided by the Chairperson and General Secretary and it is seen as unfair because the MC allocated the best land themselves. The FUG members who received land far away from the village with poor soil fertility are also unsatisfied. The Forest Department has not been able to provide much help as the FUG has little relationship with them.

CF protection and management

The soil fertility of the CF site is good enough for cash crops, so FUG members have promoted cash crop NTFPs and perennial crops, whilst also promoting natural regeneration of trees.

However there is a serious conflict within the village due to exclusion is affecting forest management. Non-members want to access the NTFPs but the members are not allowing them, so they are in some cases sabotaging some NTFPs. For instance they are cutting broom grass and burning off some forest areas to promote more growth of broom grass. The fire is negatively affecting some planted crops (e.g. betel leaf and cardamom) that are being grown by FUG members in the Community Forest area. Therefore, conflicts between FUG and non FUG members take place frequently.

Illegal cutting has also been frequently occurring, including by a 'ceasefire group' (the PLO). The FUG feels powerless, but in order not to exacerbate the conflict members have not strongly requested the FD to take legal action. Now illegal cutting is gradually decreasing, as the FD and the top level of the PLO try to enforce regulations.

Changes in the forest condition

The natural forest has now become very dense, although trees of commercial timber value are few. There are however abundant bamboos and NTFPs.

Livelihood costs and benefits

Some forest products like pole, post and firewood are donated to the monastery and primary school.

FUG members are getting substantial benefits individually, as each has been allotted a large individual area. Many highly profitable NTFPs can be produced. These include elephant foot yam for which there is a high demand (to process into powder for export to China and Japan).

Some NTFPs are for FUG members only: honey, *waipik – pala*, aniseed, broom grass, elephant foot yam, turmeric, cardamom plant, etc. There are other NTFPs with non-members are allowed to extract.

Equity?

Equity is a major concern here: just 12 households have monopolised community resources and are exploiting the situation through CF. This position has created difficulties for non-participants: shifting cultivators have been excluded and villagers generally are prohibited from collecting NTFPs within the CF area. The dominance of CF in the limited land space has made it hard to find agricultural land that can be extended.

There is no equal benefit sharing even among FUG members: benefits depend on individual land ownership.

Sustainability and the future

This FUG is dysfunctional due to a small elite capturing the village forest for cash cropping. Reform is urgently needed.

Policy issues:

- There is a need for those involved in FUG formation to more carefully consider equity issues relating to resource access There should be better awareness campaigns and those involved should consider potential problems in advance.
- Once groups have been 'mis-formed' they need to receive assistance for review, mediation and re-formation
- There is a need to revise the whole self-selection approach to group membership. The CF Instruction was not explicit on social inclusion protocols. The CFI needs revision to ensure formation is inclusive, in order to avert such conflicts
- NTFPs are very valuable and can provide major income sources, even from standing forests. In CF policy so far the main focus has been on basic needs (eg firewood, poles etc), but there are clearly major livelihood opportunities from taking a commercial approach.
- Illegal cutting by powerful outside groups must be controlled

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition?	5 Improved Benefits?	6 Equitable?	7. Currently active?
Score:	~	✗	✓	✓	✓	✗	✓

13. NYAUNG TABIN FUG: *Recovering after their success was shattered by Nargis*

The context

This Delta village is far from town and is only accessible by boat. There are 125 households here and a total population of 552, which included many transient fishers. The village is 40 acres. The majority of villagers are poor and most earn income from fishing, including crab catching during the spring tide, but in the neap tide days they cut and sell firewood for their livelihood. There is limited social cohesion here.

Before Cyclone Nargis, the livelihood condition of villagers was not bad. But during Nargis perhaps as many as 30% of the village in habitants died, and due to the destruction the livelihoods of the survivors has become much harder.

The pre-Community Forestry situation

The village of seasonal fishers and woodcutters encroached on Reserve forest land to cultivate paddy at least 25 years ago. The FD sought to reclaim the land and evicted the encroachers in 2002. The CF was established at this time. Because most of the villagers' paddy lands were taken back, they have found it more difficult to earn a reasonable income.

The formation process & FUG institution

JICA initiated CF here in 2002, giving support for seedling and some tools for planting, as well as providing jungle boots. The FD also supported the planting.

Because there was no cash-for-work scheme the poorest could not participate - as they live from hand to mouth they cannot give their time.

CF protection and management

The CF comprises 606 acres of natural forest and 31 acres of plantation. The management system focuses on individual plots: planting native mangrove species for fuelwood, posts and poles for houses. FUG members were conducting CF operations and receiving benefits from it up until Nargis struck: mainly posts, poles and fuelwood.

During the cyclone villagers became acutely aware of the importance of mangroves. Subsequently they have become very keen on planting mangroves in the CF. But after Nargis, they could not focus on CF operations due to their struggle for daily survival and because they couldn't control illegal cutting.

A Google earth image of the Nyaung Tabin Community Forest and surrounding area

Also the protection duties could not be done properly, and there was a lot of illegal cutting, when the poor were desperate to sell fuelwood for food.

Since it is mainly the non-FUG households in the village who are illegally cutting for firewood in the CF, the FUG members want them to either join the group, or have their own separate CF area. The non FUG members are willing to establish CF if land is available near the village, and they have applied for land to the FD but not received approval yet. But if lands far from the village are allocated them for CF, they are unlikely to be able to participate because they have no boats to go and work there.

Changes in the forest condition

The forest here had improved before Nargis, but was severely damaged by the cyclone, and after Nargis it has proved hard to protect the regenerated forest from illegal cutting by people desperate for income. As an indicator, the crab population, which had been improving, since Nargis has been depleting due to deforestation.

Livelihood costs and benefits

The cost was severe for many households who lost the paddy land they had occupied when the FD reclaimed it.

Before Nargis struck many villagers started to sell firewood in 2005 and 2006 and were getting some cash income in this way. Poles and post were also harvested from the CF for household use.

JICA has been supporting and funding a scheme for raising oyster culture as an alternative income source.

Equity?

Post Nargis it is the non members who are getting the most benefits, whereas it has been members who put in the most effort to regenerate the area. On the other hand the non-members are the poorest – so it is a complex situation.

Sustainability and the future

The FUG was doing very well but Cyclone Nargis devastated the community. Now villagers are planning to improve the forest condition so that forests can support for disaster risk reduction.

Villagers said their livelihoods would be improved if the FD allowed paddy cultivation, at least in some areas.

Surveying regeneration in the CF

Policy issues:

- Many villagers had encroached land in Reserved Forest areas of the delta, but to recover the environmental conditions the FD should be careful not to jeopardise their socio-economic conditions. To do this successfully requires that realistic alternate livelihoods are facilitated where they are evicted from forest land.
- There is much potential for Payment for Ecosystem Service schemes from Yangon municipal council to local poor for providing storm protection ecosystem services in the delta.

Women members of the FUG discuss with the research team

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition?	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition?	5 Improved Benefits?	6 Equitable?	*7. Currently active?*
Score:	✘	✓	~	✓	✓	~	~

14. BYANT GYI GON FUG: *Self-initiated CF saved their lives*

The context

The village has 35 households, and an area of 219 acres (both cultivation and settlement areas). The main livelihoods here are fishing, small-scale paddy cultivation, and cutting and selling firewood. and the majority of households are poor.

The pre-Community Forestry situation

The forest area had been occupied for paddy cultivation, and was in a degraded condition.

The formation process and the FUG institution

The FUGs was 'self-initiated' in 1996 becoming one of the first groups in the country.

Box 10: Self-initiated Forest User Groups

When existing FUG Chair U Thein Myint heard on the radio that forest plantations could reduce disaster risk, he contacted the local beat officer. Through this contact the township forest helped facilitate the formation of the 'self-initiated' FUG. The Chair organised other villagers to be members of the FUG.

Self-initiation is likely to lead to better motivation in the long term. It is likely to generate a better sense of 'ownership' of the forest, and therefore better protection and management. It is also much lower cost that project-initiated formation.

They received CF certification in the same year. The village was supported under the UNDP and FD collaborating project. The non-FUG members were unconvinced when the FUG initiated the CF activities.

In the beginning many thought CF was just the chairman's obsession. However, following Nargis it was realised that this project was more than just a dream: it was highly desirable and effective. There was a collective realisation of the value of trees and forest for disaster risk reduction, and they also began to understand the fisheries productivity is strongly related to the health of the mangrove forest.

The details of Community Forestry are known to about a third of members. The FUG has not been submitting annual reports since Nargis, partly because they lost their paperwork and Certificate in the storm.

Community Forest protection & management

The CF Management system pre Nargis was plantation of *Avicennia officinalis* and *A. marina* species. The plan was effective, and led to regeneration. But this regeneration work was partly destroyed by Nargis.

A Google earth image of the Byant Gyi Gon Community Forest, right on the seafront

Following Nargis it firewood gradually became more scarce. This was compounded by and illegal cutting by other villages. Illegal cutting is significant here, and neighbours thought of this as a FD forest, and contested to the management committee that this was common property not CF. This is an area of ongoing conflicts. Illegal cutting is still challenging for the group and the villagers want the FD to take effective action on illegal cutting.

Changes in the forest condition

The forest condition had improved until Nargis, and the area was characterised by dense mangrove forests. But now because of illegal cutting, villagers worry there may be no trees left, and they are increasingly exposed to the risk of another natural disaster.

Livelihood costs and benefits

During Nargis, although properties were destroyed, nobody died here, despite the village being located very close to the sea. In other nearby villages many died from the storm surge and high winds, but Byanyikone benefitted from being shielded by its dense mangrove forest and no mortality was reported. (see Box 11)

The forest provides environmental protection, and also a range of other benefits as well as. FUG members are getting poles and fuelwood. After Nargis the forest provided timber to reconstruct damaged houses. Posts, poles and timber harvested from the CF have also been used for the construction of a school, a bridge, a nursery school and a monastery. This demonstrates the extent to which CF aids community development activities.

Equity?

The products are not shared equally: although all villagers are willing to be users members get more. However the enviuronmentqal protection benefits helped everyone

Sustainability and the future

- The village confirms Mangroves can provide a high level of environmental protection in Delta.
- Cyclone Nargis severely damaged the CF site, but the villagers understand the wider benefits of trees and now want to regenerate it.
- FUG lost its certificate during Nargis and is facing illegal cutting due to the effect of Nargis to livelihood food security.

Box 11: Storm protection as a valuable ecosystem service

There is increasing interest around the world, particularly since the Millennium Ecosystem Assessment 2005, to recognise and value the many services which ecosystems provide to human society beyond simply the physical products. In this FUG the value of the storm protection the forest provided to the survivors of Nargis is massive – without it many villagers would probably have died. Can we put a number on the value? Some economists try, but others, especially the survivors, would calculate it as infinite! .

Surveying the Community Forest

The Chairperson who self-initaited the Byant Gui Gon FUG, and his wife.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition?	2 Institut-ionalised?	3 Forest protection effective?	4 Current Forest Condition	5 Improved Benefits?	6 Equitable?	*7. Currently active?*
Score:	✘	✓	~	✓	✓	~	✓

15. TE BIN SEIK FUG: *Ecosystem services more valuable than wood products*

The context

There are 778 households here, mainly poor, with a total population of 3,328. The village covers 500 acres. There are three main livelihood activities here:

- Nipa palm cultivation. After harvesting they are processed into roofing and walling shingles for local domestic use and also for sale to the Yangon urban market. *Jaggery* is also made from the juice.
- Paddy cultivation by landowners.
- Fishing and crab catching, particularly by the landless.

The pre-Community Forestry situation

Originally there had been natural mangrove forests here, but it became occupied and cleared for paddy cultivation, and embankments were created. After about 6 years of cultivation however the soil quality decreased due to acidification, and much of the land was abandoned.

The formation process and the FUG institution

The FUG was 'outside' initiated by the Forest Resource Environment Development & Conservation Association (FREDA) in 1999, and after two years they received their CF certificate. FREDA collaborated with a Japanese NGO on mangrove plantation activities.

There are only 18 member households in the FUG, who are mainly small landowners, having 1-2 acres landholdings. This is has been a fairly well organised FUG but is not particularly dynamic and not all FUG members have participated. Initially the villagers who took control of the FUG with their 'followers' had the ulterior motive to re-occupy the abandoned paddy fields, rather than planting trees. But after about 7 years the leaders moved away to the city, so elite domination issues declined.

CF protection and management

The forest area is stated as 330 acres in the CF certificate, although since the area was planted in 2001 the village has extended the plantation so it is now probably significantly larger.

The management objective for the CF is to produce wood products like firewood, posts and poles.

The poor, who lack boats, have difficulty in reaching the plantation, which is located at a distance from the village. Most non-FUG members have little interest in the CF plantation, but rather are interested in coconut plantation and home gardening.

The CF suits management by coppice with standards.

Google earth image of Tebinseik Community Forest and surrounding landscape

However at the moment they have not been able to obtain permission from the Forest Department to conduct final harvesting in the forest, and the FD is expressing a reluctance to allow it. (see Box 12). It seems that in exasperation some FUG members violated the rules and regulations of CF; for example, they cut the trees from their plantation without taking prior permission from FD. There is some friction with non-members as they too are performing some illegal cutting. Also sometimes fire spreads from adjacent paddy fields which are being burnt off before the planting season and affects the CF.

Changes in the forest condition

There has been reasonably good regeneration.

Livelihood costs and benefits

FUG members are getting poles and fuelwood. Due to CF plantations, firewood is available easily for villagers. The FUG is also providing building materials from the CF to support community development: for village bridge construction, and to build a local primary school and a teacher's house. Beyond the direct wood products the CF provides a number of other ecosystem services which are proving even more valuable, particularly as there have been few direct benefits as final felling has not yet been allowed. The main ones are storm protection and habitat for fish and crustaceans to breed – which is particularly important for the landless.

Box 12: FD reluctant to allow community harvesting

Harvesting of plantations can be included in Community Forest management plans, but it can only be conducted with approval from the Forest Department. But in many FUGs the Forest Department are proving reluctant to give this approval, as they fear the green cover will be lost, and may not return. But as the FD delay giving approval, the villagers feel misled and are losing their interest in CF: if they cannot get the return they anticipated why should they invest their efforts? There is a clear policy implication here – FUGs should only need to notify the FD they are harvesting according to their plan, not seek permission.

- The poor non FUG members are collecting seeds from CF sites. Poor families can collect and sell seeds and propagules from the CF. Following cyclone Nargis this became a significant source of income for them at a time of great need. Many NGOs paid for mangrove seeds and propagules to help many villages replanting mangrove for disaster risk reduction.
- The regenerated mangrove has provided a sheltered nursery area, attractive for crabs and fish to breed in. The fishery has improved, and species such as sea perch have even returned to the area. The local tax revenues from fishery in the region is much higher than value of wood products. The Fishery Department gets tax by auctioning the fishing license, but at present neither the Department nor the licensee pays anything for mangrove improvement.
- Disaster risk has been significantly reduced due to the shelter provided by the trees
- The soil is improving in terms of both the humus layer and declining acidity
- Crocodiles are also returning, with FD promotion. Although it is illegal to hunt them, for the poor and desperate they can provide food and also income from skin export to Thailand or China (but the punishments are severe: up to 7 years in jail).

Now, even some non FUG members are also planting mangrove trees because they have come to understand the benefit to be gained from forests.

Box 13: High value of mangrove ecosystem services

At Te Bin Seik FUG, as with other delta FUGs, regenerating the mangroves has generated a considerable range of highly valuable ecosystem services:

- *Habitat for wildlife, both livelihood species like fish, crabs etc, and also endangered species.*
- *Storm protection, not only locally.*
- *Soil improvements*
- *Seeds and propagules*

Community Forestry can thus play a wider role in sustainable development benefiting both the environment and livelihoods.

Equity?

Although there has been elite domination, there are clearly many benefits across the community and specifically for the poor, most directly from improved fisheries and income from seed and propagule collection.

Sustainability and the future

The villagers want to improve the species composition of in the plantation. However they lack resources to do the seeding, and need further support from some organisations for funds and equipment (e.g. knifes / jungle boots / a boat).

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition?	2 Institutio-nalised?	3 Forest protection effective?	4 Forest Condition?	5 Improved Benefits?	6 Equitable?	7. Currently active?
Score:	✘	✓	~	~	✓	✓	~

16. WARGON FUG: *An effective and successful group*

The context

The village is 20 miles from the nearest township, and transport here becomes difficult in the rainy season: villagers need a boat to get around. There are a total of around 150 village households, and their main livelihoods are agriculture, fishery and home gardening. 40% of households say their main occupation is agriculture, 40% say labouring, and 20% say gardening; for palms; betel and coconut. Most households are poor, having limited land: 70% have land: with a mean of 2.25 acres.

The pre-Community Forestry situation

The forest area was a Reserved area, which had gradually been occupied and cleared for paddy. However after six or seven years, productivity declined due to soil acidification. Thus the area was in a degraded condition before CF was started.

The formation process & FUG institution

From. FREDA NGO initiated CF here with over 100 of the villagers who had been occupying the land. Thus not all the villagers are members of the FUG. When FREDA NGO came to facilitate CF in the village, the cultivators were willing to participate in CF because they didn't want to leave the land without getting some benefit. The 'non encroacher' households were invited to join the FUG, but those doing home gardening and fishing were not interested to invest their time in mangrove plantation:

- they must work day-to-day for their food security, so cannot spare time unlike cultivators in the off-season.
- many are a relatively transient population compared to cultivators, and they consider out-migrating
- the land is far from the village and as landless people lack a rowboat they cannot easily access it

The CF was formed in 2000 by one of the co-authors of this paper, U Muang Muang Than. The FUG is active and holds meetings regularly

CF protection and management

The Management plan was developed and written by FREDA, in consultation with the villagers. The forest is around 140 acres:

- 40 acres is under collective protection for natural regeneration,
- 100 acres is under plantation, by collective management but on individual land allotments, allocated according to household size.

Google earth image of Wargon CF and the surrounding landscape

The plantation rotation is 10 years, and intermediate yields of poles, fuelwood etc, can be produced at 5 and 7 year in both the plantation and natural forests.

Around 50% of the forest is reserved for non members' product needs.

However households are not clearly aware of the details of the FUG management plan.

FREDA have also been providing agricultural support and inputs. There has been some illicit cutting by neighbours, and there has also been some land encroachment by adjacent households, which is causing friction within the village

Changes in the forest condition

The forest has improved significantly through both natural regeneration and successful plantation.

Livelihood costs and benefits

Many villagers lost their occupied agricultural land through Community Forestry. On the other hand FUG members get a range of benefits:

- poles, fuelwood for home consumption, and cash from fuelwood sale
- The community has got building material for school and monastery, contributing to overall social welfare.

Benefits would be even more, however no 'final harvest' of the plantation has yet been allowed by FD, who seem to want to maintain the 'green cover'.

Non-FUG members are also getting significant products:

- They collect tree seeds to sell to neighbouring villages and NGOs. Post Nargis, most villagers sold seed and propagules to organizations working for mangrove reforestation. They got more than 5 million Kyats from selling of seeds and propagules.
- Because of the mangrove plantation wild animals have become more prevalent, so villagers can now harvest crabs, prawns and fish for food and sale. Over half of village members do this sort of collection as a major livelihood activity.

Equity?

The poorer households, most of which are not FUG members, have nevertheless got many benefits from the FUG.

The Wargon Community Forest area

They can now collect the abundant wild animal from CF areas, and also collect seeds and propagules to sell.

Sustainability and the future

Now the non-FUG members have seen the benefits FUG members are getting, and Post Nargis they the recognise importance of environmental protection and the benefits of trees, they are interested to establish CF. However, availability of land is limited and lack of support for establishment of CF.

Reasons for success:

- Powerful leadership (former village chairman) who could give time for CF activity
- FUG members were motivated and active
- Non FUG members also get benefits e.g. fuelwood for own consumption

Regenerating mangroves provide nursery areas for fish and crustaceans to breed.

FUG PERFORMANCE CRITERIA:	1 Prior Forest condition?	2 Institution-alised?	3 Forest protection effective?	4 Forest Condition?	5 Improved Benefits?	6 Equitable?	*7. Currently active?*
Score:	✘	✓	~	✓	✓	✓	✓

APPENDIX I: SUMMARY FUG DATA TABLES

Table 1: Diversity in study sites (by State/ Region)

State / Region	Biophysical - Forest types	Ethnic composition In study villages	Livelihoods	Poverty prevalence ***(based on wealth ranking in study villages):***
Kachin	Moist deciduous	Kachin *Jinfal* / Lisu	shifting & settled agriculture, trade etc.	Lower (8%)
Mandalay	Dry and moist deciduous	mixed – Myanmar, Kachin, Lisu, Shan	shifting & settled agriculture, toddy palm, labour	Higher (43%)
Shan South	Mixed: dry / moist deciduous	mixed – Shan, Danu, Innthar, Myanmar, Karen	mainly settled agriculture, labouring, home garden	Lower (18%)
Ayeyawady	Mangrove	mainly Myanmar, Kayin	paddy, fishing, fuelwood, nipa, home garden	Higher (~50%)

Table 2: Basic Details of the Study Forest User Groups

FUG	District	State / Region	Village			Forest Users' Group		
			Population	House holds	Hh in FUG	CF size (acres)	Acres / member hh	CF age years (2011)
1 Wunyan	Myitkyina	Kachin	4335	600	263	1200	*4.6*	5
2 Gweyutyan	Myitkyina	Kachin	260	70	70	1400	*20.0*	4
3 Sin Gaung Lay	Pyin U Lwin	Mandalay	295	75	5	150	*30.0*	8
4 Pa De Thar Myothit	Pyin U Lwin	Mandalay	39,257	8000	12	100	*8.3*	11
5 Myay Thin Twin	Nyaung U	Mandalay	975	140	140	33	*0.2*	8
6 Let Pan De	Nyaung U	Mandalay	1175	199	199	33	*0.2*	8
7 Mine In	Pindaya	Shan South	1274	308	95	56	*0.6*	15
8 Pway Hla	Pindaya	Shan South	1500	450	46	*?*	-	*?*
9 Lwai Nyeint	Nyaung Shwe	Shan South	688	157	157	600	*3.8*	14
10 Nar Daung Hla	Nyaung Shwe	Shan South	400	92	73	219	*3.0*	14
11 Kone Shine	Pinlaung	Shan South	198	57	8	300	*37.5*	6
12 Taung Kya - 1	Pinlaung	Shan South	1000	183	12	230	*19.2*	6
13 Nyaung Ta Bin	Laputta	Ayeyawady	552	110	55	637	*11.6*	9
14 Byant Gyi Gon	Laputta	Ayeyawady	171	35	35	513	*14.7*	16
15 Te Bin Seik	Phyarpon	Ayeyawady	3328	778	18	330	*18.3*	12
16-War Gon	Phyarpon	Ayeyawady	390	80	45	140	*3.1*	11

Table 3: Pre CF formation forest situation

FUG	State / Region	Previous forest condition *estimated	Forest access & livelihood uses
1 Wunyan	Kachin	✘	Open access - for shifting cultivation, though Reserved Forest
2 Gweyutyan	Kachin	~	Shifting cultivation, neighbours cutting, threat of land grab
3 Sin Gaung Lay	Mandalay	✘	RF firewood compartment. Degraded firewood plantation.
4 Pa De Thar Myothit	Mandalay	✘	Open access - led to degradation & undesired plants. Eucalypt stumps after extraction of industrial raw materials.
5 Myay Thin Twin	Mandalay	✘	Open access - overharvesting & grazing led to bare land
6 Let Pan De	Mandalay	✘	Open access - firewood cutting and shifting cultivation
7 Mine In	Shan South	✘	Open access - barren, though good soil conditions
8 Pway Hla	Shan South	~	*Not clear* - pine forest
9 Lwai Nyeint	Shan South	✘	Open access - barren area
10 Nar Daung Hla	Shan South	✘	Land belonged to monks - infertile soil
11 Kone Shine	Shan South	✘	Open access - gradually degrading
12 Taung Kya - 1	Shan South	~	Traditional shifting cultivators existed, still encroaching - mosaic forest landscape
13 Nyaung Ta Bin	Ayeyawady	✘	Cultivators encroached RF for paddy
14 Byant Gyi Gon	Ayeyawady	✘	Open - overcutting for firewood and cultivation
15 Te Bin Seik	Ayeyawady	✘	Mangroves encroached for agriculture, but soil acidified so abandoned
16-War Gon	Ayeyawady	✘	Mangroves encroached for agriculture, but soil acidified so abandoned

Key: ✘ = poor; ~ = moderate; ✓ = good

Table 4: Study FUG Characteristics

FUG	State / Region	Initiation by?	Year form-ed	Age (years from formation)	Year certificate received	Delay in receiving certificate
1 Wuyan	Kachin	DfID / NGO	2006	5	2007	1 year
2 Gweyutyan	Kachin	DfID / NGO	2007	4	2007	-
3 Sin Gaung Lay	Mandalay	Self	2003	8	2003	-
4 Pa De Thar Myothit	Mandalay	Self	2000	11	2002	2 years
5 Myay Thin Twin	Mandalay	JICA / NGO / FD/DZGD	2003	8	2003	-
6 Let Pan De	Mandalay	JICA / NGO / FD/DZGD	2003	8	2003	-
7 Mine In	Shan South	UNDP/FD	1996	15	1996	-
8 Pway Hla	Shan South	UNDP/FD	*2000*	*11*	*?*	*Not Known*
9 Lwai Nyeint	Shan South	UNDP/FD	1997	14	2000	3 years
10 Nar Daung Hla	Shan South	UNDP/FD	1997	14	1997	-
11 Kone Shine	Shan South	UNDP/FD	2005	6	2005	-
12 Taung Kya - 1	Shan South	UNDP/FD	2005	6	2006	1 year
13 Nyaung Ta Bin	Ayeyawady	JICA / NGO / FD	2002	9	2003	1 year
14 Byant Gyi Gon	Ayeyawady	Self	1995	16	1996	1 year
15 Te Bin Seik	Ayeyawady	JICA / NGO / FD	1999	12	2001	2 years
16-War Gon	Ayeyawady	JICA / NGO / FD	2000	11	2000	-

Table 5: Institutionalisation of Study FUGs

FUG	State/ Region	FUG membership		Appro-priate members included?	Members mobilised ?	FUG initial institutio n alised?	Comment
		% of village	# hhs				
1 Wuyan	Kachin	*33%*	200	✓	✓	✓	Inclusive & well organised
2 Gweyutyan	Kachin	*100%*	70	✓	✓	✓	Inclusive & well organised
3 Sin Gaung Lay	Mndly	*6%*	5	✗	~	✗	Mis-formed: elite capture
4 Pa De Thar Myothit	Mndly	*0.3%*	11	~	✓	✓	Small dynamic village sub-group
5 Myay Thin Twin	Mndly	*100%*	166	✓	~	~	Lack of clarity but initial efforts
6 Let Pan De	Mndly	*100%*	222	✓	~	~	Poor grasp of CF but initial efforts
7 Mine In	Shan S	*15%*	47	✓	~	~	Poor grasp of CF but initial efforts
8 Pway Hla	Shan S	*?*	*?*	*?*	✗	✗	Not launched: no-one understood
9 Lwai Nyeint	Shan S	*100%*	157	✓	~	~	Poor grasp of CF but initial efforts
10 Nar Daung Hla	Shan S	*67%*	73	✓	~	~	Lack of clarity but initial efforts
11 Kone Shine	Shan S	*100%*	57	✓	✓	✓	Despite vague grasp good efforts
12 Taung Kya - 1	Shan S	*6.5%*	12	✗	~	✗	Mis-formed: elite capture
13 Nyaung Ta Bin	Ayrwdy	*44%*	55	✓	✓	✓	Inclusive & well organised
14 Byant Gyi Gon	Ayrwdy	*91%*	32	✓	✓	✓	Inclusive & well organised
15 Te Bin Seik	Ayrwdy	*2%*	18	~	✓	✓	Small dynamic village sub-group
16-War Gon	Ayrwdy	*62%*	50	✓	✓	✓	Inclusive & well organised

Table 6: Community Forest management practices

FUG	State/ div.	CF Management plan	*collective - protection*	*collective - production*	*Individual taungya*	*individual owner / collective manage*	CF size *acre*	*Practice according to plan?*	Protection effective?	Comment
1 Wunyan	Kachin	Mixed protection, timber, taungya	*600*	*300*	*300*		1200	✓	~	Proceeding well
2 Gweyutyan	Kachin	Mixed protection, taungya	*300*		*1100*		1400	✓	~	Good progress – but large forest small group
3 Sin Gaung Lay	Mndly	Plantation		*150*			150	~	~	Clearing some forest areas for cultivation
4 Pa De Thar Myothit	Mndly	Taungya plantation			*100*		100	✓	~	Good plantation, but some fires
5 Myay Thin Twin	Mndly	Plant & natural regen.	*33*				33	✓	~	Occasional illicit felling by neighbours
6 Let Pan De	Mndly	Protection	*33*				33	-	✓	Protection effective
7 Mine In	Shan S	Protection	*56*				56	~	~	Initially effective, but now neighbours cutting
8 Pway Hla	Shan S	Plant & protect	*56*				?	✓	~	Planting & protection but some fire & grazing
9 Lwai Nyeint	Shan S	Plantation		*600*			600	✓	✓	Effective planting & protection with FD support
10 Nar Daung Hla	Shan S	Taungya plantation			*219*		219	~	~	Good initial efforts declined: protection failing
11 Kone Shine	Shan S	Protection	*300*				300	~	✗	Widespread illegal cutting esp. by 'ceasefire' group
12 Taung Kya - 1	Shan S	Taungya cash crops			*230*		230	✓	~	Some illegal cutting esp. by 'ceasefire' group
13 Nyaung Ta Bin	Ayrwdy	Plant & natural regen			*637*		637	~	~	Good initial work, but Nargis major disruption
14 Byant Gyi Gon	Ayrwdy	Plant & protect				*513*	513	✓	~	Good initial work, Nargis disrupted, but still working
15 Te Bin Seik	Ayrwdy	Plant & protect				*330*	330	~	~	FD not permitting harvest. / Illicit cutting increasing
16-War Gon	Ayrwdy	Plant & natural regen	*40*			*100*	140	~	~	Good work. Earning from firewood and seeds

Table 7: Survival of CF plantations

Community Forest	State/Region	Average age (yr.)	No. of sample trees counted	No. of sample trees surviving	Survival %	Species involved
1. Wuyan	Kachin	4	324	300	92.6	1,2,35,81,84,98,195,270,304,339
2. Gweyutyan	Kachin	3	325	311	95.7	1,2,41,90,98,195
3. Sin Gaung Lay	Mandalay	6	100	88	88.0	41,157,195,383,478
4. Pa De Thar Myothit	Mandalay	8	75	75	100.0	195,414
5. Myay Thin Twin	Mandalay	7	50	27	54.0	4,98
6. Let Pan De	Mandalay	7	50	18	36.0	4,478
7. - 12.: no plantations	*Shan*	-	-	-	-	-
13. Nyaung Ta Bin	Ayeyawady	6	50	39	78.0	47,408,411
14. Byant Gyi Gon	Ayeyawady	12	75	63	84.0	122,291,473
15. Te Bin Seik	Ayeyawady	9	75	61	81.3	47
16. War Gon	Ayeyawady	9	100	77	77.0	47,65,408

Table 8: Forest condition by various indicators

CF	Forest health	Ground cover	Erosion control	Wildlife	Biodiv-ersity	Pests/ Diseases	Nat. Regeneration	Water re-source	Illegal extract-ion	Encroachment	OVER-ALL
1. Wuyan	F	G	G	PR	F	PR	F	PR	PR	A	**G**
2. Gweyutyan	F	G	G	PR	P	PR	G	PR	A	A	**G**
3. Sin Gaung Lay	G	G	G	PR	G	A	F	PR	A	A	**G**
4. Pa De Thar Myothit	G	F	G	PR	G	PR	F	A	A	A	**G**
5. Myay Thin Twin	F	F	F	PR	F	A	F	A	A	A	**F**
6. Letpante	F	P	F	PR	F	A	F	A	A	A	**P**
7. Mine In	P	F	G	PR	P	PR	G	A	PR	PR	**P**
8. Pway Hla	P	F	G	PR	P	PR	F	PR	PR	A	**F**
9. Lwai Nyeint	F	G	G	PR	P	PR	G	PR	PR	PR	**F**
10. Nar Daung Hla	P	P	G	PR	P	A	F	A	PR	A	**P**
11. Kon Shine	F	G	G	PR	P	PR	G	PR	PR	PR	**F**
12. Taung Kya-1	G	G	G	PR	F	PR	G	PR	PR	A	**G**
13. Nyaung Ta Bin	G	G	G	PR	F	A	G	PR	PR	A	**G**
14. Byant Gyi Gon	F	F	G	PR	F	A	G	PR	PR	A	**G**
15. Te Bin Seik	F	F	G	PR	F	A	F	PR	PR	A	**F**
16. War Gon	G	G	G	PR	F	A	G	PR	PR	A	**G**
Good (%)	31.25	50.00	87.50	-	12.50	-	50.00	-	-	-	50.00
Fair (%)	50.00	37.50	12.50	-	50.00	-	50.00	-	-	-	31.25
Poor (%)	18.75	12.50	0	-	37.50	-	-	-	--	-	18.75
Present (%)	-	-	-	100.00	-	50.00	-	68.75	68.75	18.75	
Absent (%)	-	-	-	-	-	50.00	-	31.25	31.25	81.25	

Note: G=good; F=fair; P=poor; PR=present; A=absent

Table 9: Summary of forest data

CF	Type of forest	Age (yrs)	No. of trees per ha (all species)	Basal area per ha, m^2	Volume per ha, m^3	Mean tree	Mean Annual Increment /ha		Main species ** see appendix for key*
						dbh, cm	basal area, m^2	volume, m^3	
1. Wuyan	Plantation	4	1,539	7.24	52.87	7.7	1.67	12.21	1,2,35,81,84,98,195,270,304, 339
	Natural forest	-	909	7.10	51.81	10.0	na	na	24, 90, 98, 145, 148, 166, 173, 195, 213, 339, 437, 450, 478
2. . Gweyutyan	Plantation	3	902	6.41	46.81	9.5	2.14	15.60	1,2,41,90,98,195
	Natural forest	-	494	4.28	31.23	10.5	na	na	48,57,90,98,103,142,175,213 ,270,339,349
3. Sin Gaung Lay	Plantation (*Yemane*)	6	684	0.62	4.51	3.4	0.10	0.75	41, 157, 195, 383, 478
	Natural forest	-	2,293	4.65	33.91	5.1	na	na	20,28,50,63,157,266,361,405
4. Pa De Thar Myothit	Plantation (*Yemane*)	8	4,371	3.09	22.56	3.0	0.39	2.82	195,414
	Natural forest	-	1,339	4.33	31.57	6.4	na	na	36,361,405
5. Myay Thin Twin	Plantation	7	279	0.52	3.77	4.9	0.07	0.54	4,98
	Natural forest	-	1,137	0.99	7.22	3.3	na	na	157,236,441,478
6. Let Pan De	Plantation	7	94	0.04	0.27	2.2	0.01	0.04	4,478
	Natural forest		504	3.19	23.30	9.0	na	na	4,47,138,193,476
7. Mine In	Natural forest	-	702	2.46	17.94	6.7	na	na	157,242,319,362
8. Pway Hla	Natural forest	-	143	3.43	25.03	17.5	na	na	325
9. Lwai Nyeint	Natural forest	-	1,102	6.07	44.33	8.4	na	na	58,118,141,232,236,269,285, 319,378,393
10. Nar Daung Hla	Natural forest	-	546	5.17	37.74	11.0	na	na	118, 195, 236, 319, 437
11. Kon Shine	Natural forest	-	726	8.18	59.73	12.0	na	na	86, 204, 257, 405, 434
12 Taung Kya-1	Natural forest	-	262	6.53	47.64	17.8	na	na	83,120,148,265
13. Nyaung Ta Bin	Plantation	6	3,707	9.13	66.63	5.6	1.52	11.11	47,408,411
	Natural forest	-	2,399	0.97	7.06	2.3	na	na	64,122,169,206,369,472,473, 478
14. Byant Gyi Gon	Plantation	12	4,371	16.34	119.28	6.9	1.36	9.94	122,291,473
	Natural forest	-	2,046	4.51	32.90	5.3	na	na	47,64,153,169,291,473
15. Te Bin Seik	Plantation	9	3,865	8.19	59.75	5.2	0.91	6.64	47
16. War Gon	Plantation	9	3,660	19.04	138.96	8.1	2.12	15.44	47,65,408
	Natural forest	-	2,281	10.67	77.87	7.7	na	na	47,65,122,411,478

Table 10: Change in Forest Benefits for FUG Member households

FUG:	State/ div.	Net improved forest benefits?	Forest Products								Env Services				Costs	Comment
			Timber, poles etc	Fuel-wood	fodder	Wild food	medicinal plant	bamboo	other NTFP	agric	spring improved	soil protection	Aesth-etic	Env. protection	Exclusion from access	
1 Wuyan	Ka	↑	↑	↑	↑	↑	↑				↑	↑				○ 54% member hhs getting fuelwood, ○ Fooder; timber for community development
2 Gweyutyan	Ka	↑		↑	↑	↑	↑	↑			↑	↑				○ 71% member hh getting fuelwood ○ Uncertainty over whether they can sell teak
3 Sin Gaung Lay	Ma	↑	↑		↓					↑	↓	↓			↓	○ The few FUG members getting many benefits ○ Severe exclusion of non members for forest use
4. Pa De Thar Myothit	Ma	↑			↓					↑	↑	↑			↓	○ The few FUG members getting many benefits ○ Severe exclusion of non members for forest use
5.Myay Thin Twin	Ma	~		↑	~		↑					↑	↑			○ Improvement in ecosystem service – springs ○ Some hhs getting much fodder & NTFPs
6.Let Pan De	Ma	↑		↓	↑		↑				↑					○ Fodder increase leading to livestock breeding income ○ Tradeable medicinal plant seeds generating income
7.Mine In	Sh	~									↑	↑	↑			○ Outside illicit collectors taking fuelwood
8.Pway Hla	Sh	↑	↑	↑			↑		↑		↑	↑	↑			○ Timber, fuelwood & NTFPs
9.Lwei Nyeint	Sh	↑	↑	↑												○ Community use of poles & timber ○ domestic timber provided - pro-poor basis
10.Nau Daung Hla	Sh	~		↑	↑		↑									○ modest: fuelwood; medicinal plants; grazing
11.Kone Shine	Sh	↑	↑	↑					↑							○ timber for community dev. & house improvement ○ NTFP – yam. Turmeric, cardamom
12 .Taung Kya-1	Sh	↑					↑		↑	↑						○ Many NTFPs traded – very profitable ○ Timber & poles for community development
13 .Nyaung Ta Bin	Ay	↑	↑	↑						↓				↑		○ Pre-Nargis – income from fuelwood sale ○ Poles for hh use
14 .Byant Gyi Gon	Ay	↑		↑										↑		○ Env. Protection from Nargis saved many lives ○ Post Nargis – fuelwood & timber for reconstruction
15 .Te Bin Seik	Ay	↑	↑	↑					↑					↑		○ Timber - community dev: school, teacher house, bridge ○ Post Nargis income from seeds; fish thriving
16. War Gon	Ay	↑	↑	↑					↑					↑		○ Fuelwood & poles – to use and sell for income ○ Selling seeds & propagules to neighbouring villages

Note: ↑ - increasing trend; ~ roughly equal; ↓ declining trend

Table 11: Equity in Forest User Groups: an initial assessment

FUG	State / Region	Equity assessment	Remarks
1 Wuyan	Ka	✓	Good: All village satisfied
2 Gweyutyan	Ka	✓	Good within FUG
3 Sin Gaung Lay	Ma	✗	Mis-formed small group benefiting at cost of large village
4.Pa De Thar Myo Thit	Ma	~	Good within FUG but dissatisfaction with non-members
5.Myay Thin Twin	Ma	✓	Inclusive group
6.Let Pan De	Ma	~	Fairly good
7.Mine In	Sh	~	Rich donated land, but now neighbours taking benefits
8.Pway Hla	Sh	~	Fuelwood shared equally but overall unclear
9.Lwei Nyeint	Sh	✓	Equitable & pro poor
10.Nar daung Hla	Sh	~	Moderately fair
11.Kone Shine	Sh	~	Earlier fair, now MC taking more
12 .Taung Kya-1	Sh	✗	Small FUG taking benefit, wider village loosing
13 .Nyaung Ta Bin	Ay	~	Households lost paddy lands before CF – product distribution fair
14 .Byant Gyi Gon	Ay	~	Not all benefits equally shared across village – poorest can't participate
15 .Te Bin Seik	Ay	✓	Very fair: Poorest households are non-members: they are also getting substantial benefit from seed & propagule sale
16. War Gon	Ay	✓	Very fair- -non members get needs too

Table 12: Indicators of Institutional Sustainability of Study FUGs

FUG:	State / region	*Initially Institutionalised (see ch.4)*	Currently active?	Annual report to FD?	Awareness & understanding	Absence of conflicts
1. Wuyan	Ka	✓	✓	✓	✓	✓
2. Gweyutyan	Ka	✓	✓	✓	✓	~
3. Singaung lay	Ma	✗	✓	✓	✗	✗
4. Pa De Myothit	Ma	✓	✓	✓	✓	✗
5. Myay Thin twin	Ma	~	~	✗	~	~
6. Let Pin De	Ma	~	✗	✗	✗	-
7. Mine In	Sh	~	✗	✗	✗	✗
8. Pway Hla	Sh	✗	✗	✗	✗	-
9. Lwei Nyeint	Sh	~	~	✗	✗	✓
10. Nar daung Hla	Sh	~	~	?	✗	✓
11.Kone Shine	Sh	✓	✓	~	~	~
12 .Taung Kya-1	Sh	✗	✓	✗	✗	✗
13 Nyaung ta Bin	Ay	✓	~	~	✓	~
14 Byant Gyi Gon	Ay	✓	✓	~	✓	✗
15 .Te Bin Seik	Ay	✓	~	✗	~	~
16. War Gon	Ay	✓	✓	✓	~	~

○

Table 13: Conflict issues in Study FUGs

FUG:	State / region	Absence of conflicts	Comment
1 Wuyan	Ka	✓	No apparent conflicts
2 Gweyutyan	Ka	~	Disputes with neighbours, Struggling to control some outsiders from cutting
3 Shwe Myin Thar	Ma	✘	Exclusion: complaint on CF Certificate by non-members
4.Yatketkyi	Ma	✘	Exclusion: Conflicts with village non-members
5.Myay-thintwin	Ma	~	Disputes with neighbours, but FUG wants the FD to handle it
6.Letpante	Ma	✓	No apparent conflicts
7.Mineln	Sh	✘	Disputes with neighbours, illicitly taking fuelwood, but want FD to handle it
8.Pway Hla	Sh	?	*Not known*
9.Lwei Nyeint	Sh	✓	Resolved disputes with neighbours extracting with FD support
10.Nau-taungkya	Sh	✓	Resolved disputes with neighbours extracting with FD support
11.Kone shine	Sh	~	Some illicit cutting and occupation for shifting cultivation
12 .Taung Kya	Sh	✘	Exclusion: Small FUG group excluding wider village who want to participate
13 .Nyaung-tapin	Ay	~	Some illicit cutting
14 .Byankikone	Ay	✘	Much illicit cutting
15 .Telbinseik	Ay	~	Some illicit cutting
16. Warkone	Ay	~	Some illicit cutting by neighbours

Table 14: Support relationships

FUG:	State / region	Support	
1 Wuyan	Ka	✓	NGO (Shalom) and FD both supporting. Also involved in FUG network
2 Gweyutyan	Ka	✓	NGO (Shalom) supporting. Also involved in FUG network
3 Shwe Myin Thar	Ma	✘	FD not enforcing rules despite contraventions (elite pressure likely cause)
4.Yatketkyi	Ma	~	Claim don't need – although conflict with non members persisting
5.Myay-thintwin	Ma	~	FD visits but not significant help; NGO support
6.Letpante	Ma	✘	No apparent support
7.Mineln	Sh	✘	Poor back-up from the FD
8.Pway Hla	Sh	✘	None beyond seedling supply
9.Lwei Nyeint	Sh	~	Some support from FD but more needed to protect trees as they mature
10.Nau-taungkya	Sh	-	*Not clear*
11.Kone shine	Sh	-	*Not clear*
12 .Taung Kya	Sh	~	Limited support from FD
13 .Nyaung-tapin	Ay	~	Previously JICA project, now limited
14 .Byankikone	Ay	✘	Villagers want effective legal action from FD to enforce protections
15 .Telbinseik	Ay	~	Limited help, but limited need
16. Warkone	Ay	~	NGO (Freda) giving agricultural inputs support

Table 15: Issues for the future

FUG:	State / region	
1 Wuyan	Ka	Members uncertain whether they will really get the benefits from their efforts
2 Gweyutyan	Ka	-
3 Shwe Myin Thar	Ma	Non-members want to participate now it is clear CF can be trusted
4.Yatketkyi	Ma	-
5.Myay-thintwin	Ma	Alternative energy supply for jaggery production sought instead of fuelwood
6.Letpante	Ma	Improve communications -want to understand CF principles better
7.Mineln	Sh	Revitalise and form local network as all FUGs groups face similar issues
8.Pway Hla	Sh	Youth group want to reform the FUG – very enthusiastic regarding CF
9.Lwei Nyeint	Sh	They want to strengthen their institution in order to sustain achievements
10.Nau-taungkya	Sh	Want to revitalise & conduct plantation, better choosing species
11.Kone shine	Sh	Improve coordination with FD for enforcement. Train 2nd line leaders
12 .Taung Kya	Sh	Revise FUG to include those excluded
13 .Nyaung-tapin	Ay	Renovate forest condition and include non-FUG members
14 .Byankikone	Ay	-
15 .Telbinseik	Ay	Plantation to improve species composition
16. Warkone	Ay	Non members want to form their own FUGs

Table 16: Summary of FUG indicators:

FUG:	State/ div.	1 Prior Forest condition	2 Institut-ionalised ?	3 Forest protect-ion effective?	4 Forest Condition	5 Improved Benefits	6 Equitable	*7. Currently active?*
1 Wuyan	Ka	✗	✓	~	✓	✓	✓	✓
2 Gweyutyan	Ka	~	✓	~	✓	✓	✓	✓
3 Shwe Myin Thar	Ma	✗	✗	✗	✓	✓	✗	✓
4.Yatketkyi	Ma	✗	✓	~	✓	✓	~	✓
5.Myay-thintwin	Ma	✗	~	~	~	~	✓	~
6.Letpante	Ma	✗	~	✓	✗	✓	~	✗
7.Mineln	Sh	✗	~	~	✗	~	~	✗
8.Pway Hla	Sh	~	✗	~	~	✓	~	✗
9.Lwei Nyeint	Sh	✗	~	✓	~	✓	✓	~
10.Nau-taungkya	Sh	✗	~	~	✗	~	~	~
11.Kone shine	Sh	✗	✓	✗	~	✓	~	✓
12 .Taung Kya	Sh	~	✗	✓	✓	✓	✗	✓
13 .Nyaung-tapin	Ay	✗	✓	~	✓	✓	~	~
14 .Byankikone	Ay	✗	✓	~	✓	✓	~	✓
15 .Telbinseik	Ay	✗	✓	~	~	✓	✓	~
16. Warkone	Ay	✗	✓	~	✓	✓	✓	✓