

**Farmer Field School for Sustainable Development in Myanmar
Upland Project in Sadung and PaO Regions**

Report of Mid-term Review

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Executive Summary

Metta Development Foundation has pioneered an approach to development of Farmer Field Schools for the uplands, which has been implemented since 2003 in Kachin and Shan State, Myanmar. This mid-term review falls one year before the end of the five-year project. An additional one-year extension would be useful to consolidate lessons learned and show impact. The review is intended to identify the results of activities and impacts, especially in capacity-building; determine the effectiveness of the project in terms of opium eradication, and provide recommendations for improvement of the FFS approach.

Review methods included evaluation workshops with facilitators, Area Coordinators and project management; group discussions in six villages; and individual interviews with project managers and staff. The report is organized roughly around the project objectives, expected results and indicators.

Some selected analysis and conclusions of the report include:

- The adoption of technologies varies (perhaps due to differences between agro ecosystems) with IMO/natural fertilizers, composting and perennial crops as the most popular technologies, while rice and upland technologies have been less widely adopted
- Perennial crops cultivated will may be worth on average value of MMK 4,028,009 (USD 3,006) farm at maturity in 5-6 years; or twenty times the USD 217 that the average poppy-growing household in Myanmar earned from opium in 2006
- The opium ban now enforced has greatly reduced the amount of opium cultivated and strengthens the need for continued alternatives to be presented to former poppy-growing communities.
- The Naung Kham agricultural research and training center is strong, effectively showing a variety of trials and technologies that were developed in participation with the farmers during the TOT.
- Although facilitators are often young and may lack experience, they are enthusiastic and have gained confidence as a result of testing and teaching experiences
- *Women's participation needs to be strengthened; in PaO although women constitute one-third of FFS participants, only one woman attended the TOT*
- *Although some communities have gained capacity to plan and implement activities, they are not yet able to monitor results. Processes need to be strengthened and follow-up support provided perhaps initially through pilots.*
- Project management in Naung Kham is strong and well on the way to self reliance (except funding). In Sadung, management is constrained by conflict.

Selected recommendations are to:

- Request a one-year no-cost extension to allow extra time for impact
- Strengthen follow-up for technical support, organizational support in the villages, monitoring and record-keeping to document achievements.
- strengthen technologies by making them more simple and relevant
- conduct a final impact assessment/comprehensive impact monitoring survey in two years time

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1. Mid-term review rationale and objectives

The 'Farmer Field School for Sustainable Development in Myanmar: Upland Project in Sadung and PaO Region' has been in operation since January 2003. The goal of this five-year (2003-2007) project is to develop the capacity of farmers, especially former opium poppy farmers, to achieve significant improvements in food and livelihood security that are not based on poppy growing. Implemented in partnership with local organizations, the project uses a farmer field school (FFS) approach to enhance farmers' skills and create awareness among communities of alternatives to opium cultivation.

This Mid-term review is intended to determine how project inputs impact the lives of the communities, and how farmers are responding to the project's effort in opium elimination. The review was conducted one year before the end of the project, so that the conclusions and results can still be incorporated in the final year of FFS implementation under this project period. The main stakeholders of the evaluation are Metta (the implementing organization), the donor organizations, and the communities that are involved with FFS and other agencies active in Myanmar who are interested in the FFS approach.

As specified in the TOR the **overall objectives of the review** are to:

- 1. identify the specific results of the FFS activities and their particular impacts on the communities, particularly how FFS is building the skills and capacities of the farmers and the communities, and how these skills are translated into social and economic gains*
- 2. determine the effectiveness of the project in terms of the extent of opium eradication, and the efforts and the influence that it has made over the farmers, the communities and the partner organization to disengage farmers from opium cultivation*
- 3. provide specific suggestions and recommendations, drawing upon the results of the project on how to strengthen its overall efforts and the quality of the FFS.*

The review addresses each of the specific objectives and related results outlined in the project log frame¹. The specific project objectives are:

- 1. To divert agricultural activity away from opium cultivation into a diverse and integrated form of farming*
- 2. To empower and enhance the decision-making abilities of rural households in 300 communities*

¹ Metta Development Foundation Project Proposal for 2003-2007, Farmer Field School for Sustainable Development in Myanmar. Annex A, Logical Framework.

3. *To facilitate and strengthen community effort and participation in planning, implementing, monitoring and evaluating community based initiatives for sustainable rural development*
4. *To create self-reliance in PNO and NDA-K in the areas of planning, managing and coordinating FFS within communities*
5. *To enhance awareness of the possibilities created by FFS and to influence other local, national and international organizations to create interest in supporting similar approaches in other parts of Myanmar*

The review follows the guidelines set out by Novib for partner evaluations, and the report is organized around the project objectives, and expected results and indicators as set out in the project log frame.

2. Mid-term review methods

2.1 Sadung review methods

Because the evaluator was unable to visit the Sadung area for security reasons, a review workshop with the participation of 11 farmer-facilitators and relevant project staff was held in Alam CARD Center on 10 and 11 October 2006. This two-day workshop had as its objectives:

1. To evaluate the success of the FFS upland project against its objectives.
2. To document the changes that has taken place on farms and in the communities.
3. To identify possible improvements in the project.

The workshop used a standard format of structured small group and plenary discussions. In addition to the workshop, the evaluator interviewed the NDAK counterparts and relevant staff, as outlined in Annex A, evaluation schedule.

2.2 PaO area review methods

In the PaO area the evaluator visited a total of 6 villages, distributed geographically among the mountainous area and rolling lands, and representing both successful and less successful FFS and model farms. In each village, group discussions were held with FFS attendees. In addition, group discussions were held with farmers who were not participating in the FFS, and women-only groups. Besides the village visits, an evaluation workshop was held with project staff, and individual interviews conducted with senior project staff as well as PNO leaders (see Annex A for detailed schedule).

2.3 Limitations of the review

As the project covers a large area in Shan State and Kayah, there was not enough time to see all of the project areas, and so the range of project successes and recommendations for improvement articulated here likely lack some important perspectives. The lack of time to visit Kayah, where the project seems to have had a high success rate already, is especially regrettable. However, the field visits in the Pa O area concentrated in the region around Menetaung, providing an excellent opportunity to see the project successes and weaknesses in former poppy-growing households in a difficult mountainous environment.

As for the Sadung area in Kachin, an area that is particularly troubled, only limited information is available on which draw conclusions. The project team has been unable to visit the field for over a year and has virtually lost contact with activities in the villages. A group of 11 facilitators (of 30+ invited) were able to come to Alam for the review workshop. But because of conflict, activities have been disrupted for the last year. For all these reasons, this report focuses heavily on PaO rather than Sadung. The project results were designed to be equally divided, with half the indicated target quantity applying in each area. Few achievements can be shown from Sadung, consequently the overall achievements against indicators are much less than targeted.

An internal constraint of the evaluation is that it fell somewhere on the spectrum between an impact assessment and a Mid-term review. The TOR was initially written for an evaluation, albeit conducted one year before project end in order to allow time to apply lessons learned from the evaluation. As the project will likely request a one-year extension, and as technologies in uplands take time to root through a process of learning and adaptation, this evaluation should be considered as a Mid-term review.

A thorough impact assessment would have necessitated a quantitative survey, and/or an analysis of complete and detailed project monitoring records. Current project monitoring mechanisms are not yet sufficient to assess progress on indicators of adoption rates or number of farmers that have improved capacities, beyond the level of FFS facilitator.

3. Project background

3.1 Project area context

The project area in Sadung and PaO covers a variable landscape with three broad types of agricultural lands. Sadung and hilly areas of the PaO region are mountainous, with predominantly rain-fed sloping lands cultivated in rotational fallow systems (*taungya*). In the mountain valleys and rolling land areas of PaO there is a mix of rain-fed lowland fields (*ya*) with limited irrigated paddy land (*leh*). Crops cultivated range from rice and maize in the sloping land fields to maize, wheat and legumes in rain-fed fields, and rice in rain-fed or irrigated paddy fields.

The Sadung and PaO project areas exhibit contrasting social and historical characteristics. The Sadung area is populated by several distinct ethnic groups, while the PaO area is homogenous in terms of ethnic and religious identity. The Sadung area is further divided by different religious/church membership affiliation and competing political groups. The picture of Sadung that was painted by the evaluation workshop participants is one of communities riven by internal strife and competing outside pressures. This has been exacerbated by the recent renewal of open conflict and hostilities between armed groups, and the resulting restrictions on travel and economies, and 'labor demands' of open conflict.

Although there are also two main competing political groups in PaO, they are able to cooperate with each other while maintaining positive working relations with government, and thus provide protection and assistance to the villages rather than letting communities be caught between competing factions.

The opium context in Sadung and PaO area is also contrasting. In Sadung, opium has been historically cultivated longer, although with a recent upsurge. Opium addiction rates in the region are high, and this contributes to poverty and strife. In contrast, opium has only recently begun to be cultivated on a large scale in most of PaO, within the last several years, or ten at the most. Villagers described the decision to cultivate poppy as made on the basis of recent market opportunities for increased income, rather than an economic staple that has been handed from generation to generation. In PaO, farmers have traditionally relied on non-opium cash crops for food security, especially *thanathpet* leaf, and farmers still have the skills to grow these crops. In PaO the challenge is to revive the former crops and expand cash crop opportunities.

3.2 Project process and activities achieved

The project uses an approach of creating farmer-facilitators with a season-long Training of Trainers at a central training center and demonstration farm. Farmer-facilitators then return to their village and teach the remaining interested farmers the technologies in the following year's rice season. The facilitators, often together with village-level FFS participants, also develop their farm as study field and model farm.

The project began in 2003 with a 'preparation year' and first Training of Trainers (TOT). The project has since organized 4 season-long TOT in PaO region and 1 in Sadung region. Facilitation of FFS in the village started from the second year (2004). The second year served as the learning year for the project to develop and revise its overall methodology and the approach to FFS. That same year also gave an opportunity to the 2003-graduate facilitators to test their skills and learn from the difficulties they encountered in implementing FFS, so the third year (2005) was the first year in which facilitators were able to facilitate FFS with full confidence. The impacts of village-level FFS as presented in this report are thus the result of 2005 and 2006 only; or two years of adoption in the village (based on the previous year's learning in FFS).

The project has been implemented in partnership with local organizations PaO National Organization (PNO), Shan State National Peoples Liberation Organization (SNPLO) in Shan State, and New Democratic Army, Kachin (NDA-K) in Kachin State.

3.3 Farmer field schools in the uplands

The FFS approach was initially developed in Indonesia at a time when the liberal application of chemical inputs was causing the collapse of wet rice agro ecosystems. The approach was developed to rapidly help a large number of farmers to understand agro ecological principles and the use of Integrated Pest Management (IPM), or semi-organic farming with targeted, discriminate use of pesticides. The FFS approach has since been widely adapted, though usually on the basis of improved rice mono crops in lowland wet rice fields.

This project is one of the first, if not the first example in Southeast Asia, to adapt FFS as an approach to raise capacity for improvement of the diverse and complex farming systems of the uplands. These systems are typically locally variable, and include a wide repertoire of crops grown in rotational fallow on sloping lands as well as permanent agro forestry plots. The challenges of working in the context of uplands agro ecosystems needs to be taken into account when considering impacts and constraints of the project thus far.

3.4 Technologies and approaches used in TOT/FFS

Technologies that are being tested, demonstrated and taught at the Naung Kham Training Center and through the Farmer Field Schools include:

- Rice and land preparation technologies referred to as System of Rice Intensification (SRI) and Improved Method (IM). These are two distinct methods of spacing, timing, and managing water for rice cultivation, though both emphasize proper seed selection and land preparation as a foundation (which can be adapted in non-irrigated, non-rice lands).
- Kitchen Gardens: using improved cultivation methods and increased variety of vegetables grown
- Sloping land soil and water conservation technologies combined with perennial and annual crop cultivation/agro forestry
- Nursery seedling production, plant propagation technologies such as budding and grafting
- Preparation of organic soil amendments and other fertility and pesticide concoctions are an important aspect of the technologies, key among them the preparation of compost. 'Plant juice' is a leaf-applied fertilizer, and 'vegetable soup' for ground application, which like 'Dochakin' make use of indigenous micro-organisms (IMO).

As the critical part of the process of learning technologies, TOT trainees learn how to experiment. Groups of facilitators identify topics to research, and design and implement a test. Lectures on components and concepts of agro ecosystems are offered as background and complements to the tests and technologies. Finally, the facilitators at the TOT are taught approaches to organize and hold a farmer field school. One full week is dedicated to this, with training topics including:

- Community FFS planning and village meeting
- Community mapping
- Goal setting and goal and baseline analysis
- FFS action plan
- FFS practical session

For more detailed information on technologies and approaches taught see the annual project reports and TOT training curriculums from 2003 through 2005.

4. Objective 1. Increases in diversified production: *Analysis and conclusions*

Objective and expected result ²	Objectively verifiable indicators
Objective 1: To divert agricultural activity away from opium cultivation into a diverse and integrated form of farming	More rice crops and production; significant reduction in opium cultivation.
<i>Expected result 1: Core groups of farmers are capable of managing and improving their farms effectively and efficiently</i>	<ul style="list-style-type: none"> • <i>6000 farmers, on an average 20 farmers in each of the 300 communities, have improved their capacity to better manage their farm</i> • <i>Crop yields and incomes of those farmers increased nearly double and all farmers considerably reduced opium cultivation</i>

This objective speaks to the *impact* on farms, including increases in farmers' choices of agricultural technologies, their economic gains, and decrease in opium cultivation. The project has clearly contributed to increased production and diversification of crops, though not yet to the extent originally anticipated. The adoption of technologies is variable, with some technologies favored more than others, and potential gains in perennial crops the most clear. Opium production has been drastically reduced.

4.1 Adoption of technologies

Upland agro ecosystems are diverse, and appropriate technology demands differ from one village to another. The adoption of technologies is logically also variable, with project records showing **IMO/natural fertilizers, composting and perennial crops as the most popular** technologies, whereas paddy rice and upland technologies have been less widely adopted (see Table 1). Those technologies that are not widely adopted may be inappropriate for most households, or may not be clearly understood by the FFS facilitator, and thus not clearly proven on model farms or in the FFS.

² Metta Development Foundation Project Proposal for 2003-2007, Farmer Field School for Sustainable Development in Myanmar (21 May 2003), Annex A, Logical Framework.

Table 1 No. of FFS farmers by technology adopted³ in 2005 and 2006 (PaO area)

No. farmers 2005 and 2006	IMO and fertilizers	Compost	Perennial crops	Rice seed selection	Seedling nursery	Improved method	Contour farming
PaO area	118	44	78	10	21	21	
Shan/Kayah	60	85	20	48	18	11	29
2005 Subtotal	178	129	98	58	39	32	29
PaO area	104	97	165	58	11	7	-
Shan/Kayah	80	115	102	27	-	-	-
2006 Subtotal	184	212	267	85	11	7	-
TOTAL	362	341	365	143	50	39	29

The total number of farmers completing the village-level FFS in the PaO area was 232 in 2004, 451 in 2005 and 536 in 2006 (see Table 6 in section below). Table 2 shows 2005 and 2006 adoption rates calculated by *percent of farmers who had graduated in the preceding year* (assuming that farmers adopt technologies the year after they have completed the FFS)⁴.

Table 2 Technologies by % FFS farmers adopting in 2005 and 2006* (Pa-O area)

Pct. grads. adopted	IMO and fertilizers	Compost	Perennial crops	Rice seed selection	Seedling nursery	Improved method	Contour farming
2005*	77%	56%	42%	25%	17%	14%	13%
2006**	39%	29%	22%	13%	9%	7%	6%

*n=232 total no. of farmers completed FFS in 2004; **n=451 total no of farmers completed FFS in 2005

Given the constraints of the difficult work environment and the still-developing capacities of facilitators and Area Coordinators, the project is up to now not keeping systematic records of activities beyond the farm of the FFS facilitator (see footnote 3). However, the **lack of systematic records of FFS-completed farmer activities makes it difficult to quantify adoption for project monitoring** and evaluation purposes. This is especially true for measuring progress against the objectively verifiable indicators listed above.

³ Table developed from project records. These project records are collected during the annual review meeting of FFS facilitators; the numbers are retrieved from either facilitators diaries or an estimate made by the facilitator during the workshop. Kitchen gardens excluded because is not a new technology for PaO ethnic group and thus difficult to measure. These types of records are not available for the Sadung area.

⁴ It is possible that some of the adopters were graduates of the same year, and therefore that the actual percent of FFS graduates adopting the technologies may be lower than what is roughly calculated here. See also Metta Foundation Annual Report 2005, Upland Project in Sadung and PaO, p. 13 Table 5, for estimates of technology adoption by PaO project sub-area.

Although in theory it should expand the impact of the FFS, the roll-on effect, i.e. the number of non-FFS farmers who adopted a technology after learning it from FFS farmers, is not measured for this review. It may in fact be too early in the project life to measure any roll-on effect.

The number of farmers adopting technologies in the Sadung area is likely much lower than that in the PaO area, partly due to the recent gap in project activities in Sadung; but also because the number of facilitators trained and FFS held was less.

Project staff, including the Area Coordinators, noted that the spread of the concept of organic farming and its benefits for both farm family and soil health, was an important positive impact in the villages.

4.2 Composting and natural amendment technologies

The technologies of using indigenous microorganism to make ‘plant juice’ and ‘vegetable soup,’ as well as making compost and natural pest repellents, have been **popular and widely adopted** (see Table 1). These are used in the rice field, kitchen garden, nurseries and perennial crop plantations. Village discussion participants described the advantages of having fertilizer made from readily available materials, as everyone has access, and those who bought fertilizer in the past no longer need to do so, thereby saving money. The same was mentioned as an advantage of the natural insect repellent recipes.

However, in some villages, notably on Menetaung, villagers said they were **unable to adopt composting due to the lack of animal manure**. The TOT includes a component on using green manure materials with IMO for leafy compost, but this has not yet been widely adopted.

4.3 Kitchen gardens

The project design envisioned that improved kitchen gardens would be the short-term income component for upland farmers in transition out of opium. In Table 1 and Table 2 above PaO gardens were not included as they are a long-standing technology, and so adoption is not easily measured. However, evaluation discussion results indicate that even **in PaO the kitchen gardens have improved** due to the introduction of organic methods, natural fertilizers, and new varieties of vegetables. In PaO the improved yields may have improved household consumption and nutrition, but not income, as most households grow their own vegetables and there is no ready market in the village.

The picture of kitchen gardens in Sadung is quite different, as there is no tradition of home gardens. The evaluation workshop participants from **Sadung ranked the kitchen garden as both highly successful and highly important**, because in the past Sadung households had to purchase vegetables, but now they are able to grow their own and therefore save money. Of the 11 farmer-facilitators at the workshop, 10 are now growing their own vegetables using natural fertilizers and other technologies learned, as well as new varieties such as cauliflower. Four of the eleven are able to sell vegetables from the kitchen garden, for between Myanmar Kyat (MMK) 10,000 and 50,000 total income over the two or three-month winter season.

4.4 Economic impact of perennial crops

The clearest results in terms of economic value of agricultural diversification are seen on the model farms of the facilitators. According to Naung Kham project records, 82 model farms were established in the years 2004-2006. Farms range from 0.4 to 4 acres in size, and crops planted including orange, honey orange, sweet orange, mango, plum, apple, tea, coffee and dot fruit. Some of these seedlings were provided by the center as ‘start-up’ for establishment of the model farms, while others were collected, nursed or bought by the facilitators themselves.

By multiplying the potential yield at maturity by the current price of the fruit, we can estimate the cumulative annual harvest of these farms to be worth MMK 330,296,750; and divide by 82 farms to find an **average value of MMK 4,028,009 (USD 3,006) per model farm⁵** at maturity in 5-6 years as outlined in Table 3 below. An average of MMK 4,028,009 (USD 3,006) is **twenty times the USD 217 that the average poppy-growing household in Myanmar earned from opium⁶ in 2006.**

This calculation is based on today’s fruit prices and does not include the value of the land. The calculation also does not take into account the seedling survival rate. Since farmers are still developing their farms, this figure is probably a conservative estimate.

⁵ Model farm: In this context “model farm” means that TOT alumni return home and carry out cultivation in their own plot of land without outside financial support. In other words they make these efforts for their little farm to be exemplary.

⁶ UNODC. Opium Poppy Cultivation in the Golden Triangle. October 2006. Fact Sheet.

Table 3 Potential economic value of perennial crops on model farms in PaO area

Crop Name	Average yield per matured tree (viss)	2006 local price/viss (kyat)	Age of maturity (years)	No. of trees on all 82 model farms 2004-2006*	Overall annual yield value at maturity
Orange	20	200	5	10013	40,052,000
Honey Orange	10	1000	5	6743	67,430,000
Sweet Orange	15	500	6	6040	45,300,000
Mango	20	800	6	9412	150,592,000
Plum	10	400	6	3831	15,324,000
Apple	5	2000	6	30	300,000
Tea	0.25	2000	5	1700	850,000
Pear	30	500	7	100	1,500,000
Coffee	0.25	2500	4	350	218,750
Avocado	20	300	7	100	600,000
Banana	10	200	2	600	1,200,000
Dot fruit	20	800	8	430	6,880,000
Pine apple	1	200	2	250	50,000
TOTAL				39599	330,296,750

*Source: Project records

Farmers expressed a **clear demand for perennial crops**. Nearly all farmers in discussion groups were enthusiastic about seedlings and technologies like budding and grafting for plant propagation. The Sadung evaluation workshop participants ranked perennial crop plantations as a highly successful and highly important activity. The **community nurseries are popular**, with 43 in 2005 and 19 in 2006 in PaO alone, and significant numbers of seedlings distributed. In some villages, discussion participants said that the access to seedlings in the FFS nursery was one of their main motivations for attending the farmer field schools. Some farmers have established nurseries individually. Planting wild citrus and mango for root stock for eventual grafting of improved high-value varieties seems to have taken off, partly in anticipation of continued assistance from the center in distributing appropriate mother plant material.

4.5 Rice technologies

System of Rice Intensification (SRI) and Improved Method (IM) technologies have been adopted by few farmers as a package, which is surprising given what seems to have been a wide adoption of these technologies in Kachin State⁷. Although project records indicate that 32 farmers adopted IM in 2005 (see Table 1), an informal count among center staff during the evaluation discussions came up with less than 12 farmers still continuing with IM today in the PaO area.

⁷ See Aung Din and Morrison, Evaluation Report, Farmer Field School for Sustainable Agricultural Development in Myanmar, December 2003.

The participants in the Sadung workshop rated this technology as only average in success and importance. The labor (transplanting and cultivation requirements) and water management demands of SRI were cited as constraints of high capital and labor inputs that make it difficult to adopt; constraints that are also cited in the lowland FFS evaluation report^{8[7]}. IM seems to be more readily adopted.

However, **quality rice seed selection is more widely used** to help increase yields (see Table 2). This is confirmed by evaluation workshop results and village level discussions. Quality rice seed selection alone can contribute to significant increases in rice yields. In addition, farmers are likely using components of the SRI and IM technologies, such as preparation of land using compost, application of plant juices, production of quality seedlings and crop spacing, though not the entire package.

4.6 Sloping lands technologies

The soil conservation benefits of contour lines and hedgerows and fertility benefits of incorporation of leguminous species take a few years to 'show results' on a farm, making these technologies slow to take off most contexts in Southeast Asia. However, the technologies should still be properly presented to increase the range of farmers' choices. Discussions with PaO center staff and a look at the farm demonstrates that **contour line upland technologies are poorly understood and presented**. Area Coordinators who graduated in 2003 were unable to identify the correct way of finding a contour line with an A-frame, and the hedgerows planted in the first year at the Naung Kham training center are not on the contour. This technology, which is already at a disadvantage in terms of time taken to show result, may have further lost a year or two due to improper extension.⁹

4.7 Opium reduction

An opium ban enforced by both local authorities and the Government of Union of Myanmar (GOUM) took effect in the PaO and Sadung area in 2004/2005, and resulted in a sharp decrease in the amount of opium cultivated. The reduction in poppy is not directly linked to the alternatives the project presents, but rather to what villagers perceive as a policy of no tolerance of poppy cultivation on the part of local authorities.

However, with the exposure to alternate farming systems, farmers are encouraged to persist in engaging licit farming systems and are better-equipped to resist the economic attraction of poppy. The TOT training centers and the village FFS help communities make the transition to non-poppy based farming. In this sense the FFS project helps to promote and implement a policy of change in agricultural systems, and most importantly, supports farmers in the face of a forced and difficult economic transition.

⁸ Ibid, pp 14-15

⁹ This conclusion is disputed by Humayun Kabir, Program Expert.

4.8 Summary of conclusions related to objective 1:

- ***A limited number of farmers have diversified and integrated their farming systems based on the training received at the training centers and in the village-based FFS. When compared to the objective of reaching 6,000 farmers, or 3,000 in each of the two main areas, the achievements are lower than targeted. Constraints include the conflict in Sadung, the opium context and the time needed for the FFS process to take hold widely at the farm level.***
- ***Adoption of technical components is variable which is in keeping with the principles of FFS to promote farmer decision-making on the technologies most suitable for their farm. However, the slow adoption of some technologies thus far could also be a signal that these technologies are less appropriate for the region or poorly understood by the facilitators. The most popular technologies are composting, kitchen gardens and perennial crop cultivation while rice and sloping lands technologies are slow to take hold.***
- ***Great demand for perennial crops from both farmers and the organization; concept of community nursery project is on target as this is a proven activity. Potential annual economic value of perennial crops on model farms is more than Myanmar Kyat (MMK) 4,000,000 (USD 3000) per farm.***
- ***The now enforced opium ban strengthens the need for continued alternatives to be presented to former opium-growing communities.***

CASE EXAMPLE: Khun Zaw Tu, An Area Coordinator and successful banana plantation grower

Khun Zaw Tu, a 10th standard graduate from Tonemeko Village near Hopone, is as an Area Coordinator for the FFS project. Together with his good friend Khun Tha Aye he came to the Training of Trainers in 2003 because agriculture is his livelihood, and so he is very interested in learning about improved agricultural methods. At the training he was most interested in organic methods and the use of compost and natural fertilizers, as well as new technologies such as seedling propagation. He also learned to do planning and to work on a schedule. He was less interested in the rice technologies because there is no paddy land in his area.

For his own farm Khun Zaw Tu decided to focus on bananas, because he knew they could fetch a good price, and because he learned how to propagate them using the corm method at the TOT. He started by buying 100 stems of *Shwe Ni* banana at MMK 50 per stem for a total investment of MMK 5,000. He chose *Shwe Ni* because although it takes longer to mature, it fetches a better price than other bananas, from MMK 500-1,500 per

bunch dependent on the size. After two years he has 250 banana trees in his 0.5 acre plot. He has begun to sell his bananas, with three harvests so far, at from MMK 9,000 to 13,000 per harvest per tree.

In the beginning other farmers thought he was crazy for cutting up the banana stem according to banana corm split method giving 4-8 seedlings; but later they saw that he was successful, and now people come to him to ask for suckers and seedlings. Khun Zaw Tu held an FFS twice, once in 2004 and again in 2005. But both times the FFS ended about halfway through, because the participants became busy in their *thanatphet* (tobacco leaves for traditional cheroot) plots and could no longer attend, even though Khun Zaw Tu thinks they were quite interested in what they were learning.

Still, people in his village are beginning to use some plant nutrition and compost technologies, as well as seed selection, and Khun Zaw Tu believes the project has been quite useful. For him personally, he feels that before he didn't know much, but since attending the TOT and gaining experience he now feels confident in his ability to manage his farm as well as to teach others.

5. Objective 2. Facilitator skills and management capacity: *Analysis and conclusions*

Objective and expected result	Objectively verifiable indicators
Objective 2: To empower and enhance the decision-making abilities of rural households in 300 communities by improving farmer's skills and management capacity in crop-based sustainable and integrated farming systems appropriate for the upland and lowland.	<ul style="list-style-type: none"> • 80% of farmers have improved overall management capacity' • 70% increase in production, income and better decision-making ability • Small-scale model farms established • 50% of farmers in each FFS have planted at least 500 long term crops • Lowland farmers have increased production by at least 50-100%
<i>Expected result 2: Core group of farmer-facilitators developed in communities, capable of facilitating and implementing FFS and devising community initiatives to continue further development</i>	<ul style="list-style-type: none"> • <i>300 farmer-facilitators are developing and facilitating FFS effectively</i> • <i>20-25 farmers in each community are regularly participating in FFS activities</i>

This objective speaks to the **process** of extension by training farmers to experiment, to establish model farms, and to facilitate farmer field schools in their villages. Although the farm-level output impact of the project has thus far been limited, a foundation for wider scale adoption of technologies has been laid with the research and cropping systems intensification exhibited at the Naung Kham Center and on the model farms of the farmer-facilitators. The development of TOT curriculum has helped train a core group of farmer-facilitators, and FFS are ongoing, though there are challenges in keeping them going. Due to the constraints, the number of FFS held/communities reached is less than

planned under the project design, though a reasonable target could be reached with a one-year project extension.

5.1 Development of research and training centers

The Naung Kham agricultural research and training center is strong, **effectively showing a variety of trials and technologies that were developed in participation with the farmers** during the TOT. The training hall, dorm buildings and grounds function well as designed. A visible success of the project is that the center looks professional and attractive. In addition, the vegetable crops feed the participants during the training, and seedlings produced on the farm are provided to facilitators as incentives to establish their farms.

One weakness of the center is that some contour hedgerows are not on the contour exhibiting an incorrect technology and additional sloping land technologies such as cover crops, mulching, and use of live mulch soil and water conservation could be strengthened. There could also be more demonstration or testing of technologies for improved cropping of the rolling rain-fed lands (*ya* and *chan*) that are so common on the southern Shan plateau area around the center.

The evaluator was unable to visit the Sadung center, but project staff report that it has not developed well. No trainings have been conducted there since 2003, and it is unclear whether it functions well even now as a nursery.

5.2 Training of Trainers

In a significant achievement for the project, through several cycles of implementing and reviewing the TOT, the project has **developed a consistent approach and curriculum** that uses practical adult education methods to meet diverse needs of farmers in upland agro ecosystems. This curriculum continues to be reviewed and revised each year in accordance with trainee needs, for example this year's incorporation of training on coffee plantation. Since the trainees themselves identify crop tests and research studies to implement, each year's training helps to further develop the farm. Altogether 249 facilitators have been trained in the first four years of the project (see Table 4 below).

Table 4 Number of TOT participants graduated

	2003	2004	2005	2006	Total
PaO	44	52	35	42	173
Sadung	46	6	22	2	76
Total	90	58	57	44	249

Constraints remain to recruitment of quality TOT trainees. The four-month length of the training is a difficulty for potential participants, especially women with children and heads of households; as are the Burmese language requirements. The opium context caused difficulties in obtaining quality recruits in the first few years, because those from opium-growing villages (who were targeted in line with project objectives) were reluctant to lose time in the poppy season. Initially, some villages may not have clearly understood

the goal of the project and how they could benefit or how their participation was intended.

5.3 Development of FFS facilitator capacity

Partly because of the TOT selection requirements¹⁰, the average FFS facilitator is an unmarried man between the age of 22 and 27, recently graduated from school. Trainees in the village FFS also seem to fit this profile. The overall impression of the facilitators and schools is that of a ‘young men’s club’ working to improve family and community farming systems.

The advantage to these demographics is that the young men tend to be eager to try new things. They may be **more creative and dynamic than their elders, eager to learn and share, and are the future leaders**. The disadvantage is that they have very limited decision-making power over family land use, and are **not naturally respected by the community for leadership in influencing adoption of technologies or community planning**. These young men are inexperienced, have never been responsible for making decisions regarding family farms, and are not natural leaders regarding farming. Often, the first task of the farmer-facilitator is to convince their parents to let them do trials and test plots on the family land. Those with **supportive parents and village management committees** are able to show more success. The implication for the project is that the facilitators need backstopping and support to organize the village, establish their farms, and run FFS in their village.

Nevertheless, the farmer-facilitators have certainly **increased their capacity to make informed decisions for agricultural planning and to manage their farm**. The TOT emphasizes tests and trials as part of the regular curriculum, and **several trials were found on the ‘model farms’** in the villages visited for the evaluation. The farmer-facilitators interviewed emphasized that they had learned a lot in the TOT, and were very happy with the opportunity to apply their new skills as well as teach others.

5.4 Farmer Field Schools

The Farmer Field School remains the primary process by which the farmers learn to test and adopt technologies at the village level. Since the start of the project 87 FFS have been completed (see Table 5). In PaO, for those FFS completed, each graduated on average 20 students. The total number of FFS participants in PaO in the years 2004-2006 is 1219.

Table 5 Number of Farmer Field Schools completed

	2004	2005	2006	Total
PaO	15	23	25	63
Sadung	9	15	0	24
Total	24	38	25	87

¹⁰ Must be able to read and write in Burmese, able to attend training, and teach others on return; must also be a farmer

Table 6 FFS participants in PaO area

	Male	Female	Total
2004	162	70	232
2005	353	98	451
2006	354	182	536
Total	869	350	1219

However, attrition rates are high. In the PaO area, for every successful FFS, another one had failed to continue to completion (see Table 7). The project coordinator for Sadung indicated that attrition rates there are also very high. Discussions at the village level confirmed that participants often begin the FFS but 'drop out' after a period of time.

Table 7 Number of FFS begun but not completed in PaO area

	2004	2005	2006	Total
PaO	12	23	28	63

High 'drop out rates' and low attendances are due to several reasons:

- Villagers lack time to attend FFS regularly (due not only to opium context but to subsisting from day to day living 'hand to mouth')
- Villagers lack interest in the technologies
- Villagers lack confidence in trainer
- Trainer lacks experience and skills

The facilitators interviewed in the village for this evaluation often indicated that they were choosing from among the technologies that they had learned at the TOT, the ones they felt matched their village situation and personal interest to adapt on their farm and teach to others. This was true whether or not they were able to hold an FFS through to completion.

A facilitator may not be able to hold an FFS, or to complete it for the twenty sessions that are normally held, but may still be able to help others learn how to test and adapt improved technologies on their farms (see above case example of Khun Zaw Tu). Group discussions indicated that villagers are learning from the farmer-facilitators informally, through visits to ask about the technologies, even if they are not formally attending or completing an FFS session.

5.5 Development of model farms

Study fields or model farm on which to test technologies as well as demonstrate results are an integral part of the FFS process. These are usually created together with the participants from the FFS. When FFS are interrupted or dropped, or if the facilitator so

chooses, he may concentrate instead on working on his own or with some friends to develop his model farm. Emphasis on the facilitator 'non-FFS' model farm is one project tactic used to deal with high dropout rates of FFS, which provides the facilitator with an opportunity to prove that they are effective and have appropriate technologies to share. Discussions during the evaluation workshop indicated that **those facilitators who had spent a year creating an attractive model farm were more effective in conducting Farmer Field Schools** than those who had conducted the FFS the year immediately following the TOT¹¹.

Facilitators understand that a model farm has two criteria: Must be in a location that is easily accessible/easy for passersby to see, and must show the technologies as taught in the TOT. Depending on the facilitator, a few model farms show all the technologies as showcased in the training (rice, upland and perennial crop, kitchen garden); but most show selected technologies. As in the case of teaching selected topics for FFS, this is in keeping with the principles of the FFS and upland agriculture development, of adapting what works on the basis of tests. Many farms mix 'traditional' with 'improved' technologies, for example growing perennial crops but without contour hedgerows, or using compost but no mulch. This should still be considered an achievement, although some facilitators, especially those from Sadung, were hesitant to term their farms as model farms (*sanpya saiqkin*) because they felt they were not using the technologies 'as taught'.

Of those farmer-facilitators interviewed who had already finished giving an FFS, most were reluctant to do it again. And many farmer-facilitators never completed the FFS. For both kinds of facilitators, the model farm remains their most important tool to continue to experiment, learn and teach technologies. FFS may be completed after one year, but the model farms remain. The **model farms are as or more important than the FFS** and therefore require continued follow-up.

5.6 Women's capacity building

About one-third of the village FFS participants have been women (see Table 6), though only one woman has attended the TOT. Of those women FFS participants visited in the village, most had done well adopting the technologies they had learned. But, like men, a large number dropped out of FFS despite initial interest, most often citing 'lack of time' as the reason.

At the Naung Kham Center, women were initially excluded from the TOT for reasons of accommodation. Instead, a month-long training was arranged for women on topics such as kitchen gardens and rice technologies, as a short training period is easier for women, and topics were targeted to their interests and responsibilities.

Naung Kham center management perceives that women were quick to adopt what they had learned after the month-long training, much quicker than men in the TOT. For this reason, and also to try to meet project-related gender balance requirements, the Naung Kham management has proposed that 50% of the participants in 2007 should be women.

¹¹ See also Documentation of FFS Program Annual Planning Workshop 19-22 December 2005

The outcome of this effort will be an important learning point for the project; as to whether the center is able to get quality female participants and how effectively they are able to facilitate FFS back in their villages.

Although women in village discussion groups indicated an interest in attending the TOT, they also said it would be virtually impossible for married women, especially those with young children, to attend, and that even a **month-long training outside the village is difficult**, as they cannot neglect family duties at home.

In Sadung, evaluation workshop participants reported that the spread of kitchen gardens has been due mostly to the **efforts of the wives and mothers of the farmer-facilitators**, who are primarily responsible for the kitchen gardens. One participant reported that after his wife learned about the composting and natural fertilizer and pest repellent technologies from him, she taught these to most of the other women in the village.

5.7 Summary of conclusions and preliminary recommendations related to objective 2 (see section 9 for more detail):

- ***Naung Kham Center is a solid foundation for agricultural showcasing and training, though upland technologies and rolling rain-fed lands could benefit from stronger emphasis. Sadung center is not yet developed.***

⇒ **Recommendation:** Simplify and strengthen some of the technologies, notably the upland component in Naung Kham.

- ***Interest in TOT (and FFS) has been constrained by opium context and misunderstanding, and difficulty in finding quality fully-volunteer participants has impacted the effectiveness of the project.***

- ***High drop out rates in FFS though there is technology adoption without FFS.***

⇒ **Recommendation:** The project should review and **clearly define what constitutes a 'farmer-facilitator capable of facilitating and implementing FFS'** (see expected result 2 and indicators above). This definition may or may not necessarily be someone who works through to completion. This will enable clearly expressed expectations of TOT trainees, and measures of achievement.

- ***An attractive model farm helps to identify appropriate technologies and the capacity of the trainer to other villagers, though the actual effectiveness of model farms is variable due to variable farmer capacity.***

⇒ **Recommendation:** As with FFS above, more clearly define the characteristics of an effective model farm. But more importantly, provide more follow-up support for technical and organizational aspects of FFS and model farms.

- ***FFS facilitators have enhanced own decision-making abilities through the TOT and establishment of model farms, and most importantly, learning to experiment.***

- *Much is expected of FFS facilitators; perhaps more than they can deliver. Because of facilitator youth and lack of experience, some organizational aspects may be beyond their immediate capacity and require back-up support from within or outside village.*
- *Women's participation needs to be strengthened; in PaO, only one woman in TOT and women constitute one-third of FFS participants. This despite the fact that women are shown to be quick adaptors after the month-long training, and as shown by the experience in Sadung with women as the teachers of kitchen garden.*

⇒ **Recommendation:** Continue the month-long trainings for women. Find other innovative ways to allow for women's participation that are not dependent on a four-month course. For example, promote groups of women farmer testers and extensionists at the village level, who send one representative to the month-long training.

CASE EXAMPLE: U Ngwa Leh, a successful rice farmer and FFS facilitator

U Ngwa Leh of Tin Kum Yang Village in Manwi Village Tract, Sadung, feels he has overcome many difficulties to become a successful farmer-facilitator. At age 47 he is older than the other participants, and is also in poor health because of injuries sustained during the war when he was a porter. It was difficult for him to take the time to come to the TOT as he is the main breadwinner in the family. Finally he managed to attend the TOT in 2003 in Sadung, because he was interested and the organization wanted to send him. But he felt that his 8th grade education level and lack knowledge of technology put him at a disadvantage compared to the other younger TOT participants.

When he returned to his village after the TOT and tried to organize the community to start an FFS, he encountered more difficulties. First, the village leaders were not supportive as they already had so much else to do. Then, he was unable to organize the community because of many divisions in the village. Finally he was able to hold the school.

Of the 28 people who started the FFS, only 12 were able to complete the course. Of the 16 who stopped attending, about six had to drop out because they lacked food at home and had to go earn some rice, although they were really interested in the school. Some of the others who stopped attending were too old and couldn't follow the theory, and some others didn't believe in the technologies.

Still, six farmers have adopted the technologies he is using and teaching, especially in the rice, because his village has plenty of rice land. People are coming to ask him how he has planted his rice because they see that it looks so good in the field.

In the past, he would use 64 *pyi* of paddy seed for planting his plot, but now he only uses 12 *pyi* in the same plot area. He practiced early transplanting and systematic spacing. In his first harvest of improved method in 2005, though half of the field was destroyed by wild pigs, his paddy harvest was the same as it has been in past year - that means that the yield has actually doubled. Children were only able to carry half as many sheaves as usual at harvest time because the rice was so heavy. This year in 2006 he has not harvested yet at the time of the evaluation, but the rice looks very good in the field.

He has taught his wife what he learned about kitchen gardening, including spacing, seed selection, nutrient uptake and the temperatures required for different vegetables, which she has implemented in the garden. Now, his wife sells vegetables to others.

Because of the training, U Ngwa Leh feels he has experienced many positive changes. He supports nine persons in his family, including 4 children in school, but he no longer needs to worry about household food security, or money for household necessities. The loss of seedlings has been greatly reduced. He has confidence in his ability to raise food for the family, and has also gained the respect and trust of his neighbors.

6. Objective 3. Community participation: *Analysis and conclusions*

Specific Objective and Expected Result	Objectively verifiable indicators
Specific Objective 3: To facilitate and strengthen community effort and participation in planning, implementing, monitoring and evaluating community based initiatives for sustainable rural development	<ul style="list-style-type: none"> • 300 communities organize planning workshops • Ethnic tensions within communities lessen as cooperation increases
<i>Expected result 3: Community farmers are capable of planning, monitoring and implementing community-based initiatives to continue sustainable development.</i>	<ul style="list-style-type: none"> • <i>Each community develops further initiatives, i.e. irrigation facilities, credit bank, seed bank etc. to further development process</i>

This project objective relates to **the capacity of communities to plan and implement activities** for their development. The logic of this objective is that farmer-facilitators will use skills that they have learned in the TOT to initiate a process of community planning that will then support the village FFS. Ideally, the communities will go on to identify additional needs and opportunities for ongoing development initiatives such as credit banks etc.

6.1 Lack of village organization in Sadung

In Sadung, the lack of support of village leaders has been a serious constraint to the FFS. Evaluation workshop participants characterized the villages as divided by ethnic, religious and political factions. The lack of supportive village leadership was cited as a real problem. Facilitators are at a loss and say that these problems cannot be solved without the assistance of a high-level mediator.

6.2 Community organization in PaO is variable

In the PaO region, some communities are supportive and effectively able to organize village-level farmer field schools. Village leaders who were supportive made arrangements to procure land for the model farm if the facilitator had none of their own; that villages are willing to allocate land to an FFS field or facilitator (or the quality of that land) is an indicator of village commitment to the process.

Villages in the PaO area usually have an existing village committee of up to five men who manage any village decisions and processes. In the villages visited for the evaluation, these committees were usually elected. Well-organized villages often have a respected monk who supports the project activities and encourages people to attend the FFS. For example, in one village visited the monk had provided electricity for the facilitators farm from the nearby monastery.

For those villages that are 'naturally' already better-organized, the FFS is a clear opportunity to increase their capacity to organize for village development. These kinds of villages may already have undertaken joint projects, such as agricultural water development or clean water supply, or school construction. Those villages with a history of cooperation in joint activities were likely more successful in implementing the FFS.

For those villages without a history of cooperative activities, it is likely more difficult for facilitators to show success in community organization. In these situations, facilitators require additional back-up support from the project to gain the support of key actors at the village level. This is especially true as facilitators tend to be young and inexperienced, and may not be viewed with respect (see section 5.3).

6.3 Participatory planning and monitoring

In the villages visited for the review, the leaders and facilitators described the process of organizing the FFS as a standard village meeting. In this meeting the facilitator and leaders explained the concept of the FFS, what was required for the FFS and potential benefits, and asked the villagers for volunteers who wanted to participate. It is unclear how many facilitators and villages were able to apply any processes beyond a village meeting, such as community mapping, goal setting and baseline analysis; i.e. participatory planning at the outset.

Perhaps partly because of this, the facilitators and communities are also not yet involved in monitoring results of the FFS. During the evaluation visits, although some facilitators indicated that they knew all of the details of village achievements in the FFS, the village leaders tended to be unaware of the details of progress. Although they may be helping support the establishment of the FFS, communities in general are not yet involved in monitoring results. This is partly due to a lack of follow-up as well as just 'too much to do' in establishing and running the FFS; as with most NGO projects, monitoring and evaluation tends to be considered only at the end of the activities.

6.4 Monitoring and follow-up support to facilitators

Taking communities through the process of analyzing problems, planning for their solution, implementing the FFS and monitoring the results would be a challenging next step for the project to tackle. Although the facilitators are learning these steps in theory (and maybe in practice) during the TOT, it is still a difficult process to facilitate, needing experienced back up support. The project, therefore, may choose to promote this in a set of pilot communities that are more 'ready' for this kind of approach than the others; facilitators could learn from each other and from experience.

6.5 Promotion of community unity

One of the indicators of the log frame is that ethnic tensions will decrease as cooperation increases (see above). This is most relevant in Sadung, where there are distinct and different ethnic groups in the area, and sometimes within the same village. However, in Sadung the project processes were unable to promote community unity. This is because pressures for allegiances to different factions are strongly felt within households, and due to the current conflict, differences are exacerbated.

In PaO, although the population is relatively homogenous ethnically and in terms of religion, the tensions are between factions of political groups. The PaO project has to an extent been able to overcome this, by balancing staff between allegiances. And as this management staffs are working toward a common goal of community development, tensions between groups are subsiding as a result of the cooperation.

6.6 Summary of conclusions related to objective 3:

- **Some communities are 'naturally' more organized** and FFS has given those communities a goal to organize around. Those communities that are already organized are better-positioned to achieve success. Some villages are very-well organized for FFS.
- **FFS facilitators are not always able to influence their elders or others in the community**, are young and viewed as inexperienced; not natural leaders. Requires additional follow up support as well as confidence-building.
- **The village organization and planning process was not clearly supported with follow up** in the project design. This was put in the curriculum, but originally no provisions were made for follow-up at the village level after the TOT. This was seen as a natural outgrowth of what facilitators would learn in the TOT.
- **Participatory planning and monitoring not yet in place.** But it is difficult for facilitators to apply these organizational tools and requires support and faith from the community.
- **Too early to try non-agricultural development activities** The objective of organizing further non-agricultural activities is ambitious for the current levels of organization and should be left for a later stage.

Hti Ohn Kyau: A mountaintop village transitions from poppy to coffee

Hti Ohn Kyau is the highest in elevation of all the villages on Menetaung, a mountain range that until recently depended on opium cultivation. Transportation to this village is difficult as the road is not all-season. The village consists of 120 households with approximately 7 persons per household. Only 15 households have wet rice land and the rest rely on rotational fallow cultivation, in fields which yield only 16 baskets per acre if no fertilizer is used.

For the last ten years this village has been growing poppy and so they have let their *thanatphet* plots and even the upland rice fields go. The village leaders reported that last year villagers didn't prepare rice land in time because they thought they would still be able to grow opium. But they were not, and now this year they are hungry. Last year when they were hungry they collected non-timber forest products out of the forest, but now those are all gone too.

The village is well-organized and was relatively comfortable economically (according to mountain standards) in the opium days. In the past they had enough money to develop communal activities. There are two water tanks with gravity flow water systems in the village, built with opium money, as was the road. The village built a school 2 years ago, and 2 of the 5 teachers are still village-supported. When they heard about the TOT, the 5-member village committee called the village together to discuss. They decided to send Khun Kyi Soe, and gave him the specific task to learn about perennial crops.

Given the cool climate and transport difficulties, the village had already decided that this was the best option for them; and they are already growing tea, coffee, oranges and other citrus in their home gardens. They chose Khun Kyi Soe because he had been to school through the monastery and had graduated from Taunggyi University distance learning program. Khun Kyi Soe had left the village when he was 12 to go study, but then came back after 10th standard.

When Khun Kyi Soe attended the TOT, because his village is all sloping land, he was most interested in the sloping lands technologies and perennial crops. After returning he started an FFS with 11 male and 4 female youth. On the day of the discussion they had completed all but one session as planned. Khun Kyi Soe chose not to teach about things related to rice, as those technologies are not appropriate, and only focus on perennial crops.

The youth were very interested, and they even started a communal nursery that produced 4,000 seedlings. In addition, many of the participants are growing coffee seedlings in small nurseries around their houses, and some have larger nurseries with shed roofs. All of the participants had at least some small seedling bed under house eaves or other places. Most of the seedlings were taken from the wild where they had sprouted under coffee trees in the home garden, and nursed in the nursery. Four of the participants bought plastic bags to nurse the seedlings, but the rest prepared a seedling bed somewhere around the house, e.g. under the house eaves or under the shade. But they were unable to use compost in the soil preparation as they do not have many cows. Some of the participants are planning to graft or plant in the 'improved method'. The village leaders estimate that about half of the households will be able to plant up to 500 trees in their land, but the rest of the households only have space in the home compounds.

7. Objective 4. Management self-reliance: *Analysis and conclusions*

Specific Objective and Expected Result	Objectively verifiable indicators
Specific Objective 4: To create self-reliance in PNO and NDA-K in the areas of planning, managing and coordinating FFS within communities	<ul style="list-style-type: none"> Local organizations become self-reliant and capable with at least 10 trainers, managers and coordinators working in community development
<i>Expected result 4: Trainers, coordinators, managers and technical specialists capable of managing the implementation of FFS programs</i>	<ul style="list-style-type: none"> <i>Trainers are designing plans and implementing training, local and central coordinators are coordinating FFS activities, and managers are supervising, developing, reviewing and implementing overall plan of the program</i>

This objective is about building capacity within the local partner organizations to eventually run the project on their own.

7.1 Self-reliance in NDAK/Sadung

The Sadung project has one project coordinator, U Gam Seng, a full-time staff assigned by the NDAK to coordinate the project. No other NDAK staffs are working for this project. The NDAK itself has recently (July 2006) established a development department with 11 persons, under a bureau for administration and development which is staffed by two people, including U Gam Seng. Gam Seng feels that he has learned many skills through his responsibilities with the project, including confidence in organizing communities, participation and communication.

The NDAK state that they are happy with the project and would like it to continue; the representatives feel that the villagers have increased their ability to speak out their ideas, as well as to adopt technologies such as composting and trialing of technologies¹². But project implementation is difficult, and needs a full-time person with facilitation skills to promote community organization. The NDAK cited mixed allegiances as a major constraint to village organization and trust, including the fact that the village leader may have to act on directives from up to three different authorities (government, NDAK, KIO). The Sadung management has not had much experience running a training center, since the Sadung center was used only in the first year, since when the TOT for Sadung have been held in Alam.

7.2 Self-reliance in PNO/Naung Kham

In Naung Kham the management of the training center is committed and well-developed in management skills. Center management is divided into four teams for a total of 5 persons, with two co-coordinators. Staff has all been recruited by or from the PNO. The team is able to plan and run trainings, manage and maintain the farm and facilities, conduct follow up, and to an extent administer the project. The team is support by the Metta Project Coordinator as well as an expatriate Technical Advisor.

Most impressive about the team is that they are clearly on a learning curve, i.e. seeking to learn from experience and adjust course based on lessons learned. Examples of adjustments made include the decision to promote model farms as the basis for FFS, and the decision to emphasize follow-up through Area Coordinators. The annual review process has been a supportive forum for adaptive management.

The Area Coordinator positions were created when it was realized that follow-up support would require a team of back-stoppers to help facilitators rally support for their activities and solve problems. The Area Coordinators were chosen from among existing facilitators and given special training, and their development as leaders is a strong point in the project thus far. The team is also clearly in touch with local communities. For example, knowing of Hti Ohn Kyau village plans to plant coffee, the Coordinators made arrangements to send the facilitator from that village to a coffee training in Maymyo. When a former TOT trainee came to the center seeking employment, the center gave him work on the center farm while convincing the person to go back the village and hold an FFS - which he finally did, with success.

¹² Based on interview with NDAK representatives

The PaO project management has developed a reporting format for the follow-up visits by Area Coordinators. Although this format provides for detailed records of what is happening on the model farms of the facilitators, there is no specific format for recording adoption of technologies of other farmers. This recording on the basis of monitoring will have to be done systematically in order to verify the indicators and goals set in the project log frame.

However, regarding complete self-reliance for the project, the team is not yet ready to raise funds for the center from donor agencies on their own, lacking critical language and proposal-writing/project development skills.

And it is unclear to what extent PNO leadership at all levels supports the center and its current objectives, as well as how the center will continue to function after the end of the project period. To the leadership it depends partly on the center showing effective results, including perhaps the results of this evaluation. The PNO has no budget to directly support social services and development activities, though the PNO works very effectively to solicit budget and support for communities from government and non-governmental sources.

Center management is thinking about innovative ways to ensure financial sustainability, including by selling products from the farm, through which they have already managed to save 20 lakh from farm produce sales.

7.2 Summary of conclusions:

- ***Sadung management has been unable to manage project effectively due to lack of staff, hostilities and mixed allegiances***
- ***In Naung Kham, center management strong; team is capable of running the TOT and the center farm but lack language, accounting and reporting skills needed for direct donor accountability***
- ***Naung Kham staff are in a learning mode; working to adapt activities on the basis of reflection and lessons learned***
- ***Area Coordinators developing leadership but still need more experience and technical and organizational support.***
- ***Common vision is not clear between all levels of the PNO***
- ***Naung Kham center is not yet financially sustainability***

8. Recommendations

Because the experience and present situation of the two project areas is so different, recommendations for Sadung and for the PaO area are presented separately below.

Recommendations for Sadung project area (8.1-8.4):

Given the uncertainty of resolution of the current problems, the project **may choose to phase out of the Sadung region altogether**. If the project decides to continue, then the following should be taken into consideration.

8.1. The renewal of hostilities in the Sadung area has made it difficult for farmers to attend TOT and for communities to work together. Because the project has lost so much ground to the renewed hostilities over the last year, because the training center has never become fully operational, and because of the difficult access for follow-up, the Sadung area should **abandon the farmer field school approach for the present and concentrate instead on follow up to model farms and on community nurseries**. Here as in the PaO area, seedlings for perennial crops are important incentives for participation, and the project should work from this strength. Continue to try to make the agricultural center into a nursery, with required infusions of technical assistance from outside Sadung for nursery and plant propagation technologies, and proper management.

8.2 During the evaluation, Sadung facilitators noted that there are 'too many groups', i.e. ethnic groups, religious groups and political groups and that communities are divided, which is a major constraint to implementation of project activities. The project needs to **find incentives that are attractive to all community members, and use an approach that promotes cooperation between ethnic, religious and political groups**. Access to perennial crop seedlings is certainly something that most villagers want, but the project staff will have to find innovative approaches for community nurseries that encourage peace-building in the villages **and work from the bottom-up for community planning**. Consider awareness training at beginning of village work. This may require identifying new partners and stakeholders to work towards a common goal, and no longer running the project through one political group.

8.3 **Greatly strengthen follow-up activities**. The last year has seen a complete loss of contact between villages and project coordinators, and deterioration in model farms and teaching activities. Identifying those facilitators who are still ready to establish model farms and provide extension assistance to others, and helping to achieve this, will take intensive follow up by a strong team. The same goes for any work to promote community nurseries.

8.4 Determine extent to which opium addiction constrains development activities. Anecdotal evidence suggests that opium use and addiction is widespread. If a large percent of household livelihood resources are going to support drug use, households and communities will be further divided, and the environment not conducive to economic development¹³. Consider supporting rehabilitation projects combined with enforcement to establish a foundation for development.

Recommendations for PaO/Naung Kham project area (8.5-8.11):

8.5 The impact in the village farms is not yet clear enough to warrant the extension of the ‘TOT to FFS season-long upland package’ approach to other areas. HOWEVER, even in the fourth year of the program, it may be too early to expect and show these clear results. In addition to overcoming external and internal constraints, the project needs some time to let the processes and technologies take hold. It is recommended to **work for two more years towards overcoming constraints before a final impact review and decision as to how to continue the FFS**. This would be an additional year beyond the original project period.

As the project is currently under spent, a **one-year no-cost extension** could be justified to provide time to overcome the constraints as described. During this period, focus of activities should include **strengthening follow-up; strengthening adoption of technologies; some farm center improvements, and increased capacity-building for management** as below:

8.6 Local participation in the project has been constrained by competing interest in opium, as well as perhaps some villagers perceived that their participation was required, which could have caused attitudes of resentment towards the project. Now that farmers are beginning to feel the bite of the opium ban, the question is whether they will be more interested in FFS because they need alternatives, or less able to attend FFS because they are now busy working for daily subsistence. Whatever the case, **encourage participation by true volunteers only**: only those who are really interested will have chance to make an impact later. This may mean working to show additional technologies appropriate for rolling land villages.

8.7 Women, who do at least half of the agricultural work in the area, are not yet fully participating. This is partly because it is difficult for women to come to season-long trainings. Continue to offer short courses. Find innovative ways that women can benefit from the technologies without having to attend the TOT; e.g. facilitators or AC to do special courses for women at village cluster level. Focus on follow-up in the villages.

¹³ A household with an addict is a household that will always be short on livelihood resources, and at higher risk of poverty. This is especially so when an opium cultivation ban causes the drug to become scarce and thus expensive.

8.8 **Strengthen follow-up** for technical support, organizational support in the villages, monitoring and record-keeping to document achievements.

- Assign a coordinator specifically for monitoring.
- Technical and organizational assistance from senior agricultural and organization staff as backup to Area Coordinators.
- Consider staff-supported PAR in those villages that show poor organization/enthusiasm
- Systematize formats for reporting results, especially **adoption on the non-farmer-facilitator farms**, from AC to center to Yangon office.
- AC to visit villages that are no longer doing FFS to monitor results and provide support to model farm development.
- Participatory monitoring and evaluation systems as planned are probably unrealistic for most villages. Could pilot in some of the well-organized villages

8.9 Continue to **strengthen technologies by making them more simple and relevant**

- Simplify upland technologies as tested and taught, especially contour hedgerow species. These technologies could be made more effective and relevant to the situation by for example planting hedgerows into fallow lands in the first year (leaving natural fallow ground cover between the lines) and planting perennial species into the rows one to two years later, when hedgerows have been established.
- If hedgerow seed supply is insufficient, consider ‘farming out’ production to villages; purchase seed from those villages for distribution to others. Same for seedlings.
- Explore the reasons for the lack of adoption of SRI and IM. Promote seed selection and spacing and land preparation alone as a simple, relevant technology if the whole package of seedling and water management is not acceptable.
- Explore how better to adapt, test and promote non-animal manure composts for those villages with little animal manure, especially for nurseries and perennial crops.
- Conduct a technical review of agricultural components at the end of no-cost extension; can be done cheaply as a workshop with FFS AC and facilitators with support of resource persons and perhaps an agronomist. This is part of the annual workshop discussions, but may benefit from a more thorough review together with the facilitators.
- Conduct a separate evaluation of training methods and curriculum that focuses on the quality, use and quantity of communications materials used by farmer-facilitators to remember and teach technologies.

8.10 Consider targeted **improvements for the demonstration and training farm:**

- **Replant those hedgerows that are not on the contour** to follow contour lines. Although some project staff interpret this as a study plot test for farmer learning, the reviewer maintains that it is in poor technical form and perhaps more confusing to the farmers rather than educating. This is especially so in the context of perennial crops in the uplands, where benefits of soil and water conservation take time to show results in the field.
- Continue **to increase production of seeds and seedlings** (nitrogen –fixing cover crop and hedgerow species, high-value mother plants for propagation, fruit trees)
- Increase the experimentation on **technologies for rain fed rolling lands** (*ya* or *chan*) which is now limited to rice varieties and mixed-crop pigeon pea and corn trials; e.g. traditional turmeric/*thanapet* intercrop, ginger, garlic and other high-value crops.

8.11 **Continued capacity building** for project staff and organization leaders

- Project management needs to strengthen some skills if they are to take over management tasks on their own, specifically understanding of all aspects of the project cycle, English-language skills, and proposal and report writing, in preparation for learning how to raise own funds from donors
- Visioning with PaO leadership and management; workshopping to come to common understandings of what the center farm can and should achieve

8.12 If after another two years a final impact assessment/comprehensive impact monitoring survey determines that the ‘Center TOT to village-level FFS season-long package’ approach does not show acceptable impact per beneficiary, then find a new approach that takes advantage of the center’s capacity to test and showcase technologies, conduct trainings, and supply plant materials. This could include:

- Transforming season-long TOT into modular short courses and expand curriculum to include other development-related topics (e.g. market analysis) as relevant (this could even be done in last two project years, or alternate years with TOT)
- Turning seed and seedling production into a business venture that is still required to partially subsidize poor farmers with plant materials
- A separate project that focuses on agricultural and livelihood development for targeted and defined geographic areas selected for poverty indicators , e.g. Menetaung, Loimaw-taung

ANNEX A. Schedule and team members

Upland Farmer Field School Mid-term Review Schedule

DATE	ACTIVITIES
4,6 October 2006	Preparation in Yangon
8 October 2006	Travel to Myitkyina
9 October 2006	Prepare workshop, interview NDAK representatives
10-11 October 2006	Evaluation workshop with Sadung facilitators
12 October 2006	Travel to Yangon
15 October 2006	Travel to Taunggyi and Naung Kham Center
16 October 2006	Visit Na Than Village
17 October 2006	Visit Pindaya and Mwe Taw Villages
18 October 2006	Visit Hti Ohn Kyau village
19-20 October 2006	Group discussion and interviews in Naung Kham (Naung Kham project management team)
20 October 2006	Visit Laikkon village
21-22 October 2006	Evaluation workshop and interviews (staff and resource persons) in Naung Kham Center
23 October 2006	Visit Lone Hi (San Phu) village
24 October 2006	Interview with Secretary General of PNO; return Yangon
25 October - 01 November	Draft report and submit for review
28, 29 November 2006	Finalize report on basis of comments

Mid-term Review Team

Name	Position	Nationality	Expertise	Task
Ms. Karin Eberhardt	Independent Consultant	German	Community Development	Evaluator
Ms. Ja Nu	Project Manager, Metta Development Foundation	Myanmar	Community development	Translation and facilitation support
Mr. Naw Din	Resource person, Upland FFS Project, Metta Development Foundation	Myanmar	Upland agricultural technology	Agricultural technology resource support

Methods and participants

Type of discussion	Details
Individual interviews	<ul style="list-style-type: none"> • Sai Sam Kham, Metta Project Coordinator in PaO • Captain Khin Maung Kyaw, NDAK Liaison Officer in Myitkyina • Gam Seng, Project Coordinator in Sadung • Yaw Htung, Training Facilitator at CARD • Tu Ja, CARD Farm Supervisor • Naw Din, Resource Person for agriculture • Myo Nyunt, Co-coordinator Naung Kham Center • Myint Swe, Co-coordinator Naung Kham Center • Thein Aung, Loimaw Township Secretary of PNO • Khun San Lwin, General Secretary, PaO National Organization Special Region 6
Village group discussions	FFS attendees Focus Group Discussion (FGD)
	Gender-mixed FGD
	Women only FGD
	TOTAL participants in FGD
workshops	Sadung 2 day-workshop held in Alam Center with FFS Facilitators
	Naung Kham 2 day-workshop held in Naung Kham Center with Area Coordinators and staff