Six Years of Farmer Field School

in

Myanmar

An Impact Study

by

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FOREWORD

Six Years of FFS in Myanmar *an impact study*

The Metta Development Foundation (Metta) first began its Farmer Field School (FFS) programme in Kachin State in 2001, in collaboration with local and church based organisations. The past six years have seen 548 FFS training courses conducted across the State. Various project reports and external evaluation reports confirm the fact that FFS has been highly successful in building the skills and capacity of farmers.

This impact study serves to document the fact that the FFS is also a primary entry-point for community development, as it is a forum for farmers from widely divergent community groups to come together to learn, to work, to experience, to plan and to cooperate. This is true not only at the farmer level, but also at the partner organisation level. This common platform of development provides an opportunity for these groups to come together in harmony and build up their facilitation skills and management skills. Just as sustainable agriculture and FFS have become some of their mainstream programmes, some of their trained facilitators have gone on to assume positions of authority within the community and their respective organisations.

I believe that concerned government officials, international development agencies who have provided financial support, Metta's partner organisations, as well as facilitators and FFS farmers will find encouragement and gratification in the reading of this impact study. Metta feels honoured to be part of this groundbreaking work.

Seng Raw
Programme Director
Yangon 04 April 2007

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EXECUTIVE SUMMARY

Farmer Field School (FFS) was introduced in Kachin State of Myanmar in 2001 by Metta Development Foundation in an attempt to improve the skills and capacities of farmers for enhancing their rice production and income from farming. Between 2001 and 2006, in two phases, 548 FFS were established across the state in collaboration with four local and church based organisations.

In the first phase from 2001 to 2003, the primary focus of the project was to develop a set of standard methodologies for FFS and adequate human resources for its facilitation and coordination, while in the second phase, from 2004-2006, the goal was to develop self-reliant capacity within the local organisations, making them capable of independently managing FFS program.

Although there has been anecdotal evidence through various project reports that FFS has been highly successful in building the skills and capacity of farmers, the primary purpose of this impact study was to assess the project impacts on various stakeholders and on the general environment and ecosystem, and at the same time quantify and qualify them.

The impact was first studied based on the yields and production of rice by individual households of the communities before and after FFS. The comparisons of such yields on farmers' own field from 2003 to 2006 show that farmers' average rice yields have increased from 54 baskets[1] per acre before FFS to 87 baskets per acre after FFS, an average 63% increase over previous yields. The increased per acre yields contributed a significant improvement in the overall household production of rice. Before participating in FFS, a family produced an average 185 baskets of rice per year, and after FFS this production increased to 257 baskets, providing a net increase of 72 baskets per year over the pre-FFS situation.

This increase for each individual family took place without additional cost, which is a key indicator that the practices and/or technologies that have been facilitated in FFS are extremely cost-effective and economic. Based on cost/return analysis, rice production before FFS was predominantly a break-even operation. Most farmers needed to spend the equivalent of 54 baskets of rice to produce the same amount. After FFS, with the additional yields and production, rice farming is becoming a profitable venture.

[1] 1 basket = 20 kg

The increased household production of rice has significantly enhanced the food security of farmers, a large percentage of whom were suffering food deficits for 4-5 months per year. Although on the surface the average of 185 baskets of rice per family produced before FFS would seem to be enough to cover its yearly needs, in fact a large percentage of this rice was needed to pay for production costs. The remaining rice was enough for only 7 months. From this point of deficiency, FFS has given farmers an average of two months of surplus, meaning the rice produced now is sufficient for 14 months of the family's need. The income from surplus rice is now used for general wellbeing of the family.

The yield and production benefits of FFS were not only limited to FFS farmers, but over a period of four years, all farmers in the communities were found to benefit. An FFS usually started with 20-25 farmers from a community (28% of the total). In the first year they were the primary beneficiaries of FFS. The benefits later extended into the community at the rate of 79% in the second year and 89% in the third year, while from the fourth year it reached all farmers in the community. The benefit received by a non-participating family was found to be an increase of 40 baskets of rice per year. The learning from FFS-farmers helped them improve their production from 190 baskets to 230 baskets per year.

The 548 FFS conducted between 2001 and 2006 trained a total of 9102 farmers. These farmers benefited from the very first year of FFS, with benefits calculated every year from the year 1. Cumulative benefits during this six-year period were found to be equal to the one year benefits of 31,477 farmers. The 19,647 non-participating farmers benefiting from the FFS from 2002 to 2006 had cumulative benefits during this period equal to the one-year benefit of 49, 380 farmers. The combined benefits of both FFS-farmers and non-FFS farmers, based on increases of 72 baskets for an FFS family and 40 baskets for a non-FFS family, was 4,241,544 baskets or 84,831 tons of rice, with an approximate calculated value of up to US $ 12,724,632.

Rice was not the only benefit from FFS. After participating in FFS, farmers began to apply FFS learning to growing other crops, both short and long-term, which are further expected to increase incomes. The increased incomes from rice are already contributing to paying for the education of children, and have eased the debt burden of borrowing high interest money. There is also money now to attend clinics for treatment of general illness. FFS has made a great contribution in maintaining a chemical free environment and ecosystem in the entire Kachin State as farmers have not been using chemicals in their rice fields. Communities are now becoming more aware of the environment with many favorable activities like community forestry undertaken to preserve the precious forests.

The development process which was started by FFS did not stop there. Rather it has led to further development of the communities. Inspired by the spirit of working together which is an essential methodology of FFS, every community has developed many new initiatives such as rice bank, animal bank, animal raising, community forestry, drinking water supply, hydro power, etc., to further improve the general wellbeing of the community. These community based initiatives are a clear example of FFS making large and diverse impacts on the overall lives and wellbeing of communities.

The project impacted strongly on the partner organisations, which were mainly responsible for the implementation of FFS with the communities. Although they had strong organisational structures, most of them were new to FFS and community development. The project, therefore, had to start with zero capacity and spent significant time and effort to develop the necessary human resources within these organisations. At the end of the project each of these organisations is almost totally self-reliant with adequate numbers of skilled staff. The project has made a significant contribution to improving the service quality of the organisations. Sustainable agriculture and FFS have become some of their mainstream programs.

The highly developed capacity of the facilitators is a major impact of the project in a place where quality education is not readily available. Many of these facilitators had dropped out from school or could not find a way to continue in further education. In such a situation, to participate in a six-month long comprehensive training course was a rare opportunity. Participation in season-long Training of Trainers (TOT) and afterwards engaging in facilitation of FFS has totally changed their lives. With new skills and abilities most have become leaders in their respective communities and in the organisations who selected them. Many are now holding prestigious positions such as village head or head of program unit in their organisations. They are now a source of inspiration for the partner organisations to develop further initiatives in the development process.

Looking at the impact on various levels, from individual farmers to the communities and from individual facilitators to the partner organisations, it is evident that the project is highly sustainable at each level, and thus must be considered successful. Farmers not only gained higher yields by using the learning from FFS, but they have been applying this learning to other crops. Similarly, the communities have been continuously using the FFS process to continue the development process and the partner organisations to develop new programs with FFS and agriculture.

A ABOUT THE PROJECT

Metta Development Foundation, in an attempt to address the key challenges of rural communities in Kachin State, Myanmar introduced Farmer Field School (FFS) in 2001. The majority of rural communities living across the state are subsistence farmers. They rely on rice for most of their income and primary food security needs. An improvement in the status of these poverty-driven communities would require a significant increase in the production of rice. However, farmers' limited knowledge and lack of skills have been identified as the key impediment to this.

FFS was introduced primarily to enhance the knowledge and management capacity of farmers in rice so that they would be able to increase the production of rice in a sustainable manner. FFS was implemented in a partnership model between Metta Foundation and four local partner organisations in which the partner organisations were responsible for implementation of FFS, while Metta Foundation provided necessary capacity building support to these organisations. The partner organisations were Kachin Independence Organisation (KIO), Kachin Baptist Convention (KBC), Catholic Diocese, and a local group. Metta foundation, in addition, was responsible for overall coordination and management of the project.

The implementation of FFS began in 2001 with financial assistance from MISEREOR, Swissaid, and Actionaid. The project, in its first phase from 2001 to 2003 aimed to develop a core group of facilitators whose primary function was to facilitate FFS. The focus in the first phase was to adjust the approach and develop a set of standard methodologies for FFS based on the particular conditions of the communities and the specific ecosystems in the region. During this period, 258 FFS were established and a total of 5202 farmers trained, 4086 male and 1116 female.

The primary focus in the second phase, 2004-2006, which was supported by MISEREOR, was to develop self-reliance in the partner organisations so that they could independently plan and manage their own FFS program and continue the process started by the project to provide effective service to the farmers and the communities. During the second phase the project established 290 FFS and trained 3900 farmers, 2957 male and 943 female, bringing the total number of FFS in the six year period to 548 and total number of farmers trained to 9102, 7043 male and 2059 female.

B PURPOSE OF THE IMPACT STUDY

This impact study, which was carried out in December 2006, at the end of the sixth and the final year of the project, was intended to assess the major impact of the project. The primary purpose of the study was to

1. Assess and identify particular impacts of the project on
   - ✓ Individual farmers
   - ✓ Communities
   - ✓ FFS facilitators
   - ✓ Partner organisations which were involved in implementation of FFS
   - ✓ Environment and ecosystem of the area where FFS were established

2. Assess the degree of sustainability of the project in terms of adoption of FFS learning by the communities

C METHODOLOGY

The methodologies involved in the study were:

1. **Individual interviews** with participating and non-participating farmers of FFS; community leaders; FFS facilitators, area coordinators of the project; and various levels of leadership in the partner organisations
2. **Group discussions** with farmers and communities
3. **Case study/case story** of some specific farmers and communities
4. **Photos** of various activities and events, and results of the project
5. **Field visits** for validation of information as provided by the farmers

19 FFS sites representing different years and locations across Kachin State were selected for the Study. The majority of these FFS are of average quality, while some are either above or below the average. Selection was made to ensure balance in the selected sites. In each site, an average 6-10 FFS farmers, and 3-6 non-FFS farmers were selected randomly and interviewed. A total of 173 farmers who participated in FFS and 58 non-FFS farmers were interviewed individually. Group discussion was organised at every site to validate the data gathered from individual farmers. An average of 30 farmers, 50% each from FFS and non-FFS category attended group discussions. Structured questionnaires, prepared earlier during a planning workshop with the impact study team, were used in all interviews and discussions.

List of sites in different areas of Kachin State with year of conducting FFS

	Areas				
Year	**Putao**	**Myitkyina**	**Waimaw**	**Mugong**	**Bhamo**
2002			Gara Yang Ding Hkung	Labang Kahtawng	Mung Ding Pa
2003	Sang Gawng	Mali Hka	Labang Tang Bau	Balu Aung Mye Nam ya	
2004	Mamule	Htaw Gaw Lambraw Yang		Nat Mahuk kale Maw Han Nat Ye Twin	Jet Sa
2005			Ban Sau Wura yang		
2006	Mazup Yang				

D MAJOR IMPACTS OF THE PROJECT

D.1 PROJECT IMPACT ON INDIVIDUAL FARMERS

D.1.1 Average rice yields per acre

To discover the project impact on farmers' average rice yields, a comparison of rice yields before and after FFS on farmers' own fields 2001 to 2006 was made. Data were received from 173 direct participating farmers from 19 selected FFS through individual interviews, which were furthered verified by group discussions. Farmers' average rice yields have increased from 54 baskets per acre, before participating in FFS to 87 baskets per acre, after participation. This is an average increase of 33 baskets of rice per acre of land. The increase in yield ranged from 48 to 124 percent, with an average of 48 percent, and was a little higher in earlier FFS (e.g. 2001 or 2002). Farmers in those FFS have had more years in which to apply FFS learning on their fields than those from FFS held in 2004 to 2006.

Table 1: Farmers' average rice yields
Before and after FFS in different years
in baskets [2] per acre

FFS year	N[3]	Rice yields before FFS year	Rice yields after FFS in 2006	% increase
2001	9	82	184	124
2002	20	59	109	85
2003	46	51	78	53
2004	66	53	81	53
2005/06	32	49	73	48
Average	**173**	**54**	**87**	**63**

The yield increase according to geographical area was also very encouraging, although some differences were observed in the baseline yields of farmers (table 2). Irrespective of these differences, each area has experienced a significant percentage of yield increase.

Table 2: Farmers' average rice yields
before and after FFS in different areas of the project

Area	N	Rice yields before FFS	Rice yields after FFS in 2006	% increase
Mugong	49	59	89	51
Wai Maw	54	54	92	70
Putao	33	44	63	43
Myitkyina	20	46	82	78
Bhamo	17	70	133	90
Average	**173**	**54**	**88**	**63**

The higher baseline yields in Bhamo indicates that the soils where the selected FFS are located are very fertile compared with other areas. However, the soils in other parts of Bhamo are very similar to those in the rest of Kachin State.

[2] 1 basket = 20 kg
[3] In all tables N refers to the number of farmers interviewed

D.1.2 Costs of production

To provide a meaningful comparison, the cost of production was calculated in real terms using the physical volume of rice as the price of rice. This method was chosen as the cost of necessary inputs changed continually because of fluctuations in the local currency. The cost of production includes the cost of all necessary inputs, labour and land rental price.

Although large increases were observed in rice yields, there have been no significant changes found in production costs. Farmers' average production cost after FFS, has been found to increase by only 4 baskets per acre. On the other hand a large increase was observed in the net return. Before participating in FFS farmers had to spend an average 54 baskets of rice to produce a similar amount. This means there had previously been no income from rice. In many areas such as Myitkyina and Waimaw, farmers were even found to be losing by growing rice. From this point of view, their net return after FFS has increased by 30 baskets per acre on average, a huge improvement.

Table 3: Cost of production of rice before and after FFS

Area	(N)	**Production cost** (baskets/acre)		**Rice yields** (baskets/acre)		**Net return** (baskets/acre)	
		Before FFS	After FFS	Before FFS	After FFS	Before FFS	After FFS
Mugong	49	48	50	59	89	11	38
Waimaw	54	62	67	54	92	-8	25
Putao	33	29	30	44	63	15	33
Myitkyina	20	69	63	46	82	-23	19
Bhamo	17	54	65	70	133	16	68
Average	**173**	**54**	**58**	**54**	**88**	**0**	**30**

This cost/return analysis indicates that the practices or technologies used in FFS for growing rice are the most cost effective or economic, and are affordable to all types of farmer. The practices are even more cost-effective when the costs and returns are analysed in terms of the volume of rice produced. According to the cost by volume, or how much rice (input) is needed to produce how much rice (output), the cost of production after FFS has come down to almost half of previous requirements. Before FFS, farmers needed to spend at least one basket of rice, as found in **table 4,** to produce a similar basket and after FFS by spending little over a half basket they can produce one basket of rice.

Table 4: Production cost of one basket of rice before and after FFS

Area	(N)	Production cost of one baskets of rice (in baskets)	
		Before FFS	After FFS
Mugong	49	0.81	0.56
Waimaw	54	1.15	0.73
Putao	33	0.66	0.48
Myitkyina	20	1.50	0.77
Bhamo	17	0.77	0.49
Average	**173**	**1.00**	**0.66**

D.1.3 Rice production per family

The total volume of rice produced by a family before and after FFS is the most important indicator in determining the benefits of FFS. To see how farmers have responded to this production aspect, both types of farmers were interviewed, those who directly participated in FFS and those who learned from them. The following sections provide comparisons of production for both kinds of farmer before and after FFS.

D.1.3.1 Total production of rice per FFS family

By comparing the total volume of production before and after FFS, it can be seen that a farm family who participated in FFS achieves an average of 72 baskets of extra production each year after FFS. Before participating in FFS, farmers' average family production was 185 baskets per year and after FFS their production increased to 252 baskets.

Irrespective of geographical location, farmers have benefited by production increase, although some variation could be based on the improved quality of soil or other socioeconomic factors. Farmers' average yearly production in the Putao area was found to be much less than in other areas, especially Bhamo and Mugung. This is due to the poor soil quality in the Putao area and can also be seen from the low per acre yield figure of Putao shown in table 1. As a result, the amount of total production increase per family in Putao was low. But in terms of percentage, the increase was found to be similar to that of other areas. There is a similar impact on farmers' yearly production increase across all the areas of the project.

Table 5: Farmers' average production of rice on per household basis

Area	(N)	Production per family (in baskets)		
		Before FFS	After FFS	Increased
Mugong	49	220	300	80
Waimaw	54	168	241	74
Putao	33	92	125	33
Myitkyina	20	244	325	81
Bhamo	17	250	361	111
Average	**173**	**185**	**257**	**72**

D.1.3.2 Total production of rice per non-FFS family

Farmers who did not participate in FFS but learned from the FFS farmers were also found to have significant increase in annual production. Based on the average data from five different sites of the project, non-participating farmers of FFS gained an average increase of 40 baskets per family. Without FFS knowledge and techniques each family would have to put an additional acre of land into cultivation to grow 40 baskets. (table 6) The proportionate increase in all project areas was found to be similar.

Table 6: Non-FFS Farmers' average production of rice on per household basis

Area	(N)	Production per family (in baskets)		
		Before FFS	After FFS	Increased
Mugong	15	198	255	57
Wai Maw	21	226	263	36
Putao	14	98	117	19
Myitkyina	5	227	295	67
Bhamo	3	270	307	37
Average	**58**	**190**	**230**	**40**

This increase in production by non-participating farmers of FFS explains the roll on effect of FFS, especially how the learning spreads among the farmers – from those who participated in FFS to those who did not participate but live in the same communities.

The case study beginning on the next page uses the term SRI.

The System of Rice Intensification (SRI) was begun by a French priest, Fr. Henri de Laulanié in Madagascar in the early 1980s, and has since spread around the globe. The principles of SRI are that rice plants perform better with:

- Careful transplanting (usually a single seedling per hill) to minimize trauma
- Wider spacing, for canopy and root growth
- Young seedlings, 10-12 days old, to preserve growth potential

Rice performs better in soil that is:

- Well aerated during the vegetative growth period through
- Careful water management with alternate irrigation and drying out
- Weeded mechanically using a rotary hoe
- Enriched microbiologically with compost and other organic plant/soil/water nutrients

CASE EXAMPLE -1 A story of an individual FFS farmer

Lama Gam Awng, a rice farmer in Dinghkung village in Bhamo twonship, normally grows rice on around 3 acres of land. He generally used 5.5 baskets or 110 Kg of seed to produce seedlings for this land until an FFS was conducted in his village in 2002. That same year when he was learning in FFS, he reduced his seed to 2 baskets or 40 Kg to produce seedlings for the same land. He did not reduce the area used to produce seedlings, and as a result seed density was less than half of what it was before. If seeds are sown sparsely it actually provides more space to individual plants to grow healthily. Neighbouring farmers, when saw this, warned him that he might not have enough seedlings this year. He became little worried but was still confident of what he learned from FFS.

When the seedlings were sixteen days old, he started transplanting them into the main field soon after uprooting from the seedbed. He planted two seedlings per hill in wider spacing. When he finished the transplanting, some seedlings were left over so he gave them to a friend whose seedlings were traditional and poor quality. As a result of the better quality, his seedlings were established very quickly, and soon the field became very green. Farmers who were warning him before, now started saying that his field was very good.

At the time of harvesting, he hired 12 labourers, 3 more than last year. Even so they were not happy and complained that the harvest was too heavy for them. After threshing and winnowing, when he measured the paddy it was 247 baskets, 67 baskets more than the previous year (2001). When he milled his paddy, he was amazed to see the higher milling outturn of this paddy to rice. The amount of rice from his paddy was 5.8% more than usual for a similar amount of paddy. This was because the grains were heavier and fuller, as is generally experienced with SRI methods. The amount of rice that Lama Gam Awng received from 247 baskets of paddy was the same as he previously received from 261baskets – a 14 basket increase in terms of paddy.

At the time of transplanting, as he had learned from FFS, he allocated a small area for seed production, and transplanted there a single seedling per hill. He did regular roguing of the area to remove all the off-types. This way the seeds that he produced were of high quality. Now, every year, after meeting his requirements, he can sell seed to other farmers at double price, because they know his seeds are very good.

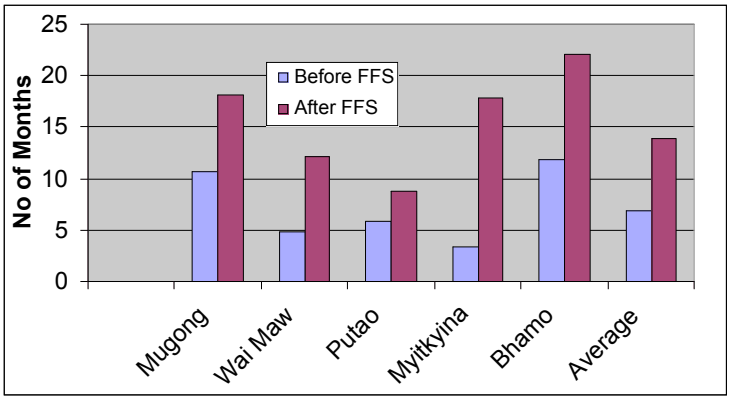
D.1.4 Status of food security

Farmers' food security was studied in terms of how much rice is left for the family, on average, after paying all the external costs of production. It can be seen from the production section above, that although an average family produced a large amount of rice before FFS, there was a huge amount still required for food security. Farmers must pay most of the costs associated with production of rice at the time of harvest. As a result, a significant amount of rice goes to pay production costs. These costs include those items that are truly external. However, if all the real costs are counted and calculated as shown in section D1.2 and table 3, no rice is actually left for the family's food security. Farmers survive because they do not need to pay for their own labour, lands or cattle. The savings in rice from these items is the amount that is left for family consumption.

Table 7: Rice production and food security status before and after FFS

Area	Before FFS (baskets per family)				After FFS (baskets per family)			
	Total production	External cost	Amount left	Good for (months)	Total production	External cost	Amount left	Good for (months)
Mugong	220	104	116	11	300	104	196	18
Waimaw	168	115	53	5	241	110	131	12
Putao	92	29	63	6	125	30	95	9
Myitkyina	244	207	37	3	325	131	194	18
Bhamo	250	121	129	12	361	122	239	22
Average	**185**	**110**	**75**	**7**	**257**	**106**	**151**	**14**

Figure1: Farmers' food security status before and after FFS



Before FFS, after paying all the external costs, an average 75 baskets of rice was left for a family for food and other expenses. Based on 130 baskets as the average requirement for a 7 member family (the average family size in Kachin State) this rice could meet the basic food requirements of a family for only 7 months. For the rest of the year the family had to borrow money from others or engage in odd jobs as no decent job opportunities exist in the rural areas.

From this situation, after FFS the average food security status of a family has risen to 14 months, with a 2 month surplus of rice, which is now used for the general wellbeing of the family. This is a clear indication that FFS has made significant improvements in the overall food security of the community.

The above figure explains the food security of FFS-farmers who directly participated in FFS. The food security status of non-FFS farmers has also increased but to a lesser degree than the FFS-farmers. The non-FFS family, by using the FFS learning, has an increase of 40 baskets of rice, (table 6) an improvement of around four months from the baseline of before FFS.

D.1.5 Knowledge and capacity building of farmers

Apart from the production benefits, farmers' enhanced knowledge of various management practices was an outstanding benefit of FFS. Irrespective of FFS or geographical location, farmers were able to master the skills of rice production demonstrated to have the ability produce 63 percent more rice from the same amount of land with no extra costs (table 1 & 2).

Farmers who did not participate in FFS but live in the same community have also been able to master this skill but to a lesser extent. Learning from those who participated in FFS, these non-participating farmers have raised family production by an average of 40 baskets per year as mentioned earlier.

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Table 8: General practices used by farmers on their fields after FFS

Practices	% of FFS farmers	% of non - FFS farmers
Use of quality seeds	89	67
Lesser amount of seeds	82	41
Sowing seeds in lesser density in seedbed	78	43
Better management of seedbed	69	39
Transplanting young seedlings	94	63
Lesser number of seedlings	92	70
Use of better varieties	87	61
Use of composts or manure	51	34
Uprooting seedlings carefully	76	32
Transplanting seedlings in appropriate depth	82	49
Transplanting in wider space or in line	85	46
Weeding	86	42
Pest management	38	35
Others	50	13

Farmers' enhanced knowledge and capacity are expressed in the application of those practices detailed in table 8. The practices show how farmers become able to produce quality seeds, better quality seedlings, uproot and transplant these seedlings skillfully, produce their own compost, and do weeding and watering whenever necessary. The use of quality seed has drastically reduced the existing seed rate that farmers used to grow rice. Each family has been able to save an average of two to six baskets of rice seeds alone.

With regard to the individual application of practices, 80% of the FFS farmers have been using quality seeds, quality seedlings, better varieties, and other major practices as against over 40% of non-FFS farmers using these same practices. While the number of practices used by an individual farmer varied based on the suitability of practices and the capacity of the farmer, each farmer, on average, was using at least two practices.

D.1.6 Application of knowledge with other crops

The knowledge gained and the lessons learned by farmers while participating in FFS on rice have been found to be successful with other crops. After participating in FFS, most farmers began growing vegetables at their homesteads.

Many began to grow other crops such as long-term fruit crops, vegetables, and in some areas, seasonal crops. Rice is the major crop for the whole of Kachin State. Although opportunities exist for growing other crops, farmers have very little experience in doing so. The introduction of FFS and the learning that follows have opened the doors for cultivation of other crops, helping farmers to further increase income from agriculture.

With these new crops, farmers have been using various methods of soil and pest management. Almost all the farmers were preparing and using compost on their kitchen gardens. Preparation and use of natural pesticides, and charcoal acid are other common practices among farmers.

D.1.7 Benefits in health and education

Benefits in health and education are mostly indirect, and it was difficult to collect specific data and thus quantify the impact on health and education in such a short period of time. The information that is provided below about health and education is based on individual and group discussions with farmers and their families.

As seen in the production section (tables 5 & 6), farmers, irrespective of wealth or poverty, have been able to produce a significant amount of extra rice each year since participating in FFS. This extra rice is used primarily in covering family expenses and education of the children. Most families are now in a better position than before in terms of affording the costs of education. The extra income from rice has also eased the debt burden, which came from borrowing money principally for children's education. The dropout rate in both elementary and high schools has reduced as a result of better economic conditions This was only confirmed by farmers during group discussions as no concrete data are available.

The extra production of rice has improved the food security of most of the farmers living in the communities. Furthermore, the production of vegetables on homestead land is making a contribution in enriching the quality of family nutrition. The extra income from rice has also given farmers a better opportunity to seek treatment when they are sick. These are all great contributions to village society, but are difficult to quantify.

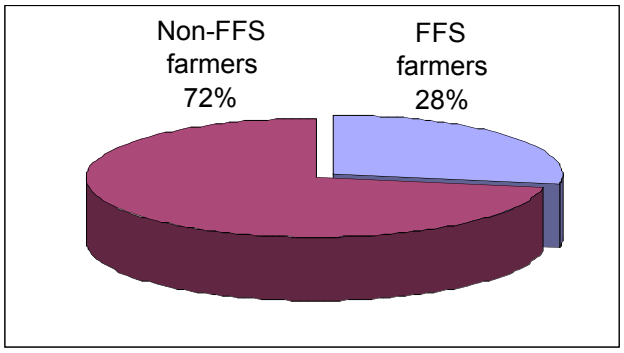
D.2 PROJECT IMPACT ON THE COMMUNITIES

D.2.1 Average percentage of farmers in a community benefiting from an FFS

FFS was usually organised for 20-25 farmers in a community, based on the ability of a group to work together. The farmers constitute the direct participants of an FFS, or the direct beneficiaries.

The ultimate benefit of FFS, however, was not limited to these farmers alone. As seen in section D.1.3.2, non-participating farmers in the community (called non-FFS farmers) also benefited from FFS with a substantial increase in annual rice production. Based on the number of farmers who participated in FFS and the total number of farmers in the community in the 19 selected FFS, an average of 28% of farmers in a community were FFS participants, and the remaining 72% were non-participating farmer beneficiaries.

Figure2: Percentage of FFS and non-FFS farmers in a community



The first year of FFS is usually considered as the learning year for farmers. Nevertheless, most of the farmers who participated in FFS were using their knowledge on their own fields in that same year. The FFS learning began to spread to non-participating farmers from the second year. According to the data presented in table 9, the benefits of FFS spread into the community, both FFS and non-FFS farmers, at the rate of 79% in the second year and 89% in the third year, and from the fourth year, to 100% farmers of the community.

Table 9: Percentage of FFS and Non-FFS farmers in a community who benefited from FFS

Year of FFS	FFS sites (N)	No. of FFS farmers	No. of benefiting Non-FFS farmers	Total beneficiaries in a community	Total no of farmers in a community	% of Total beneficiaries
2nd year	4	116	144	260	331	79
3rd Year	7	121	249	370	418	89
4th year	4	96	132	228	281	100
5th year	4	95	321	416	513	100
Total	**19**	**428**	**846**	**1274**	**1543**	**83**

D.2.2 Total number of beneficiaries and the total benefits from the project

From 2001 to 2006 the project established a total of 548 FFS. The number of FFS established in each year of this six-year period is presented in table 10. The same table presents how many farmers participated in those FFS each year, with the cumulative totals counted from the first year of FFS. These participating farmers are the direct beneficiaries of FFS, and the calculation below explains how many farmers have directly benefited and by how much over the period of six years. According to project data, a total 9102 farmers participated in 548 established FFS and started to benefit from the very first year. The cumulative benefits for these 9102 farmers up to 2006 as presented below are equal to the one-year benefits of 31, 477 farmers.

Table 10: Cumulative direct beneficiaries of FFS from 2001 to 2006

FFS year	No of FFS	No of participating farmers of FFS						
		2001	2002	2003	2004	2005	2006	Total
2001	29	476	476	476	476	476	476	2856
2002	66		1186	1186	1186	1186	1186	5930
2003	163			3540	3540	3540	3540	14160
2004	127				1656	1656	1656	4968
2005	86					1319	1319	2638
2006	77						925	925
Total	**548**	**476**	**1662**	**5202**	**6858**	**8177**	**9102**	**31477**

Table 11 explains the number of indirect beneficiaries and their cumulative benefits up to the period of 2006. As presented in D.2.1, an average 28% farmers in a community were FFS-farmers (figure 2) who received benefits from it in the very first year. The remaining 72% of farmers in the communities are the non-participating farmers or indirect beneficiaries of FFS who benefited from the second year. From among the direct and indirect beneficiaries only 79% benefited from the second year, and the percentage in the third year was 89%. It was only from year 4 that all farmers in the community began to benefit (table 9). Based on this calculation, a total of 19,647 non-participating farmers have benefited from 548 FFS in a period of five years from 2002 to 2006 (table 11). The cumulative benefits during this 5 year period were equal to total benefits of 49,380 farmers in one year period. The (total and cumulative total) number of non-participating farmers benefiting in the respective years can be seen from the table below.

Table 11: Cumulative indirect beneficiaries of FFS from 2001 to 2006

FFS year	No of FFS	No of non-participating benefiting farmers of FFS						
		2001	2002	2003	2004	2005	2006	Total
2001	29		880	1051	1240	1240	1240	5651
2002	66			2192	2619	3090	3090	10991
2003	163				6542	7818	9222	23583
2004	127					3060	3657	6718
2005	86						2438	2438
2006	77							
Total	**548**		**880**	**3243**	**10402**	**15208**	**19647**	**49380**

In the following table, the above benefits are presented in economic values using baskets as a commonly used unit for measuring rice in Myanmar, and US dollar. Based on 72 baskets per household per year as the average direct benefit from FFS (table 5), the cumulative economic benefit of 9102 FFS farmers who directly participated in FFS between 2001 and 2006 was 2,266,344 baskets of rice. The cumulative economic benefit of the non-FFS farmers in the same period was 1,975,200 baskets based on 40 baskets (table 6) as the average benefit received by each of the19, 647 non-participating farmers. The combined cumulative benefit (which is the total benefit for 548 communities) was 4,241,544 baskets or 84,831 tons of rice with an approximate value of US $ 12,724,632 (at the rate of US $ 3 per basket of rice). This benefit will continue to increase as long as farmers grow rice.

Table 12: Total amount of cumulative benefits of the project over six years period

Year	No of farmers		Amount of benefits (baskets)			Value in US Dollars
	FFS	Non-FFS	FFS	Non-FFS	Total	
2001	476		34272		34272	102816
2002	1662	880	119664	35200	154864	464592
2003	5202	3243	374544	129720	504264	1512792
2004	6858	10402	493776	416080	909856	2729568
2005	8177	15208	588744	608320	1197064	3591192
2006	9,102	19,647	655344	785880	1441224	4323672
Total	**31477**	**49380**	**2266344**	**1975200**	**4,241,544**	**12,724,632**

D.2.3 Self-help initiatives by the communities

The methodologies used in FFS require that farmers work together in a team. The resulting benefit of such team work was the continuation of this work for further development beyond the FFS period. As a result most participating communities have proposed further initiatives. The nature and type of these initiatives vary from one community to another, but are related by their common concerns. During this impact study in the selected 19 communities, the following 14 types of new initiatives were developed by the communities themselves. The average is more than one initiative per community. The specific initiatives developed by each of the 19 communities are provided in the annex. The development of new initiatives indicates the strongest impact of FFS, an important milestone towards sustainability.

New Initiatives

Rice bank was initiated through saving the rice grown in the study-field. In FFS where farmers had to rent the study-field, after paying the rent and other costs there was still a large amount of rice left over. Farmers began to lend this left over rice among themselves at the shortage time, with very minimum interest. They found this process of lending and borrowing useful and later many other farmers in the community joined the bank. As a result of the rice bank, farmers no longer need to borrow money from money lenders at high interest rates.

Community Forestry established by the community

Community forestry was an important outcome from four neighbouring FFS where farmers are working together to develop a joint initiative without outside assistance. To protect the forest cover of their nearest mountain the communities divided responsibilities among themselves. Each community has agreed to reforest and preserve a quarter of the mountain from further degradation. They have set up a common community nursery for production and distribution of seedlings.

New irrigation channel establishment was inspired by the problem solving process used in FFS. Realizing the importance of water and its management in rice production, a number of communities established new irrigation channels in their areas. As a result they have now regular supply of water, and do not need to completely depend on rainwater.

Micro Credit Union (MCU) establishment was common to a large number of FFS, starting with a small amount saved regularly by each FFS farmer. When sufficient funds have been saved, they started to borrow from this with minimum interest. The FFS management committee was primarily responsible for operation and management of the common fund. Membership was later extended to other farmers in the community. It has now become another community-based initiative.

Cattle bank, either buffalo or cow bank is another common initiative in a large number of FFS communities. Cattle banks are formed based on the common problem of plowing. Many farmers do not have their own cattle and so have to borrow cattle from others for plowing their lands. The rental charge is so high that a large part of the production is used to pay for rented cattle. After FFS some farmers who did not have cattle applied for an outside grant. With this grant they bought several cattle and distributed them among themselves based on agreed principles so that everyone benefits from the new cattle. The lending of cattle continues to other farmers when installments and new calves are paid for by the primary borrowers.

New cattle received by farmers from cattle bank

Raising animals such as pigs and goats is a community-based income generating activity developed by farmers with some initial grant or assistance from outside. This can also be considered an FFS follow-up project in which the selected farmers are provided with goats and/or pigs and at the same time training is given on how to raise or manage them. After a certain period, the recipient farmers return these animals to the project, or their equivalent value (at once or in installments). Funds will then be lent to other farmers. The profit is to be used for common benefits of the community such as for education of poor children.

Collective farming of soybean, potato and other crops is another income generating activity. The funds accumulated through collective farming are used for lending among farmers who are in difficulty or are used for the common good of the communities.

Timber plantation is undertaken for both economic and purposes of forest conservation. According to arrangements, returns are to be used for the common wellbeing of the communities.

Environmental conservation was an awareness raising activity organised by many communities in order to protect the natural forest and the general ecosystem of the area. Participating FFS farmers became more aware of the danger of various chemicals used in agriculture and realised that the forest is an important part of the natural ecosystem. As a result they organised awareness raising campaign in their communities to help preserve the natural ecosystem.

Construction of drinking water well by the communities, where the supply of pure drinking water is a problem, is a community-based initiative. With the new wells there is now safe water to drink. This was part of the awareness building activity of FFS. Understanding the importance of healthy crops has inspired awareness of healthy bodies.

PAR training was part of the desire for continuation of the development process started by FFS. After graduation from FFS a number of communities asked other organisations, including Metta, to organise PAR training for them so they can develop new projects. Some communities have already received this training while many others are in the process of receiving it. It needs to be mentioned that some of the communities which are engaged in raising animals had already received PAR training which helped them to develop those new proposals.

Development of Hydro power by the communities is another example of becoming more aware of wellbeing. The FFS learning and the organising process has inspired them to work together to accomplish many more initiatives such as this. With the new hydropower, children are able to study at night.

Drug store/Village clinic is a follow-up project established by some communities. They have received some financial and technical assistance from other organisations including Metta. With new drug stores and clinical facilities the communities now have better health facilities. 2 of the 19 communities visited have been found to have drug stores.

Training in basic healthcare was organised by a health based organisation at the request of the communities whose interest in basic healthcare training was inspired by the establishment of FFS.

Based on the above initiatives which are either led by FFS farmers or inspired by the learning and the organising process of FFS, it is very clear that FFS has made large and diverse impacts on peoples' overall lives and wellbeing, from primary food security to increased income through extra rice and other economic activities, including cultivation of various crops and raising animals. The new initiatives also indicate improvement in health, education, drinking water, environment, and other spheres of community life. The development process started by FFS did not stop there. Each and every community was found to have new ideas and initiatives.

CASE EXAMPLE - 2 A glimpse of development in a community

Labang Kahtawng is a village in Mugong Township, 13 miles from the town headquarters on the way to Phakant, a major jade mining town. The village has 50 households, of which 20 were food deficient for 3-5 months before FFS was introduced to the village, although everyone has enough land. In 2000 when the first TOT was organised, Dau Lum, an ordinary farmer from the village was selected by the Catholic Church to take part in the training. After he successfully completed the training, Dau Lum returned to the village and opened an FFS for the villagers in 2001. 23 farmers, including those who were food-deficient, participated in the FFS for one complete rice season beginning in June. Five years after the FFS was conducted, at the time of this impact study, each of the 23 families was found to have a food surplus in rice. Average rice yields increased from 50 baskets per acre to 130 baskets per acre, and average family production increased by more than 150 baskets per year.

With this huge rice yield in 2002 a rice bank was established to provide the opportunity for all needy families in the village to borrow rice at the time of shortage. It needs to be mentioned that although the amount of rice that each family was producing after FFS was more than sufficient for food security, a large portion of this rice had to be sold to meet the other requirements of the family. As a result, in the later part of the year many families needed to buy rice at high prices or borrow at high interest rates from various sources. Since the rice bank was formed rice can be borrowed from the communal pool at low interest. The amount of rice available for lending at the moment is 1000 baskets, which is equivalent to 20 tons.

The majority of the villagers did not have buffalo, and renting of buffalos is one of the major costs of rice production. Accordingly, in 2003 inspired by a visit from an official from MISEREOR, they established a buffalo bank. With the assistance received through this buffalo bank 23 families in the village now have two buffalos. The other families are in the process of receiving buffalos as new calves are born.

Electricity was another problem in the village. Fortunately, there was a water spring nearby. The villagers constructed a hydropower system to meet the requirement for electricity in the village. The villagers are now fully motivated and believe they can do much more using their own capacity. They have organised a special training in the village for development awareness with assistance from Metta. All these are solid examples of how FFS has laid a foundation for development in the community.

D.3 PROJECT IMPACT ON PARTNER ORGANISATIONS

D.3.1 Capacity of partner organisations

There have been four partner organisations involved in the project. They are Catholic Diocese, Kachin Baptist Convention (KBC), Kachin Independence Organisation (KIO), and a well known local group. These organisations have taken the role of implementation of FFS within the communities, while Metta Development Foundation, the project holder, has been responsible for overall coordination of the project, organising needed capacity building support for these organisations with the assistance of international and local resource persons.

Although each partner organisation is large, and each of them has been engaged in development activities for quite a number of years, FFS was a completely new approach for them. Thus the project had to start from zero capacity and spent a significant amount of time in developing the human resources needed to implement FFS.

The increased capacity of the partner organisations can been assessed by the number of facilitators, coordinators, and other staff developed by the project and actively engaged in facilitation and coordination of FFS. Further indicators of the capacity of the partner organisations are the number of FFS implemented, new initiatives taken and necessary policy changes by each of them to support more FFS activities. The specific capacity of the partner organisations in the above terms is presented in table13 below

Table 13: Number of facilitators

Organisation	Facilitators	Coordinator	No of FFS	Farmer Trained		
				M	F	Total
Diocese	17	3	102	1194	370	1564
KBC	25	4	176	2560	776	3336
KIO	36	4	130	1350	388	1738
Local	22	3	140	1939	525	2464
Total	**100**	**14**	**548**	**7043**	**2059**	**9102**

Since the beginning of the project, 4 season-long training of trainers' courses (TOT) have been conducted, 3 at the Centre for Action Research and

Demonstration (CARD) and one at Laiza, training a total of 114 facilitators. The first TOT was organised in 2000, paving the way for development of this project. Most of the facilitators were previously farmers. After the training, based on their performance and capacities they were appointed as facilitators and coordinators. The number of facilitators and coordinators and the number of FFS along with farmers trained by each organisation are provided in table 13.

D.3.2 Capacity of the facilitators

The increased capacity of the facilitators is a high level impact of the project in a place where quality education is rarely available. Many families could not afford to send their children for higher education, even were there enough facilities existing in most of the rural areas. In such a situation, to participate in a six-month long comprehensive training course was a rare opportunity for young farmers who had dropped out of high school or could not find a way to continue to further education.

Participation in season-long TOT and later engagement in facilitation of FFS has totally changed their life style. With new skills and abilities, most have been able to create a leadership position in their community and in the organisations which selected them. Many now hold prestigious positions in their communities and organisations apart from their main task of facilitation and coordination of FFS. Two facilitators are serving as village heads, a very prestigious and honorable position in the village. Other development organisations are also keen to hire FFS Facilitators. They are a source of inspiration, encouraging the partner organisations to develop further initiatives to continue the development process. The way in which their roles have changed after participating in the project is provided in the annex with a comparison of those roles before and after the project.

D.3.3 Improvement in service quality and development of new programs

Among the partner organisations of this programme, Catholic Diocese and KBC are faith based organisations, as was the local group. Along with Kachin Independence Organisation (KIO), working together through this project has provided each organisation with a real opportunity to become involved in long term sustainable development in partnership with international agencies.

At the time of the discussion with different levels of staff during this study, the partner organisations made clear that a direct impact of the project is an improvement in the quality of their service to the communities. As a result, the acceptance of their service by the communities has been enhanced to a large degree.

The project has also had a significant influence on policy reformation and organisational development in these organisations. Encouraged by the achievement of FFS, and improvement in service quality, KIO has established a new department for agriculture and forestry activities. FFS has been chosen by the department as the primary approach of service provision to farmers and communities. Since 2004 it has been running an independent FFS program. It has also established a separate training centre and a diploma school and has been conducting regular TOT to produce more facilitators for the new department.

Likewise, KBC has made FFS its major strategy in providing development service to the communities. Most of its facilitators are now, at the end of December, 2006 (which is also end of the project) absorbed into zone offices. This is part of a long-term strategic plan made in 2006. Each of the working zones, which divide Kachin State and part of Northern Stan State into 13 working units, is now independently implementing FFS. KBC has already prepared and submitted a proposal for a new FFS project, which is under consideration for funding from Oxfam International. FFS strategies have also been incorporated by the other partner organisations into their main-stream organisational policy and they are in the process of preparing new proposals.

D.4 OTHER IMPACTS

D.4.1 Impact on environment and general ecosystem

Measurement of the project's impact on the environment and ecosystems is based on the pattern of chemical use and general practices of farming in the project areas, as well as other awareness building activities of the farmers as presented below.

D.4.1.1 Reduction in chemical use

Except in areas bordering China, the use of chemical fertilizers in rice farming in Kachin State is not a common practice. There is, however, an increasing trend towards using chemical pesticides in some areas, though not as widely as in other parts of the country. Farmers have a general belief that chemicals are harmful for soil and this belief was further strengthened by both the indigenous culture and teaching from the church. Farmers responded positively to FFS and SRI - the most common practices used in FFS for growing rice - when they saw the learning process and the practices used in FFS were not only supporting their general beliefs, but were actually one step ahead. In FFS they learned how chemicals are damaging soils and ecosystems. They found chemicals are not essential in rice production and this was confirmed by their achievement of higher yields without using any chemicals.

Hybrid varieties and chemical based practices have recently been taking a firmer grip on most other parts of the country, and the use of chemicals is gradually increasing. The same could have occurred in Kachin State, had the farmers not had the opportunity to participate in FFS. The general rice ecosystem in most of Kachin State has remained intact. This explains why no incidence of pest outbreak has been reported in the recent past or previous history of Kachin State, while it has been quite common in places where chemical use is heavy. There are problems in forest ecosystems due to uncontrolled logging, a problem which is being addressed through various activities and initiatives of farmers after participation in FFS.

D.4.1.2 Promotion of low-input and organic based technologies

While the lack of chemical use has stopped further degradation of the ecosystem and general environment, the promotion of low-input based and organic practices has further improved general conditions. The use of compost and other organic and natural inputs such as plant juice, fruit juice, and indigenous micro-organisms, has improved the soil quality. Although it is difficult to assess the extent of improvement by the use of these natural inputs, the increased per acre yield is a clear indication that soil quality has improved. Soil quality has been further improved by the use of various other practices such as SRI, which requires the soil to be flooded and dried alternately. As a result, the soil's nutrient availability is increased. This helps to explain higher yields achieved without the use of external chemical fertilizers.

D.4.1.3 Reduction in shifting cultivation

Shifting cultivation has been identified in the project area as an important reason for forest degradation. In Myanmar around 22% of forest degradation is considered to be a direct result of shifting cultivation[4]. Farmers generally engage in shifting cultivation for primary food security needs. The increased food security of farmers, which has been almost doubled for FFS farmers and increased by 42 baskets for non-FFS farmers, has diminished the need for shifting cultivation. In addition the increased yield and overall productivity of rice fields has become a source of inspiration, encouraging more lowland farming. Many farmers have already stopped shifting cultivation. However, there is no concrete data available on this, or on what percentage of farmers has already stopped shifting cultivation.

[4] An unpublished paper by U Tin Hla on Forestry Sector in Myanmar with quoted reference;
1. Forestry in Myanmar, Forest Department, February 1999. 2. Fact Sheets- Ministry of Forestry, January 1999.

D.4.1.4 Community forestry and increased awareness of environment

FFS is an education-based approach, and its use of ecological principles in crop production has made it easier for farmers to understand the importance of preserving the natural environment. As a result, farmers who live in FFS communities are more aware of this than those who live in other communities. This is indicated by the new community forestry initiatives taken by the communities; collective planting on forest lands, preservation of old forest, and many awareness raising activities against forest degradation and illegal logging as presented in D. 2.3. These activities and initiatives are expected to improve the forest ecosystem and general environment to some small degree.

D.4.2 Establishment of CARD

The Centre for Action Research and Demonstration (CARD) was established in 2001 to fill the need of the project for organising necessary training including TOT, and carrying out necessary action research for developing and adapting appropriate technologies before bringing them to FFS. Accordingly, all project TOT, except for the first, were organised in this centre, and its fields served as a training field and for various other purposes of the project. The methodologies used in the training, and the performance of the crops, along with various practices used in growing those crops, highly impressed the training participants and visiting farmers from nearby villages and other areas.

The centre soon became an attraction for farmers and other development activities and later it became an important centre in Metta's development work. With all the available facilities it is now an important training centre for Metta Development Foundation, and has been used regularly for various trainings, workshops, meetings and seminars both by Metta and other organisations. The training field has been expanded, and many new crops are being grown to make it a showcase for sustainable and appropriate technologies. Kitchen gardens established at the centre have inspired many young students from the nearby high school while visiting the centre. Many of them now have established kitchen gardens at their homes.

D.4.3 Regular TOT courses and new project on sustainable agriculture and FFS

The project during its life has organised 3 season-long TOT and one farmer-led extension course (FLE) of two months duration. These courses, along with other regular activities and achievements of the project, have inspired many other organisations to introduce FFS in their communities.

One example of this is the introduction of upland FFS which was introduced following requests from two ceasefire groups, one from PaO region in Shan State, and the other from the northern part of Kachin State. Based on the requests of these groups, Metta introduced a new project in those regions in 2003 in an effort to provide alternatives to opium farmers. FFS has been further expanded through a new community forestry and community nursery project, which started in 2006.

To respond to requests from other organisations, a comprehensive new course on FFS and sustainable agriculture was designed, based on the experience of all past TOT. This four-month course has been offered for agricultural professionals of various organisations working across the country every year since 2004. Up to 2006, 3 courses were organised, and 93 professionals from 15 organisations were trained. Many of those organisations, with the newly trained professionals have already started FFS in their areas. This is another way to expand FFS to other parts of the country.

E SUSTAINABILITY OF THE PROJECT

Sustainability refers to how the project approach and activities are internalised by the stakeholders of the project at various levels. Sustainability has been looked at in three levels - individual farmer level, community level and organisation level.

E.1 Sustainability at individual farmer level

The project aimed to educate farmers on various methods and approaches in rice production through FFS, and expected that with this education they would be able to improve their existing production practices, resulting in increased production and incomes. The sustainability of this has been assessed based on the amount of education or knowledge farmers received from FFS, how much of this knowledge they have been able to translate into practice, how much yield or production increase has been possible by the use of these new practices, and to what extent this yield or production increase has been sustained.

The comparisons of farmers' previous and new practices, presented in the form of adaptation of new practices in table 8 reveals that farmers who participated in FFS have been able to master the most appropriate practices of rice cultivation. The use of these new practices has significantly increased both rice yields and production. Farmers' average rice yield has improved from 54 baskets per acre to 88 baskets per acre, while annual production has increased by 72 baskets per family.

These yields were tracked over a period of six years from 2001 to 2006, as shown in table 1 and no yield decline was seen in any of those six years. Farmers have rather been found to apply this knowledge in many other crops. This is a clear indicator of sustainability of the project at this level.

E.1 Sustainability at community level

FFS usually began with a group 20 to 25 farmers. The target, however, was not this small number of farmers, but rather the whole community. Through the interactive methodology, FS aimed to introduce to the community a process for learning and working together that would encourage working together after FFS support was withdrawn. Sustainability at this level was assessed by the extent of project's achievements in this.

Based on the percentage of farmers of a community who benefited from FFS, as shown in table 9, and figure 2, although an FFS was seen to begin with an average of 28% farmers of a community, the ultimate benefits of FFS reached the entire community in a period of four years. According to project data, a total of 9102 farmers participated in 548 FFS, but the total beneficiaries were not just these 9102 farmers. By the end of 2006, a total of 28,749 farmers were benefiting from the FFS, and of them, 19,647 were non-participating beneficiaries. Each non-participating farmer benefited by an average of 40 extra baskets of rice. This explains how FFS benefits have spread to the entire community, and how FFS has become a community FFS. In addition, each community has developed new initiatives, some more than one.

E.2 Sustainability at organisational level

The partner organisations were mainly responsible for facilitation and coordination of FFS with the communities. The project aimed to build the self-reliant capacity in each of them so that they can independently plan and manage FFS program. Sustainability of the project at this level can be seen as the self-reliant capacity of these partner organisations.

Based on the data presented in table 13, each of the partner organisations has a number of facilitators and coordinators developed, each of whom has been able to manage all assigned responsibilities, from facilitation to coordination, management and other day to day operations. The overall success and achievements of the project as presented in various sections of this document is a key indicator of the development of this skill. In addition the reformation of organisational policies and the development of new initiatives and strategies by each of the organisations, including new projects and FFS programmes are another indicator of self-reliance. The project is both sustainable and successful.

CASE EXAMPLE - 3 Changing farmers' status from subsistence to exporting rice

Dingga, Daw Hpum and Kagam are three nearby villages about 10 miles from Laiza town on the way to Bhamo. FFS was conducted in each of these villages from 2001 to 2002. Being close to the China border, all the villages have easy access to border trade. These villages have set an example of how rice deficit farmers are now exporting rice to China. After FFS, the rice production of all the farmers in these villages, both FFS and non-FFS who learned from their neighbours, increased significantly. Each family, after meeting its own requirements, is able to export and average of 50 to 100 baskets of rice. The extra income has changed lives and family businesses.

Many farmers have built new houses with the extra income, and everyone has bought a new motorbike. To store the rice, many have built new storehouses. A large number of farmers have bought hand tractors which are being used for other purposes. A few have bought milling machines and are engaging in rice trading. The pictures below show some of this activity.

Annex 1

Status of the facilitators before and after they are involved in the project (Catholic Diocese)

No	Name	Before	After
1.	M.Dau Lum	Farmer	✓ Mugong zone leader ✓ Facilitator ✓ Buffalo project manager
2.	Z. Hawng Lum	Farmer	✓ Church secretary ✓ MCU Project secretary ✓ FFS facilitator ✓ ECCD committee member
3.	N.Brang Nu	Farmer	✓ Buffalo project manager ✓ Youth leader ✓ FFS facilitator
4.	D. Dau Zawng	Farmer	✓ FFS facilitator ✓ Area coordinator ✓ Church development leader ✓ Village administrative committee member ✓ Church secretary
	L. Dau Zawng	Village head School committee member Church secretary	✓ FFS facilitator ✓ Red cross leader
5.	M. Nawng Latt	Farmer	✓ FFS facilitator ✓ Area coordinator ✓ Project coordinator
6.	Ts. Zau Tawng	FFS facilitator	✓ FFS facilitator Mugong zone Committee chairman
7.	N. Zau Mu	Youth leader Farmer	✓ FFS facilitator
8.	L. Dan Hkawng La	Farmer	✓ FFS facilitator

Status of the facilitators before and after they are involved in the project (KIO)

No	Name	Before	After
1.	Brang Seng	Secretary of Agr.Dept.	✓ Deputy H ead of KIO Agri Dept
2.	Zau Raw	Agr. Serviceman	✓ Facilitator ✓ Area coordinator ✓ Secretary of KIO Agr. Dept
3.	Naw Ja	Agr. serviceman	✓ FFS program coordinator ✓ Manager of CARD
4.	Tu Ja	Agr. serviceman	✓ Asstt. Manager of CARD
5.	Yaw Htang	Student	✓ Facilitator
6.	Bawk Tawng	Farmer	✓ Facilitator, Dead
7.	Brang Lawn	Farmer	✓ District O.S
8.	Naw La	Farmer	✓ KRDC, Out
9.	Kum Ja	Farmer	✓ Facilitator, Now left
10.	Nja Gam Awng	Soldier	✓ Sugarcane model farm in charge
11.	Zing Htung Naw	Farmer	✓ Facilitator ✓ Area coordinator
12.	Nba La Raw	Farmer	✓ Facilitator
13.	Gum Sau	Farmer	✓ Facilitator ✓ Agr. Serviceman of W. Div
14.	Hkun Nawng	Farmer	✓ Facilitator
15.	Maji Tu Ja	Farmer	✓ Facilitator
16.	Naw Lawn	Farmer	✓ Facilitator
17.	Htoi Shawng	Farmer	✓ Facilitator
18.	Awng Lawt	Clerk	✓ Facilitator
19.	Tsai Kyaw Aye	Student	✓ Facilitator
20.	Naw Tawng	Farmer	✓ Facilitator
21.	La Mai	Alumni	✓ Facilitator
22.	Tu Awng	Student	✓ Facilitator
23.	Kum Htoi Sam	Student	✓ Facilitator
24.	K. Lat Shawng	Ordinary	✓ Facilitator
25.	R. Dau Lum	School teacher	✓ Facilitator
26.	Htoi Naw	Boat driver	✓ Facilitator
27.	Naw Lawn	Deputy in charge of Agr. Dept	✓ Facilitator
28.	Hawng Lum	Farmer	✓ Agri. Serviceman
29.	La Sam	Farmer	✓ Agri Serviceman
30.	Naw San	Farmer	✓ Agri Serviceman
31.	Kareng Brang Awng	farmer	✓ Agri Serviceman
32.	Naw Ji	Assistant village tract	✓ Agri Serviceman
33.	Hpadaw Tu Awng	Office clerk	✓ Agri Serviceman

34.	Bawk Naw	Student	✓ Agri Serviceman
35.	Zau Lawn	Farmer	✓ Head clerk in Agr
36.	Labang Naw Naw	Soldier	✓ Soldier
37.	Kum Ja	Farmer	✓ Farmer
38.	Zau Seng	Farmer	✓ Out
39.	La Yam	Farmer	✓ Out
40.	N.G. Tu Ja	Agr-service W- Div	✓
41.	Hkawng Je	Ordinary	✓ Out
42.	Gum San Seng	Student	✓ Out
43.	Aung Mai	Farmer	✓ Out

Status of the facilitators before and after they are involved in the project (KBC)

No	Name	Before	After
1.	Gum Sha Awng	Student	AC, Zone CCD Coordinator, WFP Coordinator, currently enrolled in Development Studies at Kimmage Manor, Dublin, Ireland.
2.	Zau Tawng	Farmer	Facilitator, Zone agriculture Coordinator
3.	Hpa Ga Naw	Farmer	Facilitator, Zone agriculture Coordinator
4.	Hkawng Lum	Layman	Facilitator, Rev, Zone Agriculture Coordinator
5.	Hkaw Bawm	Student	Facilitator, CF Coordinator
6.	Bawk Di	Farmer	Facilitator, Church CDD[5] Coordinator
7.	Gam Brang	Farmer	Facilitator, Church CDD Coordinator
8.	Zau Dan	Student	Facilitator, Church CDD Coordinator
9.	Sin Wa	FFS participant, Student	Facilitator, Zone CDD Coordinator
10.	Zau Raw	Farmer, Layman	Facilitator
11.	Bawng Mai	School teacher	Facilitator, Zone FFS Coordinator
12.	Yaw Ying	Student	Facilitator, LCT, AC, PM, SRIC
13.	Hkun Awng	MAS[6]	Area Coordinator
14.	Htu Sam	MAS	Project Coordinator
15.	Zung Sau	Student, Pax	Facilitor
16.	Sa Ram	Student	Facilitator
17.	Tang Seng	Zone CDD staff	Facilitator
18.	Tang Gun	MIT Student	Facilitator
19.	Brang Nan	Student	Facilitator
20.	Mung Wan	Student	Facilitator
21.	Zau Nan	Student	Facilitator
22.	Maran Yaw	Soldier	Facilitator

[5] CDD= Community Development Department
[6] MAS=Myanmar Agriculture Service

23.	Naw Awng	Soldier	Facilitator
24.	Naw Awng	Farmer	Facilitator
25.	Brang Li	Farmer	Facilitator
26.	Chang Ying	Farmer	Facilitator
27.	Bawk La	Farmer	Facilitator

Status of the facilitators before and after they are involved in the project (URM)

No	Name	Before	After
1.	Ah Lay Hpa	Church committee member	Facilitator, MKA Lisu Baptist Church zone assistant leader)
2.	Dau Hkong	Farmer	FFS Facilitator
3.	Brang Nu	Farmer	FFS Facilitator
4.	Hka Dau	Farmer	FFS AC,URM FFS Coordinator, FFS TOT trainer
5.	Hka Ze	Farmer	Farmer - Waimaw FFS AC
6.	Ngwa Si Yaw	Farmer	Facilitator, Village head
7.	Seng Mai	Farmer	Facilitator, Village head
8.	Lum Dau	Farmer	Farmer - Facilitator
9.	Naw Awn	Farmer	Facilitator
10.	Lum Hkawng	Farmer	Facilitator
11.	Hkaw Bawm	Farmer	Facilitator
12.	Lamasa	Farmer	
13.	Sut Tang	Farmer	
14.	Awng Myat	Farmer	
15.	Lawt Naw	Farmer	
16.	Naw Awng	Farmer, Church zone committee member	✓ Facilitator
17.	Tu Ja	Farmer, Church zone committee member	✓ Facilitator ✓ Church zone committee secretary
18.	Gam Mai	Farmer, Church zone committee member	✓ Facilitator ✓ Church zone committee member
19.	Brang Seng	Farmer	✓ Facilitator
20.	K. La Tawng	Farmer	✓ Facilitator
21.	Hp. La Tawng	Farmer	✓ Facilitator
22.	Tu Awng	Farmer	

Annex 2

New initiatives developed by the FFS communities after FFS

Initiative	Communities
Rice bank	Mamule, Sang Gawng, Mazup Yang, Mali Hka, Lam Braw Yang, Labang Tang Bau, Htaw Gaw, Ga Ra Yang, Wu Ra Yang, Jet Sa, Ding Hkung, Mung Ding Pa, Nat Mahuk ale, Nam Ya, Balu Awng Mye, Labang Kahtawng
Community forestry	Mamule, Sang Gawng, Mali Hka, Labang Tang Bau, Gara Yang, Mung Ding Pa, Balu Awng Mye
New irrigation channel	Mazup Yang,
Micro Credit Union	Mali Hka, Lam Braw Yang, Gara Yang, Ding Hkung, Nat Mahuk Kale, Labang Kahtawng
Buffalo bank	Lam Braw Yang, Labang Kahtawng
Pig project	Jet Sa,
Collective farming	Lam Braw Yang, Mung Ding Pa, Nat Mahuk Kale, Nam Ya, Labang Kahtawng
Plantation of timber plants	Labang Tang Bau
Animal raising	Labang Tang Bau
Well for drinking water	Nam Ya,
PAR training	(Nam Ya, Labang Kahtawng
Hydro power for electricity	Labang Kahtawng, Nat Ye Dwi
Drug store	Labang Kahtawng,
Training for basic healthcare	Labang Kahtawng