

## Farmer Field Schools (FFS)

**Farmer to farmer experience sharing, mutual learning and dissemination of good practices for an improved agricultural production**



**An experience from Food Security and Livelihoods Program (2011-2014)  
ACF Myanmar Mission, Kayah State, June 2014  
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## 1. BRIEF GLIMPSE ON THE PROJECT AREA

Kayah State is located in the Eastern mountain ranges that surround the central plains of the Union of Myanmar. It is bordered by Shan State in the north, Kayah State in the south and west and Thailand in the east. It consists of 7 townships. The State has a central narrow valley running north to south, surrounded by rugged mountains and steep hills with narrow valleys – 80% of the landscape is mountainous<sup>1</sup>. Transportation and access to public services are severely constrained in the mountainous areas.

The climate is influenced by the topography: the valley receives lower rainfalls and is hotter. There are 3 climatic seasons: a rainy season (mid-May to end of October), a cold and dry season (November to mid-February) and a hot and dry season (mid-February to mid-May). Average yearly rainfall is approximately 1000 mm. The variation of climate and topography within the State creates different agro-ecological areas, with a variety of potential for food production and access to water.

The population is predominantly agrarian, relying on small-scale agriculture as their main livelihood. At State level, only 6% of villages farm on lowland while the remaining farm either on highland (47%) or a mix of highlands and lowlands (43%)<sup>2</sup>. Highland farmers rely on rain-fed shifting agriculture cultivation using slash and burn practices. They cultivate hilly sloping land with poor soil conservation practices. Lowland farmers have more easily access to irrigation water and can thus cultivate all year round. Paddy is the main crop while peanut, maize, sesame and sorghum are produced as secondary crops.

The State suffered decades of armed conflict between the government and ethnic insurgents, leading to massive population displacements and loss of assets. In the mid of 2012, government and the last remaining strongest ethnic armed group KNPP<sup>3</sup> signed cease fire agreement.

ACF intervenes in this area providing support to vulnerable populations, with a focus on mitigating conflict related vulnerabilities ACF Food Security and Livelihoods projects, funded by the SDC<sup>4</sup> from 2009 to 2010 and by the EU<sup>5</sup> from 2011 to 2014, have supported conflict affected population.

FFS activity has been implemented for 3.5 years between 2011 and 2014 in the framework of the project “Integrated WASH and Food Security Project for Uprooted Communities in Kayah State, Union of Myanmar”, funded by EuropeAid.

- Overall objective: To contribute to the improvement of the status (livelihood and health) of uprooted people in selected townships of Kayah State, Union of Myanmar.
- Specific objective: To create viable foundation for future development of the concerned areas through improved food security and livelihood, and access to water, sanitation and hygiene for at least 4,000 households in Demoso, Loikaw and Hpruso townships.

## 2. FARMER FIELD SCHOOLS: RATIONALE, PRINCIPLES AND CONCEPT

### **Rationale**

The precarious food security in Kayah State results from:

- Low agricultural production. Restrained access to productive land combined with inadequate agricultural practices limit the levels of food produced at household level. The main agricultural constraints are poor soil fertility, low access to labor force (mainly for weeding and harvest) and inadequate access to agricultural extension services. Agricultural productivity is also limited by the absence of adequate practices to conserve the soil, to prevent erosion and improve the production. Farmers rely on traditional farming methods. They have limited access to new technologies and are generally reluctant to change

<sup>1</sup> State Land Record Department

<sup>2</sup> Kayah State Socio-Economic Analysis, September 2013

<sup>3</sup> Karenni National Progressive Party

<sup>4</sup> Swiss Agency for Development and Cooperation

<sup>5</sup> European Union

- their usual farming practices when they have no certainty of the outcome of adopting new practices. However, in conflict-affected communities that have been relocated and constrained for decades, aversion to risks and prioritization of household food security are a rational response to long periods of uncertainty. Consequently, yields are low and range from 30 baskets (270 kg) to 55 baskets (495 kg) per acre<sup>6</sup>. Results of various assessments conducted by ACF between 2008 and 2013 indicated that 75% of rural households encountered an average of 4.5 months of food gap annually.
- Limited job opportunities. As a consequence of the long conflict, the State has been isolated and few investments have been made. This resulted in limited job opportunities which in turn affected the capacity of the local population to access market to buy more food.
  - Debt. Two of the main coping strategies developed by the population to cope with food shortage are borrowing rice and/or money to buy rice, with high interest rates leading families to endless debt cycles. The reimbursements of the debt which is solely done with the harvested rice reduce the quantity of food available for their own consumption.

To increase agricultural production, ACF engaged in agricultural extension. One way to paving the way for farmers to agricultural knowledge and practices is through FFS approach. The FFS offer a way to improve agriculture knowledge of farmers through common problem analysis and sharing of successes and failures of each individual farmer experience. FFS has also the advantage of promoting local knowledge. It is expected that FFS will help participating farmers in finding the best solutions to overcome farming constraints and sustainably increase their crops' yield.

### **Principles and concepts**

FFS is a group-based learning process which evolved from the concept that farmers learn optimally from field observation and experimentation. It is a participatory approach to disseminate and fine tune the production technology in such a way that adoption rate becomes high. Fine-tuning of the production technology based on the specific local conditions and available resources in close collaboration with the farmers enhances the adoption rate of a given farming innovation. The FFS approach is a direct response to the needs of the farmers. Unlike other extension approaches and tools, FFS is a two-way communication between the farmers and the facilitator who may be an extension or research worker. In the FFS, there is acceptance of uniqueness and peculiarity of each participating farmer. The FFS trainers play a crucial role in ensuring that the environment and all resources contribute to the farmers' learning experiences.

### **3. FARMER FIELD SCHOOLS IMPLEMENTATION METHODOLOGY**

The selection of FFS participants is based on their interest in food production activities, their will to test and adapt new farming techniques, their will to share their knowledge with others and their availability to attend regular FFS sessions.

This activity is targeting farmers from both lowlands and highlands, mainly during rainy and winter seasons (water available). It covers a complete crop cultivation cycle. The objective is to allow farmers to observe and experiment cultivation techniques during the whole cultivation process. For each FFS, about 35 interested farmers from various communities are selected and gathered weekly in the same place (the FFS center) where a demonstration-plot is set up and where they can share, discuss, and experiment different practices, find out the constraints and successes, and discuss means and ways to improve their food production knowledge.

ACF and its 4 local partners facilitated the weekly sessions and supported farmers in identifying their agricultural constraints and solutions to overcome them through practical experimentation in common demonstration-plots. They also provide technical training and propose various improved techniques based on conservation agriculture and organic farming; these techniques are tested on the demonstration-plot as well. ACF and its local partners monitor the activity progress.

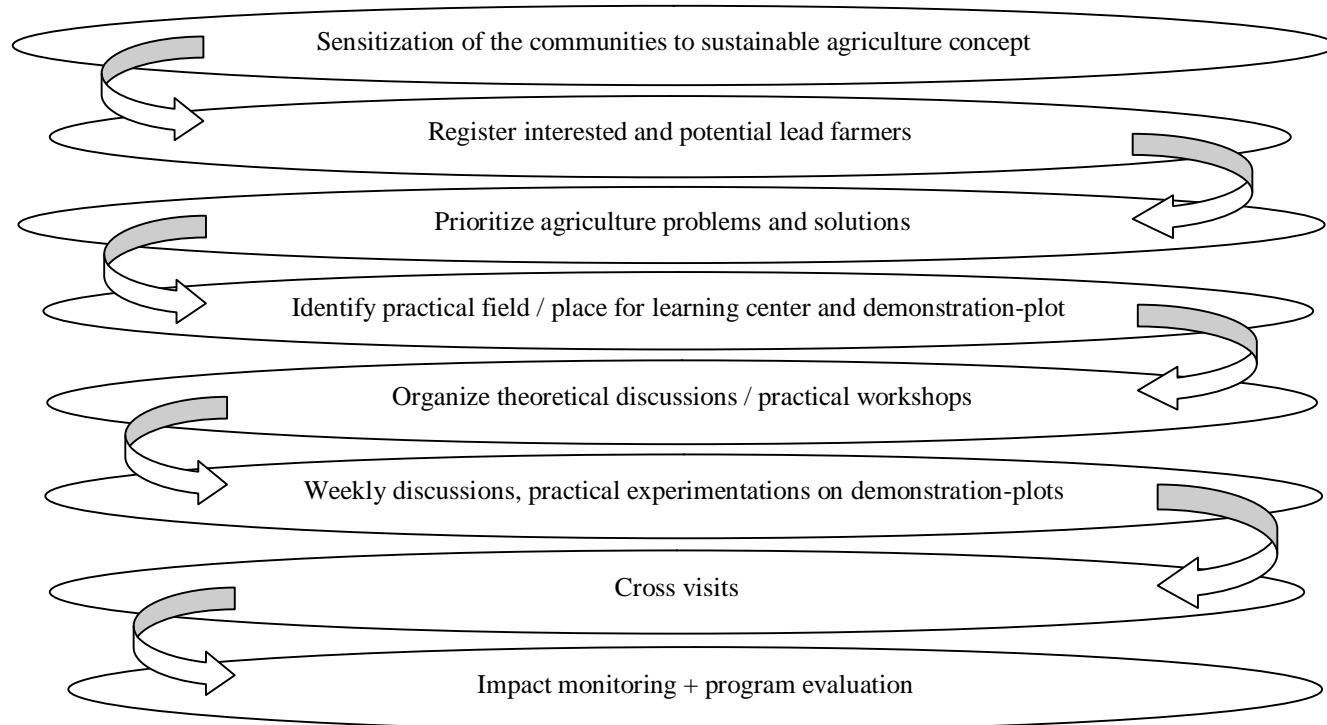
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<sup>6</sup> Kayah State Socio-Economic Analysis, September 2013



Internal cross visits (in Kayah State) on vegetables production and external cross visits (in Southern Shan State) on paddy production, contour perennial plantation and compost making are also conducted at key moments, when farmers can observe the impacts of the new tested production techniques.

The eight main steps for FFS implementation as illustrated in the figure below.



**Figure 1. The eight main steps for FFS implementation**

All the training topics and practical exercises are discussed and chosen with the farmers.



**Figure 2. ACF agriculture trainer facilitating a discussion on conservation agriculture principles and concept**



**Figure 3. Farmers applying mulch in Dou Khu Le demonstration-plot, Demoso Township**

In total, 12 FFS have been set and 410 farmers from 54 communities have joined the FFS activity – 46% of men and 54% of women (**Table 1**).

**Table 1. Number of farmers and communities involved in FFS activity**

Year of FFS implementation	Number of farmers participating	Number of communities involved	Number of FFS set
2012	181	31	5
2013	152	21	5
2014	77	2	2
<b>Total</b>	<b>410</b>	<b>54</b>	<b>12</b>

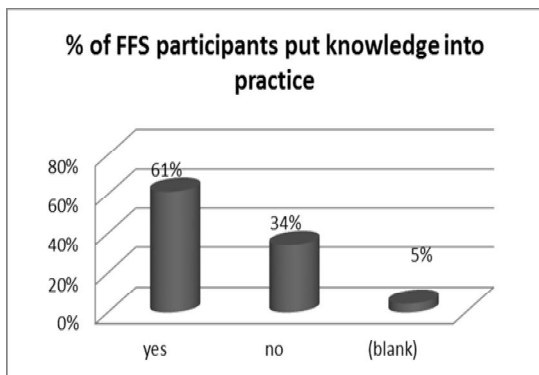
#### 4. FINDINGS AND IMPACTS

- Based on farmers' requests, trainings and experiments focused on soil conservation techniques, paddy, vegetables and perennial crops cultivation, green manure, contour planting, intercropping, production of organic pesticides (sterilized liquid from fresh bamboo or rice husk) and organic fertilizers (compost and liquid fertilizers prepared from fleshy plants or fruits, which stimulates healthier and stronger growth and fruits quality), seeds' purification and saving. Theoretical trainings also addressed topics such as ecology, plant functions, fertilization, pests and weeds management.
- During FFS sessions, weeding rollers models (**Figure 4**) have been improved together with farmers: models were firstly made of wood, and then made of metal (lighter and stronger). FFS participants tested weeding rollers and requested a wider production and sale. Weeding rollers allowed reducing the labor constraints and time needed for weeding.

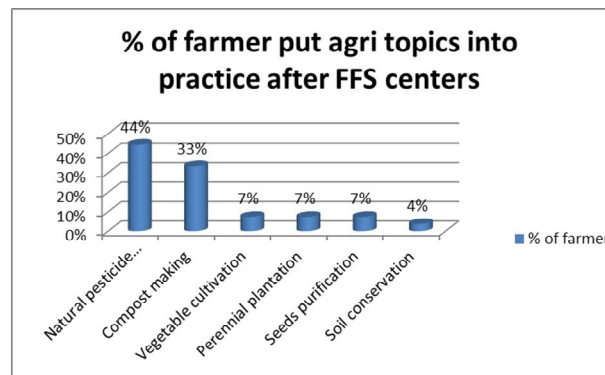


**Figure 4. Weeding rollers models developed in partnership with FFS participants**

- 61% of the FFS participants put into practice the newly acquired agricultural knowledge in their own fields. The main techniques they put in practice were the production of organic pesticides and compost. It should be noted that some FFS participants from western Hpruso used these pesticides for their illegal opium poppy production.



**Figure 5. Percentage of FFS participants who put their knowledge in practice**



**Figure 6. Techniques put in practice by FFS participants**

- One third of the highlands FFS participants adopted sowing in line technique – instead of seeds broadcasting – and stated that it halved the time needed for weeding.

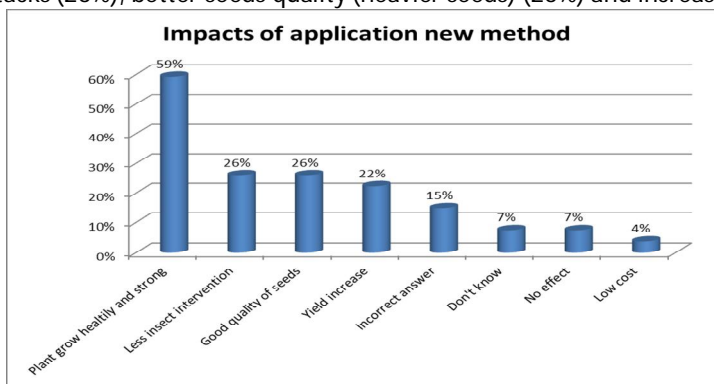


**Figure 7. Farmers from Dou Fu (Demoso Township) weed their paddy field sowed by broadcasting**



**Figure 8. A FFS participant from Dou Fu weeds his paddy field cultivated in line**

- FFS participants who applied new practices mentioned that they have healthier and stronger plants (59%), less insects' attacks (26%), better seeds quality (heavier seeds) (26%) and increased yields (22%).



**Figure 9. Impacts observed by FFS participants who put technical knowledge into practice**



- In Daw Ta Cha FFS, ACF and its partners introduced conservation agriculture techniques such as no tilling but covering the soil surface with corn residues for peanut production. All the FFS participants found out that the method shown positive impacts, notably reducing the cost for land preparation and weeding, increasing soil fertility and yields. However, they still need time to adopt the new techniques.



**Figure 10. Young FFS participants preparing compost in Dou Lyar Li demonstration plot, Demoso Township**

- 93% of the FFS participants have shared their newly acquired knowledge with others farmers: 54% shared it orally, 29% shared it orally and through practice and 17% shared it only through practice. The main topics shared were the production of natural pesticides (54% of the farmers) and compost (49% of the farmers). Other topics such as seeds purification, soil conservation, production of fertilizers from plant/fruit liquid and vegetables cultivation were shared by around 10% of the FFS participants.



**Figure 11. FFS participants observe insects and diseases on vegetables in Dou Lyar Li demonstration-plot, Demoso Township**



**Figure 12. Dou Khu Li FFS participants observe the presence of micro-organisms in the forest, Hpruso Township**

### **Main constraints and challenges faced during implementation**

- Two third of the FFS participants are young farmers who replaced their parents, initially selected. The older farmers stated they gave priority to their own farming activities. Young farmers were sometimes reluctant to adapt new techniques in their plots (or sometimes not allowed by their parents), due to fear of yields decrease.
- There has been a high turnover of FFS participants during the 7 to 8 months of implementation of each FFS, as many were busy in their own farm.
- Participation and sharing of experiences was not always high during FFS sessions. This can be explained by the mistrust of farmers who have been affected by decades of armed conflict.

- Adoption of new practices may also have been lowered by the fact that in this conflict affected area public extension services are quite weak, and farmers have not been exposed to different techniques and environments.

## 5. RECOMMENDATIONS

### **(a) *Active participation of interested farmers***

It is recommended to avoid targeting the most vulnerable farmers for this kind of innovative approach. Motivation, willingness to test, innovate and share are an essential criteria. Indeed, efforts, time and inputs have to be invested by the farmers. Without this investment, further diffusion of new agricultural techniques to others is doubtful.

It is then relevant to focus first on lower number of farmers (maximum 25) who are used to work together, have a common interest and can guarantee maximum contribution of inputs and time.

### **(b) *Adaptation of the methodology for a better adoption of improved techniques by farmers***

It may be relevant to start working closely with smallest groups in each village instead of groups made up of farmers from different communities, and to gather farmers who are already used to work together (in any case, the group composition should be agreed with the interested farmers). It would ease the supervision and follow-up. The farmer to farmer exchange can then be promoted within the community or between communities. This may ensure better ownership of the new proposed techniques.

### **(c) *Simplify and/or modify already existing farming tools and practices used by farmers in the area for better acceptance***

Introduction of new tools and techniques may face lower acceptance than improvement of the existing ones. ACF tried to introduce seeders but it was not successful as this type of tool was not used by farmers and was not so suitable for the sloping areas. It is recommended to adapt and improve the quality of already existing agriculture tools and practices for higher effectiveness, acceptance, maintenance and to foster diffusion.