FARMER FIELD SCHOOL

Overall concepts and lessons learnt from experiences by WHH and GRET

WHH: Delta
GRET: NRS and Delta

Yangon, 29 November 2012
• By the end of the 1980s, a new approach to farmer training emerged in Indonesia called the 'Farmer Field School' (FFS).

• The broad problem which these field schools were designed to address was a lack of knowledge among Asian farmers relating to **agro-ecology**, particularly the relationship between insect pests and beneficial insects.

• The implementation of projects using the FFS approach led to a deeper understanding of their other field problems and its causes.
• The Farmer Field School (FFS) is a group-based learning process. (Based on Adult non-formal education)

• During the FFS, farmers carried out *experiential learning* activities that helped them understand the *ecology* of their rice fields.

• These activities involve simple experiments, regular field observations and group analysis.

• The knowledge gained from these activities enables participants to make their own locally-specific decisions about crop management practices.
Ramification of IPM Farmer Field Schools

• Doubtless there are many other programmes besides IPM Field Schools which have succeeded to provide good educational results.

• *literacy education and village-level basic health care, Integrated Crop/Soil Management, and livestock* in other regions.

• The Field Schools are not a new idea, just an effective idea that has been ignored by not hearing to the conventional wisdom of farmers.
## Assessment of situation in NRS in rice cultivation

<table>
<thead>
<tr>
<th>Apparent Weaknesses</th>
<th>Possible interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Small land holding</td>
<td>• System of Rice Intensification (SRI)</td>
</tr>
<tr>
<td>• Poor seed</td>
<td></td>
</tr>
<tr>
<td>• Low access to fertilizers</td>
<td>• Tests and demonstration of pest and disease</td>
</tr>
<tr>
<td>• Poor seedlings and deep planting</td>
<td>management</td>
</tr>
<tr>
<td>• Poor water and weed management in summer rice</td>
<td></td>
</tr>
<tr>
<td>• Poor knowledge on plant protection</td>
<td></td>
</tr>
</tbody>
</table>
• The first Farmer Field School was tested in 2004 rainy season for rainy rice.

• It was soon identified as one of the most suitable way to disseminate tested innovative practices and promote experience sharing and mutual learning amongst farmers.
From Rainy Season 2004 to Rainy Season 2008,

• 120 Farmer Field Schools were held in 47 different Village Tracts involving 1805 participants:
  • 880 participants in Rainy Rice FFS,
  • 523 participants in Winter Vegetable FFS, and
  • 402 participants in Summer Rice FFS.
Overview of FFS modalities and contents

The number of sessions ranged from

• 15 to 20 in **Rainy rice FFS** over 7 months (June-December),

• from 16 to 25 sessions in **Winter Vegetable FFS** over 5 to 6 months (October-March),

• from 15 to 18 sessions in **Summer Rice FFS** over 5 months (December-April).
Most important topics addressed by FFS according to the crop seasons:

• *Rainy rice FFS*
• Nursery and Transplanting Management
• Variety and Seed selection
• Pest & Disease and Fertility management
• System of Rice Intensification (SRI)
Winter Vegetable FFS

• Introduction of high valued winter vegetable and new practices (cabbage, onion seed to bulb and bulb to seed cultivation, watermelon, selection of virus free potatoes ...)

• Improved crop management for vegetables

• Pest and disease management
*Summer paddy FFS*

- Water Management and Weed control
- Pest Management
- System of Rice Intensification (SRI)
• National and international agronomists together with the AFA defined a number of tentative technical sessions (themes) to be included in the season long curriculum.

• Agronomists developed the contents (materials) of each technical session both presumably fit for the area and suitable for AFA to animate.

• Then, the AFA were monthly trained for the tentative sessions planned for the month.
Regarding facilitation skills,

• GRET AFAs have received initial local workshop and training on facilitation.

• Then, an international training of trainers has been organized with the Cambodian Center for Study and Development in Agriculture (CEDAC).

• Afterwards, they developed and improved their skills during practical sessions as occasionally corrected and advised by project agronomists.
Study Plots

- Lands rented by the project for each FFS range from;
- 1.2 to 2 acres in rice FFS,
- and 0.6 to 1.2 acre in winter vegetables FFS.
- All costs are supported by the project and participants benefit from the harvest of the FFS (equal sharing amongst the participants).
*Study plots are divided equally to the two groups
*Group members plan together the experiments and allocated to small plots to compare different treatments/tests
An impact survey about FFS in 2007

- Participants enjoy work in group and to share the knowledge amongst each others.
- 100% participants accept SRI and the use of the weeder
- 60% of the participants like compost making
- 35% like balance fertilization
- 46.8% like plant protection (pest and disease control,
- 75% of the participants are happy to get more yield
- 30 are happy with the quality of their crops. Then, for nearly
- 15% of the participants are happy with positive impact on their income and the cultivation cost
- Cost for conducting FFS become high
Methodology changes

• The review of the FFS methodology was driven by the need to decrease the high cost of FFS implementation and ensure their sustainability. Moreover, in order to scale up the number of participants and their involvement, project has decided to rely on FFS farmer facilitators (FF).

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GRET in Delta
GRET Farmer Extension Groups (FEGs) in Delta

- Identification of the field problems
- Identification of the solutions over testing
- Identification of the motivated farmers (Contact Farmers)
- Establishment of demonstration plots with essential supply of inputs (tools, seeds, fertilizers)
- Organization of Farmer Extension Groups (20 farmers per group)
- 5 - 6 sessions throughout the crop season (rainy season rice, winter crops, summer rice) and an exchange visit (inside and cross townships/Village tracts) for each group.
- No payment for participation except refreshments offered
### Assessment of situation in Delta in rice cultivation

<table>
<thead>
<tr>
<th>Apparent Weaknesses</th>
<th>Possible interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor seed after Nargis</td>
<td>• System of Rice Intensification (SRI)</td>
</tr>
<tr>
<td>Poor access to means of cultivation</td>
<td>• Use of drum seeder</td>
</tr>
<tr>
<td>Excess and reckless use of chemicals in summer rice</td>
<td>• Training on working in groups</td>
</tr>
<tr>
<td>Poor seedlings and deep planting by stick</td>
<td>• Technical trainings</td>
</tr>
<tr>
<td>Excess use of seed in summer rice</td>
<td>• Surveillance, tests and demonstration of pest and disease management</td>
</tr>
<tr>
<td>Poor access to PHM tools</td>
<td></td>
</tr>
<tr>
<td>Poor knowledge on plant protection</td>
<td></td>
</tr>
</tbody>
</table>
Assessment of stresses & constraints
Promising Innovations
WHH-Farmer Field School approach
### List of FEG conducted in BGL and Mawgyun townships by GRET and FLE farmers

<table>
<thead>
<tr>
<th>Year</th>
<th>Season</th>
<th>Number of participants</th>
<th>Number of VT</th>
<th>Number of Villages</th>
<th>Farmers exchange visits (nb farmers)</th>
<th>FLE farmers visitors</th>
<th>Experiment farmers hosts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Rainy season</td>
<td>1065</td>
<td>15</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Rainy season</td>
<td>686</td>
<td>20</td>
<td>34</td>
<td>279</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Rainy season</td>
<td>415</td>
<td>20</td>
<td>22</td>
<td>330</td>
<td>246</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Rainy season</td>
<td>673</td>
<td>13</td>
<td>42</td>
<td>412</td>
<td>60</td>
<td>167</td>
</tr>
<tr>
<td>2012</td>
<td>Summer season</td>
<td>338</td>
<td>10</td>
<td>26</td>
<td>195</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>Rainy season</td>
<td>375</td>
<td>5</td>
<td>25</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>3552</strong></td>
<td><strong>83</strong></td>
<td><strong>198</strong></td>
<td><strong>1313</strong></td>
<td><strong>518</strong></td>
<td></td>
</tr>
</tbody>
</table>
Some Highlights

- 5 Agronomists supervised by a Technical Coordinator/Specialist Coordinator carry out animation in FEG
- 20 Field Agents assist in facilitation FEG
- 136 participants chose to become Seed Growers applying SRI
- 196 farmers started to test the knowledge they learn from FEG in their own field as Farmer Led Experiments (FLE) and in project experiments
- Exchange visits between WHH and GRET participants were carried out in 2010 in LIFT I
Rice production is the economical back boon of the project area

- Some main problems:
- Still below pre- Nargis production
- Part of the community population still faces food insecurity periods
- Farmer have limited access to investments for crop production
- Farmers do not benefit from annual market price developments due to input shortages
- Soil fertility is declining
- Limited access to information and developments
Purity in paddy seed was a problem after Nargis.

Farmers grow seeds that had been donated by other states, consequently seed varieties were mixed, and as a result farmers lost yield due to different ripening stages.

SRI, in particular hand transplanting introduced and promoted after Nargis.
Purified seed production became one of the major topics

Farmers faced difficulty in distinguishing and adequate control of pest and diseases due to lack of knowledge

Summer paddy was quite often over fertilized with an negative impact on soil fertility, ecology as well as economy of the farmers

FFS as tool to support farmers in agro technical trainings to overcome knowledge gaps
Objectives of FFS

- improvement of knowledge of rice production and the understanding of agro-technical contexts
- produce qualified and purified seeds in sufficient quantity
- improve yield
- increase soil fertility by introducing bio-fertilizer and organic fertilizer
- training on pest-and disease control
- improve techniques/practices for winter crop cultivation
- Training of skillful farmers as local resource person
- Improve networking of farmers
Agriculture trainings provided by project LIFT I-II

**LIFT 1- Farmer field school**
- in 27 villages bi-weekly sessions
- 8 different training modules,
- open for Key farmer as well as interested farmer
- total of 455 farmers trained

**LIFT 2- Key farmer Cluster training**
for 60 villages on monthly basis
training subjects :
- seed production technology
- SRI system
- soil management
- nutrient deficiency
- pest and disease control,
- various compost making and post harvest technologies
**Farmer Led Experiments (FLE), Certified seed production**
- Started at 2011-12 summer season
- Transplanting time trial plot
- Spacing trial plot
- Fertilizer trial plot

**Farmer Field School**
- In 5 cluster monthly sessions for 60 villages
- 30 Demonstration plots and, 18 Experimental plots established
- 5 different training modules,
- open for Key farmer (ToT) as well as interested farmer
- total of 122 farmers trained
- 19 villages organized ToT based training
- 253 farmer participated in all 5 module trainings
FFS 2012 started in May and conducted at 5 centers

<table>
<thead>
<tr>
<th>Sr</th>
<th>Center village</th>
<th>Water Zone</th>
<th>Including villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ba Wa Thit</td>
<td>Fresh water</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Tha Pyay Kone</td>
<td>Fresh water</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Min Hla Su</td>
<td>Brackish water</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Koe Ein Tan</td>
<td>Saline water</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Da Yei Hpyu</td>
<td>Saline water</td>
<td>14</td>
</tr>
</tbody>
</table>
Methodological approach

Welthungerhilfe internal curricula development

FFS cluster trainings to Key Farmer (ToT) from different villages within the cluster by Welthungerhilfe Agronomists

trained Key Farmer (peer trainer) carry out trainings at village level

Farmer at village level
Farmer at village level
Farmer at village level
Farmer at village level
Farmer at village level
Procedure for FFS

Step I: Curriculum development
Step II: Sites and demo farmer selection
Step II: Pre-school opening; setup monthly work plan
Step III: Set up of demo plots, experiments
Step IV: Module based trainings to peer trainer
Step V: Monthly multiplier training by ToT to village farmer
Step VI: regular field days; Exchange visits M&E
Step VII: Step VIII: Examination and certification to Peer trainer
Step VIII: Follow up sessions by Agronomists
Subject sharing practice in office

- 2 Agronomists prepare to facilitate one FFS
- Before monthly FFS-training conducted, Agronomists prepare pamphlets and documents assuring that all farmers receive a standardized quality input
- At the same time agronomists practice presentation methods
Whole Plot Size = 68 ft x 68 ft = 4624 sq ft = 0.1 acre
sub plot size = 20 ft x 68 ft = 1360 sq ft = 0.03 acre
Design: Split Plot design
use variety: Bay Gyar Lay

- Block 1: Organic fertilizer (Organic Fertilizer "Shwe Thit Sar"
  100 kg

- Block 2: Chemical Fertilizer
  Urea 50 Kg/acre
  T-Super 25 Kg /acre
  Potash 25 Kg/acre

- Block 3: No fertilizer

Border 2 feet

Boradcasting

Drum seeder

Single plant transplanting after 20 days transplanting 8"x8 spacing
Pre-School of FFS
Setting up of demo-plot of FFS
Experiments in the field

Dayel Phyu FFS

Bawathit FFS
Farmers learning at FFS
Practice during Farmer Field School
Village ToT

19 key farmers shared the technology of FFS to 253 village farmers during July to October, 2012.

Practical Single Plant Transplanting (SPT) together with interested village farmers.
Sample plot harvesting of FFS, November, 2012
LIFT IP Mercy Corps Labutta staff (5) and farmers (30) visited Bawa Thit FFS and Ngapitone Hlel demo plots in October 2012
### Sample plot data collection format by farmers

<table>
<thead>
<tr>
<th>sr</th>
<th>Description</th>
<th>Chemical fertilizer</th>
<th>Organic fertilizer</th>
<th>Farmer normal use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SPT</td>
<td>Broadcast</td>
<td>seeder</td>
</tr>
<tr>
<td>1</td>
<td>Life period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>plant height(cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>planth width(cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>leaves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>nodes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>plants per plot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>panicles per plant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>grains per panicle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>fertile grain%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1000 grain weight(g)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>estimate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>yield/acre(bkt)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>weed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>off type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3ft*3ft plot harvesting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tin/plot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>basket/acre</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Attendance list of FFS(2012)

<table>
<thead>
<tr>
<th>Sr</th>
<th>Month</th>
<th>farmers</th>
<th>villages</th>
<th>Subject of the month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>May</td>
<td>72</td>
<td>45</td>
<td>All subjects/pre school (3 days)</td>
</tr>
<tr>
<td>2</td>
<td>June/July</td>
<td>88</td>
<td>41</td>
<td>Basic SRI, soil management, Nutrient deficiency</td>
</tr>
<tr>
<td>3</td>
<td>August</td>
<td>69</td>
<td>34</td>
<td>Pest and disease control, IPM</td>
</tr>
<tr>
<td>4</td>
<td>September</td>
<td>98</td>
<td>38</td>
<td>Pest and disease control system, compost making systems</td>
</tr>
<tr>
<td>5</td>
<td>October</td>
<td>89</td>
<td>40</td>
<td>Seed technology and field inspection, pest and disease control</td>
</tr>
<tr>
<td>6</td>
<td>November</td>
<td>79</td>
<td>35</td>
<td>Post harvest technology</td>
</tr>
<tr>
<td>7</td>
<td>December</td>
<td></td>
<td></td>
<td>To be conduct Field day</td>
</tr>
</tbody>
</table>
Farmer use Farmer Record book and monthly Agro-eco analysis format
+ Farmers receive theoretical knowledge on techniques, technologies, market developments through projects
+ Forum for exchanging views, experiences and best practices (networking)
+ Receive tools for self assessment of own production
+ Strengthen training capacities to farmer colleagues
+ Strengthen self help capacities of farmers especially in handling pests and diseases
+ Better farming and high adaptation rates
+ Better understanding of ecological & environmental linkages towards paddy production
- farmers have difficulties in participation in closer intervals than a month
- considering geographical situation in the Delta, high administrative and financial burdens
- currently still very much depending on the project
- little opportunities for farmers to self study developments and techniques due to limited access of literature and market information
Impact of FFS

Adaptation of cultivation practices after 3 years of Demo plots and FFS as follow:

<table>
<thead>
<tr>
<th>year</th>
<th>No of villages</th>
<th>Single plant transplanting method</th>
<th>2-3 plant hand transplanting method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>farmers</td>
<td>acre</td>
</tr>
<tr>
<td>2011</td>
<td>37</td>
<td>97</td>
<td>121</td>
</tr>
<tr>
<td>2012</td>
<td>45</td>
<td>143</td>
<td>265.9</td>
</tr>
</tbody>
</table>

No of villages adopting hand transplantation per agro ecological zone:

<table>
<thead>
<tr>
<th>year</th>
<th>No of villages</th>
<th>Villages per agro-ecological zone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Fresh</td>
</tr>
<tr>
<td>2011</td>
<td>37</td>
<td>19</td>
</tr>
<tr>
<td>2012</td>
<td>45</td>
<td>20</td>
</tr>
</tbody>
</table>
Thank you for your attention