

“Farmer Field Schools as a vehicle to help vulnerable smallholder farmers develop climate resilient farming systems: experiences based on FAO's work in South and Southeast Asia”

**2nd World Bank – FAO Expert Meeting on
14-16 May 2012, Bangkok, Thailand**

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Scope of Presentation

- 
-  What is a Farmer Field School?
 -  Case studies: FFS as a vehicle to help vulnerable smallholder farmers develop climate resilient farming systems
 -  Integrated Farm Management FFS in Bangladesh
 -  Minimum Tillage Potato IPM FFS in Vietnam
 -  Climate Change FFS in Indonesia
 -  System of Rice Intensification FFS in Vietnam and Cambodia
 -  Concluding remarks

What is a Farmers Field School ?



- ❑ The group-based learning process used in educating farmers about IPM and PRR.
- ❑ “School without walls”, farmers learn about crop ecology and pest management in the field.
- ❑ Season-long, from seed to harvest, 25-30 farmers.
- ❑ Aim to help farmers produce safer crops and more efficiently through IPM and alternatives to pesticides.

Farmer Field School:

A learner-centered group-based discovery learning process

Active
Experimentation



Concrete
Experience



Observation
and Reflection





Generalisation &
Abstract
Conceptualisation



Outcome of FFS => Empowerment

FFS graduates:

 Learn and apply ecological principles to manage biodiversity, crops, agro-ecosystems

 Master and apply critical thinking skills at farm and community levels

Master applied problem solving and discovery approaches for continued knowledge development

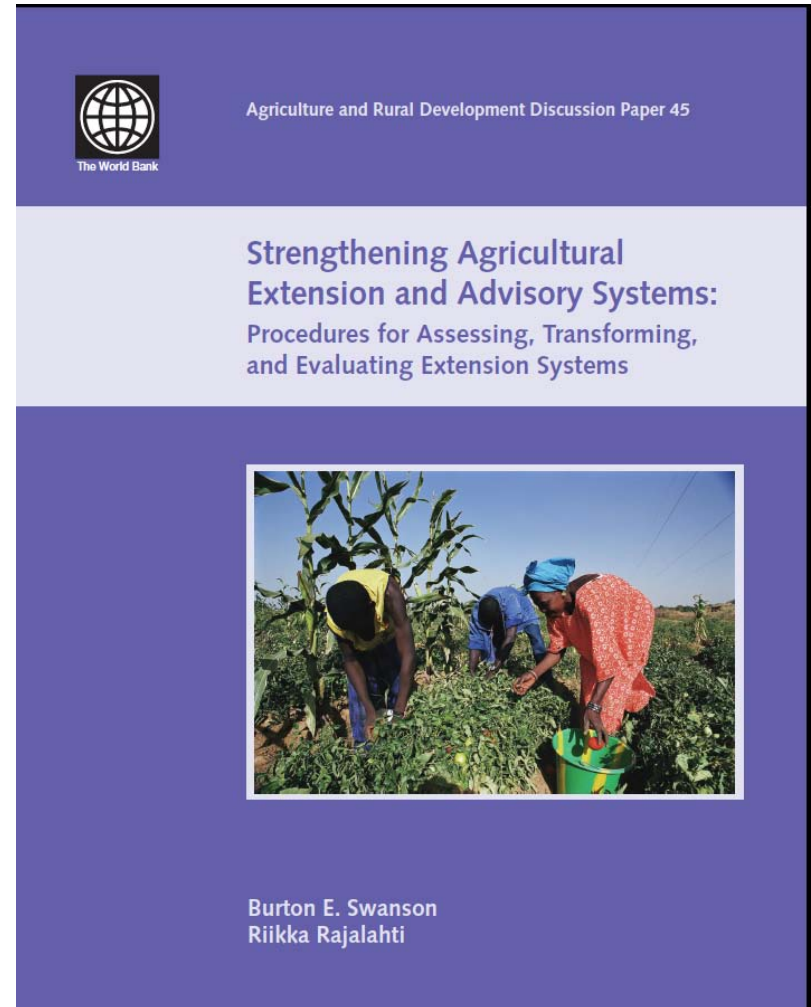
 Acquire leadership skills for community mobilization.



Farmer Field Schools

FFS are particularly suited for learning complex management skills, like natural resource management, diversifying production and accessing markets to increase rural incomes (*Swanson and Rajalahti, 2010*).

- Observation skills
- Analytical skills
- Decision-making skills



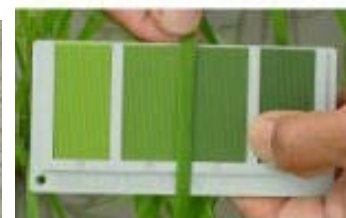
Innovation in Farmer Field Schools

These skills can be extended to:

- Sustainable Crop Intensification
 - Agro-biodiversity: Genetic resource management
 - Managing Soils & fertility, crop nutrition, reduced N-inputs
 - Conservation Agriculture
 - Fisheries & Animal husbandry
 - Health, nutrition, child care
 - Climate Smart Agriculture



Apply high N dose



Apply baseline N dose



Apply little or no N



A woman wearing a vibrant, multi-colored sari is bent over, working in a field. She is holding a long-handled hoe and appears to be tilling the soil. The background shows a rural setting with trees and a thatched-roof structure. The image is slightly faded, emphasizing the text overlay.

**Case Studies: FFS as a vehicle to
help vulnerable smallholder farmers
develop climate resilient farming systems**



Integrated Farm Management FFS in Bangladesh

IFM-FFS in Bangladesh

- WB-ECRRP Component A:
“Recovery of the
Agriculture Sectors and
Improvement Programme”
- Budget \$30.96 million

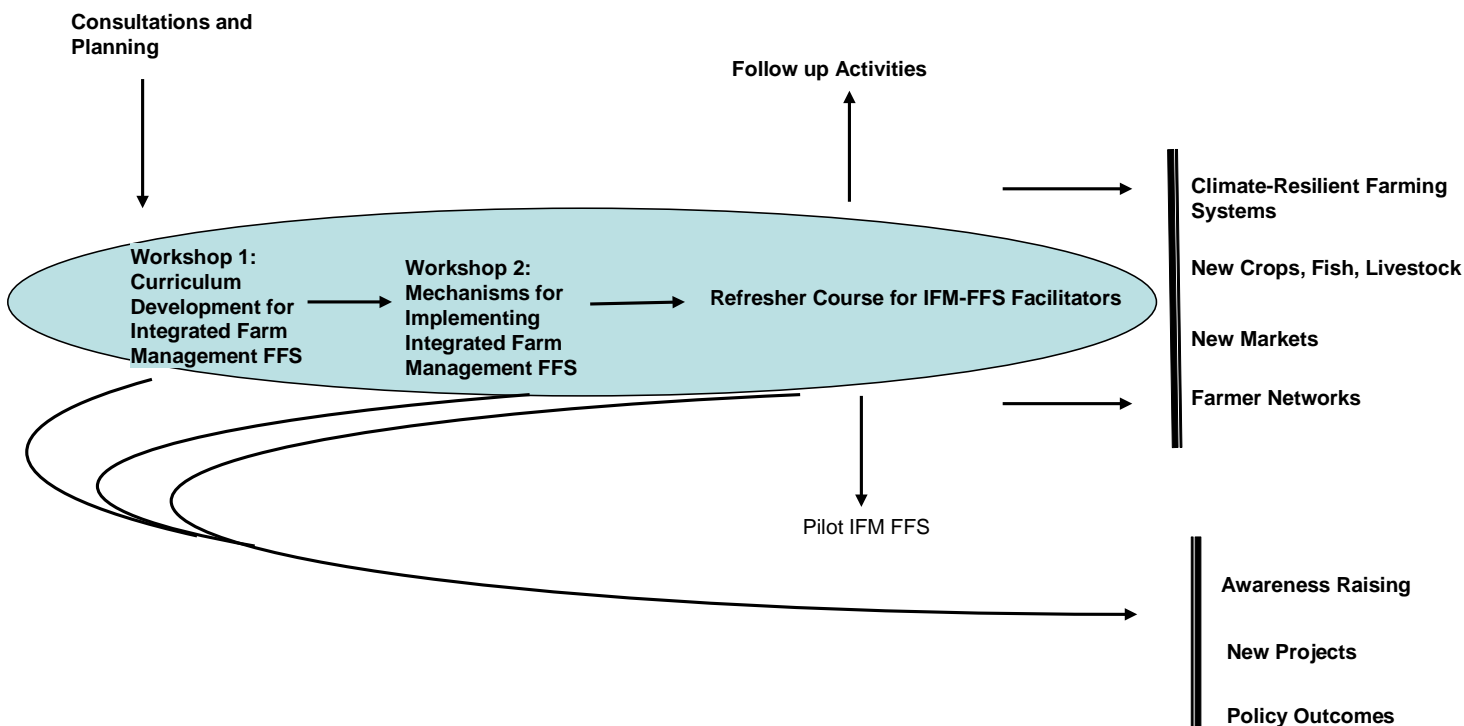
Implemented by FAO in
partnership with DAE, DoF
and DLS

Aimed at rebuilding food
security and restoring
livelihoods of 2007 Sidr
cyclone-affected
households of 13 Upazilas
in 6 Districts



IFM-FFS in Bangladesh


Capacity Building Initiative in Support of
Pilot Integrated Farm Management Farmer Field Schools (FFS)



Upscaling - IFM-FFS in Bangladesh

 A 2011 Evaluation conducted by the Evaluation Department of the Danish MFA concludes...





*“Future development interventions, aiming at reducing vulnerability and improving food security, nutrition and livelihoods among poor rural households, should strongly consider making use of **the FFS approach**.”*

 Pilot IFM-FFS designed by FAO under the WB-funded ECRRP-FAO Component will be the basis of Danida's Phase 3 ASPS from 2013-2017





A photograph showing several farmers in a field harvesting potatoes. They are wearing traditional conical hats and rubber boots. The field is covered with straw mulch, and the potato plants are green. The background shows a vast green field under a cloudy sky.


Minimum Tillage Potato IPM FFS in Vietnam

-  Potato is an important food crop in Vietnam. It is also as a raw material for food processing and is a source of stable income for smallholder farmers
-  Potato production has been low due to lack of quality seeds and high labor costs
-  The practice of burning of rice straw in the fields and canals has been a source of environmental pollution and has posed health hazards for the ecosystem and communities
-  In 2008, an FAO-supported innovative pilot project was implemented by the Natl IPM Programme, PPD-MARD to address the situation. Since then, activities have been expanded to other provinces.



- 

Optimizing the use of remaining moisture in the rice field - and the practice of mulching - **reduced irrigation** from 5,000 cubic meters of water to **900 cubic meters** per hectare
- 

Cultivation using minimum tillage potato IPM has the potential to **reduce labor costs by 45%** compared to the conventional method
- 

Between 2009 and 2011, **profits** from growing potatoes **increased by 60 to 73%** using minimum tillage potato IPM



Results: Costs for Labor (VND)




Thai Binh, 2011

Labor cost components	Minimum Tillage	Control (FP)
Land preparation	2,700,000	8,100,000
Planting	5,400,000	8,300,000
Collecting rice straw	2,800,000	0
Taking care of field	10,800,000	18,900,000
Spraying	2,800,000	5,600,000
Harvesting	5,400,000	8,300,000
Total costs	22,900,000 ≈\$1,145	49,200,000 ≈\$2,500

Economic Analysis, Thai Binh, 2011

	20 09		20 10		20 11	
Indicators	MT	FP	MT	FP	MT	FP
Yield (ton/ha)	22.50	20.30	23.21	20.79	22.45	20.08
Unit price (VND1,000)	7	7	9	9	7.5	7.5
Income (VND1,000)	157,500	142,100	208,890	187,110	170,625	150,600
Expense (VND1,000)	44,600	63,000	55,645	75,274	66,082	88,005
Profit/ha (VND1,000)	112,900	79,100	153,245	111,836	104,543	62,595
	≈\$5,645	≈\$3,955	≈\$7,662	≈\$5,592	≈\$5,227	≈\$3,130

Impacts: Minimum Tillage Potato IPM FFS in Vietnam

-  Area applying minimum tillage potato production increased from 7 ha (2008-09) in one province to 430 ha (2011-12) in 15 provinces
-  MARD issued **Directive 1380/BVTV-TV** on 24.08.11 to all potato-growing provinces in Vietnam to expand the area of minimum tillage potato IPM production
-  **Elderly women are growing potatoes** using minimum tillage IPM and selling the farm produce to raise money to pay for their grandchildren's schooling





Climate Change FFS in Indonesia

Climate Change FFS in Indonesia

- *Community Climate Change Response (CCCR) Project* funded by Oxfam Novib Netherlands
- Implemented by Field Indonesia in collaboration with the Centre of Genetic Resources of Wageningen University and Research Center (UR), Community Technology Development Trust (CTDT) Zimbabwe and Ethio-Organic Seed Action (EOSA) Ethiopia
- Aimed at increasing food security and sustainable management of agro-ecosystems under threat by climate change

Transects:
Collecting and analyzing information on whether changes are related to climate change



Climate Change FFS in Indonesia

Climate observation

- Rainfall
- Temperature
- Humidity
- Evaporation



Varietal studies

Identifying varieties suitable for conditions under too much rain (La Nina), drought resistant (El Nino) and existing normal climatic conditions



Results: Climate Change FFS in Indonesia

- Farmer networks on climate observation and communication established
- Communities determine the planting season (rainy and dry season) acc. to their observations and climate data from their climate stations
- Saline and drought tolerant rice varieties identified
- Farmers practice **water harvesting** and better **crop-water management** to minimize the risk of drought








A man in a white polo shirt and dark trousers stands on a dirt path in a lush green rice field. He is holding two rice seedlings, each with a small rock at its base. In the background, there are trees and a small white house with a thatched roof.

SRI-FFS in Vietnam and Cambodia

SRI-FFS in Vietnam and Cambodia

SRI: a set of crop management principles that includes:

-  Transplanting young seedlings
-  Use of single seedlings with wider spacing
-  Applying compost as much as possible
-  Undertaking active soil aeration (for enhance microbial activity) as part of the process of weed control
-  **Following alternate wet and dry water regimes or keeping soil preferably moist during vegetative stage**



Results: SRI-FFS in Vietnam and Cambodia

According to IRRI - without reducing yields, use of SRI:

- reduces water consumption by 30%
- reduces greenhouse gas emissions by 25-50%




“Rice is so important across the whole of Asia that if one could implement this technology in many different places, you could have significant reduction in methane production.”...Campbell



In Vietnam summer crop 2011, SRI was applied on 185,065 hectares in 22 provinces by over 1,070,384 farmers (69% female)

In Cambodia as of 2011, SRI was applied on 24,293 hectares in 13 provinces by about 75,395 farmers

Concluding Remarks

-  Rural communities have been designing farming systems - based on generations of experience and knowledge accumulation - that help them better cope with disasters.
-  Farming communities could benefit from assistance to develop sound and location specific risk mitigation and adaptation strategies particularly for rapidly changing climatic conditions.
-  Farmers empowered with ecosystem knowledge and critical thinking skills with an orientation towards community problem solving processes would stand a much better chance of designing strategies to recover faster and be better prepared for disasters, such as droughts, cyclones and other climate change induced-effects impacting heavily on rural livelihoods.

Concluding Remarks

-  The Farmer Field Schools (FFS) is a vehicle for knowledge and skill generation and has a proven track record of farmer empowerment at community level in South and Southeast Asia.
-  Farmer Field Schools can be used to help farmers adapt and develop better climate resilient farming systems.

For more information about the **FAO Asia Regional IPM/PRR Programme**

Email: **vegetable-IPM@fao.org**

Website: **http://www.vegetableipmasia.org**

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**FAO Regional Vegetable
IPM Programme in ASIA**



News Update

- Introduction of Parasitoid Wasps for control of Pink Cassava Mealybugs in Lao PDR
- TTDI Hosts Regional Workshop on Curriculum Development for IPM-FFS and ToT on Cassava Production and Pink Mealybug Management 21-25 November, Korat, Thailand
- Mid-Term Evaluation of Regional Programme "Towards a Non-Toxic Environment in Southeast Asia" 3-19 November 2011, Bangkok, Thailand

FAO Regional Vegetable IPM Programme in South & Southeast Asia



Indiscriminate use of chemical inputs, both fertilizer and pesticides, puts agricultural production at risk. In particular, the overuse of pesticides is known to eliminate important ecosystem services resulting into secondary pest outbreaks which could potentially jeopardize national and regional food security. Intensive use of extremely and highly hazardous chemicals by small-holder farmers also continues to cause high incidence of farmer poisoning.

For over a decade, the FAO Regional Vegetable IPM Programme, working with government and nongovernmental organizations, has carried out farmer education and participatory research activities to promote and support Integrated Pest Management in vegetables by Asian smallholder farmers.

Integrated Pest Management IPM is an ecological approach to crop production and protection that combines different management strategies and practices to grow healthy crops and

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