



Agroecological practices: from the point of view of a development practitioner

GRET Delta – Clarisse Frissard & Yadanar Win –
22/02/2018 - Ayeyarwaddy Delta of Myanmar

Ayeyarwaddy Delta context

Natural constraints:

- 3 ecological areas
(freshwater area, saltwater area and brackish water area)
- Fluvial environment
(Boat transportation: costly and time consuming)



Ayeyarwaddy Delta context

Major rice production region but many other secondary sources of income and livelihood

Population is segmented between *lauthama* (rice farmer) and *bauthama* (general worker with no or limited land)

In 2008, cyclone Nargis severely impacted productive and economic systems

High prevalence of stunting



Current Delta program (2016-2018)

- **Gret** started to work in Delta after Nargis, in **2008**
- **76 villages** of Bogale, Mawlamyinegyun and Pyapon Townships
- **4 projects** on **rural development**
- but **1 implementation team** with common objectives :

To contribute to improving **livelihood security, economic development** and **local governance** in Delta by :

- Empowering the rural households through **knowledge and skills building**
- Supporting the emergence and **strengthening CBO to sustainably provide appropriate services** for rural communities
- Facilitating experience sharing and **networking of rural development stakeholders**

Various challenges :

- Climate change and weather instability
- Lack of quality seeds
- Soil fertility decrease
- Significant pests and diseases pressure on crops
- Difficult water management
- Labour shortage
- Difficult access to loans
- Market price instability
- Low quality of products (sold and consumed)

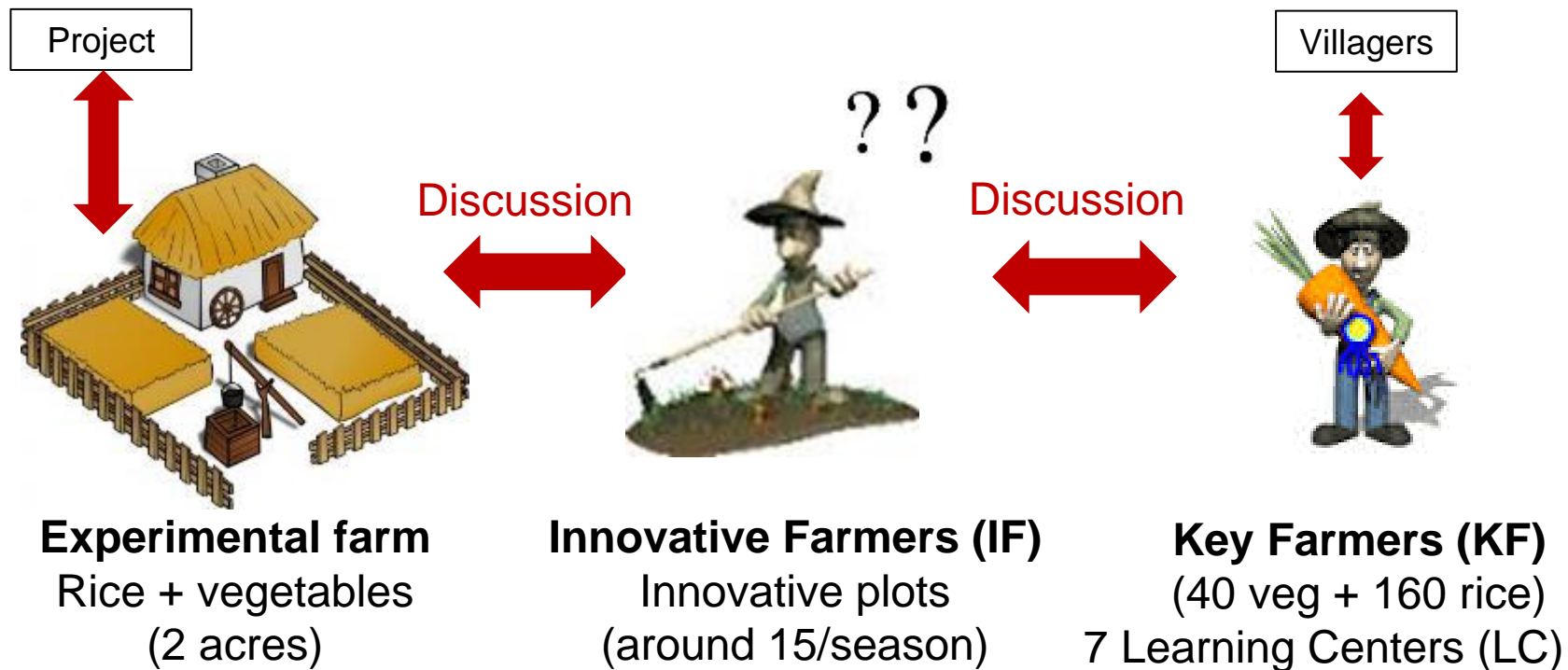
How AE can answer these challenges ?

AE aims to :

- Reduce the use of external inputs
- Increase food and nutrition quality
- Increase production diversification
- Increase biodiversity
- Ensure soil fertility
- Ensure environment conservation
- Empower farmers
- Fight against climate change

AE approach, strengthens the innovation capacity of family farms as well as the recognition of their contribution to food sovereignty

Field innovation and extension



Compost

Objectives :

To **increase soil fertility** and **replace chemical fertilizers**

To **strengthen the plants** to increase their resistance against pests and diseases

To **improve the soil structure** in the field

To **maximize the use of natural resources** and avoid loss

Different types of composts :

Solid compost with raw vegetation

Rice straw compost

Vermi compost + vermi wash

Super bokashi

Fertilizer trial results

Monsoon 2017: 5 learning centres
5 trial plots per centre

Data on Lodging Trial Plots	No.	Final Yield (kg/ac)	Final Yield (t/ha)
Control (no NPK & no Compost)	T-0	36.13	2.10
N (2.5kg),P (2.5kg), K (2.5kg) (Farmers' practice)	T-1	46.25	2.67
N(1.25kg),P (1.25kg), K (1.25kg) + Compost (100kg)	T-2	46.38	2.69
Compost (200kg)	T-3	47.30	2.84



In summer 2016/2017, farmers increased rice yields by 15% (Compost usage survey, Gret, 2016)

Indigenous Effective Microorganisms solution (IEM)

Objectives :

To **fasten decomposition** of straw piles

=> **straw compost ready in 3-4 months instead of 5-6 months**

To **promote germination, growth and flowering** (when sprayed directly on field)

To **enhance soil biological activity** (when sprayed directly on the field)

... A lot of **benefits** and **usages** !

IEM making

Easy to make by farmers themselves with accessible resources (jaggery, papaya, banana, pumpkin and eggs)



Fruits chopping



**IEM before
fermentation**



**IEM after
fermentation**

1 bottle of IEM (1L) can be sold 1 000 MMK at village level

Biopesticide

Objectives :

To **reduce pests incidence**

To **maximize** the use of **local natural resources**

To **replace** effectively **chemical pesticides** to produce **safe food** (for producer as well as consumer)

- ★ Easy to make by farmers themselves with accessible resources available in Delta
- ★ Used combined with yellow sticky traps for flea beetles
- ★ On trials in experimental farm: 100% of pests controlled
- ★ **Farmers now train their neighbours to make it**

Green Manure

Objectives :

To **increase soil fertility**

To **enhance nitrogen fixation**

To **improve soil structure**

To reduce use of **chemical fertilizer**



Green manure incorporation



Green manure plot: black gram

Crop diversification

Objectives :

To **reduce pests incidence**

To **improve agronomic** resilience of the cropping systems

To **improve economic** resilience of the farming systems

To get **different types of nutrients**



Adapted System of Rice Intensification

Objectives :

To **increase** paddy **yield**

To **manage** soil **fertility**

To **manage** water **resource**

SRI principles:

1. Pure seeds selection	7. Transplantation in line
2. Paddy nursery with compost between 12 days and 3 weeks before transplanting	8. Transplantation with spacing 25-40 cm between plants and rows
3. Paddy field leveling	9. Few water, 7-20 days after transplanting
4. Vigorous paddy seedlings selection	10. Fertilization (10-20t/ha of compost)
5. Transplantation of 1 seedling per hole	11. Mechanical and early weeding
6. Transplantation not deep	

Adapted SRI

**Seed
selection
with
salty water**



**Nursery
with
raised bed**



Hand transplanting in line: 1 seedling per hole

Other technique: Paddy QSP PGS

Production

Seed quality (variety)	Market	Production in tons (monsoon only)			
		2014	2015	2016	2017
RS to CS (4-5) with PGS certification	Open market, linkage with local Producers organizations	20.3 tons 18.7 acres 15 farmers	35.1 tons 28.25 acres 25 farmers	31.8 tons 32.2 acres 31 farmers	30.1 tons 32.25 acres 33 farmers

- ★ Link with the DOA
- ★ Reduced need of seeds (1.5 instead of 2 bsks/acre) as better germination rate
- ★ Renewal of seed stock every 3 years
- ★ Increase paddy yield from 16 to 30%

Still some challenges to overcome

Agroecology:

- Labour intensive practices but labour shortage in Delta
- Knowledge intensive practices so need time and a lot of practice for farmers to handle AE techniques
- Techniques adapted to each region and context : need to be tried first before adoption and extension in one region
- Effects can be seen in long term but farmers don't want/can't wait
- Different from the conventional agriculture, need change of practices but farmers need to see results to believe
- It is also new for our staff, everybody needs to learn
- Lack of information and research results for AE dissemination

Next steps:

Sharing knowledge and link with other stakeholders:

- Technical sheets ongoing
- Field visits and agri fair (DoA, other development stakeholders, farmers)
- Member of Alisea network

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Thank you