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Professionals for Fair Development

Agroecological practices : the point of view of a development practitioner

Gret – Ayeyarwaddy delta of Myanmar
21/03/2017

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Ayeyarwaddy delta context

- <u>Natural constraints</u> : 3 ecological area (salty, brackish and fresh water) and water environment → time and costly transportation by boat
- Major rice production region but many other secondary sources of income and livelihood
- population shared in *lauthama* (rice farmer) and *bauthama* *(general worker with no or limited land)* 66%
- High prevalence of stunting

→ Nargis cyclone in 2008 severely impacted productive and economic systems

Current Delta program (2016-2018)

- **66 villages** of Bogale and Mawlamyinegyun Townships
- **4 projects** on **rural development**
- but **1 implementation team** with common objectives :

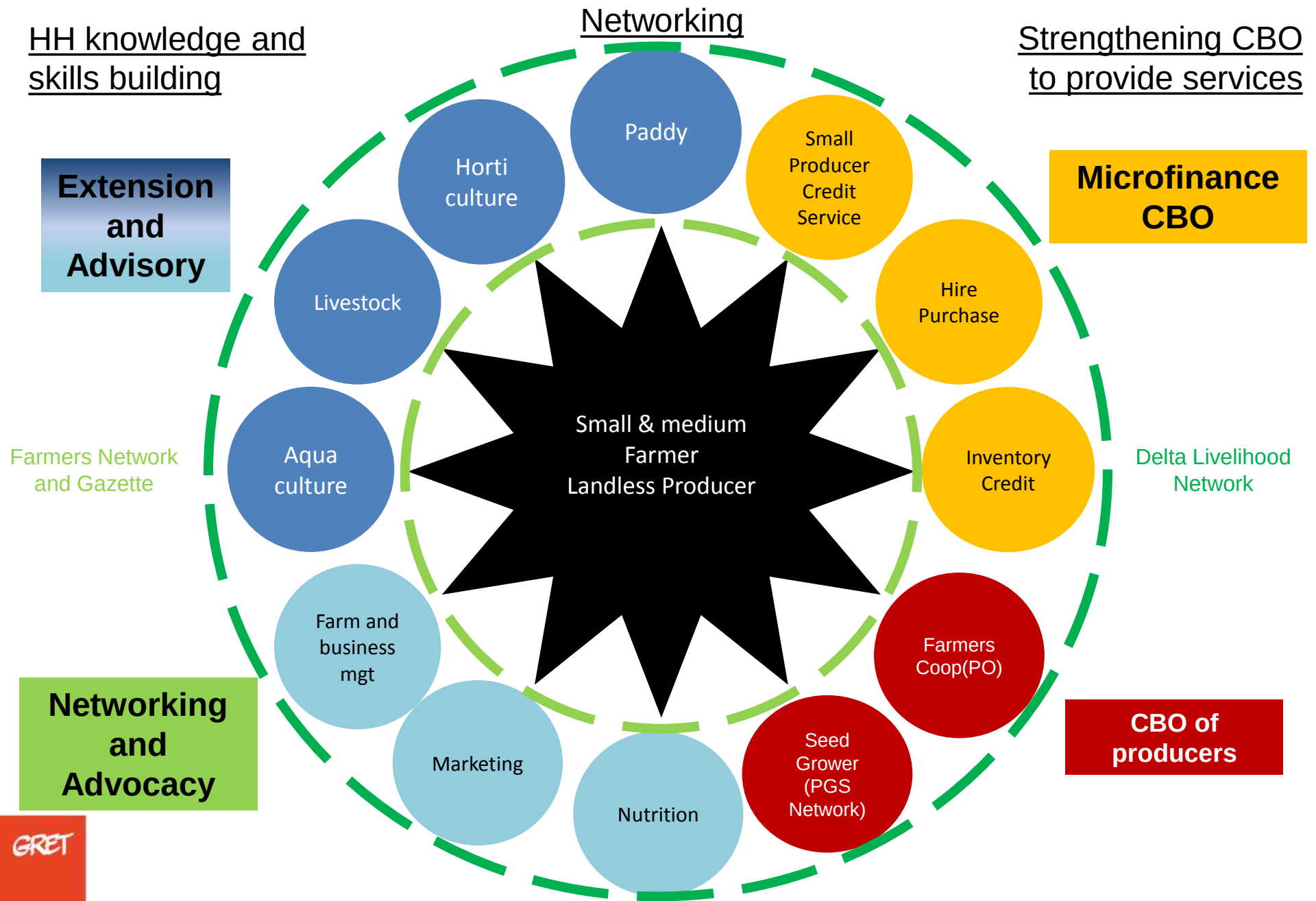
*To contribute to improvement of **livelihood security** , **economic development** and **local governance** in Delta by* :

→ *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*

Gret activities in Delta



Challenges for farmers in Delta

Various challenges :

- Climate change and weather instability
- Lack of quality seeds
- Soil fertility decreasing
- Poor diversification of the crops
- Lot of pests and diseases on crops
- Difficult water management
- Labors shortage
- Difficult access to loans
- Market price instability
- Low quality of the products (for selling and consumption)

How AE can answer these challenges ?

AE approaches strengthen innovation capacity of family farms as well as the recognition of their contribution to food sovereignty

AE techniques in Delta




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

AE techniques in Delta

Compost




Fertilizers trials during monsoon 2016 : 3 farms

Plots	Fertilizer rate/0.1 acre	Average yield (ton/ha)
T0	Farmers' practices	3.46
T1	Urea 5 kg + T Super 2.5 kg + P 2.5 kg	3.71
T2	50 % T1 + Straw compost 200 kg	4.37
T3	50 % T1 + Super bokashi 100 kg	3.98
T4	50% T1 + Vermicompost 25 kg	4.12

→ **Higher plants, more filled grains, more grains/panicles with T2 and T4 than T1 and T0**

→ **Better yields with less chemical fertilizers**

AE techniques in Delta




Compost

1 acre straw for compost making in 2016 :

1 acre of summer rice straw = 1566 kg of compost

Labor = 5 men/day for straw collection + 4 men/day for pile building + 1 man/day for aftercare

→ Incorporation for summer 2017 on 1 acre of paddy without chemical fertilizer

→ 3 other trials are ongoing with monsoon straw

→ ***In summer, farmers increased rice yields by 15%*** *and if they combine good agriculture practices, they can produce 30% more (Compost usage survey, Gret, 2016).*

AE techniques in Delta

Compost

One acre straw compost making

Turning pile of one acre straw compost (during training)

AE techniques in Delta

Indigenous Effective Microorganisms

Objectives :

- To fasten the decomposition of straw compost
- To promote germination, growth, flowering used in field
- To enhance soil biological activity
- ..... A lot of benefits and usages !

→ The straw compost is ready in 3 to 4 months with IEM instead of 5-8 months.

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

→ 1 bottle of IEM (1L) = 500 MMK at village level

AE techniques in Delta

Fruits chopping

IEM solution before fermentation

IEM ready to use after 45 days

AE techniques in Delta

Green Manure

Objectives :

- To increase soil fertility
- To maintain nitrogen fixation
- To increase yield of rice in coming season
- To improve soil structure

Several trials before monsoon rice :

- Leguminous : *Sesbania acuelata*, *Crotalaria juncea*, black gram (*Vigna mungo*)
- Non leguminous : Jute (*Corchorus capsularis)*

For vegetables :

- Cow pea (*Vigna unguiculata*)

AE techniques in Delta




Green Manure

Results :

→ Cow pea before vegetables : crops more resistant to pests

→ Only jute gave good results in monsoon 2016 before rice due to water resistance. Others GM were flooded.

→ 33% increased yield plot with jute VS without jute

Paddy without jute before (left) after jute (right)

There are other effects like :

- no infection, more resistant to pests (stem borers),
- darker green color,
- longer length of panicle,
- More tillers, etc.

AE techniques in Delta

Biopesticides

Objectives:

- To reduce pests incidence and propagation
- To maximize the use of local natural resources
- To replace effectively chemical pesticides to produce safe food (for consumer as well as producer)

→ Easy recipe to make by farmers with local resources freely available in Delta

→ Used combined with yellow sticky traps for flee beetles

→ Trials to combine with repellant crops ongoing

→ Farmers now train themselves their neighbors to make it

AE techniques in Delta

Other technique : paddy QSP PGS




Production :

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

Link with the DoA

→ Reduced need of seeds (1.5 instead of 2 bsk/acre) as better germination rate

→ Renewal of seed stock every 3 years

→ **Increase rice yield from 16 to 30 %**

AE techniques in Delta

System of Rice Intensification Adapted

Objectives :

- To increase rice yields
- To manage soil fertility
- To manage water resource

SRI principles :

1. Pure seeds selection	7. Transplantation in line
2. Rice nursery with compost between 12 days and 3 weeks before transplanting	8. Transplantation with spacing 25-40 cm between plants and rows
3. Rice field leveling	9. Few water, 7-20 days after transplanting
4. Vigorous rice 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	

AE techniques in Delta

System of Rice Intensification Adapted

Farmers use the techniques of SRI adapted mostly for Quality Seeds Production

The water management is still a problem for farmers in Delta

No use in summer, farmers broadcast (no labors available for hand transplanting)

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System of Rice Intensification Adapted

Seed selection with salty water

Main field with 1 seedling per hole transplanted in line

Nursery with raised bed but problem of water management

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Still some challenges to overcome




AE =

- Labor intensive practices but labor 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 new also for the staff, everybody needs to learn
- Lack of information and research results for AE dissemination

Next steps

Local Agroecology Innovative Site with :

- 1 experimental farm
- Innovative farmers

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 for your attention

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