Community’s ways to climate smart agriculture in the Mekong Delta, Vietnam

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Introduction to the Mekong Delta

Mekong Delta
Has 2 million ha used for rice production (2-3 crops/year);
Has 3 main AEZs: high flooded, Tien Hau rivers, coastal areas
Rice quantity production: ≈ 25 mil ton/year
Agro-production value: ≈ 35% of total economic structure

Shared in the nation
- 12% total natural area (13 provinces)
- 22% population (≈ 17 million people)
- > 50% total paddy, 70% total fruits, 80% aquaculture production
- > 90 % total rice export quantity
Impacts of CC to rice production in the Mekong Delta

Saline intrusion

Drought

Floods by rains/typhoons

160,000ha
Solutions for rice production

- Improving practices and developing farming systems
- Rice breeding programs
- Small dikes and dams for preventing saline water
Participatory plant breeding (PPB) for rice towards seed security and adaptation to unfavorable conditions in the Mekong Delta.
Results of PPB to CC adaptation

Released 360 var.; 5 var. were certified by the Gov.

Drought and acidic soils:
- Nang Nhen
- AG1, NV1, NV21, ...

Saline condition:
- Mot Bui Do, Doc Phung
- HD1, TC7, ND4, AG1, SH31, NT1,
- LH8, TM16, GR13

Irrigation system:
- LH1, LH9, HMT1,
- TC26, HNOE, ...
Informal Seed supply system

1995

- 60% Informal seed supply
- 30% Seed club network
- 10% Formal seed sector

1995 vs 2018

Seed supply (t/year)

- 191,135 (2015)
- 172,317 (2016)
- 189,430 (2017)
- 158,020 (2018)

HH produced seeds

- 8,644 (2015)
- 9,364 (2016)
- 9,135 (2017)
- 10,212 (2018)

Meet 30% seed demand

HH = 1 ha
1 ton = 6.6 ha

25,000 hh/year
Farmer’s technical innovation for rice cultivation by 1M6R model

1 M : Must use good quality seeds
6 R : Reduce seed rate, nitrogen fertilizer, pesticides, post-harvest and GHG emission
## Reduction of GHG emission - 1M6R model

### Farmer’s innovation on water management technique for rice cultivation

<table>
<thead>
<tr>
<th>Site</th>
<th>Crop Season</th>
<th>Model</th>
<th>CH$_4$ (t CO$_2$-e)</th>
<th>N$_2$O (t CO$_2$-e)</th>
<th>Kg CO$_2$ eq ha$^{-1}$</th>
<th>Yield (t/ha)</th>
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<td><strong>Thanh Loi</strong></td>
<td>HT (Apr-Jul)</td>
<td>CON</td>
<td>10.2</td>
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<td>TD (Aug-Dec)</td>
<td>CON</td>
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<td>DX (Nov-Mar)</td>
<td>AWD</td>
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<td>DX (Nov-Mar)</td>
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*Source: Khai et al., Environ Pollut Climate Change 2018, 2:3*
Forward water management model

Reducing water supply 48%

K7B

1P6G  CON

1699  3450

PT

3383  7095

→ Strengthening farmer’s capacity in agricultural researches to adapt CC.