Integrated rice-fish farming contributing to CC mitigation and adaptation, environmental benefits, food safety and resilient rice production

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Presentation contents

• Evolvement of rice-fish farming;
• Benefit of IRFF to CC mitigation, adaptation and resilience?
• How to maximize the contribution of IRFF to CC mitigation & adaptation and resilient production?
Evolvement of Rice-fish farming

• Ancient practice: retaining the wild fish seed in paddy field, additional fish harvest for household food and nutrition;

• In the past several decades: IRFF mainly for ecological benefits (IPM and lower chemical use, Symbiosis between fish and paddy) and contribution to local food and nutrition;

• Present goals for promoting rice-fish farming:
  – Ecological benefits (as important as before);
  – Contribution to CC mitigation and adaptation;
  – Improved efficiency in natural resources use (water & land) - maintained/increased rice production + significant production of aquatic animals (hundreds kg to tons) and plants
  – Significantly improved income of rice farmer (2-4 times higher) from production of aquatic animals and value-added rice;
  – Resilient rice production-contributes to overall food security and nutrition and rural development
How IRFF contribute to CC mitigation?

- Reduced use of fertilizer for rice production—fish feces serve as fertilizer for rice;
- Reduced use of feed for fish production—natural food organisms partially replace artificial feed;
- Reduced energy use, particularly in fish production;
- Reduced use of other inputs—such as chemicals for control of diseases, pest and weeds
How IRFF contribute to CC adaptation?

• One solution to saline intrusion in the coastal areas:
  – Dry season, high salinity, not possible to grow rice
  – Culture salinity resistant aquatic animals—shrimp, brackish water fish

• Contribute to better water management:
  – Improved irrigation system for rice-fish integration-help water supply in dry season/drought condition;
  – Modified paddy system for rice-fish farming: trench and canal serve as water reservoir in dry season and drought conditions;
How IRFF contribute to resilient rice production?

• IRFF significantly increase the income of rice farmer (2-3 times higher net profit)—attractive livelihood;
• Reduced rural migration and improved youth employment;
• Diversified livelihood—risk management strategy;
• Increase investment opportunity—infrastructure improvement
  – Irrigation
  – Transportation
  – Power supply
Diversity of rice fish systems

• From extensive to intensive systems
• Many different aquatic species can be harvested and/or enhanced
• “Aquatic” rice systems could be irrigated, rainfed or deepwater
• Different local conditions suggest different entry points for increasing resilience
• Efficient use of resources, especially the same use of land and water for multiple crops, and better nutrition is fundamental
What is needed for IRFF to be a significant contributor to CC mitigation & adaptation and resilient rice-system?

- Transformative change
  - New technology—capability
  - Farm operation and management skills
- Total change of mindset—a more business oriented production rather than old farming practice—investment of time and capital-precision farming & targeted production
What is needed for IRFF to be a significant contributor to CC mitigation & adaptation and resilient rice-system?

- **Holistic development approach:**
  - Conducive policy-in land and water management
  - Improvement of public infrastructure
  - Strengthened technical services
  - Zonal development
  - Value chain strengthening—input supply, market connection, value adding of products
  - Credit service
Thank you!

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