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# **AMD-WP1 & WP2: Scaling Integrated Fisheries- Agriculture and Nutrition-Sensitive Agri-Food Systems in Cambodia: Best Practices, Lessons Learned, and Pathways for Impact**



**Penang, Malaysia: November 04, 2024**  
**SEAN Vichet, WorldFish Cambodia**  
**OR Thy, IIRR Cambodia**

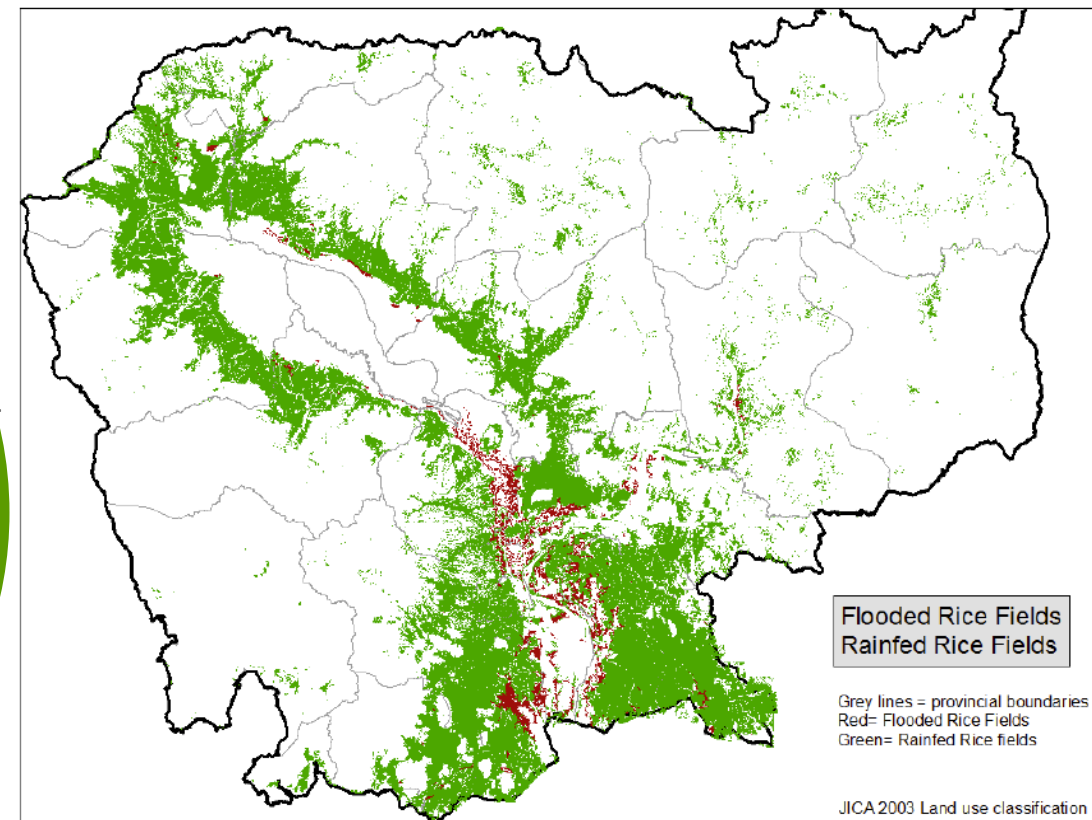
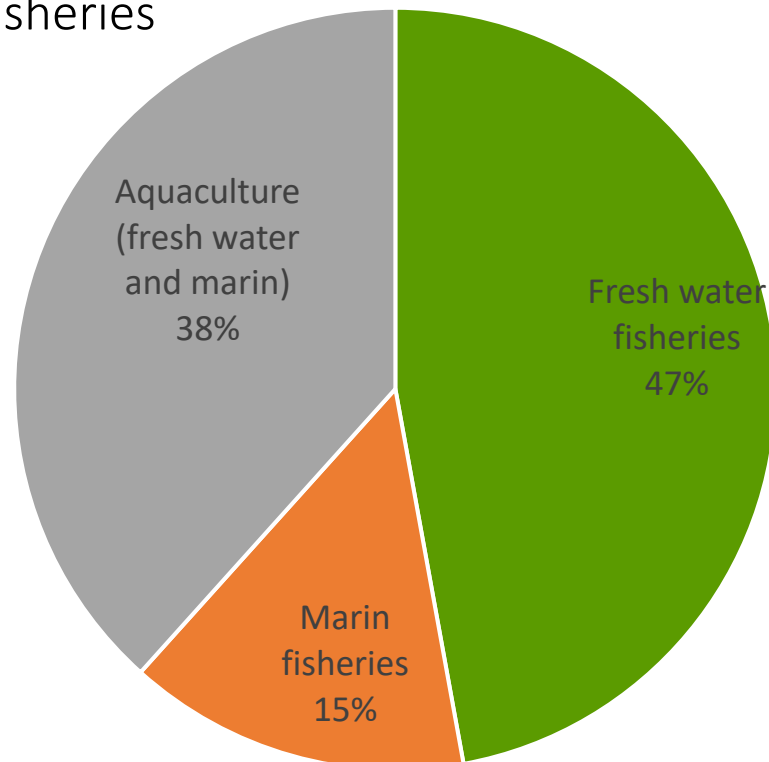
# Intro-Rice-Fisheries (Capture and Aquaculture)



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- Rice field cover around 20% of Cambodia, **36%** of capture fisheries (MAFF, 2022)

- The Gov't established more than 180 Community Fish Refuges in Cambodia's Mekong Delta, **many not function**



- Water flow and dam affect to migratory species
- Climate change and intensive agriculture (water conflict, chemical fertilizer, etc.) (Sithirith at all 2024)

# Intro-Rice-Fisheries (Capture and Aquaculture)



Community Fish Refuge



Connecting waterways



Rice fields&ricefield pond

Consists of 3 agro-ecological domains:

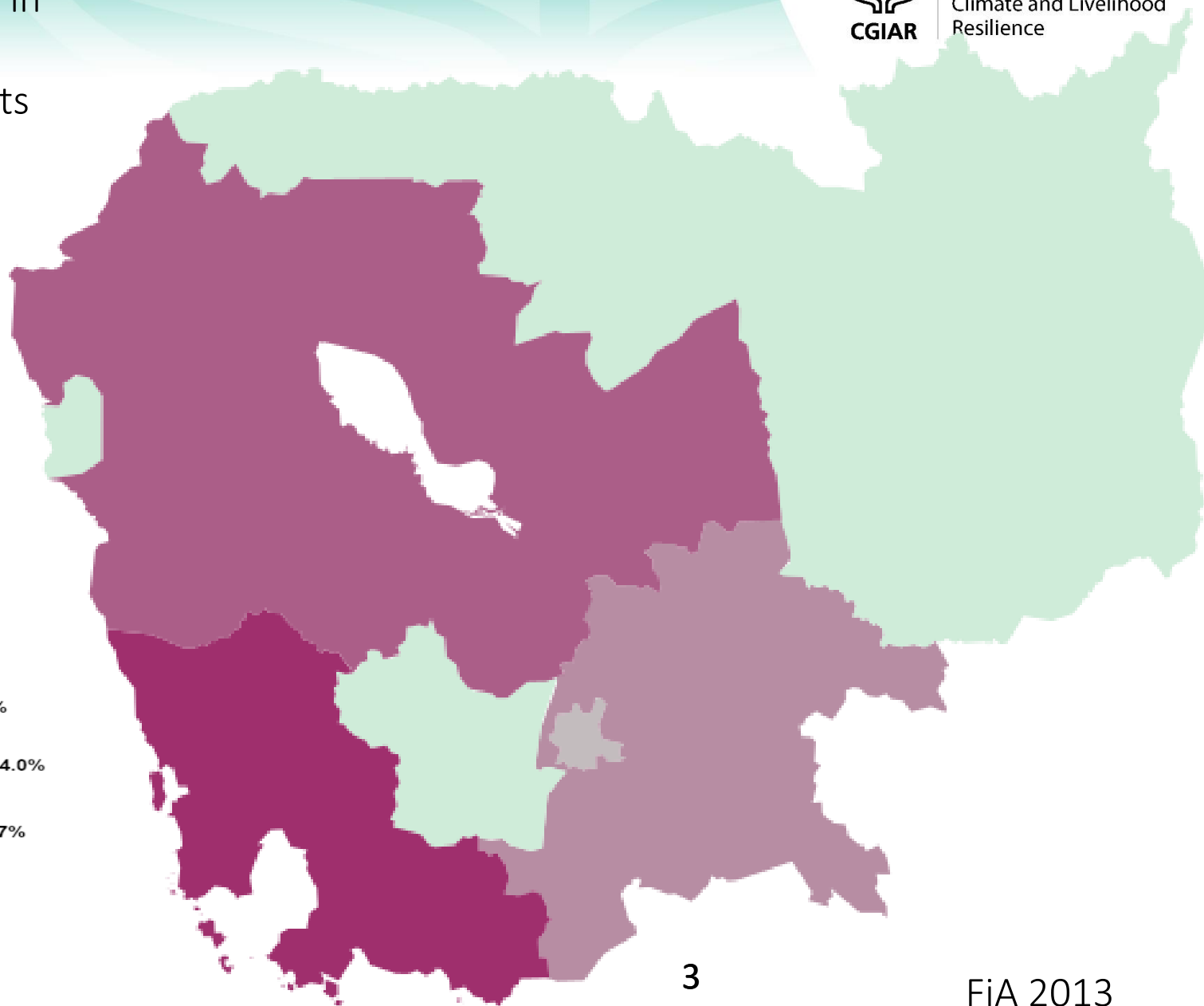
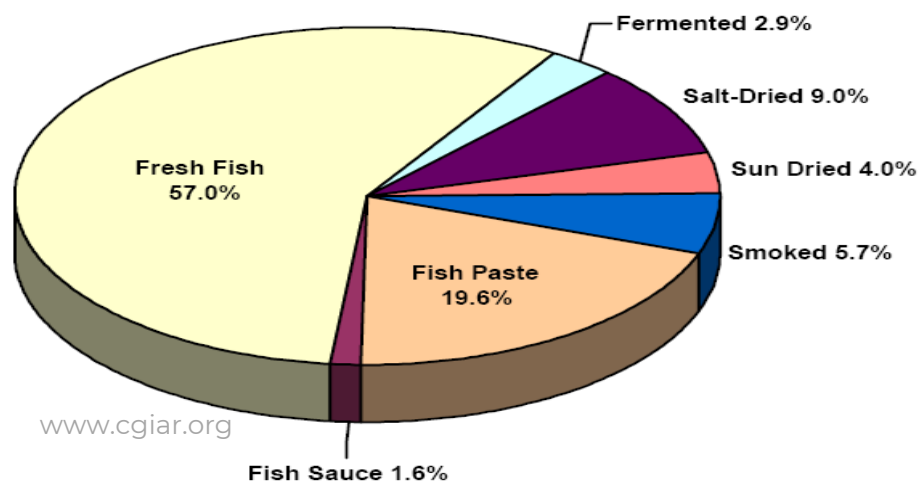
**Rice field fisheries (RFF)** refers to the capture of wild fish and other aquatic animals (OAA) from the flooded rice field environment and associated waterways such as canals, or streams. RFFs are open access resources.



# Intro.....: Fisheries consumption

- Fish consumption of one of the highest in the world,
- People consume the floodplain residents (Black Fish) THE MOST
- Fish consumption estimated based on:

Zones consumption Kg/cap/year	Overall fisheries	Freshwater fisheries
Overall	63	46
Plain/deltas	59	49
Tonlesap	71	54
Mountain	52	20
Coastal	90	38

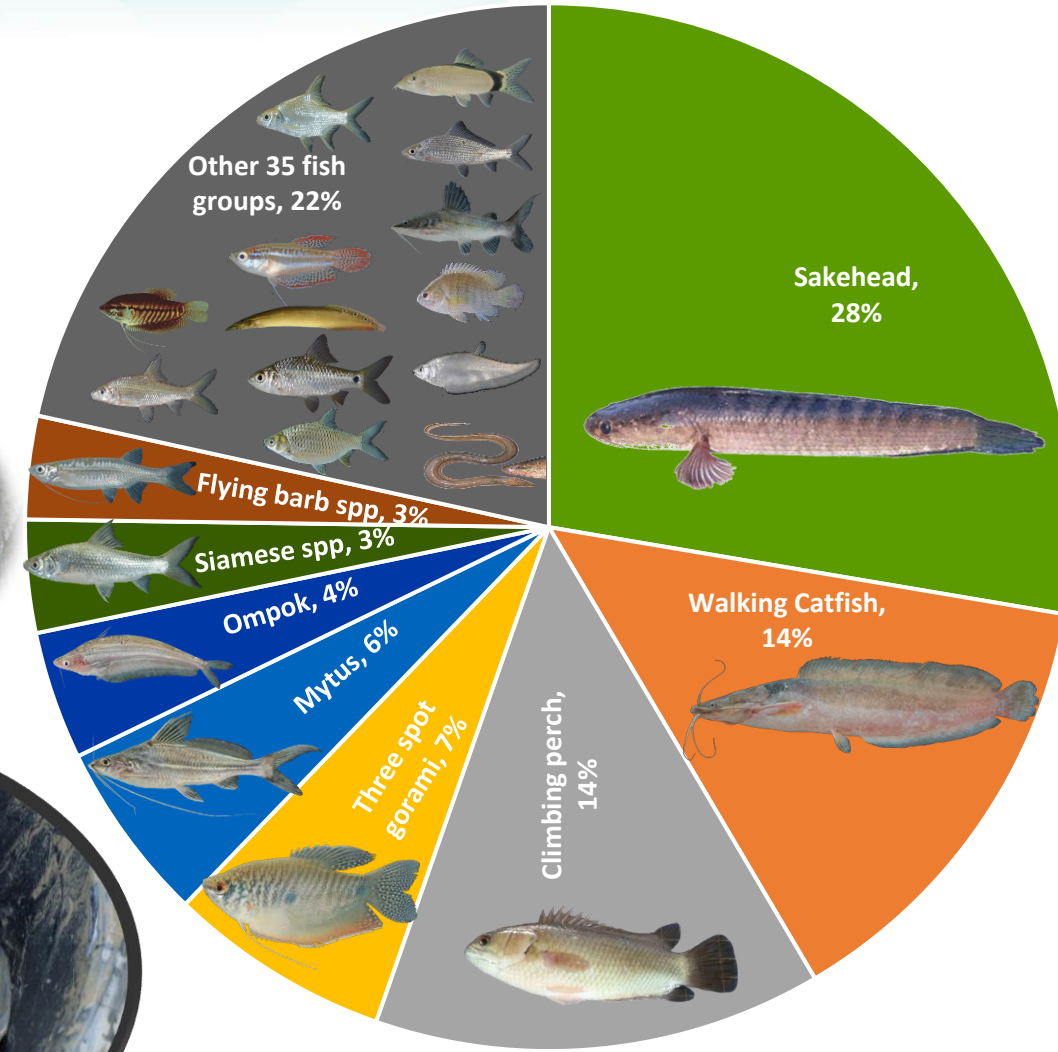


# RFF production and fish group



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- 43 fish groups caught by fishers
- Those three groups of fish represent more than 50% of all caught. Most of fish caught floodplain residents fish
- This study found rice field fisheries produced 97 kg of fish, 27 kg of OAA, and 4 kg of aquatic plants per hectare.

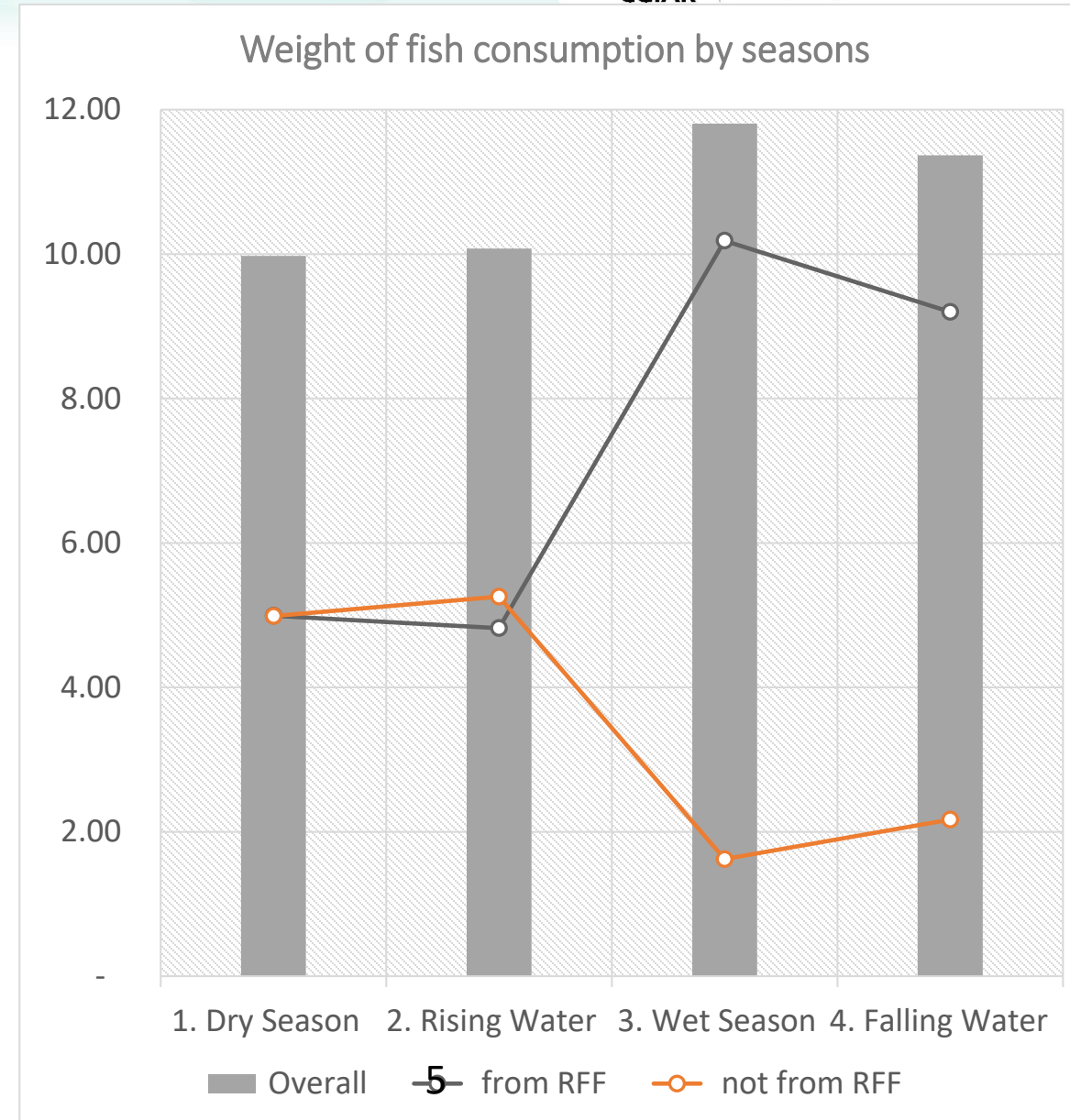


# Use of fish per capital per year



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- Fish consumption rises from the Dry to the Wet Season, peaking during the Wet Season and remaining higher than in other seasons.
- Average fish consumption per capita is 46 kg for inland fisheries. 70% from RFF
- The survey shows annual per capita freshwater fish and OAA consumption at 46 kg, a 20% decline over 20 years, linked to reduced capture fisheries and changing food habits.
- The wild *Channa micropeltes* and *Clarias microcephalus* which were common catch by farmers had safe nutritional profiles.



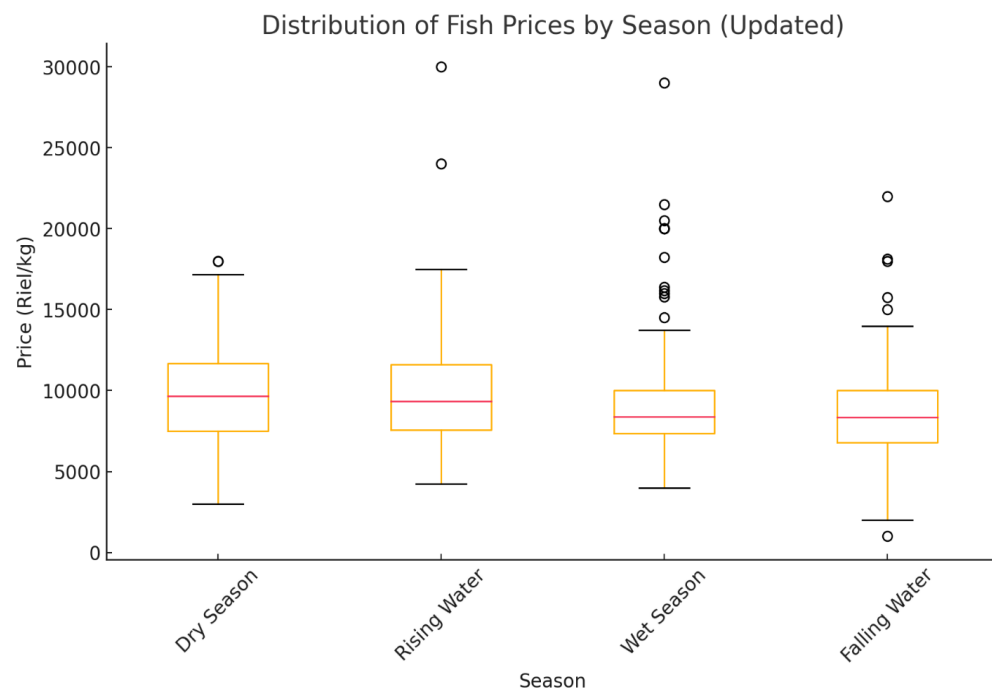


# Key Findings 3 years monitoring



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- Floodplain residents dominate rice field fisheries, unaffected by dams, unlike migratory species relying on Mekong flows for breeding.
- Fish prices rise in the Dry Season due to scarcity, while Wet Season abundance lowers prices. Wild fish remains affordable and preferred over other protein sources.



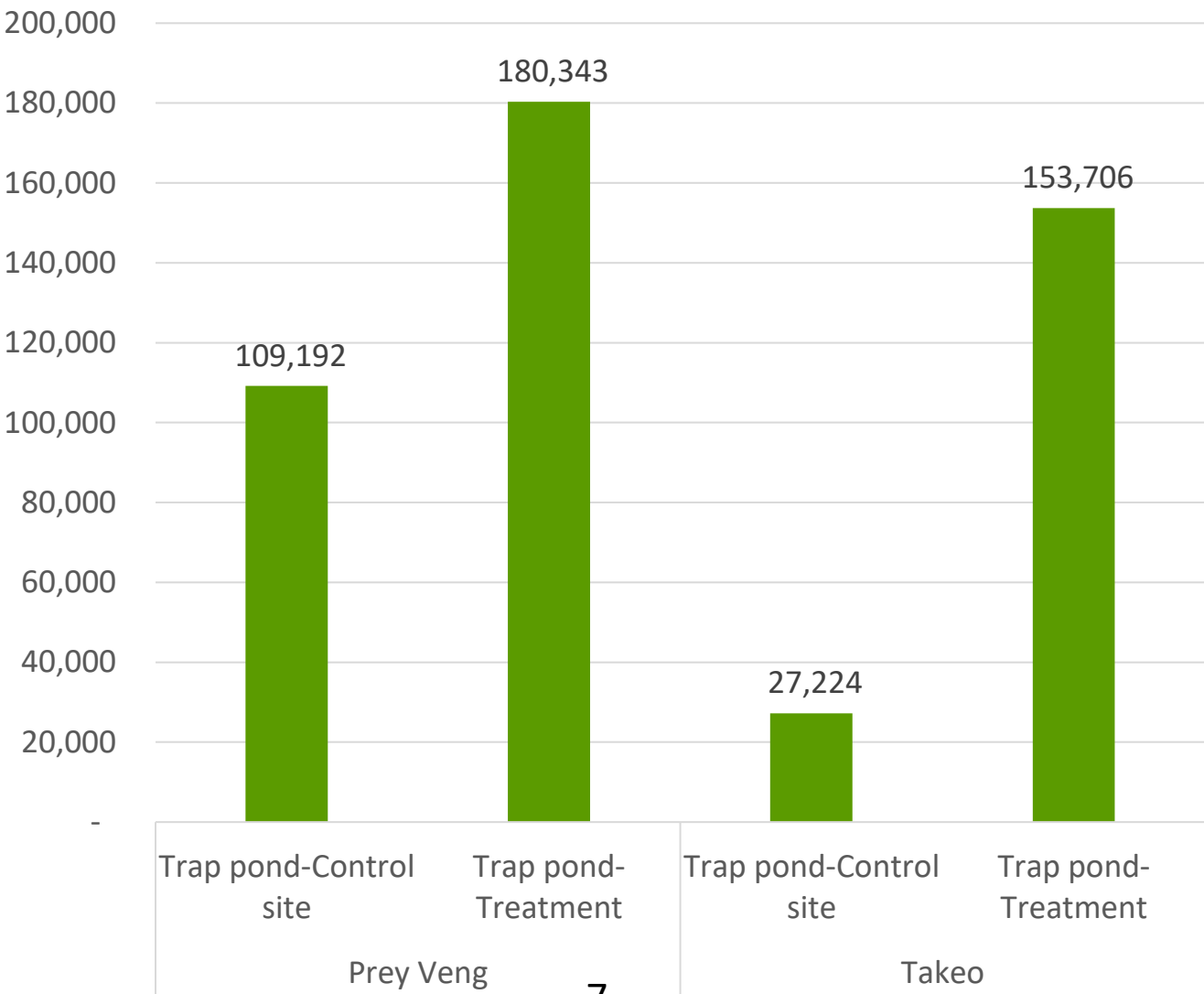
# Fish Economic Analysis in rice field pond



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- **Prey Veng Profitability:** In Prey Veng, site showed a net profit with targeted interventions, reflecting significant improvements in pond management practices and **better CFR**.
- **Takeo Economic Gains:** Takeo's control site had a lower net profit, but this increased sharply with similar interventions, highlighting the effectiveness of strategic management in enhancing profitability.
- **Overall Insights:** The analysis illustrates the economic benefits of specific interventions in pond management across different locations, emphasizing the potential for improved profitability.

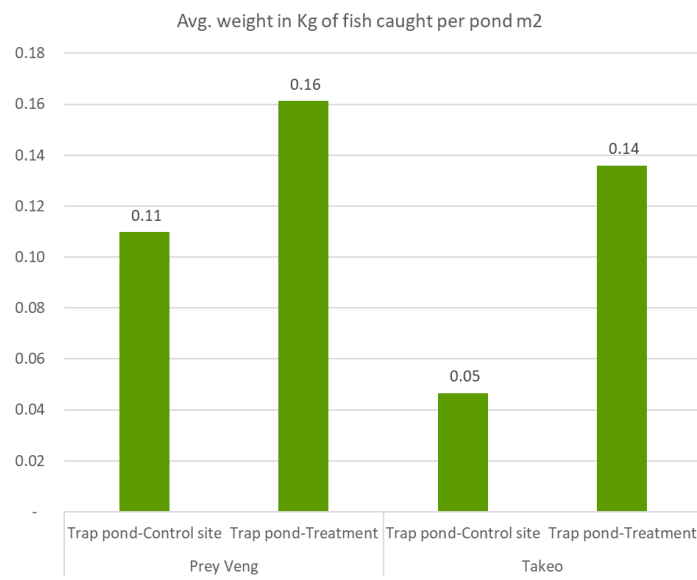
Fish Economic Analysis (KHR/ARE)





# Key findings on rice fish pond

- Farmers with rice-field ponds typically achieve 2-3 cultivation cycles annually, utilizing pond water to enhance climate resilience and profitability.
- Species Composition: Snakehead dominated both treatment (55%) and control (59%) ponds, followed by Climbing Perch and Walking Catfish.
- Improve RFF management: Fish yields averaged 0.16 kg/m<sup>2</sup> in Prey Veng and 0.14 kg/m<sup>2</sup> in Takeo, lower than Pursat's 0.46 kg/m<sup>2</sup> improved system. Enhanced management practices across the broader **rice-field fisheries system**, not just within rice-field ponds.





# Nutrition-sensitive Agri-Food Systems (NSA)



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Pilot the application of integrated farming (vegetables, fish, chicken), collective business, and savings and credit groups. Promote concept of FSN from farm to table and the beyond.

Document all evidence-based theories and practices from the fields and integrate into National Strategy of Food Security and Nutrition policy and project implementation guidance.

Integrated farming system, social enterprise model, cooperation with agricultural cooperatives

NSA & policy support at national level

NSA and public healthcare at subnational level

Integrated school gardening, WASH and nutrition education



Provide diversified nutrition education alongside nutrition-sensitive agriculture especially the first 1000 days of mother and new-born baby.

Implement school gardening and nutrition education where students learn to grow varieties of vegetable crops and collect their grown vegetables for cooking demonstration.

# Prioritized Challenges



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- Low food standard practices
- Water shortage, flash food, and soil degradation
- Lack of integrated farming system techniques
- High cost of agricultural inputs (seeds, fertilizers and pesticides)

- Lack of knowledge in food processing
- Lack of knowledge in machinery maintenance
- High cost of food processing facilities, including packaging.

- Lower price of local products
- Limited market for agricultural commodities produced
- Poor transportation
- Less attention to mobile vendors and local markets

- Lack of awareness about healthy food: inorganic food, no traceability
- Increased consumption of fast and processed food with high salt, fat, and sugar

Food  
Production

Food  
Handling,  
Storage, and  
Processing

Food Trade  
and  
Marketing

Consumer  
Demand &  
Preferences

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# Key actions to Promote NSA in the Mega-Deltas



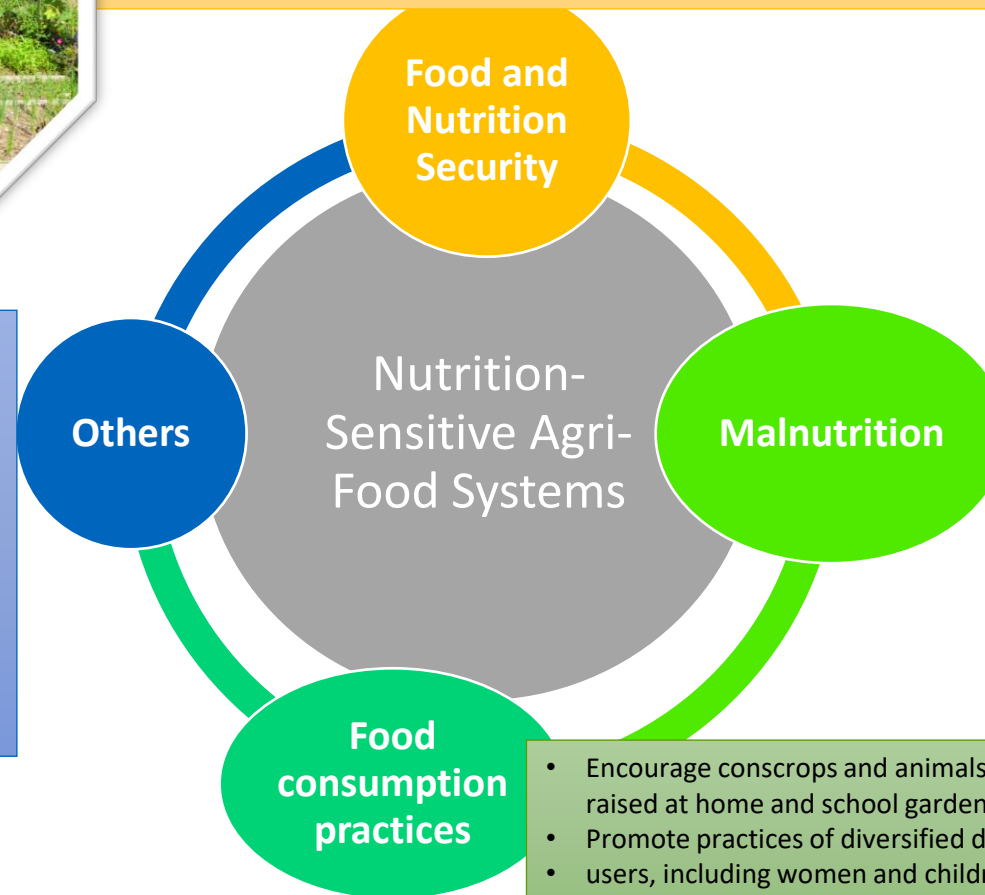
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- Built capacity of smallholder farmers, families, and agricultural cooperatives;
- Encourage smallholder farmers to grow various vegetables, fish and livestock for household consumption and income generation through promoting integrated farming system.
- Expanding rural off-farm employment and increasing investments in post-harvest food handling, storage, and processing activities



- Promote collective social enterprise, and savings and credit at community level;
- Promote food safety and consumer protection
- Food and cash transfer programs for pregnant women and children
- Increase women's participation in on- and off-farm activities through investment in labour-saving technologies, strengthening women's labour skills, and generating more employment for women
- Enhance sub-national, and regional policy to support nutrition-sensitive agri-food systems



- Understand the children; and benefits of diversified diets.
- Conduct awareness raising for community members, students and teachers on advantages of nutritious and healthy foods;
- Promote practices of sanitation and hygiene
- underlying causes of malnutrition, especially for women and

- Encourage conscroops and animals raised at home and school gardens
- Promote practices of diversified diets
- users, including women and children to consume



# Proposed Action: Capture Fisheries and Aquaculture



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- Strengthening the role of >180 CFRs>80,000HH> 300,000 people in Mekong Deltas in managing local fishing grounds can improve efficiency of fishing enhance long-term sustainability.
- Promote integrating rice field ponds into a community-based water management. This initiative will enhance agricultural resilience, reduce dependency on external water sources, and boost self-sufficiency, benefiting farmers and communities while adapting to climate change impacts. **(One family One pond)**
- Conduct study household fisheries production and consumption patterns in Mekong deltas and Cambodia by examining how households collect and consume fish, OAAs, and aquatic plants.

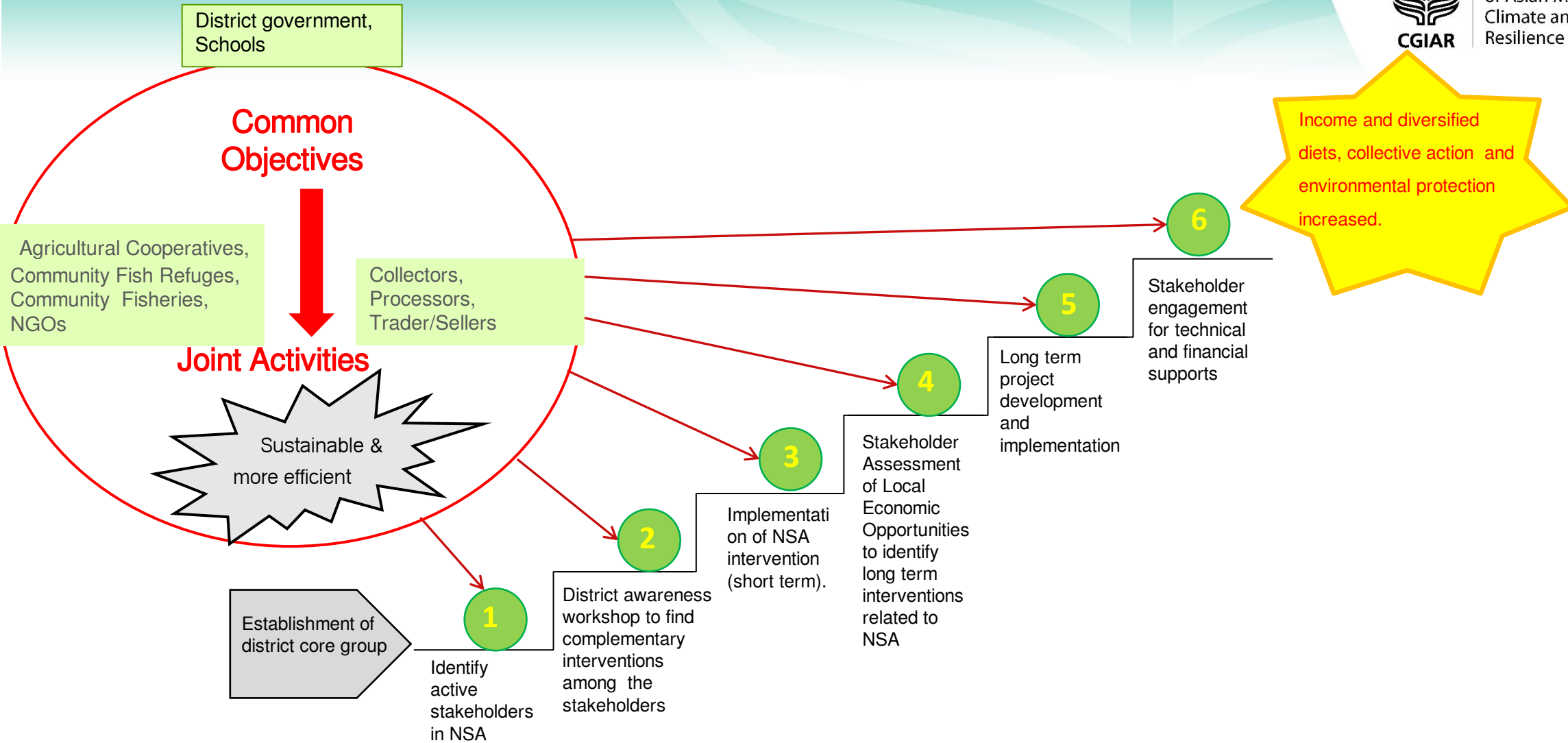




# Proposed Steps of NSA Promotion at District Level



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Thank you very much for your kind  
attention!