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Integrated **Rice-Field Pond** System for enhancing climate resilience and farm productivity (RFP)

Phnom Penh, 31st July 2026



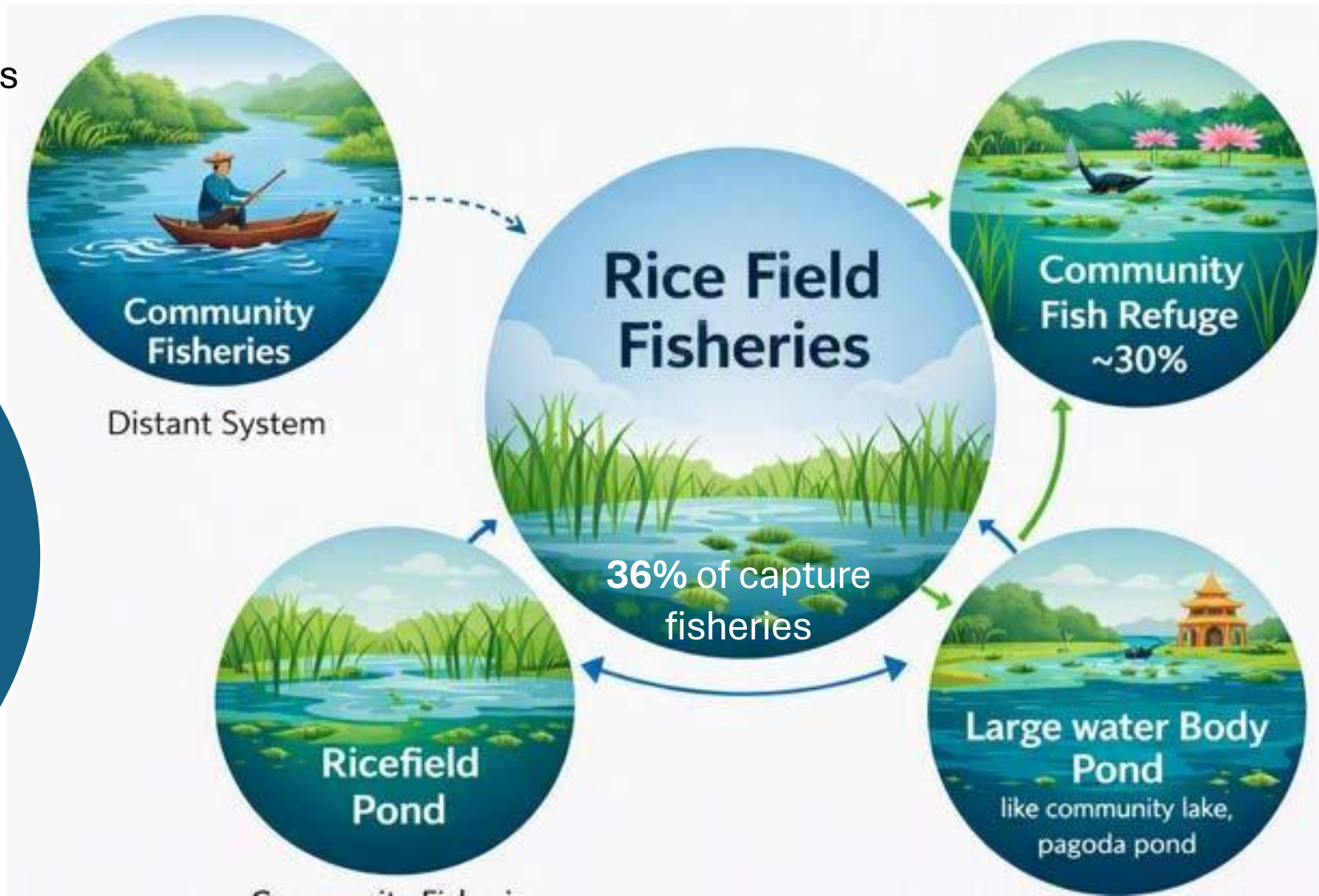
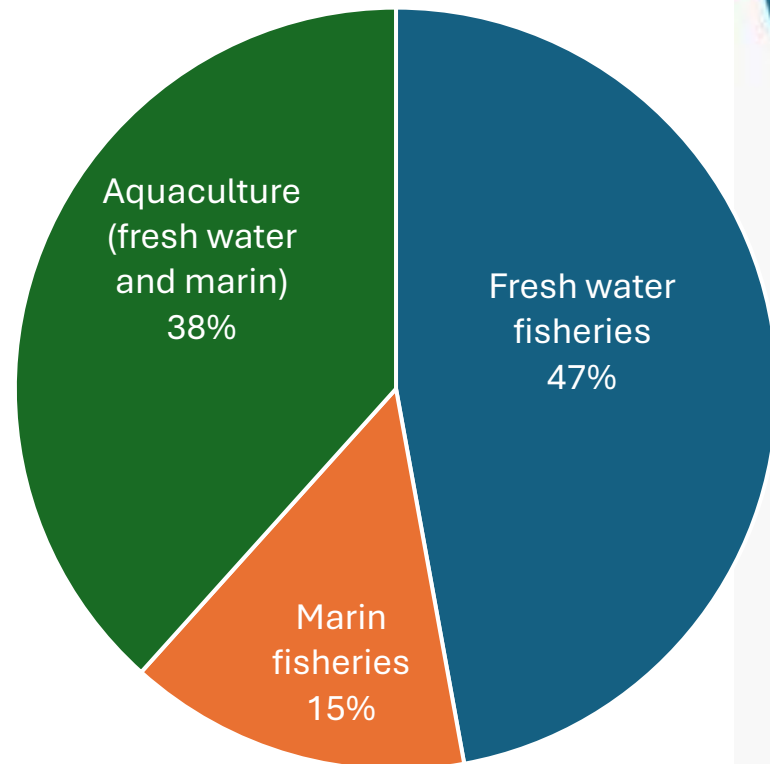
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Why study on RFP ?

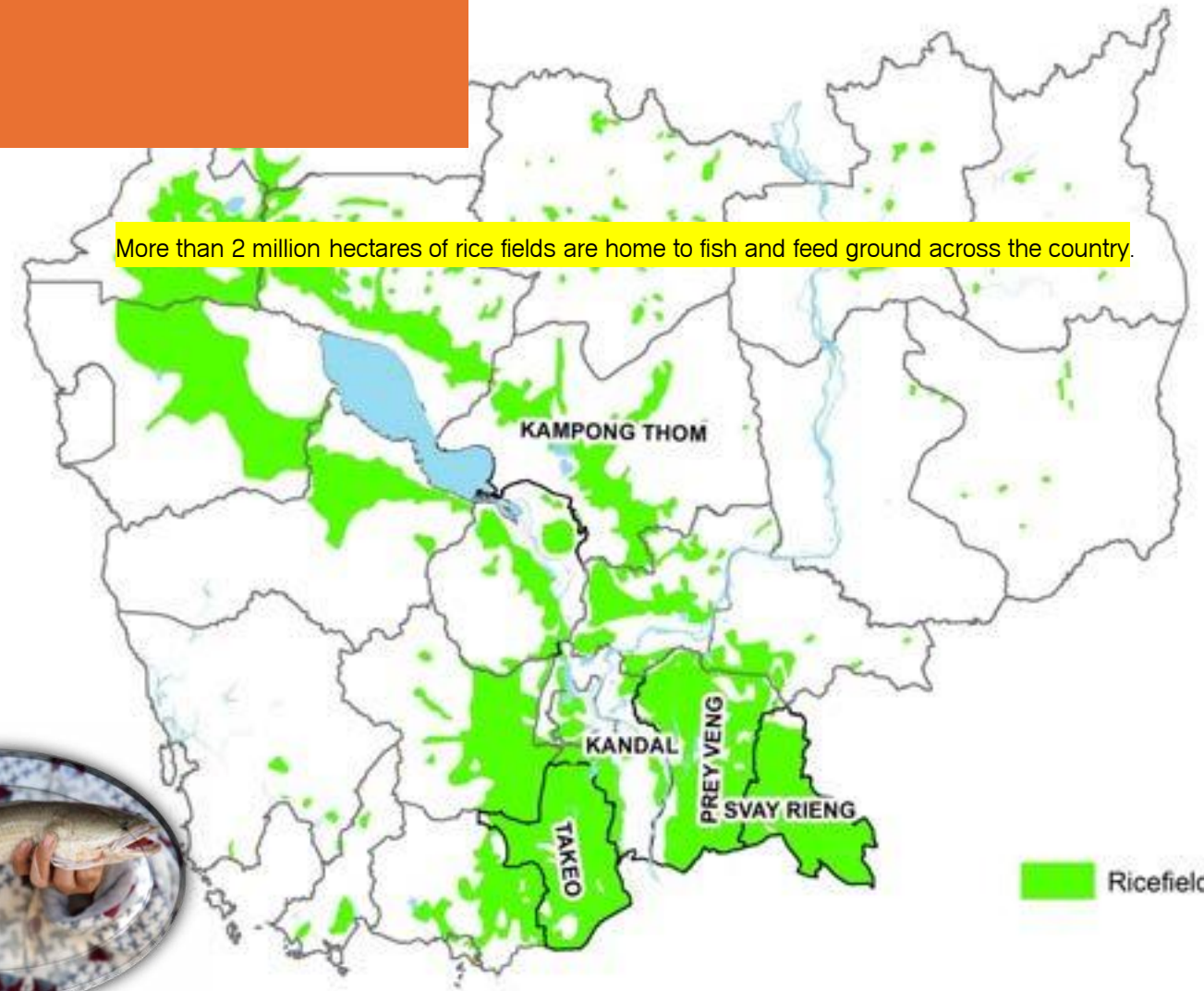
Rice field cover around 20% of Cambodia, **36%** of capture fisheries (MAFF, 2022)



Why study on RFP ?



One out of three households have RFP which could produce an average of about 40 kg/pond/year



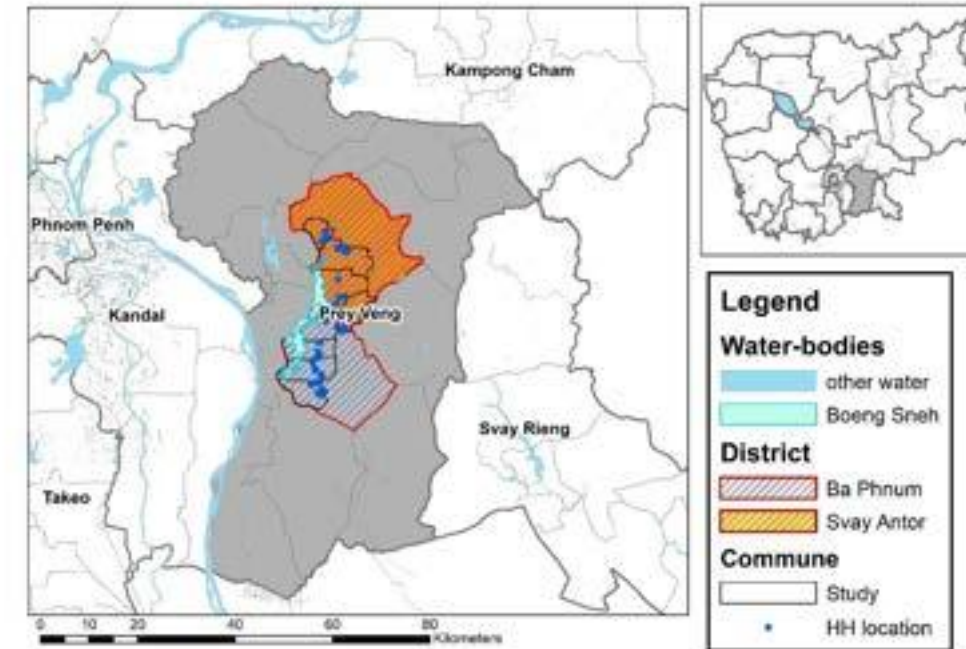
A safe place for fish during the spell dry season and for escaping from heavy pesticides used in rice fields.

Findings from study on current practices of RFP around Boeng Sneh



Household sample and livelihood: farmers in participated in the study with livelihood activities:

- Rice farming 40%
- Animal husbandry 17%
- Fisheries 14% (RFP 7%, aquaculture 7%)
- Selling labor/workers 12%
- Small-scale trading 8%
- Growing vegetables 4%
- Other 5%.



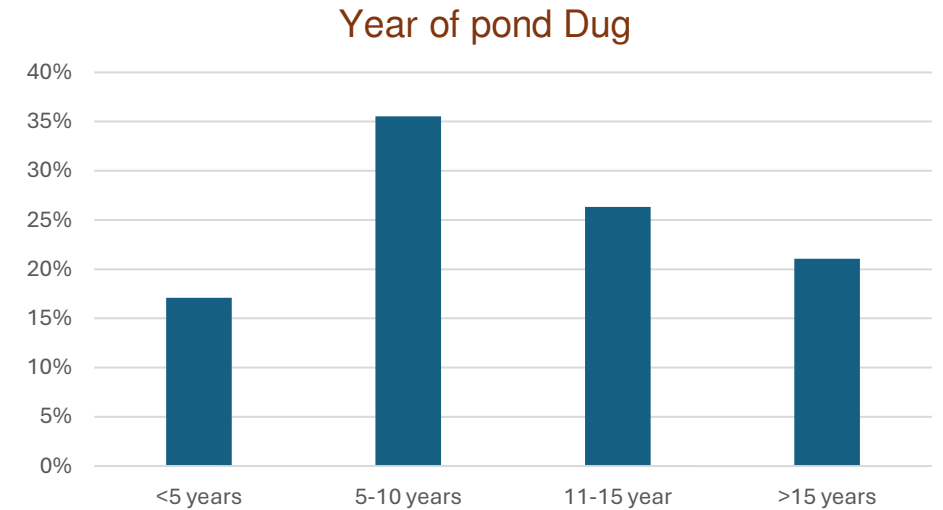
Livelihood Activities



Findings from study on current practices of RFP around Boeng Sneh

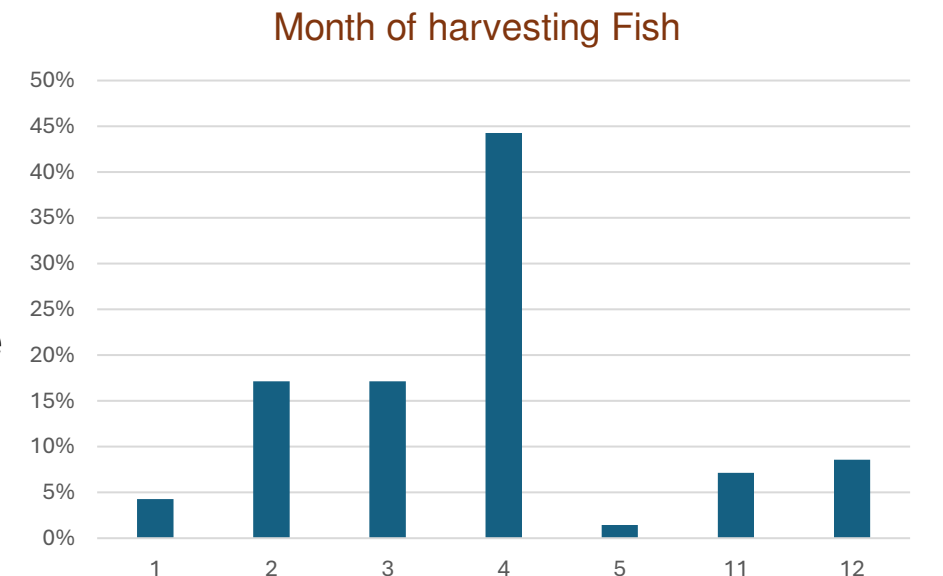
Pond Digging

- In the last 10 years, more than half of the farmers have dug deep ponds to store water for rice and fish farming.
- Almost half of the farmers have been digging ponds for a long time. They dig the soil to build houses and store water for daily use, especially during the dry season.



The harvest season from the ponds

- All farmers harvest during the dry season from November to May.
- Half of the farmers harvest in April because
 - Fish became rare and they harvest to use during the Khmer New Year season because they get high prices.
 - Farmers want bigger fish and feed them, so the fish need time to grow as well.
 - Some farmers save water to grow vegetables during the dry season.



Findings from study on current practices of RFP around Boeng Sneh

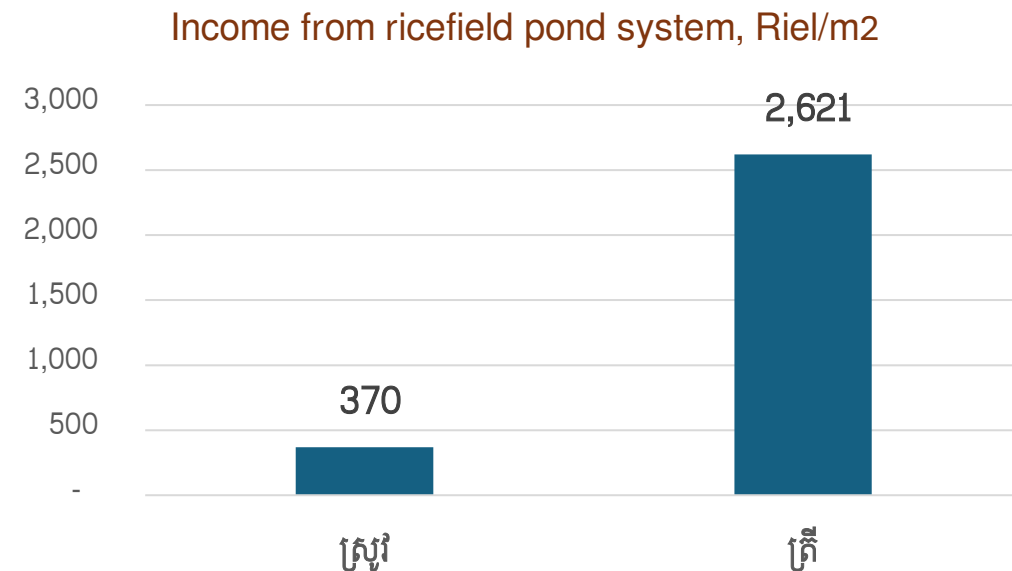
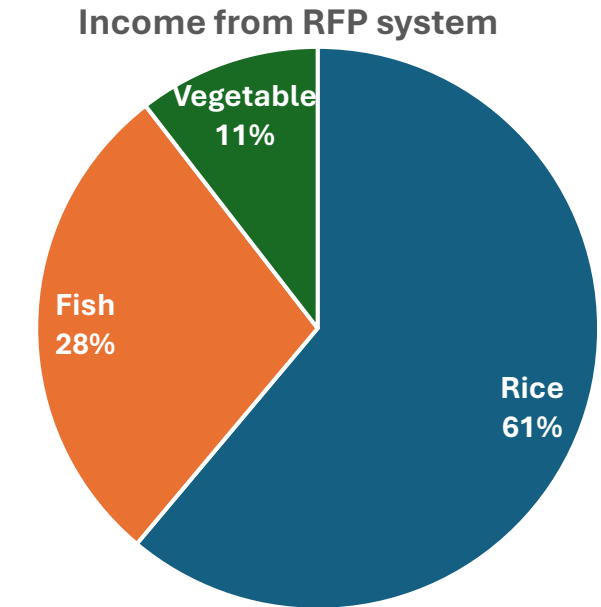
Income from RFP system

More than half of the gross income comes from rice, followed by fish and vegetables.

Average figures show income from:

- Rice 370 riel/m²
- Fish 2621 riel/m²

The presentation of the economic analysis of income, expenditure and consumption will be calculated later.



Findings from study on current practices of RFP

Current practice of RFP systems:

- Nearly 70% of ponds dry up during the dry season
- More than 20% of farmers do not improve the RFP system, only catch fish in dry
- Some farmers have caught fish or using electro fishing from the ponds, many farmers use pesticides in RF

Good practices of some farmers:

- Manage aquatic plants
- Add additional shelter
- Create waterways for fish to enter and exit
- Add natural fish
- Manage water for whole year
- Save broodstock for the next season
- Use some water to irrigate vegetables



Findings from study on current practices of RFP

Current Practices of RFP



Pumping and dry up the pond in dry season, which cannot maintain the breeding stock for the next season



Use of pesticide in ricefield around ponds

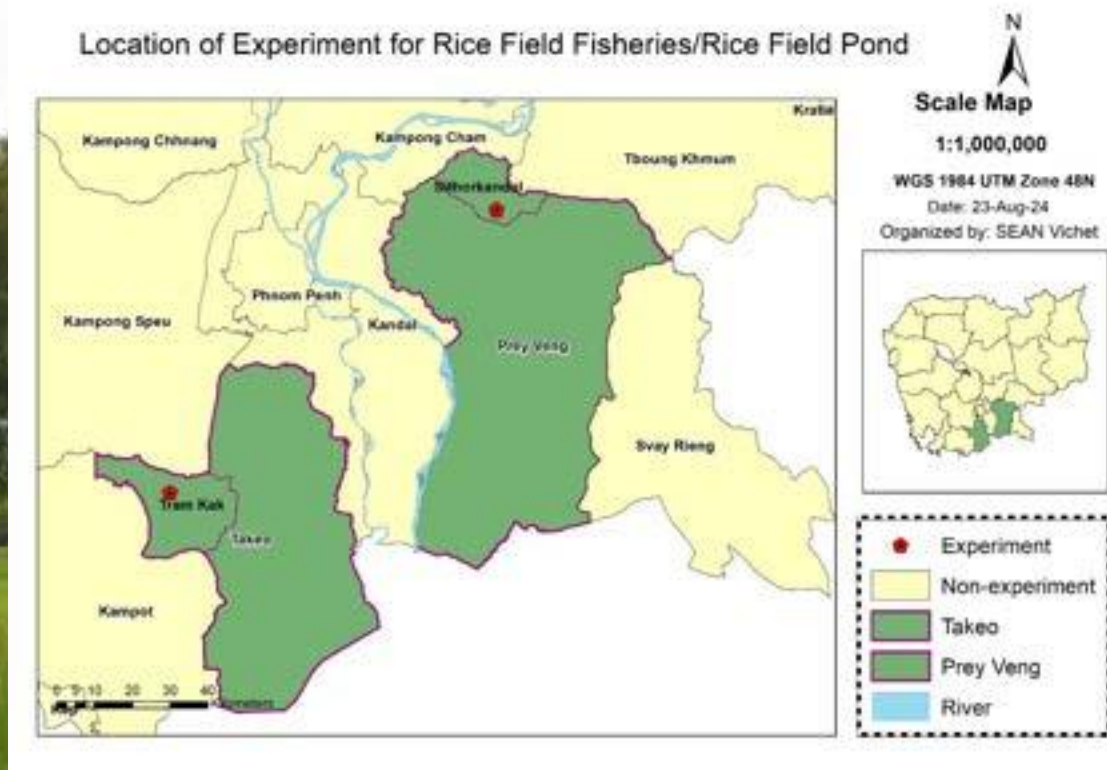


The pond has not been used to its full potential (growing vegetables, raising animals, etc.).



The system is not yet suitable (to much vegetation, no shelter for fish, etc.)

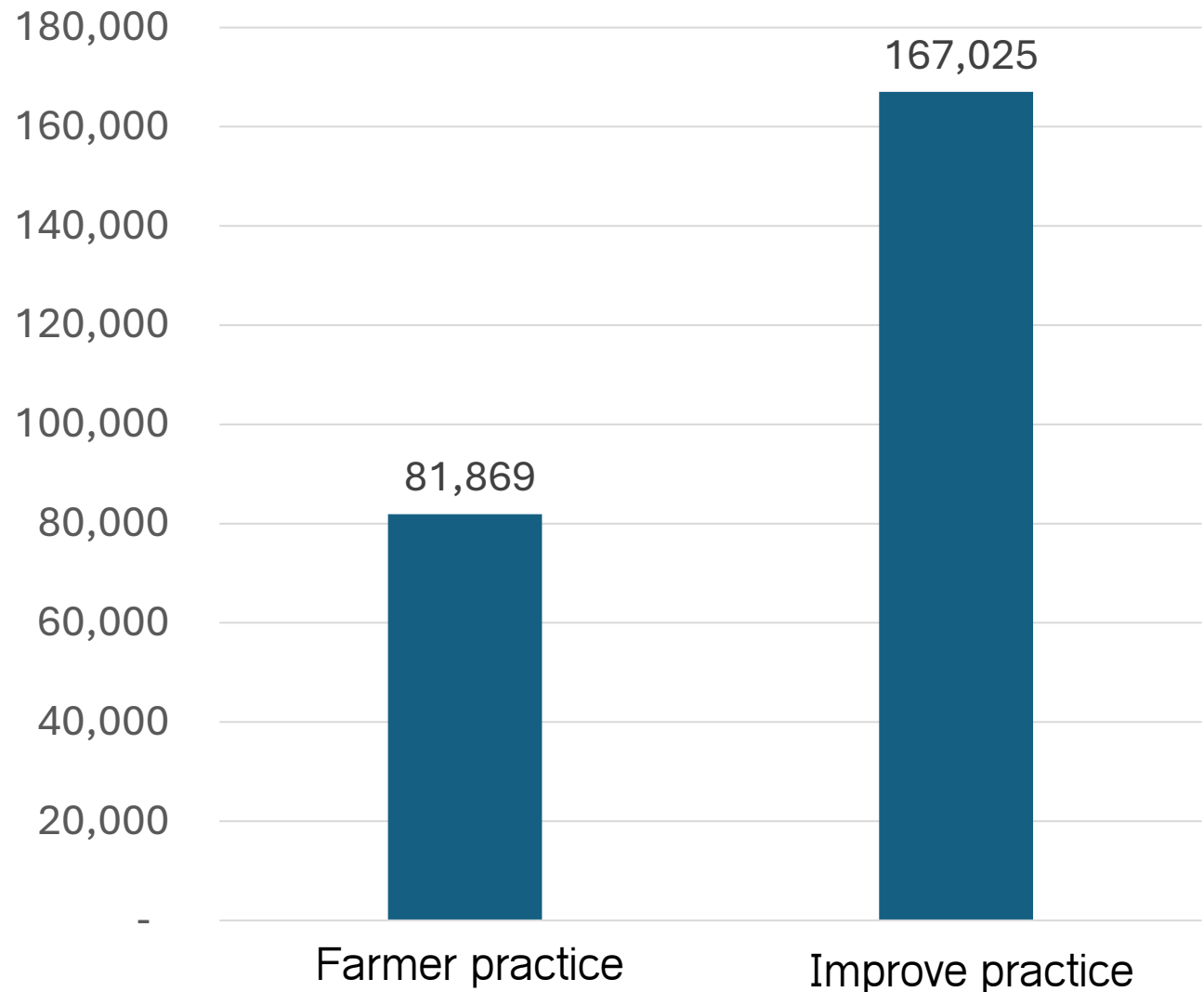
On-Farm Experiment on Rice Field Pond



On-Farm Experiment on Rice Field Pond

- Increased yield: The improved paddy pond system contributed significantly to a 57% increase in rice yield and a 67% increase in fish yield. Farmers saw about 65 kg of fish/pond and 3.45 ton of rice/ha.
- Economic analysis: Both unimproved and improved ponds were profitable, but the improved ponds showed higher economic benefits. Profits from fish in the improved ponds increased to \$42 per 100 square meters, while the profit from increased rice yield was about \$3 per 100 square meters.

Fish economic analysis, profit in Riel/100 m2



On-Farm Experiment on Rice Field Pond



Rice-Field Ponds: Improvements & Benefits



2,200 Kg/ha
Control rice

3,452 Kg/ha
Treatment rice

39 Kg/pond*
Control pond

65 Kg/pond*
Treatment pond

Resilient
Agricultural
System



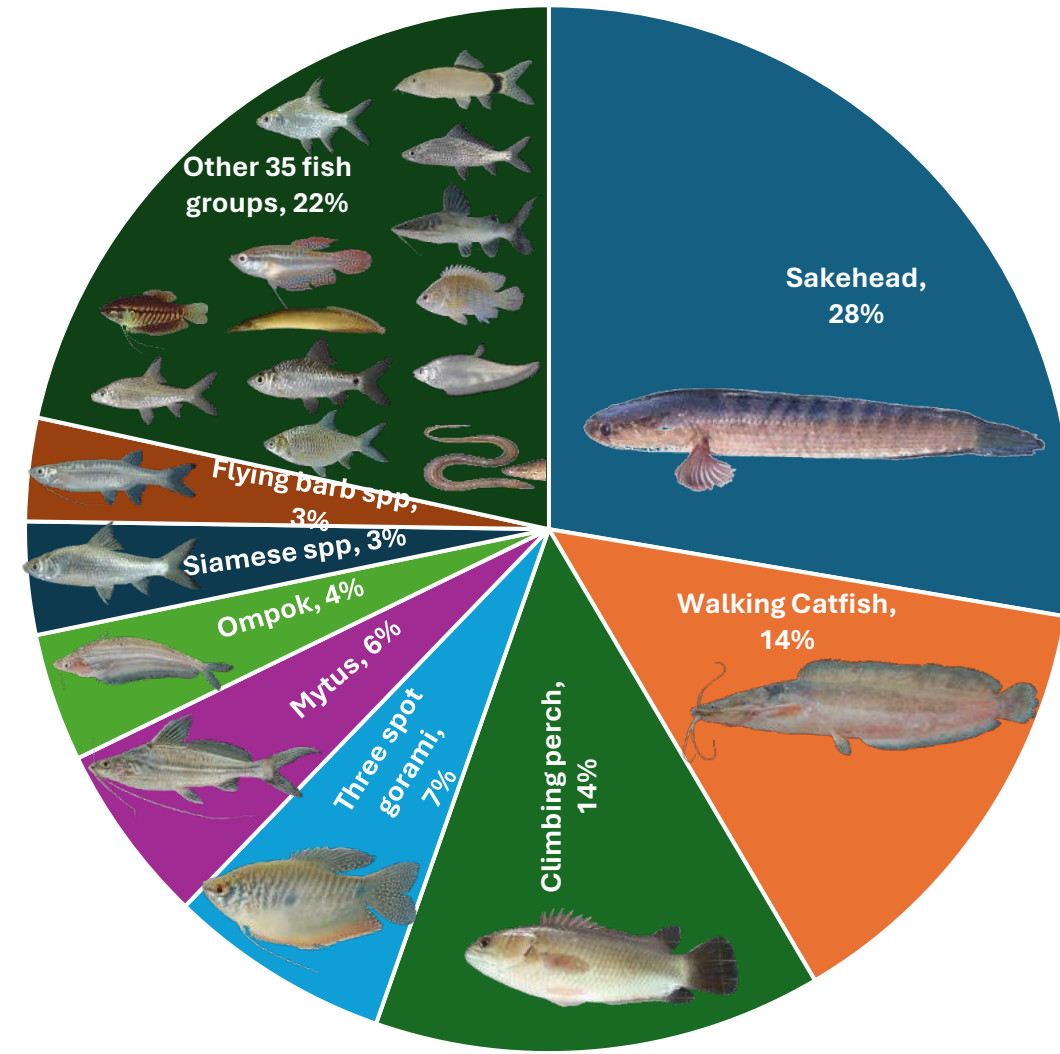
On-Farm Experiment on Rice Field Pond



Key Improvement



On-Farm Experiment on Rice Field Pond



Next step

RF pond & BSF farmers

Selected Ricefield Pond Systems for demo- in Rattanakiri, and Prey Veng

Trainings

Training on enhance ricefield pond system and vegetable growing to farmers and CAO

Field follow and TA

Conduct field monitor to improve the system by CAO

Field days

Field Day to present key findings, farmer and local authorities' engagement to explore scaling opportunities

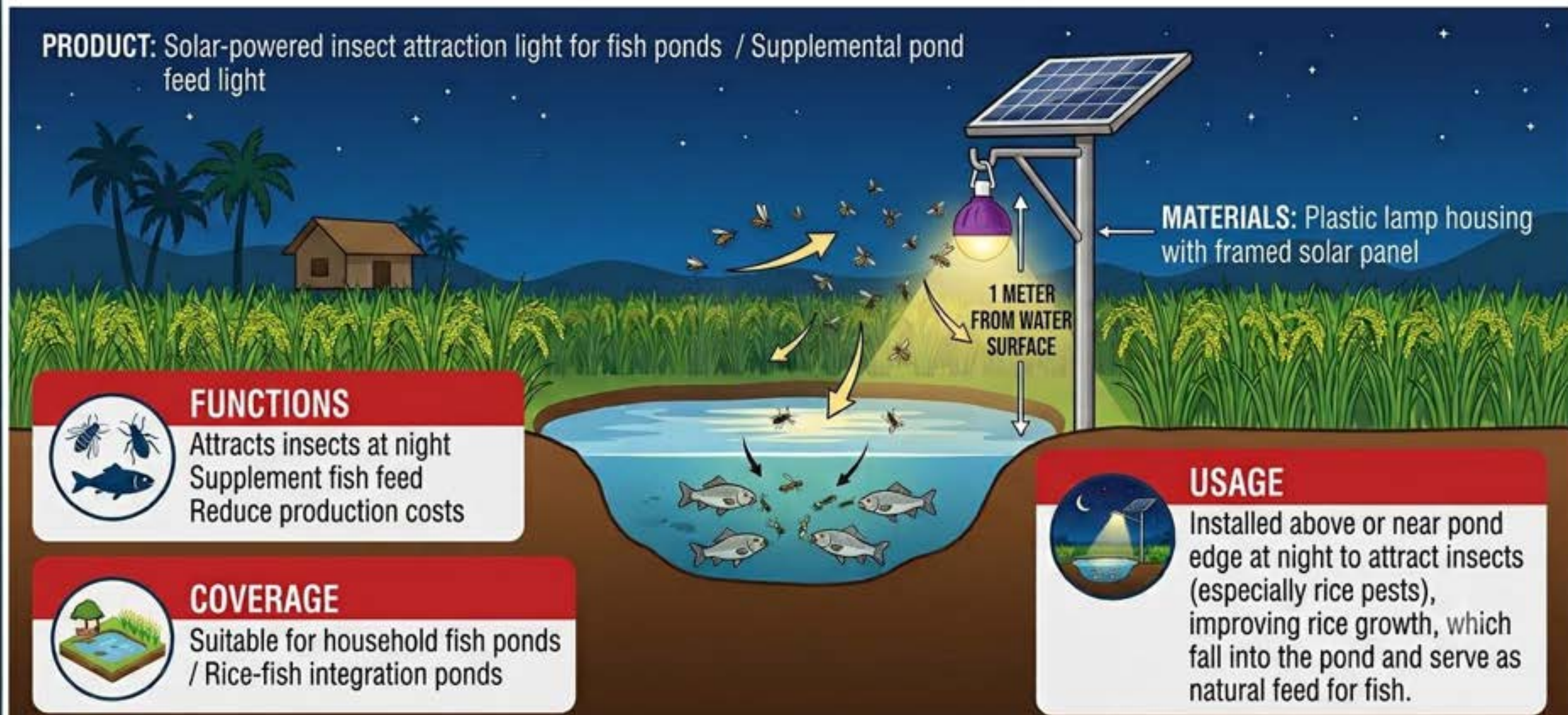
Knowledge product

Poster, material, reports



TECHNICAL SPECIFICATIONS - SOLAR-POWERED INSECT ATTRACTION LIGHT FOR RICE FIELDS

PRODUCT: Solar-powered insect attraction light for fish ponds / Supplemental pond feed light



MATERIALS: Plastic lamp housing with framed solar panel

1 METER
FROM WATER
SURFACE



FUNCTIONS

Attracts insects at night
Supplement fish feed
Reduce production costs



COVERAGE

Suitable for household fish ponds
/ Rice-fish integration ponds



USAGE

Installed above or near pond edge at night to attract insects (especially rice pests), improving rice growth, which fall into the pond and serve as natural feed for fish.



Integrated Ricefield Pond



Knowledge products & materials

- Protocol for participatory on-farm experiment for rice field pond <https://hdl.handle.net/20.500.12348/5721>
- Current practice of RFP: <https://doi.org/10.13140/RG.2.2.20647.41129>
- Promoting Rice-Field Pond System: <https://hdl.handle.net/20.500.12348/6727>
- Blog post on integrate RF pond: <https://worldfishcenter.org/blog/rice-field-pond-systems-food-and-resilient-livelihoods>
- Poster on RFF in Khmer: <https://hdl.handle.net/20.500.12348/6619>
- Training poster on RFF in English and Khmer: (<https://hdl.handle.net/20.500.12348/6712>) <https://hdl.handle.net/20.500.12348/6713>
- Photos archive in CGIAR <https://www.flickr.com/photos/61545321@N06/54806328824/in/dateposted-public/>
- Blog post on integrate RF pond: <https://hdl.handle.net/20.500.12348/6844>





Thank you

