FINAL TECHNICAL REPORT / RAPPORT TECHNIQUE FINAL

ANNEX 15A - GLOBAL AQUACULTURE WORKSHOP

ORAL PRESENTATION BY HOU KROEUN

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IDRC Grant / Subvention du CRDI: 107982-001-Scale Up of Homestead Food Production for Improved Nutrition in Cambodia (CIFSRF Phase 2)
FOOD PRODUCTION DIVERSIFICATION AS AN APPROACH TO NUTRITION-SENSITIVE AGRICULTURE: LESSONS LEARNED FROM CAMBODIA

Hou Kroeun,
Deputy Country Director,
Helen Keller International - Cambodia
Presentation outline

➢ What are current problems?
➢ What are practical solutions?
➢ What are results of program interventions?
➢ What are lessons we have learned?
WHAT ARE THE PROBLEMS?

➢ Undernutrition remains a problem in Cambodia, with 1 in 3 children (32%) under five years old stunted.

➢ Poor households subsist on diets consisting mainly of rice which are low in protein, fat, and essential micronutrients.

➢ Animal source foods make up 9% of total energy intake.

➢ 48% of women meet minimum dietary diversity. 30% children meet MAD.

Sources: CDHS 2014, FAO 2012, HKI 2014
HKI has developed, tested, refined and scaled up an integrated food production and nutrition behavior change program, in collaboration with private sector, government actors and communities.
NUTRIENT RECYCLING OF EHFP

EHFP – An integrated animal-horticulture system

- Food Waste
- Poultry feeding
- Vegetables & fruit
- Chicken manure
- Livestock manure
- Livestock feeding
- Vermiculture - feed and fertilizer
- Fertilizer for veg production
- Household pond aquaculture
- Poultry feeding
**ENHANCED HOMESTEAD FOOD PRODUCTION (EHFP)**

– How do we do it?

➢ Targeting of participant households, starting with community meetings to provide clear information of responsibilities and potential benefits.

➢ **Training** of Village Model Farm owners and households on management and production techniques for vegetables, fruit, chicken, and fish

➢ **Supply of production inputs, with cost sharing approach**: seeds, fingerlings, gardening tools, chickens

➢ Follow up **mentoring and training** through regular household visits

➢ **Monitoring/follow up** to ensure program quality
Focus on first 1000 days, using Essential Nutrition Actions (ENA) framework

Training of Trainers, Village Health Volunteers and target households (including cooking demonstrations)

Conduct small group and one on one counseling (VHVs to mother and caretaker)

Conduct bi-monthly group meetings to discuss nutrition and gender equitable practices
AQUACULTURE AT HOUSEHOLD LEVEL
– How do we support it?

➢ 1,200 household aquaculture ponds have been supported
➢ Provide technical support for pond construction, but households pay the full cost of excavation/construction
➢ Provide training on fish production techniques
➢ Provide large-fish fingerlings. Households agree to stock ponds with small fish.
➢ Thousands of other households in targeted provinces are benefiting from access to high quality fingerlings from HKI/FIA supported local hatcheries
SMALL SCALE FISH HATCHARIES
– How do we develop these service providers as a sustainable local source of fish fingerlings?

➢ 10 hatcheries have been established, and have sold millions of fingerlings in their catchment areas

➢ HKI and FIA to provide technical support for hatchery establishment and fish seed/fingerling production

➢ Project contributes 30% towards construction costs

➢ Hatchery repays project in-kind by supplying fingerlings to the project households in year 1

➢ Hatchery owners provide ongoing technical support to local small pond owners, to build their market
### WHAT TYPE OF FISH SPECIES ARE PROMOTED?

<table>
<thead>
<tr>
<th>Large species</th>
<th>Small species</th>
<th>Nutrient contain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Barb (60%)</td>
<td><em>Esomus metallicus</em></td>
<td></td>
</tr>
<tr>
<td>Roho (10%)</td>
<td><em>Amblypharyngodon chulabhornae</em></td>
<td></td>
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<tr>
<td>Mrigal (10%)</td>
<td><em>Trichopsis vittata</em></td>
<td></td>
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<tr>
<td>Common Carp (10%)</td>
<td></td>
<td></td>
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<tr>
<td>Tilapia (10%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of fish</th>
<th>Fe (Ug/100 g)</th>
<th>Zn (Ug/100 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Esomus metallicus</em> (small)</td>
<td>72.65</td>
<td>29.1</td>
</tr>
<tr>
<td><em>Amblypharyngodon chulabhornae</em> (small)</td>
<td>175.24</td>
<td>25.68</td>
</tr>
<tr>
<td><em>Trichopsis vittata</em> (small)</td>
<td>17.62</td>
<td>25.45</td>
</tr>
<tr>
<td><em>Silver Barb</em> (large)</td>
<td>4.08</td>
<td>9.93</td>
</tr>
<tr>
<td><em>Roho</em> (large)</td>
<td>4.25</td>
<td>10.2</td>
</tr>
<tr>
<td><em>Mrigal</em> (large)</td>
<td>6.36</td>
<td>10.49</td>
</tr>
</tbody>
</table>
TOOL USED TO CREATE DEMAND FOR INCREASED SMALL FISH CONSUMPTION

Project undertaken with the financial support of the International Development Research Centre (IDRC), www.idrc.ca, and the Government of Canada, provided through Foreign Affairs, Trade and Development Canada (DFATD), www.international.gc.ca
## RESULTS FROM THE EHFP PROGRAM

<table>
<thead>
<tr>
<th>Item</th>
<th>Baseline</th>
<th>Endline</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of varieties of vegetables produced in the last 2 months</td>
<td>4</td>
<td>10</td>
<td>EHFP 2014-2016</td>
</tr>
<tr>
<td>Average amount of vegetables produced in last 2 months (kg)</td>
<td>29</td>
<td>56</td>
<td>EHFP 2014-2017</td>
</tr>
<tr>
<td>Amount of fruit produced in the last 2 months (kg)</td>
<td>17</td>
<td>20</td>
<td>EHFP 2014-2016</td>
</tr>
<tr>
<td>Average number of chickens owned in the last 2 months (head)</td>
<td>20</td>
<td>35</td>
<td>EHFP 2014-2016</td>
</tr>
<tr>
<td>Average number of eggs produced in the last two months (number)</td>
<td>20</td>
<td>30</td>
<td>EHFP 2014-2016</td>
</tr>
<tr>
<td>Average amount of income earned from the sale of surplus products in the 2 months</td>
<td>$19</td>
<td>$48</td>
<td>EHFP 2014-2017</td>
</tr>
</tbody>
</table>
RESULTS FROM THE EHFP PROGRAM

Median fish harvest per month

MDD-W and MDD for Children 6-24 months

**MDD-W (minimum dietary diversity for women)**

- **Baseline**: 48%
- **12 months later**: 77%

- **Minimum Dietary Diversity for Children 6-24 months**
  - **Baseline**: 54%
  - **12 months later**: 30%
## RESULTS: SMALL SCALE FISH HATCHERIES

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</thead>
<tbody>
<tr>
<td>Hatchery 1 (K. Cham): Mr. Kong</td>
<td>485,000</td>
<td>250,000</td>
<td>150</td>
<td>7,875</td>
<td>6,300</td>
</tr>
<tr>
<td>Hatchery 2 (Kampot): Mr. Deanng ra</td>
<td>617,000</td>
<td>385,000</td>
<td>750</td>
<td>11,500</td>
<td>8,625</td>
</tr>
<tr>
<td>Hatchery 3 Kampot): Mr. Tha</td>
<td>325,000</td>
<td>300,000</td>
<td>450</td>
<td>8,625</td>
<td>6,900</td>
</tr>
<tr>
<td>Hatchery 4 (Kampot): Mr. Samon</td>
<td>410,000</td>
<td>200,000</td>
<td>650</td>
<td>6,300</td>
<td>5,040</td>
</tr>
<tr>
<td>Hatchery 5 (Prey Veng): Mr. Son</td>
<td>270,000</td>
<td>210,000</td>
<td>200</td>
<td>6,350</td>
<td>5,080</td>
</tr>
<tr>
<td>Hatchery 6 (K. Cham): Mr. Kunthy</td>
<td>230,000</td>
<td>80,000</td>
<td>2,000</td>
<td>7,000</td>
<td>5,600</td>
</tr>
<tr>
<td>Hatchery 7 (K. Cham): Mr. Thoeun</td>
<td>300,000</td>
<td>230,000</td>
<td>200</td>
<td>6,250</td>
<td>5,000</td>
</tr>
<tr>
<td>Hatchery 8 (Prey Veng): Mr. Ly Sophal</td>
<td>290,000</td>
<td>170,000</td>
<td>350</td>
<td>5,350</td>
<td>4,280</td>
</tr>
<tr>
<td>Hatchery 9 (Kampot): Mr. Thoch</td>
<td>200,000</td>
<td>170,000</td>
<td>200</td>
<td>4,750</td>
<td>3,800</td>
</tr>
<tr>
<td>Hatchery 10 (Kampot): Mr. Kun</td>
<td>80,000</td>
<td>70,000</td>
<td>300</td>
<td>2,500</td>
<td>2,000</td>
</tr>
</tbody>
</table>
LESSONS LEARNED

✓ Agriculture, aquaculture, marketing, gender, and nutrition/hygiene behavior change activities can be easily integrated, but project staff workload and household interest have been an issue;

✓ Migration has been a challenge to the EHFP program in Cambodia (drop out rate is 20.5%);

✓ Requirement of household cash contribution for production inputs has been well accepted, and has helped HKI reach the most appropriate participant households (contribution rate reduced from 50% to 30%)

✓ While fish, vegetable and fruit production has had great success so far, the delivery of poultry production encountered logistical challenges, including the quality of suppliers and mortality of chickens.

✓ Local fish hatcheries have proven to be very sustainable enterprises, producing and selling large number of fingerlings each year.
THANK YOU.

“Although the world is full of suffering, it is also full of overcoming it.”

-Helen Keller