Household food insecurity in Cambodia is high. The diet, which consists mainly of rice, provides sufficient energy but lacks protein and micronutrients. As a result, stunting is among the highest in South East Asia, at 40% and anemia among women of reproductive age is over 50%.

Since 1998, Helen Keller International (HKI) has implemented homestead food production (HFP) in Cambodia to increase availability of nutrient-rich foods. HFP, focused on women farmers, fosters year-round, environmentally sustainable production of nutrient-rich fruits, vegetables and animal source foods. Since 2012, the approach has been complemented by the rearing of fish.

Fish play an important role in the traditional Cambodian diet and with minimal inputs can be raised in ponds on the homestead. Working through the Fish on Farms project, the University of British Columbia (UBC), Canada, and HKI have encouraged farmers to rear both small and large fish species in their ponds. Small fish can be harvested frequently and consumed whole, providing key nutrients. Large fish may also be eaten, or sold to enhance household income.

But how effective are these strategies in improving food security and nutrition? To find out, HKI and UBC conducted a randomized control trial involving 900 women farmers, whose farming practice was one of three types: the original HFP model; HFP plus fishponds; and a group of normal, unassisted farming practice (control).

Key messages

• Homestead food production (HFP) has more than doubled the production and consumption of vegetables by rural households.
• Households who adopt fishponds to raise small and large fish, in addition to vegetable growing, earn significant extra income (worth 60% of average monthly income) and have fish to eat, thereby improving nutritional security.
• Fishponds and homestead gardens have empowered women, by giving them more control over household income. 75% of women in HFP households reported having disposable income, compared with only 20% in control group households.

Emerging outcomes

Higher small and large fish production and consumption in fishpond households

Over a two year period, 300 fishponds and 600 gardens producing fish and vegetables have been established, and the trial suggests this work has been worthwhile. Over 70% of households with fishponds report harvesting small fish in the previous month, and almost all report harvesting large fish. Not surprisingly, almost no fish were harvested by the other households. On average, those with ponds harvested 2 kg of small fish and 6 kg of large fish each month, and also reported much higher fish consumption than other households (Figure 1). Some households harvested as much as 20 kg of small fish and 60 kg of large fish in a month.

Figure 1: Median small and large fish production over the previous month by treatment group.

Women are gaining more decision-making influence.
Higher fruit and vegetable production and consumption in HFP households

Monthly monitoring has shown that the household vegetable farms have been very productive. Almost 100% of farmers practising HFP have harvested vegetables each month, compared with only 20% in the control group. On average, farmers practising HFP harvested 49 kg of vegetables per month, while ‘HFP plus fishpond’ farmers harvested 32 kg. Those in the control group harvested less than 15 kg of vegetables per month. Amazingly, several households in both HFP groups reported producing over 200 kg of vegetables in a month. Vegetable consumption was also higher in the HFP groups (~ 20 kg per household) compared with the control group (10 kg). Finally, HFP households reported having to buy fewer vegetables from the market than control households.

“...My family now has access to a much more diverse diet. In the past, we only ate fish during the rainy season. Now we can eat fish and vegetables every day, throughout the year.
Ms. Sun Hong

Higher income in HFP households

Over 50% of HFP households reported giving away vegetables to friends and neighbors in the previous month, and around half of households with ponds had given away fish. Average income from the sale of farm products was highest in the fishpond households (US$18 per month), followed by the gardens (US$12), and lowest in control households (US$4). Three households in the fishponds group reported making over US$150. To put this in perspective, the average monthly income of a farmer in the province is only US$30. Most of the extra income was spent on food and children’s education.

Women’s independence and confidence in decision-making

In Cambodia, women play the main role in agriculture and food production but earn 30% less than men for the same work. The Fish on Farms project seeks to build women’s confidence and influence in decision-making, through gender training, counseling and greater income generation opportunities. Women appear to be gaining more decision-making influence. After 20 months, only 20% of the
women in the control group reported that they had any money of their own that they could decide how to use without their husbands’ permission. In the HFP households, 75% of women reported having money they could spend at their discretion (Figure 2).

Conclusion

The randomized control trial shows that homestead food production with fishponds improves food security, dietary diversity, food intake and women’s empowerment. The project is now ready to scale up this model, including some additional components such as microcredit and private enterprise development. Other ways forward include researching different options for farms (i.e. poultry, goats), engaging the hard to reach, and testing models elsewhere in the world.

References


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Households who adopt fishponds, in addition to vegetable growing, earn significant extra income

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