MULTI-BENEFIT FOOD AND HEALTH MODEL PROGRAM
ROUND REPORT
Helen Keller International Cambodia Year 1, Issue 1, Mar 2000

ROUND 1: JULY-SEPTEMBER 1999

Monitoring of activities in village model gardens and household gardens

Helen Keller International/Cambodia (HKI/C) has been involved in home gardening and nutrition education for the promotion of production and consumption of vegetables and fruits since 1995. In 1998, the strategy for implementing gardening activities changed from that of directly implementing at the community level to working in partnership with local and international organizations. The project is implemented under the HKI/C *Multi-Benefit Food and Health Model Program* funded by the United States Agency for International Development (USAID).

Currently HKI is implementing home gardening and nutrition education activities in collaboration with four non-governmental organizations (NGOs) in six provinces[1]. These are the Adventist Development and Relief Agency (ADRA), Partners for Development (PFD), Southeast Asian Outreach (SAO) and Chamran Cheat Khmer (CCK)[2], working in the Provinces of Kampong Thom, Siem Reap, Steung Treng, Kratie, Kandal and Takeo. In 1998, the program focused on conducting a needs assessment and developing materials. In May 1999, activities were started at the community level. HKI provides technical assistance, training and some financial support for establishing village model gardens and home gardens for year-round production and consumption of vitamin A-rich foods.

The overall goal of the project is to improve the health status, learning capacity, productivity and quality of life of the most vulnerable Cambodians through home gardening and nutrition education. Specific objectives of the project are to:

- Increase vegetable and fruit production throughout the year
- Improve consumption of vitamin A-rich foods and increase awareness of the importance of vitamin A-rich foods for preventing vitamin A deficiency
- Provide opportunities to targeted households to get demonstration, technical and input support at the local level
- Strengthen collaboration between partner NGOs in their joint efforts

[1] Targeted areas do not include the entire province but rather districts, communes or villages, depending on the NGO.
[2] CCK is a local NGO while the other partners are international NGOs.

Helen Keller International - Cambodia
P.O. Box 168 • Phnom Penh • Kingdom of Cambodia • 855-23-210851 (tel) • 855-23-210852 (fax)

Helen Keller WORLDWIDE

METHODOLOGY

The monitoring system collects data from all village model gardens and households every 3-4 months. For this first round of monitoring, data were collected during the months of July–September 1999. Five Agricultural Extensionists from the Provincial offices of Agriculture, Forestry and Fisheries (PDAFF)/Kandal and Takeo assisted with monitoring. They received initial training by HKI on the home gardening program and monitoring. Regular refresher trainings are also provided. The HKI Agricultural Team conducts quality control at the VMG and HH level. The following sampling procedure is followed:

Village Model Gardens: All 28 VMGs that started activities during this period (July – September) are included in the monitoring.

Households: Data is collected from 20% of households under each VMG. A total of 3,394 households are organized under 28 VMGs. 680 households were randomly selected for monitoring.

A total of 28 VMGs and 680 households were monitored in 5 provinces[3]. Two different questionnaires are used for monitoring – one is the Village Model Garden Monitoring Form for collection of information about the VMG and the other is the Household Garden Monitoring Form for collection of information on the HH garden. The VMG monitoring form includes information about the area, number of varieties of seeds, seedlings and saplings present in the VMG, quantity of seeds/seedlings/saplings produced and sold, and income generated. The HH gardening form collects information on type of garden, number of varieties present, quantities of vegetables produced and sold, sources of seeds, main caretakers and consumption of fruits and vegetables.

Gardens are classified as traditional, mixed/medium and year-round. The following criteria are used:

Traditional gardens: These gardens are seasonal, only have traditional varieties (1-2, such as wax gourd and pumpkin), are sometimes grown for commercial purposes, and usually grown in the rice fields.

Mixed or medium gardens: These gardens have about 4-5 varieties (including gourd-types), are not year-round (6-8 months), use chemical inputs, are not properly fenced, and their soil is not well developed.

Year-round gardens: These garden are productive throughout the year, have more varieties (10-12 varieties most of the year), have access to water, there is continuous improvement of soil, uses non-chemical methods of pest and disease control, and produce some varieties of seed.

[3] Siem Reap was not included in this round as the program was planned to start later.

This project works through a model of establishing village-based model gardens (which are owned by private farmers and run as micro-enterprises) and individual household gardens. Under this approach, each village model garden (VMG) established will support 2-3 groups. There are 15–20 households (HH) in each group. In this way 40–60 households will get some inputs, training and demonstration support from the VMG.

NGOs are responsible for conducting training for VMG owners and to targeted households. They also assist VMG owners with irrigation to ensure year-round production and in the first phase, provide seeds to both VMG owners and households. NGO staff conduct regular field visits to VMGs and HHs and provide assistance for day-to-day activities. NGO staff are also responsible for organizing and implementing a nutrition education component in conjunction with home gardening activities. HKI provides training to NGO technical staff, and provides necessary assistance for training of VMG owners and households. HKI has an agriculture team that provides technical assistance to partner NGO staff, VMG owners and households when required. In addition, HKI provides various educational materials/guidelines to NGO partners.

REPORT

RESULTS

Village Model Gardens

Table 1 describes the status of village model gardens during the first round of data collection. The area of VMGs ranged from 416-4900 square meters. Although median areas were more than the minimum recommended area (600 square meters), some NGOs had VMGs well below the recommended area required. The number of vegetable varieties ranges from 0 to 12 including spices and herbs. The number of fruit sapling varieties ranges from 0 to 9. As this is just the beginning of the project, not all VMGs have started producing fruit and multi-purpose tree (MPT) saplings.

Table 2 shows the median number of varieties of vegetables, seeds and seedlings produced and sold, and the amount of money earned by the VMG owner. As expected at this early stage, seed and seedling production status in the last three months is poor. This is expected to improve in the coming months.

Village model gardens within all the NGO working areas have started earning income by selling products. For those gardeners earning money, the range is between 6,000 and 135,000 Riels over a three month period. It is still a small amount for the VMG. This is because data were collected just after activities were initiated and it is clear that not all VMGs started selling. Income from the VMG might be one of the most important motivations for VMG owners to continue their activities.

Table 1. Status of village model gardens (VMGs)
Numbers in parenthesis below the median values denote maximum and minimum values

Name of NGO	No. of VMGs	Median area in m^2 (min-max)	Current compost heap % (n)	Median no. of varieties					No. of ornamental plants
				Veg.	Vit. A veg.	Spices/ Herbs	Fruit	MPT	
CCK	8	865 (400-1672)	88% (7)	4.8 (0-7)	2 (0-3)	4.5 (0-9)	2.63 (0-6)	0.063 (0-2)	0.88 (0-3)
ADRA	3	984 (800-1600)	100% (3)	9 (6-12)	5 (2-6)	9.33 (8-11)	5 (2-7)	1 (0-2)	0.33 (0-1)
PFD	14	1000 (500-4900)	21% (3)	2.69 (0-7)	1.15 (0-5)	3.58 (0-9)	4 (0-9)	0.33 (0-2)	0
SAO	3	750 (416-760)	100% (3)	4.67 (3-7)	2.33 (1-3)	4.67 (3-6)	3 (0-5)	1.67 (1-3)	0

Table 2. Median varieties produced and sold in VMGs in the last three months
Numbers in parenthesis below the median values denote maximum and minimum values

Name of NGO	Median number of varieties produced			Median number of varieties sold			Median amount of money received from selling veg/seed/ seedling/sapling from VMGs (in Riels)
	Vegetable	Seed	Seedling	Vegetable	Seed	Seedling	
CCK	6.0 (1-9)	2.5 (0-7)	0 (0-3)	1.0 (0-6)	0 (0-4)	0 (0-2)	7,500 (0-110,000)
ADRA	9.0 (4-13)	3.0 (2-5)	1.0 (0-2)	2.0 (2-4)	0	0	15,000 (6,000-20,000)
PFD	1.0 (0-8)	1.5 (0-6)	0 (0-2)	0 (0-2)	0 (0-3)	0	0 (0-20,000)
SAO	3.0 (2-4)	2.0 (1-2)	1 (0-1)	3.0 (2-4)	1 (0-1)	0 (0-1)	60,000 (15,000-135000)

Table 3 shows the type of irrigation at the VMGs. Only two treadle pumps have been installed for irrigation. There were no established irrigation systems among the VMGs in CCK, SAO and PFD project areas at the time of data collection. This is not surprising as the VMGs were just being established. As part of the project, all VMGís must have a permanent and regular source of irrigation. The VMG is responsible for year-round production of seeds, seedlings and saplings.

In 84% of the VMGs, it is the husband who manages it. Although the men are mainly responsible for managing the VMG, 92.3% of wives were more likely to keep the money earned from the VMG and determine household utilization of the money. Ninety two percent of the money earned from the VMG is spent on food and eight percent for productive purposes such as purchase of seeds, fencing materials, and fertilizer.

Table 3. Source of irrigation in the VMGs

Name of NGO	Total No. of VMGs	Type of Irrigation		
		No irrigation/ Rain Water	Hand pump/ Treadle pump	Pond/River/ Canal
ADRA	3	1	2	0
CCK	8	8	0	0
SAO	3	0	0	3
PFD	11	6	0	5

Table 4. Main support for home gardens (n=457)

Type of support	Percentage (%)
None	62.8%
Training	1.8%
Seed/seedling/sapling support from VMG	12.0%
Demonstration effect	17.5%
Technical assistant	5.5%
Other	0.4%
Total	100%

Household Gardens

Of the 680 households randomly selected from the group list, 459 currently had a garden. The interview only proceeded with those who currently had a garden. When household gardeners were asked about their main support for gardening, a note-worthy trend was found (**Table 4**). The demonstration effect for the village model garden was the most cited support for gardeners. Support for seeds/ seedlings/saplings and technical assistance are lower but still form an important part. It will be important to observe whether the seed/seedling support becomes more prominent after the village model gardens are established. About 63% of the gardeners did not receive any support. They should be the main target for extension activities in the following rounds.

REPORT

Gardens are mostly maintained by women (69%) **(Table 5**). In 24% of households, the husband was the main caretaker of the garden and in 96% of households, the wife has control over the income earned from the garden produce. No men kept or controlled the money earned from gardening activities. The women are also responsible for determining household utilization of money.

Table 5. Main caretaker and money keeping

	Main Caretaker (%) (n= 458)	Keeping Money (%) (n=331)
Husband	24.0%	0%
Wife	69.4%	96.1%
Children	3.9%	1.5%
Other (Parent)	2.6%	1.2%
Land owner	-	0.3%
Total	100%	100%

When asked what the main use of fruits and vegetables is, it was found that selling fruit accounted for 16.7% of household use and selling vegetables accounted for 11.4% of use. Some households had not sold any yet, but those who had, earned between 8,000 and 200,000 Riels in the last three months. The median amounts for ADRA, CCK, PFD and SAO were 8,000, 0, 10,000 and 20,000 Riels respectively.

Table 6 shows the principal use of money earned through sale of garden produce. In most households, income earned from gardening is usually spent on food (94.2%). Other important expenditure categories are medicine, and productive purposes (seed, poultry); but, proportionately, little is spent on these items.

Category (use of money)	Percentage (%)
Food	94.2%
Cloths	0.6%
Medicine	2.1%
Education	0.9%
Saving	0.3%
Social activities	0.6%
Productive	1.2%
Total	100%

Table 6. Principal use of money earned through sale of garden produce (n=330)

Table 7. Influence of gardening practices on production and consumption
Numbers in parenthesis below the median values denote maximum and minimum values

Garden Type	Median Production in Last Two Months (Kg)		Median Gross Consumption in Last 3 Days (Kg)		Median Income Earned in Last 2 Months (Riel)	Own Garden is Main Source of Veg. (%)
	Veg.	Fruit	Veg.	Fruit		
Traditional	25.0 (3-1200)	28.5 (0-600)	3.0 (0.8-13)	1.5 (0-15)	6,500 (0-140,000)	56.6%
Mixed/ Medium	30.0 (0-530)	23.0 (0-1500)	3.0 (0-13)	1.0 (0-12)	8,000 (0-200,000)	65.8%
Year round	49.0 (15-800)	50.0 (0-500)	3.5 (1.3-8.5)	2.0 (0-7)	16,000 (0-110,000)	77.8%

Exchange rate US$1 = 3,750 Riels

One of the main objectives of the project is promotion of round-the-year gardening. **Table 7** shows the influence of gardening practices on production and consumption. The importance of year-round gardens can be seen. Households with year-round gardens produce more and consumption is also slightly higher than traditional and mixed gardens. Moreover, the earning potential is higher with year-round gardens. Households with year-round gardens depend least on the market for their daily procurement of vegetables; 77.8% cited ìown gardenî as their main source of vegetables for consumption.

Table 8 shows the median number of days that mothers and children under five consumed dark green leafy vegetables (DGLV), yellow/orange vegetables and yellow fruit. During this first round, only dark green leafy

Table 8. Median number of days mothers and children under five consumed dark green leafy vegetables (DGLV), yellow/orange vegetables and yellow fruit in the past week.
Numbers in parenthesis below the median values denote maximum and minimum values

Age Category	DGLV	Yellow/orange vegetables	Yellow fruit
< 12 months	0 (0-2)	0 (0-0)	0 (0-0)
12-24 months	4 (0-6)	0 (0-0)	(0) (0-1)
>24	4 (3-5)	0 (0-1)	0 (0-0)

References

1. *Multi-Benefit Food and Health Model Program. Project Proposal*. Helen Keller International, Cambodia, 1995.

2. *Home Gardening in Bangladesh.* Evaluation Report by Helen Keller International/Bangladesh and the Asian Vegetable Research and Development Center, Taiwan. 1993.

3. Talukder A, Islam N, Klemn R, Bloem MW. *Home gardening in South Asia: A complete Handbook*. Helen Keller International, Bangladesh, 1992.

4. Talukder A, Khan TA, Baker SK, Bloem MW. *Crucial Elements in a Home Gardening Project- Experience from a Nationwide Program in Bangladesh.* Report of the XVII International Vitamin A consultative group. Virtual elimination of vitamin A deficiency: Obstacles and Solutions for the Year 2000, Guatemala City, Guatemala, 18-22 March 1996, p 82.

CONCLUSIONS & RECOMMENDATIONS

First round monitoring showed that all activities at the VMG and household garden levels are progressing. Some of the targeted VMGís were established and started producing vegetables, seeds, seedlings and saplings. Monetary benefit by selling VMG and garden produce is evident. However, emphasis should be given on making the VMG more service oriented (i.e. VMG provides support to HHs for seeds, seedlings, training and demonstration).

The linkage between VMGs and households is crucial. One of the project targets is for seeds, seedlings and sapling produced in the VMG be sold to the targeted households for year-round gardens. In the future, extension activities should be strengthened for motivating all targeted households. Demonstration visits and training of targeted households will be helpful.

This first round report presents results of the first 4-5 months of activity. Not all VMGís had been selected or had started activities. In ADRA out of 20 targeted, only 3 were established. The remaining VMGs should be selected for activities to begin immediately. The area of the VMG is one of the most important issues for conducting necessary activities.

Except in the ADRA Kompong Thom project area, some VMGs fall below the recommended minimum of 600 square meters. This needs to be improved.

Many activities are planned in the early dry season. It is important that irrigation systems are installed to ensure year-round water in all VMGís. The period between the late rainy season and early dry season is best for input production – a lot of vegetable seedlings can be produced. Emphasis should be given for procuring seeds for seedling production and distribution to households.

The number of varieties of vegetables in the home garden and number of varieties of seeds, seedlings and saplings in the VMG needs to be increased.

About 63% of household gardeners had not receive any support. They should be the main target for extension activities in the following rounds. Early dry season is predominantly a vegetable producing season in Cambodia. This may be the season of high involvement of households in gardening.

ROUND REPORT of the

MULTI-BENEFIT FOOD AND HEALTH MODEL PROGRAM

Partners:

Royal Cambodian Government
- Ministry of Agriculture, Forestry and Fisheries (MAFF) and
- Provincial Departments of Agriculture, Forestry and Fisheries/Takeo and Kandal (PDAFF)
- Department of Nutrition, Ministry of Health (MOH)

United States Agency for International Development (USAID)
Adventist Development and Relief Agency (ADRA)
Chamran Cheat Khmer (CCK)
Partners for Development (PFD)

For information and correspondence, contact:

Helen Keller International, Cambodia

Dora Panagides, Country Director
Hou Kroeun, Agriculture Officer

P.O. Box 168
Phnom Penh
Kingdom of Cambodia

Telephone: 855-23-210851
Fax: 855-23-210852
E-mail: hki@bigpond.com.kh

Helen Keller International, Regional Office

Dr. Martin W. Bloem, Regional Director
Dr. Regina Moench-Pfanner, Regional Coordinator
Aminuzzaman Talukder, Regional Agriculture Advisor
Dr. Saskia de Pee, Regional Nutrition Research Advisor

P.O. Box 4338
Jakarta Pusat
Indonesia

Telephone: 62-21-5263872
Fax: 62-21-5250529
E-mail: mwbloem@compuserve.com

Projects carried out by HKI-Cambodia in collaboration with the above-mentioned partners are funded by the United States Agency for International Development (USAID).

This publication was made possible through support by the USAID/Cambodia Mission under the terms of Award No. 442-G-00-95-00515-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the US Agency for International Development.