MULTI-BENEFIT FOOD AND HEALTH MODEL PROGRAM

ROUND REPORT

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Monitoring the activities of village model gardens and household gardens

The goal of the Helen Keller International (HKI) homestead food production and nutrition education program in Cambodia is to sustainably reduce vitamin A deficiency through improved production and consumption of vitamin A-rich foods. Homestead food production is not only important because of its impact on vitamin A deficiency, it also increases household food security, empowers women, and contributes to poverty alleviation.[1,2] The objectives and structure are described in more detail in previous documents.[3,4] This program currently collaborates with seven NGOs: Adventist Development and Relief Agency (ADRA), Chamran Cheat Khmer (CCK), Khmer Women's Cooperation for Development (KWCD), Partners for Development (PFD), Southeast Asian Outreach (SAO), Village Support Group (VSG), and Women's Service Organization (WOSO). And, the program is operational in the following provinces: Takeo, Kratie, Kampong Thom, Kampong Speu, Kandal, Kampong Som, Battambang and one urban slum area of Phnom Penh. The program started in June 1999 and here we report on the status of village model gardens and household gardens in the period November 2000 – February 2001.

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METHODOLOGY

The methodology used for collecting monitoring data is described in more detail in *Round Reports 1* and *2*.[3,4] Two different questionnaires were used, one for village model gardens (VMG) and one for household gardens. The monitoring system collects data every four months. The first round of data collection was conducted during the first three months of the program at a time when very few households had begun gardening activities; 680 households were interviewed during that round of data collection (July-September 1999).

Since program initiation, a total of 229 village model gardens (VMGs) and 12,543 household gardens have been established. In the fifth round of data collection (November 2000 – February 2001), 924 households were interviewed, which were associated with 133 VMGs. Some of these households started homestead food production about one and a half years prior to data collection (cohort 1) while others only initiated activities 5-8 months prior to data collection (cohort 2). Cohort 1 began activities in July 1999 and cohort 2 in July 2000. Cohort 2 households also include households from both 'old' and 'new' partner NGOs.

The VMG monitoring form collects information about VMG area, number of varieties of seeds, seedlings and saplings present in the VMG, quantity of seeds/seedlings/saplings produced and income generated. The household garden monitoring form collects information about type of garden, number of varieties of fruits and vegetables grown, quantity of fruits and vegetables sold, seed source, garden caretaker, and consumption frequency per week of fruits and vegetables.

Findings about the HKI/Cambodia homestead food production program

- In the second year of the HKI homestead food production program, VMG dropout was only 2% and household garden dropout only 0.4%.
- Data from this program in Cambodia show that availability/access to vitamin A-rich foods is a limiting factor to consumption. When availability is increased, consumption is also increased.
- Monitoring data show that, since program start-up, consumption frequency per week of vegetables has increased in children 12-59 months of age.
- More than 90% of income generated from household gardens is used to purchase other foods.
- Community-based support services like VMGs are important for providing technical inputs to housholds which, in turn, are important for ensuring improved and year-round gardening practices.

Source: *HKI Round Reports*

RESULTS

Village Model Gardens

Table 1 describes the status of village model gardens from the first and second cohort of participants. The first cohort having initiated activities in July 1999 (n=26) and the second cohort in July 2000 (n=107). The number of varieties of vegetables, seeds and seedlings produced and sold in the first cohort is more than in the second. This is to be expected as the new VMGs were still being established and some were not yet at the stage where seed/seedling production could have even occurred. The income generated in both cohorts is quite impressive. It is a major increase compared to previous rounds.[5] Thus, given the still early stage of cohort 2 VMGs, significant progress has been made compared to the stage where cohort 1 VMGs were at the same point in time. At about 5-8 months from project initiation, cohort 1 VMGs had a median income from sale of produce, in four months, of 20,000 Riels.[4] Thus, second cohort VMGs are making five times more money at the same point in time. The main reason for this is because of the lessons learned by HKI during the first year of program implementation and applying those lessons to improve program impact. Such lessons include the importance of proper selection of VMGs, land area for VMGs and irrigation-related issues.

Table 1. Area, production, amount of produce sold, and income of VMGs in the four months preceding data-collection. *Values are median (min – max)*

	Cohort 1(n=26)	Cohort 2 (n=105-107)
Area (sq.meters)	875 (600-5000)	1000 (600-7500)
Number of varieties produced		
Vegetables	9.5 (0-22)	7 (0-20)
Seeds	4.5 (0-11)	2 (0-9)
Seedlings	4 (0-11)	3 (0-13)
Number of Varieties sold		
Vegetables	8 (0-22)	4 (0-20)
Seeds	3.5 (0-11)	0 (0-7)
Seedlings	2.5 (0-8)	0 (0-9)
Amount of money received from selling vegetables/ seeds/seedlings/saplings (in Riels/4 months)	165,000 (0-1,320,000)	100,000 (0-2,000,000)

Note: Exchange rate $1 = 3,890 Riels

Household Gardens

One of the objectives of the program is to promote year-round production of a variety of vegetables and fruits. **Figure 1** compares gardening practices between the first and second cohort of households. It is evident that those households that have been participating the longest in the program also had the best gardening practices; nearly 70% of cohort 1 households had an improved garden type (i.e. mixed/ medium or year-round) while nearly 45% of cohort 2 households had the same. But, second cohort households had achieved a lot after only 5-8 months of program initiation. It can be seen that about 15% and 25% of first and second cohort households respectively did not have a garden at the time of data collection. The main reason for first cohort

Figure 1. Gardening practices among first and second cohort households

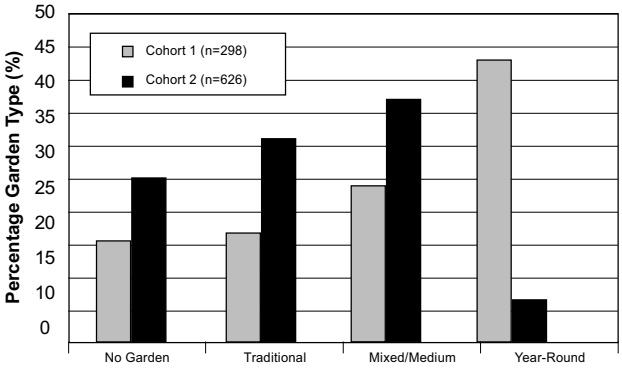
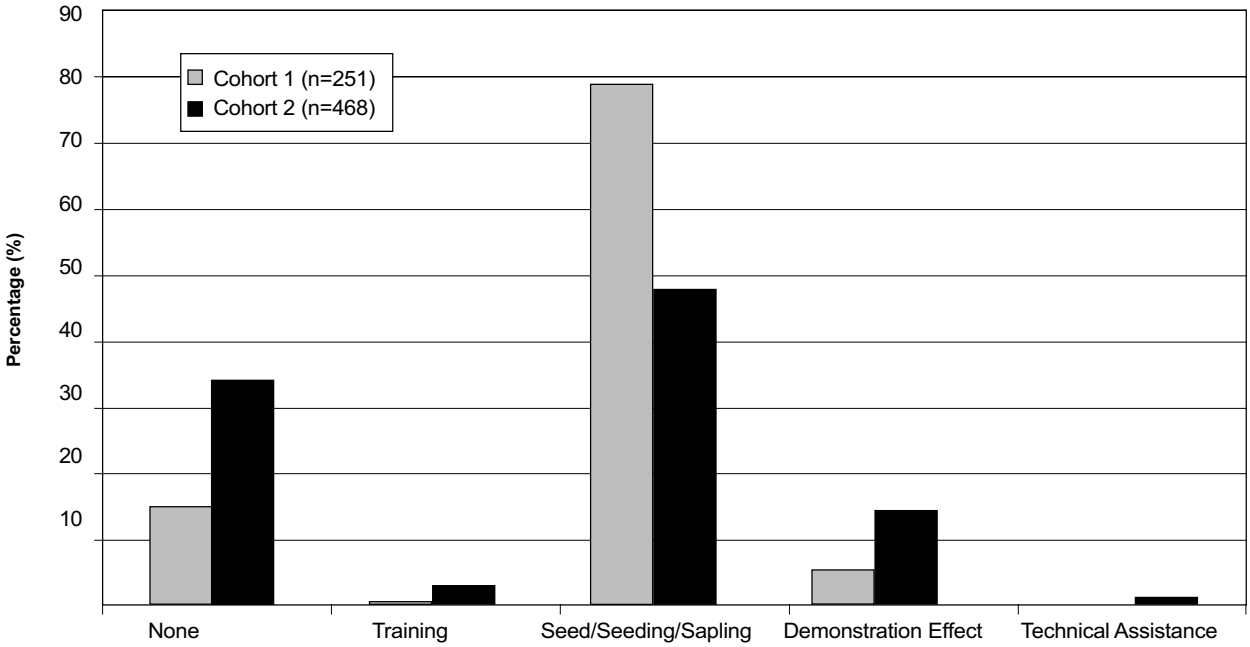


Figure 2. Main support from Village Model Gardens for first and second cohort homestead gardens



households could be because of recent floods that ruined gardens; for those second cohort households it could be because NGOs had not yet started household food production activities at that time.

Figure 2 shows the main support household gardeners received from the VMG. As expected, the first cohort households are receiving more support from VMGs, in the form of seeds/seedlings and saplings, than second cohort households – 79% vs. 48% respectively. At the same time, support for seeds/seedlings and saplings make up the greatest proportion of support from the second cohort. Again, this is quite impressive since VMGs have still not had a great chance to produce these outputs. NGOs in the second cohort are doing an excellent job of coordinating activities between VMGs and households. It appears that households are aware of the role of the VMG and are seeking their support for inputs. However, there are still more than 30% of new households that received no inputs from VMGs and emphasis therefore needs to be placed on those areas where the linkages need to be strengthened.

Table 2 shows production and consumption of vegetables and fruits by cohort and garden type. It can be seen that median production, consumption and income earned are not significantly different between the cohorts. The main reason for this is that there was severe flooding between June – December 2000 that affected many households in cohort 1 and fewer households in cohort 2. During the first year of the program, irrigation issues were a problem for households and thus NGOs mainly selected lowland areas for household food production activities and flood prevention measures were not properly considered. However, it was soon evident that those households easily suffered from flooding. Based on that experience, in the second year, households less prone to flooding were selected. At the same time, more flood-prevention techniques were implemented such as raised or hanging beds, sheltered beds and the use of more water resistant crops. Qualitative information indicates that in areas where flooding was severe, households participating in the HKI program did much better in maintaining their gardens than other households (i.e less crop destruction was observed among HKI program beneficiaries).

Table 2 also shows that with an improved garden type, production, consumption and income are also improved. This once again emphasizes the importance for improved garden types among participating households.

Other issues

While fruits and vegetables contribute to improving vitamin A status, it has now also been acknowledged that the bioavailability of vitamin A from fruits and vegetables is much lower than what has been assumed and that they therefore play a smaller role in combating vitamin A deficiency disorders. In order to maximize the contribution of homestead food production to combating vitamin A deficiency disorders, it is therefore important to also produce some animal foods by keeping small animals, poultry and/or fish, and to both strengthen the indirect ways through which homestead food production can contribute to improving vitamin A status, such as by generating income that is used to purchase other high-quality foods,[6] as well as use its infrastructure for delivering other health interventions.

For the above reasons, HKI/Cambodia plans to expand its homestead food production activities to include an animal husbandry component. The animal husbandry component will be phased in by starting off as a pilot project among selected households. This will be done through the existing HKI homestead food production program. As the farming system for household food production is already in place, adding this component will not be difficult. In fact, many rural Cambodian households already have some poultry, egg production or other animal raising activities in place.

Table 2. Production and consumption of vegetables and fruits by cohort and garden type.
Values are median (min-max)

Cohort	Garden type	Median production in last month (kg)		Median gross hh consumption in last 3 days (kg)		Median income earned in last 4 months (in Riels)
		Veg.	Fruit	Veg.	Fruit	
1	Traditional	11	20	2.5	1	5,000
(n=249-251)		(0-170)	(0-520)	(0-63)	(0-16)	(0-670,000)
	Mixed/Medium	23	15	3.5	2	9,000
		(0-530)	(0-269)	(0.3-10)	(0-10)	(0-515,000)
	Year Round	26	17	3	2	14,650
		(0-1210)	(0-400)	(0-308)	(0-15)	(0-1,000,000)
2	Traditional	13	15	2.5	2	0
(n=466-469)		(0-900)	(0-145)	(0-14)	(0-11)	(0-700,000)
	Mixed/Medium	27	20	2.6	2	20,000
		(0-2600)	(0-1000)	(0-10)	(0-23)	(0-1,500,000)
	Year Round	45	34	2.5	2.6	50,000
		(0-700)	(0-200)	(0-15)	(0-12)	(0-1,500,000)

CONCLUSIONS & RECOMMENDATIONS

Comparisons between first and second cohort NGOs show that activity in the VMGs and household gardens are not significantly different, even though there is a year difference in operations between the two cohorts. One of the main reasons for this was flooding. Those areas hit hardest by floods were those in cohort 1 areas. Only about 1% of households in cohort 2 areas were affected by the floods. In some areas, flooding is almost impossible to avoid. However, interventions to avoid serious loss of crops should be implemented, such as raised or hanging beds, sheltered beds and the use of more water resistant crops. At the same time, garden locations in flood-prone areas should be examined properly before program initiation so that efforts are not jeopardized.

Despite this setback for many rural Cambodians, there has been a less than 1% dropout for household gardens and about a 2% dropout for VMGs among both cohort 1 and cohort 2 beneficiaries. This is very low, indicating that selection by NGOs has been excellent. This was only possible because of the lessons learned during the first year of program implementation, which could only be learned because of the regular monitoring of activities, which is an essential component of HKI's homestead food production program (see also ref 1). Low dropout is also a good indicator that households find gardening worthwhile for their overall food security and general livelihood, and that they can bear the required efforts.

Activities during the second year of implementation are very good. NGOs have been able to identify VMGs that have sufficient space for gardening activities (minimum of 600 square meters) and these VMGs are already providing support to households. Efforts now need to focus on providing support to the household gardeners that had not yet established a garden and on improving linkages between households and VMGs in all program areas.

Improving the garden type is also important, especially since evidence indicates that with improved garden type, there is increased consumption.[1,7,8] Because of this, NGOs should spend more time working with household gardeners on this and, try to determine what the constraints to shifting to improved garden practices may be.

In addition to improving the production and consumption of vitamin A-rich fruits and vegetables, HKI will now work in targeted areas with existing NGO partners to improve the production and consumption of animal foods, particularly poultry and eggs, because these are good sources of micronutrients. This is important in order to maximize the contribution of homestead food production to combating vtiamin A deficiency disorders and other micronutrient deficiencies.

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ROUND REPORT of the

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