Contribution of Homestead Food Production to improved household food security and nutrition – Lesson learned from Asia and Africa

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Today's Presentation

I. Background
II. How to design field programs to better link food security, agriculture & nutrition.
III. Evolution of HFP program
IV. Key findings until now
V. Sustainability of HKI's HFP program
V. Future priorities and challenges
VI. Research component

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Food Security

- Food security is defined as having four main components: availability, access, utilization, and stability
- Families and individuals require a reliable and consistent source of quality food, as well as sufficient resources to purchase it **(FOOD)**
- People must also have the knowledge and basic sanitary conditions to choose, prepare, and distribute food in a way that results in good nutrition for all family members. **(CARE and HEALTH)**
- Finally, the ability to access and utilize food must remain stable and sustained over time.

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Program design

Most importantly need to ensure that **all three** key elements of FOOD, HEALTH and CARE are addressed (will later describe how HKI addresses these in our Homestead Food Production model)

Need to get agriculture and health to work *hand-in-hand* for better nutrition

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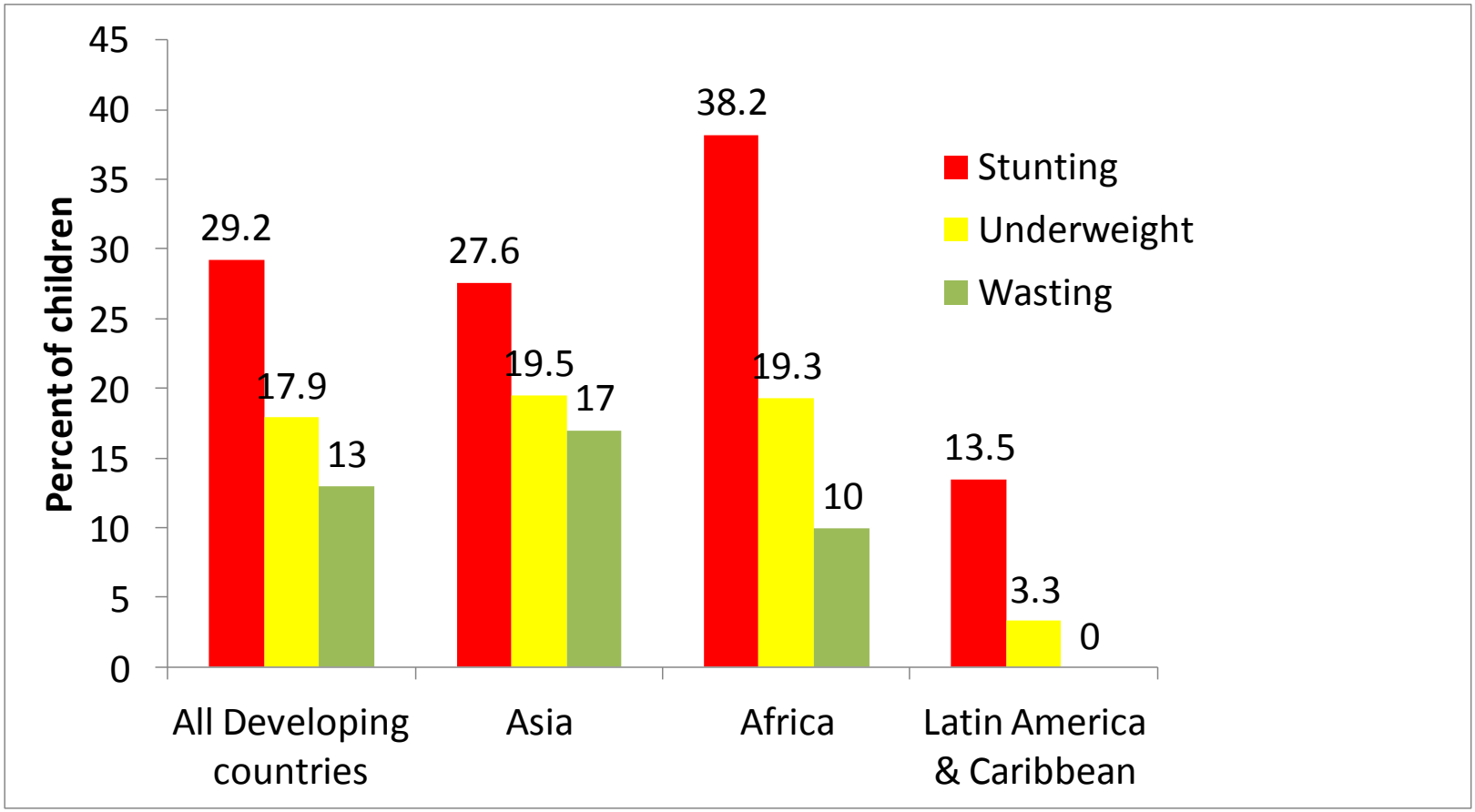
Undernutrition in Children by region



Source: A review of Nutrition Policies, WHO 2010. Wasting figures are from Tracking progress on child & maternal nutrition, UNICEF, 2009

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80% of developing world's stunted children live in 24 countries – 10 of them in Asia

Ranking	Country	Stunting prevalence (%)	Number of children who are stunted (thousands, 2008)	Percentage of developing world total (195.1 million)
1	India	48	60,788	31.2%
2	China	15	12,685	6.5%
3	Nigeria	41	10,158	5.2%
4	Pakistan	42	9,868	5.1%
5	Indonesia	37	7,688	3.9%
6	Bangladesh	43	7,219	3.7%
7	Ethiopia	51	6,768	3.5%
8	Democratic Republic of the Congo	46	5,382	2.8%
9	Philippines	34	3,617	1.9%
10	United Republic of Tanzania	44	3,359	1.7%
11	Afghanistan	59	2,910	1.5%
12	Egypt	29	2,730	1.4%
13	Viet Nam	36	2,619	1.3%
14	Uganda	38	2,355	1.2%
15	Sudan	40	2,305	1.2%
16	Kenya	35	2,269	1.2%
17	Yemen	58	2,154	1.1%
18	Myanmar	41	1,880	1.0%
19	Nepal	49	1,743	<1%
20	Mozambique	44	1,670	<1%
21	Madagascar	53	1,622	<1%
22	Mexico	16	1,594	<1%
23	Niger	47	1,473	<1%
24	South Africa	27	1,425	<1%
				tal: 80%

Note: Estimates are based on the 2006 WHO Child Growth Standards, except for the following countries where estimates are available only according to the previous NCHS/WHO reference population: Kenya, Mozambique, South Africa and Viet Nam. All prevalence data based on surveys conducted in 2003 or later with the exception of Pakistan (2001–2002). For more information on the prevalence and number estimates, see the data notes on page 119.

Source: Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS) and other national surveys, 2003–2008.

Source: Tracking progress on child & maternal nutrition, UNICEF, 2009

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10 countries account for 60% of Global wasting burden and 5 are in Asia

Country	Moderate and severe	
	Numbers (thousands)	Prevalence (%)
India	25,075	20
Nigeria	3,478	14
Pakistan	3,376	14
Bangladesh	2,908	17
Indonesia	2,841	14
Ethiopia	1,625	12
Democratic Republic of the Congo	1,183	10
Sudan	945	16
Egypt	680	7
Philippines	642	6

Wasting = weight/height < -2SD from median W/H reference pop.

Source: Tracking progress on child & maternal nutrition, UNICEF, 2009

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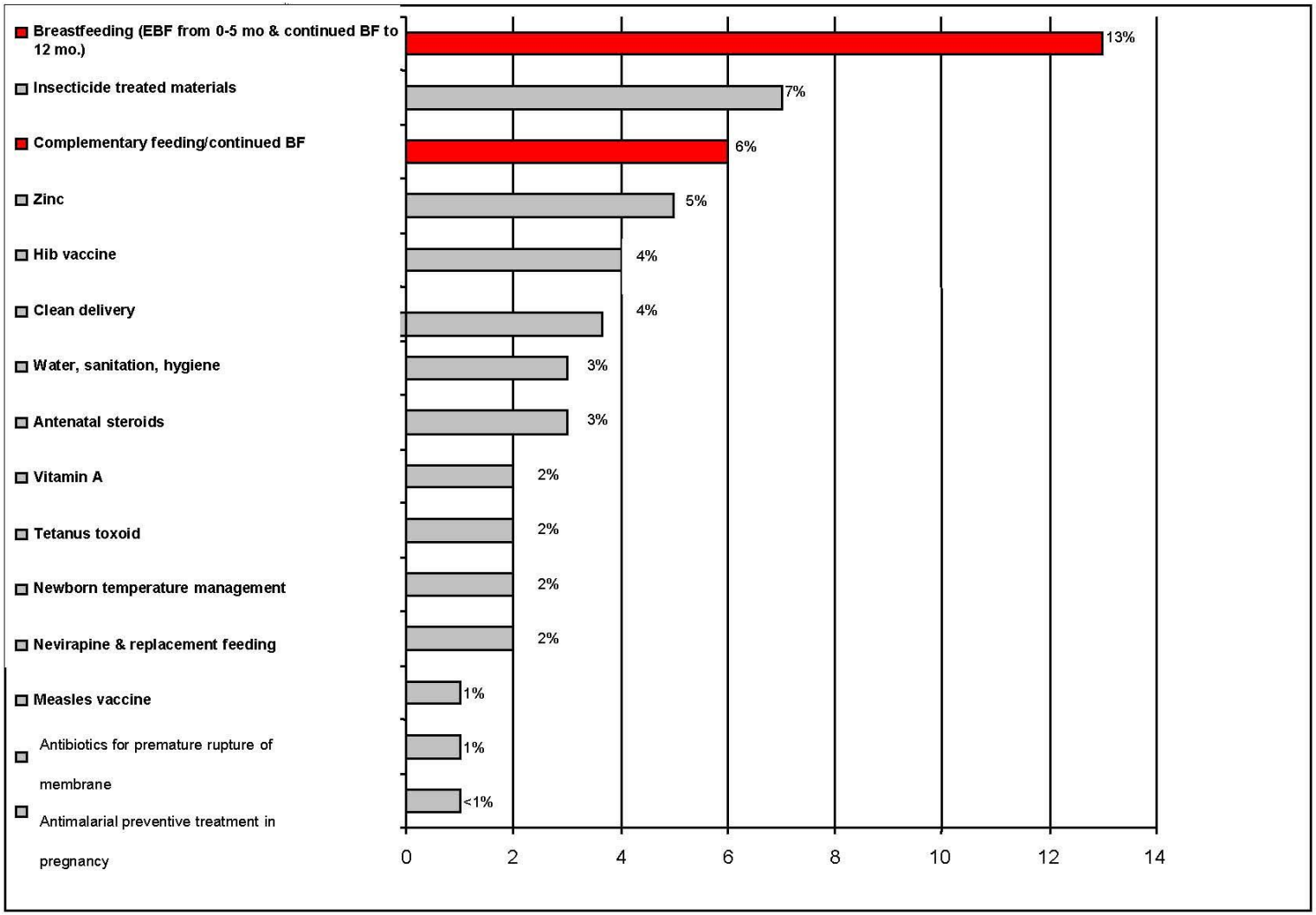
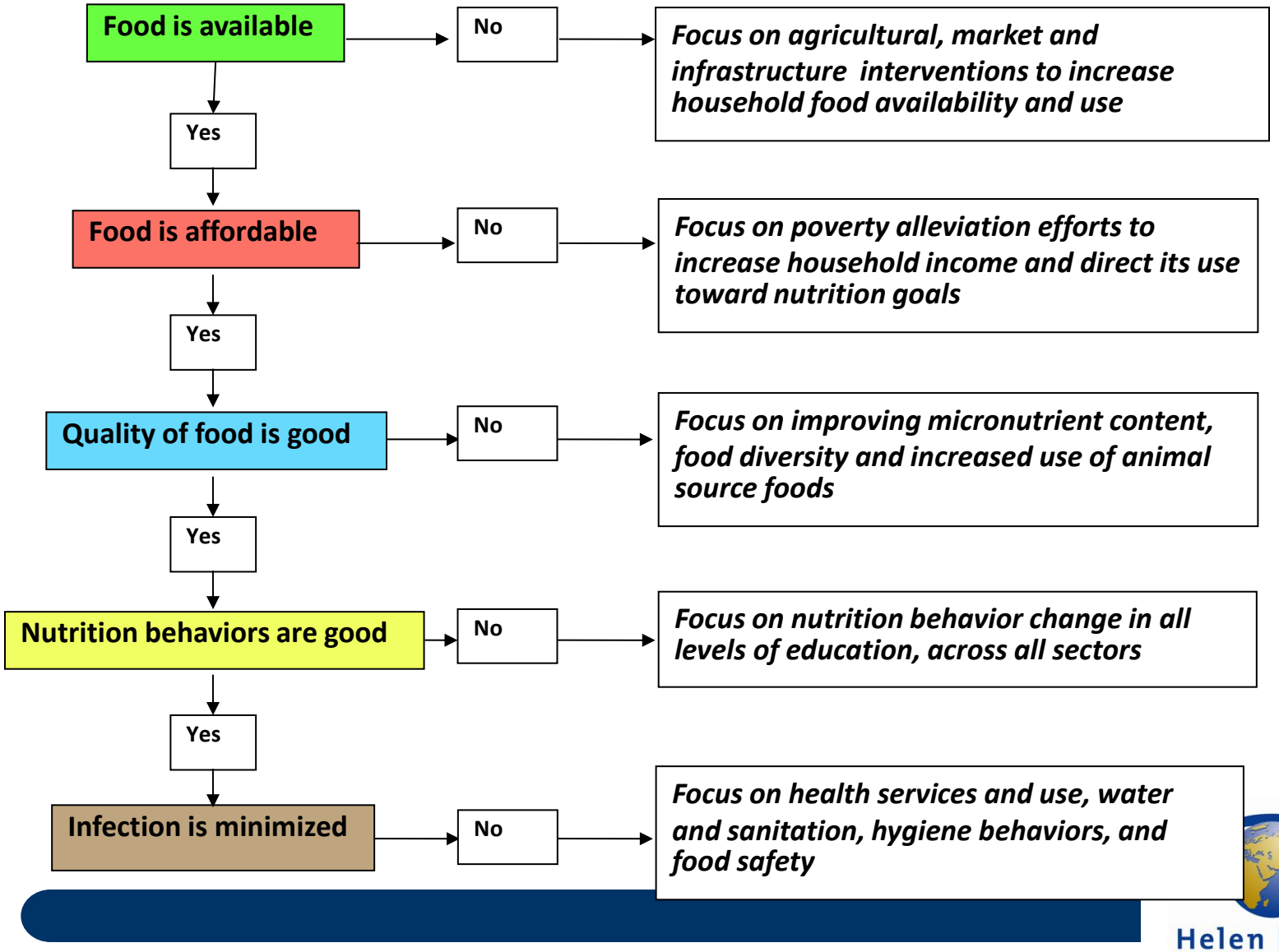
Interventions to reduce child mortality (Lancet, 2003)



Setting the right priority: Example



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Pilot Home Gardening Project initiated in Bangladesh

- Initiated the first pilot project in 1990 to improve dietary diversity and micronutrient status, particularly vitamin A
- Worked with 1000 marginal and landless families represented by women
- Based on the findings from the pilot project, eventually scaled up throughout the country to cover 210 sub-districts (one third of the country)

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What did we learn?

Home Gardening:

- Increased availability of vitamin A and other MN rich foods and their consumption – *Talukder et al, Food Nutr Bull 2000;21:165-172*
- Diversification is important for increasing consumption and possibilities to increase varieties of food - *Bloem et al, Eur J Clin Nutr 1996;50:s62-s67*
- Ensures year round availability - *Talukder et al, Food Nutr Bull 2000;21:165-172*
- Increased family income and women's participation in decision making – *Bushamuka et al, Food Nutr Bull 2005;26:17-25*

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HKI expanded concept of *Home Gardening* to *Homestead Food Production*

Study results showed lower bioefficacy of β-carotene from plant foods than previously assumed *(West et al. 2002, J. Nutr. 132: 2920S–2926S)*

HKI added animal foods into food-based programs to increase micronutrient intake among women and children *(HKI Nutrition Bulletin Jan 2003, APRO)*

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HFP to date…

- HKI has worked in partnership with > 200 NGOs and GOs
- Cumulative coverage is more than one million households and 5.5 million beneficiaries over 20 years of implementation
- Women are primary farming beneficiaries
- Nutrition education component by incorporating a strong nutrition behavior change element based on the *Essential Nutrition Actions (ENA)* framework
- Countries: Bangladesh, Nepal, Cambodia, Vietnam Indonesia & Philippines and 4 countries in Africa

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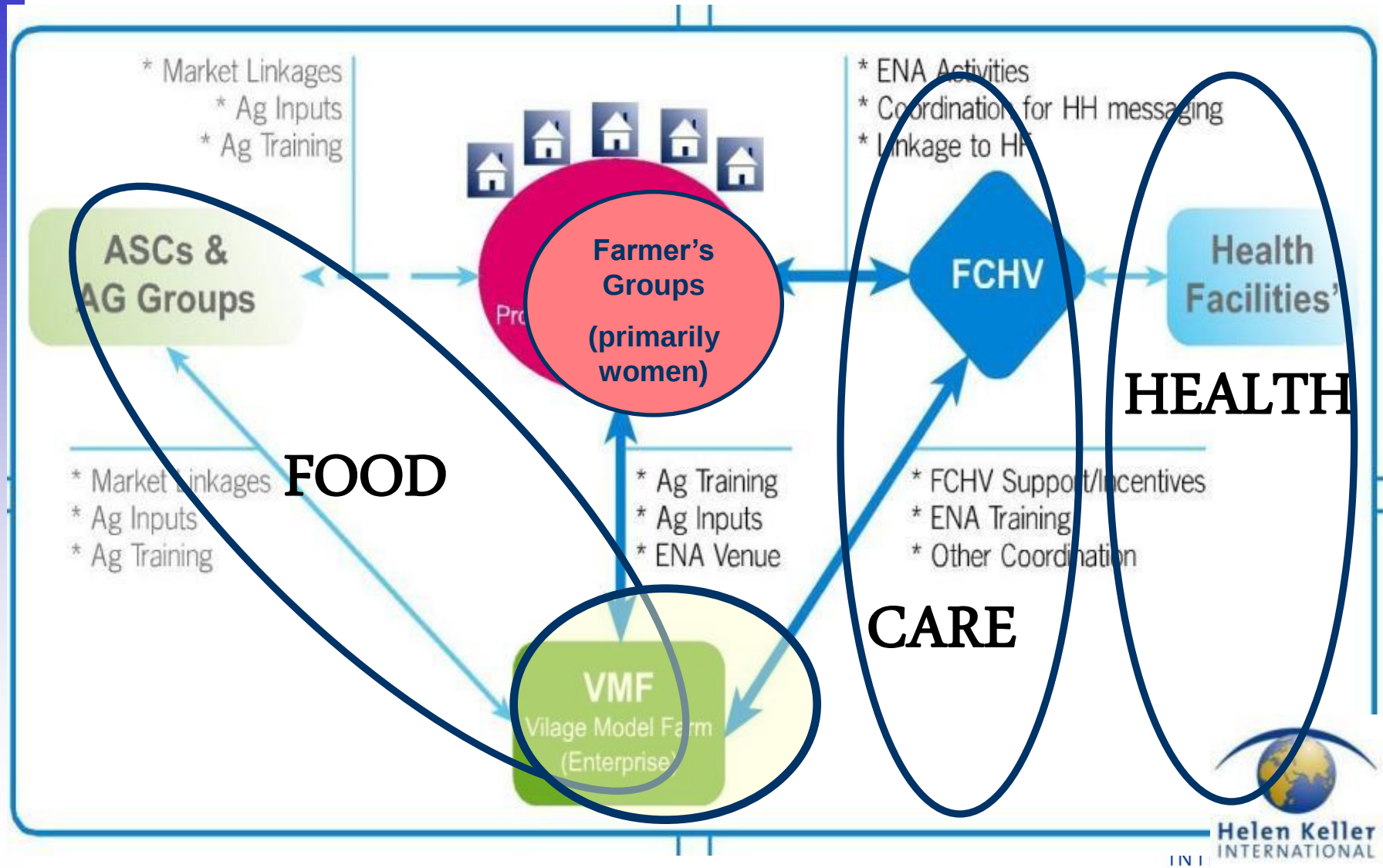
HKI's HFP-Linking Agriculture and Health FOOD-CARE-HEALTH components…



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Village Model Farm

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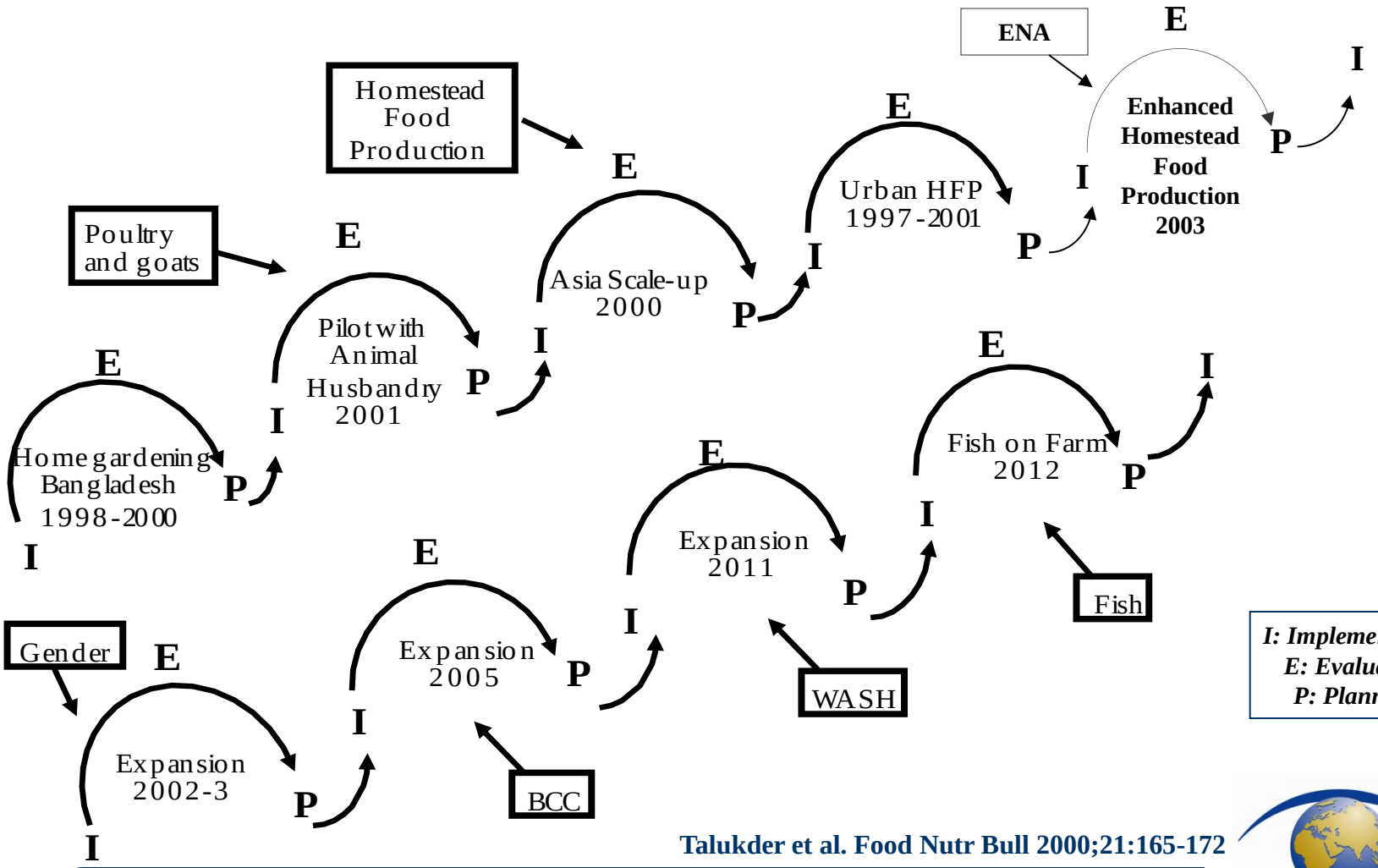
Evolution of the Homestead Food Production Program



Talukder et al. Food Nutr Bull 2000;21:165-172

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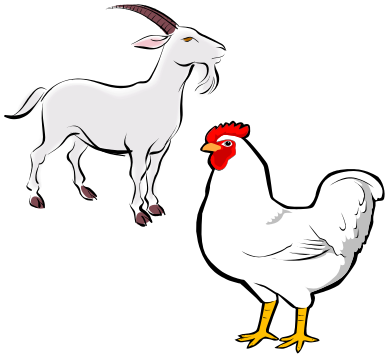
1990

2001

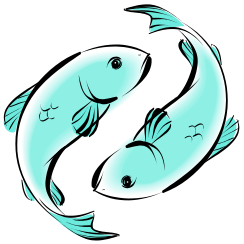
2003-2014

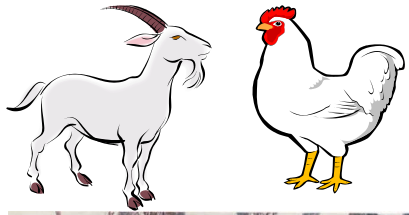
Homestead Gardening (HG)

Homestead Food Production (HFP)



Enhanced Homestead Food Production (EHFP)





BCC

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Type of homestead garden

Traditional

Improved

Developed

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Poultry, small animals and Fish

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IEC/BCC materials for nutrition education and behavior change

Posters and leaflets

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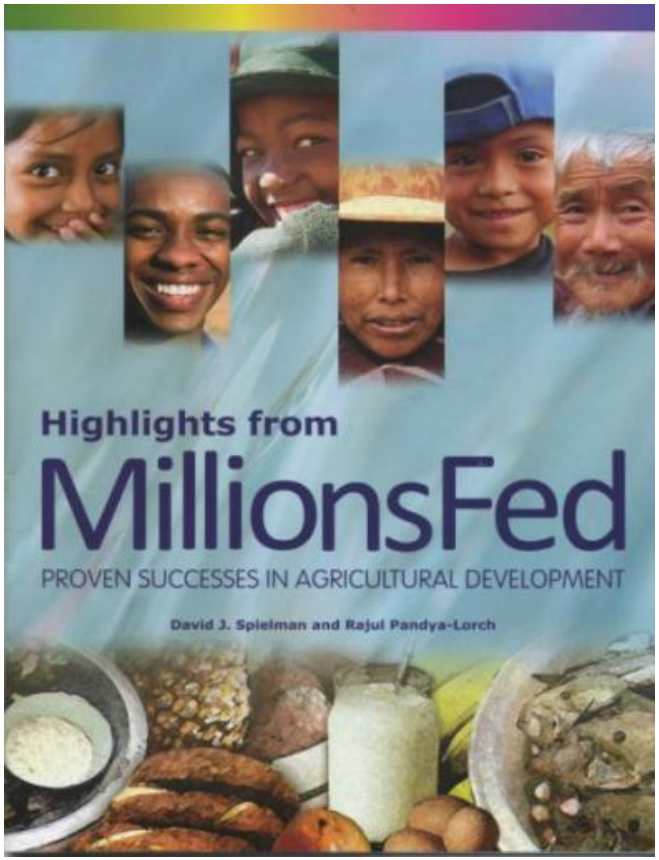

Regarding HKI's HFP program in Bangladesh, IFPRI reports (2009):

"...there is sufficient evidence to conclude that HFP is improving household food security, and in some cases nutrition and other intermediary outcomes"

IFPRI Evaluation under Millions Fed review: Improving diet quality and micronutrient nutrition: Homestead food production in Bangladesh by Iannotti, Lora; Cunningham, Kenda; Ruel, Marie. 2009. IFPRI Discussion Paper 928.

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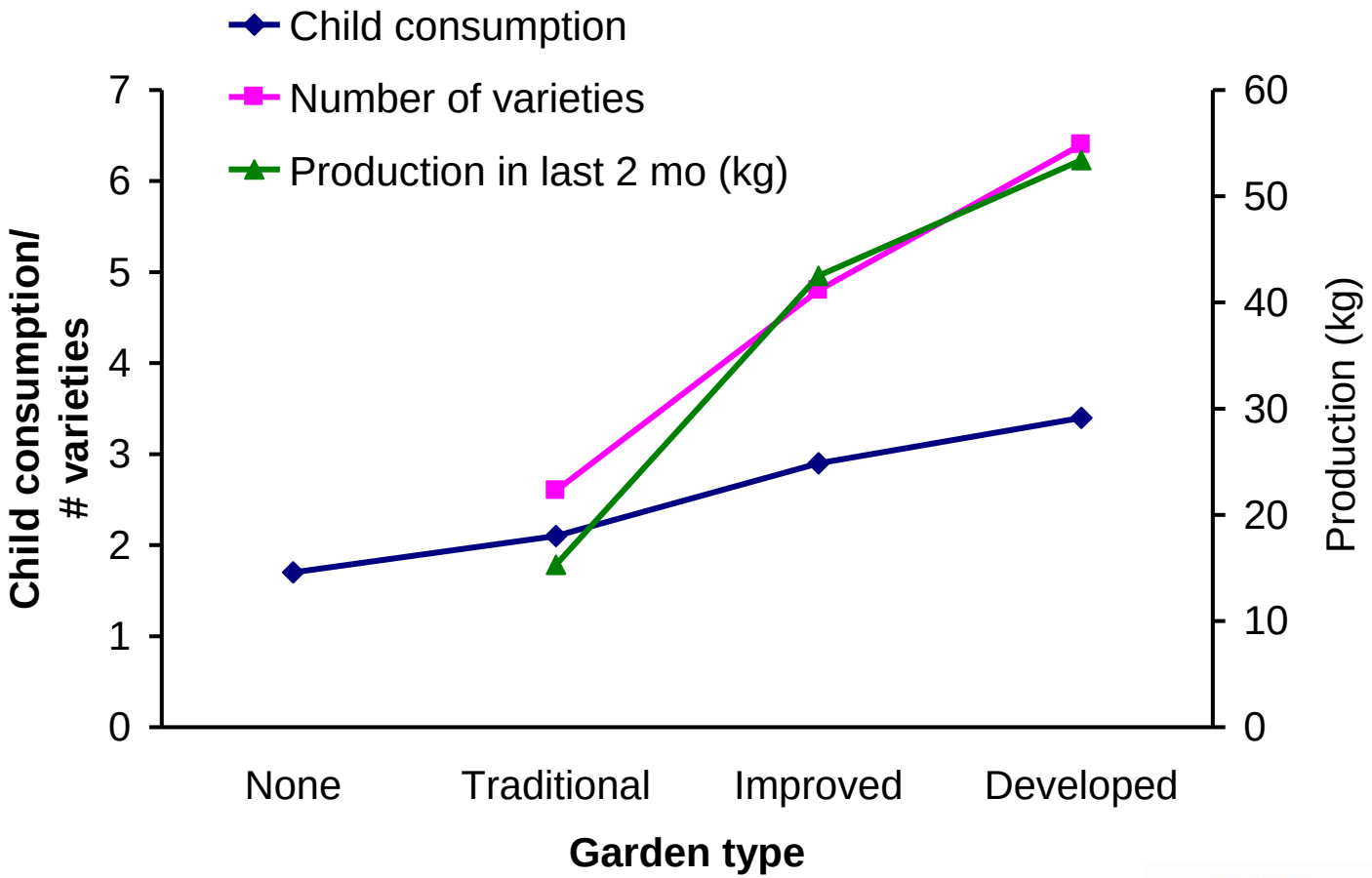
Production and consumption of vegetables by type of garden (*n*=10,107), Bangladesh

Crop diversity, production and consumption increased



Source: Talukder et al. Food Nutr Bull 2000;21:165-172

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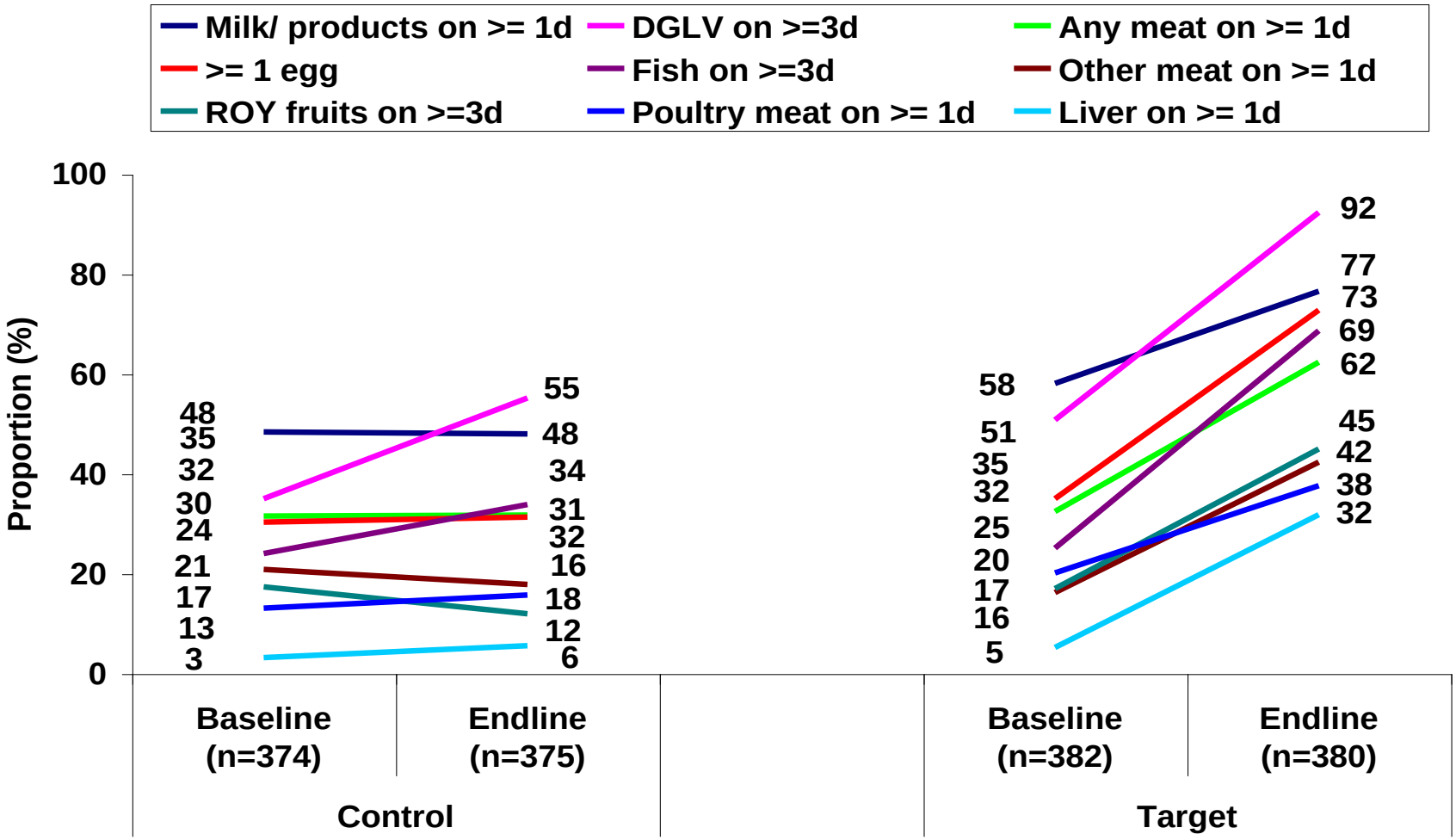
Consumption of various food items in the previous week



Source: Abstract and MN Forum meeting presentation 2009

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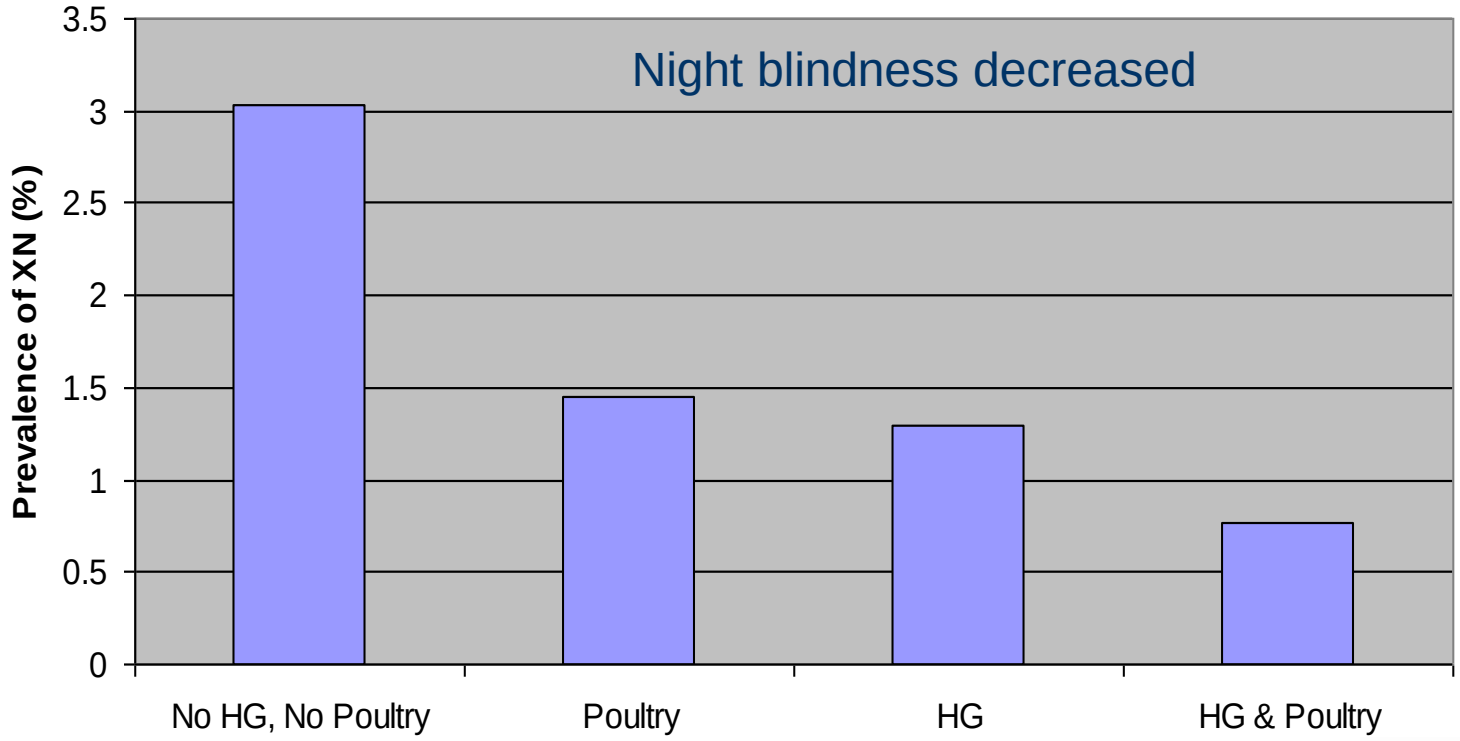
Prevalence of nightblindness among underfives (12-59 mo) that had not received VAC by home garden and poultry ownership (n=4296) *(Kiess et al, APHA abstract, 2003)*



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Evidence from Bangladesh that gardening reduces risk of vitamin A deficiency

Bangladesh National Vitamin A Survey

- Among non-VAC recipients, children living in households without garden are 2.2 times more likely to be night blind
- Proportion with low serum retinol lower among children living in households with a garden
- Prevalence of VA deficiency among women lower in households with garden

Source: National VA survey report, IPHN/HKI Bangladesh 2000

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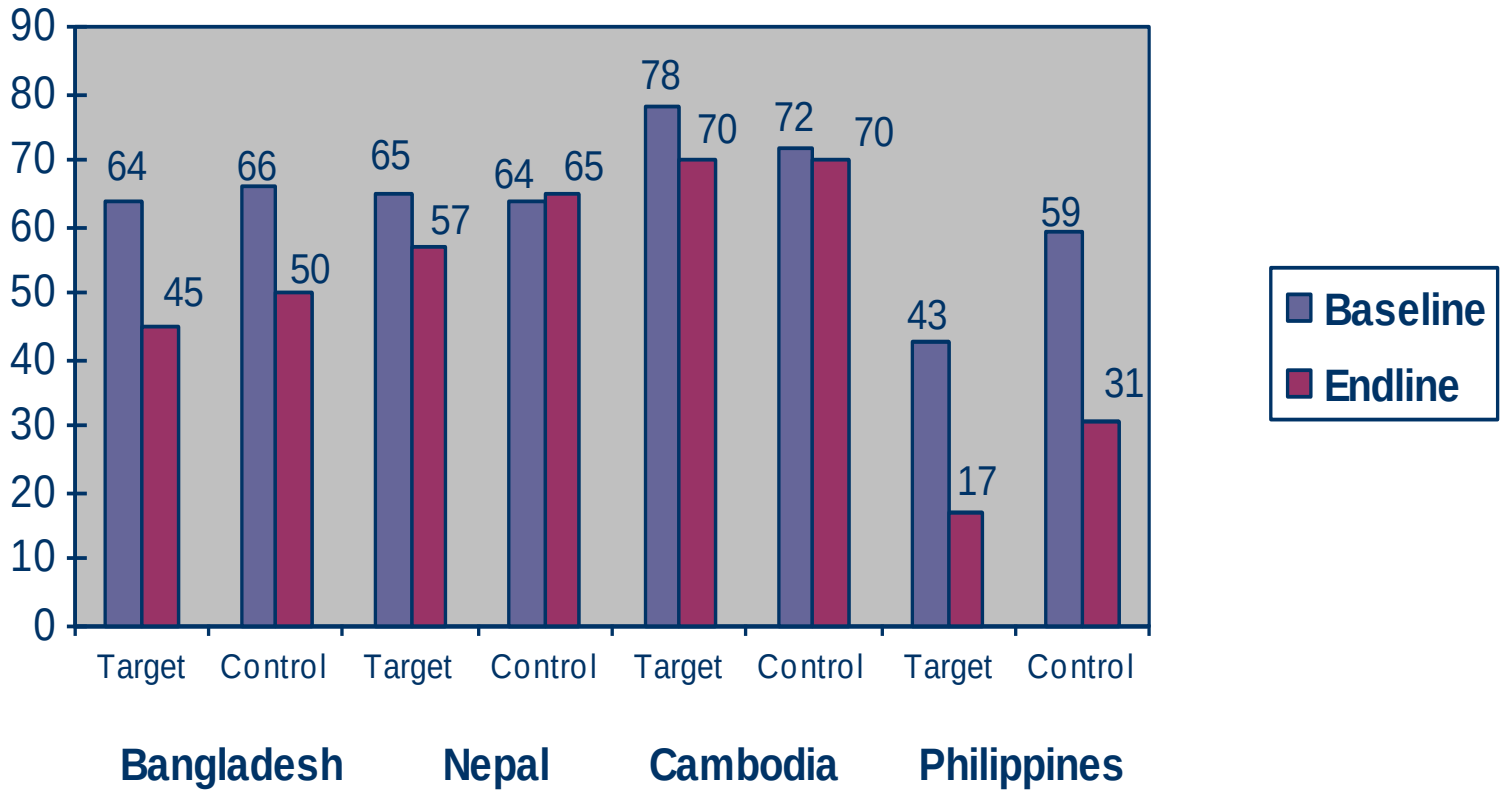
Anemia prevalence among children aged 6-59 mo from program and control households in Bangladesh, Cambodia, Nepal and Philippines



Source: Talukder et al. FACTS Report 2010

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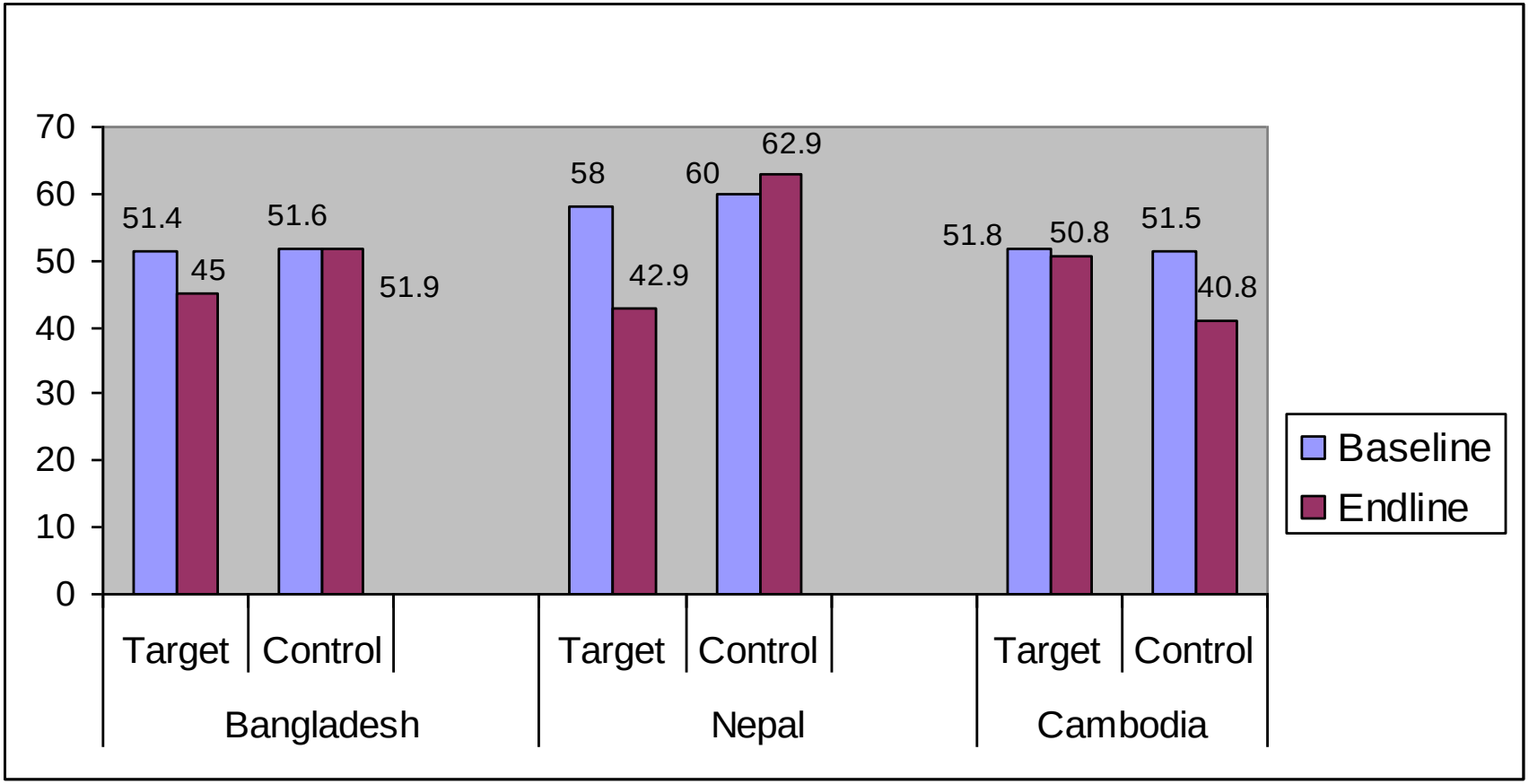
Anemia prevalence among non-pregnant women from program and control HHs in Bangladesh, Cambodia and Nepal



Source: Talukder et al. FACTS Report 2010

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Sustainability of HKI's HFP Program

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Income increases

FIG. 1: Percentage of households that generated garden income ($n = 2160$) and their median income ($n = 1018$) in the three-month period prior to data collection

Source: Bushamuka, V. N. et. al. FNB 2005

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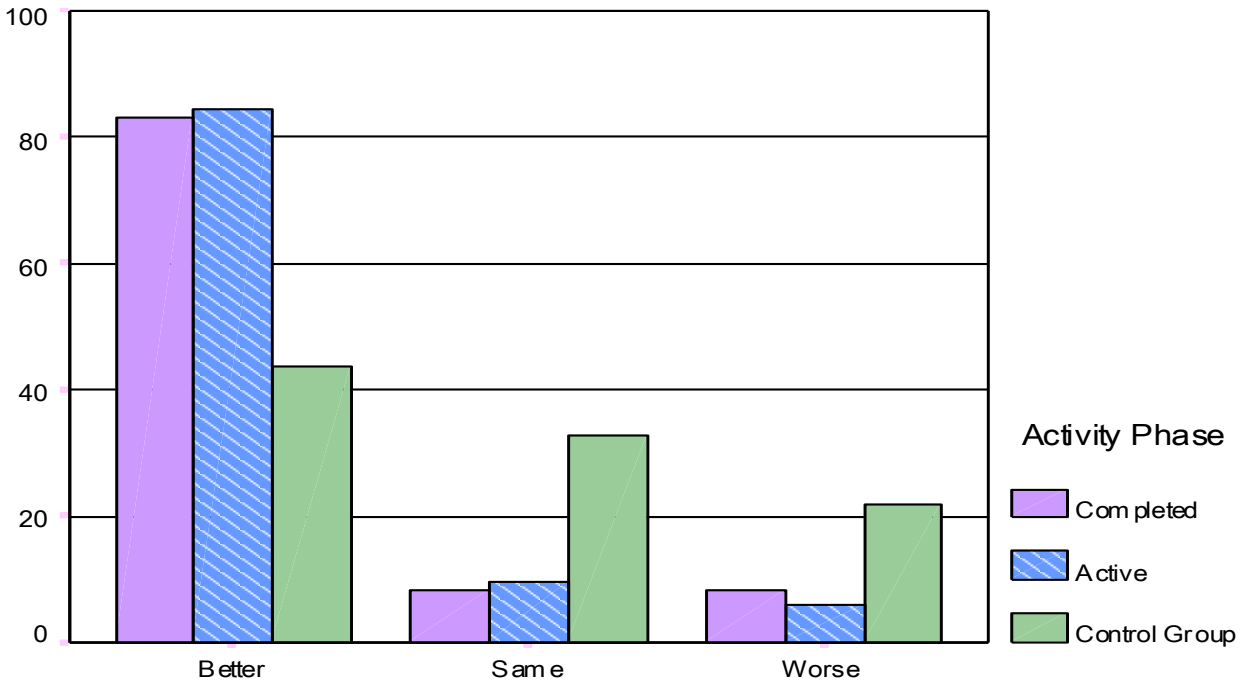
Current economic status of household as perceived by beneficiary and control HHs compare to status before the implementation of home gardening program



Current Household Economic Situation vs. Before NGNESP

Source: Bushamuka, V. N., S. de Pee, A. Talukder, L. Kiess, D. Panagides, A. Taher, and M. Bloem. 2005. Impact of a homestead gardening program on household food security and empowerment of women in Bangladesh. *Food and Nutrition Bulletin 26 (1): 17–25.*

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Women influence level in the household decision-making

Activity	Program Phase	Women Caretakers (%)					
		Influence level before program			Current level of influence		
		None	Some	Full	None	Some	Full
Participation in group meetings	Completed	66.8	24.6	8.6	16.6	32.2	51.2
	Active	89.7	8.3	2.0	3.8	63.4	32.8
	Control	83.6	12.4	4.0	57.6	24.0	18.3
How to use the land	Completed	44.3	45.1	10.6	7.8	57.6	34.5
	Active	62.5	33.7	3.8	13.2	59.9	26.9
	Control	66.1	26.9	7.0	43.2	40.8	16.0
Making small household purchases	Completed	24.9	61.0	14.1	2.2	48.7	49.1
	Active	35.0	58.3	6.7	5.4	52.9	41.7
	Control	40.0	52.4	7.6	16.9	61.3	21.8
Making large household purchases	Completed	47.7	41.2	11.1	16.1	60.6	23.3
	Active	59.0	35.2	5.8	21.9	58.4	22.7
	Control	68.3	25.2	6.5	52.5	35.2	12.3

Source: Bushamuka, V. N. et. al. FNB 2005

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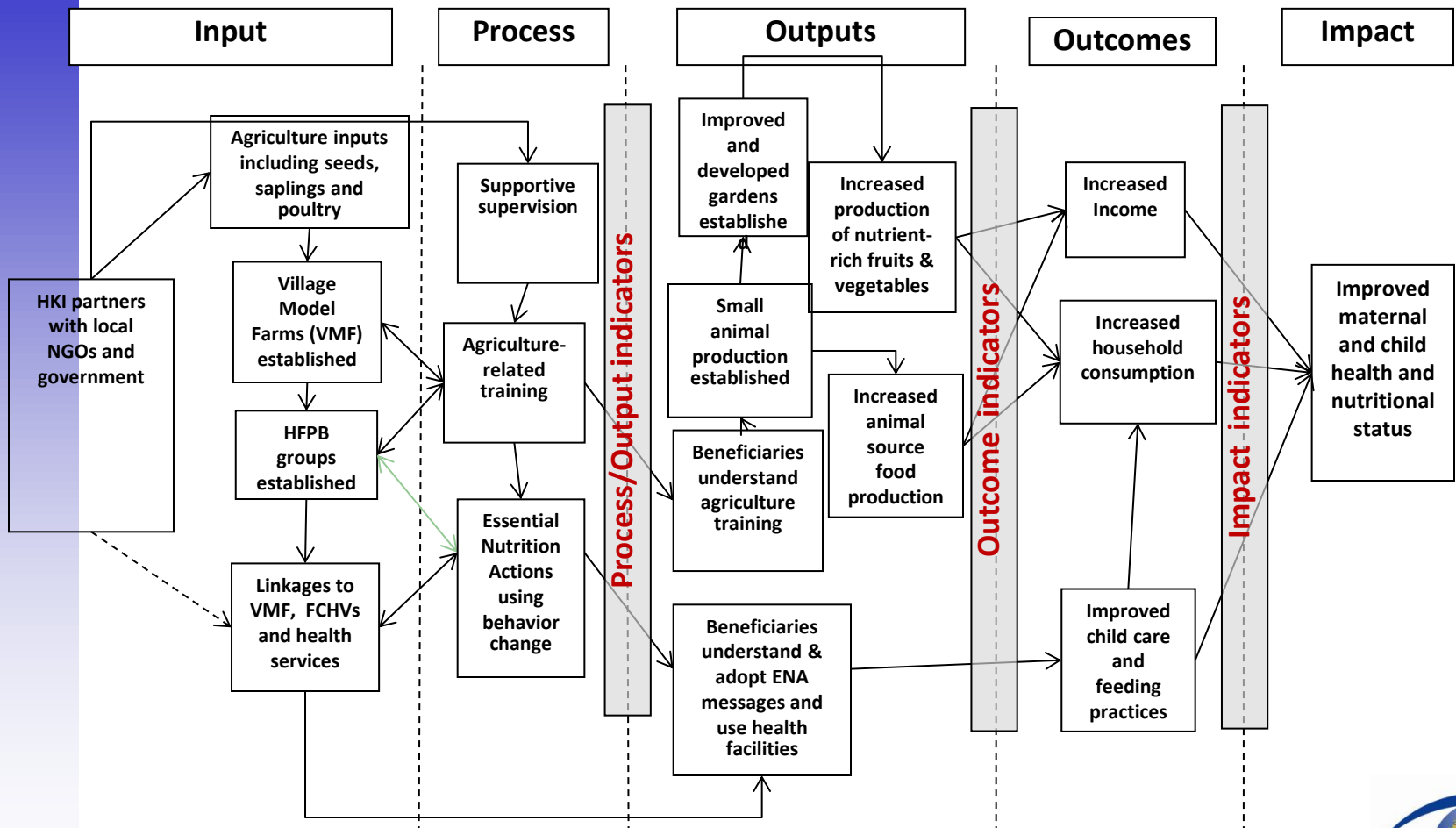
HKI's EHFP Model

Program Impact Pathways



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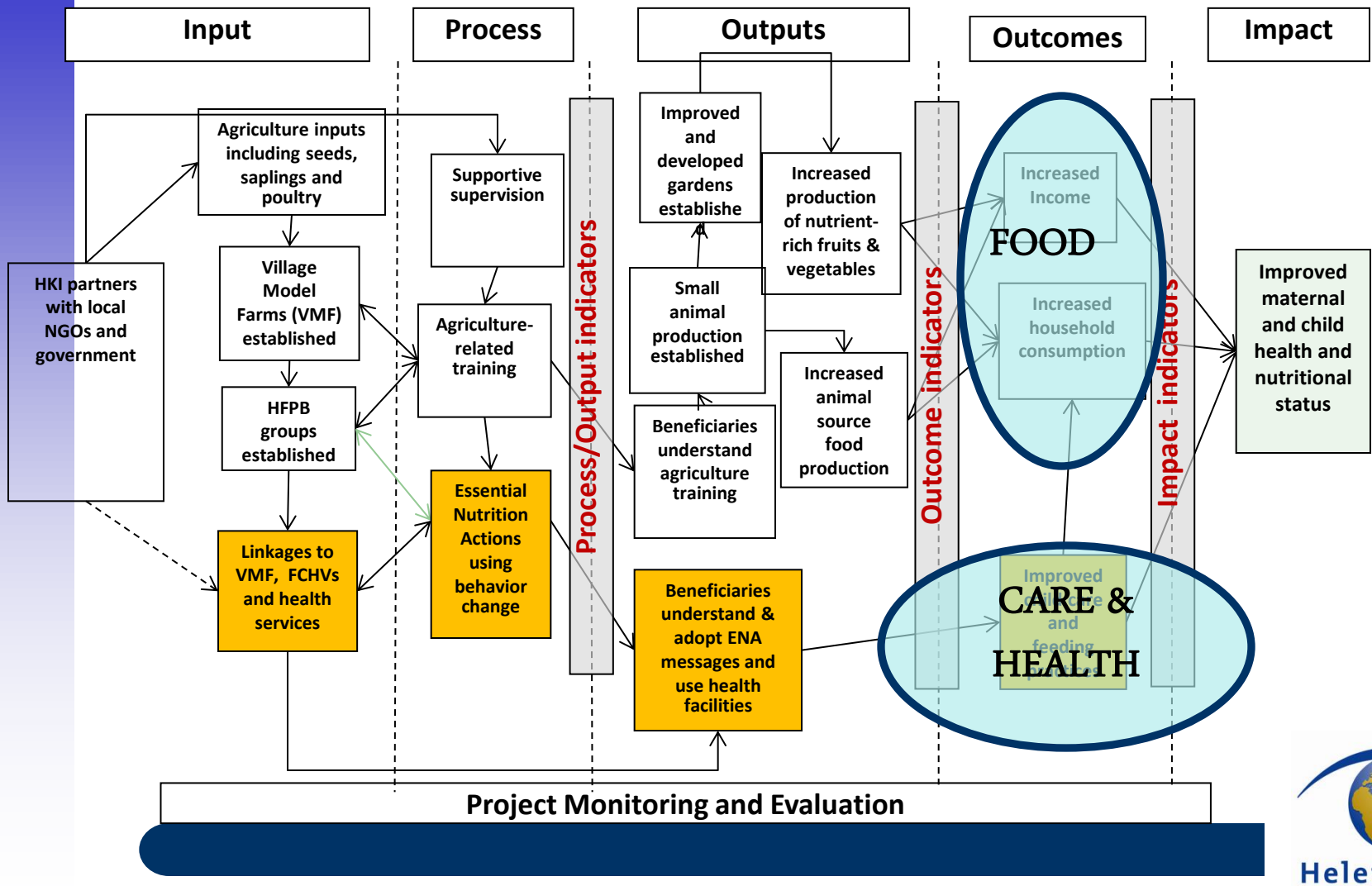

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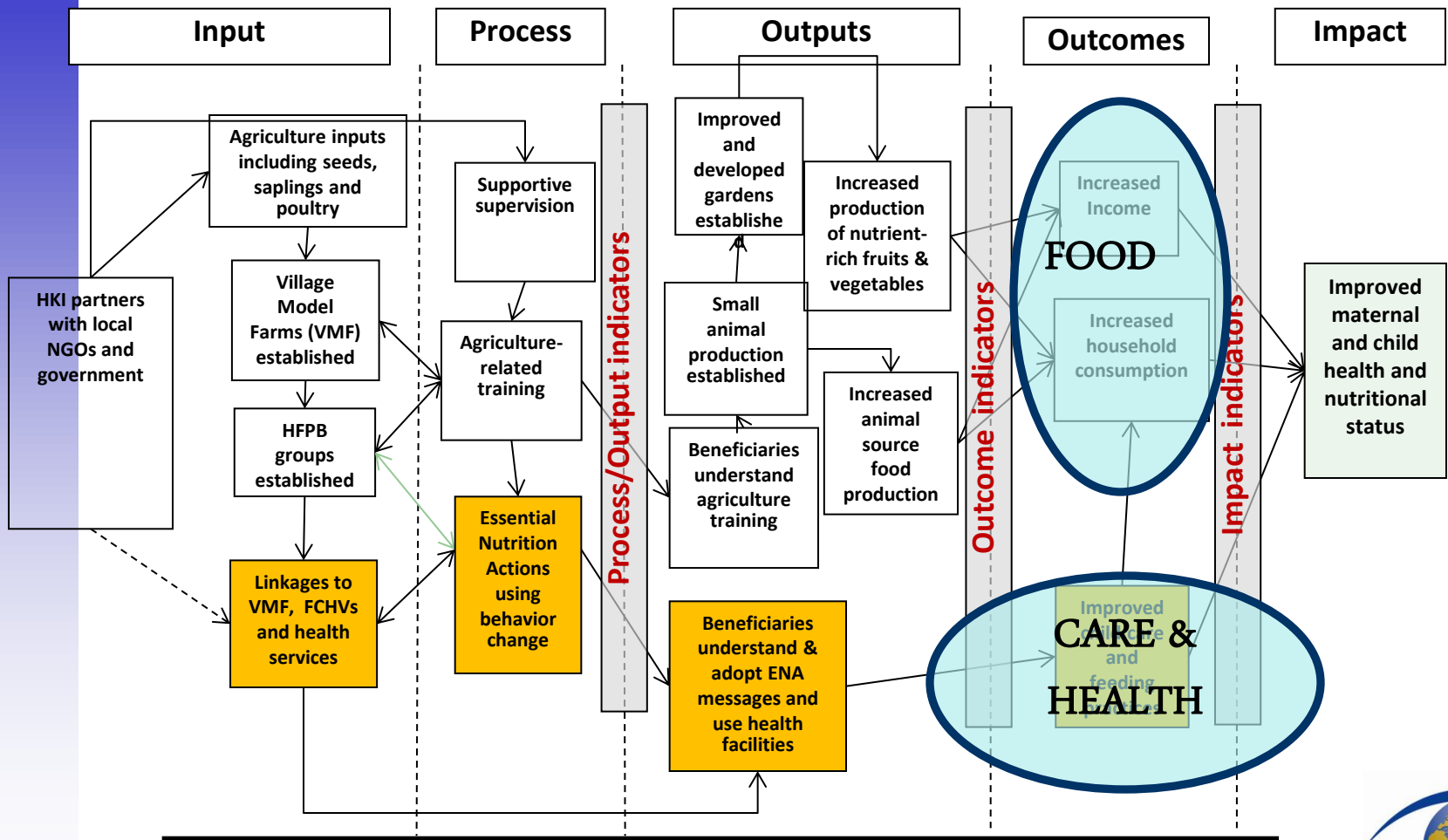

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IV. Future priorities and Challenges

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Future priorities and Challenges

- Address urban slums and poor
- Implement program in drought prone areas
- Re-tool HFP program model and document of E-HFP on nutrition outcomes, especially child growth, using program theory (with IFPRI and UBC)
- Conducting research to un-pack the many ‘black boxes’ to improve cost-effectiveness and to better understand *program impact pathways* especially those leading to improved nutritional status (working with UBC and IFPRI)

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Randomized Control Trials (RCT)

1. Africa: Creating Homestead Agriculture for Nutrition and Gender Equity (CHANGE) (Tanzania and Burkina Faso)

International Food Policy Research Institute (IFPRI) and Helen Keller International (HKI)

2. Asia: Integration of Small-scale Aquaculture with Homestead Food Production for improved household food security and nutrition in rural Cambodia

University of British Columbia (UBC) and HKI

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