The Human Face of
Food Insecurity, Hunger and Undernutrition

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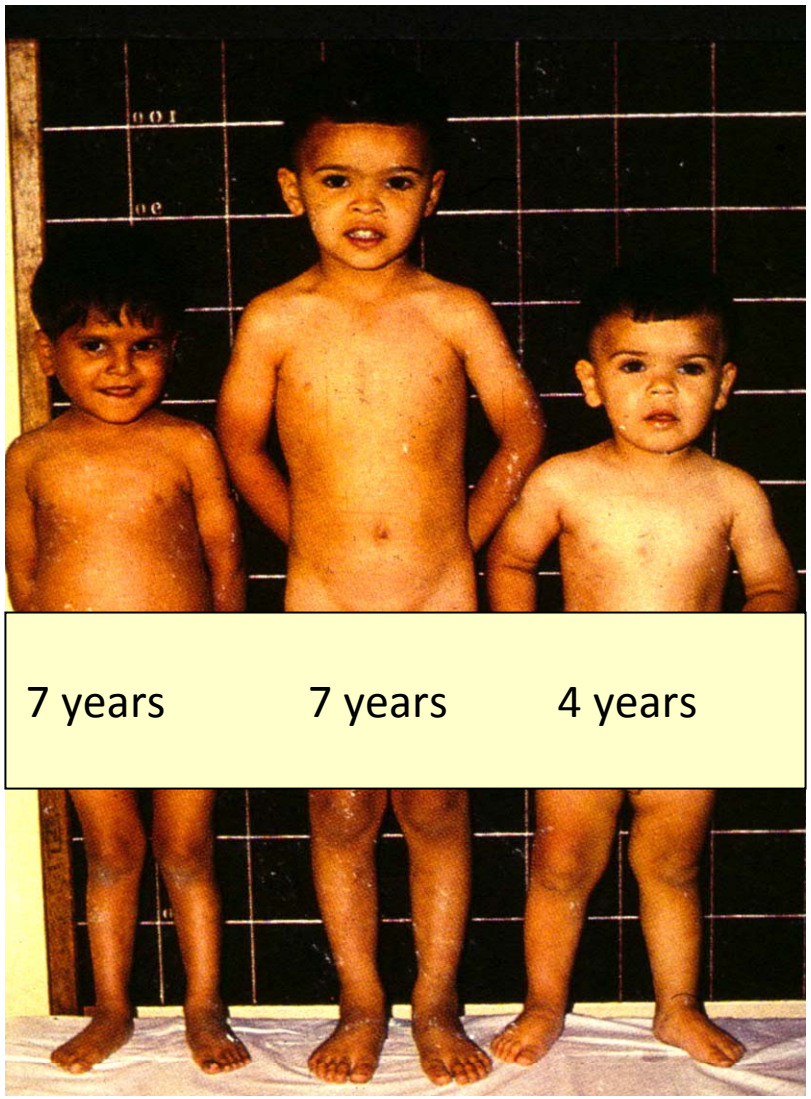

7 years 7 years 4 years

Source World Bank - M Shekar, 2010

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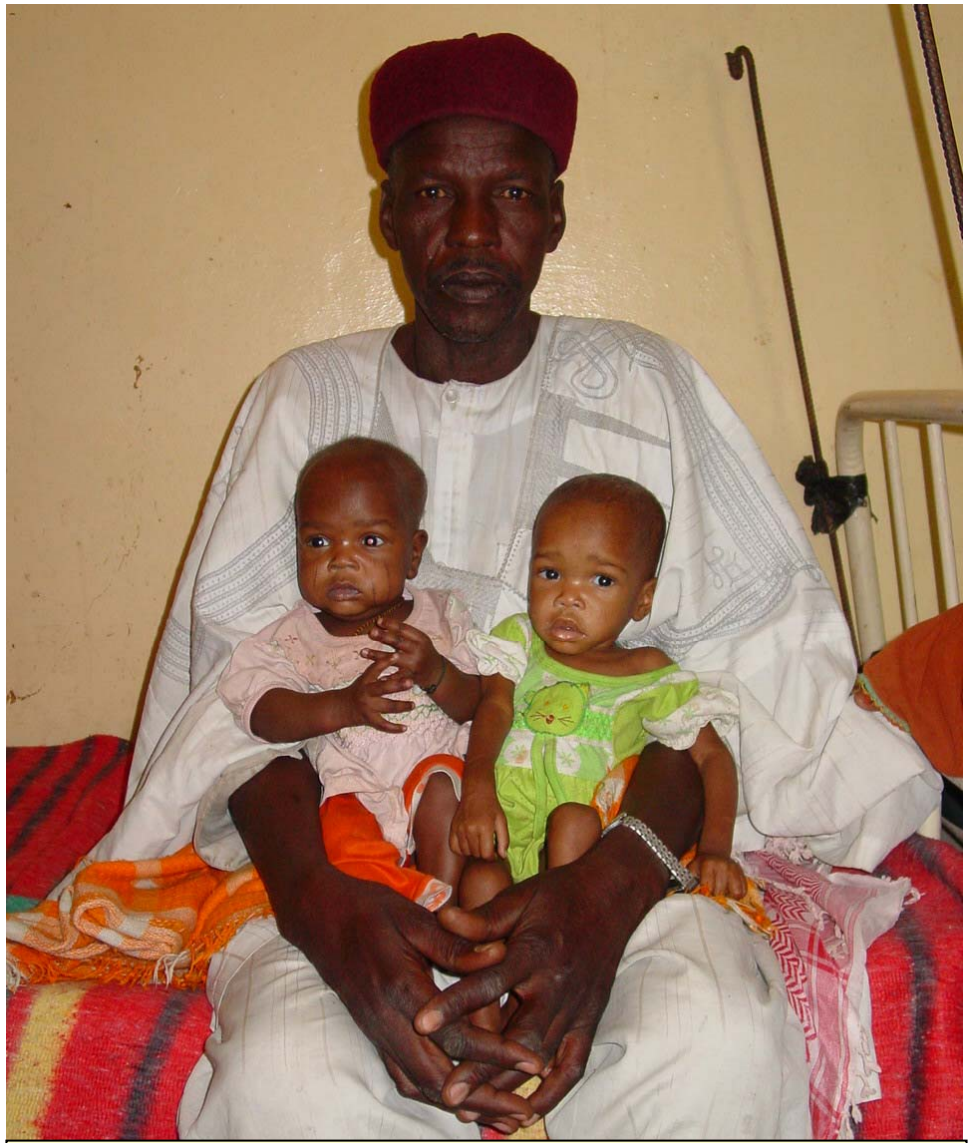

5 months **3 years**

Sisters in Diffa, Niger 2007

Source: V Quinn, HKI 2007

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HKI's Enhanced Homestead Food Production model

Linking food production to nutrition outcomes

Victoria Quinn, PhD
Senior Vice President, Programs
Helen Keller International
McGill 3rd Conference on Global Food Security
Montreal, Canada
21 October 2010

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Today's presentation

I. Case Study: HKI's Homestead Food Production program and results to date

II. Agricultural programs: design issues relevant for nutrition outcomes

III. Future challenges

IV. Take home messages

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I. Case Study:

Helen Keller International's Homestead Food Production program model

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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 220 sub-districts

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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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HKI's HFP program model…

Objective of HFP program model: improve nutritional status of vulnerable members of low income households through home production of micronutrient (MN) rich crops and small animals, poultry, …

Until recently the nutrition focus was on **dietary diversity** and **micronutrients (esp. vitamin A and iron)** and not on child growth

Today our 'new' **enhanced-HFP model** has a stronger focus on infant & young child feeding and behavior change (via Essential Nutrition Actions) with expectations for improvements in child growth.

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HKI's HFP program model

Where? Since 1990, now in four countries in Asia: Bangladesh, Nepal, Cambodia and Philippines.

Just launched in Africa in Burkina Faso (with IFPRI and local partners)

Coverage? Cumulative to-date more than 950,000 families (e.g 5.5 million people) reached (e.g. majority in Bangladesh)

Who? Primarily target **women farmers** from poorer households

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Characteristics of a typical HFP program

- **Length of HFP program cycle:** families participate with HKI support for 3 years; thereafter 1-2 more years support through local NGO

- Utilize **existing community structures** to establish Village Model Farms (VMF) around which are formed ‘farmers/women’s groups’ whose members receive agricultural support and nutrition education

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Characteristics of a typical HFP program

- Integrate home gardening with **small animal husbandry, poultry/fowl production and fish farming**
- Promote year round access of **local micronutrient rich crops and animal source foods**, many of which are already being produced by households
- Improve on **local farming practices** to extent possible
- Many **variations on this theme** as local circumstances differ widely

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Examples of support provided…

- **Inputs provided:**
  - Chicks (improved and local), fish cultivars, horticultural inputs
  - Poultry vaccines, animal fodder (Napier grass)
- **Training in farming and animal husbandry**
- **Establishing linkages for marketing & resource access**

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Examples of support provided…

- **Past HFP model:** provided training on traditional *nutrition education* with a focus on dietary diversity

- **Current E-HFP model:** provides training on *Essential Nutrition Action* behavior change including infant and young child feeding (breastfeeding & complementary feeding) as well as stronger links with local health system

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Characteristics of a typical HFP program

- **HKI works *through* local NGOs and government offices** (> 200 to date in the four countries).

- Local NGO involvement ensures **community ownership** and **sustainability**.

- **Communities instrumental** from start in design *(Triple AAA cycle)*, implementation and evaluation

- **Partner engagement and contribution**

  HKI: financial, technical & managerial

  NGOs: personnel, operational

  Households: poultry & fish feed, poultry shed

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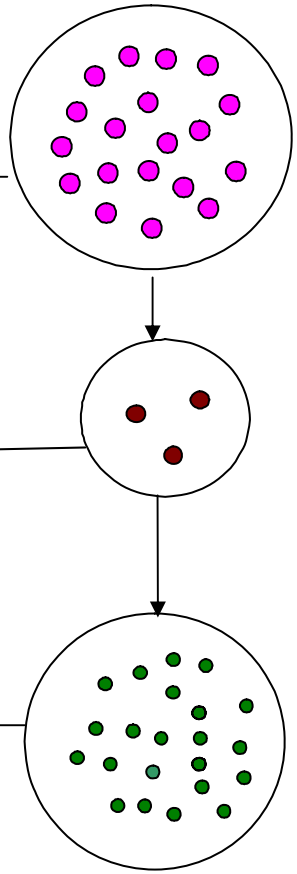
HKI's HFP program model

Village Model Farm (VMF) **Demonstration plot**	15-20 VMFs per district
Farmer's Groups (women's groups)	2-3 Groups per VMF
Households (women)	20 HHs per group



Approximately 1,200 households per district

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Village Model Farm

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Natural techniques

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Appropriate technology and practices

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Village Model Farm Nursery

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Focus on women: beneficiary garden

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HFP produce used in food demonstrations for child nutrition day

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Support for small scale poultry production

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Health workers and Essential Nutrition Actions education session targeting mothers in HFP program

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Some results…

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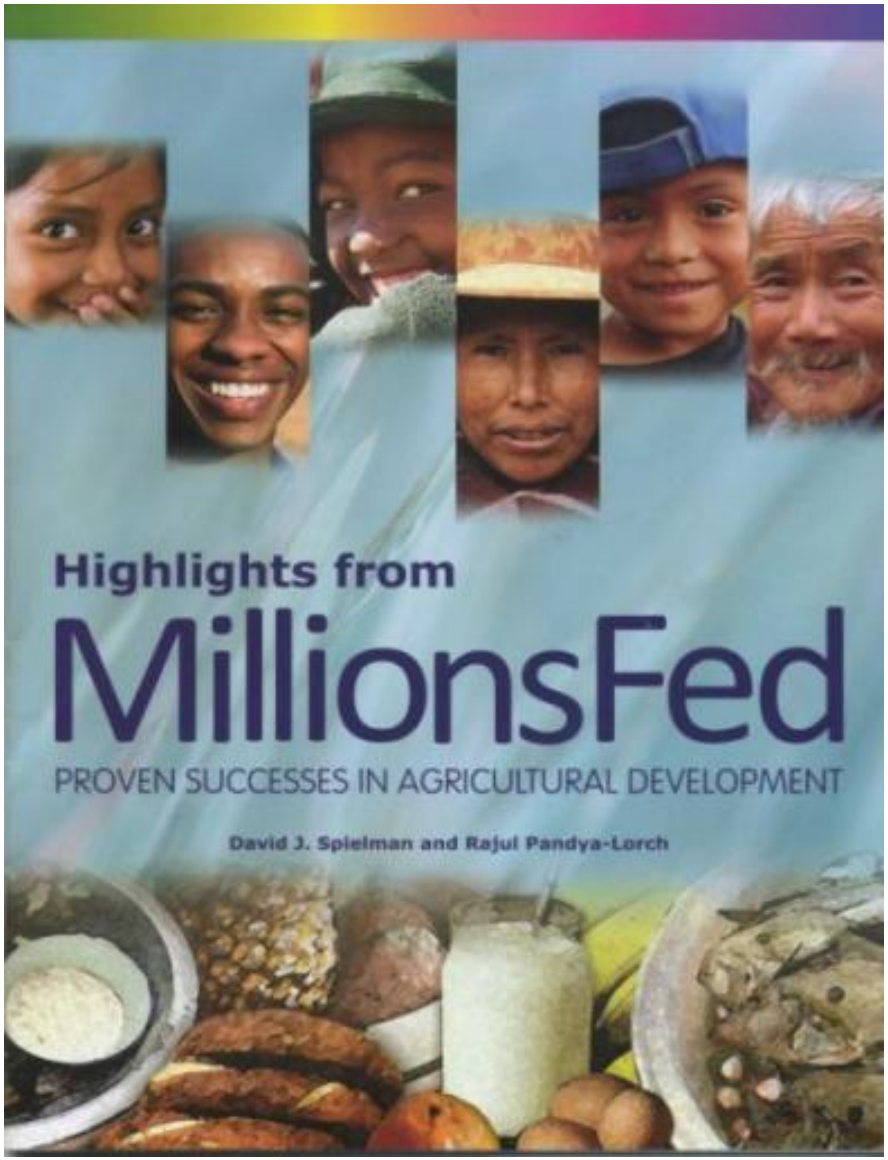

Regarding HKI's HFP program in Bangladesh, IFPRI reports (2009):

"…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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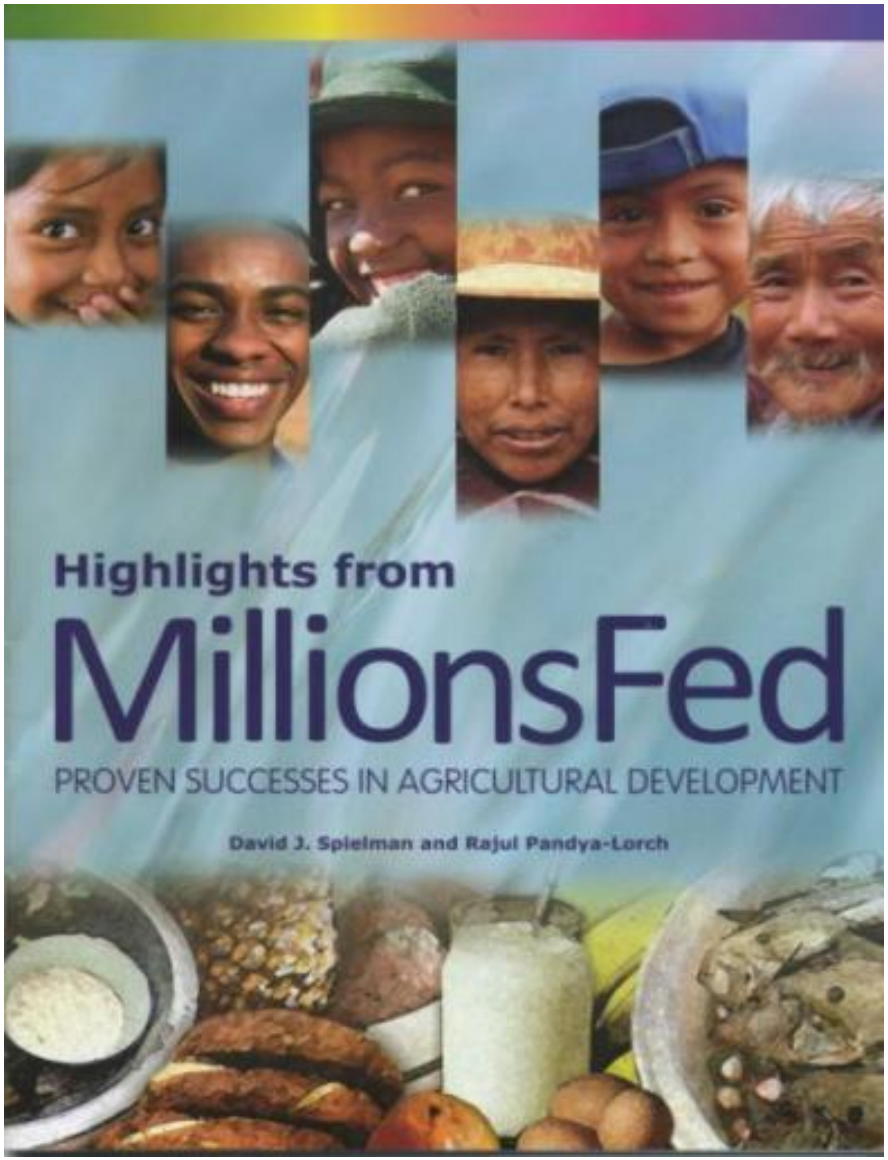

Surprising how few proven agriculture-nutrition models exist

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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Micronutrient rich crops: diversity, production and consumption increased

TABLE 2. Homestead gardening practices, production, and use of garden produce by households in the previous three months ($n = 2,160$)

Variable	Former participants	Active participants	Controls
Managing a garden (%)	96[a]	100[a]	85.6[b]
Year-round production (%)	50.4[b]	77.8[a]	15.4[c]
Crop diversification (no.)			
Vegetable crops	6.3 (4.3)[b]	9.4 (3.6)[a]	3.5 (2.3)[c]
Fruit crops	5.3 (3.1)[a]	5.6 (2.7)[a]	4.4 (4.2)[b]
Vitamin A–rich vegetables	4.9 (2.0)[a]	5.3 (2.4)[a]	1.8 (1.4)[b]
Production (kg)			
Vegetables	120 (50–220)[a]	135 (80–207)[a]	46 (20–90)[b]
Fruits	24 (12–50)[a]	24 (20–90)[a]	14 (7–34)[b]
Consumption (kg)			
Vegetables	70 (49–110)[b]	85 (60–110)[a]	38 (20–65)[c]
Fruits	18 (10–39)[a]	20 (10–40)[a]	12 (6–25)[b]

Crop diversification data are means (± SD). Consumption and production data are medians (25th–75th percentiles). Numbers in rows followed by different letters are significantly different according to analysis of variance (ANOVA) or the Kruskal-Wallis test ($p < .05$).

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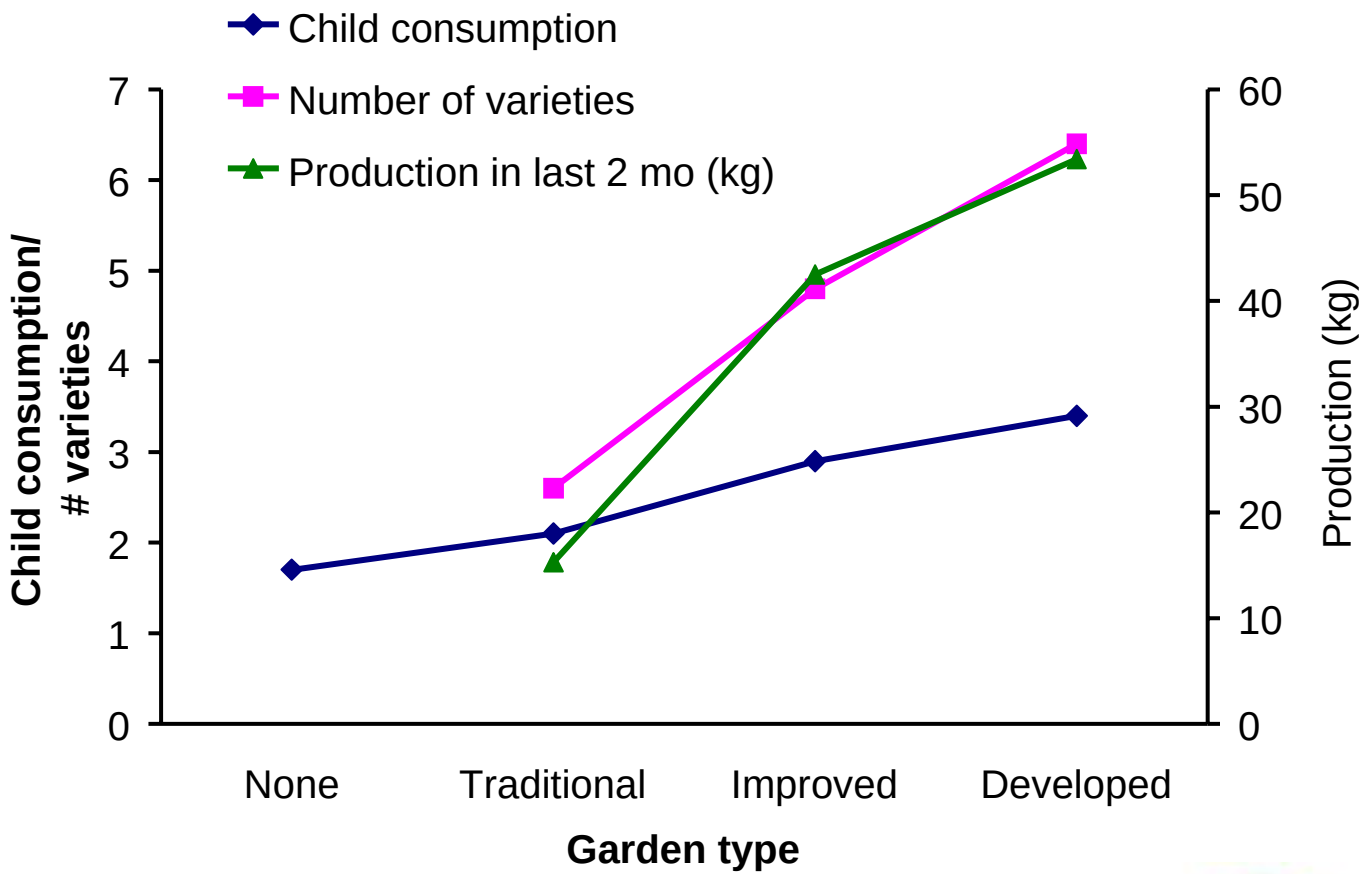
Production and consumption of vegetables by type of garden (*n*=10,107), Bangladesh

Crop diversity, production and consumption increased



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

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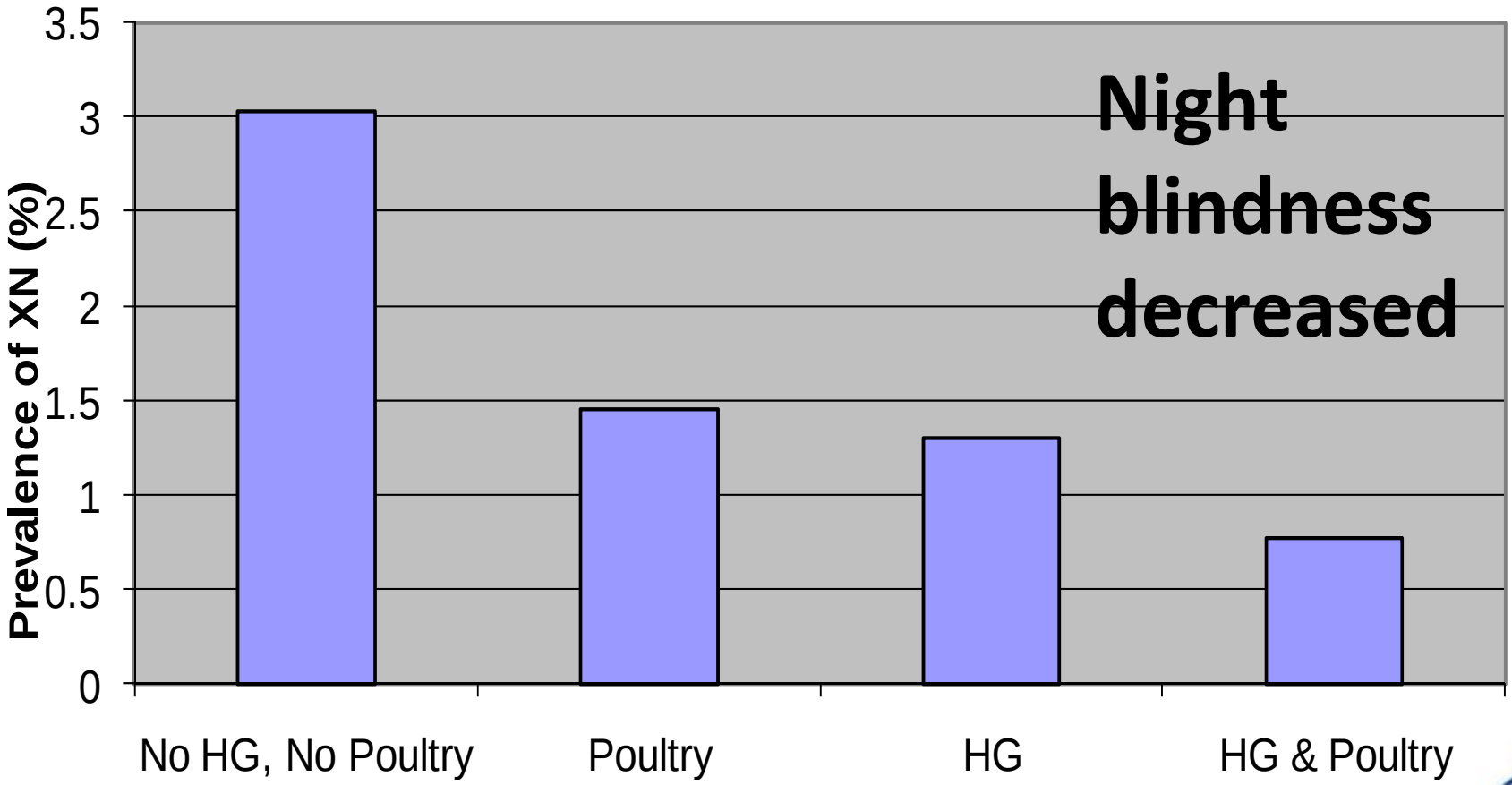
Prevalence of nightblindness among underfives (12-59 mo) that had not received VAC by home garden and poultry ownership (n=4296), Bangladesh

(Kiess et al, APHA abstract)



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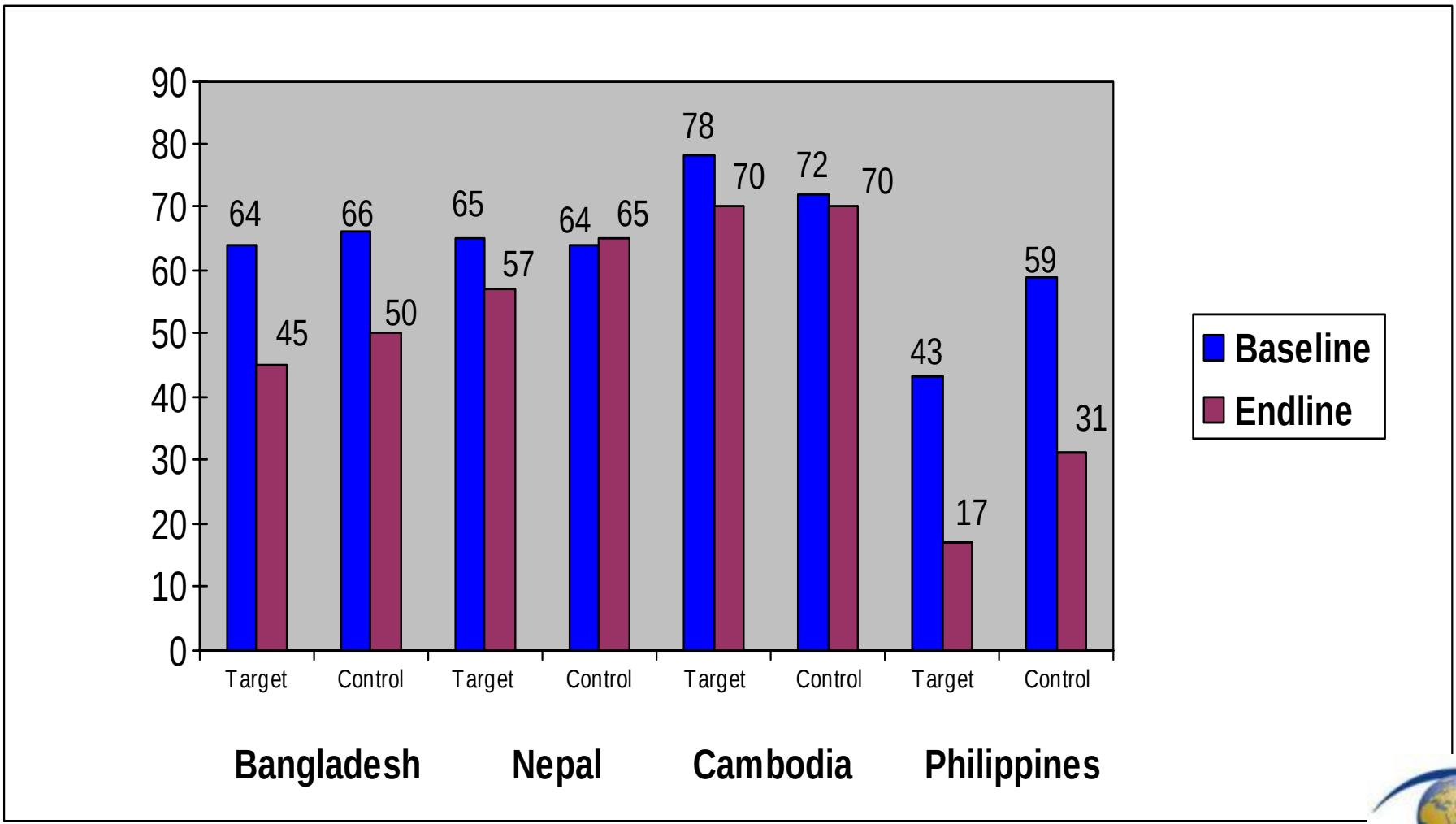
Anemia prevalence among children aged 6-59 mo from program and control households in Bangladesh, Cambodia, Nepal and Philippines at BL and EL.



Source: Talukder et al. FACTS Report 2010

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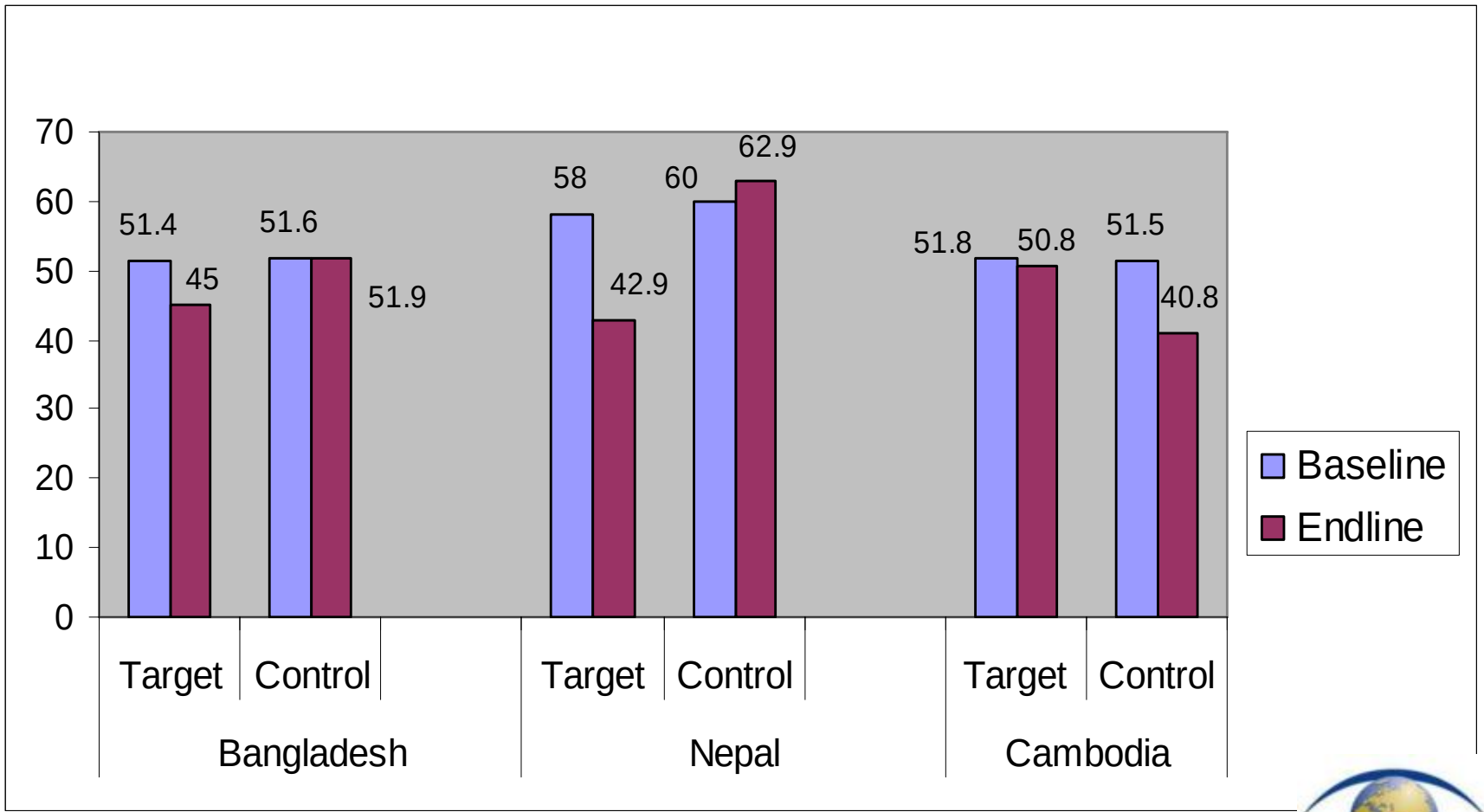
Anemia prevalence among non-pregnant women from program and control HHs in Bangladesh, Cambodia and Nepal at baseline and endline



Source: Talukder et al. FACTS Report 2010

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Income increases

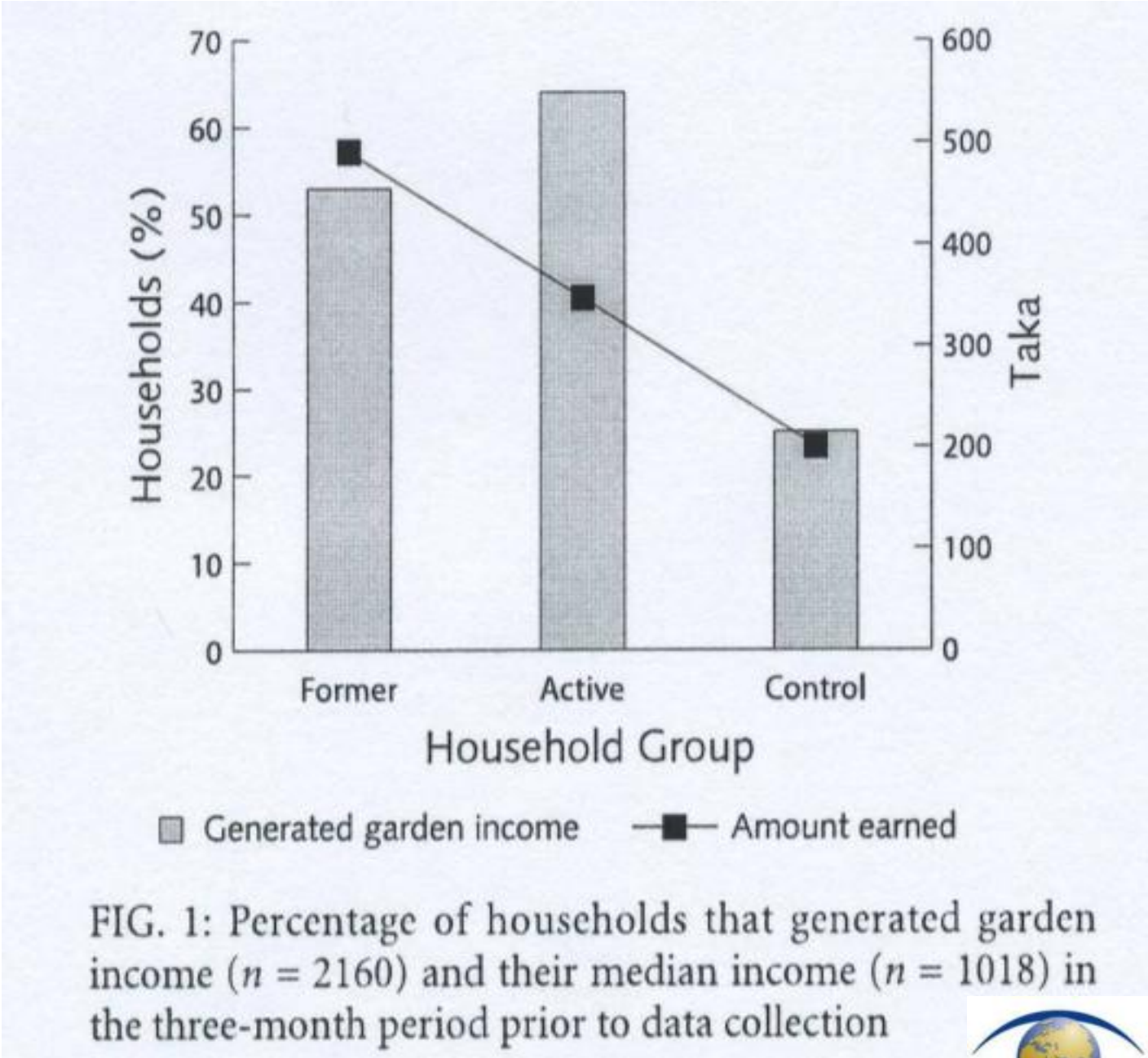

FIG. 1: Percentage of households that generated garden income (n = 2160) and their median income (n = 1018) in the three-month period prior to data collection

Source: Bushamuka, V. N., S. de Pee, A. Talukder, L. Kiess, D. Panagides, A. Taher, and M. Bloem. 2005. Impact of 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's role in family strengthened

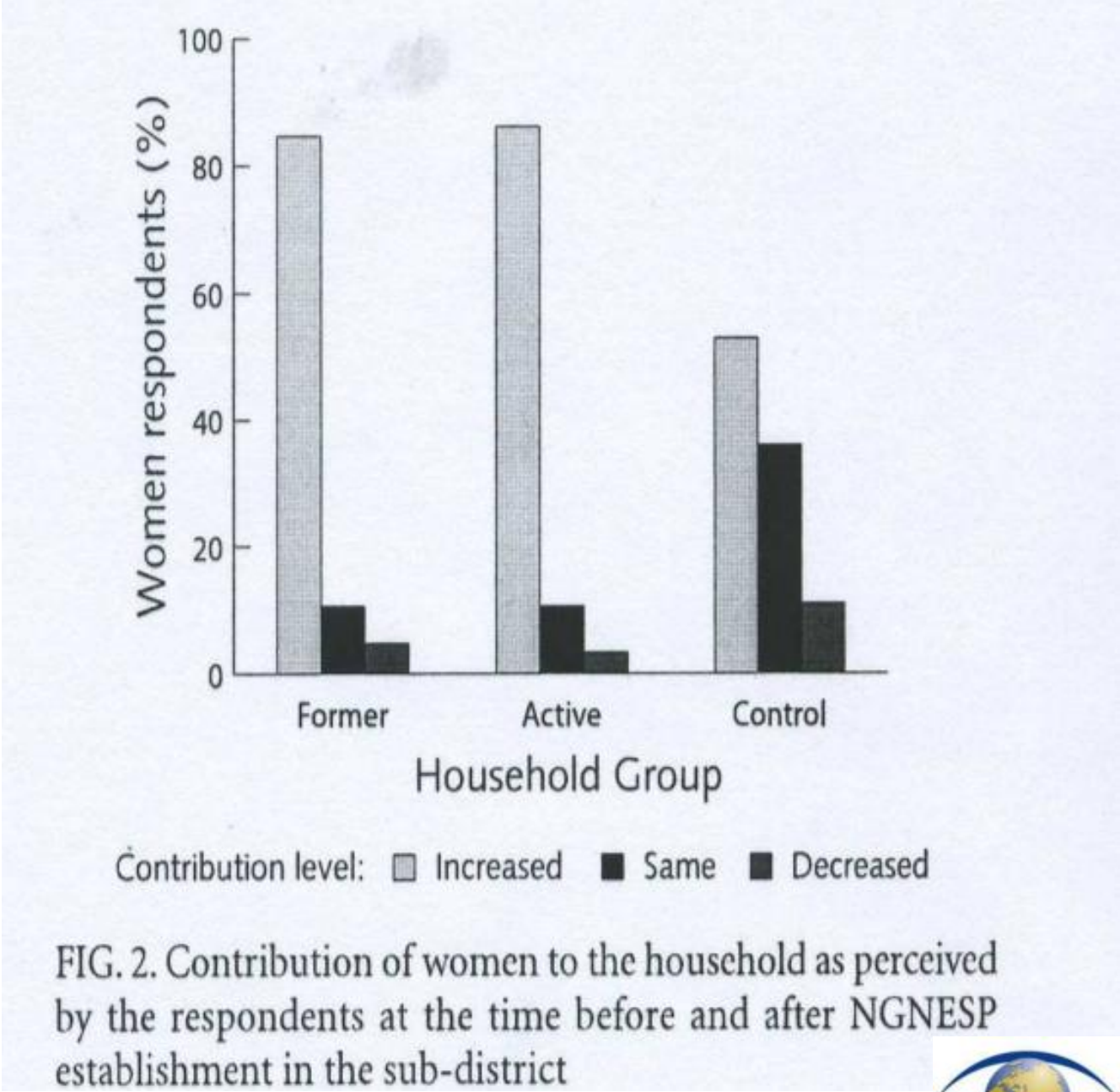

FIG. 2. Contribution of women to the household as perceived by the respondents at the time before and after NGNESP establishment in the sub-district

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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HFP Sustainability and Costs

- In all four countries, approximately 95% of the households continue to engage in HFP even after their program participation is over.

- Rough estimate of costs was $7.66 per participating household (e.g. total cost over 3 year period)

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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III. Agricultural programs: some key design issues relevant for nutrition outcomes

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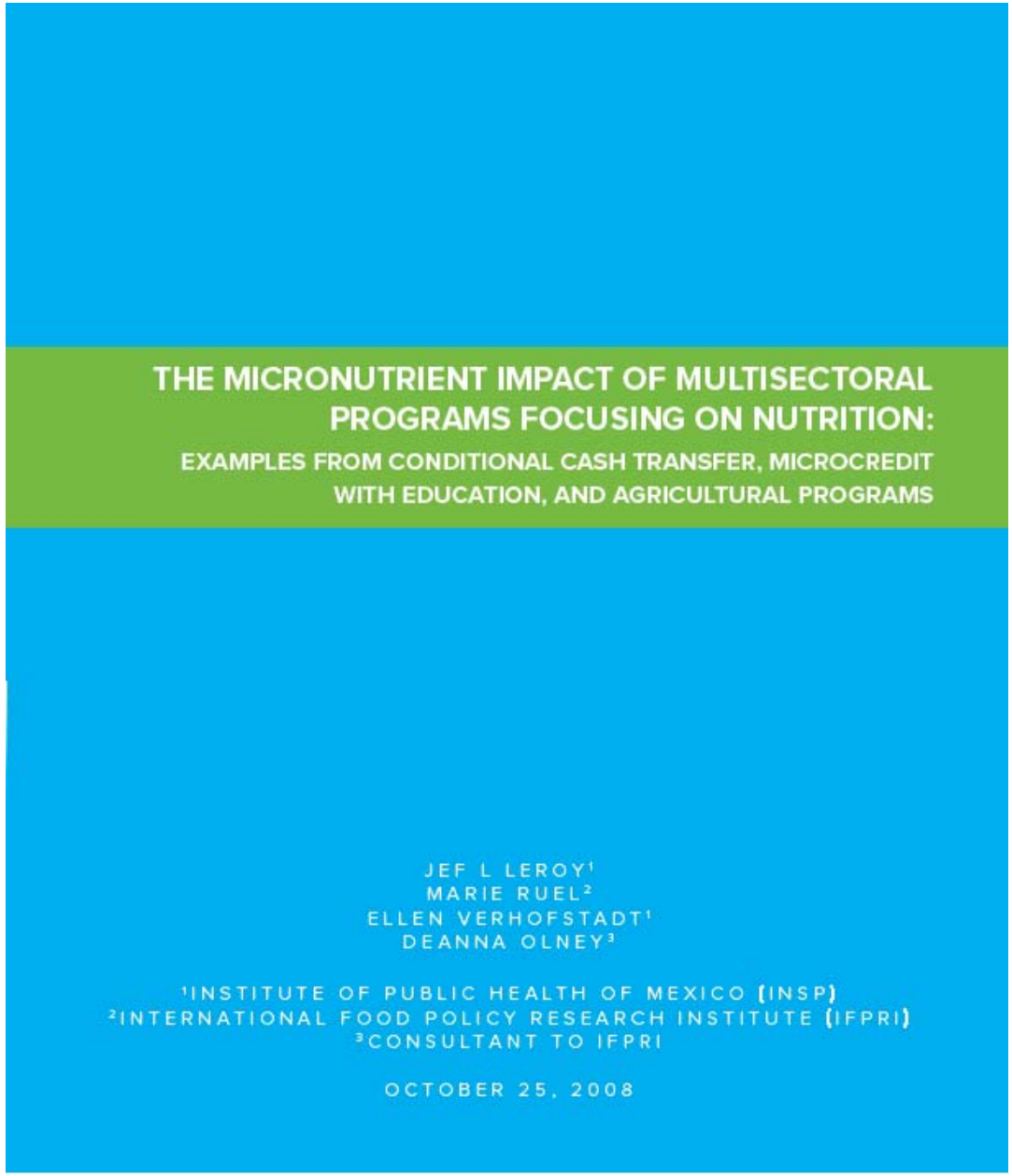
Recent IFPRI review on agriculture programs and nutrition… background paper for MN Forum 2009

Leroy et. al. 2008

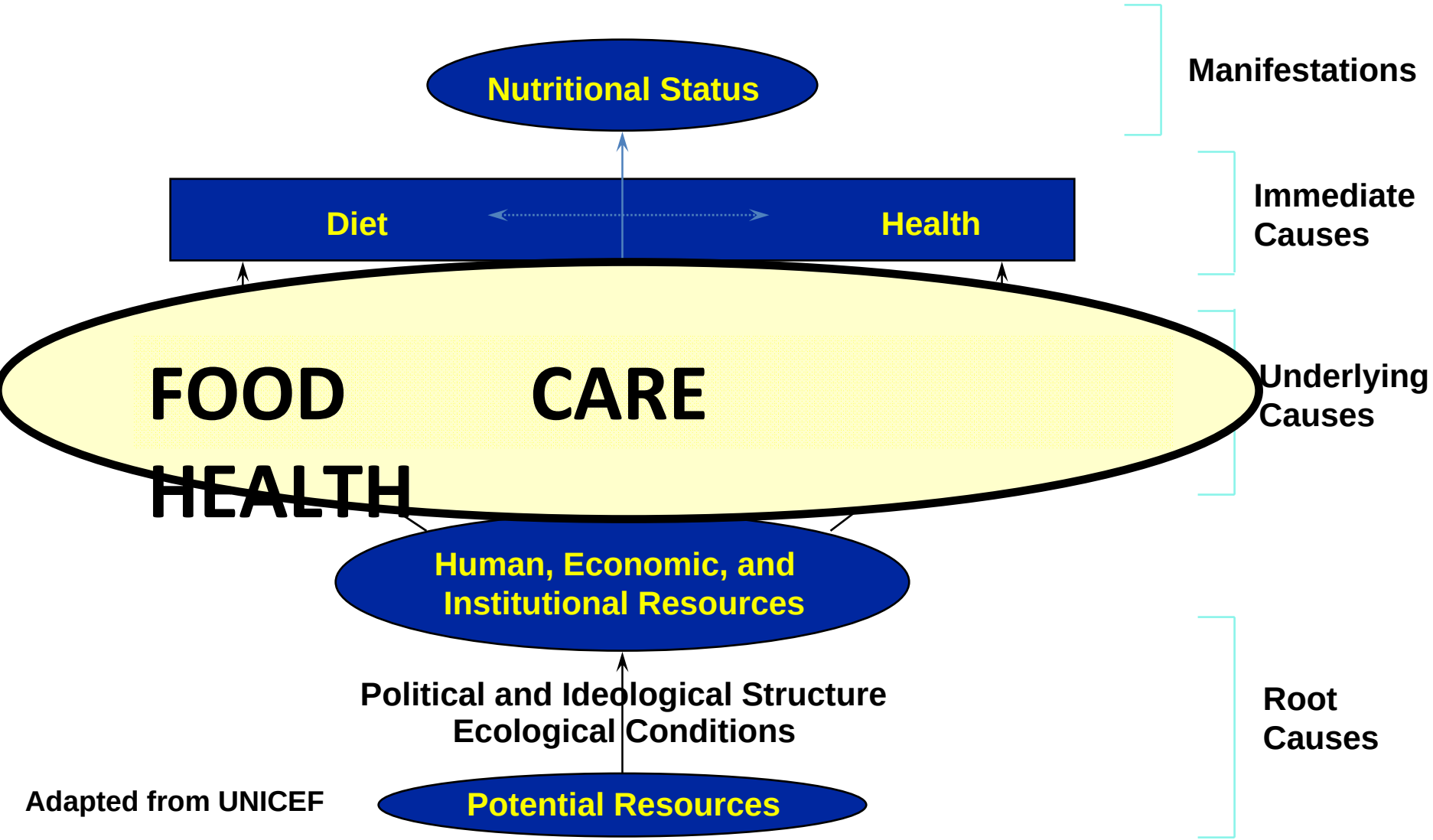


Leroy *et.al.* 'reviewed the reviews' of the micronutrient impact of multisectoral programs, including ~40 agricultural programs (HKI and many others)

"…programs promoting home gardening and animal production are likely to increase production, may increase household consumption and individual intake, but may have little to no effect on children's nutritional outcomes unless their nutritional inputs are revisited and strengthened"

Lack of consistent effects on nutrition could be due to inadequate program design or to weaknesses in M/E design

Conceptual Framework of Undernutrition



Adapted from UNICEF

HKI's key ***program impact pathways*** to achieve objectives…

New 'Enhanced-HFP' Model: increases emphasis on Care and Health

Increased household income from the sale of production that can be used to purchase nutritious foods & other necessities, especially that under control of participating women

- **Improved child nutrition and health practices** through nutrition education and links to local health services
- **Improved child care and family welfare** through the empowerment of participating women

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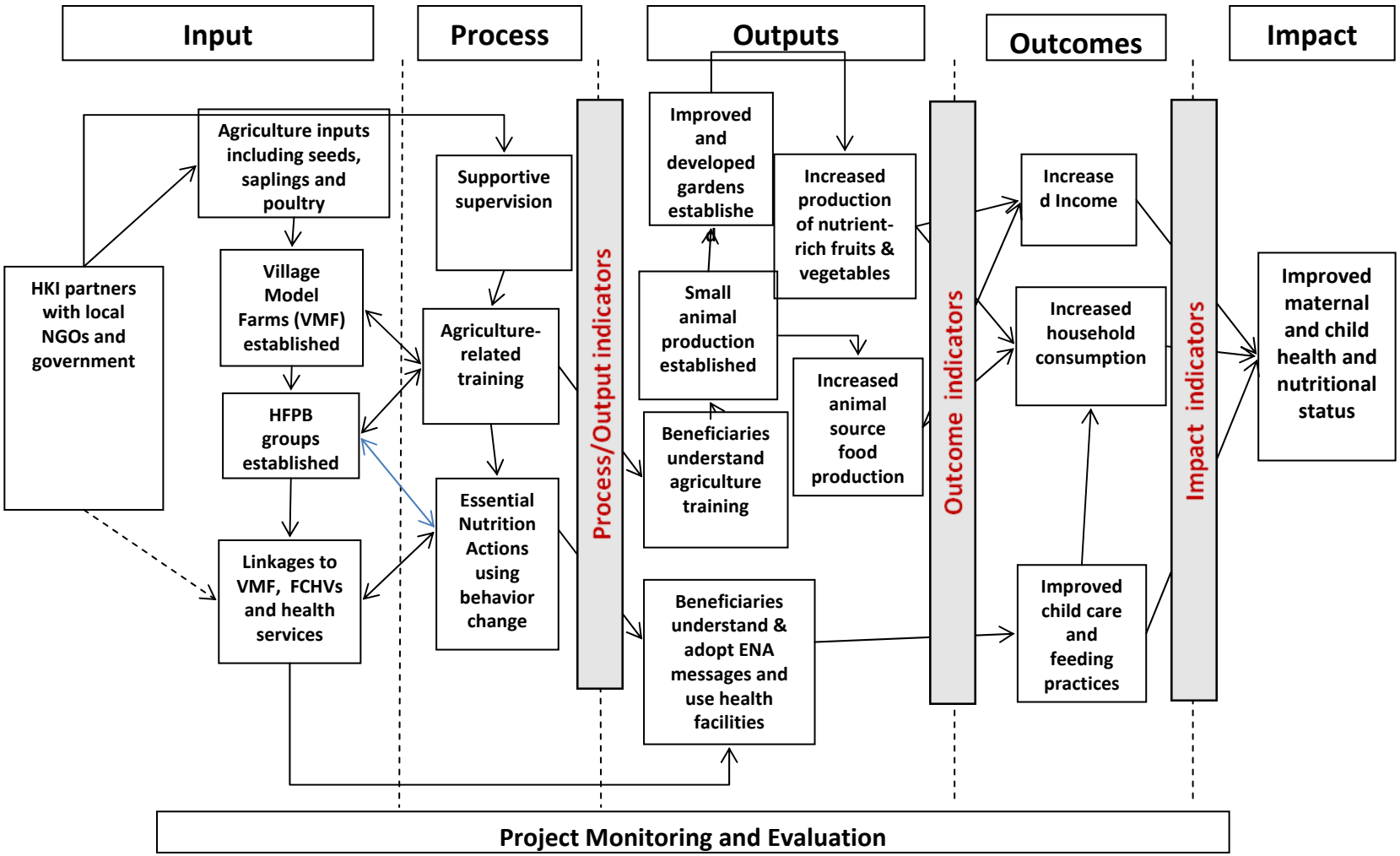
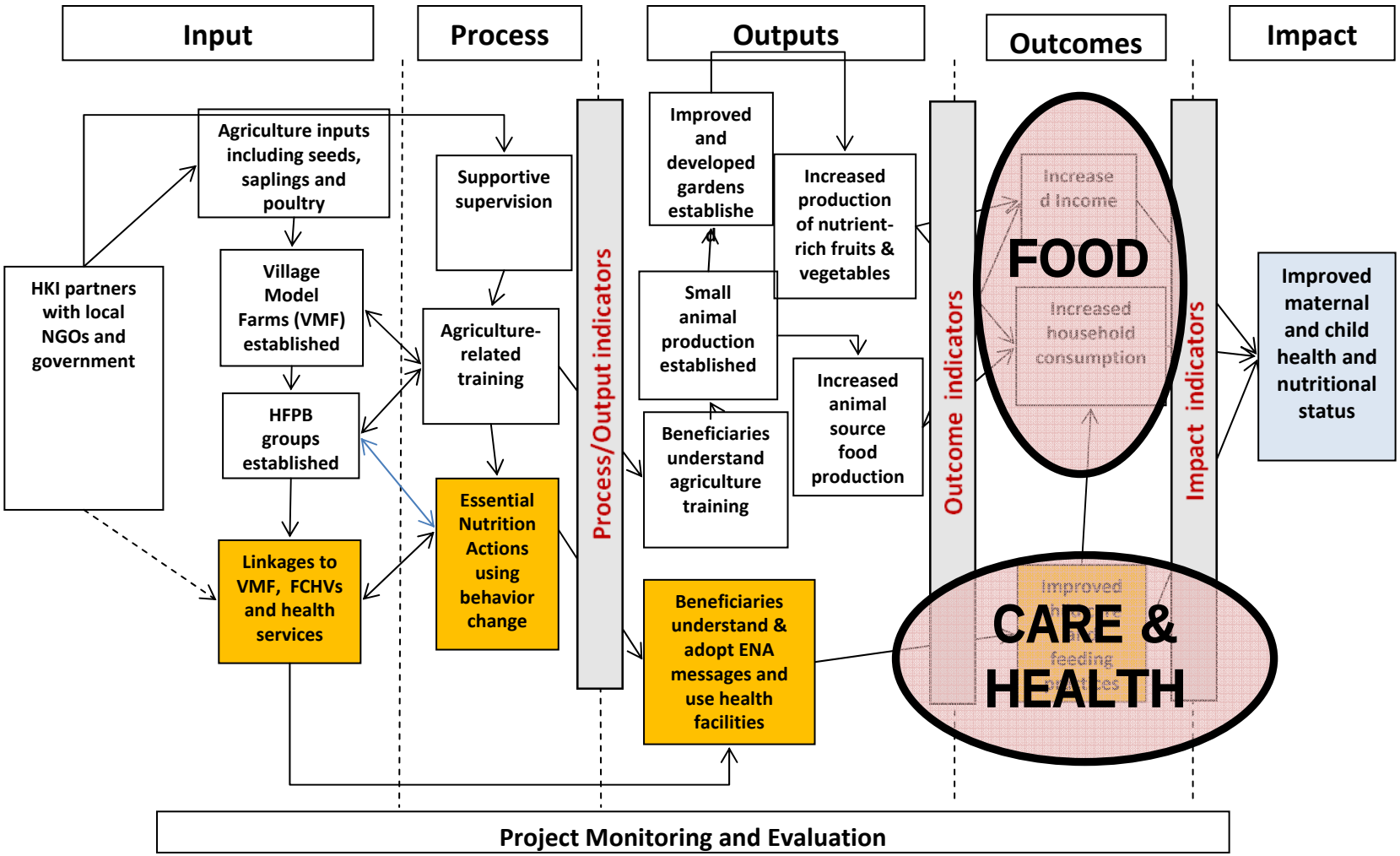
HKI's EHFP Model

Program Impact Pathways



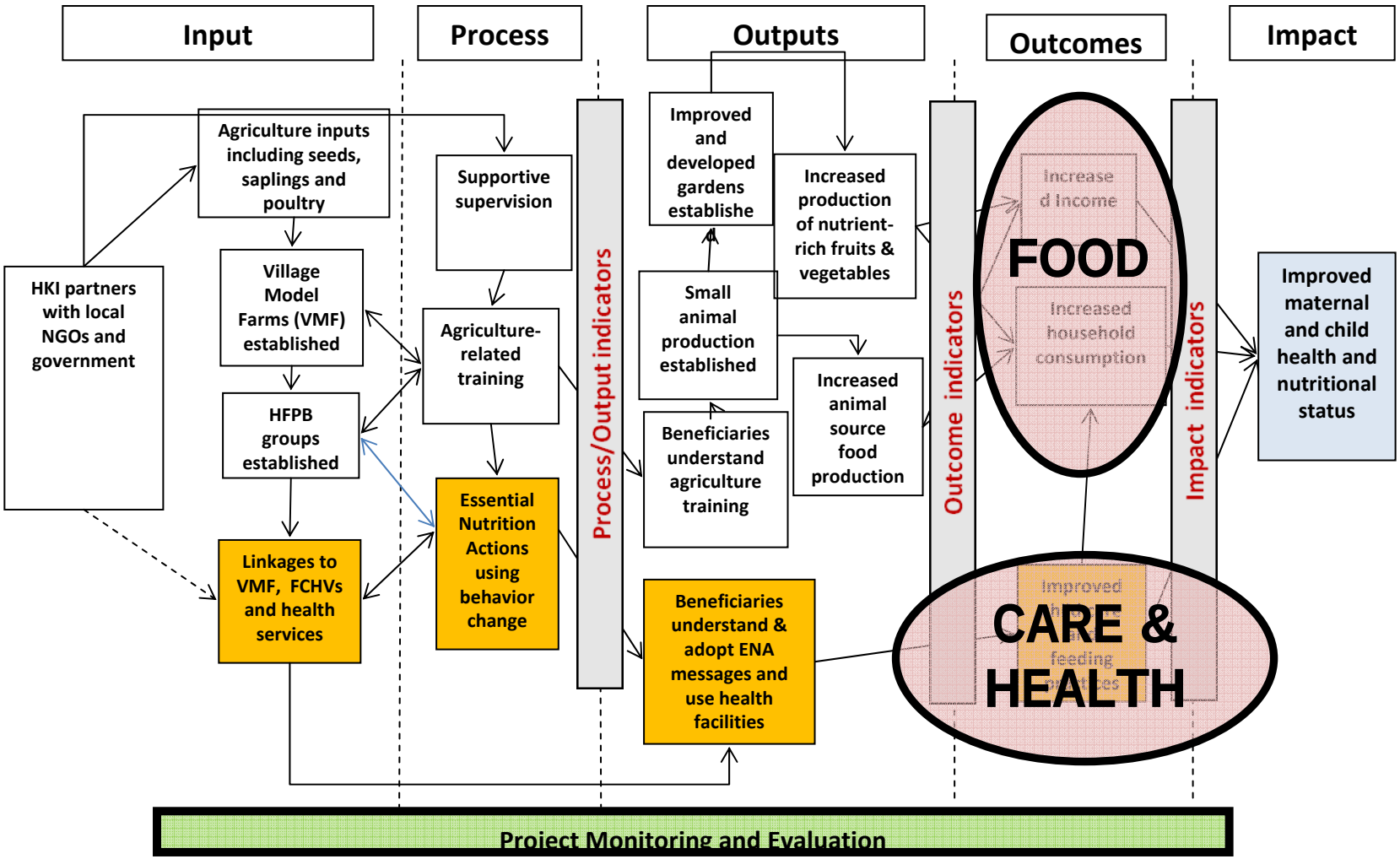
HKI's EHFP Model

Program Impact Pathways



HKI's EHFP Model

Program Impact Pathways



IV. Future challenges…

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- Document impact of E-HFP on nutrition outcomes, especially child growth, using program theory (with IFPRI)

- Conduct research to un-pack the many ‘black boxes’ to improve cost-effectiveness (with IFPRI)

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- # Adapting EHFP to Africa…

How to cope with -

- Water limitations
- Weak government infrastructure & services
- Many fewer local NGOs

-Opportunity to marry our *Orange-fleshed Sweetpotato* activities with our EHFP model

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Testing ‘drip irrigation’ kits in our new Burkina EHFP program

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V. Key take away messages

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Message 1

FOOD + CARE + HEALTH

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Message 2

WOMEN

Design agricultural programs **to empower women** in their important role as the gatekeepers of household food security, food production and child nutrition in order to maximize positive nutritional impact.

Keep an eye on how programs may influence **women's control of resources** in the family and as well as **women's time use** (e.g. for childcare) so as to "do no harm".

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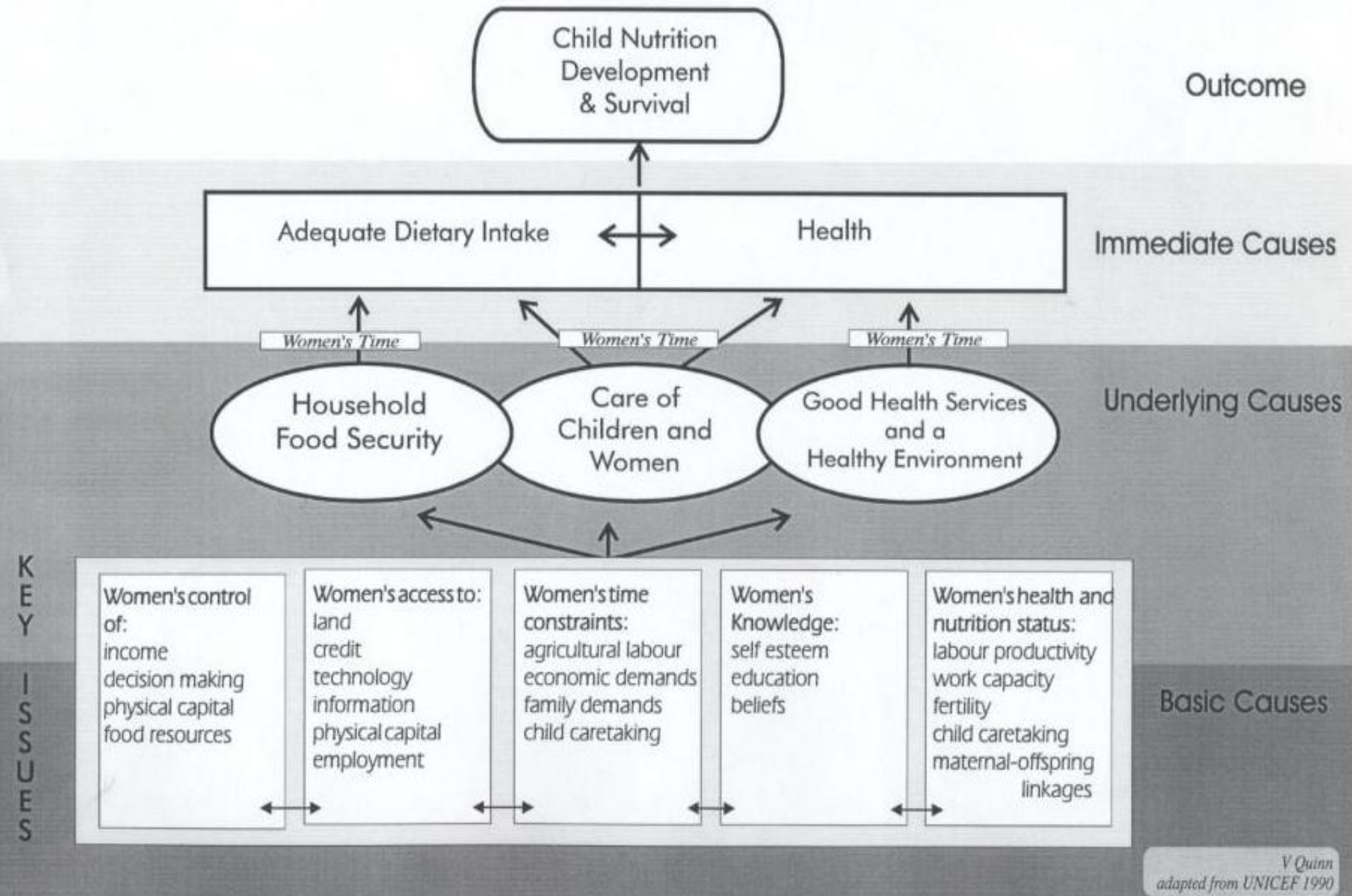
Key role of women in nutrition and agriculture



HKI gratefully acknowledgements support for HFP from:

- USAID
- OFDA
- NOVIB
- Partner NGOs in Burkina, Cambodia, Nepal, Bangladesh and the Philippines
- CIDA
- European Union
- NHF
- IFPRI

www.hki.org

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Thank You!

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