

FROM AGRICULTURE TO NUTRITION: PATHWAYS AND PRINCIPLES

Feed the Future

Agriculture-Nutrition Global Learning and Evidence Exchange
(AgN-GLEE)

Anna Herforth – Guatemala, March 5-7 2013

Jody Harris – Bangkok, March 19-21 2013

Overview

- Nutrition 101
 - Definition of terms
 - Causes of malnutrition- where agriculture fits
- Linking agriculture and nutrition
 - Conceptual pathways between agriculture and nutrition
 - Evidence on agriculture's impact on nutrition
 - Principles for achieving nutrition impact through agriculture
 - Relating pathways and principles to Feed the Future programs

MALNUTRITION

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graph TD; A[MALNUTRITION] --> B[UNDERNUTRITION]; A --> C[OVERNUTRITION]; B --> D[STUNTING]; B --> E[UNDERWEIGHT]; B --> F[WASTING]; C --> G[MICRONUTRIENT MALNUTRITION]; C --> H[OVERWEIGHT OBESITY];
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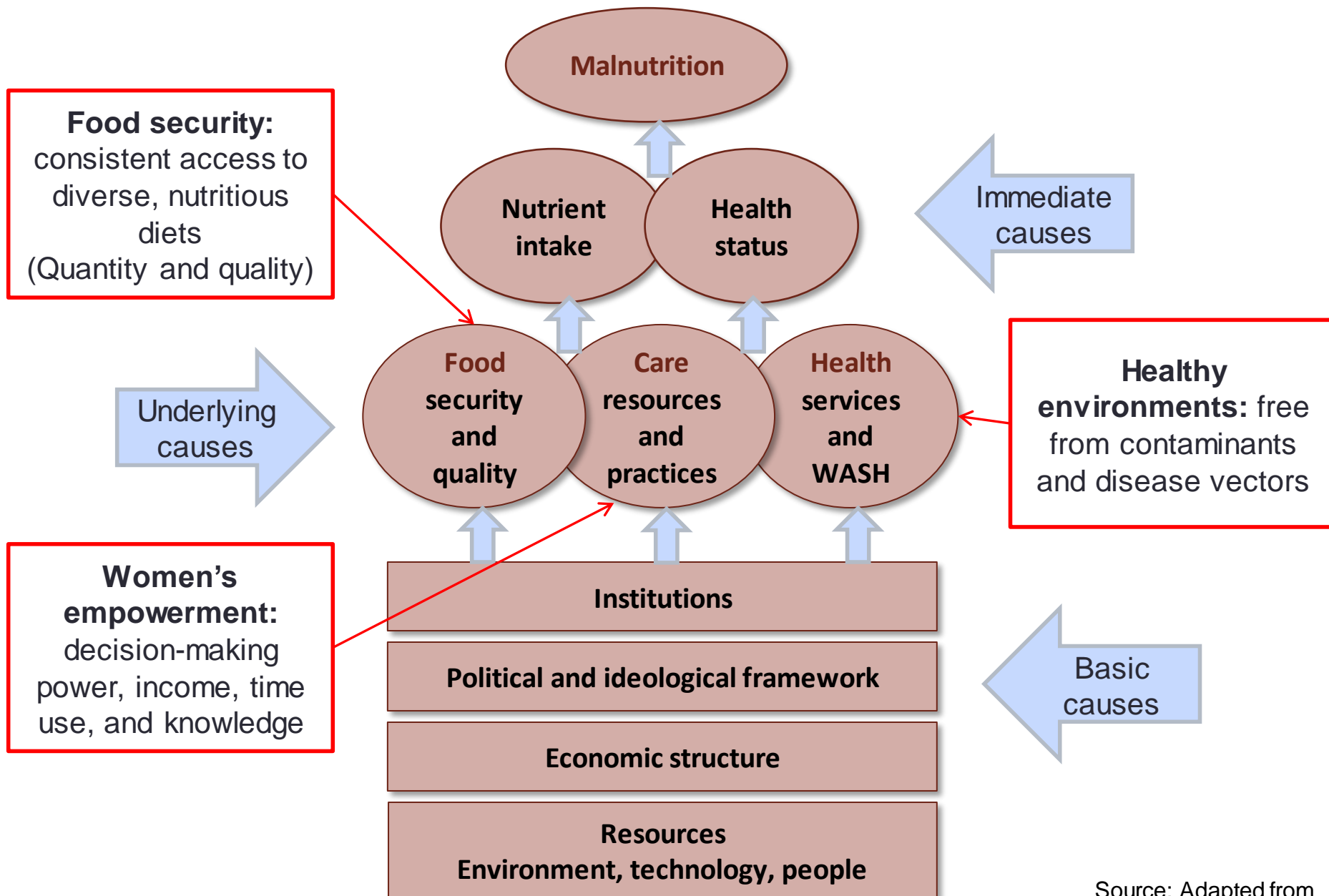
UNDERNUTRITION

OVERNUTRITION

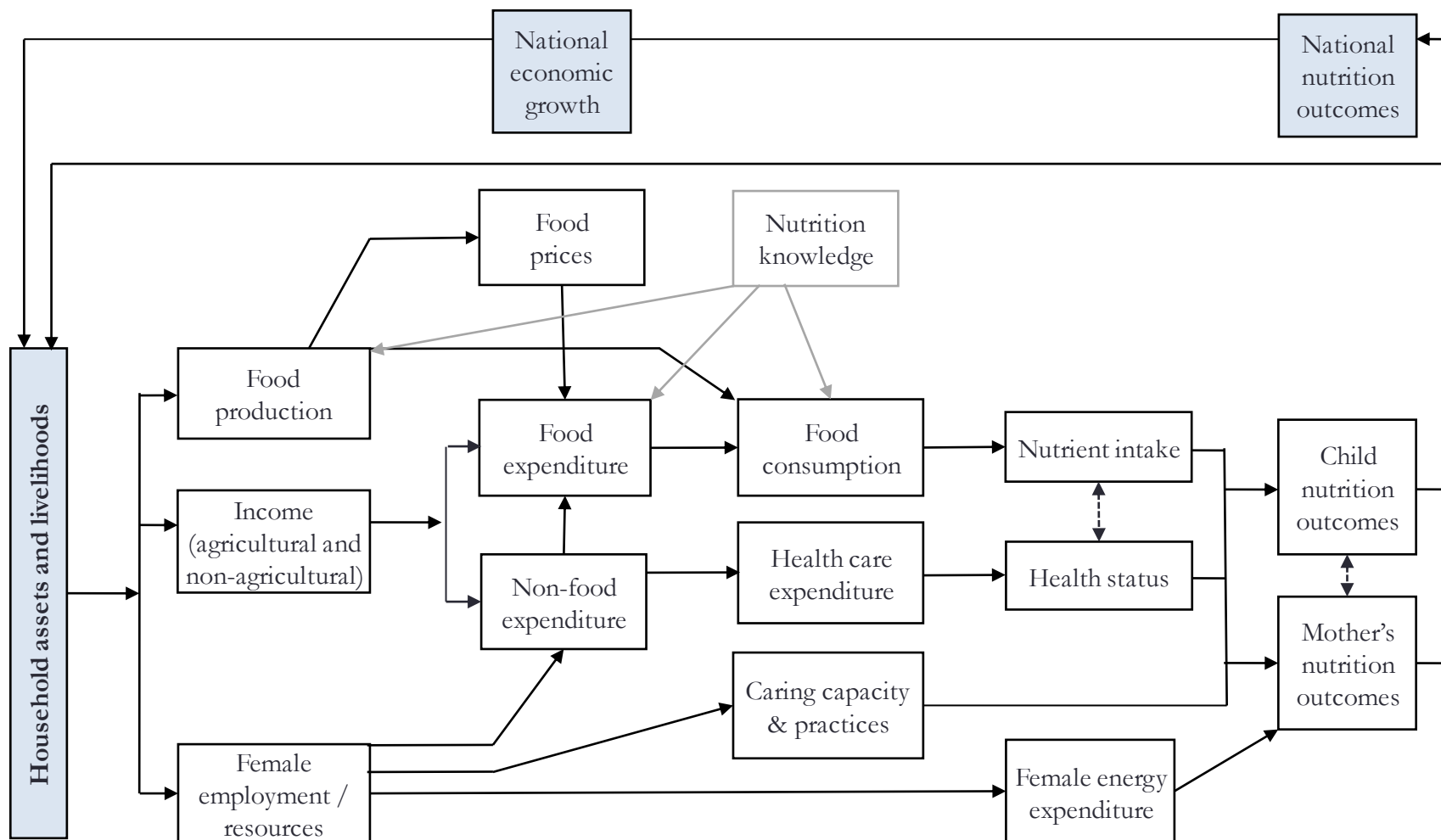
**STUNTING
UNDERWEIGHT
WASTING**

**MICRONUTRIENT
MALNUTRITION**

**OVERWEIGHT
OBESITY**

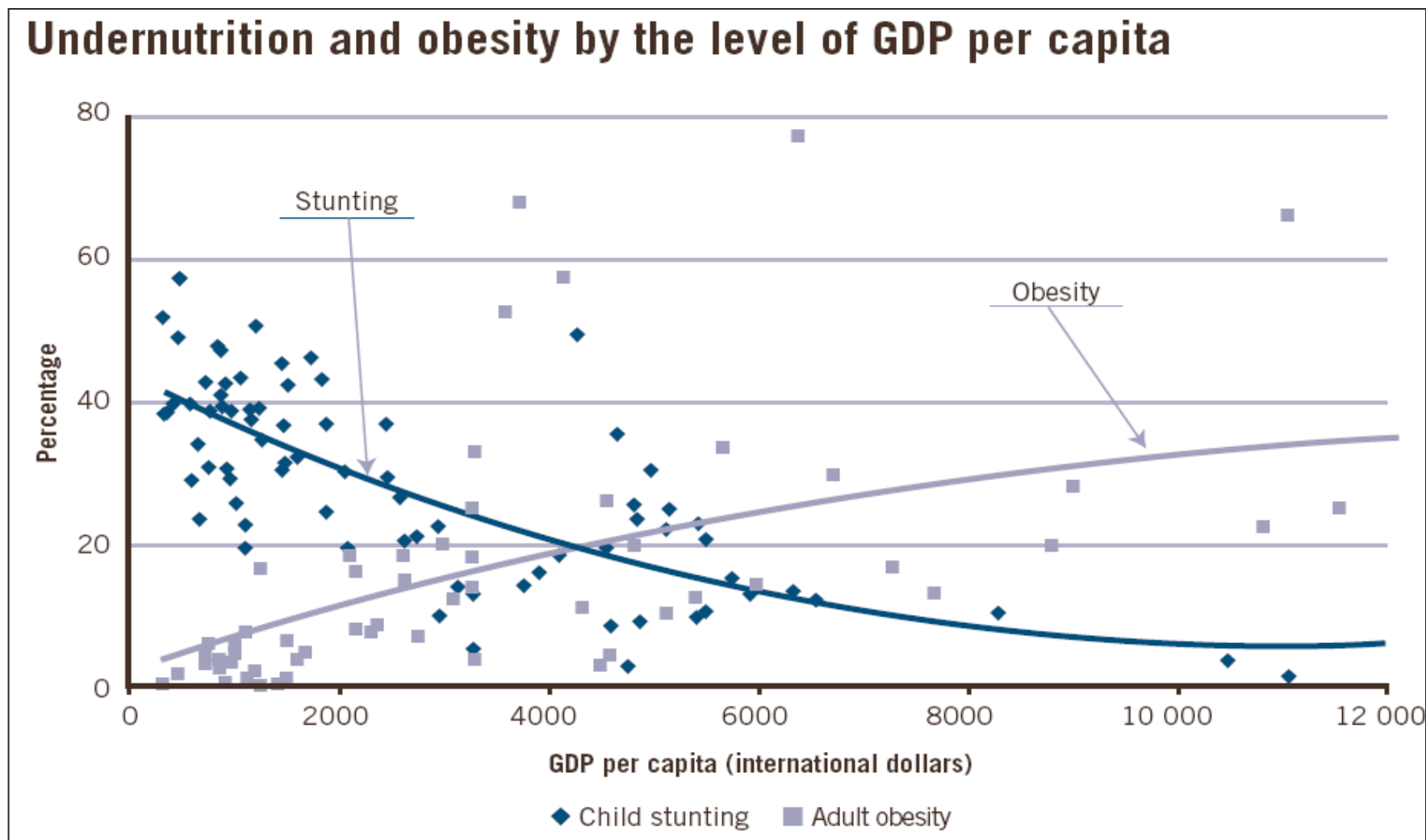


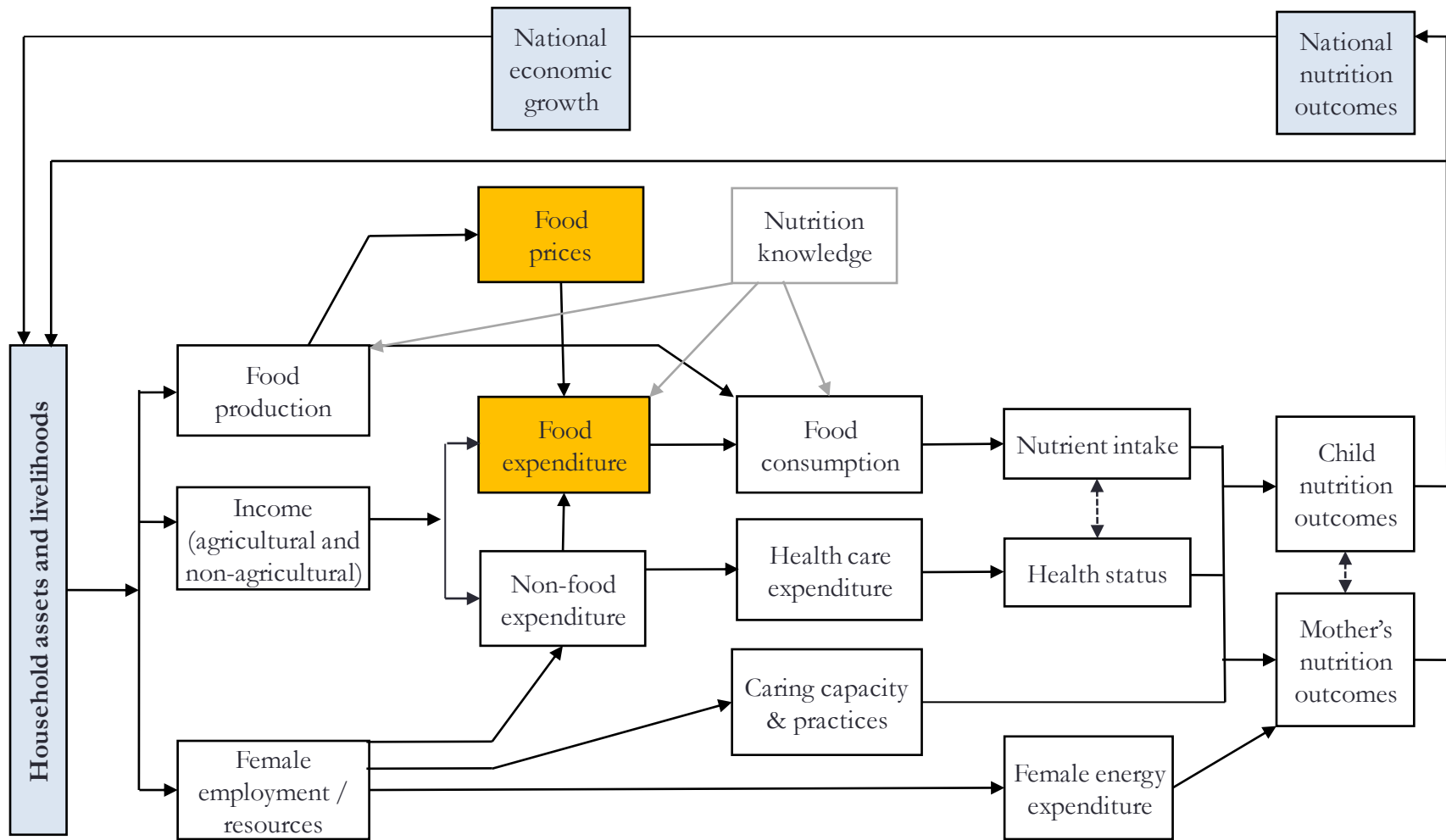
Pathways from agriculture to nutrition



Adapted from: Stuart Gillespie, Jody Harris, and Suneetha Kadiyala, 2012
The Agriculture-Nutrition Disconnect in India, What Do We Know? IFPRI Discussion Paper 01187

As GDP rises, nutrition profiles shift



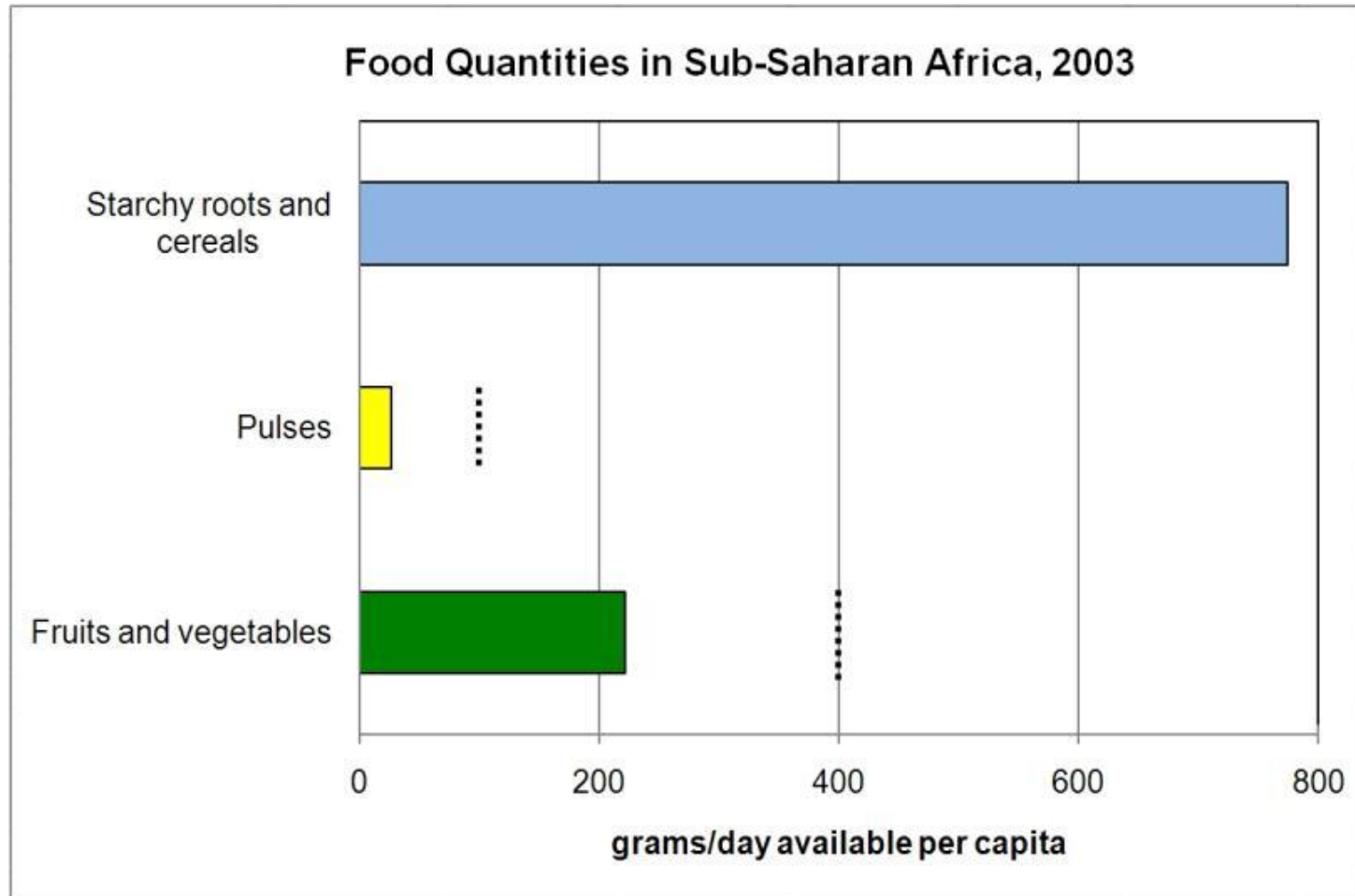


Food prices → food purchase

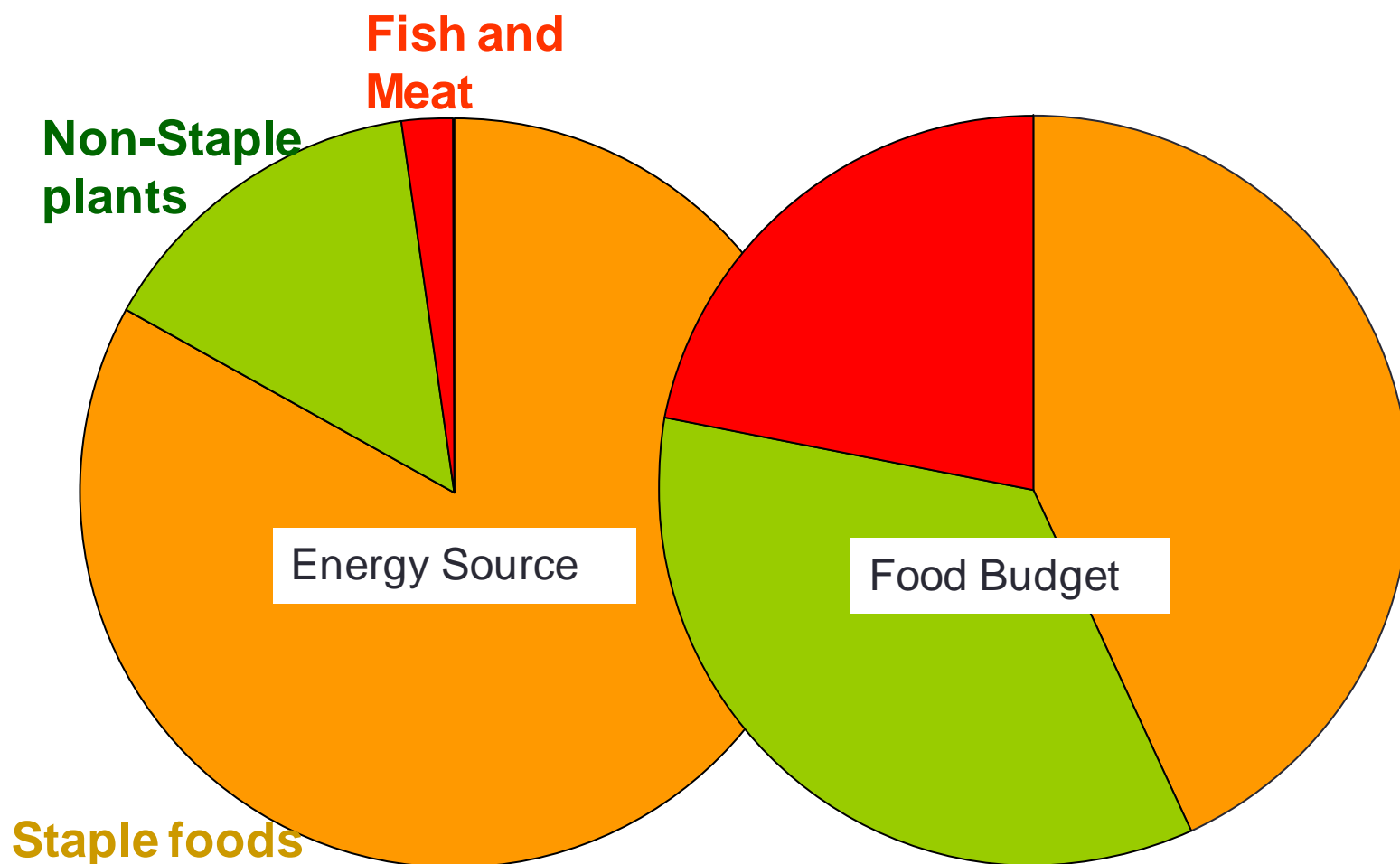
Calorie production and undernutrition

- Positive relationship only at low levels of calories
 - Also, high variance (not deterministic)
- MDG 1: Halve poverty and hunger by 2015
 - “Hunger” goal includes 2 indicators:
 - % hungry
 - % underweight
- Of the 21 countries that have already met the goal of halving the proportion of the population below the minimum level of dietary energy consumption, only six are on track to meet the underweight goal.

Calorie production focuses on starchy roots and cereals – despite larger dietary gaps

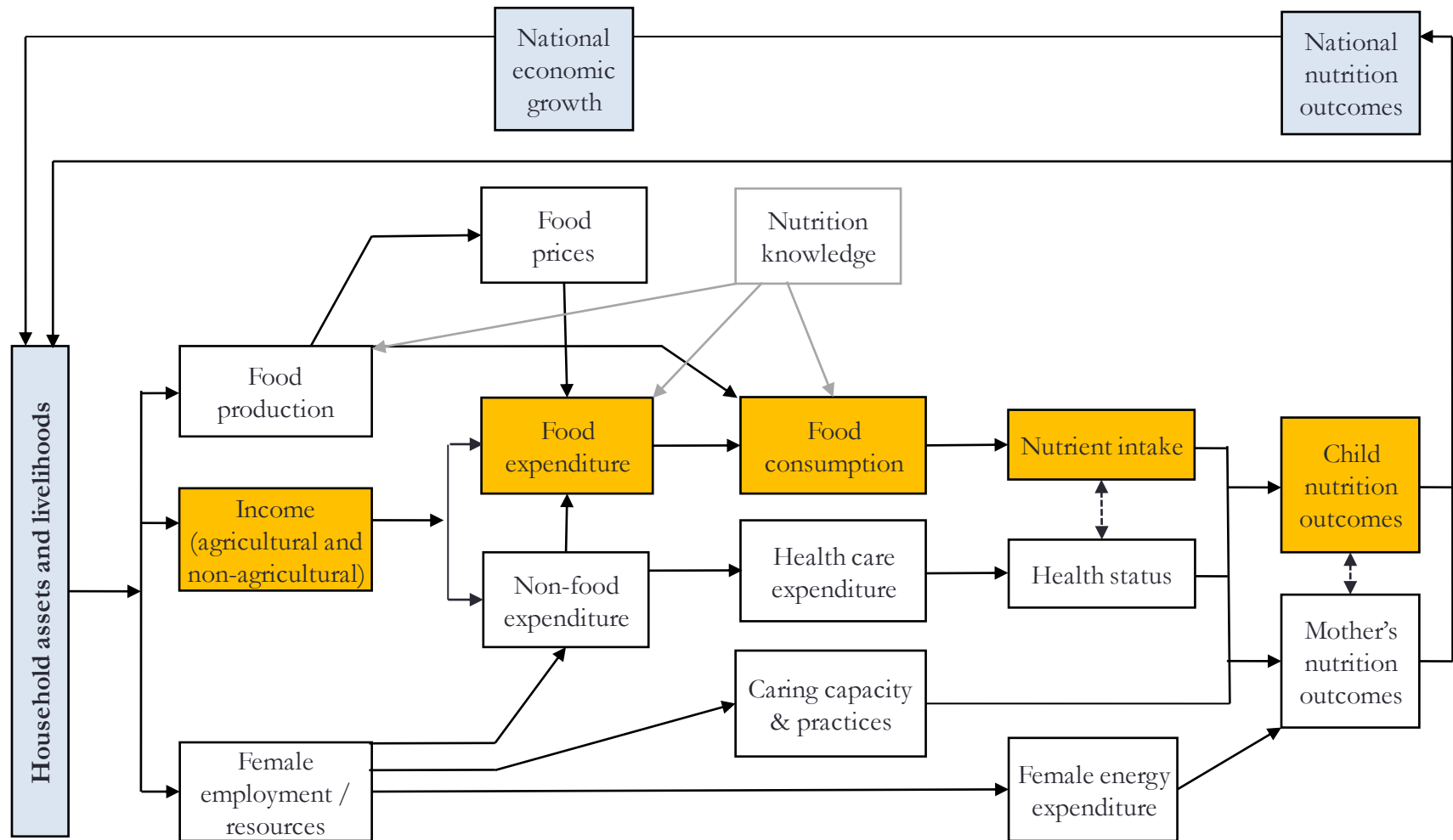


Share of Energy Source & Food Budget in Rural Bangladesh

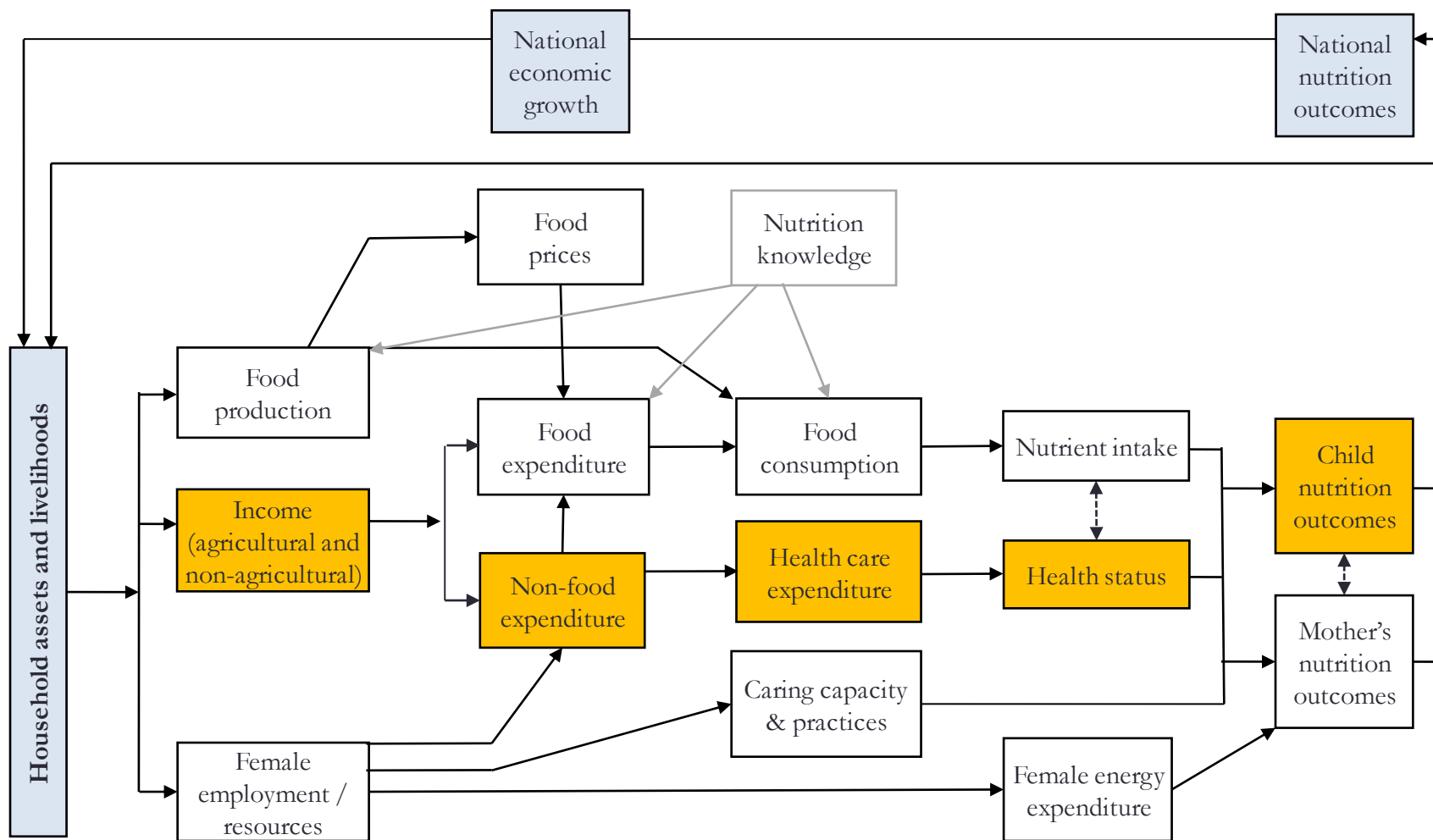


Food production and undernutrition

- Calorie production alone
 - Not sufficient to eliminate *food insecurity*
 - Not sufficient to eliminate *undernutrition*
 - Certainly will not reduce *overweight*
- *Food* means all diverse foods
 - **Not equal to calories**
- Reducing prices of nutrient dense foods has the potential for greater nutrition impact.



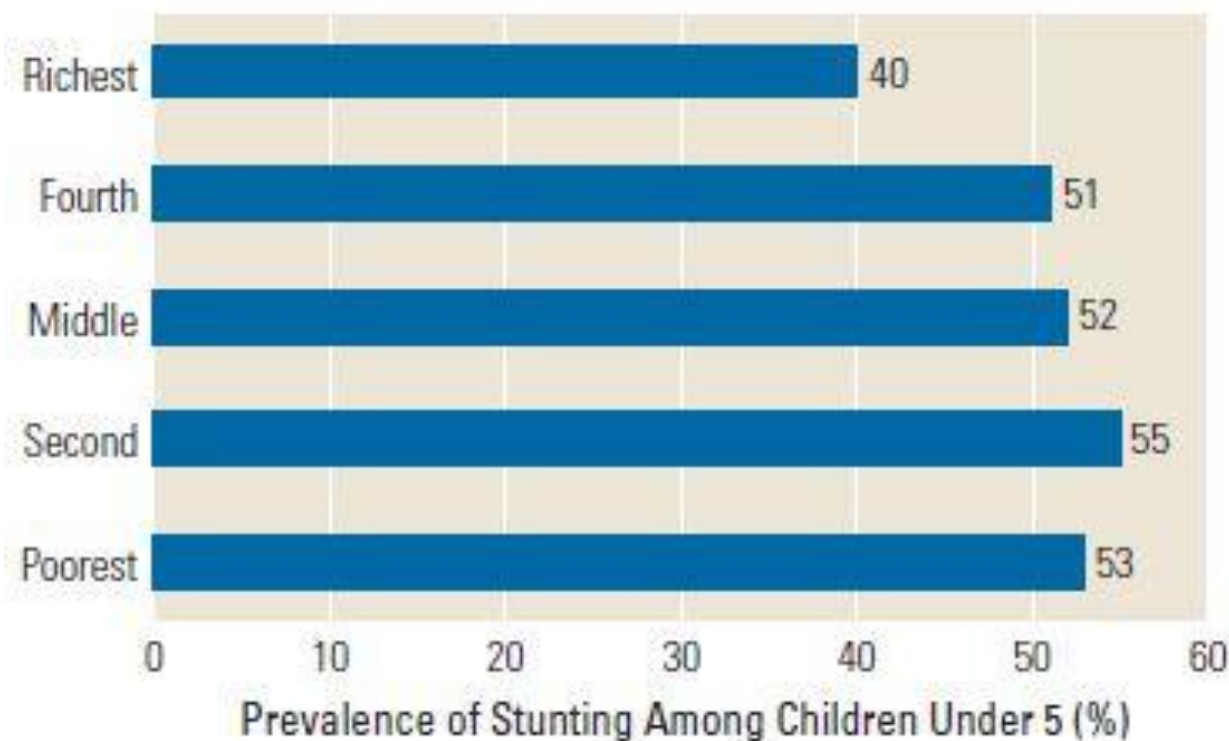
Income → food purchase



Income → healthcare purchase

Household income and nutrition

Prevalence of child stunting across wealth quintiles in Ethiopia



Source: DHS 2005 (figures based on the 2006 WHO Child Growth Standards).

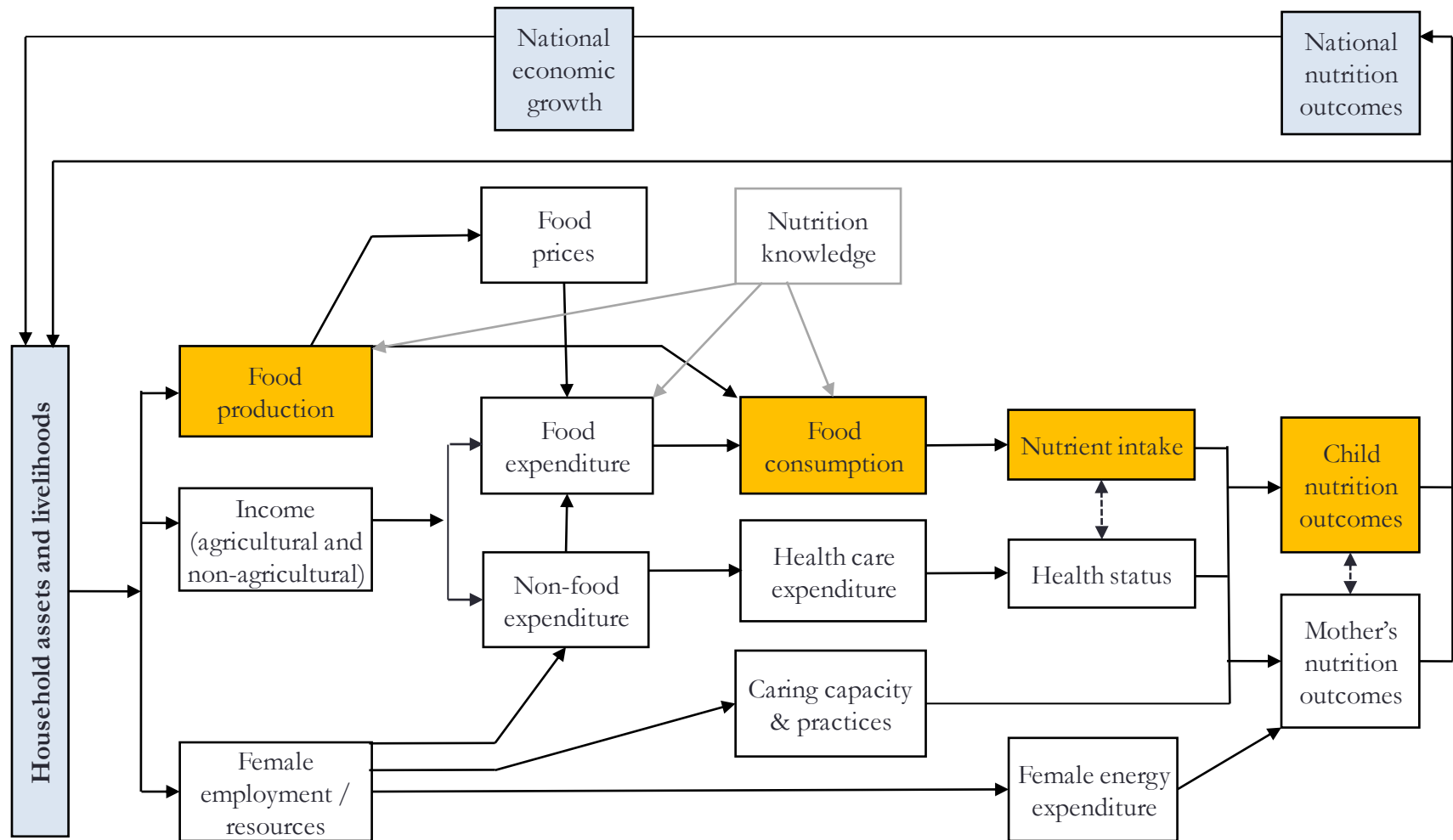
Source: World Bank Nutrition Country Profiles, 2010

Evidence from previous agricultural efforts to increase income

“Overall, cash-cropping schemes [whether staple crops or other] did not have a significant impact – negative or positive – on child nutritional status.”

- Household incomes generally improved.
- Consumption effects depended on base household income, how much was controlled by women, and changes in relative prices.

Source: World Bank, 2007



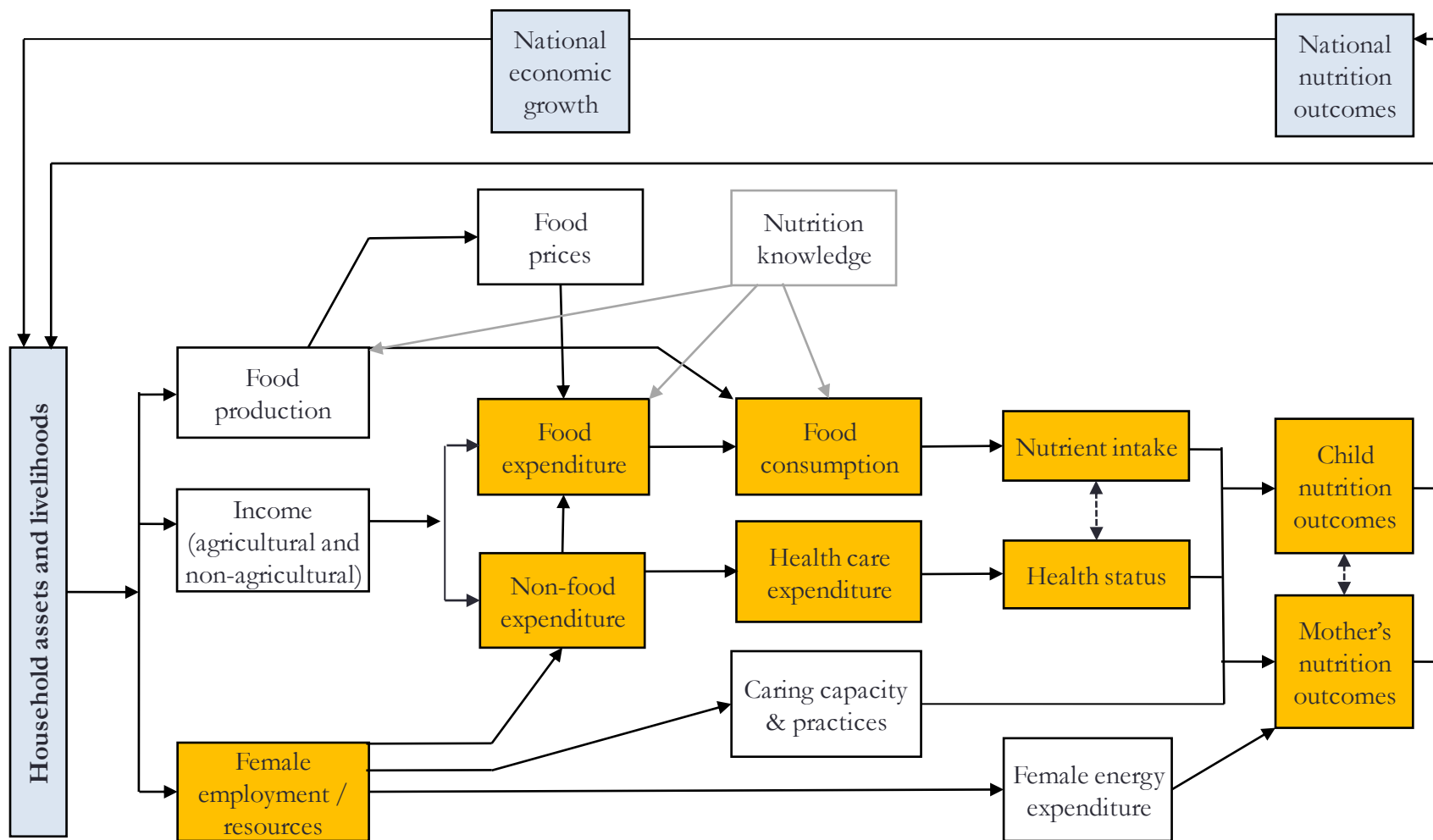
Own production → food consumption

Food production affects consumption

“With very few exceptions, home garden programs increased the consumption of fruit and vegetables; aquaculture and small fisheries interventions increased the consumption of fish; and dairy development projects increased the consumption of milk.”

Source: Systematic review by Masset et al, 2012

- Available data from home gardens programs also show positive impact on vitamin A status.



Women's control of income → resource allocation

Women's empowerment

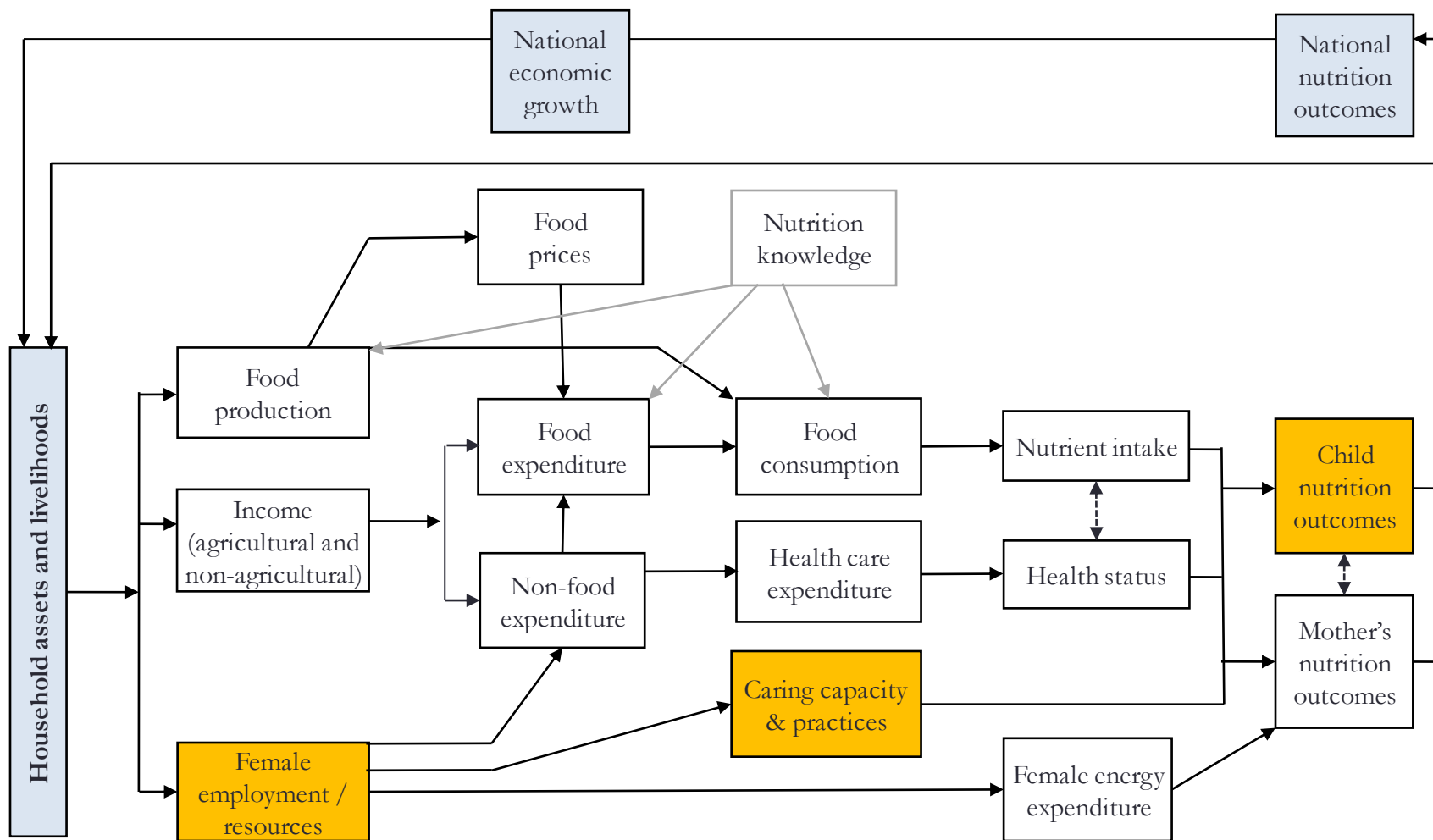
- Linked to over 50% of reductions in all child stunting from 1970-1995

Smith, L.C. and L. Haddad. 2000

- Shown in many studies, in many parts of the world: women's income has greater impact on child nutrition and food security than men's

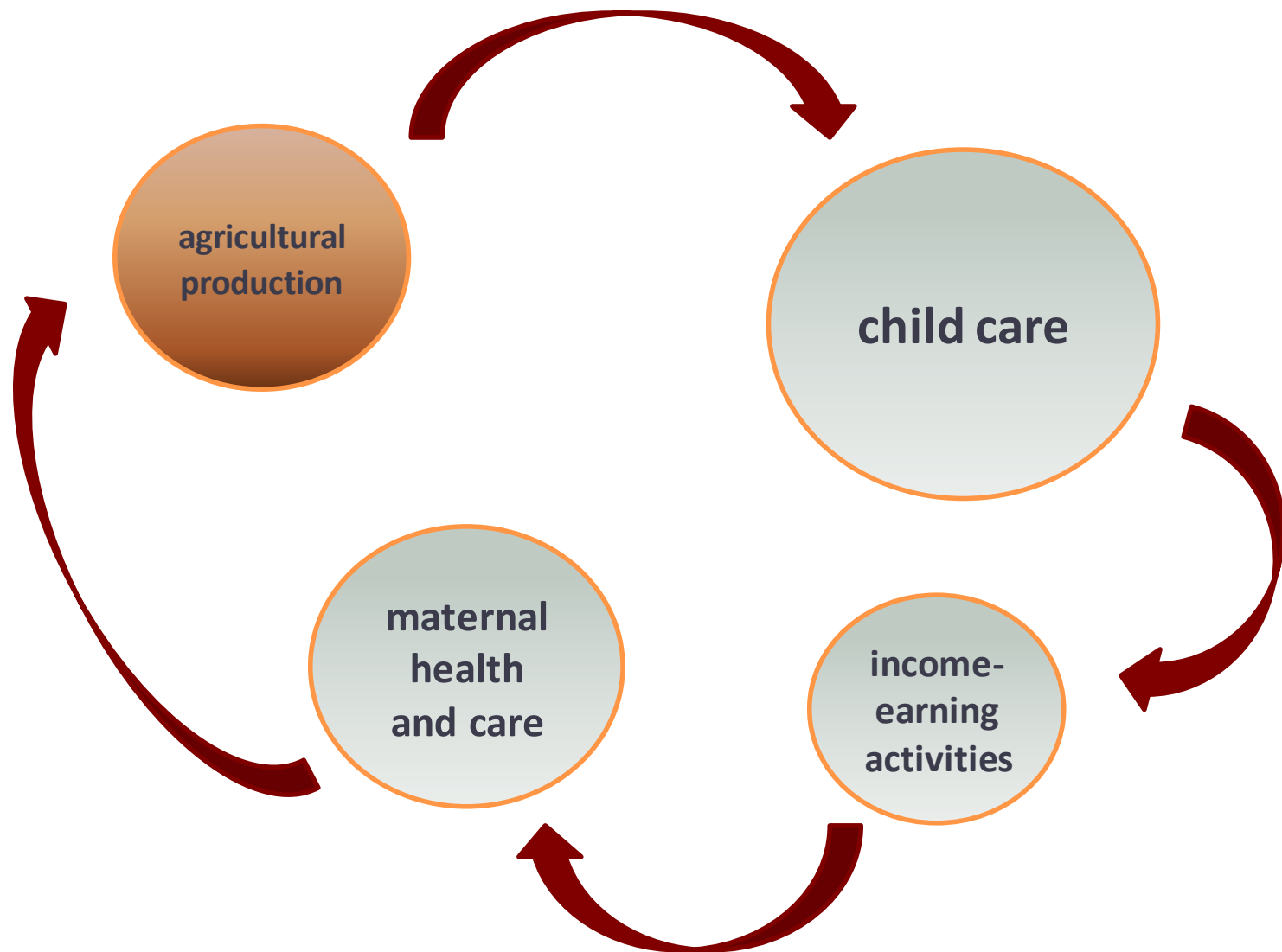
UNICEF 2011; Smith et al 2003

- Need more case studies of where agriculture projects affect this; not frequently measured
 - Women's empowerment in agriculture index: USAID/IFPRI

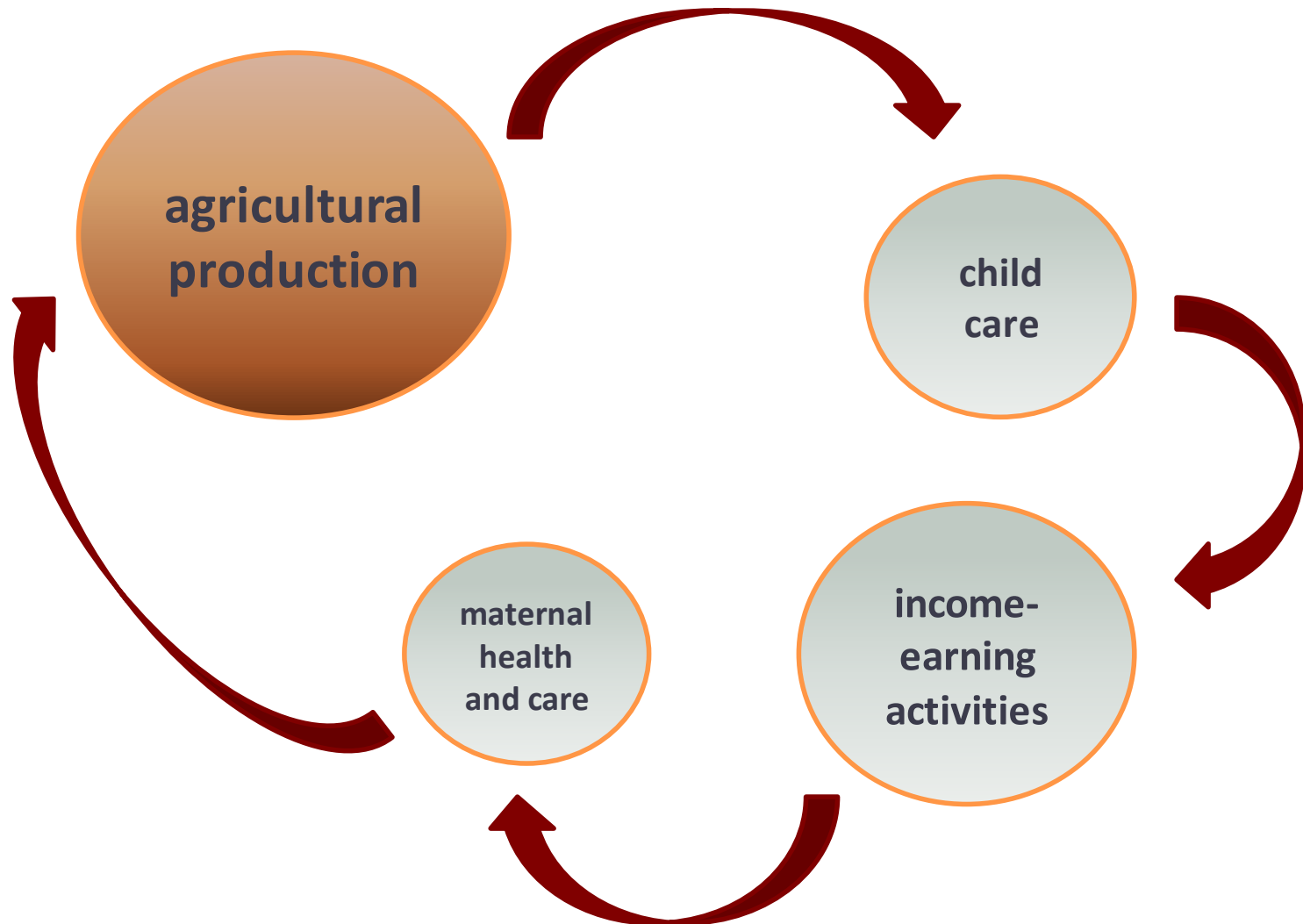


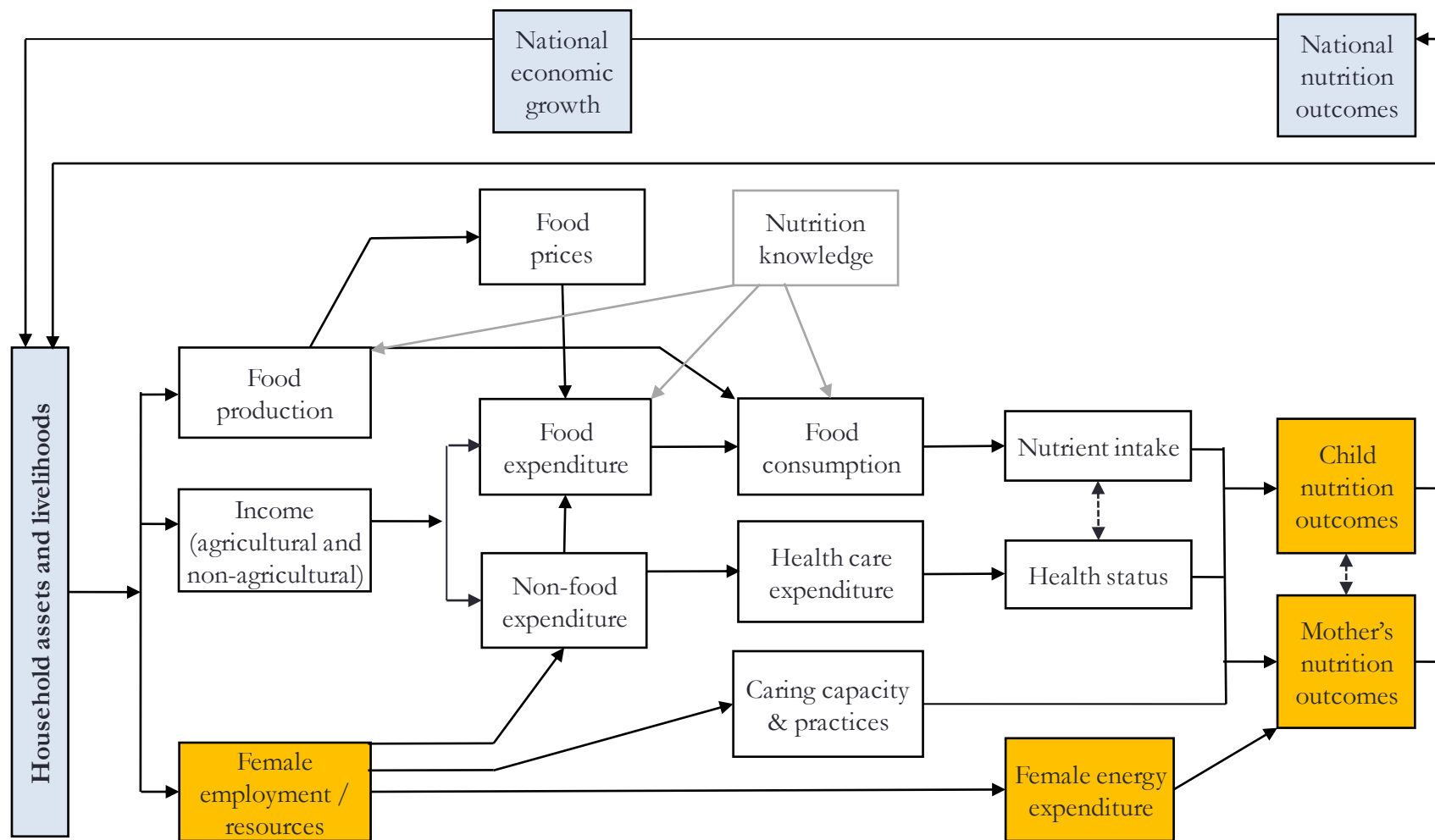
Women's time use → care capacity

The zero-sum game



The zero-sum game



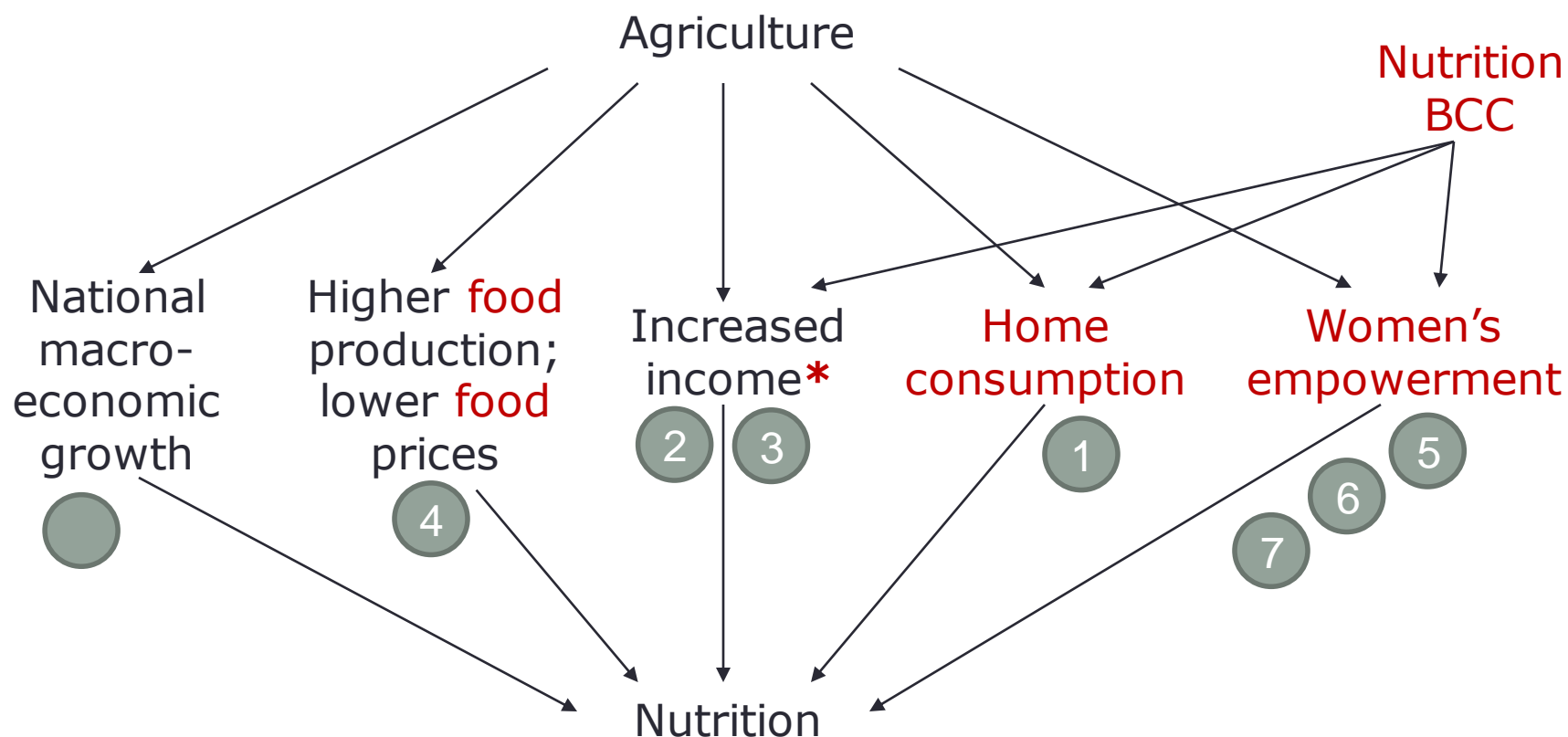


Women's workload → energy use

Women's agricultural labor

- Agricultural activities tend to make up a major share of rural women's energy expenditure, often at high levels of effort and in addition to normal domestic duties.
- Women are more likely than men to suffer from seasonal energy deficiency and seasonal weight loss.
 - Negative impacts on children of pregnancy during hunger season (or famine).
- Occupational health hazards in agriculture can have an impact on women, and on their children in-utero.
- Positive relationship between nutritional status and agricultural productivity.

Summary of pathways



*Particularly if controlled by women

Overall Messages: Pathways to Nutrition

OLD: Assumptions about nutrition impact have been challenged

- Increasing production of calories
- Increasing overall household incomes as a singular priority
- Agriculture as an engine of overall economic growth; trickle-down effect on nutrition minimal

NEW: These need more attention if we are going to reach nutrition

- Increasing production of diverse, nutrient dense foods
- Increasing women's incomes
 - And avoiding harm due to additional time demands or energy expenditure of women
- Incorporating nutrition behavior change communication for enhanced nutrition impact from food production and income



Synthesis of Guidance on Agriculture Programming for Nutrition



UNITED NATIONS
NATIONS UNIES



THE WORLD BANK

UN System High Level Task Force on Global Food Security (HLTF)



FOOD AND
NUTRITION
TECHNICAL
ASSISTANCE



World Vision



ACF International

Maximising the Nutritional Impact of Food Security and Livelihoods Interventions

A manual for field workers

USAID'S INFANT & YOUNG CHILD NUTRITION PROJECT

Achieving Nutritional Impact and Food Security through Agriculture



USAID's Infant & Young Child Nutrition Project



EUROPEAN COMMISSION



Addressing undernutrition in external assistance

An integrated approach through sectors and aid modalities

September 2011



LEVERAGING AGRICULTURE FOR IMPROVING NUTRITION AND HEALTH



THE WAY FORWARD

Planning for nutrition

1. **Incorporate explicit nutrition objectives** in agricultural policy and program design.
2. **Assess the context** and causes of malnutrition at the local level, to maximize effectiveness and reduce negative side effects.
3. **Do no harm.** Identify potential harms, develop a mitigation plan, and set in place a well-functioning monitoring system.
4. **Measure nutritional impact** through program monitoring and evaluation.
5. Maximize opportunities through **multisectoral coordination**.
...in addition to **targeting** the vulnerable, increasing **equitable access to productive resources**, and planning how to **maximize nutrition impact from income**

All approaches should:

9. Empower women

- control of income
- access to extension services and information, land, other productive resources
- avoiding harm to their ability to care for children
- labor and time-saving technologies

10. **Incorporate nutrition behavior change communication** to improve consumption and nutrition effects of interventions.

11. **Manage natural resources** for improved productivity, resilience to shocks, adaptation to climate change, increased equitable access to resources through soil, water, and biodiversity conservation.

Increasing access to diverse, nutritious foods

12. **Diversify production and livelihoods** for improved food access and dietary diversification, natural resource management, risk reduction, and improved income.

13. **Increase production of nutrient-dense foods**, particularly locally-adapted varieties rich in micronutrients and protein, chosen based on local nutrition issues and available solutions.

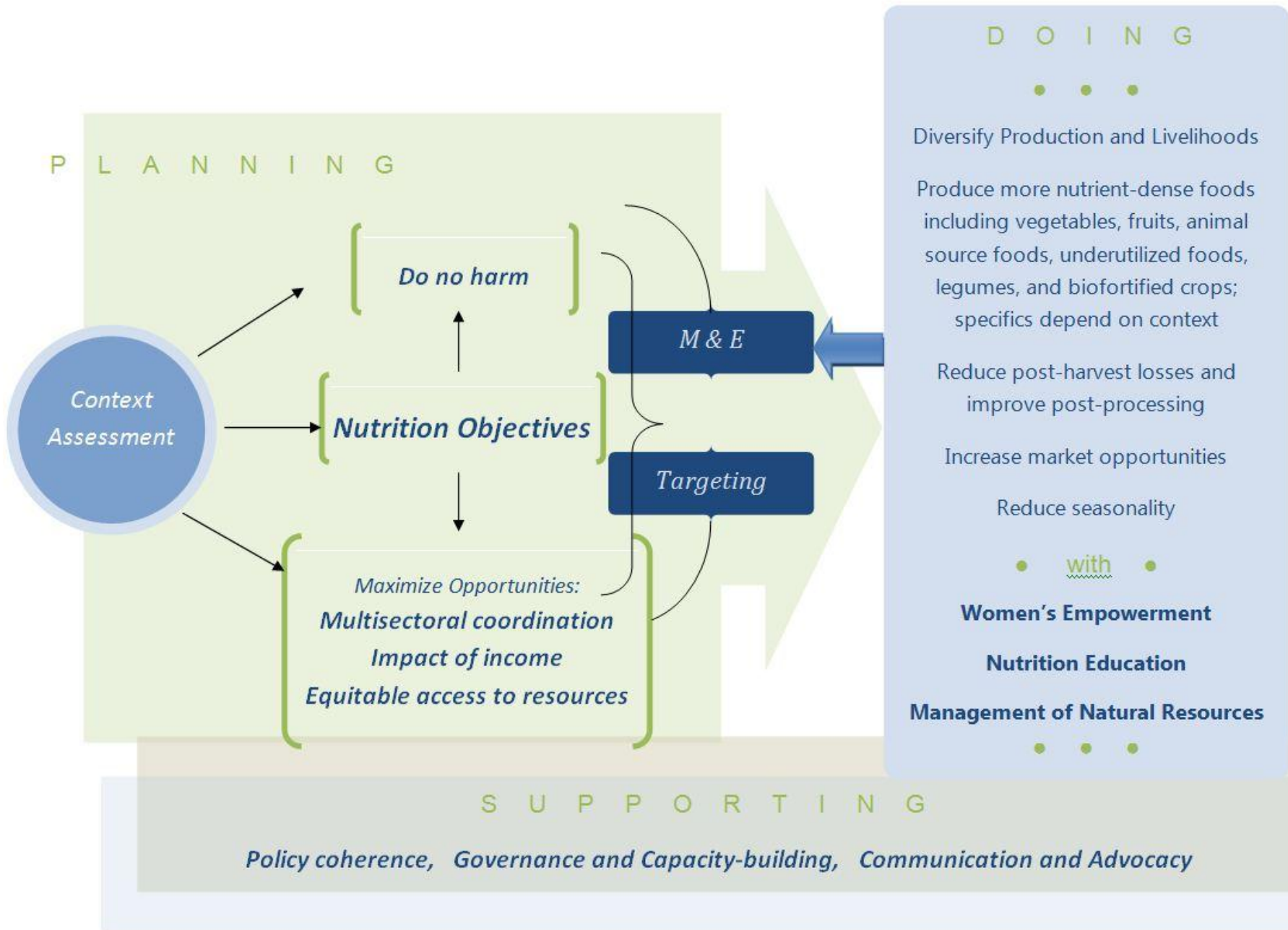
14. **Reduce post-harvest losses and improve processing.**

15. **Increase market access and opportunities**, especially for nutritious foods that smallholders may have a comparative advantage in producing.

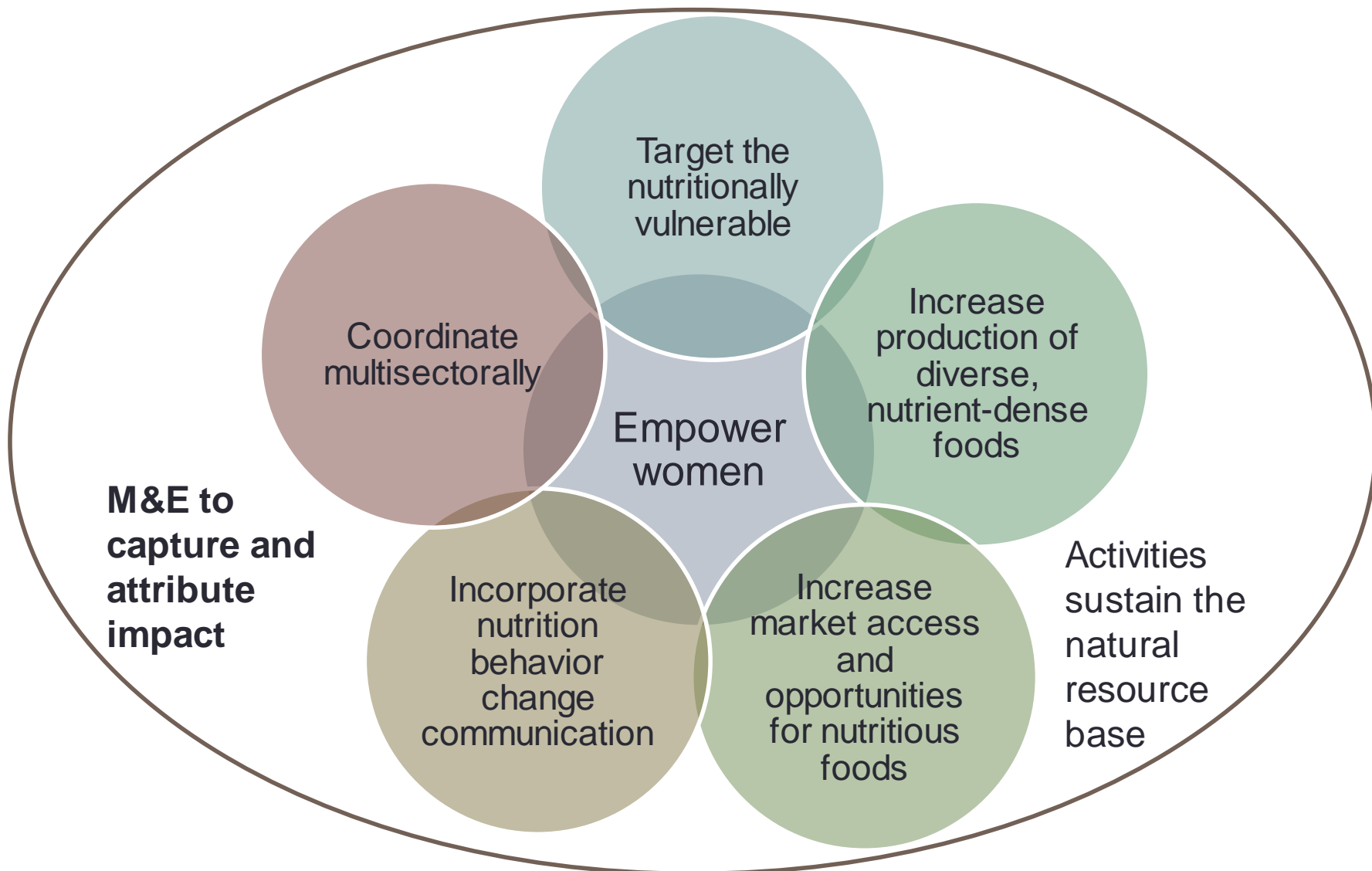
16. **Reduce seasonality of food insecurity** through diversification throughout the year, improved storage and preservation, and other approaches.

Supportive environment

17. **Improve policy coherence** supportive to nutrition, including food price policies, subsidies, trade policies, and pro-poor policies.
18. **Improve good governance for nutrition**, by drawing up a national nutrition strategy and action plan, allocating adequate budgetary resources, and implementing nutrition surveillance.
19. **Build capacity** in ministries at national, district, and local levels, and increase nutrition staff.
20. **Communicate and continue to advocate for nutrition.**



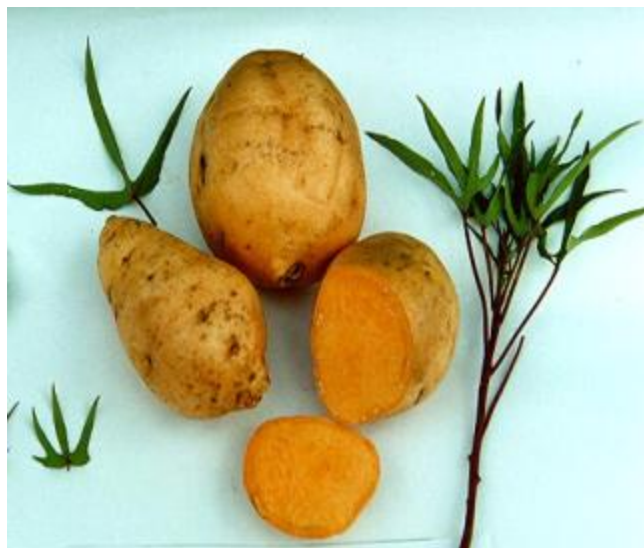
The vision for Feed the Future projects



Q&A

Success stories: Promotion activities around a specific crop

- **Promotion of biofortified crop** (OFSP) in Mozambique resulted in improved vitamin A status of children. (Low et al. 2008)



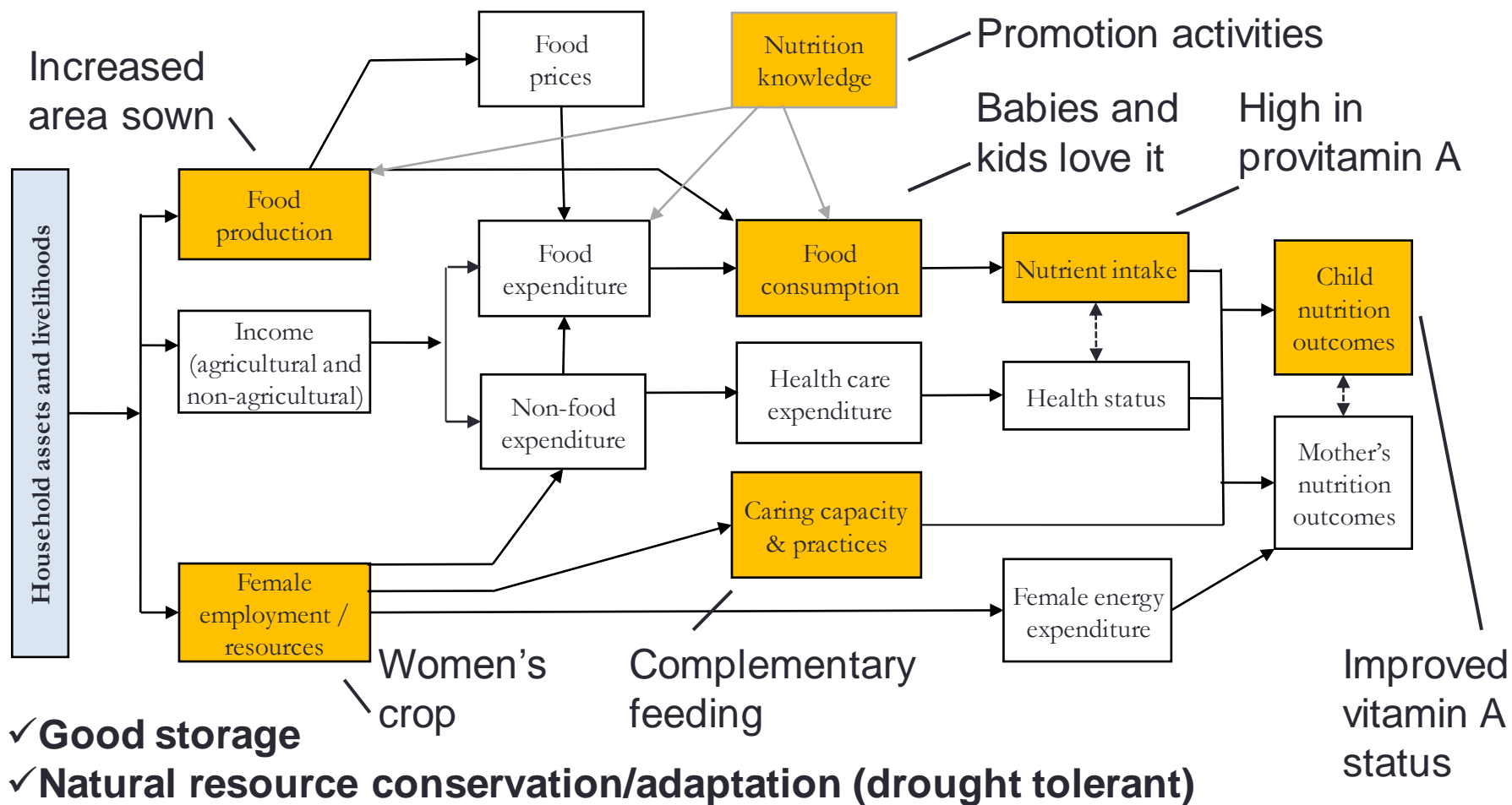
WHY?

- High in pro-vitamin A
- Women-controlled
- Relatively less labor-intensive
- Relatively good storage
- Drought tolerant
- Great complementary food, babies/kids will eat it
- Accompanied by education and promotion

Pathways and principles

- ✓ **Targets the vulnerable**
- ✓ **Increases production of diverse, nutrient-dense foods**
- ✓ **Empowers women**

- ✗ **Increases market opportunities for nutritious foods**
- ✓ **Incorporates nutrition education**
- ✓ **Multisectoral coordination**



Success stories: Traditional Vegetables

- **Promotion of production and marketing of traditional African vegetables in Kenya:**
 - Increased incomes
 - Increased vegetable intakes in households and children
 - Led to increased dietary diversity

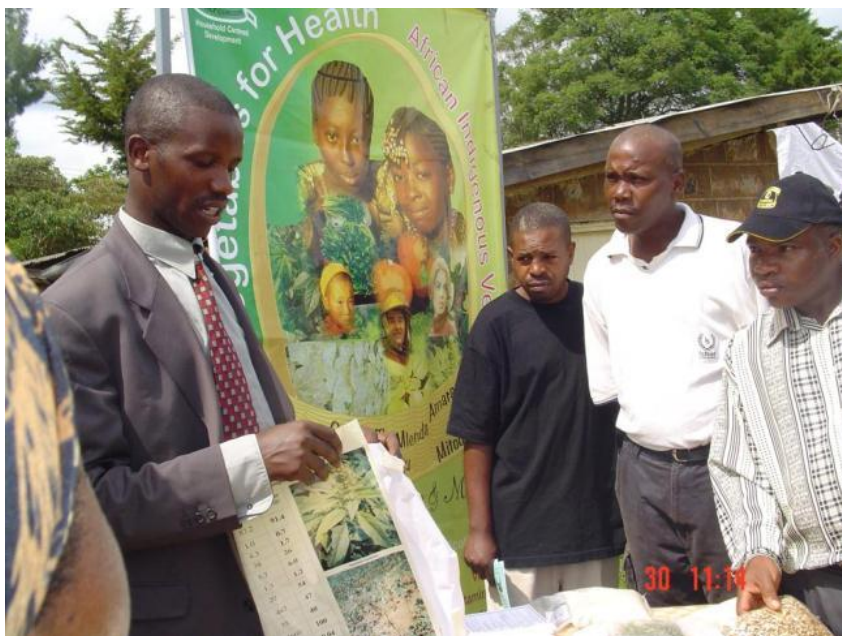


Photo: Farm Concern

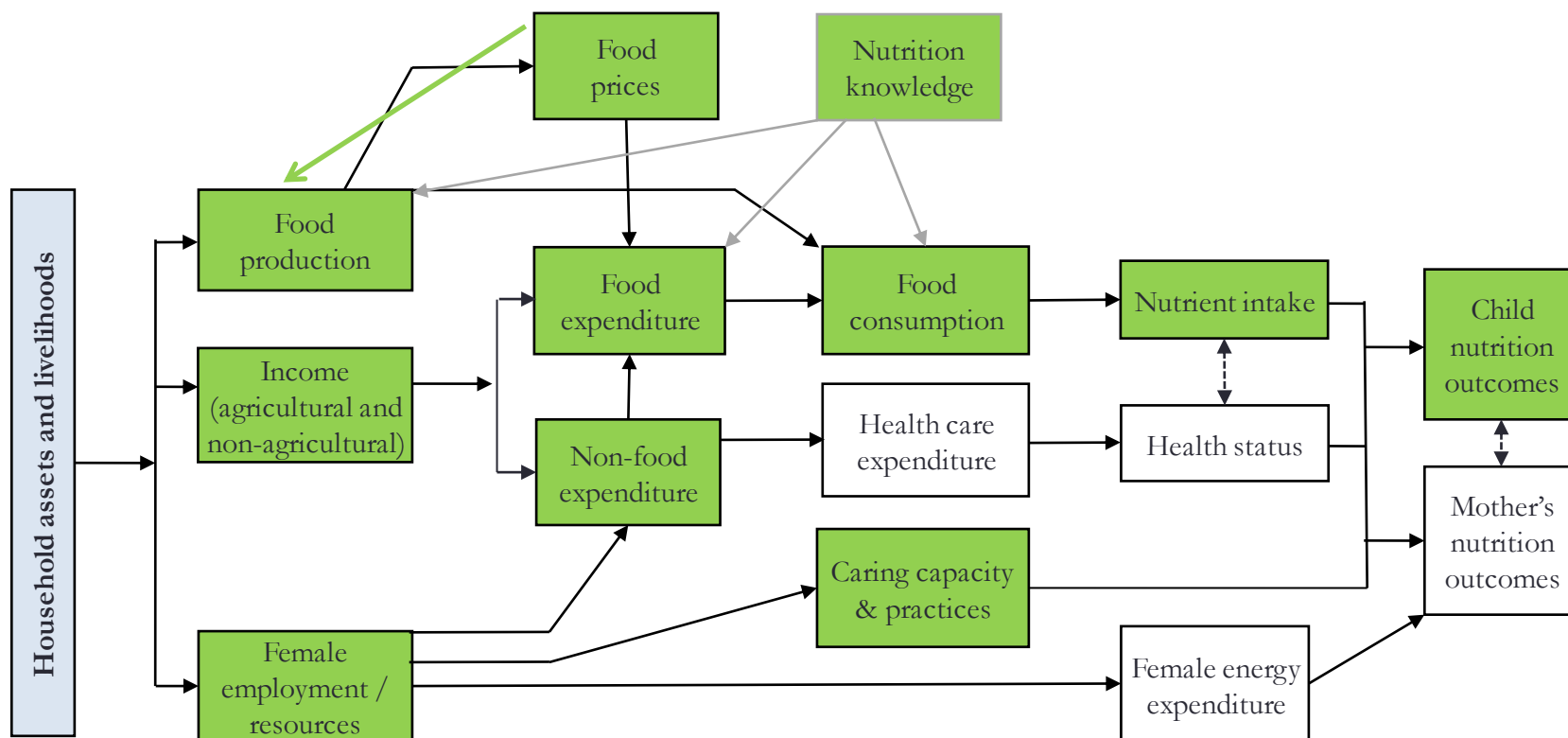
WHY?

- Increased production diversity
- Year-round production
- Required minimal land and inputs
- Close to homestead
- Women-controlled
- Accompanied by education & promotion to farmers and consumers
 - High in iron and pro-vitamin A; medicinal
- Marketability motivated farmers to produce and consume

Pathways and principles

- ✓ Targets the vulnerable
- ✓ Increases production of diverse, nutrient-dense foods
- ✓ Empowers women

- ✓ Increases market opportunities for nutritious foods
- ✓ Incorporates nutrition education
- x Multisectoral coordination



- ✓ Year-round production
- ✓ Natural resource conservation/adaptation (grows wild, without inputs)

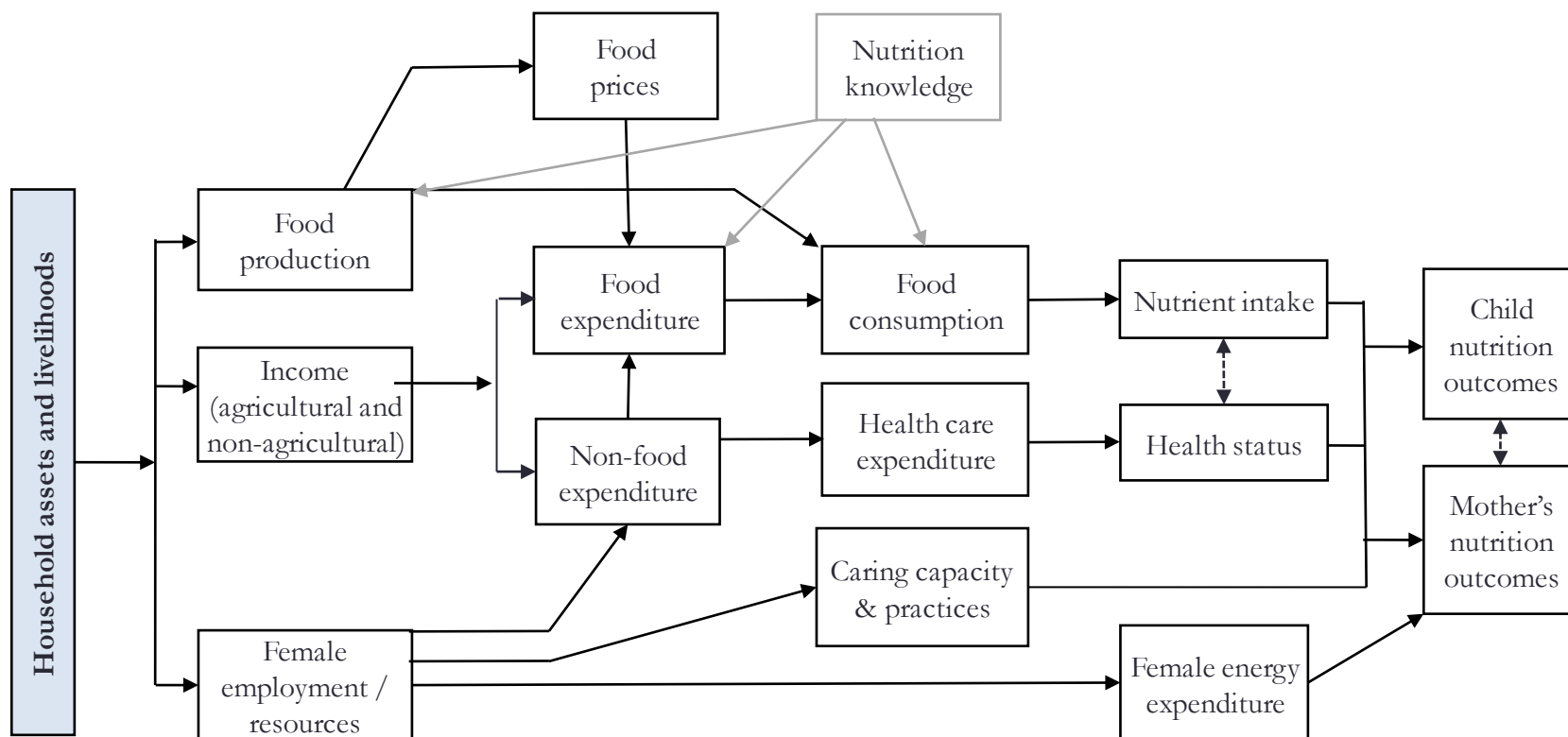
Interactive exercise: example

- Main strategy: Improve value chains for horticulture, peanut, soya, sunflower, and maize
 - Chosen based on market and nutrition considerations
- Links to regional and export markets
- Women traditionally grow horticulture, peanut, sunflower
- Project aims to target vulnerable farmers
 - Acknowledges that many may lack productive resources to benefit from market-oriented value chains
 - Targeted with economic resilience activities including building assets and coping skills
- There is a health program in the country, focusing on nutrition BCC on infant feeding and child growth promotion, but targets different communities than VC

Pathways and principles

- ✓ Targets the vulnerable
- ✓ Increases production of diverse, nutrient-dense foods
- ✓ Empowers women

- ✓ Increases market opportunities for nutritious foods
- ✓ Incorporates nutrition education
- ✓ Multisectoral coordination



- ✓ Other principles? Refer to 20 principles handout in folder