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**November 14, 2012**

# **Animal Source Foods and Child Cognitive Development: A USAID Success Story of University Research to Private Sector Implementation**

## **Speaker**

Montague Demment, *Association of Public and Land-Grant  
Universities (APLU)*

## **Facilitator**

Zachary Baquet, *USAID Bureau for Food Security*



# Agrilinks Blog



## Latest Developments in Food Security



### Feed the Future Partnering for Innovation Program

Attend the November 14 launch event to hear about a promoting, and commercializing agricultural technology



### Video Note: Dr. Shukri Ahmad on Index-Based Weather Insurance

Dr. Shukri Ahmad of FAO discusses a new pilot project in Ethiopia that offers index insurance products which can be used as collateral for smallholder farmers to gain access to credit



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## Upcoming Ag Sector Council



**EAT** | Enabling  
Agricultural Trade

- December 5 | Enabling Agricultural Trade (EAT) Project: Fertilizer Policy

# Animal Source Foods and Child Cognitive Development: A USAID Success Story of University Research to Private Sector Implementation



**Montague Demment**

**Association of Public Land-grant Universities (APLU)**

**Department of Plant Sciences  
University of California, Davis**



# INCREASE FOOD SUPPLY AND DIET QUALITY



**Reduce Poverty & Malnutrition**

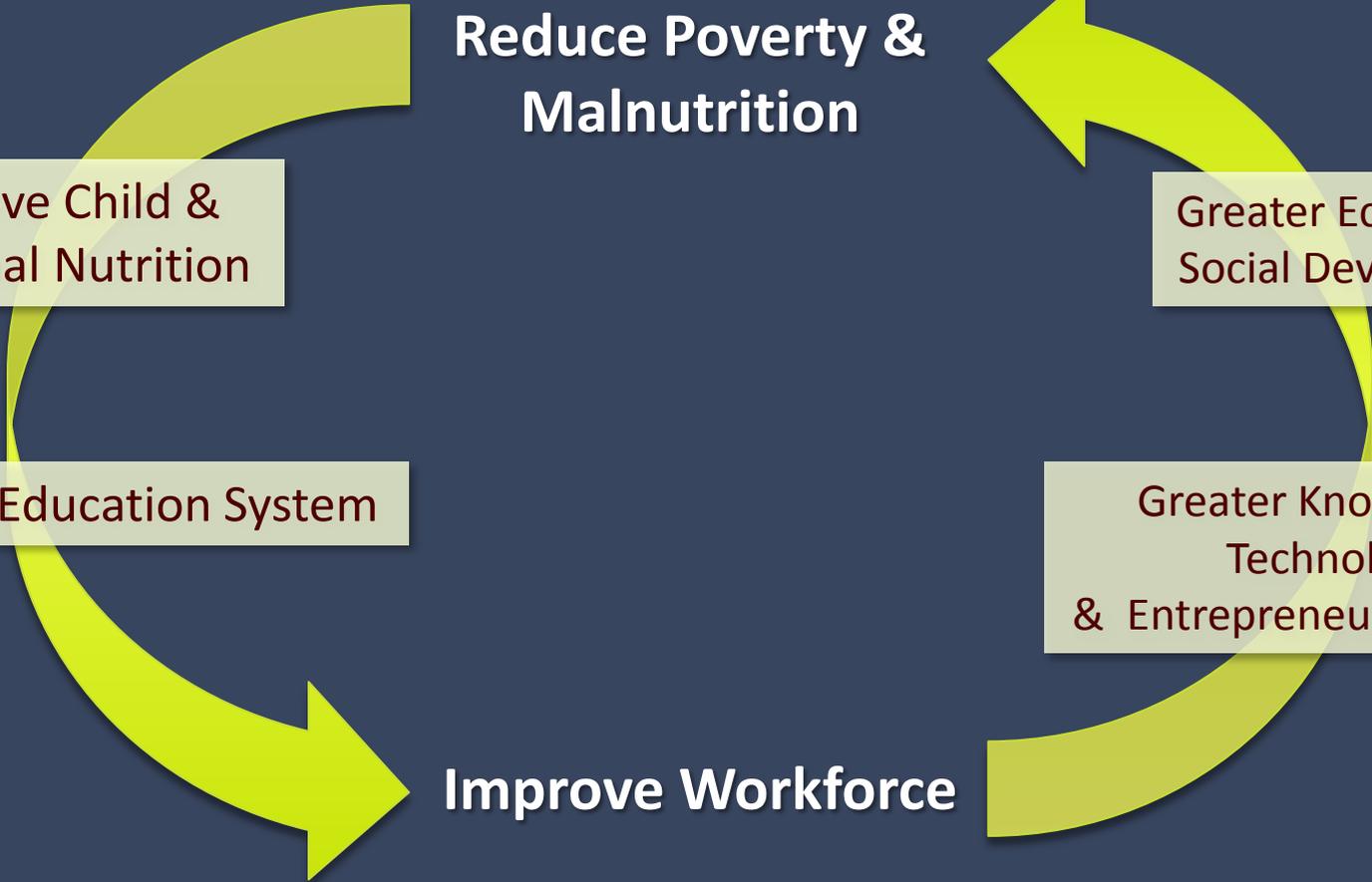
Improve Child & Maternal Nutrition

Improve Education System

Greater Economic & Social Development

Greater Knowledge, Technology & Entrepreneurial Activity

**Improve Workforce**



# Building Human Capacity: 30 years of commitment and productivity

- **Nutrition CRSP Research 1980s:** Kenya, Egypt and Mexico; (UC- Berkeley, UCLA, UCONN, Instituto Nacional de la Nutricion (Mexico), U of Nairobi, Purdue, National Institute of Nutrition-Cairo, UMass, U of Miami)

# Building Human Capacity: 30 years of commitment and productivity

- **Global Livestock CRSP**
  - **Child Nutrition Project (1996-2002):** Kenya; (UCLA, UCD, U of Hawaii, U of Nairobi, Kenya Ministries of Education and Health, Wageningen U)
  - **ENAM Project (2005 – 2010):** Ghana; (ISU, McGill, U of Ghana, Heifer International, Freedom from Hunger, Ghana Rural Banks)



**More than one billion people,  
nearly a sixth of the world's  
population, suffer from chronic  
hunger, most of it not apparent.**

# Malnutrition Impacts

- Immune system function
- Child cognitive and physical development
- Work productivity
- Lifespan
- Quality of life



**Fogel estimates that half of the economic growth in the UK in the industrial revolution was due to increased capacity of people and explained by nutrition's impact on human health, productivity and life span.**

# Human Nutrition CRSP

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- 1977 NRC conducts “World Food Study”
- Does moderate malnutrition have impact on human function?
- Energy thought to be main causal factor
  - **Implications for intervention!**
- In response, USAID funds the HN-CRSP
- Observational, non-intervention study in Mexico, Kenya, and Egypt.

# The most important N-CRSP findings were:



- **QUALITY** was a much stronger determinant of nutritional status than was the quantity.
- **ASF** were best predictor of cognitive function.
- Sadly **ignored** because not an intervention study.

# Role of Animal Source Foods to Improve Diet Quality and Growth and Development in Kenyan Schoolers

## PRINCIPAL INVESTIGATORS

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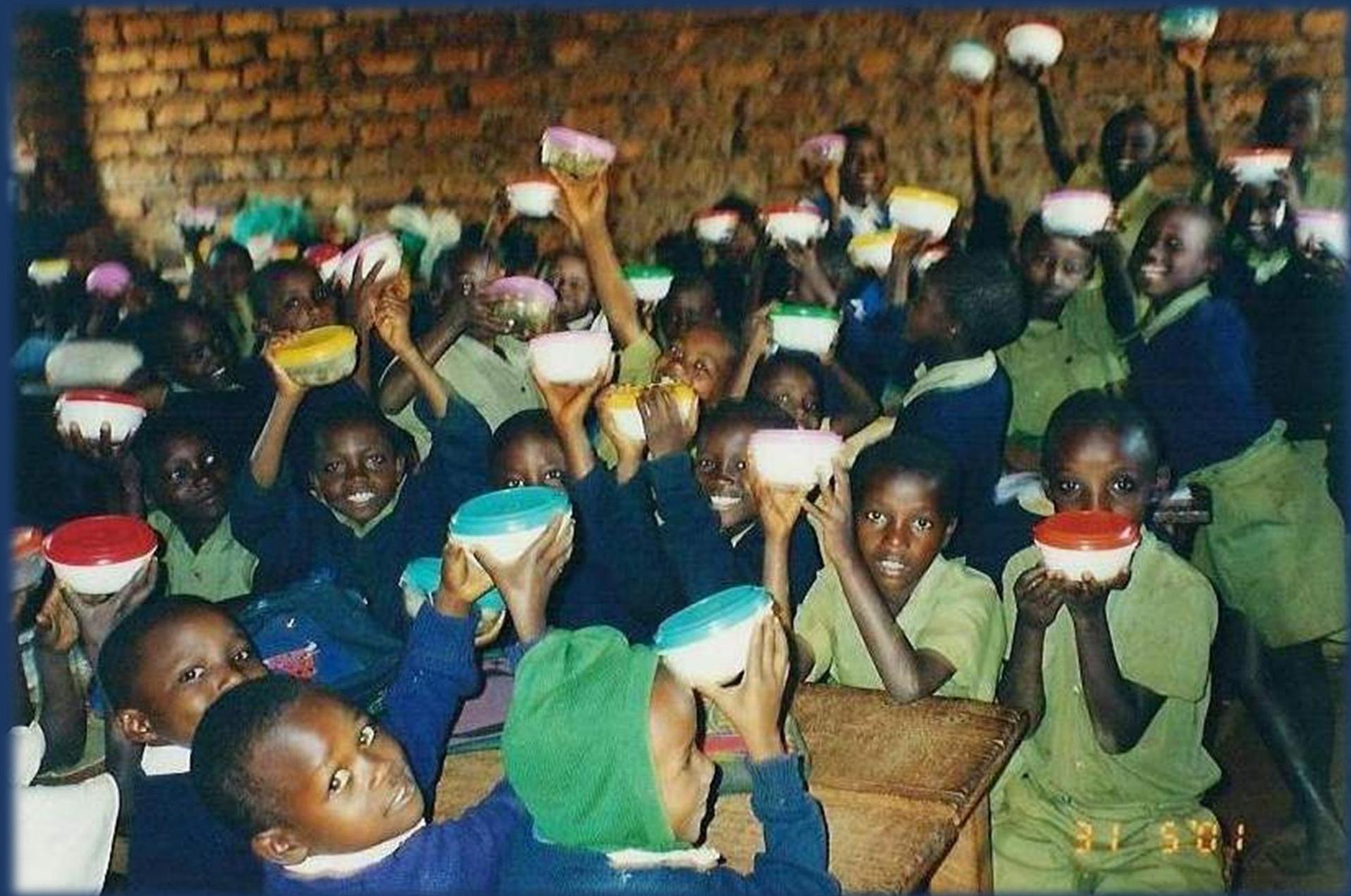
U of Hawaii

Lindsay Allen, PhD

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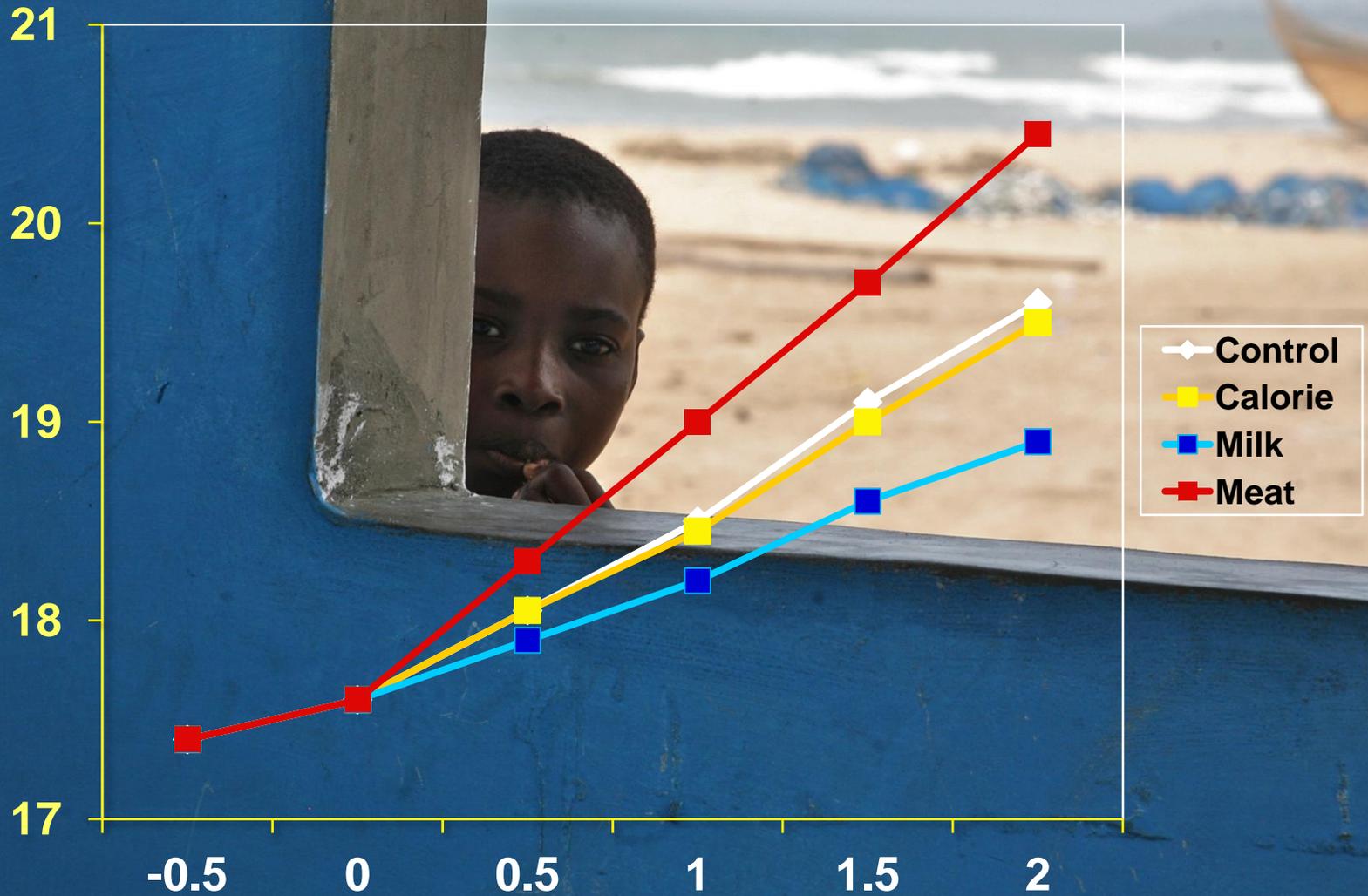
*Funded by USAID through Global Livestock CRSP*

*Other support: National Cattlemen's Beef Assoc. (NCBA), James Coleman African Study Center (UCLA), Thrasher Research Fund.*

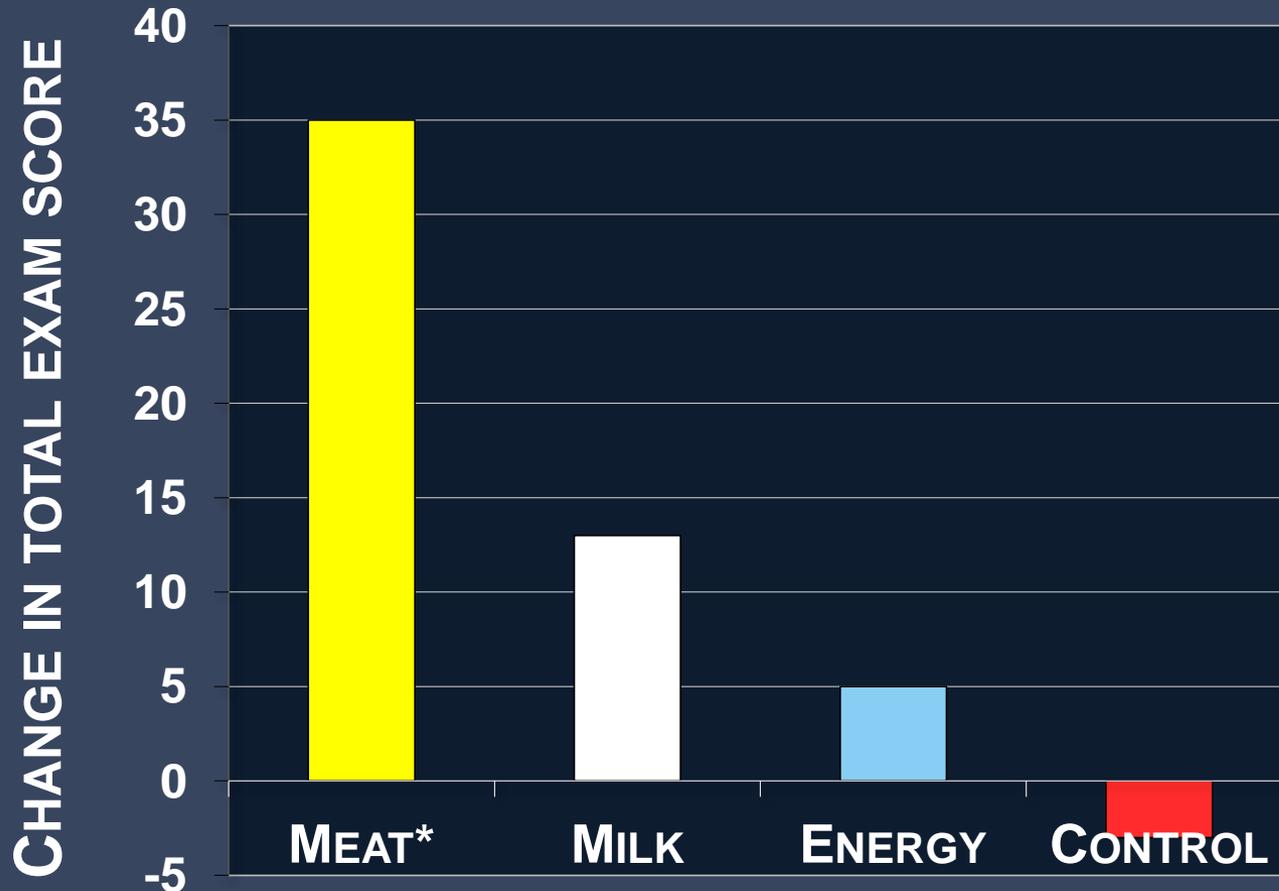


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# RAVEN'S SCORES



# Change in end of term test scores



*\*Feeding group scores controlled for baseline scores: Meat significantly greater change.*

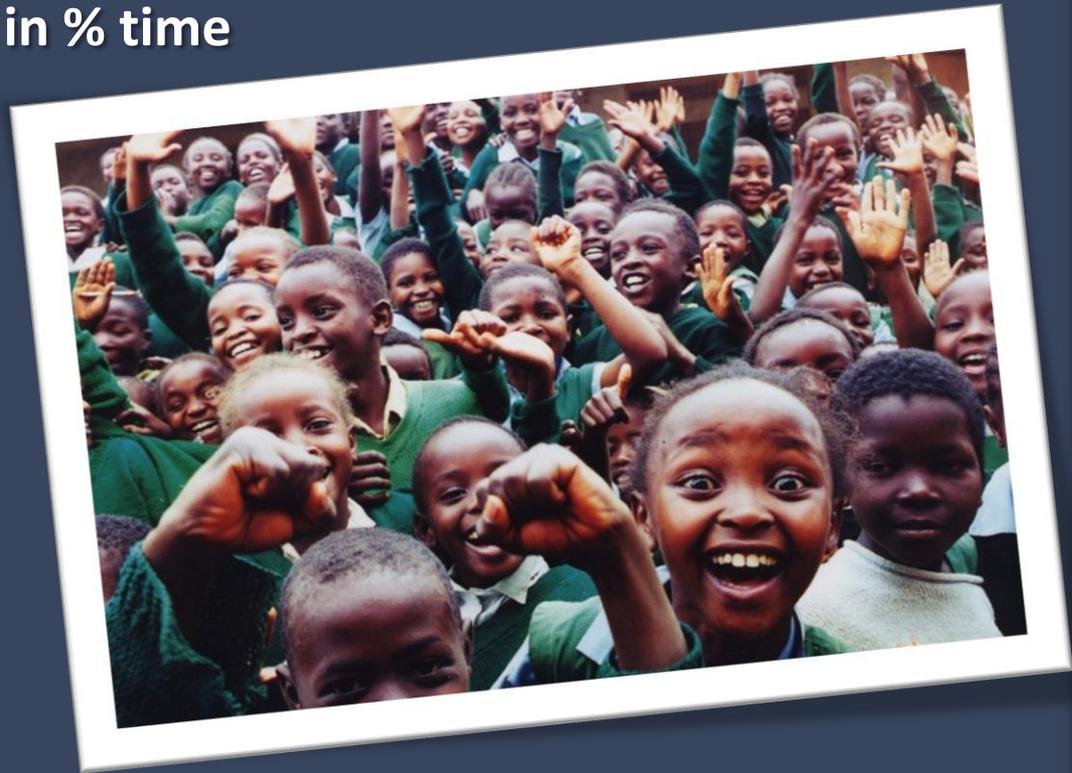
A large, dense crowd of African school children, mostly young boys and girls, are shown from the chest up. They are wearing green and white school uniforms. Many of the children have their hands raised in the air, some with fingers spread, suggesting they are cheering or participating in a game. Their faces are filled with joy and excitement, with wide smiles and bright eyes. The background is slightly blurred, focusing attention on the children in the foreground. The overall atmosphere is one of high energy and positive behavior.

# Behavior during play

# Compared to all other groups,

## THE MEAT GROUP

- Had greatest increase in % time spent in high activity levels, and least % time in low activity.
- Spent more % time in leadership and initiative.
- Were more talkative, playful – and “disruptive”.



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## **Animal Source Foods to Improve Micronutrient Nutrition and Human Function in Developing Countries**

*Proceedings of the conference  
held in Washington, DC  
June 24-26, 2002*

**Guest Editors**

Montague Demment

Lindsay Allen

Published as a Supplement to The Journal of Nutrition

Official Publication of the American  
Society for Nutritional Sciences

*Online at [www.nutrition.org](http://www.nutrition.org)*

# Building Human Capacity to Accumulate Resources: ENAM – Enhancing child Nutrition through Animal source food Management

## PRINCIPAL INVESTIGATORS

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Anna Lartey, PhD

Esi Colecraft

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U of Ghana

U of Ghana

U of Ghana

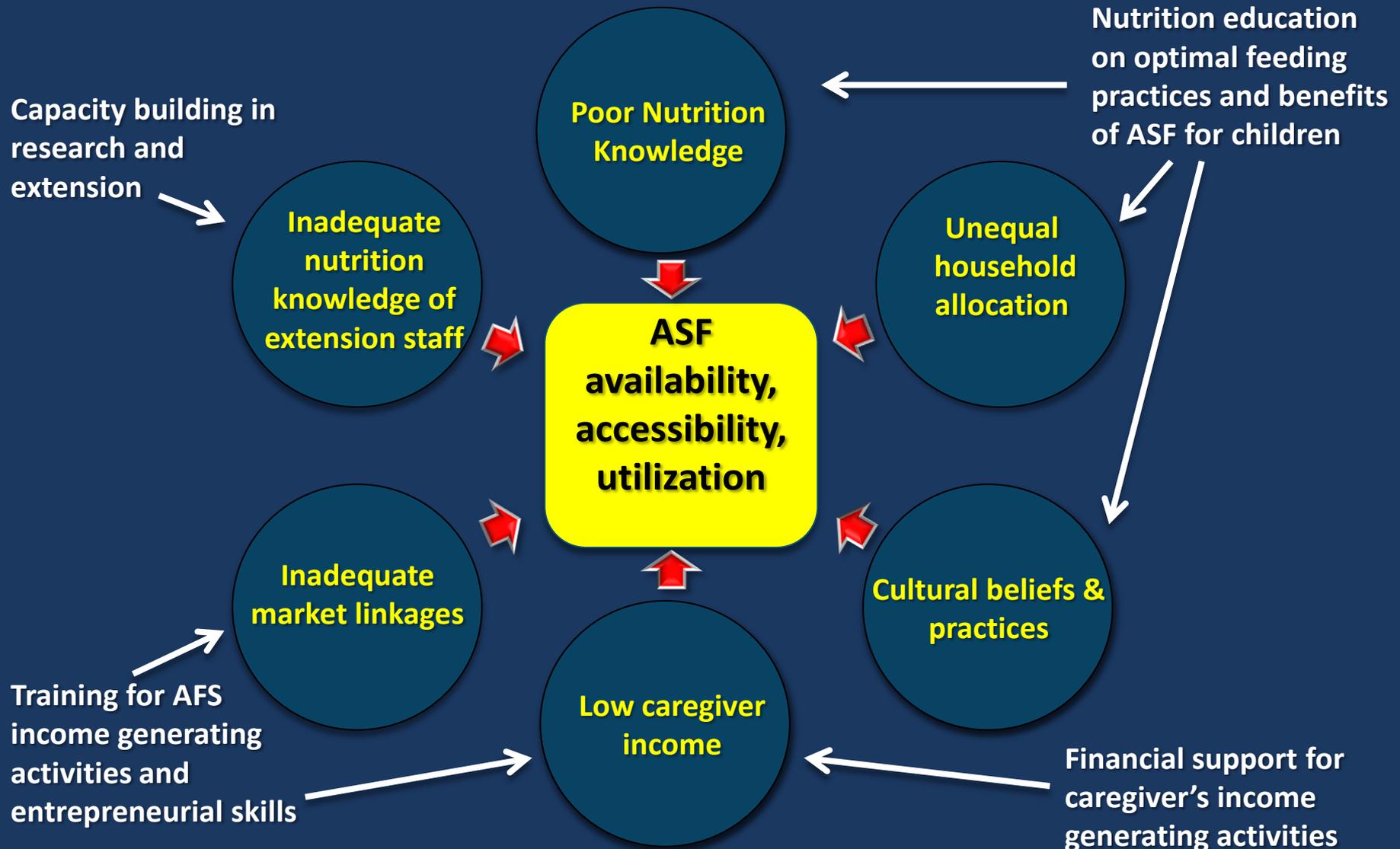
*Funded by USAID through Global Livestock CRSP*

# ENAM



- **SURVEY:** What limits children's consumption of ASF?
- **RESULTS:**
  - Knowledge of nutritional impacts of food groups
  - Income of household
- **INTERVENTION EXPERIMENT:**
  - Form women's groups
  - Nutrition education
  - IGA
  - Microfinance

# Established the Problem Model



# A Controlled Experiment to Measure Impact



## **BASELINE DATA COLLECTION**

- 629 intervention and control caregivers and their 2-5 year old child

## **EXPERIMENTAL DESIGN**

- ENAM caregivers in implementing communities (n=181)
- Non-participant Caregivers in implementing communities (n=142)
- Caregivers in non-implementing communities (n=287)

## **DATA**

- Nutritional knowledge
- Diet diversity of children
- Child nutritional state
- Women's income
- Household Food security

# ENAM: Outcomes



- **56% decrease** in household food insecurity
- **Increased** income for women
- **Increased** consumption of ASF by children
- **Increase** in protein, calcium, iron and zinc in diet of children
- **Improved** child nutrition status (wgt/age)
- **Rural banks now involved.**

# Post-ENAM sustainability

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- **Over \$2 million** loaned, 2,200 women involved and 100% repayment of loans.
- Majority income for original women participants are now sending their **kids to private school**.
- One ENAM trainer alone is responsible for **over 80 new groups** in and around Accra.
- The **education/microfinance model** for ENAM is now the business model for loans through the rural banks.
- The **recent Nutrition CRSP** at USAID is a design consistent with the ENAM Model.

## Volume 12 No. 1 (2012) "ENAM" Supplement

In this issue, we have the following articles:

Editorial: **Ruth Oniang'o**

**Do Multiple Interventions Improve health and nutrition outcomes at the family level?**

Peer Reviewed Articles:

- The nutrition-microcredit synergy: A case for multiple interventions and strategies  
[Grace Marquis and BK Colecraft](#)
- Planning, design and implementation of the enhancing child nutrition through animal source food management (ENAM) project.  
[Esi Colecraft et al.](#)
- Microcredit-nutrition education link: A case study analysis of Ghanaian women's experiences in income generation and family care.  
[Lorna Butler et al.](#)
- Microenterprise development coupled with nutrition education can help increase caregivers' incomes and household accessibility to animal source foods.  
[Philip Horriah et al.](#)
- Relationship between caregivers' income generation activities and their children's animal source food intake.  
[Aaron Christian et al.](#)
- Enhancing backyard poultry enterprise performance in the techiman area: A value chain analysis.  
[Charles Asem-Bansah et al.](#)
- Microfinance with education in rural Ghana: Men's perception of household level impact.  
[Lynda Hagan et al.](#)
- Street foods contribute to nutrient intakes among children from rural communities in Winneba and Techiman municipalities, Ghana.  
[Elizabeth Mcah et al.](#)
- Participation in communal daycare centre feeding programs is associated with higher diet quantity but not quality among rural Ghanaian children.  
[Kimberly Harding et al.](#)
- Dietary intakes and iron status of vegetarian and non-vegetarian children in selected communities in Accra and Cape Coast, Ghana.  
[Katherine Osei-Boadi et al.](#)
- Dietary intakes and body mass indices of non-pregnant, non-lactating (NPNL) women from the Coastal and Guinea savannah zones of Ghana.  
[Gloria Kobati et al.](#)

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**Note:** The peer reviewed articles are accessible through the Publications menu and listed by volume numbers. To view these articles, one should have a PDF reader which is downloadable for free from the Adobe website.



**Children are the Future.**

**Their knowledge, creative  
energy and leadership  
are the Future.**

**So if we want sustainable  
development, development  
driven by country ownership  
then we must:**

**Feed the Future**

# Thank you

- **USAID** for years of support
  - John Lewis, Filipe Manteiga, Tom Hobgood, John Thomas, Josette Lewis
  - Joyce Turk
- **Title XII**
- **Principal Investigators**
  - Charlotte Neumann, Nimrod Bwibo, Lindsay Allen, Suzanne Murphy, Grace Marquis, Anna Lartey, Esi Colecraft
- **All the thousands of participants** in the **HN-CRSP** and **GL-CRSP CNP & ENAM**
- **The Rural Banks** of Ghana



*This research was made possible by support to the Global Livestock Collaborative Research Support Program through USAID Grant # PCE-G-00-98-00036-0 to the University of California, Davis.*



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Thank you for joining us!



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### Upcoming Events

Find upcoming events & past presentations:

#AskAg Twitter Chat |  
December 6<sup>th</sup>, 2-3pm

Ag Sector Council |  
December 5<sup>th</sup>,  
EAT Project

**KDMD**

AgriLinks and the Agriculture Sector Council Seminar Series are products of the USAID Bureau for Food Security under the Knowledge-Driven Microenterprise Development (KDMD) project.