

A stylized world map in a light blue color is centered on a dark blue background. The map shows the outlines of the continents.

Research to Implementation: linking agriculture and nutrition for child health and development

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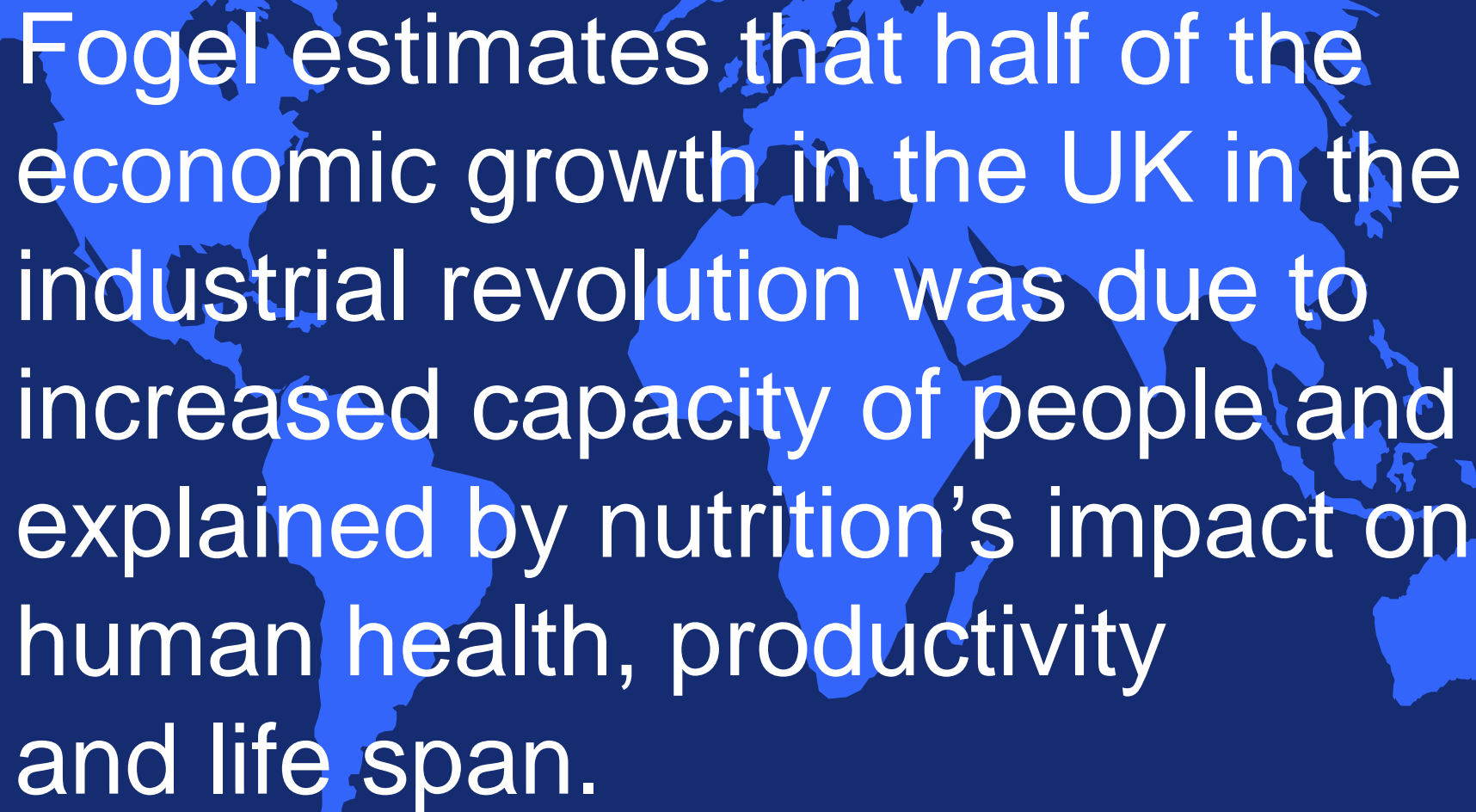


**More than one billion people,
nearly a sixth of the world's
population, suffer from chronic
hunger.**


A dark blue world map is centered in the background of the slide. The continents are outlined in a lighter shade of blue. The title 'Malnutrition Impacts' is written in a bold, yellow, sans-serif font across the top of the map.

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.

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- A dark blue world map is visible in the background of the slide, showing the outlines of continents in a lighter blue shade.
- **Individual >Lifetime productivity>national GDP**
 - **Human productivity losses to malnutrition estimated at 10-15%/Year and GDP losses of 5-10%.**
 - **For child disability adjusted life years 20-25%**



BUILDING HUMAN CAPACITY: Nutrition and Child Development: 30 years of commitment

- ◆ Nutrition CRSP Research 1980s: Kenya, Egypt and Mexico
- ◆ GL-CRSP Child Nutrition Project: Kenya (1996-2002)
- ◆ GL-CRSP Conference 2003: Journal of Nutrition Supplement
- ◆ GL-CRSP ENAM Project (2005-10): Ghana

NUTRITION CRSP



- ◆ 1977 NRC conducts “World Food Study”
- ◆ Does moderate malnutrition have impact on human function?
- ◆ Energy thought to be main causal factor
- ◆ In response USAID funded the N-CRSP
- ◆ Observational, non-intervention study in Mexico, Kenya, Egypt

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Hypothesized Impacts

- ◆ growth
- ◆ psychological development and behavior
- ◆ immune function and morbidity
- ◆ reproductive outcomes including pregnancy and lactation
- ◆ social competence

The most important findings were:



- ◆ faltering in height and weight of children occurs early and was not caught up later in life.
- ◆ quality was a much stronger determinant of nutritional status than was the quantity.
- ◆ ASF were predictor of cognitive function.
- ◆ at that time, the findings were "recognized as being on the cutting edge of modern nutrition science".
- ◆ Sadly ignored because not an intervention study.

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

Principal Investigators

Charlotte G. Neumann, MD, MPH

UCLA

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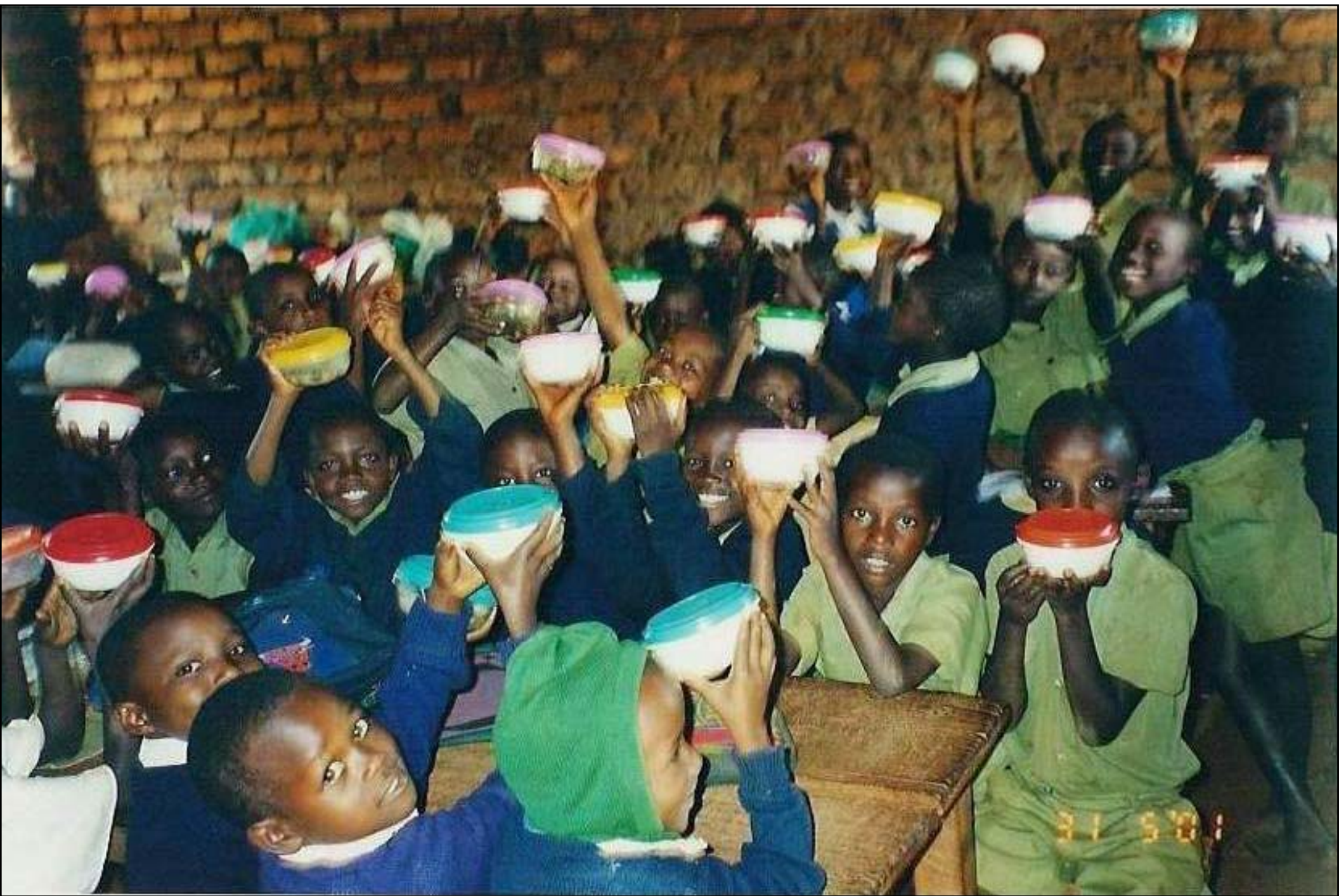
U of Nairobi

Suzanne P. Murphy, Ph.D, RD

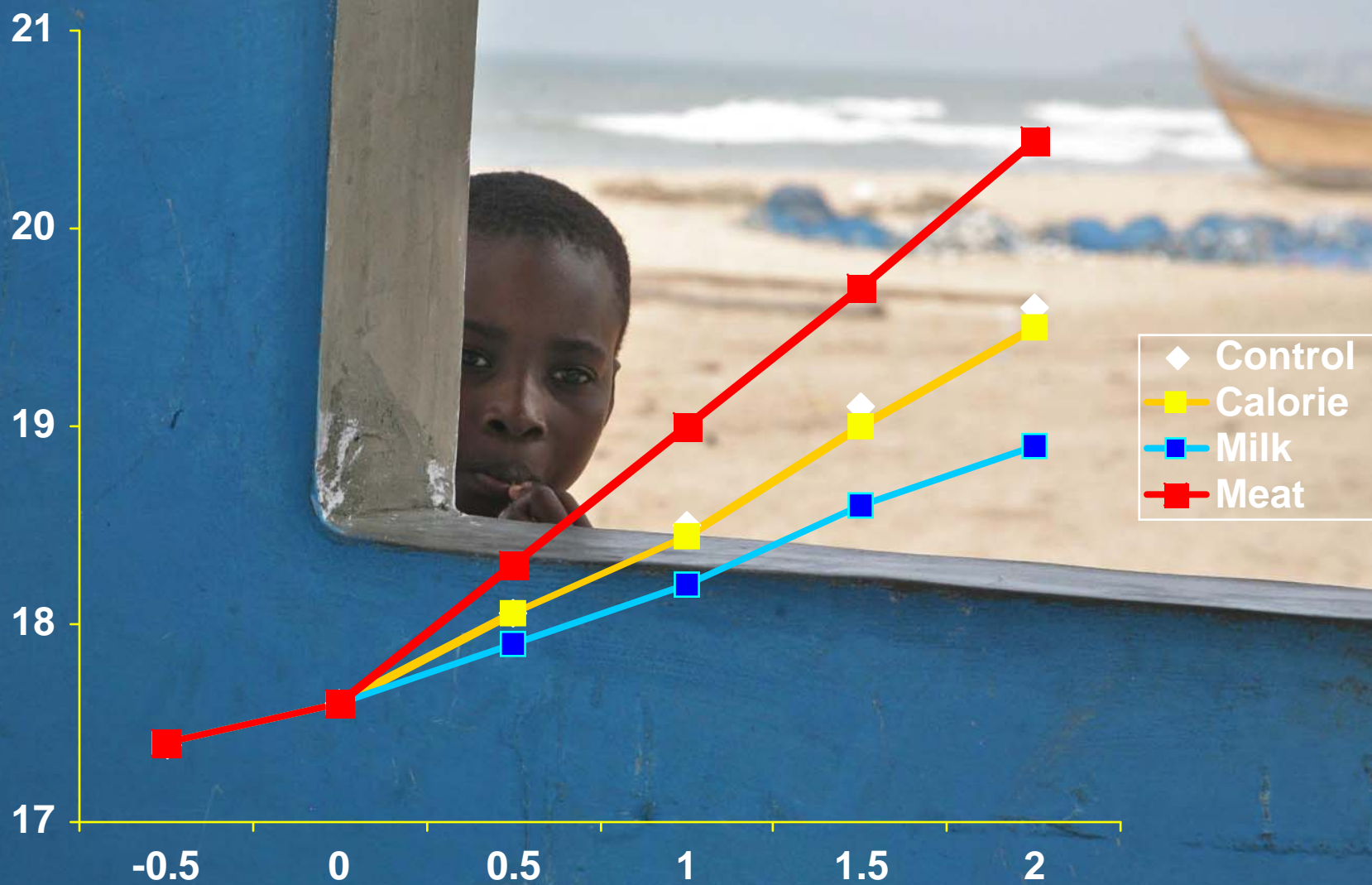
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Funded by: USAID Grant #DAN-1328-6-00-0046-00 119-18

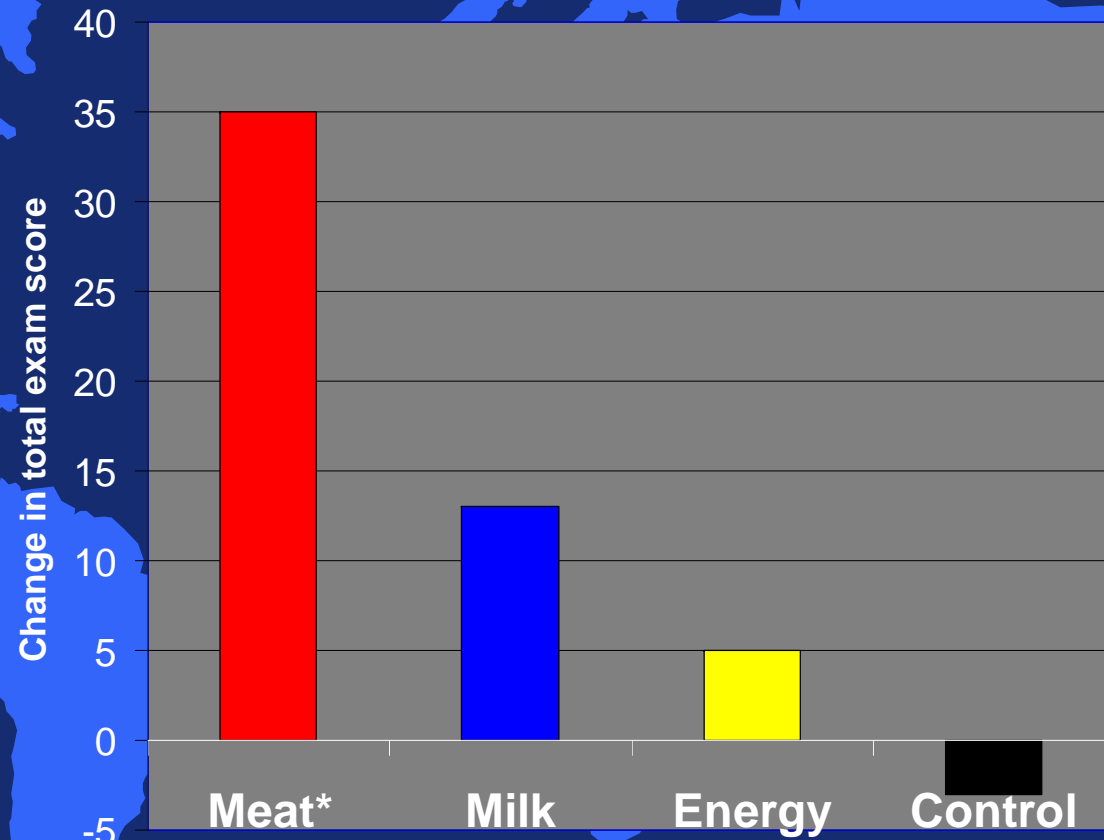
**Other Support: National Cattlemen's Beef Assoc (NCBA),
James Coleman African Study Center (UCLA)**



Raven's Scores



Change in end of term test scores



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

A large group of African school children, mostly girls, are shown in a crowd. They are wearing green uniforms and have their hands raised in the air, smiling broadly. The background is slightly blurred, focusing attention on the children in the foreground.

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



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AIARD 2010

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**Building Human Capacity to
Accumulate Resources: ENAM**
Enhancing child Nutrition through
Animal Source Food Management

PI: Grace S. Marquis
Iowa State University/McGill University
Esi Colecraft
University of Ghana, Legon

*This research is a component of the
Global Livestock Collaborative Research Support Program (GL-CRSP)
that is supported by USAID Grant No. PCE-G-00-98-00036-0*



ENAM

- ◆ Survey: What limits children's consumption of ASF?
- ◆ Results:
 - Knowledge of nutritional impacts of food groups
 - Income of household



ENAM

- ◆ What income generating activities work best for women?
- ◆ What is necessary for success?
 - Nutritional education
 - Microfinance
 - Training in poultry raising and other IGAs

ENAM



◆ Outcomes

- 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)
- Improved household food security

◆ Rural Banks now involved

Progress of the Partner Rural Banks (December 2007-March 2009)

Indicators	Partner Rural Bank			Total
	Akyempim (Winneba)	Fiagya (Techiman)	Naara (Navrongo)	
Number of women*	1157	782	318	2257
Number of credit groups	51	33	12	96
Number of communities	N/A	12	3	
Loan portfolio (US\$)	716,210	497,280	28,010	\$1,241,500
Loan recovery rate (%)	100	100	100	100
Cumulative savings	42,626	N/A	6,025	
Number of microfinance staff	6	4	2	12

* Each bank inherited two women's groups from the ENAM project. A total of 184 women in six communities benefited from ENAM loans for a total of US\$12,000 (~ 1 USD: 1 new GH cedi).

Post-ENAM

- ◆ Well over \$1 million has been loaned.
- ◆ The majority of the original women participants are now sending their kids to private school.
- ◆ Four of the ENAM field officers are now working for the rural banks.
- ◆ 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 Akuapem Rural Bank.
- ◆ New N-CRSP at USAID.

Lessons learned

- ◆ Build human capacity at all levels with particular emphasis on women.
- ◆ Invest in research to improve the effectiveness of implementation.
- ◆ Multi-dimensional perspective is important.
- ◆ Good development takes time.
- ◆ Project leadership, strong and balanced, is essential to success.
- ◆ Continuity is critical.

Thanks

- ◆ USAID for years of support
- ◆ Title XII
- ◆ In Particular:
 - John Lewis, Felipe Manteiga, Tom Hobgood, Josette Lewis
 - Joyce Turk
 - Charlotte Neumann, Lindsay Allen, Grace Marquis, Nimrod Bwibo, Anna Lartey, Esi Colecraft
- ◆ All the thousands of participants in N-CRSP, CNP and ENAM.