The Enhancing Child Nutrition through Animal Source Food Management (ENAM) Project [2004-2009]

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Children’s Diets and Micronutrient Status in Ghana

• Among children <5 y
  – 78% mild-severe anemia (DHS 2008)
  – 72% mild-severe Vitamin A deficiency (GHS)
• Evidence of Iodine Deficiency Disorders in 33% of districts (GHS)

Children’s diets (2-3y) in Ghana

% of children

Food group consumed in the previous week

Grains
Fruits/Vegetables
Roots/Tubers
Legumes
ASF

((DHS 2003))
Importance of Animal Source Foods in Children’s diets

• Source of quality protein and highly bio-available micronutrients (Iron, Zinc, Vit A etc.)
  – multiple micronutrients in one food source
  – small quantities needed to make a difference in improving diet quality

• Positive associations found between children’s ASF intake and their:
  – micronutrient status
  – growth and physical activity
  – cognitive development (Neuman et al, 2003)
**Phase 1**
Participatory process to develop problem model and select interventions

**Phase 2**
Implement an income-generation and education/training intervention

**Phase 3**
Transfer of activities to local agents for sustainability
What are the constraints to ASF in children's diets?
Selection of study sites

Communities
1 rural & 1 semi-rural/zone

Ecological zones

Upper East
Brong-Ahafo
Central
Participatory and qualitative processes

**Interviews**
- Regional & national managers in agriculture and health ministries

**Focus groups**
- Non-governmental organization staff
- Extension workers
- Community leaders
- Child caregivers

**Tracking ASF sources**
Problem model for constraints on ASF

- Seasonality
- Processing and storage
- Pests and diseases
- Marketing linkages
- Financial services
- Feeding skills and nutrition knowledge
- ASF Availability
- Accessibility
- Utilization
- Number of extension field staff
- Household food allocation
- Household size
- Cultural beliefs and attitudes
- Caregiver empowerment
- Income
Suggested interventions to overcome constraints

- **Community Level** *(target caregivers of young children)*
  - Stimulate income generation activities (IGA)
  - Access to micro-loans
  - Entrepreneurship training
  - Child feeding/nutrition education

- **Regional/country level**
  - Pre- and in-service Agriculture/Nutrition Extension Education
The ENAM project

Aim: To address caregivers’ income and knowledge barriers to improving children’s diets

Overall research question:
Does the implementation of an intervention with micro-credit, entrepreneurship training, and nutrition education improve household food security, caregivers’ child nutrition knowledge, use of animal source foods for children, and children’s nutritional status in rural Ghana?

Community development:
- IGA training (fish smoking/poultry)
- Microcredit program with caregivers
- Nutrition/entrepreneurial education

Research:

Capacity building:
- Student research training
- Nutrition extension course
- Nutrition extension short course
- Workshops
- Community training manuals (Nutrition/Entrepreneurship)
- Sustainability elements
Phase 2

Implement acome-generation and education/training intervention
Implementation of the Microcredit program

1. Identify appropriate IGA to support

2. Develop IGA support packages

<table>
<thead>
<tr>
<th>Category</th>
<th>Source of funds</th>
<th>Total US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grant Loan self</td>
<td></td>
</tr>
<tr>
<td>Coop</td>
<td>50 - 50</td>
<td>100</td>
</tr>
<tr>
<td>Feed</td>
<td>40 - 280</td>
<td>320</td>
</tr>
<tr>
<td>Equip.</td>
<td>- - 15</td>
<td>15</td>
</tr>
<tr>
<td>meds.</td>
<td>15 - -</td>
<td>-</td>
</tr>
<tr>
<td>Birds</td>
<td>100 50 -</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>205 50 345</td>
<td>585</td>
</tr>
</tbody>
</table>

Support package for poultry egg production

3. Provide training for IGA

Fish smoking

Hen coop construction

Marketing poultry products

4. Form caregiver credit/savings associations
Organization of the microcredit-educations scheme

**Microcredit loans**
- Initial loan sizes: $20-50
- Required savings
- Subsequent loan increase based on savings, meeting attendance, and repayment

**Nutrition education**
- Flipchart:
  - Emphasis on ASF
  - Hygiene
  - Feeding style

**Entrepreneurship education**
- Flipchart:
  - Customer care
  - Marketing Ps

16-week Loan cycle
Some key themes covered by the flipchart
Optimal Infant and Young Child Feeding
Food Groups and importance of variety
The need for ‘balance’
A small amount of meat will do
Benefits of Animal source foods in preventing micronutrient deficiencies
Hand washing and hygiene
Key Findings
Did the intervention affect caregivers’ business earnings?

Caregivers perceptions of change in business earnings in the past 4 months at the end of the fourth loan cycle
Did the intervention improve household food security?

Compared to controls, participants had lower risk of any level of food insecurity.

Model includes region, income, marital status, occupation, and time.
Did the intervention improve caregivers’ nutrition knowledge

Change in caregivers’ nutrition/health knowledge scores between baseline and follow-up 4

- Received loan
- No loan
- Control

% of caregivers

- Decreased
- Unchanged
- Increased

Intervention community
Did the intervention improve children’s ASF intakes?

Changes in consumption levels of Livestock Meats

Frequency of ASF consumption last 7 days

- none
- once
- 2-4 times
- 5-7 times
- 7 times or more

• By follow-up 4 significantly fewer caregivers reported that their children did not consume any livestock meats in the preceding week
• Changes in controls were not significant
• Results were consistent for poultry or fish powder.
Did the intervention improve children’s physical growth?

Change in mean WAZ from baseline to follow-up 4

-0.2  
-0.15  
-0.1  
-0.05  
0  
0.05  
0.1

Change in mean HAZ between baseline and follow-up 4

-0.3  
-0.2  
-0.1  
0  
0.1  
0.2  
0.3

WAZ4-WAZ0

HAZ4-HAZ0

Received loan  No loan  Control
Phase 3

Planning for sustainability
Partnership framework for sustainability

Graphical presentation of the partnership framework used to
Freedom from Hunger, Ghana
Rural Banks
Rural Women’s Credit & Savings Associations

MOU signed
Logistical support
Institutionalization
Adoption and scale-up

ENAM Project
Capacity building of rural banks for microfinance using the Credit with Education (CwE) methodology
Development of a microfinance sector within the banks leading to formation of women’s credit and savings associations in rural communities and delivery of the CwE program to these associations
Training of caregiver peer educators to deliver nutrition and entrepreneurial education messages
Logistical support
Key lessons learned from the ENAM project

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<thead>
<tr>
<th>Enabling factors</th>
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<tbody>
<tr>
<td>Planning grant process</td>
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<tr>
<td>Identifying and applying ‘best practices’ and lessons learned’ from stakeholder experiences</td>
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<td>Effective community participation processes</td>
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<td>Dynamic and committed field personnel</td>
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<td>Routine documentation/data collection and supervision enhanced accountability</td>
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<td>Learning from partners</td>
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<tr>
<th>Challenges</th>
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<td>Fostering leadership among the women’s groups</td>
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<td>Staff turnover/supervision in in some communities</td>
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<td>Grappling with sustainability issues (Bank emphasis on profits and what that means for the education component of the program)</td>
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<td>Linking research and implementation/policy institutions</td>
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# Acknowledgements

## PIs/Co-PIs

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