Developments in ECSA Regional Standards and the Food Control Manuals

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Flour Fortification Training Workshop on QC/QA
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Outline

1. Introduction of ECSA
2. Background to the ECSA Regional FF Initiative
3. Process of development of Regional Standards
4. Food Control Manuals
5. Conclusions and Next Steps
1. Introduction

- Intergovernmental organization established in 1974 under auspices of Commonwealth Secretariat in London – Commonwealth Region Health Community (CRHC)

- Autonomous regional organization in 1981, ratification of convention and adoption of new name ECSA-Health Community in 2005

- Headquarters – Arusha, Tanzania.

- Mandate of the organization is “to promote and encourage efficiency and relevance in the provision of health services in the region”
Membership

37 Years of Collaboration in Health

ECSA Health Community
2. The ECSA Regional Food Fortification Initiative

- Started in response to a Resolution passed by the ECSA Health Ministers in 2002 instructing Secretariat to work with countries to promote food fortification.

- In 2004, Secretariat in collaboration with USAID organized a regional workshop for ECSA countries in Lusaka, Zambia to develop strategies and action plans to implement the Ministers’ resolution.

- Workshop developed a consensus statement:

  "Building regional collaboration will facilitate the implementation of this vital national public health intervention."

The ECSA Regional Food Fortification Initiative was thus BORN.
The ECSA Regional FF Initiative cont’d--

Main Objective:
To fast-track the implementation of food fortification in the ECSA Region through adequate policy and legislation, technology and research, promotion and advocacy, monitoring and surveillance

Specific Objectives for the Initiative:
✓ Fortify sugar with vitamin A
✓ Fortify edible oil with vitamin A
✓ Fortify flour with iron, zinc, vitamin A, folate, vitamins B-1, B-2, B-6 and B-12
✓ Ensure that >90% of households in the region have access to adequately fortified salt

ECSA Health Community
The ECSA Regional FF Initiative Cont’d..

**Approach used:**

Formation of 4 technical working groups to harmonize and accelerate food fortification activities in the Region

1. Regulations, Standards and Food Control
2. Laboratory Strengthening and Network
3. Technical and Trade Support
4. Advocacy, Coordination and Resource Mobilization

Technical Groups developed and presented action plans to the countries through convened Regional Workshops.

- Planning and implementation of the initiative was through multi-stakeholder collaboration (ECSA, USAID, UNICEF, GAIN, ICCIDD, MI Member States’ chief nutritionists, food standards officers, regional trade officers, food manufacturers, fortificant suppliers)
3. Development of the ECSA Regional Standards

1. Collection of data to determine national availability and consumption


Some countries adopted/adapted guidelines
Standards development cont’d

- Standards presented during a regional workshop in Nairobi in 2009 - countries noted the presence of WHO guidelines which were a little different from the ECSA guidelines

- In July 2010, held a meeting to review the guidelines, considering the WHO guidelines and HIES data from countries.

- Next Step:
  - Prepare standards and submit them to EAC and COMESA for adoption
Role of standards in food fortification ↔ Biological Impact of Food Fortification

\[ \text{INTAKE} = \sum [\text{Nutrient content}] \times \text{amount consumed} \times \text{frequency} \]

- Technology
- Consumer Behavior

\[ \text{BIOEFFECTIVITY} \rightarrow [\text{BIOAVAILABILITY} \& \text{BIOCONVERSION}] \times \text{INTAKE} \]
4. Food Control Manuals

i) With support from A2Z, developed 17 food control manuals for salt, oil, sugar, maize flour and wheat flour.

Scope of Manuals:

i. Internal Monitoring (Quality Control and Quality Assurance) procedures for large and small scale factories (in the case of salt and maize flour)

ii. External Monitoring (Technical Auditing and Inspection) combined with QC) in large and small scale factories

iii. Manual for commercial Inspection of fortified foods


ii) Trained countries on the use of these manuals and are using (Uganda, Kenya, Malawi and Tanzania).
Good Collaborations are necessary!

Thank you for your attention!!
A larger sample is more representative
IRON IN MAIZE FLOUR (mg/kg)

Assigned Values
Sample 1 = 86.0; Sample 2 = 61.2; Sample 3 = 61.4

LAB NUMBER
- Fe(Maize)1
- Fe(Maize)2
- Fe(Maize)3
Food Control & Monitoring

FLOW CHART OF A MONITORING AND EVALUATION SYSTEM FOR FOOD FORTIFICATION

- **FOOD National or Imported**
- **VITAMINS PREMIX**
- **Certificate of Quality (Food Control and Customs)**
- **Quality Control and Q. Assurance (Dept. of Quality Control of Factories and Packers)**
- **Importation Warehouse**
- **FLOW CHART OF A MONITORING AND EVALUATION SYSTEM FOR FOOD FORTIFICATION**
- **EXTERNAL MONITORING (Factories or Packers)**
- **Factory Inspection (Corroborating trial) and Technical Auditing (Government Food Control Unit)**
- **COMMERCIAL MONITORING (At retail stores)**
- **Verification of Legal Compliance (Corroborating trial in retail stores) (Food Control and Units of Standards and/or Consumer Protection)**
- **HOUSEHOLD/INDIVIDUAL MONITORING**
- **Assessment of provision, utilization and coverage**
- **IMPACT EVALUATION (Individuals, households)**
- **Assessment of impact on consumption, biochemical, clinical and functional outcomes**
- **OD-2003-04**
- **CONTROLLER OF PHARMACEUTICAL IMPORTS**

ECSA Health Community
Food Control & Monitoring

FLOW CHART OF A MONITORING AND EVALUATION SYSTEM FOR FOOD FORTIFICATION

1. FOOD National or Imported
2. IMPORTED FORTIFIED FOOD
   - Certificate of Conformity or Inspection (Corroborating trail)
   - Food Control Dept. and Customs

3. INTERNAL MONITORING (Factories or Packers)
   - Quality Control and Q. Assurance (Dept. of Quality Control of Factories and Packers)
   - Factory Inspection (Corroborating trial) and Technical Auditing (Government Food Control Unit)

4. EXTERNAL MONITORING (Factories or Packers)
   - Verification of Legal Compliance (Corroborating trial in retail stores) (Food Control and Units of Standards and/or Consumer Protection)

5. COMMERCIAL MONITORING (At retail stores)
   - Assessment of provision, utilization and coverage

6. HOUSEHOLD/INDIVIDUAL MONITORING
   - Impact Evaluation (Individuals, households)
   - Assessment of impact on consumption, biochemical, clinical and functional outcomes

7. HOUSEHOLD/INDIVIDUAL M&E
   - OD-2003-04

8. Certificate of Quality (Food Control and Customs)

FLOW CHART OF A MONITORING AND EVALUATION SYSTEM FOR FOOD FORTIFICATION

IN THE FACTORY BY MILLERS

ECSA Health Community
Food Control & Monitoring

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- **COMMERCIAL MONITORING**
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- **HOUSEHOLD/INDIVIDUAL MONITORING**
  - Assesment of provision, utilization and coverage
- **IMPACT EVALUATION**
  - Individuals, households
  - Assessment of impact on consumption, biochemical, clinical and functional outcomes
- **BUREAU OF STANDARDS**
  - HOUSEHOLD/INDIVIDUAL M&E
    - OD-2003-04

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Food Control & Monitoring

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6. **HOUSEHOLD/INDIVIDUAL MONITORING**
   - Assessment of provision, utilization and coverage
7. **IMPACT EVALUATION**
   - Individuals, households
   - Assessment of impact on consumption, biochemical, clinical and functional outcomes
8. **REGULATORY MONITORING**
   - MIN. OF HEALTH, TRADE, MUNICIPAL IINSPECTORS (HSAs!)

ECSA Health Community
Food Control & Monitoring

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- **VITAMINS PREMIX**
  - Certificate of Quality (Food Control and Customs)

- **INTERNAL MONITORING**
  - (Factories or Packers)
  - Quality Control and Q. Assurance (Dept. of Quality Control of Factories and Packers)

- **EXTERNAL MONITORING**
  - (Factories or Packers)
  - Factory Inspection (Corroborating trial) and Technical Auditing (Government Food Control Unit)

- **COMMERCIAL MONITORING**
  - (At retail stores)
  - Verification of Legal Compliance (Corroborating trial in retail stores) (Food Control and Units of Standards and/or Consumer Protection)

- **HOUSEHOLD INDIVIDUAL MONITORING**
  - Assessment of utilization and coverage
  - Assessment of impact on consumption, biochemical, clinical and functional outcomes

- **IMPACT EVALUATION**
  - (Individuals, households)

- **HOUSEHOLD INDIVIDUAL M&E**
  - MOH Inspectors, HSAs, ??
  - (Household / schools)

- **REGULATORY MONITORING**
  - Assessment of provision, utilization and coverage
  - Assessment of impact on consumption, biochemical, clinical and functional outcomes

ECSA Health Community
Food Control & Monitoring

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- IMPACT EVALUATION
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REGULATORY MONITORING

- HOUSEHOLD/INDIVIDUAL M&E
  - Assessment of provision, utilization and coverage
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FOOD CONTROL

- CONTROLLER OF PHARMACEUTICAL IMPORTS
- IN THE FACTORY BY MILLERS
- BUREAU OF STANDARDS
  - MIN. OF HEALTH, TRADE, MUNICIPAL INSPECTORS
    - MOH Inspectors, HSAs, ??
      - Household / schools

ECSA Health Community

OD-2003-04
Food Control & Monitoring

1. ECSA invested in guidelines for countries to adopt - same procedures!
ECSA PRIORITY AREAS IN FOOD CONTROL

1. DEVELOP FORTIFICATION STANDARDS - ENSURE ADEQUACY AND ARE REALISTIC
2. PROVIDE INDUSTRY AND INSPECTORS WITH TOOLS TO FACILITATE PROPER IMPLEMENTATION OF STANDARDS
3. ENSURE LABORATORY CAPACITY AT COUNTRY LEVEL
4. PROMOTE APPROPRIATE REPORTING – REGULAR & USER FRIENDLY REPORTING
1. DEVELOP FORTIFICATION STANDARDS - ENSURE ADEQUACY AND ARE REALISTIC

1. ADEQUACY: Formulator (based on WHO) to determine %EAR expected. Using local consumption data

2. REALISTIC: Regulatory levels at factory, market take into account limitations (factory process variation, analytical errors, anticipated losses – stability of nutrients
### Food Control & Monitoring

1. PROVIDE INDUSTRY AND INSPECTORS WITH TOOLS TO FACILITATE PROPER IMPLEMENTATION OF STANDARDS

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected factory range</td>
<td>&gt;80%</td>
<td></td>
</tr>
<tr>
<td>Expected Market Minimum</td>
<td></td>
<td>ALL</td>
</tr>
<tr>
<td>Min Household Level</td>
<td></td>
<td>ALL</td>
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#### QA/QC Manuals for Internal and External Monitoring

**MANUAL FOR EXTERNAL MONITORING OF FORTIFIED MAIZE FLOUR IN SMALL SCALE OPERATIONS**

(Technical Auditing and Inspection, combined with Quality Control)

First Edition – 2007
ENSURE LABORATORY CAPACITY AT COUNTRY LEVEL

1. Laboratories (MBS/MOH/REF)
2. Personnel
3. Methods (Reliable & Affordable)
   1. UV Spec vs HPLC
   2. Iron Extraction vs Ashing
   3. Standard Addition for Oil (in progress)
   4. Vitamin A Method (20sec to >5 min)
Food Control & Monitoring

LABORATORY METHODS (3 PARTS)

PART 1
Iodine in Salt

PART II
ViT. A in Oil and Sugar

PART III - FLOURS
Iron, Vitamin A, Riboflavin

MANUAL OF LABORATORY METHODS FOR FORTIFIED FOODS
(Vitamin A, Riboflavin, Iron and Iodine)

PART III
(DETERMINATION OF IRON, VITAMIN A AND RIBOFLAVIN IN FORTIFIED FLOURS)

FIRST EDITION – 2007