Food Systems and Human Health and Nutrition: An Economic Policy Perspective with a Focus on Africa

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2,900,000,000,000 Pounds of Food Lost

3-3.5 Billion Additional People Could be Fed
Food Price Changes
Key Health and Nutrition-Related Drivers of Contemporary Food Systems

- Food Price Changes
- Economic Growth, Urbanization and Globalization
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- Economic Growth, Urbanization and Globalization
- Research and Technological Change
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- Biofuel and Competition for Resources
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- Climate Change
- Demographic Change
Per Capita Annual Consumption of Selected Food Groups by Chinese Rural Households (Index, 2009=100)

Per Capita Annual Consumption of Selected Food Groups by Chinese Urban Households (Index, 2009=100)

Interactions Between Food Systems and Human Health and Nutrition

Energy and Nutrient Balance

Food Systems

Food Safety

Water Safety

Sanitation

Hygiene

Behavior and Environment

Health Status

Growth retardation
Reduced disease resistance
Anemia
Blindness
Chronic Diseases

Water-borne diseases

Zoonotic pathogens

HIV/AIDS

Drugs and medicinal plants

Production and processing systems

Occupational hazards

Toxins and allergens

Contamination
- Microbial
- Chemical
- Toxic metals
Causes of Under-Five Deaths in 2008

The Generic Pathway

Food System

Available food, clean water, good sanitation, health care

Prices

Money and time constraints

Access to food, clean water, good sanitation, health care

Behavior and preferences

Intra-household allocation

Health and nutrition
A Simplified Conceptual Framework Linking Food Availability, Food Security, Health and Nutrition
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- Energy-Dense Foods → Diabetes
- Red and Processed Meat → Cancer
- Melamine in Milk → Illness and Death
- Chicken Feed and Feather Meal!
  - Arsenic
  - Caffeine
  - Tylenol
  - Prozac
  - Benadryl
  - Antibiotics
  - and Resistant Bacteria
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Interactions Between Food Systems and Human Health and Nutrition
Illustrations of Areas for Health-Sensitive Policy Interventions Along the Food Value Chain

- Natural resources and input
- Primary production
- Transport, storage, and exchange
- Secondary production
- Transport, storage, and exchange
- Consumption
- Health and nutrition
Illustrations of Areas for Health-Sensitive Policy Interventions Along The Food Value Chain

• Improve water management systems to avoid water borne diseases
• Improve quality of drinking water to reduce risk of infectious diseases
• Add micronutrients to soil to reduce micronutrient deficiencies in humans
• Control interaction with wildlife to reduce risk of zoonotic diseases

Natural resources and input
Illustrations of Areas for Health-Sensitive Policy Interventions Along The Food Value Chain

Primary production

• Promote increased productivity and production diversity through research and policies
• Research and incentives to develop and facilitate adoption of biofortified crops
• Enhance gender-specific productivity in activities traditionally undertaken by women
• Strengthen gender equality in production decisions
• Improve interaction between humans and animals to reduce the risk of zoonotic diseases
• Introduce labor-saving technology and production practices in households with HIV/AIDS affected members
• Improve sanitary conditions in the production process
Transport, storage and exchange

• Improve storage and transportation facilities to reduce the risk of micotoxins and quality deterioration
• Infrastructure investments
Illustrations of Areas for Health-Sensitive Policy Interventions Along The Food Value Chain

Secondary production

- Fortification
- Labeling and regulation of food processing with respect to content and processes
- Improve sanitary conditions in food processing
- Maintain food safety standards suitable for the intended consumers
Illustrations of Areas for Health-Sensitive Policy Interventions Along The Food Value Chain

Transport, storage and exchange

• Regulation of food advertising
• Health-focused social marketing campaigns
• Improve cold-chain for perishable foods
Illustrations of Areas for Health-Sensitive Policy Interventions Along The Food Value Chain

- Health and nutrition education
- Strengthen gender equality in consumption and allocation decisions
- Reduce burden on women’s time
- Create and implement food and health safety nets

Consumption
Health and nutrition

- Empower women in household and community decision-making
- Improve sanitation and drinking water
- Enhance access to primary health care