



Food and Agriculture Organization
of the United Nations



Nutrition-sensitive Agriculture and Food systems: From concepts to practice

Toolkit and e-learning modules for developing capacities of policy and programme planners

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Sunday, 9th July 2017– Learning Lab, ANH scientific symposium & Academic week



WHY DOES NUTRITION MATTER?

The scale of malnutrition in 2016

Although the numbers of people affected by different types of malnutrition cannot simply be summed (because a person can suffer from more than one type), the scale of malnutrition is staggering.

OUT OF A WORLD POPULATION OF
7 BILLION



About **2 billion** people suffer from micronutrient malnutrition



Nearly **800 million** people suffer from calorie deficiency

OUT OF **5 BILLION**
ADULTS WORLDWIDE



Nearly **2 billion** are overweight or obese



One in 12 has type 2 diabetes

OUT OF **667 MILLION** CHILDREN UNDER AGE 5 WORLDWIDE



159 million under age 5 are too short for their age (stunted)

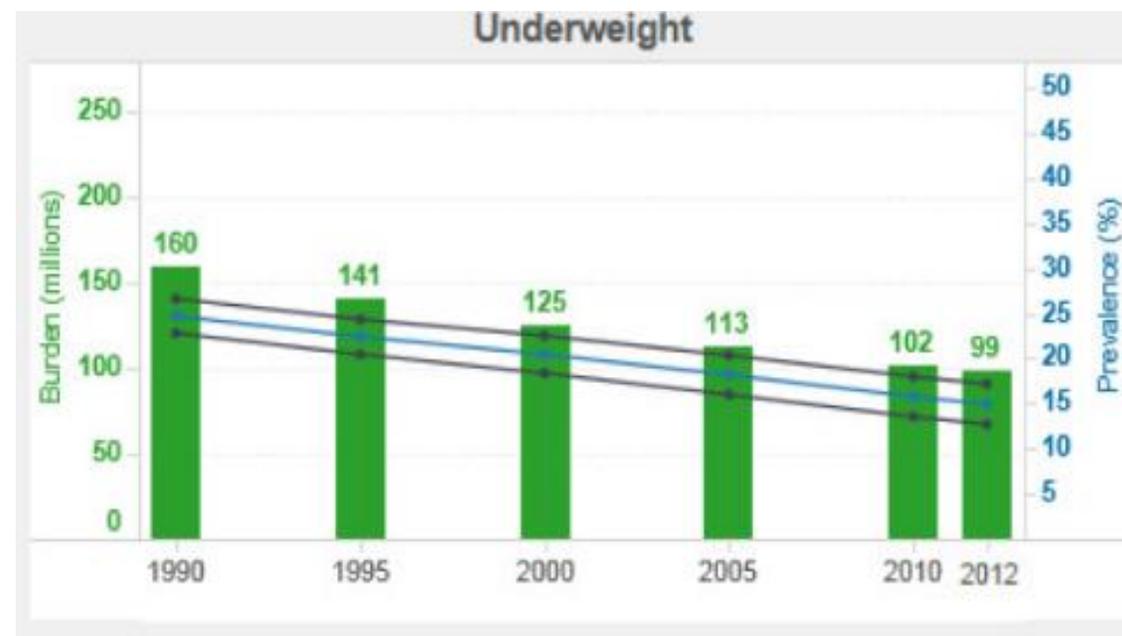
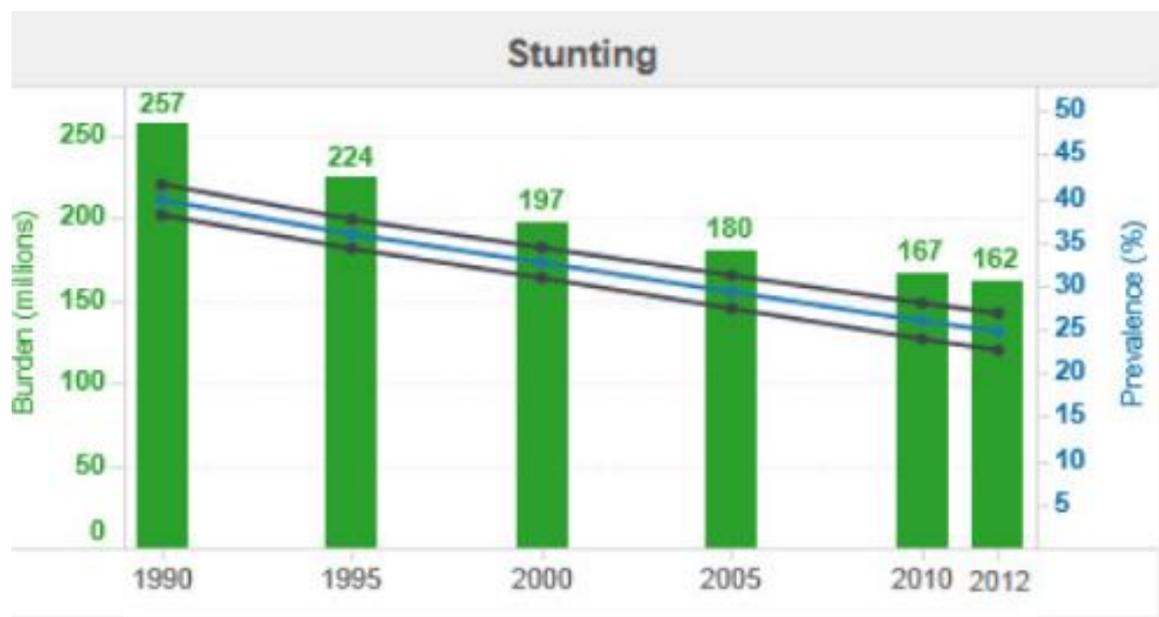


50 million do not weigh enough for their height (wasted)



41 million are overweight

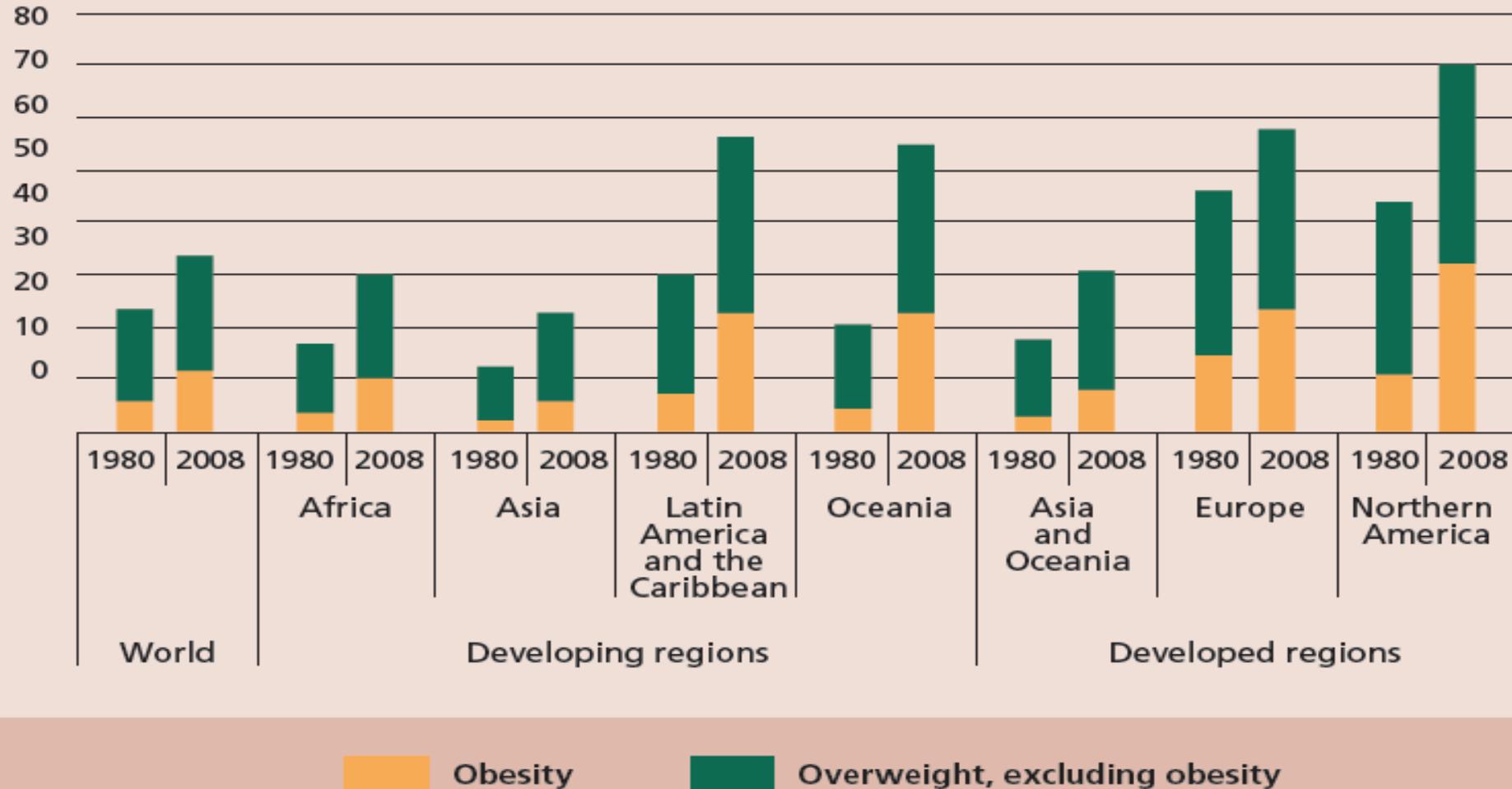
Undernutrition declining, but not fast enough



Legend

- Burden (millions of children aged <5)
- Prevalence (% of children aged <5)
- 95% Confidence Limits

Overweight, obesity rising rapidly



Many countries are currently facing the double, or even the triple burden of malnutrition sometimes coexisting at household or individual level.

CHILD MICRONUTRIENT DEFICIENCIES

CHILD STUNTING

Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Cote d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, Togo, United Republic of Tanzania, Uganda, Zambia, Zimbabwe

Asia: Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Democratic People's Republic of Korea, Lao People's Democratic Republic, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Tajikistan, Turkmenistan, Timor-Leste, Viet Nam, Yemen

Latin America and the Caribbean: Bolivia, Haiti, Honduras

Africa: Egypt, Libya, South Africa, Swaziland

Asia: Armenia, Azerbaijan, Iraq, Syrian Arab Republic

Europe: Albania

Latin America and the Caribbean: Belize, Ecuador, El Salvador, Guatemala

Oceania: Nauru, Solomon Islands, Vanuatu

Africa: Algeria, Morocco

Asia: Brunei Darussalam, China, Kyrgyzstan, Malaysia, Sri Lanka, Thailand, Uzbekistan

Europe: Estonia, Romania

Latin America and the Caribbean: Brazil, Colombia, Guyana, Paraguay, Peru

Africa: Tunisia

Asia: Georgia, Iran, Jordan, Kazakhstan, Kuwait, Lebanon, Oman, Saudi Arabia, Turkey, United Arab Emirates

Europe: Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Latvia, Lithuania, The Former Yugoslav Republic of Macedonia, Russian Federation, Serbia, Slovakia, Ukraine

Latin America and the Caribbean: Argentina, Chile, Costa Rica, Cuba, Dominica, Dominican Republic, Jamaica, Mexico, Panama, Suriname, Trinidad and Tobago, Uruguay, Venezuela

Oceania: Samoa, Tuvalu

Asia: Cyprus, Israel - **Europe:** Andorra, Czech Republic, Germany, Hungary, Iceland, Ireland, Portugal, Luxembourg, Malta, Slovenia, Spain, United Kingdom - **Northern America:** Canada, United States of America - **Oceania:** Australia, New Zealand

ADULT OBESITY

Source: FAO SOFA (2013)

Impact of malnutrition at the individual level

- Malnutrition has a real, critical impact on individuals. Without good nutrition, the body and brain cannot develop and function well.
- In most severe cases, malnutrition is a life-threatening condition.



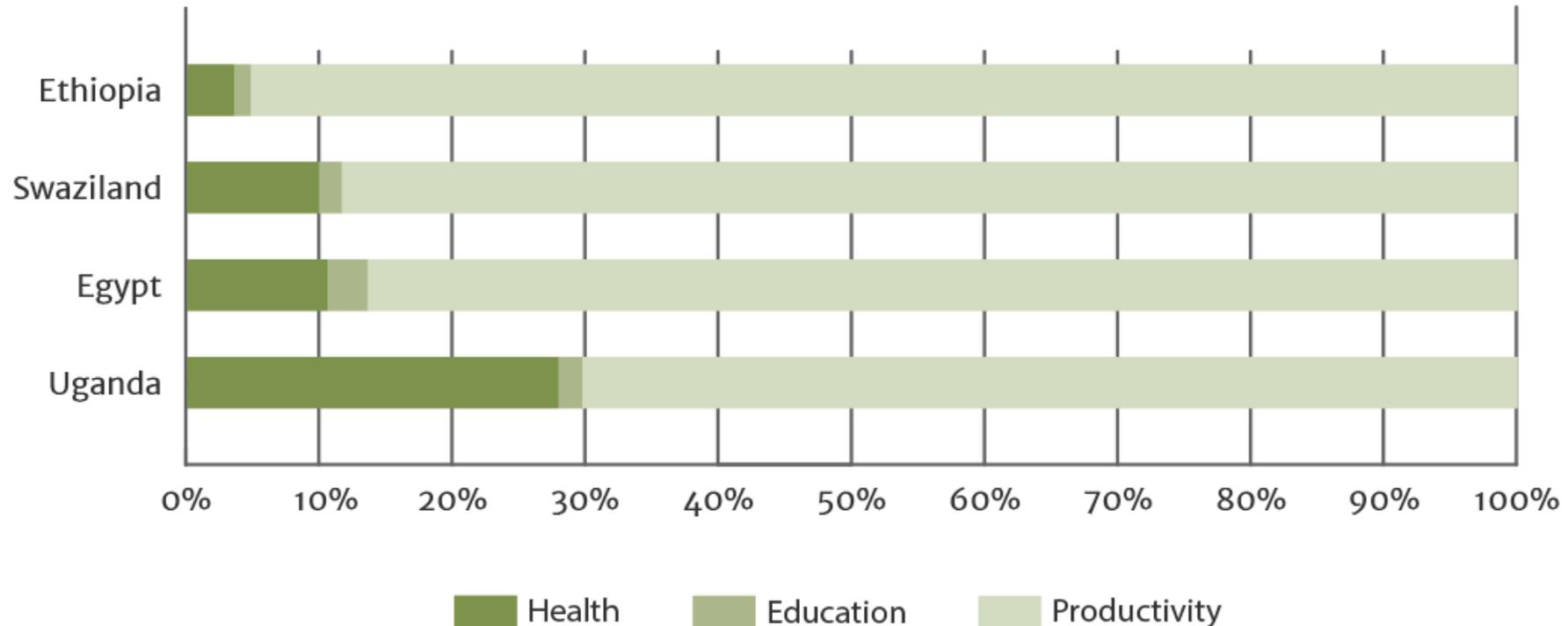
Impact of malnutrition on society and economy

Malnutrition has also a critical impact on society and economy. Without good nutrition, the long-term economic and societal development of countries is strongly compromised.



Malnutrition and economic growth

GDP loss split in: additional health costs; additional education costs; decreased productivity



"Cutting hunger and thereby achieving food and nutrition security in Africa is not only one of the most urgent means of reducing the vulnerability and enhancing the resilience of national economies, but also one of those which produces the highest returns for broader social and economic development."

Source: African Union Commission et al. (2012)

LINKING AGRICULTURE, FOOD SYSTEMS AND NUTRITION



A rural scenario

Ismail is a 35-year old farmer, and his wife is Nayece, 30 years old.

They have 4 children and are agro-pastoralists.

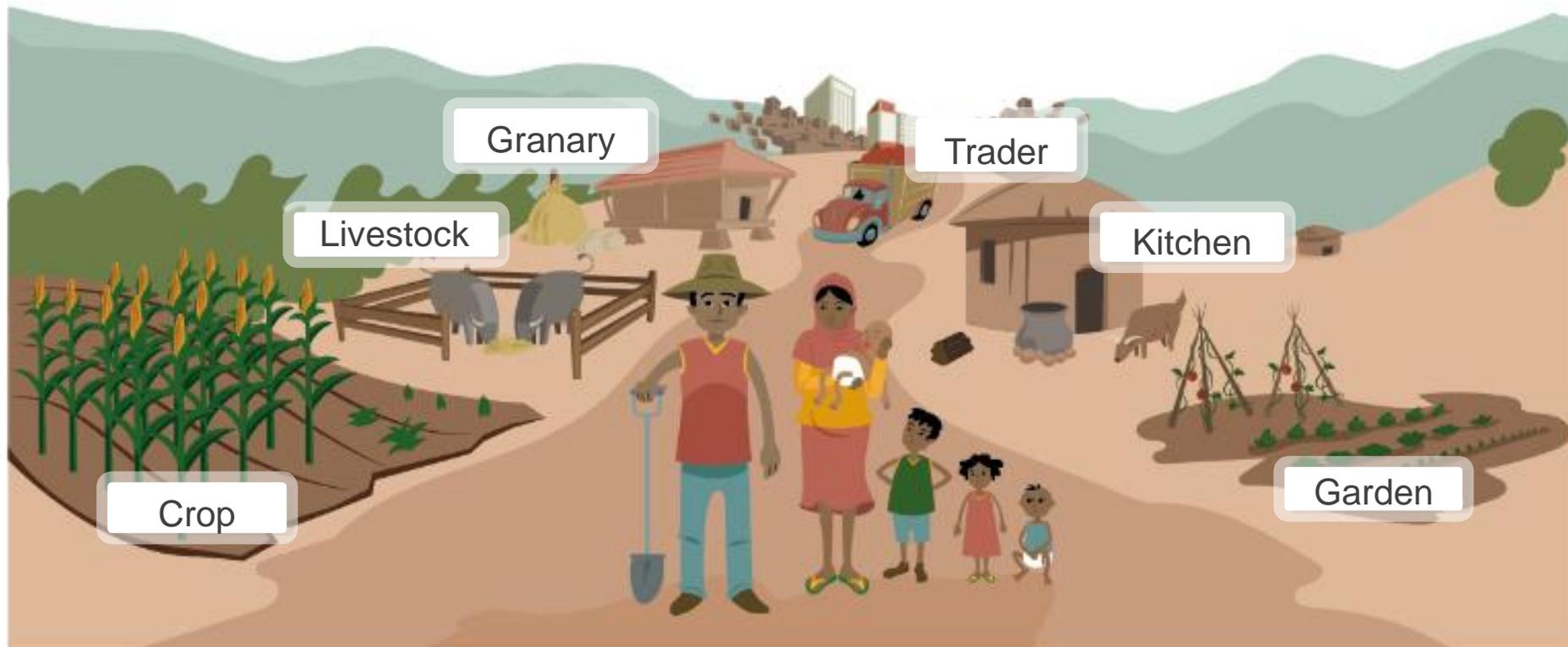


What kind of nutrition problems do Ismail and Nayece's family face?

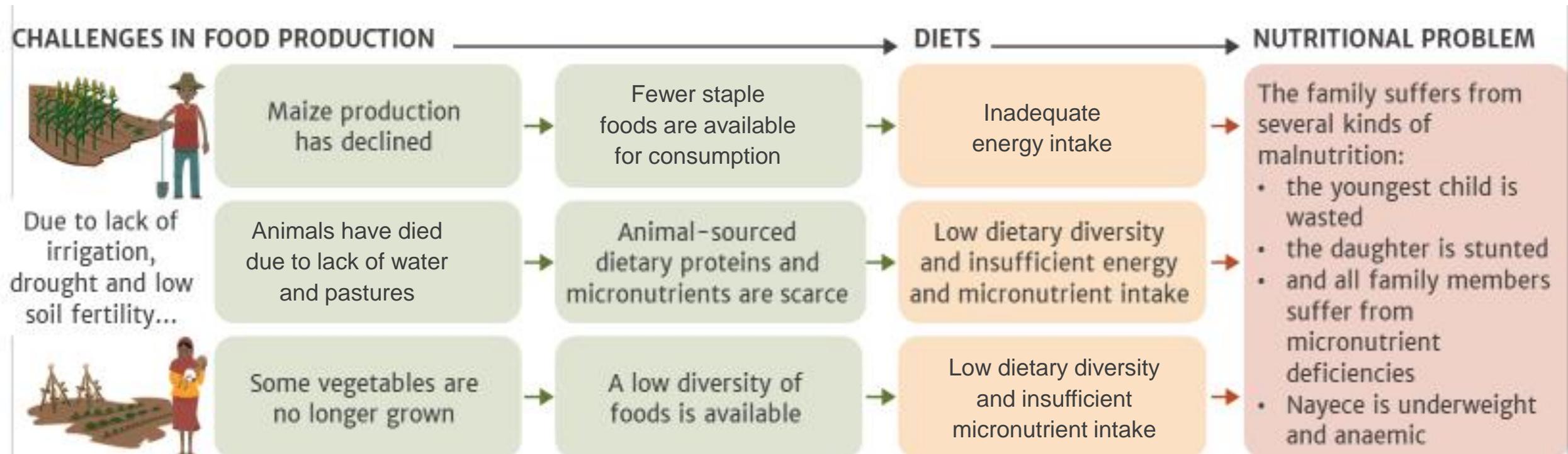
- Nayece is pregnant. She is **underweight** and **anemic**.
- Their 8-month old child is **wasted** (acutely malnourished).
- Their 4-year old daughter is **stunted** (chronically malnourished).
- All family members suffer from **multiple micronutrient deficiencies**.
- During the lean season, the nutrition situation of the family gets worse.

How do challenges in the food systems influence nutrition?

What challenges do they face in meeting their nutritional needs?



Challenges in food production



Challenges in food storage and processing

CHALLENGES IN FOOD STORAGE AND PROCESSING

DIETS AND DISEASE

NUTRITIONAL PROBLEM



There is a lack of proper storage facilities

Food stored in inappropriate conditions is at higher risk of pathogen contamination, development of mycotoxins and deterioration of nutritional quality

Children are subject to episodic diarrheal events and frequent bouts of infectious disease

Children are at risk of wasting and stunting



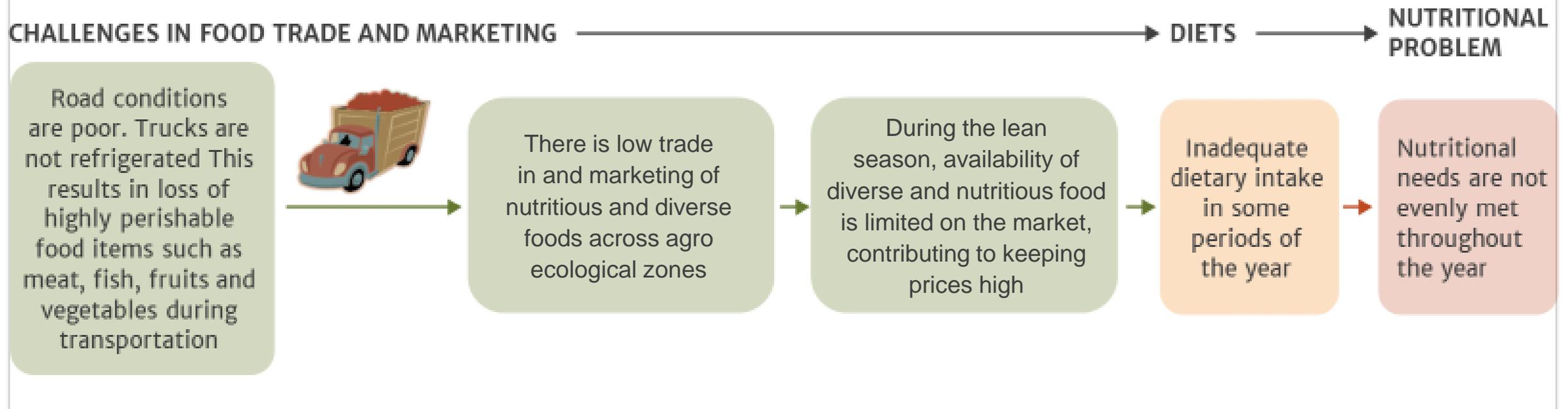
Availability of processing facilities and technologies is limited

Food availability and access is seasonal

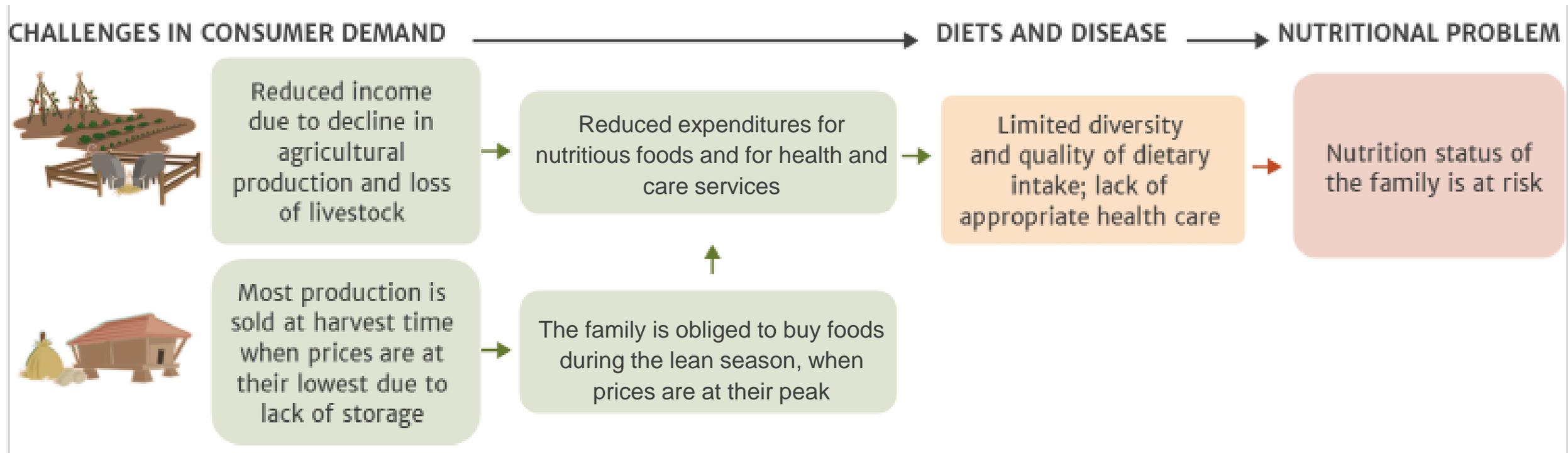
Reduced number of meals and poor dietary diversity during some parts of the year

Nutritional status worsens in the lean period

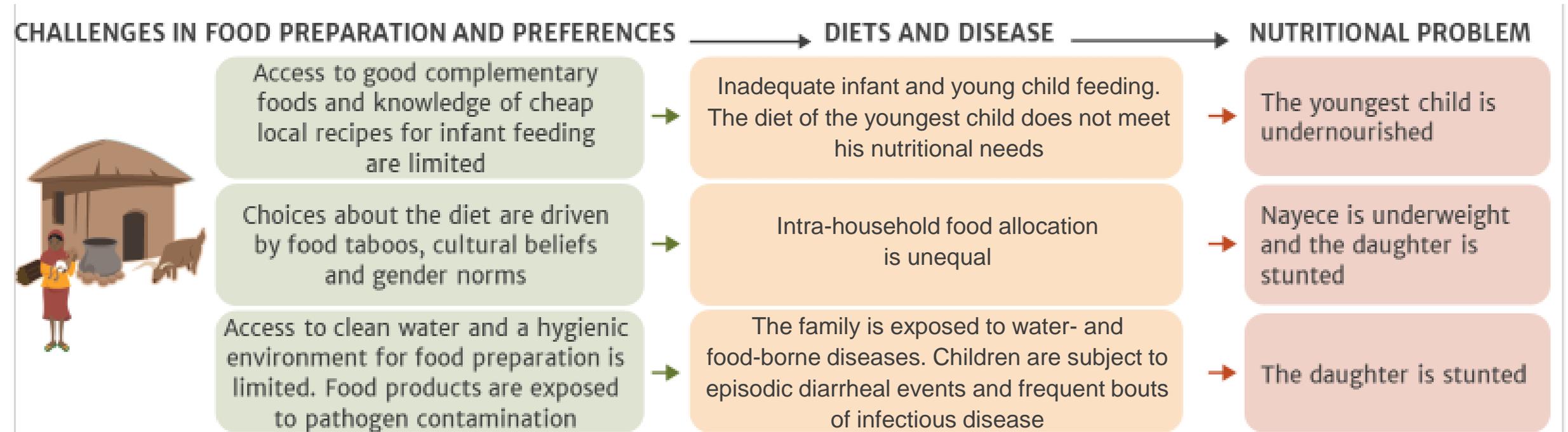
Challenge in food trade and marketing linkages



Challenges in consumer demand



Challenge in food preparation and preferences



This is the situation in rural areas.
Follow me now. We are now going to
the capital city to see some households
who live in slums.



An urban scenario

This is Fatuma, 30 years old. She migrated with her school-age daughter and young child from the village to the slum area of the capital city. She runs a small roadside business selling snacks, candy and other items.



What nutrition and health problems does Fatuma's family have?

Fatuma is overweight.

Her daughter is overweight.

Her younger son is stunted.

Both children suffer from episodic diarrheal events and micronutrient deficiencies.

How do challenges in the food systems influence nutrition?

How does Fatuma get food for her family?



Factors related to the food systems that influence

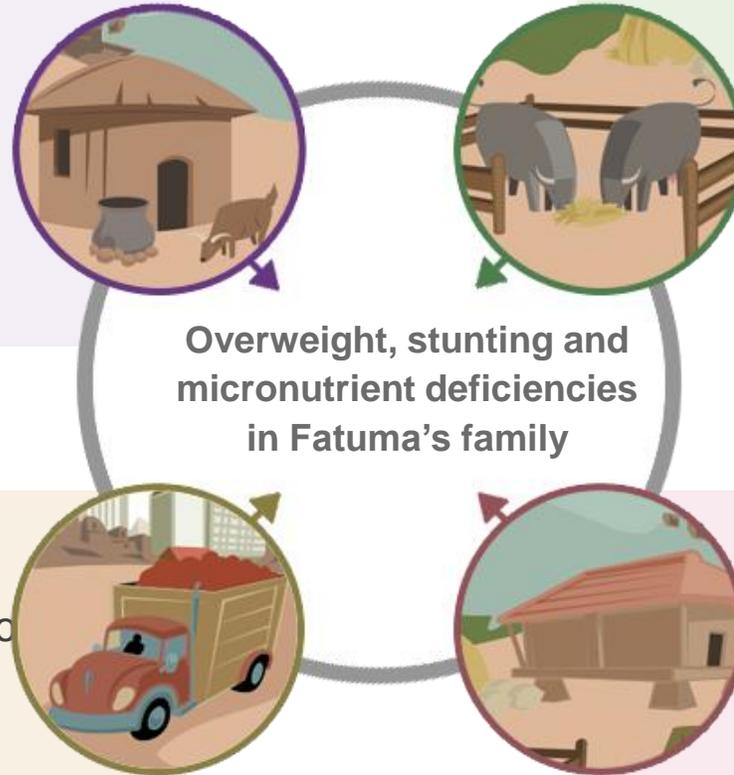
Consumer demand, food preparation and preferences

Inadequate nutrition knowledge.
Unhealthy meals prepared and served at school.
Low and irregular purchasing power.
Loss of social support networks.
No access to social protection schemes.

Food production

Limited knowledge on urban gardening.

Overweight, stunting and micronutrient deficiencies in Fatuma's family



Food trade and marketing

Scarcity of fortified foods in poor neighborhoods
Inadequate child food labelling
Irresponsible marketing to children
Lower prices of unbalanced diets versus nutritious ones.

Food handling, storage and processing

Unbalanced formulation of ready-to-eat street foods (i.e. high in fat and sugar).
Unsafe storage and handling of fresh foods.

Agriculture, food systems and people's diets



Nutrition is linked to many factors that **go beyond food production**:

- the way the food is stored, processed, traded and prepared is fundamental too...
- the overall context natural, economic and socio-cultural context (for example, cultural habits and beliefs),
- But also food prices, etc.

→ **need to look at the entire food system.**

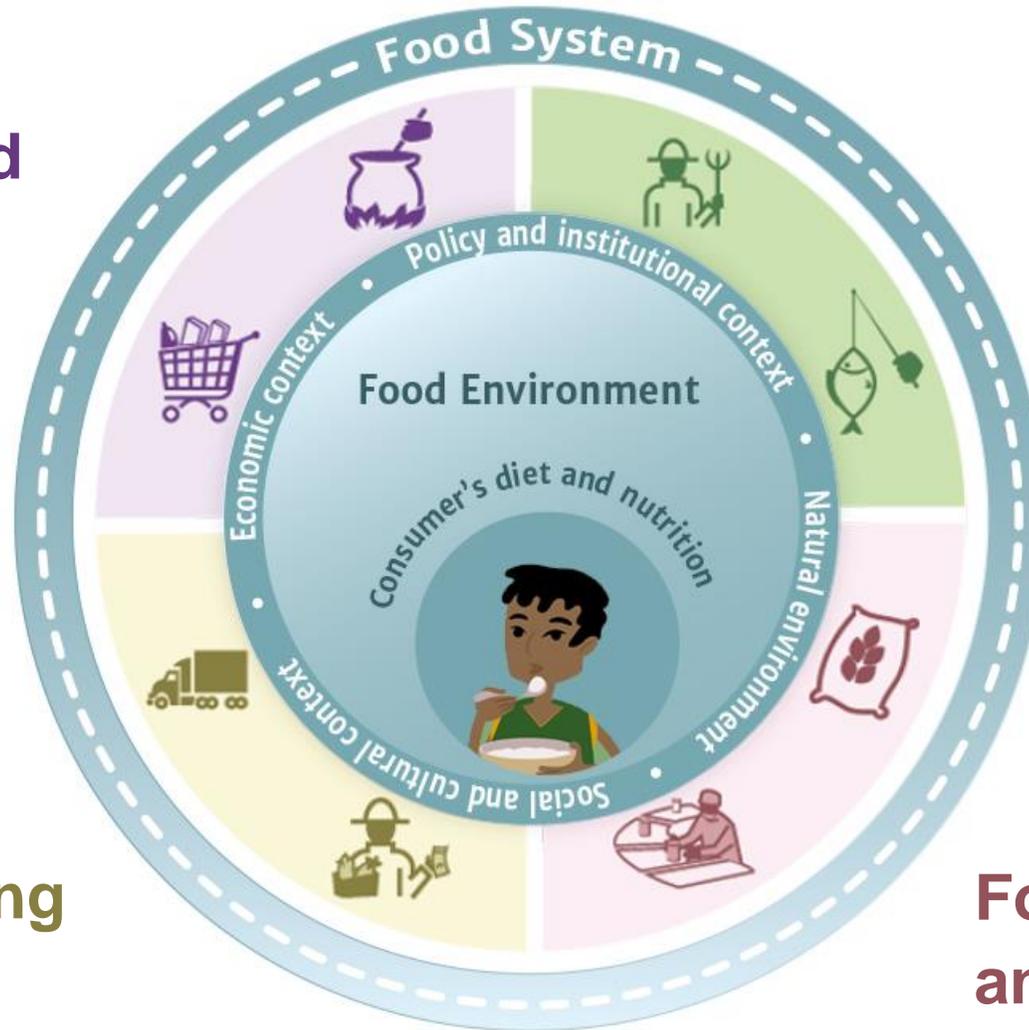
4 functions of the food system

Consumer demand, food preparation and preferences

Food production

Food trade and marketing

Food handling, storage and processing



Agriculture, food systems and other determinants of malnutrition

But it's not all! Agriculture and food systems can have a direct impact on:

- **Gender** (e.g. Women's control over resources, decision-making power and access to employment which influence the ability of the main caregiver to effectively respond to household nutrition, care and health needs);
- **Food safety** (e.g. Diseases caused by ingestion of contaminated food or water are key determinant of both growth retardation and health outcomes);
- **Care and feeding practice** (e.g. Women workload and time which can lead to inadequate childcare and risk for poor maternal health and nutrition)

**HOW CAN AGRICULTURE
AND FOOD SYSTEMS BE
NUTRITION-SENSITIVE?**

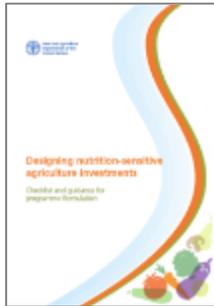


TOOLKIT for NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS

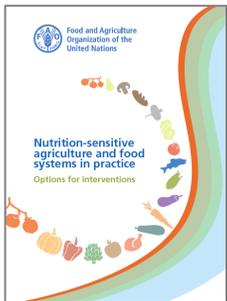
www.fao.org/nutrition/policies-programmes/toolkit



- **Key recommendations for improving nutrition through agriculture and food systems:** 10 recommendations for designing food and agriculture programmes in a nutrition-sensitive way ; 5 recommendations for creating an enabling environment for nutrition-sensitive food systems



- **Designing nutrition-sensitive agriculture investments. Checklist and guidance for programme formulation:** Key questions, tips, and sources of information for situation analysis, programme design, monitoring and evaluation, in order to operationalize the Key recommendations



- **Nutrition-sensitive agriculture and food systems in practice: options for interventions:** 20 interventions with the potential to improve nutrition, organised around 4 key functions of the food system cross-cutting issues



- **Compendium of indicators for nutrition-sensitive agriculture:** Guidance on a range of indicators for monitoring and evaluating the nutritional impacts of agricultural investments

Key recommendations for improving nutrition through agriculture and food systems

Designing nutrition-sensitive agriculture investments. Checklist and guidance for programme formulation



Food and Agriculture Organization of the United Nations



KEY RECOMMENDATIONS FOR IMPROVING NUTRITION THROUGH AGRICULTURE AND FOOD SYSTEMS

Food systems provide for all people's nutritional needs, while at the same time contributing to economic growth. The food and agriculture sector has the primary role in feeding people well by increasing availability, affordability, and consumption of diverse, safe, nutritious foods and diets aligned with dietary recommendations and environmental sustainability. Applying these principles helps strengthen resilience and contributes to sustainable development.

Agricultural programmes and investments can strengthen impact on nutrition if they:

- 1** Incorporate explicit nutrition objectives and indicators into their design, and track and mitigate potential harms, while seeking synergies with economic, social and environmental objectives.
- 2** Assess the context at the local level, to design appropriate activities to address the types and causes of malnutrition, including chronic or acute undernutrition, vitamin and mineral deficiencies, and obesity and chronic disease. Context assessment can include potential food resources, agro-ecology, seasonality of production and income, access to productive resources such as land, market opportunities and infrastructure, gender dynamics and roles, opportunities for collaboration with other sectors or programmes, and local priorities.
- 3** Target the vulnerable and improve equity through participation, access to resources, and decent employment. Vulnerable groups include smallholders, women, youth, the landless, urban dwellers, the unemployed.
- 4** Collaborate and coordinate with other sectors (health, environment, social protection, labour, water and sanitation, education, energy) and programmes, through joint strategies with common goals, to address concurrently the multiple underlying causes of malnutrition.
- 5** Maintain or improve the natural resource base (water, soil, air, climate, biodiversity), critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Manage water resources in particular to reduce vector-borne illness and to ensure sustainable, safe household water sources.
- 6** Empower women by ensuring access to productive resources, income opportunities, extension services and information, credit, labour and time-saving technologies (including energy and water services), and supporting their voice in household and farming decisions. Equitable opportunities to earn and learn should be compatible with safe pregnancy and young child feeding.
- 7** Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops). Diversified production systems are important to vulnerable producers to enable resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.
- 8** Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare.
- 9** Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods or products vulnerable groups have a comparative advantage in producing. This can include innovative promotion (such as marketing based on nutrient content), value addition, access to price information, and farmer associations.
- 10** Incorporate nutrition promotion and education around food and sustainable food systems that builds on existing local knowledge, attitudes and practices. Nutrition knowledge can enhance the impact of production and income in rural households, especially important for women and young children, and can increase demand for nutritious foods in the general population.





Designing nutrition-sensitive agriculture investments

Checklist and guidance for programme formulation





KEY RECOMMENDATIONS FOR IMPROVING NUTRITION THROUGH AGRICULTURE AND FOOD SYSTEMS

1. Incorporate explicit **nutrition objectives and indicators** into their design, and track and mitigate potential harms.
2. **Assess the context** at the local level, to design appropriate activities to address the types and causes of malnutrition.
3. **Target the vulnerable and improve equity** through participation, access to resources and decent employment.
4. **Collaborate with other sectors** and programmes.
5. **Maintain or improve the natural resource base.**
6. **Empower women.**
7. Facilitate production **diversification**, and increase production of **nutrient-dense crops** and small-scale livestock.
8. **Improve processing, storage and preservation** to retain nutritional value and food safety, to reduce seasonality and post-harvest losses, and to make healthy foods convenient to prepare.
9. **Expand market access for vulnerable groups**, particularly for marketing nutritious foods.
10. Incorporate **nutrition promotion and education**



KEY RECOMMENDATIONS FOR IMPROVING NUTRITION THROUGH AGRICULTURE AND FOOD SYSTEMS

Food and agriculture policies can have a better impact on nutrition if they:

1

Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious and safe foods through environmentally sustainable production, trade, and distribution.

The focus needs to be on horticulture, legumes, and small-scale livestock and fish – foods which are relatively unavailable and expensive, but nutrient-rich – and vastly underutilized as sources of both food and income.

2

Monitor dietary consumption and access to safe, diverse, and nutritious foods. The data could include food prices of diverse foods, and dietary consumption indicators for vulnerable groups.

3

Include measures that protect and empower the poor and women. Safety nets that allow people to access nutritious food during shocks or seasonal times when income is low; land tenure rights; equitable access to productive resources; market access for vulnerable producers (including information and infrastructure). Recognizing that a majority of the poor are women, ensure equitable access to all of the above for women.

4

Develop capacity in human resources and institutions to improve nutrition through the food and agriculture sector, supported with adequate financing.

5

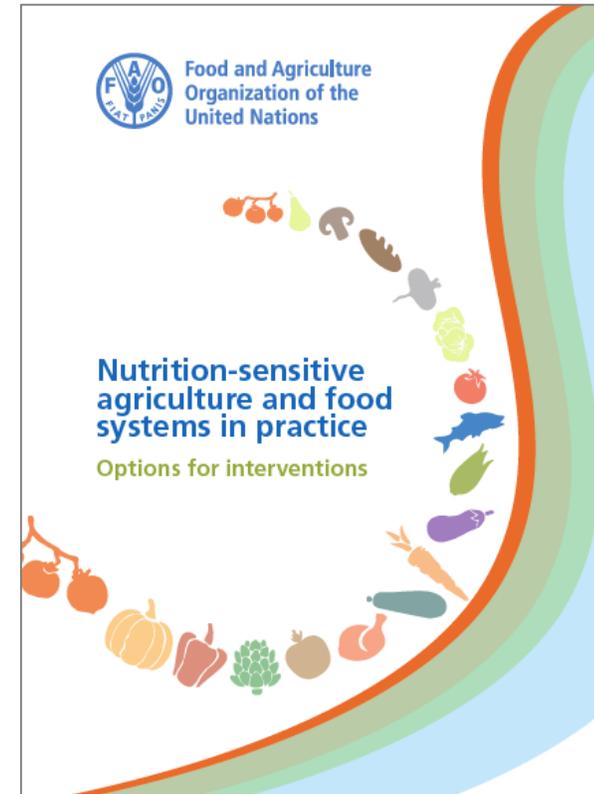
Support multi-sectoral strategies to improve nutrition within national, regional, and local government structures.



Nutrition-sensitive agriculture and food systems in practice

Options for interventions

- Provide list of 20 interventions with the potential to improve nutrition, organised around 4 key functions of the food system cross-cutting issues.



Nutrition-sensitive agriculture and food systems in practice - Options for intervention



For each intervention, information is provided on:

- **WHAT** are we talking about? (definition of the intervention area)
- **WHY** does it have the potential to improve nutrition?
- **HOW** do you make it more nutrition-sensitive?
- Which conditions are required to create an **ENABLING ENVIRONMENT** for this to work for nutrition?
- Key references to **KNOW MORE ON THE TOPIC**

Nutrition-sensitive food systems: Option for interventions

Consumer demand, food preparation and preferences

- Nutrition education and behaviour change communication
- Income generation for nutrition
- Nutrition-sensitive social protection
- School Food and Nutrition
- Nutrition-sensitive humanitarian food assistance

Food trade and marketing

- Trade for nutrition
- Food marketing and advertising practices
- Food price policies for promoting healthy diets
- Food labelling



Cross-cutting issues

- Nutrition-sensitive value chains
- Food quality, safety and hygiene
- Women's empowerment and gender equality
- Food loss and waste

Food production

- Diversification and sustainable intensification of agricultural production
- Nutrition-sensitive livestock and fisheries
- Biodiversity for food and nutrition
- Biofortification
- Urban and periurban agriculture

Food handling, storage and processing

- Nutrition sensitive post-harvest handling, storage and processing
- Food fortification

Interventions are organised according to the **functions of the food system** and as **cross-cutting issues**. However, many of them relate to **several functions**.

Examples of entry points for nutrition in food production:

- Agro-silvi-pastoral systems, crop rotation and intercropping, horticulture
- Small-scale integrated farming systems (e.g. backyard poultry rearing, rice-fish ponds, milk and dairy production targeting women)
- Urban gardening
- Community-based agriculture leveraging local biodiversity of high nutrient value (e.g. indigenous vegetables ...)
- Biofortification through conventional breeding
- Using zinc rich fertilizer in zinc deficient soils (i.e. agronomic biofortification)



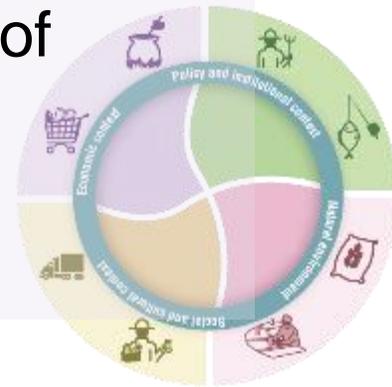
Examples of entry points for nutrition in food trade and marketing:

- Increase trade in fresh foods (lowering tariffs for fruits and vegetables ; strengthen rural-urban linkages)
- Nutrition-sensitive value chains approaches
- Institutional procurement with nutrition lens
- Standards for clear and easy-to-read food and nutrition labelling
- Restricting the advertising and marketing and promotion of obesogenic foods and beverages to children
- Taxes on highly processed foods



Examples of entry points for nutrition in consumer demand, food preparation and preferences

- Incorporating nutrition & hygiene education into agriculture project
- Information campaigns for the general public (e.g. 5 per day F&V)
- Agriculture as IGA coupled with nutrition education and women empowerment to ensure likelihood that income is spent on food & healthcare
- Vouchers for healthy foods for vulnerable families
- Nutritionally balanced food baskets in emergencies + distribution of cooking equipment
- Healthy School meals



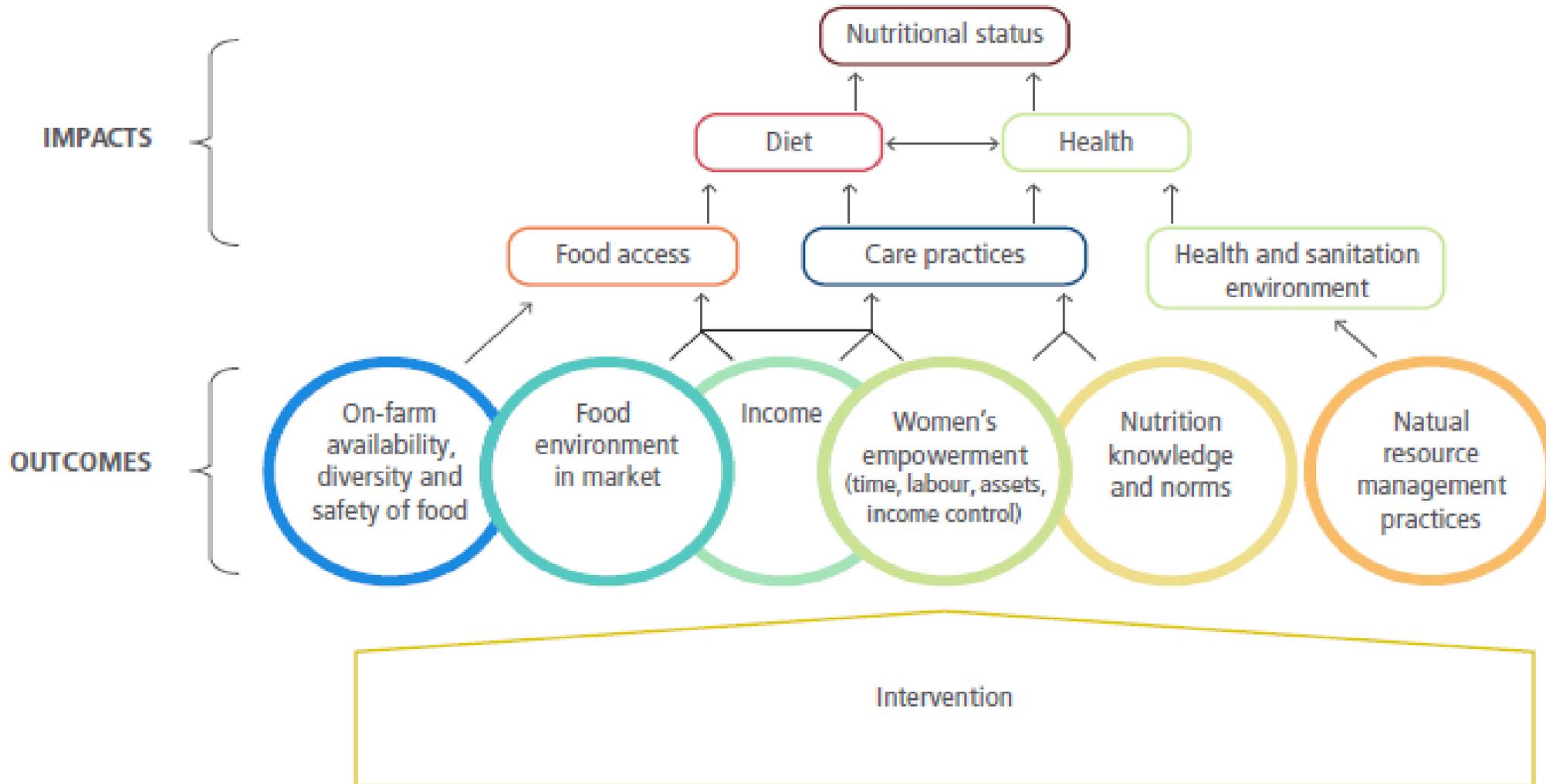


Compendium of indicators for nutrition-sensitive agriculture

- Guidance on a range of indicators for monitoring and evaluating the nutritional impacts of agricultural investments



Indicator Domains



Simplified impact pathway framework of agriculture and food system investments projects



Do you recognize me?

It's me, Jaden and I will
be your guide in the e-
Learning modules.....

Series of ELEARNING MODULES on NUTRITION-SENSITIVE AGRICULTURE AND FOOD SYSTEMS

www.fao.org/nutrition/policies-programmes/elearning



Module 1: Nutrition, Food Security and Livelihoods: Basic concepts

www.fao.org/elearning/#/elc/en/course/NFSLBC

- addresses the basic terms and concepts related to food and nutrition, malnutrition, food security and livelihoods.
- A prerequisite for the subsequent modules



Module 2: Improving Nutrition through Agriculture and Food systems

- illustrates the linkages between agriculture, food systems and nutrition
- provides concrete examples of opportunities for integrating nutrition into agriculture and food system policies, investments and programmes.

To be
released
end of 2017

Module: From nutrition situation analysis to nutrition-sensitive project design, monitoring and evaluation

- provides guidance for nutrition situation and institutional analysis
- addresses key features of design, implementation, monitoring of nutrition-sensitive policies and programmes.

Module: Improving Nutrition through Agriculture and Food systems

Content: 5 lessons

1. Why does nutrition matter?
2. How does agriculture and food systems influence nutrition?
3. How to make agriculture and food systems nutrition-sensitive?
4. Intervention areas for nutrition-sensitive agriculture and food system policies, investments and programmes
5. A conducive international environment for nutrition





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VISIT: www.fao.org/nutrition/policies-programmes

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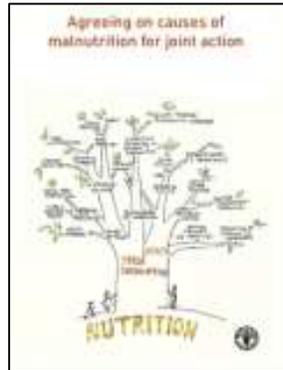


Federal Ministry
of Food
and Agriculture



WORLD BANK GROUP
Agriculture

Methodology for INTEGRATED PLANNING ACROSS SECTORS FOR NUTRITION



Guidelines: Agreeing on causes of malnutrition for joint action

www.fao.org/3/a-i3516e.pdf

These guidelines are designed to assist professionals involved in development, emergency, and resilience building programmes who seek to promote integrated planning across sectors for sustainable improvements in nutrition.



E-learning module: Agreeing on causes of malnutrition for joint action

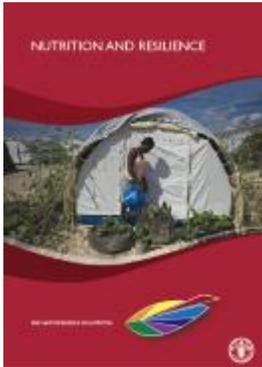
www.fao.org/elearning/#/elc/en/course/ACMJA

This interactive online course guides you through the simulation of a workshop process in the fictional country of Namambar. You will learn how to use a methodology based on malnutrition problem-and-solution trees to support joint planning for combating food insecurity and malnutrition.



Other FAO tools and resources to support nutrition-sensitive food systems

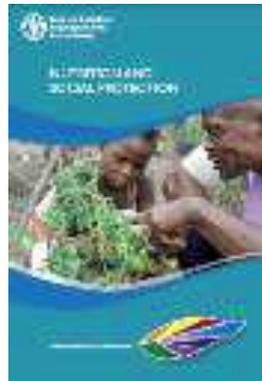
Thematic papers on NUTRITION AND



Strengthening the links between Resilience and Nutrition in food and agriculture

- Discuss the linkages between the nutrition and resilience from a food and agriculture perspective
- Recommendations to enhance nutrition impact of resilience-building programming

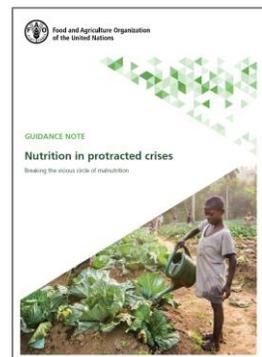
Full paper: www.fao.org/3/a-i3777e.pdf / Brochure: www.fao.org/3/a-i3824e.pdf



Social Protection and Nutrition in the Food and Agriculture Sector

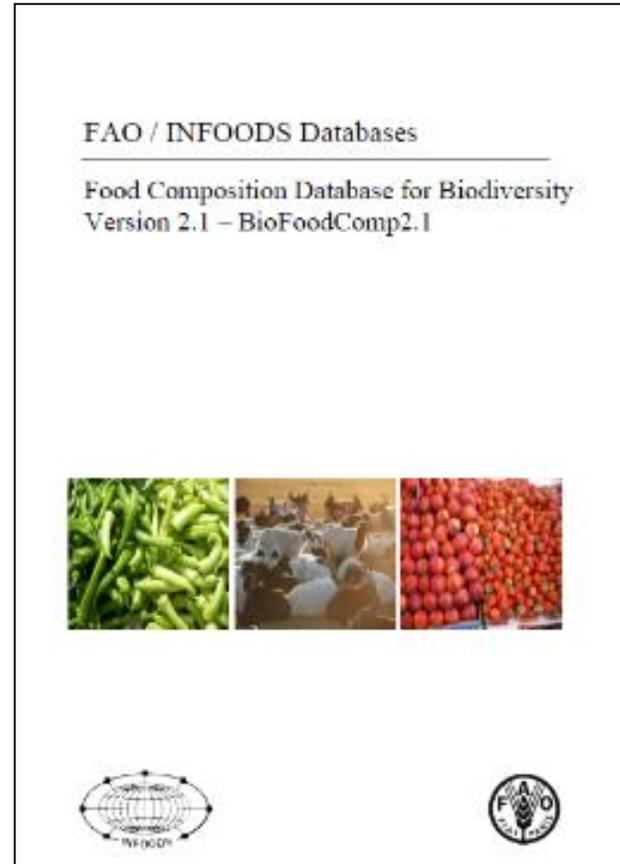
- how social protection instruments can address the underlying causes of malnutrition
- recommendations for maximizing the nutritional impact of social protection policies and programmes.

Full paper: www.fao.org/3/a-i4819e.pdf / Brochure: www.fao.org/3/a-i5021e.pdf



Guidance note on Nutrition in Protracted crisis – Breaking the vicious circle of malnutrition

FAO resources on biodiversity & food composition

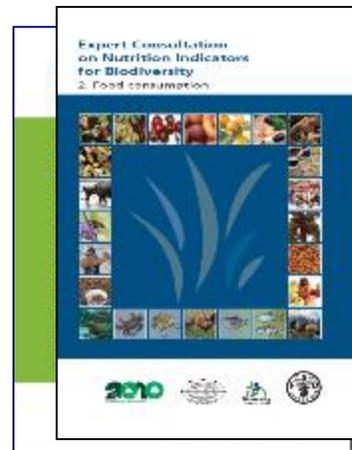


FAO/INFOODS Food Composition Database for Biodiversity -BioFoodComp

FAO/INFOODS Food Composition Study Guide

FAO/INFOODS e-Learning Course on Food Composition Data (2013)

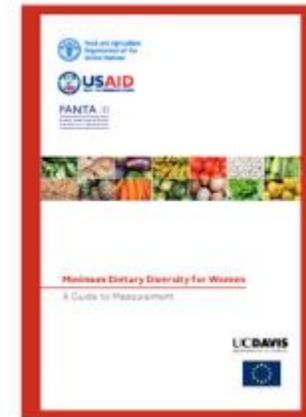
CGRFA Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition:



Individual dietary indicators



- Minimum Dietary Diversity for Women – Guide to Measurement



- FAO Dietary Assessment - A resource guide to method selection and application in low resource settings (to be released 2017)

Global Individual Food consumption data Tool (FAO/WHO GIFT)

- **Quantifying actual food consumption of people**
- Most of the data used by policy makers to estimate food consumption of populations is related to the availability of food at national level (i.e. food supply data) or at household level (i.e. household survey data). However, the information on **how much food is available at country or household level is not sufficient** to assess whether individuals in different population groups are likely to cover their nutritional needs, and to use food based approaches in improving nutrition.
- FAO/WHO GIFT is a tool which aims to support the policy makers, program planners, NGO workers and many other stakeholders in **taking informed decisions** when working with **food security, nutrition and food safety**. .

Nutrition Education



Nutrition Education

Our activities involve

- Promoting lifelong healthy eating habits
- Going beyond the classroom: involving the whole school, families and the community
- Establishing school “learning” gardens: linking classroom lessons with practice
- Developing national guidelines for better diets and nutrition
- Creating environments that support good nutrition and healthful food choices



Nutrition education is not just learning about foods and nutrients, but learning what to do and how to act to improve nutrition.

The Nutrition Education and Consumer Awareness Team provides technical support to countries to develop policies and programmes to increase public awareness of the importance of eating well, foster food environments that

Key Points

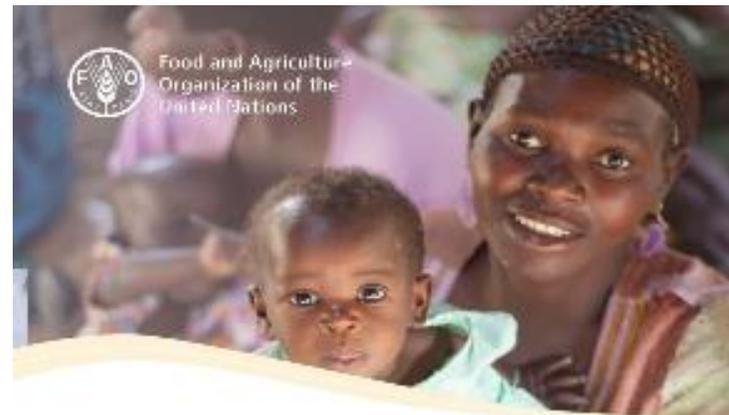
Nutrition education gives people the knowledge and skills to:

www.fao.org/nutrition/education/en/

Infant and Young Child Feeding



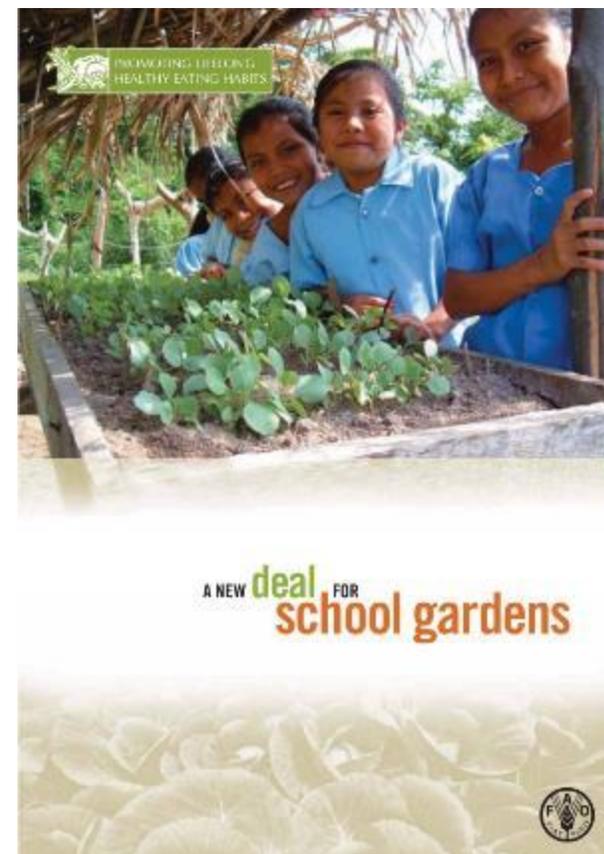
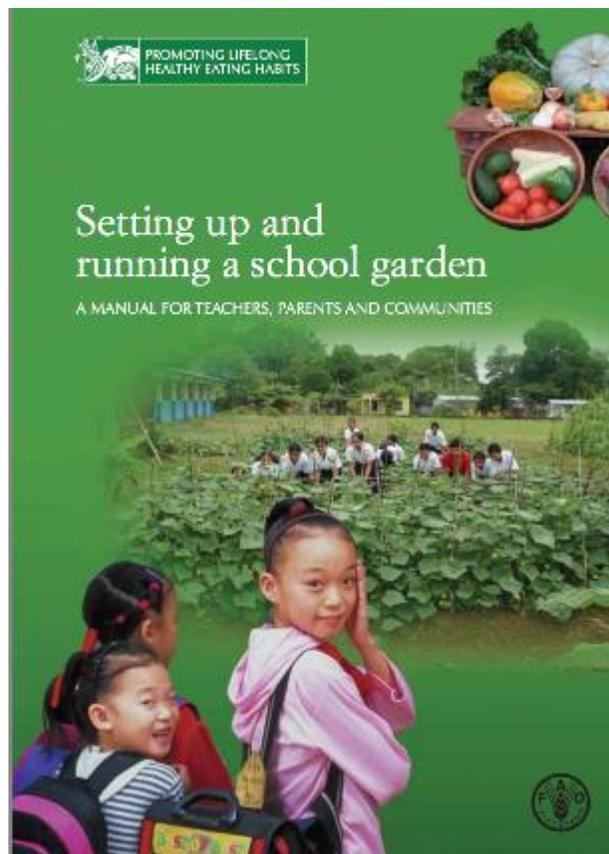
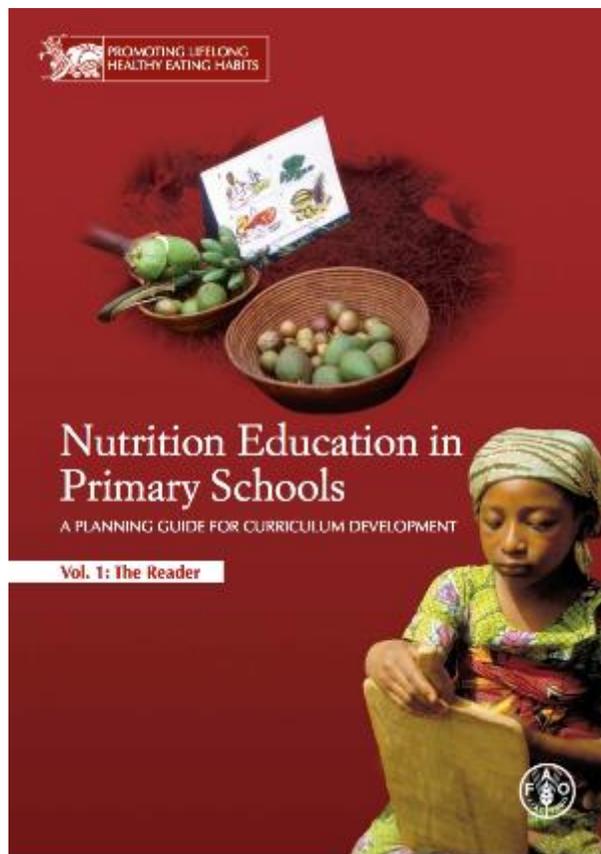
Integrating Agriculture and Nutrition
Education for Improved Young Child Nutrition
Programme Lessons



Integrating agriculture and nutrition
education for improved young child nutrition
Technical Meeting Report



School Food and Nutrition



Professional Training in Food and Nutrition Education

