FOOD, AGRICULTURE & HEALTHY DIETS

COMPREHENDIUM OF ACTIONS FOR NUTRITION
The Compendium of Actions for Nutrition (CAN) is a facilitation resource developed by REACH, as part of the UN Network for SUN, for national authorities and their partners (including SUN government actors, REACH facilitators and SUN networks) to foster multi-sectoral dialogue at the country level particularly for nutrition-related policy making and planning. It presents a breadth of possible actions to combat malnutrition, with sub-actions classified into three discreet evidence categories, as indicated in these matrices. Descriptions of evidence categories are provided in the matrix ‘chapter’ while references to support that evidence classification are listed in the bibliography. In addition, references related to contextual information for sub-actions are listed in the Notes/Remarks column. The matrices also identify the causal level of each sub-action along with factors contributing to an enabling environment for nutrition in each thematic area. These enabling factors have varying levels of evidence. The CAN does not prescribe a specific set of nutrition actions, although it does recognize that prioritization is critical. It also recognizes that prioritization must be based on context, drawing upon a robust situation analysis, available evidence and country priorities in consultation with a range of stakeholders. Further information about the structure and content of these matrices, the process of developing the CAN and how to use the tool can be found in the Overview section.

“Human health and nutrition are both the foundation of a strong food system and the expected outcome from such a system.”

(Pinstrup-Andersen, 2012)
INTRODUCTION

Healthy and sustainable diets are essential to good health and wellbeing. They are also important for ensuring good nutrition during the 1,000-day period from conception to a child’s second birthday. During this critical time, nutritional deficits may lead to irreversible, but preventable, physical and cognitive consequences. A healthy diet supports good nutrition during successive stages of life and protects against noncommunicable diseases (NCDs), including cancer, diabetes, heart disease and stroke. In fact, diet was recently identified as the top risk factor in the global burden of disease, and food systems are increasingly recognized as a driver of malnutrition in all of its forms. The causal pathways between agriculture, food security and nutrition are well-documented. A logical framework showing some of these pathways for illustrative purposes is presented in Figure 4.

FIGURE 4. Causal pathways from agriculture to nutrition 6

While the principles of a healthy diet are standard, the composition of a healthy diet is contingent upon individual needs (including age, gender, degree of physical activity and lifestyle), cultural norms and locally available foods. A healthy diet consists of a variety of safe foods that meet – yet do not exceed – the varying nutritional requirements of different population sub-groups (infants, young children, adolescent girls and boys, pregnant women, men, elderly, sick people, etc.).

Foods are the building blocks of diets, but they are also part of greater food systems. In simple terms, foods provide energy and micronutrients (vitamins and minerals) in order to support growth and sustain regular bodily functioning. The consumption of fruits, vegetables, legumes (e.g. lentils and beans), nuts and whole grains (e.g. unprocessed maize, millet, wheat, brown rice) is one important aspect of a healthy diet, both for meeting nutrient needs (preventing undernutrition and micronutrient deficiencies) and for preventing overweight, obesity and NCDs. The consumption of animal-source foods (e.g. dairy products, eggs and meat) in moderation and according to national food-based dietary guidelines and fortified foods also contributes to healthy diets and optimal complementary feeding.

The inability to consume nutritious foods and maintain a healthy diet is one potential cause of malnutrition, which encompasses undernutrition, overweight, obesity and micronutrient deficiencies (see Figure 1). A healthy diet also involves limiting the intake of sugars, salt and fat (saturated and trans fats should be replaced with unsaturated fats), and the adoption of optimal breastfeeding and complementary feeding practices.

A sustainable diet supports food and nutrition security and a healthy life for present and future generations, with minimal adverse environmental impacts. The food system and agriculture sectors have a prominent role in making sufficient food available and accessible, ensuring that it is adequately diverse and safeguarding its nutritional content. An integrated food-based approach to nutrition should involve: (1) improved agricultural production with a focus on ‘nutrient-dense’ foods (e.g. fruits, vegetables, animal products and legumes); (2) improved agricultural inputs and techniques (e.g. soil nutrient management, healthy animal feeding and biofortification); (3) enhanced food supply chains, including measures to ensure good quality food manufacturing capacity and enhancing nutritional value of foods while not doing harm, when appropriate; and (4) consumer education to assist individuals in making informed, healthy and sustainable food choices.

Efforts to make food supply chains more nutrition-oriented – often referred to as the ‘value chain approach’ – have increased in recent years, particularly in the areas of fortification and biofortification. The objective is to seize opportunities along the supply chain to augment the nutritional value of foods and to prevent the loss of nutrients.

The value chain approach can be leveraged to improve micronutrient intake through foods such as fortified complementary foods and dairy products as part of efforts to improve nutrition, including during the critical 1,000-day period. While the value chain approach offers promise, it also has limitations. First, there are trade-offs between economic and nutritional value addition, with economic considerations often exerting a strong influence. Second, it applies a single-food approach, with economic considerations often exerting a strong influence.

The food system and agriculture sectors have a prominent role in making sufficient food available and accessible, ensuring that it is adequately diverse and safeguarding its nutritional content. An integrated food-based approach to nutrition should involve: (1) improved agricultural production with a focus on ‘nutrient-dense’ foods (e.g. fruits, vegetables, animal products and legumes); (2) improved agricultural inputs and techniques (e.g. soil nutrient management, healthy animal feeding and biofortification); (3) enhanced food supply chains, including measures to ensure good quality food manufacturing capacity and enhancing nutritional value of foods while not doing harm, when appropriate; and (4) consumer education to assist individuals in making informed, healthy and sustainable food choices.

The term ‘agriculture’ is used for all food production activities, including livestock rearing, fisheries and forestry.

Nutrient-dense refers to the amount of nutrients per unit of energy (e.g. mg iron/100 kcal or g protein/100 kcal) (Drewrowski, A. 2005. Concept of a nutritious food: Toward a nutrient density score. Commentary. American Journal of Clinical Nutrition, Volume 82(4):721-732, De Pee, S. (forthcoming) Nutrient needs and approaches to meeting them, Chapter B: Nutrition and Health in a Developing World. Third edition, edited by De Pee, S., Taren, D. & Bloem, M.W. Humana Press. Totowa.).


Prices and income (i.e. cost of diet) can also influence food choices and limit access to nutritious foods, impacting nutritional status. There have been increasing efforts to promote sustainable indigenous diets, with a view to capitalizing on local biodiversity, respecting local food culture, promoting dietary diversity and protecting ecosystems. Natural resource management is key to fostering biodiversity, and in turn supporting dietary diversity for good nutrition.18-20 Natural resource management also encompasses land tenure for women and other vulnerable groups, which empowers them, and supports nutrition gains.21

This section of the CAN presents a menu of sub-actions that can be undertaken through food-based approaches to improve nutrition, particularly those that reduce maternal and child undernutrition (including in the first 1,000 days), with a view to preventing stunting and supporting healthy growth and development. These actions can play a central role in improving diets and nutritional status, but they are not necessarily nutrition sensitive. The following considerations are critical to enhancing the nutritional impacts of agricultural interventions: (1) setting explicit nutrition objectives and indicators (especially for diets); (2) embedding actions in a strategy to diversify diets; (3) associating interventions with nutrition education; (4) ensuring food safety; (5) linking agricultural interventions to actions in related sectors; and (6) giving careful consideration to gender in view of the different roles that women and men play in the food and agriculture sectors, childcare and nutrition.22

The Food, Agriculture and Healthy Diets section includes four thematic areas that contribute to healthy and sustainable diets, as depicted in the matrix ‘chapter’ of this section. The Livestock and Fisheries, and Crops/Horticulture thematic areas primarily cover the production of animal-source foods and plant foods, although they also include sub-actions on nutrition education, social marketing and behaviour change communication (BCC) activities, including enabling factors – recognizing that these sub-actions can work best in tandem. The Food Processing, Fortification and Storage thematic area highlights actions that orient food supply chains towards nutrition, presenting sub-actions that help to ensure that nutritious foods are readily available throughout the year to support healthy diets. The thematic area on Food Consumption Practices for Healthy Diets includes actions that promote good food consumption practices. Nutrition education, social marketing and BCC activities, and enabling factors are also mainstreamed into the latter two thematic areas. Qualifying information for sub-actions (including official recommendations and links to related thematic areas) is presented in the Notes/Remarks column of the matrices. These qualifiers provide CAN users with brief but focused contextual information to enrich multi-sectoral nutrition dialogue at the country level.

It is critically important to obtain an accurate depiction of the nutrition situation from the beginning, recognizing that the factors influencing nutrition should also inform policy, planning and programming responses.23,24 Nutrition assessment using anthropometric and micronutrient indicators,25 and food security assessment (particularly dietary assessment) among key target groups are considered to be cross-cutting actions that should underpin the selection of nutrition sub-actions presented in this section of the CAN.

21 Ibid.
22 For more information, see the FAO publications Key recommendations for improving nutrition through agriculture and food systems (Available at www.fao.org/3/a-i4922e.pdf) and Designing nutrition-sensitive agricultural investments (available at www.fao.org/3/a-i5107e.pdf).
# MATRIX OF ACTIONS

## Livestock and Fisheries

### POSSIBLE INTERVENTION RESPONSES

<table>
<thead>
<tr>
<th>ACTION</th>
<th>Animal husbandry, fisheries and insect farming</th>
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<tbody>
<tr>
<td><strong>SUB-ACTION 1a</strong></td>
<td>Extensive animal rearing for the production of animal-source foods in support of healthy diets</td>
</tr>
<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Primary studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

In extensive livestock production systems, animals are allowed to range free for part or all of the production cycle (e.g. cattle among agropastoralists and pastoralists).

The consumption of animal-source foods (e.g. dairy products, eggs and meat) in moderation and according to national food-based dietary guidelines contributes to healthy diets and optimal complementary feeding. In pastoralist societies, milk intake was found to be a determinant of children's nutritional status.

This sub-action should be accompanied by nutrition education to promote consumption of the foods produced (Girard et al., 2012; Olney et al., 2015).


| **SUB-ACTION 1b** | Homestead animal rearing for the production of animal-source foods in support of healthy diets |
| **CAUSAL LEVEL** | Immediate/Underlying |
| **EVIDENCE CATEGORY** | Synthesized evidence |

**NOTES/REMARKS**

Dairy products, eggs and meat consumed in moderation contribute to healthy diets and optimal complementary feeding.

Homestead animal rearing (e.g. poultry, sheep, goats) can also be carried out in the context of integrated strategies for diversification of home and small-farm food production, including integrated crop farming-aquaculture and animal husbandry (VAC system). It should be accompanied by nutrition education to promote the consumption of foods produced (Girard et al., 2012; Olney et al., 2015).


**IMMEDIATE CAUSES**: Causes related to inadequate food intake and exposure to disease or illness. **UNDERLYING CAUSES**: Household and community-level factors, which may be influenced by issues such as agricultural practices, climate, lack of availability and access to safe water, sanitation, health services and education for girls, and other gender-related issues. **BASIC CAUSES**: Societal structures and processes that impede vulnerable populations’ access to essential resources. They typically stem from institutional, political, economic and social factors, including governance, trade, environmental and gender issues, and poverty.

**The following evidence categories are used in the CAN: (1) synthesized evidence exists**: this includes meta-analyses and systematic reviews. It should be noted however that the number of studies included in meta-analyses and systematic reviews varies across sub-actions, with some synthesized evidence based on a large number of studies and other synthesized evidence based on a limited number of studies; **(2) published primary studies exist**: no synthesized evidence exists, but evidence is published in peer-reviewed journals; and **(3) practice-based studies exist**: there is published experience-based evidence documented in the ‘grey literature’ although no evidence has been published in peer-reviewed journals – either in the form of synthesized evidence or single studies. This indicates that further research is warranted.
**SUB-ACTION 1c**
Aquaculture and capture fisheries for the production of animal-source foods in support of healthy diets

**CAUSAL LEVEL**
Immediate/Underlying

**EVIDENCE CATEGORY**
Synthesized evidence

**NOTES/REMARKS**
Fish products contribute to healthy diets, including optimal complementary feeding. This sub-action can also be carried out in the context of integrated strategies for diversifying home and small-farm food production, including integrated crop farming-aquaculture and animal husbandry (VAC system), and fish production in rice fields.

This sub-action should be accompanied by nutrition education in order to promote consumption of the foods produced (Girard et al., 2012; Olney et al., 2015).


**SUB-ACTION 1d**
Insect farming for the production of animal-source foods in support of healthy diets

**CAUSAL LEVEL**
Underlying

**EVIDENCE CATEGORY**
Practice-based studies

**NOTES/REMARKS**
Insects are consumed in several parts of the world and represent a significant contribution to protein and mineral intake. They therefore contribute to healthy diets, including optimal complementary feeding. However, the consumption of honey is not promoted since it largely provides sugars. The consumption of honey is not recommended for children less than 12 months in view of the harmful effects for this age cohort of the spores contained in honey, that can cause botulism. WHO guidelines recommend reducing the intake of free sugars to lower the risk of NCDs in adults and children, with a focus on the prevention and control of unhealthy weight gain and dental caries (WHO, 2015).

This sub-action should be accompanied by nutrition education to promote consumption of the foods produced (Girard et al., 2012; Olney et al., 2015).


**SUB-ACTION 1e**
Processing, handling and market access to support healthy consumption of animal-source foods for dietary diversity

**CAUSAL LEVEL**
Immediate/Underlying

**EVIDENCE CATEGORY**
Primary studies

**NOTES/REMARKS**
The consumption of animal-source foods (e.g. dairy products, eggs, fish and meat) in moderation and according to national Food-Based Dietary Guidelines (FBGDs) contributes to healthy diets and optimal complementary feeding. FBDGs promote energy balance (balance between caloric intake and energy expenditure). Excessive consumption of meat products (particularly red meat) can increase the risk of NCDs.
These sub-actions reflect factors that contribute to an enabling environment for nutrition, such as policy coherence, legislation, regulations, standards, trade mechanisms, social marketing, and behaviour change communication; the absence of these factors may contribute to a disabling environment. The factors listed in this section are supported by varying levels of evidence; applicable references are cited, when available. These Enabling Environment sub-actions were not classified by evidence category because they are considered to be key to fostering an enabling environment irrespective of the existing level of evidence.

**ACTION 1. Assessment and information**

<table>
<thead>
<tr>
<th>SUB-ACTION 1a</th>
<th>Food composition data for locally available animal-source foods</th>
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<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
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**NOTES/REMARKS**
This sub-action includes the generation, compilation and dissemination of data on the nutrient content of locally available animal-source foods. This is crucial for promoting the integration of nutrient content into the choices about animal husbandry, fishing and insect farming among livestock keepers, fishers and insect farmers.


<table>
<thead>
<tr>
<th>SUB-ACTION 1b</th>
<th>Vulnerability assessment and early warning analysis</th>
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<tr>
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<td>Basic</td>
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<tr>
<th>SUB-ACTION 1c</th>
<th>Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area</th>
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<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
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<table>
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<tr>
<th>SUB-ACTION 1d</th>
<th>M&amp;E of sub-actions covered by this thematic area</th>
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<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
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**ACTION 2. Policy coherence**

<table>
<thead>
<tr>
<th>SUB-ACTION 2a</th>
<th>Policy coherence of Livestock and Fisheries issues in policies/strategies on agriculture, and those related to animal resources, trade, health, social protection, nutrition and food security</th>
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<tbody>
<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
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**NOTES/REMARKS**
The Committee on World Food Security (CFS) Principles for Responsible Investment in Agriculture and Food Systems may be consulted for promoting policy coherence.


**ACTION 3. Legislation, regulations/standards, protocols and guidelines**

<table>
<thead>
<tr>
<th>SUB-ACTION 3a</th>
<th>Land tenure/land rights, in accordance with Voluntary Guidelines on the Responsible Governance of Tenure, to support healthy diets</th>
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<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
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**NOTES/REMARKS**
Legislation and related guidance ensure respect for fisheries tenure security without any discrimination. Special attention may be given to groups such as indigenous people. Promoting and facilitating sustainable, non-discriminatory and secure access and utilization of water resources consistent with national and international laws protects the assets that are important for people whose livelihoods are dependent on fisheries. This sub-action should be carried out in a gender-sensitive manner.

(Enabling Environment continued ...)

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22 COMpendium of Actions for Nutrition
### SUB-ACTION 3b
Legislation and regulations on animal breeding, animal fodder, and fish harvesting/farming taking into account nutrition considerations and food safety and hygiene

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
This may include the development, implementation and enforcement of legislation and regulations. Efforts to alter the nutritional profile of fodder (e.g. increasing omega-three fatty acids) are one example of how nutrition considerations can be integrated into fish farming.

### SUB-ACTION 3c
Legislation and regulations on consumption of wild meat

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
In many tropical forested settings, wild meat (also known as ‘bushmeat’) is the main source of animal protein (Arnold et al., 2011). It contains micronutrients in considerably higher amounts – and in more bioavailable forms – than plant-source foods. A study from Madagascar estimated that iron deficiency anaemia among children would increase by nearly 30 percent if ‘bushmeat’ were to disappear from children’s diets and not be replaced by other food sources (Golden et al., 2011). However, food-safety measures are needed to protect public health since hunting and eating wild meat is a cause of zoonotic diseases.

Over-exploitation of wild animals is contributing to the extinction of some species (Nasi et al., 2011). The ensuing ‘bushmeat’ crisis (Nasi et al., 2008) is undermining the food security and livelihoods of some forest communities (Heywood, 2013). This threat is particularly relevant where household consumption of ‘bushmeat’ is more common than trading (Vinceti et al., 2013).


### SUB-ACTION 3d
Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers

**CAUSAL LEVEL**
Underlying/Basic

**NOTES/REMARKS**
This sub-action encompasses the development, implementation and enforcement of food safety and quality control systems according to Codex Alimentarius guidelines and standards, and WHO recommendations for food safety (WHO). It also includes the tracing of food to supplier to protect food safety. This sub-action applies to complementary and other foods (including animal-source foods).


### ACTION 4. Fiscal policy

### SUB-ACTION 4a
Taxes and subsidies to support healthier diets

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
This sub-action includes:

1. Taxation (or removal of subsidization) on unhealthy foods and beverages (e.g. soda taxes); and
2. Subsidization (or removal of taxation) on healthy foods and beverages (WHO, 2013). Healthy foods that are subsidized should be culturally acceptable, safe and typically consumed by poor people. Countries should stop subsidizing unhealthy foods and beverages whenever possible.

This sub-action also comprises price subsidies on animal-production inputs for poor livestock keepers and fishers with a view to fostering dietary diversity.

It is important to assess the impact of fiscal policy measures on the viability of local food systems and consumption patterns in each context. To this end, these measures should take into consideration local nutritional needs, local production capacity and the economic costs and benefits for local consumers and producers/suppliers.

### ACTION 5. Planning, budgeting and management

**SUB-ACTION 5a**
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, animal resources, trade, health, and social protection planning and implementation

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
This sub-action includes recruiting nutritionists in government agencies, strengthening nutrition curricula in formal education and providing basic training on nutrition for units in charge of planning and implementation. It also fosters coordinated planning and budgeting for nutrition in these areas.

### ACTION 6. Trade

**SUB-ACTION 6a**
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora

**CAUSAL LEVEL**
Underlying/Basic

**SUB-ACTION 6b**
Market linkages to help facilitate/promote the consumption of animal-source foods in support of healthy diets

**CAUSAL LEVEL**
Underlying/Basic

**NOTES/REMARKS**
This sub-action includes facilitated access for the use of animal-source foods in complementary feeding. It is important to promote development of small-scale local and regional markets, and cross-border trade to reduce poverty and increase food security, particularly in poor and urban areas. This includes support for improving access to domestic and international markets. In addition, it is important to ensure that increased opportunities to sell nutritious foods do not translate into a reduction in local consumption of healthy foods and deteriorating diets.

### ACTION 7. Social norms: Education/sensitization, BCC and social marketing

**SUB-ACTION 7a**
Promotion of wild meat for consumption for healthy diets in accordance with national legislation and regulations and food safety measures

**CAUSAL LEVEL**
Underlying

**NOTES/REMARKS**
Wild meat refers to game meat. This sub-action should take into account food safety measures to protect public health since hunting and eating wild meat is a source of zoonotic diseases.

**SUB-ACTION 7b**
Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition

**CAUSAL LEVEL**
Immediate/Underlying

**NOTES/REMARKS**
This nutrition education includes promoting the consumption of animal-source foods (e.g. dairy products, eggs and meat) in moderation and according to national food-based dietary guidelines, recognizing that they contribute to healthy diets and optimal complementary feeding. This sub-action is particularly relevant for nutrient absorption. This sub-action promotes practices to keep animals away from areas where the food is being prepared and served to children, areas where children play and water sources. It also promotes the regular removal of any animal faeces from compounds – at least daily (WHO, 2015). Additional information about hygiene is included in the Health section within the thematic area on Water, Sanitation and Hygiene for Good Nutrition (sub-action 1c).


(Enabling Environment continued ...
ACTION 8. Infrastructure and technology

**SUB-ACTION 8a**
Food hygiene/safety infrastructure, technology and quality assurance Hazard Analysis and Critical Control Points (HACCP), to safeguard nutrition

**CAUSAL LEVEL**
Underlying

**NOTES/REMARKS**
This sub-action includes infrastructure and technology to support the cold chain, which (for transport as well as storage at home) is key for supporting healthy diets and reducing food waste, both of which will lead to improved nutrient intake.

This sub-action is particularly relevant for nutrient absorption and is linked to the sub-action on food safety and quality control under the Legislation, regulations/standards, protocols and guidelines sub-heading. It is also linked to Codex Alimentarius guidelines and standards, and to low-cost measures for improving food hygiene, such as:

1. Keeping a clean environment for handling food (e.g. handwashing, cleaning key surfaces and utensils, and protecting food preparation areas from insects, pests and other animals);
2. Separating raw and cooked food;
3. Cooking food thoroughly;
4. Storing food at safe temperature; and


ACTION 9. Coordination

**SUB-ACTION 9a**
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Livestock and Fisheries to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
This includes support for the establishment of nutrition collaboration platforms at the national and sub-national levels. It also includes supporting the engagement of ministries of agriculture, livestock and fisheries, health and other ministries in multi-stakeholder, multi-sectoral nutrition platforms to ensure that high-level policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

Further information about hygiene is included in the Health section within the thematic area on Water, Sanitation and Hygiene for Good Nutrition (sub-action 1c).

<table>
<thead>
<tr>
<th>ACTION 10. Other enabling environment actions</th>
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<tbody>
<tr>
<td><strong>SUB-ACTION 10a</strong></td>
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<tr>
<td>Animal health services to support safe animal-source foods for human consumption</td>
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<td><strong>NOTES/REMARKS</strong></td>
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<tr>
<td>This sub-action includes vaccinations, parasite control, breeding support and other veterinary services.</td>
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| **SUB-ACTION 10b**                       |
| Support with inputs related to animal production | **CAUSAL LEVEL** |
|                                           | Underlying       |
| **NOTES/REMARKS**                         |
| This sub-action includes animal feed and water (animal nutrition), shelter and settlement to support good human nutrition. |

| **SUB-ACTION 10c**                       |
| Availability of credit/microcredit and microfinance to livestock-keepers, pastoralists, agropastoralists fishers and insect farmers targeting both men and women, to help make healthy foods available | **CAUSAL LEVEL** |
|                                           | Underlying/Basic |
| **NOTES/REMARKS**                         |
| For example, this sub-action can help livestock keepers, pastoralists, agropastoralists, fishers and insect farmers to acquire equipment, storage technologies and inputs.  
This sub-action also helps to make animal-source foods available for complementary feeding. |

| **SUB-ACTION 10d**                       |
| Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders | **CAUSAL LEVEL** |
|                                           | Underlying/Basic |
# Crops/Horticulture

## POSSIBLE INTERVENTION RESPONSES

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<tr>
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<th>Diversification and locally adapted varieties</th>
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<tbody>
<tr>
<td><strong>SUB-ACTION 1a</strong></td>
<td>Promotion of fruit and vegetable gardens for healthy diets</td>
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<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Synthesized evidence</td>
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**NOTES/REMARKS**

Diversification and locally adapted varieties are also important for optimal complementary feeding. Explicit nutrition objectives, nutrition education and counselling, and consideration of gender issues should be included in this sub-action to maximize desired impacts on nutrition.

Gardens can be established at the household or community level. They can be part of integrated home-based diversification strategies or small-farm food production systems. These can include: crop farming-aquaculture and animal husbandry (VAC system); and forest-farm integration with a focus on ‘nutrition-smart’ plants and trees yielding fruits and nuts. Gardens can also be promoted in urban and peri-urban settings (micro-gardens, rooftop gardens, etc.).

While home gardens increase direct access to fruits and vegetables, commercially oriented medium- and large-scale horticultural production increases the availability and lowers prices of nutrient-dense plant-source foods for the broader population, including urban consumers. It is important to ensure that incentives for commercialization do not translate into reduced consumption of fruits and vegetables at the household level.

Resource-poor producers deriving income from horticultural production should be encouraged to use the income for health and nutrition. Finally, this sub-action includes sensitization on keeping some nutritious foods for home consumption.

| **SUB-ACTION 1b** | Sustainable intensification of staple crop production for dietary diversification |
| **CAUSAL LEVEL** | Underlying |
| **EVIDENCE CATEGORY** | Practice-based studies |

**NOTES/REMARKS**

This sub-action applies to cereals, pulses, roots and tubers, and includes strategies such as intercropping and rotation (for cereals and pulses), and sequencing (for cereals and vegetables).

This sub-action applies at different scales, from the household level to the regional and national levels.

*Immediate causes:* Causes related to inadequate food intake and exposure to disease or illness. *Underlying causes:* Household and community-level factors, which may be influenced by issues such as agricultural practices, climate, lack of availability and access to safe water, sanitation, health services and education for girls, and other gender-related issues. *Basic causes:* Societal structures and processes that impede vulnerable populations’ access to essential resources. They typically stem from institutional, political, economic and social factors, including governance, trade, environmental and gender issues, and poverty.

**The following evidence categories are used in the CAN:** (1) **synthesized evidence exists:** this includes meta-analyses and systematic reviews. It should be noted however that the number of studies included in meta-analyses and systematic reviews varies across sub-actions, with some synthesized evidence based on a large number of studies and other synthesized evidence based on a limited number of studies; (2) **published primary studies exist:** no synthesized evidence exists, but evidence is published in peer-reviewed journals; and (3) **practice-based studies exist:** there is published experience-based evidence documented in the ‘grey literature’ although no evidence has been published in peer-reviewed journals – either in the form of synthesized evidence or single studies. This indicates that further research is warranted.
### SUB-ACTION 1c
**Biodiversity and underutilized crops**

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
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<tr>
<td>Underlying</td>
<td>Primary studies</td>
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**NOTES/REMARKS**

Optimizing biodiversity entails promoting inter-species diversity (different kinds of crops) and intra-species diversity (different varieties and cultivars of the same crop), recognizing that the nutrient composition of different crop varieties can differ dramatically. Consumption of one rather than another variety can make the difference between deficiency and adequacy of a given nutrient, especially for micronutrients.

Local and traditional foods, including neglected and underutilized species, should be considered and their nutrient content assessed (see sub-action 1a in the Enabling Environment section under the Assessment and information sub-heading).

Biodiversity-based approaches also include the promotion of sustainable forest management and sustainable production of forest products (wild foods, micronutrient-rich fruits and berries, roots and tubers, seeds, nuts and mushrooms). Studies demonstrate the important role of forestry foods, including the positive dietary impacts (Fungo et al., 2016; other studies cited in the CAN bibliography).


### SUB-ACTION 1d
**Inputs and irrigation for fruit and vegetable gardens and crops**

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying</td>
<td>Primary studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action may be carried out through agricultural support and livelihood development to improve household food security, increase household income and diversify income sources for healthy diets. It may include complementary feeding in an environmentally sound manner (particularly the sound use of pesticides and protection of water resources). Strategies need to be adapted to the scale of production (home-based or community versus large-scale production).

This sub-action is essential to ensure the effectiveness and sustainability of these sub-actions for diversifying food production.

Water allocation and access to water need to be managed in a transparent way based on social consensus and legal rights.

### ACTION 2
**Biofortification**

### SUB-ACTION 2a
**Introduction of biofortified varieties to support healthy diets**

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

Biofortification refers to breeding micronutrient-rich plants and is therefore extremely relevant for ensuring adequate micronutrient intake. Interventions need to be based on a robust rationale for biofortification programming. Examples include a high prevalence of micronutrient deficiencies and government backing for biofortification, which may be obtained through: nutritional assessment of the target population’s micronutrient status; market assessment; solicitation of government endorsement; assessment of food consumption patterns; and production system analysis.

### SUB-ACTION 2b
**Social marketing campaigns on biofortified foods to support healthy diets**

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying</td>
<td>Practice-based studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action is particularly relevant for ensuring adequate micronutrient intake.

Social marketing is key to ensuring farmers’ adoption of new crops and consumers’ adoption of new foods, and therefore ensuring that sub-action 2a has the desired impact.
### Enabling Environment

These sub-actions reflect factors that contribute to an enabling environment for nutrition, such as policy coherence, legislation, regulations, standards, trade mechanisms, social marketing, and behaviour change communication; the absence of these factors may contribute to a disabling environment. The factors listed in this section are supported by varying levels of evidence; applicable references are cited, when available. These Enabling Environment sub-actions were not classified by evidence category because they are considered to be key to fostering an enabling environment irrespective of the existing level of evidence.

<table>
<thead>
<tr>
<th>ACTION 1. Assessment and information</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUB-ACTION 1a</strong> Food composition data for locally available plant foods</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes the generation, compilation and dissemination of data on nutrient content of locally available food-crop varieties. This information is crucial for integrating nutrient content into criteria for cultivar promotion.


<table>
<thead>
<tr>
<th>SUB-ACTION 1b Vulnerability assessment and early warning analysis</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUB-ACTION 1c</strong> Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area</td>
<td>Basic</td>
</tr>
<tr>
<td><strong>SUB-ACTION 1d</strong> M&amp;E of sub-actions covered by this thematic area</td>
<td>Basic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTION 2. Policy coherence</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUB-ACTION 2a</strong> Policy coherence between Crops/Horticulture issues defined by policies/strategies on agriculture, natural resource management, trade, health, social equity, nutrition and food security</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes biofortification.

The Committee on World Food Security (CFS) Principles for Responsible Investment in Agriculture and Food Systems is a useful resource for promoting policy coherence.

### ACTION 3. Legislation, regulations/standards, protocols and guidelines

<table>
<thead>
<tr>
<th>SUB-ACTION 3a</th>
<th>Land tenure/land rights, in accordance with Voluntary Guidelines on the Responsible Governance of Tenure, to support healthy diets</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
</tr>
<tr>
<td>NOTES/REMARKS</td>
<td>Land tenure policies and related guidance ensure respect for land and forest tenure security without any discrimination. Special attention may be given to groups such as indigenous people. Promoting and facilitating sustainable, non-discriminatory and secure access and utilization of land and forest resources consistent with national and international laws protects these important assets for the people whose livelihoods depend on them. This sub-action should be carried out in a gender-sensitive manner.</td>
</tr>
</tbody>
</table>

#### SUB-ACTION 3b
Legislation and regulations which provide harmonized standards for biofortified crops and food products in support of healthy diets

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>The biofortified crops mentioned here include both conventional and genetically modified varieties. Biofortification makes crop production 'nutrition sensitive' by integrating nutrition objectives into breeding programmes. This sub-action includes the development, implementation and enforcement of related legislation and regulations. Examples of legislation that provide harmonized standards for biofortified crops and food products include: the adoption and use of the standard definition of biofortification in the Codex Alimentarius; standards on nutrient levels to define what constitutes a 'biofortified food'; and harmonized regulations on labelling and health claims. This sub-action also includes the adoption of international biosafety protocols and national biosafety regulations, specific to transgenic varieties, which are therefore considered critical to ensuring environmentally safe application.</td>
</tr>
</tbody>
</table>

#### SUB-ACTION 3c
Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>Underlying/Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>This sub-action encompasses the development, implementation and enforcement of food safety and quality control systems according to Codex Alimentarius guidelines and standards, and WHO recommendations for food safety. It also includes the tracing of food to supplier in order to protect food safety. It applies to complementary foods as well as other foods (including plant-source foods).</td>
</tr>
</tbody>
</table>


#### SUB-ACTION 3d
Legislation and regulations on crop breeding take into account nutrition considerations

<table>
<thead>
<tr>
<th>CAUSAL LEVEL</th>
<th>Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>This sub-action includes breeding widely produced and consumed crops for higher nutrient value, as well as agronomic improvement of naturally occurring nutrient-dense varieties. The aim is to enhance acceptability and use among farmers, and the availability of foods for healthy diets.</td>
</tr>
</tbody>
</table>

### ACTION 4. Fiscal policy

<table>
<thead>
<tr>
<th>SUB-ACTION 4a</th>
<th>Taxes and subsidies to support healthier diets</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUSAL LEVEL</td>
<td>Basic</td>
</tr>
</tbody>
</table>
| NOTES/REMARKS | This sub-action includes:  

(1) Taxation (or removal of subsidization) on unhealthy foods and beverages (e.g. soda taxes); and  
(2) Subsidization (or removal of taxation) on healthy foods and beverages. (WHO, 2013). Healthy foods that are subsidized should be culturally acceptable, safe and typically consumed by poor people. Countries should stop subsidizing unhealthy foods and beverages whenever possible. 

This sub-action may include price subsidies for agricultural inputs (seeds, fertilizer, etc.) with a view to promoting crop diversification and ultimately dietary diversification. In order to prioritize crops and varieties for promotion, data are needed on nutrition (e.g. micronutrient deficiencies) and food composition. Labour requirements for crops and impact on women’s workload (which can reduce time for childcare, breastfeeding and food preparation) should also be taken into account. 

It is important to assess the impact of fiscal policies on the viability of local food systems and consumption patterns in each context. To this end, these measures should take into consideration local nutritional needs, local production capacity and economic costs and benefits for local consumers and producers/suppliers. |

### ACTION 5. Planning, budgeting and management

**SUB-ACTION 5a**  
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, natural resource management, trade, health, education, and social protection planning and implementation  
**CAUSAL LEVEL** Basic

**NOTES/REMARKS**  
This sub-action includes recruiting nutritionists in government agencies, strengthening nutrition curricula in formal education and providing basic training on nutrition for units in charge of planning and implementation. This sub-action also fosters coordinated planning and budgeting for nutrition in these areas.

### ACTION 6. Trade

**SUB-ACTION 6a**  
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora  
**CAUSAL LEVEL** Underlying/Basic

**SUB-ACTION 6b**  
Market linkages to help facilitate/promote consumption of fruits, vegetables, legumes, and other nutritious plant foods in support of healthy diets  
**CAUSAL LEVEL** Underlying/Basic

**NOTES/REMARKS**  
It is important to promote the development of small-scale local and regional markets, and cross-border trade to reduce poverty and increase food security, particularly in poor and urban areas. This includes support for improving access to domestic and international markets. Linking farmers with institutional markets such as schools and hospitals can provide incentives to diversify production while addressing schoolchildren's immediate food and nutrition needs. In addition, it is important to ensure that increased opportunities to sell nutritious foods do not translate into a reduction in local consumption of healthy foods and deteriorating diets.

### ACTION 7. Social norms: Education/sensitization, BCC and social marketing

**SUB-ACTION 7a**  
Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition  
**CAUSAL LEVEL** Immediate/Underlying

**NOTES/REMARKS**  
This nutrition education includes promoting the consumption of animal-source foods (e.g. dairy products, eggs and meat) in moderation and according to national food-based dietary guidelines, recognizing that they contribute to healthy diets and optimal complementary feeding. Food hygiene education is especially relevant for nutrient absorption. Additional information is included in the Health section within the thematic area on Water, Sanitation and Hygiene for Good Nutrition (sub-action 1c).

### ACTION 8. Infrastructure and technology

<table>
<thead>
<tr>
<th>SUB-ACTION 8a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition</td>
<td>Underlying</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes infrastructure and technology to support the cold chain, which (for transport as well as storage at home) is key for supporting healthy diets and reducing food waste, both of which will lead to improved nutrient intake.

This sub-action safeguards nutrition – particularly nutrient absorption – and is linked to the sub-action 3c under the Legislation, regulations/standards, protocols and guidelines sub-heading. It is also linked to Codex Alimentarius guidelines and standards, and encompasses low-cost measures for improving food hygiene, such as:

1. Keeping a clean environment for handling food (e.g. handwashing, cleaning key surfaces and utensils, and protecting food preparation areas from insects, pests and other animals);
2. Separating raw and cooked food;
3. Cooking food thoroughly;
4. Storing food at safe temperature; and
5. Using safe water and raw material.


### ACTION 9. Coordination

<table>
<thead>
<tr>
<th>SUB-ACTION 9a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Crops/Horticulture to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes support for the establishment of national and sub-national nutrition collaboration platforms. It also includes supporting the engagement of ministries of agriculture, health and other ministries in multi-stakeholder, multi-sectoral nutrition platforms to ensure that high-level policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

### ACTION 10. Other enabling environment actions

<table>
<thead>
<tr>
<th>SUB-ACTION 10a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of credit/microcredit and microfinance to farmers, targeting both men and women, so as to help make healthy foods available</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes helping farmers to acquire equipment, storage technologies and inputs.

<table>
<thead>
<tr>
<th>SUB-ACTION 10b</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders</td>
<td>Underlying/Basic</td>
</tr>
</tbody>
</table>
### Food Processing, Fortification and Storage

#### POSSIBLE INTERVENTION RESPONSES

<table>
<thead>
<tr>
<th>ACTION 1</th>
<th>Food processing (excluding fortification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUB-ACTION 1a</td>
<td>Malting, drying, pickling and curing at the household level</td>
</tr>
<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Immediate/Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Primary studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action extends the shelf life of foods, reducing the effects of seasonality on food access. Malting also enhances the nutritional value and digestibility of foods. Drying techniques should be chosen to optimize the nutritional content of foods (e.g. drying in the shade to minimize loss of vitamins). Food safety and hygiene measures should be an integral part of processing.

<table>
<thead>
<tr>
<th>SUB-ACTION 1b</th>
<th>Reformulation of food/beverages for healthier diets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Immediate/Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

The reformulation of food products entails reducing the content of salt, fats such as saturated fats and trans fats, and free sugars.

<table>
<thead>
<tr>
<th>SUB-ACTION 1c</th>
<th>Other nutrition-oriented food processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Immediate/Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Primary studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes reducing portion sizes (‘nutrition-oriented packaging’). It also encompasses measures to enhance the digestibility and nutritional value of foods through processing such as reducing the phytate and polyphenol content of beans in order to increase iron absorption. Another example is the production of more nutritious flours for cooking, including legume-based protein-rich flours, which may also be used in complementary feeding (FAO, 2013). This sub-action also encompasses the promotion of processing for income generation, with a focus on community-based processing and small and medium-sized enterprises. Processors should be encouraged to use the income they generate for health and nutrition.


<table>
<thead>
<tr>
<th>SUB-ACTION 1d</th>
<th>Training and sensitization on malting, drying, pickling and curing at the household level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAUSAL LEVEL</strong></td>
<td>Underlying</td>
</tr>
<tr>
<td><strong>EVIDENCE CATEGORY</strong></td>
<td>Primary studies</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

Training should include: processing methods that preserve or enhance nutritional value; information on the nutritional impact of these processing methods; and methods for ensuring food safety. It is also important to ensure that trainees have access to materials for utilizing the selected methods (solar dryers, cooking facilities, etc.).

---

* **Immediate causes**: Causes related to inadequate food intake and exposure to disease or illness. **Underlying causes**: Household and community-level factors, which may be influenced by issues such as agricultural practices, climate, lack of availability and access to safe water, sanitation, health services and education for girls, and other gender-related issues. **Basic causes**: Societal structures and processes that impede vulnerable populations’ access to essential resources. They typically stem from institutional, political, economic and social factors, including governance, trade, environmental and gender issues, and poverty.

**The following evidence categories are used in the CAN:**

1. **synthesized evidence exists**: this includes meta-analyses and systematic reviews. It should be noted however that the number of studies included in meta-analyses and systematic reviews varies across sub-actions, with some synthesized evidence based on a large number of studies and other synthesized evidence based on a limited number of studies;
2. **published primary studies exist**: no synthesized evidence exists, but evidence is published in peer-reviewed journals;
3. **practice-based studies exist**: there is published experience-based evidence documented in the ‘grey literature’ although no evidence has been published in peer-reviewed journals – either in the form of synthesized evidence or single studies. This indicates that further research is warranted.
### ACTION 2
Fortification (including salt iodization and fortification of complementary foods)

<table>
<thead>
<tr>
<th>SUB-ACTION 2a</th>
<th>Mass fortification to support good nutrition, particularly adequate micronutrient intake</th>
<th>CAUSAL LEVEL</th>
<th>Immediate/Underlying</th>
<th>EVIDENCE CATEGORY</th>
<th>Synthesized evidence (for salt iodization and flour fortification) Primary studies (for oil, rice and sugar fortification)</th>
</tr>
</thead>
</table>

**NOTES/REMARKS**
Fortification should be part of a broad strategy to promote healthy diets and complement dietary diversification. It is highly effective in areas where the majority of the population purchases fortified products (e.g., folic acid fortified wheat flour in North and South America, vitamin A-fortified sugar in Guatemala); see the CAN bibliography for references. The efficacy of mass fortification depends on the nutrient and food vehicle used (e.g., there is corroborating evidence on the nutritional impact of iodized salt). In addition, the stability of micronutrients is variable and may be affected by storage conditions and cooking methods used to prepare fortified food.

WHO recommends that all food-grade salt for household consumption and food processing be fortified with iodine as a safe and effective strategy for the prevention and control of iodine deficiency disorders, both in stable and emergency settings.

WHO also recommends that wheat and maize flour fortification be considered when industrially produced flour is regularly consumed by a large portion of the country’s population. Decisions about which nutrients to add, and the appropriate amounts, should be based on factors including: (1) the population’s nutritional needs and deficiencies; (2) the typical consumption profile of ‘fortifiable’ flour; (3) the organoleptic effects of the added nutrients on flour and products made with flour; (4) fortification of other foods; and (5) costs.

<table>
<thead>
<tr>
<th>SUB-ACTION 2b</th>
<th>Community fortification to support good nutrition</th>
<th>CAUSAL LEVEL</th>
<th>Immediate/Underlying</th>
<th>EVIDENCE CATEGORY</th>
<th>Practice-based studies</th>
</tr>
</thead>
</table>

**NOTES/REMARKS**
Fortification should be part of a broad strategy to promote healthy diets and complement dietary diversification.

Malawi offers a successful example of a self-sustaining, fully commercialized community-based fortification programme, which has increased rural access to — and use of — fortified flour. During its nine years of implementation, the project’s impacts included a reduction of anaemia in children and non-pregnant women (Yiannakis, Girard & MacDonald, 2014).


<table>
<thead>
<tr>
<th>SUB-ACTION 2c</th>
<th>Point-of-use fortification for children</th>
<th>CAUSAL LEVEL</th>
<th>Immediate</th>
<th>EVIDENCE CATEGORY</th>
<th>Synthesized evidence</th>
</tr>
</thead>
</table>

**NOTES/REMARKS**
Point-of-use fortification should be part of a broad strategy to promote healthy diets and should complement dietary diversification.

To improve iron levels and reduce anaemia among infants and children 6–23 months, WHO recommends home fortification of foods with micronutrient powders in settings where the prevalence of anaemia in children under 2 (or under 5) is 20 percent or greater. WHO does not recommend home fortification for pregnant women.

<table>
<thead>
<tr>
<th>SUB-ACTION 2d</th>
<th>Production of fortified complementary foods to meet documented nutrient gaps in children 6–23 months</th>
<th>CAUSAL LEVEL</th>
<th>Immediate</th>
<th>EVIDENCE CATEGORY</th>
<th>Synthesized evidence</th>
</tr>
</thead>
</table>

**NOTES/REMARKS**
This sub-action includes production support according to the list of approved additives and fortificants for foods for infants and young children established through the Codex Alimenarius (WHO, 2012).

It is important to ensure that commercial complementary foods (including fortified foods) are not promoted as a better option than home-prepared or locally available whole foods for complementary feeding in order to meet recommended nutrient intakes (RNI).

Fortification should be part of a broad strategy to promote healthy diets and should complement dietary diversification.

Enabling Environment

These sub-actions reflect factors that contribute to an enabling environment for nutrition, such as policy coherence, legislation, regulations, standards, trade mechanisms, social marketing, and behaviour change communication; the absence of these factors may contribute to a disabling environment. The factors listed in this section are supported by varying levels of evidence; applicable references are cited, when available. These Enabling Environment sub-actions were not classified by evidence category because they are considered to be key to fostering an enabling environment irrespective of the existing level of evidence.
### ACTION 2. Policy coherence

#### SUB-ACTION 2a
Food fortification, other nutrition-oriented food processing and food storage are included in nutrition and food security policy(ies) and linked to agriculture, industry and trade policies

**CAUSAL LEVEL** Basic

**NOTES/REMARKS**
The Committee on World Food Security (CSF) Principles for Responsible Investment in Agriculture and Food Systems is a useful resource for promoting policy coherence.


#### SUB-ACTION 2b
Fortified complementary foods, as required to cover documented nutrient gaps, are integrated into the national nutrition policy/strategy, sectoral policies/strategies, and any cross-cutting infant and young child feeding (IYCF) policies/strategies so as to protect optimal complementary feeding

**CAUSAL LEVEL** Underlying/Basic

**NOTES/REMARKS**
It is important to ensure that commercial complementary foods (including fortified foods) are not promoted as a better option than suitable home-prepared or locally produced complementary foods.

This sub-action is linked to restrictions on ending the inappropriate marketing of fortified complementary foods as articulated in the sub-action 3b under the Legislation, regulations/standards, protocols and guidelines sub-heading.

### ACTION 3. Legislation, regulations/standards, protocols and guidelines

#### SUB-ACTION 3a
Legislation and regulations on food labelling of processed foods in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate, so as to protect healthy diets

**CAUSAL LEVEL** Basic

**NOTES/REMARKS**
This sub-action includes legislation and regulations on the labelling of pre-packaged foods and beverages (e.g. nutrient declaration, front-of-pack labelling and health claims) as well as the enforcement of these mechanisms.

#### SUB-ACTION 3b
Legislation and regulations on the commercial advertising and marketing of food and non-alcoholic beverages to protect healthy diets

**CAUSAL LEVEL** Basic

**NOTES/REMARKS**
This includes the development, implementation and enforcement of legislation and regulations on food and non-alcoholic beverages, including breastmilk substitutes and complementary foods.

Advertising to children is recognized as a risk factor for obesity.

WHO has developed a set of 12 recommendations, endorsed by the World Health Assembly, aimed at reducing the impact of marketing foods high in saturated fats, trans-fat acids, free sugars and salt (WHO, 2010).


#### SUB-ACTION 3c
Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers

**CAUSAL LEVEL** Underlying/Basic

**NOTES/REMARKS**
This sub-action encompasses the development, implementation and enforcement of food safety and quality control systems according to Codex Alimentarius guidelines and standards, and WHO recommendations for food safety. It also includes the tracing of food to suppliers to protect food safety.

This sub-action applies to breastmilk substitutes, complementary foods and pre-packaged foods.

### ACTION 4. Fiscal policy

#### SUB-ACTION 4a
Taxes and subsidies to support healthier diets

**CAUSAL LEVEL**  
Basic

**NOTES/REMARKS**  
This sub-action includes:  
(1) Taxation (or the removal of subsidization) on unhealthy foods and beverages (e.g. soda taxes); and  
(2) Subsidization (or the removal of taxation) on healthy foods and beverages (WHO, 2013). Healthy foods that are subsidized should be culturally acceptable, safe and typically consumed by poor people. Countries should stop subsidizing unhealthy foods and beverages, whenever possible.

It is important to assess the impact of fiscal policies on the viability of local food systems and consumption patterns in each context. To this end, these measures should take into consideration local nutritional needs, local production capacity and the economic costs and benefits for local consumers and producers/suppliers.


### ACTION 5. Trade

#### SUB-ACTION 5a
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora

**CAUSAL LEVEL**  
Underlying/Basic

#### SUB-ACTION 5b
Market linkages to facilitate/promote healthy consumption patterns of processed foods, including fortified foods, in support of healthy diets

**CAUSAL LEVEL**  
Underlying/Basic

### ACTION 6. Planning, budgeting and management

#### SUB-ACTION 6a
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, industry, trade, health, and social protection planning and implementation

**CAUSAL LEVEL**  
Basic

**NOTES/REMARKS**  
This sub-action involves recruiting nutritionists in government agencies, strengthening nutrition curricula in formal education and providing basic training on nutrition for units in charge of planning and implementation. Furthermore, this sub-action fosters coordinated planning and budgeting for nutrition in these areas.

### ACTION 7. Social norms: Education/sensitization, BCC and social marketing

#### SUB-ACTION 7a
Social marketing campaigns/nutrition education to promote healthy diets

**CAUSAL LEVEL**  
Underlying/Basic

**NOTES/REMARKS**  
This sub-action includes all healthy food and beverage products. There is evidence that, when properly implemented, nutrition education and social marketing can be effective at changing consumption behaviours.
### ACTION 8. Infrastructure and technology

<table>
<thead>
<tr>
<th>SUB-ACTION 8a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-scale food storage support for increased food stability to support healthy diets</td>
<td>Underlying</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
This sub-action can include support for the construction and maintenance of large-scale food storage facilities (e.g. community or commercial sheds, storage silos and national grain reserves). Care must be taken to prevent market disruptions or distortions. This sub-action is important for national food security during crises, and can be tapped to stabilize prices.

<table>
<thead>
<tr>
<th>SUB-ACTION 8b</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition</td>
<td>Underlying</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
This sub-action includes infrastructure and technology to support the cold chain, which (for transport as well as storage at home) is key for supporting healthy diets and reducing food waste, both of which will lead to improved nutrient intake. This sub-action safeguards nutrition, particularly nutrient absorption, and is linked to sub-action 3c under the Legislation, regulations/standards, protocols and guidelines sub-heading. It is also linked to Codex Alimentarius guidelines and standards, and includes low-cost measures for improving food hygiene, such as:
1. Keeping a clean environment for handling food (e.g. handwashing, cleaning key surfaces and utensils, protecting food preparation areas from insects, pests and other animals);
2. Separating raw and cooked food;
3. Cooking food thoroughly;
4. Storing food at safe temperature; and


### ACTION 9. Coordination

<table>
<thead>
<tr>
<th>SUB-ACTION 9a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Food Processing, Fortification and Storage to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
This sub-action includes support for the establishment of national and sub-national nutrition collaboration platforms. It also includes supporting the engagement of ministries of agriculture, livestock and fisheries, health and other ministries in multi-stakeholder, multi-sectoral nutrition platforms to ensure that high-level policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

### ACTION 10. Other enabling environment actions

<table>
<thead>
<tr>
<th>SUB-ACTION 10a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of credit/microcredit and microfinance to farmers, livestock-keepers, agribusiness and food processors, targeting both men and women, to help make healthy foods available including fortified foods</td>
<td>Basic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 10b</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders</td>
<td>Underlying/Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
This sub-action is particularly relevant to fortification since fortification initiatives (e.g. mass fortification and the production of specialized nutrition products, including those for complementary feeding) are often implemented through private-public partnerships.
Food Consumption Practices for Healthy Diets

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Food-based nutrition education

<table>
<thead>
<tr>
<th>SUB-ACTION 1a</th>
<th>Nutrition education, skills training, participatory cooking sessions/sensitization/counselling for mothers and other caregivers</th>
<th>CAUSAL LEVEL*</th>
<th>EVIDENCE CATEGORY**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Immediate/Underlying</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

NOTES/REMARKS
As part of nutrition education, best practices for breastfeeding and complementary feeding should be promoted as per international guidelines.

For best results, recipes using locally available nutritious foods should be tested during participatory cooking sessions or using formative research such as Trials of Improved Practices (TIPS).

SUB-ACTION 1b
Nutrition education in schools

| CAUSAL LEVEL | Underlying | EVIDENCE CATEGORY | Synthesized evidence |

NOTES/REMARKS
This sub-action is supported by actions to improve the structural environment (Skar, Kirstein & Kapur, 2015).


SUB-ACTION 1c
School-garden based food and nutrition education

| CAUSAL LEVEL | Underlying/Basic | EVIDENCE CATEGORY | Primary studies |

NOTES/REMARKS
School gardens can be part of a holistic school food and nutrition approach that includes the provision of diversified school meals, nutrition education and healthy school environments. This integrated approach can help to address the immediate nutritional needs of schoolchildren and shape life-long healthy eating habits. School gardens should not be promoted as a way to supply school feeding, but rather as a hands-on learning tool. They can be implemented in the context of comprehensive and culturally appropriate nutrition and health awareness programmes, which provide opportunities to learn about healthy diets, physical activity, personal hygiene, health-seeking behaviours and other important topics. If combined with awareness-raising campaigns and nutrition education, local procurement for school meals can support local production and potentially affect local eating practices.

This sub-action is linked to sub-action 4a below and sub-action 6b in the Enabling Environment section (see the Trade sub-heading). It is also linked to Action 1 on diversification in the thematic area on Crops/Horticulture, and sub-action 4a on school feeding in the thematic area on Social Assistance.

**The following evidence categories are used in the CAN: (1) synthesized evidence exists: this includes meta-analyses and systematic reviews. It should be noted however that the number of studies included in meta-analyses and systematic reviews varies across sub-actions, with some synthesized evidence based on a large number of studies and other synthesized evidence based on a limited number of studies; (2) published primary studies exist: no synthesized evidence exists, but evidence is published in peer-reviewed journals; and (3) practice-based studies exist: there is published experience-based evidence documented in the ‘grey literature’ although no evidence has been published in peer-reviewed journals – either in the form of synthesized evidence or single studies. This indicates that further research is warranted.
### ACTION 2
Consumer protection to ensure healthy diets

<table>
<thead>
<tr>
<th>SUB-ACTION 2a</th>
<th>Protection from marketing of unhealthy food and beverages</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Underlying/Basic</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 2b</th>
<th>Protection from misleading health and nutrition claims</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Underlying/Basic</td>
<td>Practice-based studies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 2c</th>
<th>Nutrition labelling, including front-of-pack labelling, on pre-packaged foods and beverages</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Underlying/Basic</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 2d</th>
<th>Portion size control</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Underlying/Basic</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 2e</th>
<th>Food safety measures</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Underlying/Basic</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

### ACTION 3
Complementary feeding

<table>
<thead>
<tr>
<th>SUB-ACTION 3a</th>
<th>Promotion of dietary diversification as part of optimal complementary feeding</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Immediate/Underlying</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
For best results, interventions must be accompanied by other nutrition education actions.

<table>
<thead>
<tr>
<th>SUB-ACTION 3b</th>
<th>Promotion of fortified foods for complementary feeding, where appropriate</th>
<th>CAUSAL LEVEL</th>
<th>EVIDENCE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Immediate/Underlying</td>
<td>Synthesized evidence</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**
Further information about this sub-action is provided in the thematic area on Food Processing, Fortification and Storage. Ideally, it should be accompanied by nutrition education and behaviour change communication.

WHO recommends home fortification of foods with multiple micronutrient powders to improve iron levels and reduce anaemia among infants and children 6–23 months in settings where the prevalence of anaemia in children under 2 – or under 5 – is 20 percent or higher.

Consideration should be paid to the tolerable upper limits of nutrient requirements in fortification, especially for children 6–23 months. In addition, it is important to consider the salt and sugar content of these fortified foods. It should also be noted that different types of fortified foods may be used in complementary feeding, as outlined in the Food Processing, Fortification and Storage thematic area. These include: (1) micronutrient powders (MNP’s) for home fortification of foods consumed by children 6–23 months; (2) fortification of staple foods used in complementary foods; and (3) fortification of specific products for complementary feeding.

It is important to ensure that commercial complementary foods (including fortified foods) are not promoted as a better option than home-prepared or locally available whole foods for complementary feeding in order to meet recommended nutrient intakes (RNI). A study by Skau et al. (2015) suggested that the nutritional impact of locally produced complementary foods based on a balanced mix of local nutritious foods may be equivalent to commercial food products for preventing moderate malnutrition.


(ACTION 3 continued ...)

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**ACTION 3 continued ...**

### SUB-ACTION 3c
**Public information campaigns for optimal complementary feeding practices**

**CAUSAL LEVEL**
Underlying

**EVIDENCE CATEGORY**
Primary studies

**NOTES/REMARKS**
Public information campaigns include social marketing. The World Health Assembly (WHA) has adopted a resolution on ending inappropriate marketing of complementary foods (World Health Assembly resolution WHA63.14).

The addition of salt and sugars to complementary foods should be avoided or limited in accordance with WHO guidance. (WHO, 2015; WHO, 2012 [Reprinted 2014]).


### ACTION 4
**Creating supportive environments to promote healthy diets in different settings**

### SUB-ACTION 4a
**School programmes promoting healthy diets and good nutrition**

**CAUSAL LEVEL**
Basic

**EVIDENCE CATEGORY**
Synthesized evidence

**NOTES/REMARKS**
This sub-action includes multi-component school programmes to protect, promote and support healthy diets and good nutrition. They involve: training school staff; developing standards and rules for foods and beverages available in schools; providing school meals; establishing school fruit and vegetable schemes; including nutrition in school curricula; and regulating the promotion and sale of food and beverages in and around schools.

This sub-action is also linked to sub-action 1b above. More information about school feeding to safeguard nutrition is provided in the thematic area on Social Assistance in the Social Protection section.

### SUB-ACTION 4b
**Work place programmes promoting healthy diets and good nutrition**

**CAUSAL LEVEL**
Basic

**EVIDENCE CATEGORY**
Synthesized evidence

**NOTES/REMARKS**
This sub-action includes measures to create health- and nutrition-promoting environments such as nutrition education in workplaces and the creation and preservation of built and natural environments which support physical activity in workplaces. It also involves promoting the provision and availability of healthy food in all public institutions, including the workplace. In addition, this sub-action encompasses technical assistance to support the implementation of WHO guidelines and global strategies for addressing modifiable risk factors of NCDs and other health-promoting policy options including healthy workplace initiatives (WHO, 2013).

### Enabling Environment

These sub-actions reflect factors that contribute to an enabling environment for nutrition, such as policy coherence, legislation, regulations, standards, trade mechanisms, social marketing, and behaviour change communication; the absence of these factors may contribute to a disabling environment. The factors listed in this section are supported by varying levels of evidence; applicable references are cited, when available. These Enabling Environment sub-actions were not classified by evidence category because they are considered to be key to fostering an enabling environment irrespective of the existing level of evidence.

#### ACTION 1. Assessment and information

<table>
<thead>
<tr>
<th>SUB-ACTION 1a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food composition data for locally available foods</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action includes the generation, compilation and dissemination of data on the nutrient content of locally available foods to promote the consumption of nutritious foods produced locally.


<table>
<thead>
<tr>
<th>SUB-ACTION 1b</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerability assessment and early warning analysis</td>
<td>Basic</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 1c</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area</td>
<td>Basic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 1d</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>M&amp;E of sub-actions covered by this thematic area</td>
<td>Basic</td>
</tr>
</tbody>
</table>

#### ACTION 2. Policy coherence

<table>
<thead>
<tr>
<th>SUB-ACTION 2a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of promoting healthy diets are included in the agriculture, natural resource management, trade, health, education and social protection policies, and linked to the nutrition and food security policy(ies)</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

The Committee on World Food Security (CFS) Principles for Responsible Investment in Agriculture and Food Systems is a useful resource for promoting policy coherence.


#### ACTION 3. Legislation, regulations/standards, protocols and guidelines

<table>
<thead>
<tr>
<th>SUB-ACTION 3a</th>
<th>CAUSAL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressive realization of the right to adequate food</td>
<td>Basic</td>
</tr>
</tbody>
</table>

**NOTES/REMARKS**

This sub-action involves raising awareness about the right to adequate food, with a view to empowering people (rights holders) to realize their rights and advocating for governments (duty bearers) to comply with their human rights obligations and duties.

*(Enabling Environment continued ...)*
<table>
<thead>
<tr>
<th>SUB-ACTION 3b</th>
<th>Formulation and implementation of national, food-based dietary guidelines</th>
<th>CAUSAL LEVEL</th>
<th>Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>Food-based dietary guidelines (FBDGs) can play an important role in promoting the principles and food consumption practices to support healthy diets. The process of developing FBDGs involves identifying what national nutrition priorities, food groups and eating behaviours need to be promoted. FBDGs also typically promote physical activity with a view to fostering the balance between caloric intake and energy expenditure (energy balance). FBDGs provide accessible and easy-to-understand guidance on influencing people's eating practices. In order for these guidelines to be effective, they should be evidence based and widely used to not only guide nutrition education programmes, but policies and programmes in agriculture, education, health and social protection.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 3c</th>
<th>Food labelling in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate</th>
<th>CAUSAL LEVEL</th>
<th>Underlying/Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>Food labelling standards (e.g. nutrient declaration, front-of-pack labelling and menu labelling), cover trans fat content, food tracing, food advertising and other characteristics. This sub-action includes enforcement procedures and mechanisms on nutrition labelling.</td>
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</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 3d</th>
<th>Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers</th>
<th>CAUSAL LEVEL</th>
<th>Underlying/Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>This sub-action encompasses the development, implementation and enforcement of food safety and quality control systems in accordance with Codex Alimentarius guidelines and standards, and WHO recommendations for food safety. It includes the tracing of food to supplier in order to protect food safety. The sub-action applies to breastmilk substitutes, complementary foods and other foods.</td>
<td></td>
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<tr>
<td>• WHO. Food safety: The five keys to safer food programme. Available at <a href="http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/">http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/</a>.</td>
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</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 3e</th>
<th>Legislation and regulation on marketing of food and non-alcoholic beverages and food safety to protect healthy diets</th>
<th>CAUSAL LEVEL</th>
<th>Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>This sub-action includes the development, formulation, implementation and enforcement of legislation and regulations applying to food and non-alcoholic beverages, including breastmilk substitutes and complementary foods. Advertising to children is recognized as a risk factor for obesity. WHO has developed a set of 12 recommendations, endorsed by the World Health Assembly, aimed at reducing the impact of marketing foods high in saturated fats, trans-fatty acids, free sugars and salt (WHO, 2010).</td>
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</table>

<table>
<thead>
<tr>
<th>SUB-ACTION 3f</th>
<th>Other legislation and regulation to support healthy diets</th>
<th>CAUSAL LEVEL</th>
<th>Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTES/REMARKS</td>
<td>This may include the development, formulation, implementation and enforcement of legislation and regulations. Evidence from a limited number of studies suggests that the availability of larger portions is associated with an increase in total caloric intake, which could lead to weight gain (Ello-Martín, Ledikwe &amp; Rolls, 2005).</td>
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</tbody>
</table>
### ACTION 4. Fiscal policy

#### SUB-ACTION 4a
Taxes and subsidies to support healthier diets

#### CAUSAL LEVEL
Basic

#### NOTES/REMARKS
This sub-action includes:

1. Taxation (or removal of subsidization) on unhealthy foods and beverages (e.g. soda taxes); and
2. Subsidization (or removal of taxation) on healthy foods and beverages. (Cabrera Escobar et al., 2013; Alagiyawanna et al., 2015; WHO, 2013). Healthy foods that are subsidized should be culturally acceptable, safe and typically consumed by poor people. Countries should stop subsidizing unhealthy foods and beverages whenever possible.

It is important to assess the impact of these fiscal policy measures on the viability of local food systems and consumption patterns in each context. To this end, these measures should take into consideration local nutritional needs, local production capacity (e.g. for reducing import dependency) and the economic costs and benefits for local consumers and producers/suppliers.


### ACTION 5. Planning, budgeting and management

#### SUB-ACTION 5a
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, natural resource management, trade, health, education, and social protection planning and implementation

#### CAUSAL LEVEL
Basic

#### NOTES/REMARKS
This sub-action includes recruiting nutritionists in government agencies, strengthening nutrition curricula in formal education and providing basic training on nutrition for units in charge of planning and implementation. Furthermore, this sub-action fosters coordinated planning and budgeting for nutrition in these areas.

### ACTION 6. Trade

#### SUB-ACTION 6a
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora

#### CAUSAL LEVEL
Basic

#### SUB-ACTION 6b
Market linkages to help facilitate/promote consumption of nutritious foods in support of healthy diets

#### CAUSAL LEVEL
Underlying/Basic

#### NOTES/REMARKS
It is important to promote the development of small-scale local and regional markets, and border trade to reduce poverty and increase food security, particularly in poor and urban areas. It is also critical to support improved access to domestic and international markets. Linking farmers with institutional markets such as schools and hospitals can increase incentives for diversified production while helping to address the immediate food and nutrition needs of schoolchildren. Finally, it is important to ensure that increased opportunities to sell nutritious foods do not translate into a reduction in the local consumption of healthy foods and deteriorating diets.

### ACTION 7. Social norms: Education/sensitization, BCC and social marketing

#### SUB-ACTION 7a
Food hygiene education to safeguard nutrition

#### CAUSAL LEVEL
Immediate/Underlying

#### NOTES/REMARKS
This is particularly relevant for nutrient absorption.

Further information is included in the Health Section within the thematic area on Water, Sanitation and Hygiene for Good Nutrition (sub-action 1c).

## FOOD, AGRICULTURE & HEALTHY DIETS

### SUB-ACTION 7b
Promote the sensitization and mobilization of consumer organizations/interest groups about healthy diets

**CAUSAL LEVEL**
Underlying/Basic

### SUB-ACTION 7c
Public information campaigns for promotion of nutritious foods for consumption

**CAUSAL LEVEL**
Underlying

**NOTES/REMARKS**
Public information and social marketing campaigns can raise awareness about the nutritional benefits of foods, including traditional foods (such as neglected and underutilized foods) and edible forestry products (including medicinal and aromatic plants), especially among young children and women of childbearing age. This sub-action is often part of an integrated package of interventions.

### ACTION 8. Infrastructure and technology

### SUB-ACTION 8a
Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition

**CAUSAL LEVEL**
Underlying

**NOTES/REMARKS**
This sub-action includes infrastructure and technology to support the cold chain, which (for transport as well as storage at home) is key for supporting healthy diets and reducing food waste, both of which will lead to improved nutrient intake. This sub-action safeguards nutrition, particularly nutrient absorption, and is linked to sub-action 3d under the sub-heading on Legislation, regulations/standards, protocols and guidelines. It is also linked to Codex Alimentarius guidelines and standards, and may encompass low-cost measures for improving food hygiene, such as:
1. Keeping a clean environment for handling food (e.g. handwashing, cleaning key surfaces and utensils, and protecting food-preparation areas from insects, pests and other animals);
2. Separating raw and cooked food;
3. Cooking food thoroughly;
4. Storing food at safe temperature; and


### ACTION 9. Coordination

### SUB-ACTION 9a
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Food Consumption Practices for Healthy Diets to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level

**CAUSAL LEVEL**
Basic

**NOTES/REMARKS**
This sub-action includes support for the establishment of national and sub-national nutrition collaboration platforms. It also includes supporting the engagement of ministries of agriculture, health and other ministries in multi-stakeholder, multi-sectoral nutrition platforms to ensure that high-level policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

### ACTION 10. Other enabling environment actions

### SUB-ACTION 10a
Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

**CAUSAL LEVEL**
Underlying/Basic

### SUB-ACTION 10b
Provision of safe fuel and fuel-efficient stoves to facilitate cooking

**CAUSAL LEVEL**
Underlying/Basic

**NOTES/REMARKS**
Fuel is essential to enable people to cook food, ensuring digestibility, safety and taste. However, many people struggle to find adequate sources of fuel. This has direct impacts on nutrition and health. For example, women often spend a long time collecting fuel, which reduces the time available for childcare and feeding. Furthermore, households often use unsafe fuel sources (e.g. tyres), which emit toxic fumes. Other negative impacts include deforestation and exposure to safety risks (e.g. young women getting raped when they search for fuelwood).
Livestock and Fisheries

POSSIBLE INTERVENTION RESPONSES

**ACTION 1. Animal husbandry, fisheries and insect farming**

1a. Extensive animal rearing for the production of animal-source foods in support of healthy diets


1b. Homestead animal rearing for the production of animal-source foods in support of healthy diets


1c. Aquaculture and capture fisheries for the production of animal-source foods in support of healthy diets


1d. Insect farming for the production of animal-source foods in support of healthy diets

1e. Processing, handling and market access to support healthy consumption of animal-source foods for dietary diversity


Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available animal-source foods


ACTION 2. Policy coherence

2a. Policy coherence of Livestock and Fisheries issues in policies/strategies on agriculture, and related to animal resources, trade, health, social protection, nutrition and food security


ACTION 3. Legislation, regulations/standards, protocols and guidelines

3a. Land tenure/land rights, in accordance with Voluntary Guidelines on the Responsible Governance of Tenure, to support healthy diets


3d. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers


ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets

ACTION 5. Planning, budgeting and management

5a. Capacity development/strengthening to enable nutrition to be reflected in related agriculture, animal resources, trade, health, and social protection planning and implementation

- Ag2Nut Community of Practice. Key recommendations for improving nutrition through agriculture and food systems. Available at: http://unscn.org/files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_Key_recommendations.pdf;

ACTION 6. Trade

6b. Market linkages to help facilitate/promote the consumption of animal-source foods in support of healthy diets


ACTION 7. Social norms: Education/sensitization, BCC and social marketing

7b. Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition

- Please refer to the thematic area on Food Consumption Practices for Healthy Diets for additional references on nutrition education.

ACTION 8. Infrastructure and technology

8a. Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition


ACTION 10. Other enabling environment actions

10b. Support with inputs related to animal production

- Forthcoming paper by Derek Headey on links between animal shelter and settlement and nutrition in Ethiopia.

10d. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

POSSIBLE INTERVENTION RESPONSES

**ACTION 1. Diversification and locally adapted varieties**

### 1a. Promotion of fruit and vegetable gardens for healthy diets


### 1b. Sustainable intensification of staple crop production for dietary diversification


### 1c. Biodiversity and underutilized crops

1d. Inputs and irrigation for fruit and vegetable gardens and crops


2a. Introduction of biofortified varieties to support healthy diets


2b. Social marketing campaigns on biofortified foods to support healthy diets

Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available plant foods


ACTION 2. Policy coherence

2a. Policy coherence between Crops/Horticulture issues defined by policies/strategies on agriculture, natural resource management, trade, health, social equity, nutrition and food security


ACTION 3. Legislation, regulations/standards, protocols and guidelines

3a. Land tenure/land rights, in accordance with Voluntary Guidelines on the Responsible Governance of Tenure, to support healthy diets


3c. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers


ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets


ACTION 5. Planning, budgeting and management

5a. Capacity development/strengthening to enable nutrition to be reflected in related agriculture, natural resource management, trade, health, education, and social protection planning and implementation


### ACTION 6. Trade

6b. Market linkages to help facilitate/promote the consumption of fruits, vegetables, legumes, and other nutritious plant foods in support of healthy diets


### ACTION 7. Social norms: Education/sensitization, BCC and social marketing

7a. Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition


- Please refer to the thematic area on Food Consumption Practices for Healthy Diets for additional references on nutrition education.

### ACTION 8. Infrastructure and technology

8a. Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition


### ACTION 10. Other enabling environment actions

10b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

### POSSIBLE INTERVENTION RESPONSES

#### ACTION 1. Food processing (excluding fortification)

#### 1a. Malting, drying, pickling and curing at the household level

#### 1b. Reformulation of food/beverages for healthier diets

#### 1c. Other nutrition-oriented food processing
1d. Training and sensitization on malting, drying, pickling and curing at the household level


ACTION 2. Fortification (including salt iodization and fortification of complementary foods)

2a. Mass fortification to support good nutrition, particularly adequate micronutrient intake

- WHO. Fortification of wheat and maize flours. eLENA. Available at http://www.who.int/elena/titles/flour_fortification/en/.
- WHO. Fortification of wheat and maize flours. eLENA. Available at http://www.who.int/elena/titles/salt_iodization/en/.

2b. Community fortification to support good nutrition

2c. Point-of-use fortification for children


ACTION 3. Food storage

3a. Household food storage/silos support for increased food stability to support healthy diets


Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available processed foods


ACTION 2. Policy coherence

2a. Food fortification, other nutrition-oriented food processing and food storage are included in nutrition and food security policy(ies) and linked to agriculture, industry and trade policies


ACTION 3. Legislation, regulations/standards, protocols and guidelines

3a. Legislation and regulations on food labelling of processed foods in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate, to protect healthy diets


3b. Legislation and regulations on the commercial advertising and marketing of food and non-alcoholic beverages to protect healthy diets


• Euromonitor International Consulting Ltd. 2015. Baby food trends in Brazil and Norway. WHO.


• WHO. Reducing the impact of marketing of foods and non-alcoholic beverages on children. eLENA. Available at http://www.who.int/elena/titles/food_marketing_children/en/.

3c. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers


• WHO. Food safety: The five keys to safer food programme. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.

4a. Taxes and subsidies to support healthier diets


5b. Market linkages to help facilitate/promote healthy consumption patterns of processed foods, including fortified foods, in support of healthy diets


ACTION 6. Planning, budgeting and management

6a. Capacity development/strengthening to enable nutrition to be reflected in related agriculture, industry, trade, health, and social protection planning and implementation


ACTION 7. Social norms: Education/sensitization, BCC and social marketing

7a. Social marketing campaigns/nutrition education to promote healthy diets


ACTION 8. Infrastructure and technology

8a. Large-scale food storage support for increased food stability to support healthy diets


8b. Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition


ACTION 10. Other enabling environment actions

10b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Food-based nutrition education

1a. Nutrition education, skills training, participatory cooking sessions/sensitization/counselling for mothers and other caregivers


1b. Nutrition education in schools


1c. School-garden based food and nutrition education

2a. Protection from marketing of unhealthy food and beverages


- WHO. Reducing the impact of marketing of foods and non-alcoholic beverages on children. eLENA. Available at [http://www.who.int/elenatitles/food_marketing_children/en/](http://www.who.int/elenatitles/food_marketing_children/en/).

2b. Protection from misleading health and nutrition claims


2c. Nutrition labelling, including front-of-pack labelling, on pre-packaged foods and beverages


2d. Portion size control

- WHO. Limiting portion sizes to reduce the risk of childhood overweight and obesity. eLENA. Available at [http://www.who.int/elena/titles/portion_size_for_childhood_obesity/en/](http://www.who.int/elena/titles/portion_size_for_childhood_obesity/en/).

2e. Food safety measures


**ACTION 3. Complementary feeding**

3a. Promotion of dietary diversification as part of optimal complementary feeding


3b. Promotion of fortified foods for complementary feeding, where appropriate

3c. Public information campaigns for optimal complementary feeding practices


**4a. School programmes promoting healthy diets and good nutrition**


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27 Primary evidence to be published soon on Alive & Thrive’s impacts on IYCF practices.


4b. Work place programmes promoting healthy diets and good nutrition


Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available foods


ACTION 2. Policy coherence

2a. Elements of promoting healthy diets are included in the agriculture, natural resource management, trade, health, education and social protection policies, and linked to the nutrition and food security policy(ies)

3a. Progressive realization of the right to adequate food


3b. Formulation and implementation of national, food-based dietary guidelines

- WHO. 2015. 5 keys to a healthy diet. Geneva. Available at http://www.who.int/nutrition/topics/5keys_healthydiet/en/
- WHO. WHO procedural manual for developing food-based dietary guidelines.
- WHO. Increasing fruit and vegetable consumption to reduce the risk of noncommunicable diseases. eLENA. Available at http://www.who.int/elena/titles/fruit_vegetables_ncds/en/
- WHO. Increasing potassium intake to reduce blood pressure and risk of cardiovascular diseases in adults. eLENA. Available at http://www.who.int/elena/titles/potassium_cvd_adults/en/
- WHO. Increasing potassium intake to reduce blood pressure in children. eLENA. Available at http://www.who.int/elena/titles/potassium_bp_children/en/
- WHO. Reducing consumption of sugar-sweetened beverages to reduce the risk of childhood overweight and obesity. eLENA. Available at http://www.who.int/elena/titles/ssbs_childhood_obesity/en/
- WHO. Reducing sodium intake to reduce blood pressure and risk of cardiovascular diseases in adults. eLENA. Available at http://www.who.int/elena/titles/sodium_cvd_adults/en/
- WHO. Reducing sodium intake to reduce blood pressure in children. eLENA. Available at http://www.who.int/elena/titles/sodium_bp_children/en/

3c. Food labelling in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate


3d. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers


3e. Legislation and regulation on marketing of food and non-alcoholic beverages and food safety to protect healthy diets


• Euromonitor International Consulting Ltd. 2015. Baby food trends in Brazil and Norway. WHO.

• IBFAN. The Full Code. WHA Resolutions. (WHA34.22, WHA34.23, WHA35.26, WHA37.30, WHA39.28, WHA41.11, WHA43.3, WHA45.34, WHA47.5, WHA49.15, WHA54.2, WHA55.25, WHA58.32, WHA59.11, WHA59.21, WHA61.20, WHA63.23). Geneva. Available at http://ibfan.org/the-full-code.


• WHO. Reducing the impact of marketing of foods and non-alcoholic beverages on children. eLENA. Available at http://www.who.int/elena/titles/food_marketing_children/en/.

• WHO. Regulation of marketing breast-milk substitutes. eLENA. Available at http://www.who.int/elena/titles/regulation_breast-milk_substitutes/en/.

3f. Other legislation and regulation to support healthy diets


• WHO. Limiting portion sizes to reduce the risk of childhood overweight and obesity. eLENA. Available at http://www.who.int/elena/titles/portion_childhood_obesity/en/.

ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets


ACTION 5. Planning, budgeting and management

5a. Capacity development/strengthening to enable nutrition to be reflected in related agriculture, natural resource management, trade, health, education, and social protection planning and implementation

• Ag2Nut Community of Practice. Key recommendations for improving nutrition through agriculture and food systems. Available at: http://unscn.org/Files/Agriculture-Nutrition-CoP/Agriculture-Nutrition_key_recommendations.pdf.


ACTION 7. Social norms: Education/sensitization, BCC and social marketing

7a. Food hygiene education to safeguard nutrition


• WHO. Food safety: The five keys to safer food programme. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.


7c. Public information campaigns for promotion of nutritious foods for consumption


ACTION 8. Infrastructure and technology

8a. Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition


ACTION 10. Other enabling environment actions

10a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders