Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

COMPENDIUM OF ACTIONS FOR NUTRITION

VERSION 1

COMPENDIUM OF ACTIONS FOR NUTRITION

The **COMPENDIUM OF ACTIONS FOR NUTRITION** was developed by the UN Network for SUN/REACH Secretariat in consultation with the UN partner agencies.

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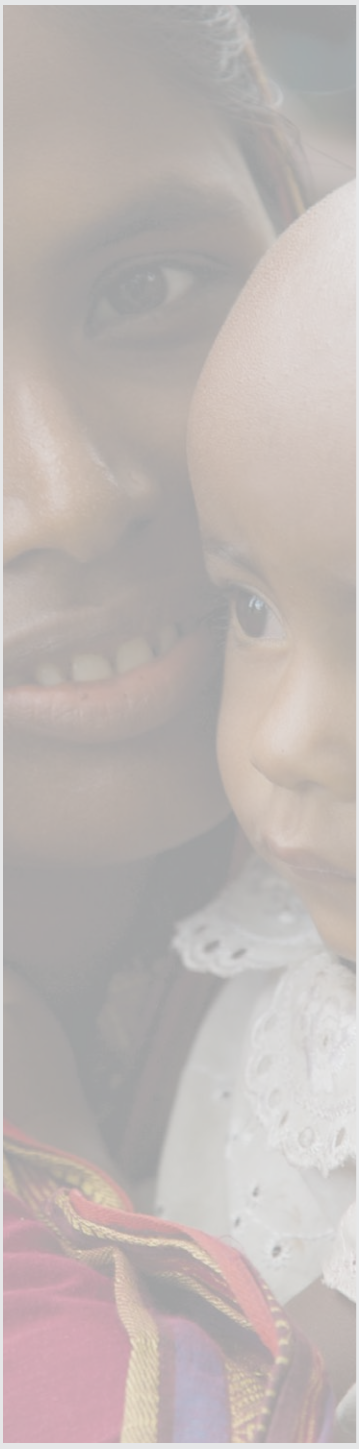

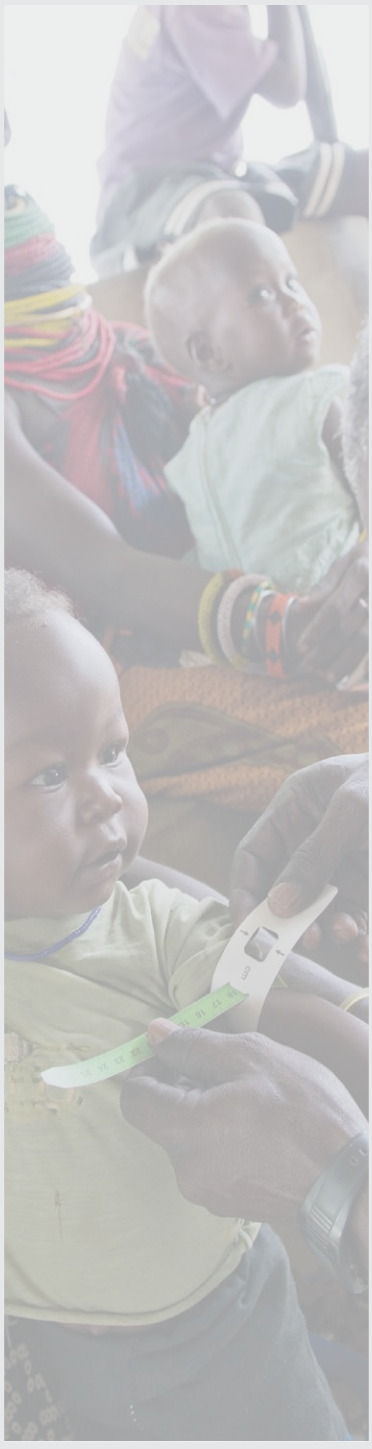

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OVERVIEW

FOREWORD

Malnutrition is a serious threat to global health and development affecting one in three people on the planet.156 million children under the age of five are estimated to be stunted while 50 million children in the world are wasted. Overweight and obesity are on the rise in every region and in almost every country: the number of overweight children is moving closer to the number of wasted children. Two billion people are estimated to be deficient in one or more micronutrients. These conditions all have severe consequences for survival, for morbidity, and for the ability of individuals, economies and societies to thrive.

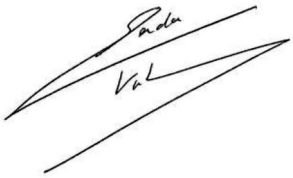
A multifaceted response is needed to overcome this complex challenge.

No single government, no single organization, no single intervention can alone achieve the goal of ending global malnutrition. It is only through working together on all fronts that we have the ability to establish powerful partnerships that change the global landscape, from one of hunger to one of hope, country-by-country, community-by-community, family-by-family and child-by-child; leaving no one behind until no one suffers from malnutrition.

Each and every nutrition action that can contribute to ending malnutrition should be enlisted into the cause. This does not mean diluting resources or attention from the critical nutrition interventions. It means changing the way we do business. It means bringing existing resources and efforts in relevant sectors to 'nutritionalize' what they do and join the effort. There are no exclusive sectors, actors or actions or contexts relevant to the efforts of ending malnutrition. All must work to the fullest in and across all relevant sectors and contexts to ensure the needed impact on the nutritional status of women and children.

The Compendium of Actions for Nutrition (CAN) is a practical resource which comprehensively compiles, in one place, a concise description of possible nutrition actions. The CAN was developed by the UN Network for SUN/REACH Secretariat in consultation with FAO, IFAD, UNICEF, WFP and WHO as well as academic experts. The CAN helps to understand the broad spectrum of diverse but relevant actions, from breastfeeding, to fortification, to handwashing, to latrine construction, to insect production that can contribute to make a difference for people's nutrition. This compendium is a resource for the SUN Movement to support SUN country teams as they set priorities and take informed decisions for concrete, impact-oriented action on nutrition.

We must now join forces on all fronts to ensure nutrition actions are implemented in a cost-effective and sustainable way to benefit those most in need of help today.



Gerda Verburg
United Nations Assistant Secretary General,
Coordinator of the Scaling Up Nutrition (SUN) Movement

ACKNOWLEDGEMENTS

The Compendium of Actions for Nutrition (CAN) was developed by REACH for the UN Network for SUN in consultation with: the Food and Agriculture Organization of the United Nations (FAO); the International Fund for Agricultural Development (IFAD); the United Nations Children's Fund (UNICEF); the World Food Programme (WFP); and the World Health Organization (WHO).

This compendium was prepared under the stewardship of Martin Bloem (WFP); Francesco Branca (WHO); Sean Kennedy (IFAD); Anna Lartey (FAO); and Werner Schultink (UNICEF).

These efforts were spearheaded and jointly coordinated by Holly D. Sedutto of the UN Network for SUN/REACH Secretariat, who served as the principal author, and Nicolas Bidault, Deputy Coordinator of the UN Network for SUN/REACH Secretariat, who facilitated exchanges among partner agencies under the guidance of Nancy Walters, the Global Coordinator of the UN Network for SUN/REACH.

Special thanks are given to the following CAN focal points, who liaised with staff in their agencies across various technical areas to share drafts and elicit feedback: Charlotte Dufour; James Garrett; Lynnda Kiess; and Ruth Situma. In addition, the authors like to acknowledge contributors from the following agencies: FAO – Boitshepo Giyose, Florence Egal, Elvira Uccello, Martina Kress, Jessica Owens, Olaf Thieme, Makiko Taguchi, Alison Hodder, Alberto Pantoja, Hugo Wilson, Florence Tartanac, Peter Glasauer, Yvette Fautsch, Catherine LeClerq, Terri Ballard, Kae Mihara, Jogeir Toppe and Sally Berman; UNICEF – Diane Holland, Erin McClean, France Begin, Maaike Arts, Tin Tin Sint, Yarlini Balarajan, Edith Cheung, Christian Rudert, Dolores Rio, Nita Dalmiya, Arnold Timmer, Roland Kupka, Noel Zagre and Evariste Kouassi-Komlan; WFP – Ramiro Lopes da Silva, Saskia de Pee, Perrine Geniez, Natalie Aldern, Giulia Baldi, Quinn Marshall, Ji Yen Alexandra Tung, Joan Manuel Claros, Ken Davies, Ahnna Gudmunds, Jean-Noel Gentile and Niels Balzer; the WHO technical team and the United Nations Population Fund (UNFPA) – Astrid Bant.

Additional thanks are extended to the following experts who reviewed the draft actions and sub-actions included in the CAN: Lynn Brown, Ian Darnton-Hill, Corinna Hawkes, Ana Islas Ramos, Andrew Kennedy, Ellen Muehlhoff and Ramani Wijesinha Bettoni.

Thanks are also extended to: current and former members of the Secretariat, including Bjorn Ljungqvist, Adriana Zarrelli, Senoe Torgerson, Ana Perez Zaldivar, Chloé Denavit and Christine Wenzel; and REACH facilitators who made important contributions to this compendium.

The development of the CAN was made possible through a generous contribution from the Government of Canada.

ACRONYMS AND ABBREVIATIONS

BCC	behaviour change communication
BFHI	Baby-friendly Hospital Initiative
BMI	body-mass index
CAN	Compendium of Actions for Nutrition
CFS	Committee on World Food Security
DOTS	directly observed treatment, short-course
EVD	ebola virus disease
eLENA	e-Library of Evidence for Nutrition Actions
FAO	Food and Agriculture Organization of the United Nations
FAO Term	Food and Agriculture Organization of the United Nations Terminology Database
FBDGs	food-based dietary guidelines
FFA	food assistance for assets
HACCP	hazard analysis and critical control points
HIV	human immunodeficiency virus
ICN2	Second International Conference on Nutrition
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
IMCI	integrated management of childhood illness
IYCF	infant and young child feeding
LBW	low-birth-weight
LMICs	low and middle-income countries
MAM	moderate acute malnutrition
MNPs	micronutrient powders
MUAC	mid-upper arm circumference
NCDs	noncommunicable diseases
NLiS	Nutrition Landscape Information System

PLWHIV	people living with HIV/AIDS
REACH	Renewed Efforts Against Child Hunger and undernutrition
RNI	recommended nutrient intake
SDGs	Sustainable Development Goals
SMS	SUN Movement Secretariat
SUN	Scaling Up Nutrition
TB	tuberculosis
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNSCN	United Nations Standing Committee on Nutrition
VAD	vitamin A deficiency
VLBW	very low-birth-weight
VMNIS	Vitamin and Mineral Nutrition Information System
WASH	water, sanitation and hygiene
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization
WIC	Special Supplemental Nutrition Program for Women, Infants and Children

planning policy formulation

dialogue multi-sectoral

interconnection

FOOD, AGRICULTURE & HEALTHY DIETS

MATERNAL & CHILD CARE

HEALTH

SOCIAL PROTECTION

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World Food Programme | Food and Agriculture Organization of the United Nations | unicef | World Health Organization

COMPENDIUM OF ACTIONS FOR NUTRITION

“This is an extraordinary time to work on Maternal and Child Nutrition. We know what works, we know how to make it happen, and we know that the world can afford it. Our obligation now is to make these essential nutrition interventions available to all children, adolescents, and women, beginning with the poorest, the excluded, and the most vulnerable.”

Víctor M. Aguayo, *Associate Director, Chief Nutrition;*
UN Network for SUN Steering Committee Member, UNICEF

“The Compendium of Actions for Nutrition (CAN) is a great resource for selecting context-relevant approaches to address malnutrition. It should be used in conjunction with a situation analysis that identifies the main factors that directly and indirectly prevent adequate nutrient intake and good health, especially among the most nutritionally vulnerable, and identifies systems, platforms and stakeholders that can be leveraged to implement solutions.”

Martin Bloem, *Senior Nutrition Advisor, WFP Global Coordinator UNAIDS;*
UN Network for SUN Steering Committee Member; SUN Executive Committee Member, WFP

“In this Decade of Action on Nutrition, interventions to address all forms of malnutrition across multiple sectors need to be urgently scaled up. WHO provides evidence-based guidance on healthy diets and effective nutrition interventions, all presented in the WHO e-Library of Evidence for Nutrition Actions (eLENA). With the CAN, the UN has incorporated guidance from multiple sectors to allow decision-makers and professionals to make informed choices and develop comprehensive action.”

Francesco Branca, *Director, Nutrition for Health and Development;*
UN Network for SUN Steering Committee Member; SUN Executive Committee Member, WHO

“The Agreement establishing IFAD stated that it should be guided by priorities which include improving the nutritional level of the poorest populations in developing countries and the conditions of their lives. Some forty years later, with nutrition now placed high on the political agenda, IFAD is shifting gears to link our malnutrition imperative to the gender and climate change agendas for maximising synergies and impact.”

Juliane Friedrich, *Senior Technical Specialist, Nutrition;*
UN Network for SUN Steering Committee Member, IFAD

“The world is facing a global obesity epidemic. This is the time to take a hard look at our food systems and reposition them to deliver on the healthy diets needed for optimal nutrition outcomes. The CAN comes at an opportune time provided by the SDGs and the Decade of Action on Nutrition for countries to turn their ICN2 commitments into action.”

Anna Lartey, *Director, Nutrition and Food Systems Division;*
UN Network for SUN Steering Committee Member, FAO

Background

Nutrition has received considerable attention in recent years with the advent of the Scaling Up Nutrition Movement (SUN) in 2010, the launch of the United Nations Secretary-General's Zero Hunger Challenge in 2012, the Second International Conference on Nutrition (ICN2)[1] in 2014 and a United Nations resolution in 2016 proclaiming 2016–2025 as the United Nations Decade of Action on Nutrition. The Agenda 2030 includes 17 Sustainable Development Goals (SDGs), recognizing improvements in nutrition as a key priority within SDG 2 and as a fundamental investment that underpins the successful achievement of all the SDGs.

Together they have provided a renewed impetus for countries to develop or update multi-sectoral national nutrition policies, strategies and plans in an effort to scale-up nutrition actions and address malnutrition in all of its forms. This has also generated demand from countries for a consolidated resource that national governments and other stakeholders can draw upon for multi-sectoral dialogue around policy, planning, programming, coordination, monitoring, evaluation and implementation of nutrition actions. The demand for such a resource has grown as the SUN Movement has expanded and gained momentum. The United Nations system is well placed to respond given it is by nature multi-sectoral and has a wealth of experience in all of the nutrition actions outlined in the CAN, operating in diverse contexts.

Multiple stakeholders have a role to play in supporting national nutrition efforts, including civil society, business, donors, academia and United Nations agencies. Many stakeholders have expressed the need for a comprehensive, yet practical document that is useful for individuals working in nutrition across the sectors as well as those without a nutrition background.

Purpose

The CAN was designed to provide an understanding of the breadth of actions needed to combat malnutrition, facilitate multi-sectoral dialogue and spur action at the country level, particularly on nutrition-related policy and planning. While this compendium does not prescribe a specific set of nutrition actions, 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.

The CAN does *not* intend to replace any existing technical guidance. Rather, it brings together and builds upon existing technical guidance developed by FAO, WFP, WHO and UNICEF into one document in order to promote a holistic approach to nutrition. A list of references, including guidance developed by these agencies, is available for interested users.

Audience

The intended audience of the CAN is national authorities and their supporting partners engaged in multi-sectoral nutrition governance processes (e.g. SUN Government actors, REACH facilitators, SUN networks).

1 The first International Conference on Nutrition, held in 1992, culminated in the World Declaration and Plan for Action, which called upon countries to formulate or improve national policies and action plans for eliminating malnutrition and preventing diet-related communicable and non-communicable diseases. Further information about the conference is available at http://www.fao.org/docrep/U9920t/u9920t0b.htm#iv.

Use of the CAN

The CAN is a resource to foster participatory multi-sectoral dialogue at the country level, especially on nutrition-related policy formulation (e.g. national nutrition policy and related nutrition policies) and planning. This includes the formulation and updating of the national multi-sectoral nutrition plans and results frameworks, the integration of nutrition into sectoral plans and conversations about scaling up. The compendium is also useful for decentralized multi-sectoral dialogue and planning. To this end, it provides a list of potential nutrition actions, which countries may refer to when they decide what to include in their nutrition-related policies and plans based on the national nutrition context. Users may refer to the CAN in order to help country actors to be aware of the full scope of potential nutrition actions, and the links between them.

The matrices of actions presented in the CAN are particularly useful for moderating these discussions in view of their concise and easy-to-use format. These matrices equip facilitators of nutrition governance processes – who may lack a technical nutrition background – with practical inputs for asking probing questions, to ensure that the ensuing discussions are comprehensive and balanced across sectors.

In addition to informing nutrition-related policy formulation and planning, the CAN may also be used to facilitate the development of nutrition mapping and information platforms. The classification of sub-actions into three evidence categories serves to clarify the evidence base and has helped to identify research gaps. Where evidence is limited, there are opportunities to advocate for further data to be generated, influencing the nutrition research agenda in an effort to strengthen evidence-based nutrition governance.

Methodology

The development of the CAN was led by the UN Network for SUN/REACH Secretariat, which worked in consultation with FAO, IFAD, UNICEF, WFP and WHO through a participatory process. This process involved inter-agency discussions and bilateral exchanges with a range of colleagues, including experts in nutrition and related technical areas (e.g. fisheries, water, sanitation and hygiene, social safety nets and gender). Based on the inputs from these United Nations agencies, a list of nutrition actions and sub-actions was identified.

The Secretariat worked with selected experts to validate and refine the actions and evidence base. These experts had extensive knowledge and specialized expertise in the various aspects of nutrition including health, maternal and child care, food and agriculture, social protection, trade, nutrition education, social marketing and behaviour change communication. Actions and sub-actions were only included in the CAN if they had an explicit nutrition objective and were not likely to have any adverse impacts[2] on individuals' nutrition status or well-being.

Preliminary drafts of the CAN were also shared with the SUN Movement Secretariat (SMS) with a view to fostering further collaboration and alignment with other global endeavors.

Sub-actions were classified into three evidence categories, as outlined below. When multiple types of evidence exist for a given sub-action, the highest level of evidence is indicated in the Evidence column. However, for sub-actions that have different levels of evidence depending on the target group, two or more evidence categories are included. Similarly, more than one evidence category is included for 'consolidated' sub-actions (the evidence level varies across the different elements of these sub-actions). In these cases, users are directed to the related thematic areas, where further details are provided.

2 Conflicts of interest (including studies from interested industries), quality of the research and other related factors were taken into consideration when determining whether actions or sub-actions have an adverse impact.

- **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.

- **Published primary studies exist:** No synthesized evidence exists, but evidence is published in peer-reviewed journals.

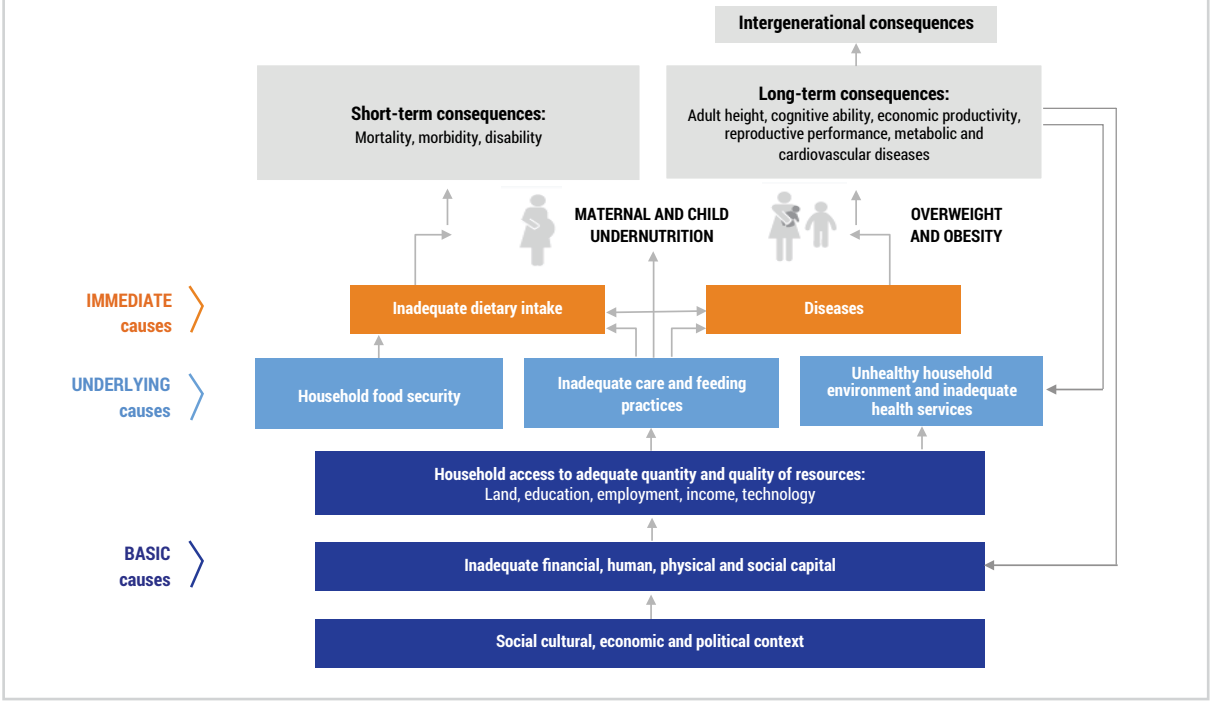
- **Practice-based studies exist:** There is published experience-based evidence documented in the 'grey literature' although no evidence has been published in peer-reviewed journals – either in the form of synthesized evidence or single studies. This indicates that further research is warranted.

The CAN offers a 'one-stop shop' for multi-sectoral nutrition actions, including insights on the links between them, with a view to strengthening nutrition governance.[3] This is the first version of a CAN[4] to be presented across sectors, and includes nutrition actions that respond to the immediate, underlying and basic causes of malnutrition. It also includes all of the 'essential nutrition actions', recommended by WHO;[5] all actions presented in this compendium are aligned with the ICN2 Framework for Action. Successive versions of the CAN are envisaged, taking into account the lessons learned from previous editions and the evolving nutrition discourse and evidence base.

Structure of the CAN

The CAN's structure was largely inspired by the UNICEF conceptual framework for malnutrition (see Figure 1), which identified household food insecurity, inadequate maternal and child care practices, poor health environment (related to water, sanitation and hygiene) and inadequate – and often inaccessible – health services as the underlying determinants of malnutrition. The UNICEF framework also considered human, economic, political and environmental factors as the basic causes of malnutrition.

FIGURE 1. UNICEF Conceptual framework of malnutrition[6]



3 The REACH Country Facilitator Manual outlines guidance on how to undertake multi-sectoral nutrition dialogue (UN Network for SUN/REACH Secretariat. 2013. *Country Facilitator Manual*. Second Edition, Rome. Available at http://www.reachpartnership.org/it/country-facilitator-manual.).

4 It should be noted that WHO does not currently have official recommendations on all of the nutrition sub-actions included in the CAN. While some sub-actions may have a positive effect on nutrition outcomes, further inquiry is underway or needed before a WHO recommendation can be formulated. Those sub-actions with WHO recommendations are indicated in order to align the CAN with prevailing guidance.

5 WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en.

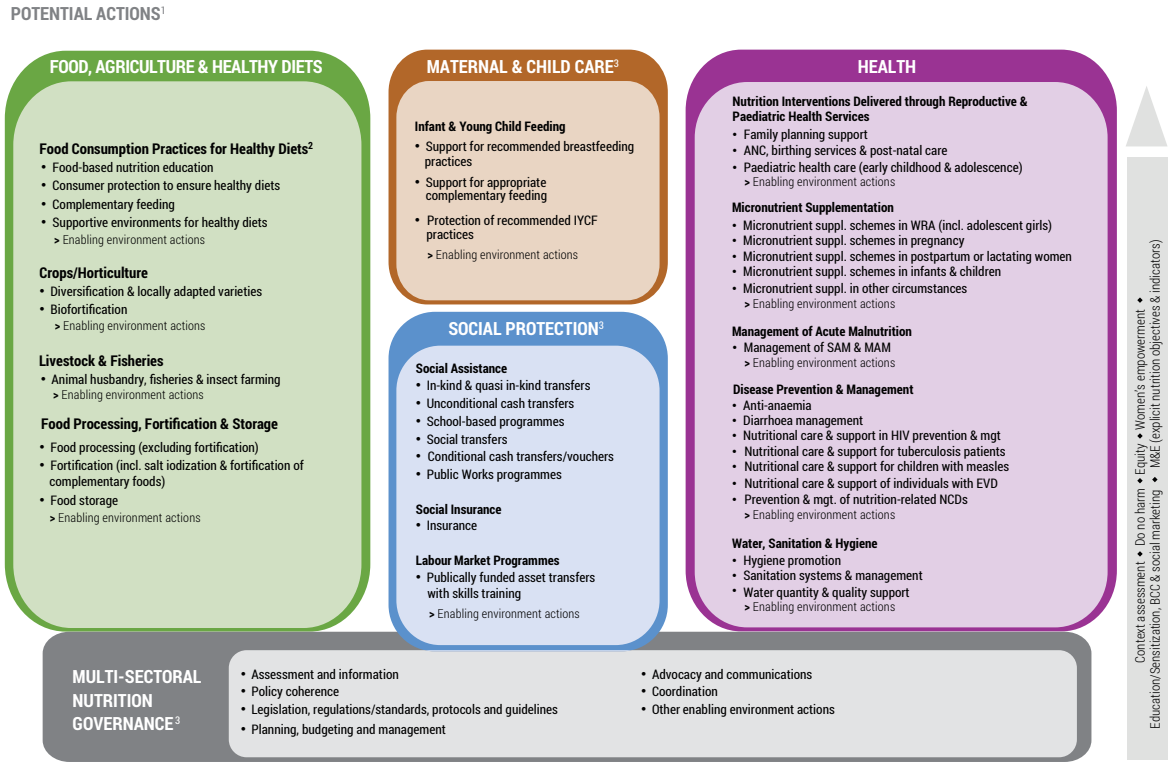
6 UNICEF. 2013. *Improving child nutrition: The achievable imperative for global progress*. New York.

Brief descriptions of the causes of malnutrition, which guided the identification of the causal levels for each sub-action in the CAN, are as follows:

- **Immediate causes** are related to inadequate dietary intake and exposure to disease or illness.
- **Underlying causes** are related to the household and community levels, which may be influenced by issues such as agricultural practices and climate, lack of availability and access to safe water, sanitation and health services, girls' education and other gender issues.
- **Basic causes** include 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 UNICEF framework not only illustrates how these causes are interrelated, but it identifies the various levels at which they influence individuals' nutritional status.[7] The wide range of contributing factors (e.g. health, food, economic) implies the need for a multi-sectoral approach to nutrition and the need to intervene at all causal levels. Given its wide acceptance among the international nutrition community, including the United Nations agencies that comprise the global UN Network for SUN, this framework was used as a starting point for developing the CAN classification structure.

FIGURE 2. Classification structure of the CAN



1. The selection of these actions should be tailored to the country's nutrition situation. In some cases, the nomenclature presented here may be summarized in view of space/layout constraints with respect to the full nomenclature used elsewhere in the CAN.
2. Thematic areas are marked in bold, black text under the four main sections.
3. Cross-cutting areas

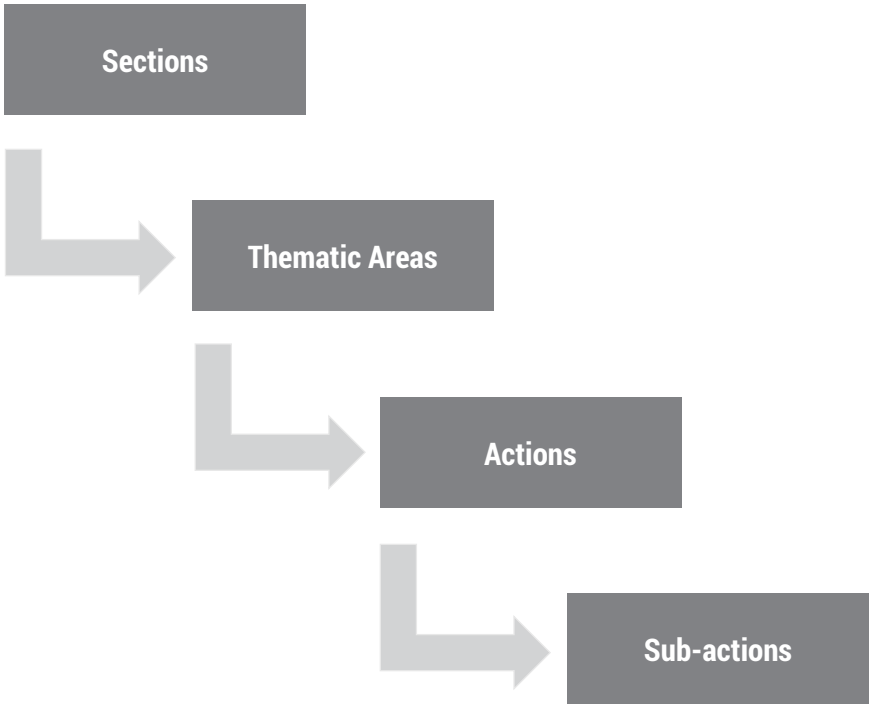
BF = breastfeeding; **ANC** = antenatal care; **SAM** = severe acute malnutrition; **WRA** = women of reproductive age; **MAM** = moderate acute malnutrition; **NCDs** = noncommunicable diseases; **EVD**=ebola virus disease.

7 UNICEF. 2013. *Improving child nutrition: The achievable imperative for global progress*. New York.

Interventions were grouped into the following four main sections in the CAN with a view to operationalizing the UNICEF framework: Food, Agriculture and Healthy Diets; Maternal and Child Care; Health; and Social Protection (see Figure 2). Thematic areas were then identified in each section, with actions and sub-actions presented in each thematic area (see Figure 3). This grouping employs a multi-sectoral approach to addressing malnutrition, with an emphasis on stunting. The approach is aligned with that of the SUN Movement, which acknowledges the need to address multiple forms of malnutrition and focus on efforts to address stunting, as reaffirmed by the new SUN Strategy and Roadmap:

> *"While the focus of the SUN Movement remains primarily on the reduction of stunting, many governments are adapting their national plans to address the multiple burdens of malnutrition, including wasting, micronutrient deficiencies, anaemia, overweight and obesity".* [8]

FIGURE 3. Hierarchy of the CAN classification structure



Actions and sub-actions that address household food security are presented in the Food, Agriculture and Healthy Diets section, recognizing that "Household food security is an outcome of technical and social processes in society, but it ultimately depends on the availability, accessibility, and use of resources".[9] Actions and sub-actions that are principally provided through health services, such as nutrition-related reproductive health services, paediatric health services, health services for disease prevention and management (e.g. micronutrient supplementation) and services that promote a healthy environment (e.g. water, sanitation and hygiene) are classified in the Health section. The management of acute malnutrition is also included in the Health section since it seeks to rehabilitate nutritional status, irrespective of what mechanisms are used to carry out the action. The Social Protection section includes a range of nutrition-related actions and sub-actions that seek to safeguard individuals' basic needs (e.g. food and health).

8 SUN Movement. 2016. *SUN Movement strategy and roadmap (2016–2020)*. Available at http://scalingup.staging.wpengine.com/about-sun/the-sun-movement-strategy/.

9 Jonsson U. *Ethics and child nutrition*. Accessed from http://archive.unu.edu/unupress/food/8F164e/8F164E03.htm on 23 September 2016.

The CAN also includes actions and sub-actions that address care practices such as breastfeeding and complementary feeding, childcare, food and personal hygiene, health-seeking behaviour (e.g. utilization of health services) and healthy behaviours related to water and sanitation. Some of these care practices are included in other sections of the CAN in an effort to minimize duplication of sub-actions.[10] While infant and young child feeding (IYCF) is covered in the CAN sections on Food, Agriculture and Healthy Diets, Health and Social Protection, it is also explicitly included as a thematic area in the Maternal and Child Care section in order to give a strong voice to these critically important actions and sub-actions.

Breastfeeding actions provided through health services are primarily listed in the Health section, whereas breastfeeding support provided at the community level is included in the IYCF thematic area of the 'Care' section to minimize duplication. There are exceptions to this approach: the Baby-friendly Hospital Initiative (BFHI) is listed in both the IYCF thematic area (within the 'Care' section) and the thematic area on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services (in the Health section). This decision was made because there is often no clear distinction between health-related interventions provided through health services and those provided through communities (e.g. by community health workers, health posts and outreach services). Similarly, food hygiene – including aspects related to both infrastructure and behaviour – is presented in the Food, Agriculture and Healthy Diets section and within the thematic area on Water, Sanitation and Hygiene for Good Nutrition in the Health section.

This classification structure considers the overlapping aspects of care and social protection, and the extensive diversity of involved sectors, stakeholders and delivery platforms, underscoring the focus on implementation. The classification acknowledges that specialists and practitioners working in these areas often belong to similar constituencies (e.g. health professionals and practitioners, engineers, agronomists). Therefore, water, sanitation and hygiene actions and sub-actions are presented together in a single thematic area since they are typically implemented by hydraulic engineers and sanitation specialists (even though other sectors have an important role to play).[11] This classification system also minimizes redundancy in the compendium.

Each section includes an introduction highlighting the importance and purpose of the section in supporting good nutrition. The matrices that follow list potential nutrition actions and sub-actions by thematic area, distinguishing those that foster an enabling environment[12] in support of good nutrition. Furthermore, each matrix identifies the evidence category of sub-actions (with the exception of the sub-actions included in the Enabling Environment sections). A supporting bibliography is included, identifying the references that substantiate the evidence classification indicated for each sub-action.

In addition, Annexes 1-4 contain summary lists of actions and sub-actions, by thematic area, for the four main sections of the CAN. Annex 5 outlines actions and sub-actions for multi-sectoral nutrition governance, recognizing the overarching nature and importance of this work.[13,14] The actions and sub-actions included in Annex 5 help to bring together stakeholders across sectors and coordinate the actions and sub-actions supported in the main sections of the CAN in order to foster a coherent multi-faceted approach to nutrition and synergies. Moreover, they encompass analytical and facilitation-based support for multi-sectoral governance processes undertaken at both the national and sub-national levels.

Additional user-friendly guidance materials will be developed to support the dissemination of this compendium.

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10 For example, the sub-action 'Promotion of uptake of health services for nutrition-related diseases through which nutrition interventions are provided' is intended to support desired health-seeking behaviour (a care practice). This sub-action was included in the Health section of the CAN along with other nutrition-related health services for disease prevention and management.

11 Cairncross, S., Bartram, J., Cumming, O. & Brocklehurst, C. 2010. Hygiene, sanitation, and water: What needs to be done? *PLoS Med*, Volume 7(11):e1000365.

12 These sub-actions reflect factors that contribute to an enabling environment for nutrition, such as policy coherence, legislation, regulations, standards, trade mechanisms, insurance, 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. Nevertheless, the inclusion of a given sub-action in this section does not mean that it is not an important factor for nutrition.

13 Nisbett, N., Gillespie, S., Haddad, L. & Harris, J. 2014. Why worry about the politics of childhood undernutrition? *World Development*, Volume 64:420-433.

14 Gillespie, S., Haddad, L., Mannar, V., Menon, P., Nisbett, N. & the Maternal and Child Nutrition Study Group. 2013. The politics of reducing malnutrition: Building commitment and accelerating progress. *Lancet*, Volume 382(9891):552-569.

Scaling Up NUTRITION

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ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

FOOD, AGRICULTURE & HEALTHY DIETS




COMPENDIUM OF ACTIONS FOR NUTRITION

Scaling Up NUTRITION

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ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

> "Human health and nutrition are both the foundation of a strong food system and the expected outcome from such a system."
>
> *(Pinstrup-Andersen, 2012)*

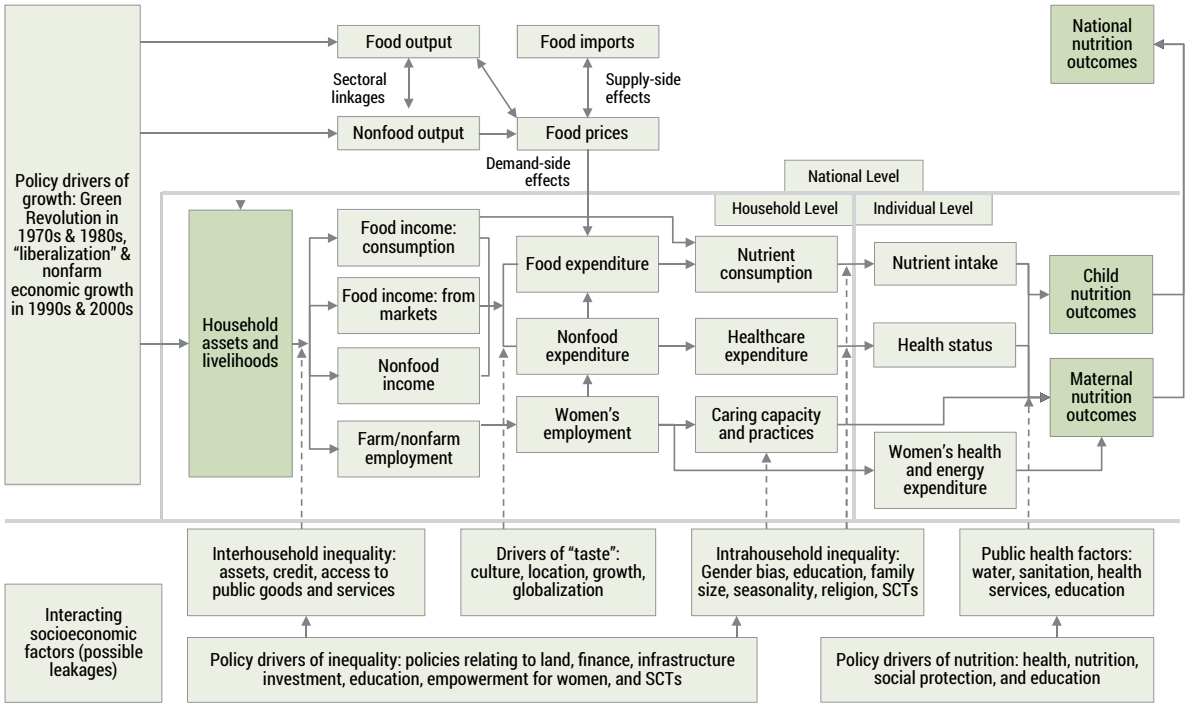
The **Compendium of Actions for Nutrition (CAN)** is a facilitation resource developed by REACH, as part of the UN Network for SUN, for national authorities and their partners (including SUN government actors, REACH facilitators and SUN networks) to foster multi-sectoral dialogue at the country level 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.

FOOD, AGRICULTURE & HEALTHY DIETS

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.[1,2] A healthy diet supports good nutrition during successive stages of life and protects against noncommunicable diseases (NCDs), including cancer, diabetes, heart disease and stroke.[3] In fact, diet was recently identified as the top risk factor in the global burden of disease,[4] 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.[5] 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]



1 Victora, C.G., Adair, L., Fall, C., Hallal, P.C., Martorell, R., Richter, L. & Sachdev, H.S. for the Maternal and Child Undernutrition Study Group. 2008. Maternal and child undernutrition: Consequences for adult health and human capital. *Lancet*, Volume 371:340-357.

2 Victora, C.G, de Onis M, Hallal PC, Blössner M, Shrimpton R. 2010. Worldwide timing of growth faltering: Revisiting implications for interventions using the World Health Organization growth standards. *Pediatrics*, Volume 125:e473–80.

3 World Health Organization (WHO). 2015. *Healthy diet fact sheet*. No. 394. Geneva. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

4 Global Burden of Disease (GBD) 2013 Risk Factors Collaborators. 2015. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. *Lancet*, doi: 10.1016/S0140-6736(15)00128-2.

5 Gillespie, S., Harris, J. & Kadiyala, S. 2012. *The Agriculture-nutrition disconnect in India: What do we know?* Technical Report. International Food Policy Research Institute (IFPRI) Discussion Paper, Washington D.C.; Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches*. The World Bank. Washington, D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches; FAO Food Insecurity and Vulnerability Information and Mapping System. Available at http://www.fao.org/fileadmin/user_upload/fsn/docs/FIVIMS_Framework_of_Food_Security.pdf; Webb, P. 2013. *Impact pathways from agricultural research to improved nutrition and health: Literature analysis and research priorities.* FAO and WHO. Rome; Massett, E., Haddad, L., Cornelius, A. & Isaza-Castro, J. 2011. *A systematic review of agricultural interventions that aim to improve nutritional status of children*. The Evidence for Policy and Practice Information and Co-ordinating Centre, Social Science Research Unit, Institute of Education, University of London, London; The World Bank. 2007. *From agriculture to nutrition: Pathways, synergies and outcomes*. Washington D.C.

6 Gillespie, S., Harris, J. & Kadiyala, S. 2012. *The agriculture-nutrition disconnect in India: What do we know?* Technical Report. IFPRI Discussion Paper, Washington D.C.

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.[7] 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.[8] 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.[9]

A *sustainable* diet supports food and nutrition security and a healthy life for present and future generations, with minimal adverse environmental impacts.[10,11] The food system[12] and agriculture[13] 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[14] (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.[15,16] 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[17] 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, which some fear risks diverting the focus on healthy diets.

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7 WHO. 2015. *Healthy diet fact sheet*. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

8 To reduce the risk of overweight and obesity, and NCDs, WHO recommends: (1) exclusive breastfeeding to reduce the risk of childhood overweight and obesity; (2) increasing fruit and vegetable consumption to reduce the risk of NCDs; (3) reducing the consumption of sugar-sweetened beverages to reduce the risk of childhood overweight and obesity, and unhealthy weight gain in adults; (4) increasing potassium intake to control blood pressure in children and to reduce blood pressure and the risk of cardiovascular diseases in adults; and (5) reducing sodium intake to control blood pressure in children and to reduce blood pressure and the risk of cardiovascular diseases in adults (WHO. 2015. *Healthy diet fact sheet*. No. 394. Available at http://www.who.int/mediacentre/factsheets/fs394/en/).

9 WHO. 2015. *Healthy diet fact sheet*. No. 394. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

10 Food and Agriculture Organization of the United Nations (FAO). 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/docrep/018/i3300e/i3300e.pdf.

11 Burlingame, B.A. & Dernini, S. 2012. *Sustainable diets and biodiversity: Directions and solutions for policy, research and action*. FAO. Rome.

12 FAO defines food systems as those that "encompass all the people, institutions and processes by which agricultural products are produced, processed and brought to consumers. They also include the public officials, civil society organizations, researchers and development practitioners who design the policies, regulations, programmes and projects that shape food and agriculture" (FAO. 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/).

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

14 Nutrient-dense refers to the amount of nutrients per unit of energy [e.g. mg iron/100 kcal or g protein/100 kcal] (Drewnowski, 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 8: Nutrition and Health in a Developing World. Third edition, edited by De Pee, S., Taren, D. & Bloem, M.W. Humana Press. Totowa.).

15 FAO. 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/.

16 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.

17 The food supply chain is typically comprised of food production, processing, distribution, retailing, promotion, labelling and consumption (Ruel et al., 2013, *Lancet*).

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.[18,19,20] 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,[25,26] 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.

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18 Wiggins, S. & Keats, S. 2013. *Smallholder agriculture's contribution to better nutrition*. Overseas Development Institute. London.

19 FAO. 2013. *Synthesis of guiding principles on agriculture programming for nutrition*. Available at: http://www.fao.org/docrep/017/aq194e/aq194e00.htm.

20 World Bank. 2012. *Prioritizing nutrition in agriculture and rural development: Guiding principles for operational investments*. Health, Nutrition and Population Discussion Paper, Washington, D.C.

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).

23 FAO. 2014. *Agreeing on causes of malnutrition for joint action*. Rome. Available at http://www.fao.org/docrep/019/i3516e/i3516e.pdf.

24 WFP. 2014. *A WFP approach to operationalise resilience: Part 1: Integrated Context Analysis*. Rome. Available at http://www.google.com/url?url=http://documents.wfp.org/stellent/groups/public/documents/communications/wfp264472.pdf&rct=j&frm=1&q=&esrc=s&sa=U&ei=WbSBVMHkLsHrO4b4gLAH&ved=0CBQQFjAA&usg=AFQjCNGYgMcKxLcBI69gTkiB-7iM-Uvbfg.

25 WHO. *Nutrition Landscape Information System (NLIS)*. Available at http://www.who.int/nutrition/databases/en/.

26 WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Available at http://www.who.int/vmnis/indicators/en/.

MATRIX OF ACTIONS

Livestock and Fisheries

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Animal husbandry, fisheries and insect farming

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY**
Extensive animal rearing for the production of animal-source foods in support of healthy diets	Underlying	Primary studies

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).

- Girard, A. W., Self, J. L., McAuliffe, C., & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1): 205–222.
- Olney, D.K., Pedehombga, A., Ruel, M.T. & Dillon, A. A. 2015. 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3–12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145: 1317–24.

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

- Girard, A. W., Self, J. L., McAuliffe, C., & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):205–222.
- Olney, D.K., Pedehombga, A., Ruel, M.T. & Dillon, A. 2015. A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3–12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145:1317–24.

(ACTION 1 continued ...)

* **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.

(... ACTION 1 continued)

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).

- Girard, A. W., Self, J. L., McAuliffe, C., & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):205–222.
- Olney, D.K., Pedehombga, A., Ruel, M.T. & Dillon, A. 2015. A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3–12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145:1317–24.

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).

- WHO. 2015. *Guideline: Sugars intake for adults and children.* Geneva. Available at http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/.
- Girard, A. W., Self, J. L., McAuliffe, C., & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl.1):205–222.
- Olney, D.K., Pedehombga, A., Ruel, M.T. & Dillon, A. 2015. A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3–12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145:1317–24.

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 (FBDGs) 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.

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

SUB-ACTION 1a Food composition data for locally available animal-source foods	CAUSAL LEVEL Basic

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.

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on Nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

SUB-ACTION 1b Vulnerability assessment and early warning analysis	CAUSAL LEVEL Basic
SUB-ACTION 1c Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	CAUSAL LEVEL Basic
SUB-ACTION 1d M&E of sub-actions covered by this thematic area	CAUSAL LEVEL Basic

ACTION 2. Policy coherence

SUB-ACTION 2a 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	CAUSAL LEVEL Basic

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.

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

SUB-ACTION 3a Land tenure/land rights, in accordance with Voluntary Guidelines on the Responsible Governance of Tenure, to support healthy diets	CAUSAL LEVEL Basic

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 ...)

(... Enabling Environment continued)

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).

- Arnold, M., Powell, B., Shanley, P. & Sundernald, T.C.H. 2011. Forests, biodiversity and food security. *International Forestry Review*, Volume 13(3):259–264.
- Golden, C.D., Fernald, L.C.H., Brashares, J.S., Rasolofoniaina, B.J.R. & Kremen, C. 2011. Benefits of wildlife consumption to child nutrition in a biodiversity hotspot. *Proceedings of the National Academy of Sciences of the United States of America*, Volume 108(49):19653–19656. doi:10.1073/pnas.1112586108.
- Nasi, R., Taber, A. & Van Vliet, N. 2011. Empty forests, empty stomachs? Bushmeat and livelihoods in the Congo and Amazon Basins. *International Forestry Review*, Volume 13(3):355–368.
- Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., van Tol, G. & Christophersen, T. 2008. *Conservation and use of wildlife based resources: The bushmeat crisis*. Technical Series 33. Montreal/Bogor, Secretariat of the Convention on Biological Diversity/Center for International Forestry Research (CIFOR).
- Heywood, V. 2013. Overview of agricultural biodiversity and its contribution to nutrition and health. In J. Fanzo, D. Hunter et al., Eds. *Diversifying food and diets: Using agricultural biodiversity to improve nutrition and health issues in agricultural biodiversity*. London, Earthscan, 35–67.
- Vinceti, B., Ickowitz, A., Powell, B., Kehlenbeck, K., Termote, C., Cogill, B., & Hunter, D. 2013. *The contribution of forests to sustainable diets*. Background paper for the International Conference on Forests for Food Security and Nutrition. FAO, Rome, 13–15 May 2013. Available at http://www.fao.org/forestry/37132-051da8e87e54f379de4d7411aa3a3c32a.pdf.

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).

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

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.

- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013–2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a	CAUSAL LEVEL
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, animal resources, trade, health, and social protection planning and implementation	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	CAUSAL LEVEL
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora	Underlying/Basic

SUB-ACTION 6b	CAUSAL LEVEL
Market linkages to help facilitate/promote the consumption of animal-source foods in support of healthy diets	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	CAUSAL LEVEL
Promotion of wild meat for consumption for healthy diets in accordance with national legislation and regulations and food safety measures	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	CAUSAL LEVEL
Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition	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).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

(Enabling Environment continued ...)

(... Enabling Environment continued)

SUB-ACTION 7c Basic hygiene education to agriculture extension workers, livestock-keepers, and fishers, with a focus on hygiene after handling animals, carcasses or meat, animal faeces, etc. and links to nutrition	CAUSAL LEVEL Underlying

NOTES/REMARKS

Basic hygiene includes personal, domestic and food hygiene.

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).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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

(5) Using safe water and raw material (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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.

ACTION 10. Other enabling environment actions

SUB-ACTION 10a Animal health services to support safe animal-source foods for human consumption	CAUSAL LEVEL Underlying

NOTES/REMARKS

This sub-action includes vaccinations, parasite control, breeding support and other veterinary services.

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

ACTION 1
Diversification and locally adapted varieties

SUB-ACTION 1a Promotion of fruit and vegetable gardens for healthy diets	CAUSAL LEVEL* Underlying	EVIDENCE CATEGORY** Synthesized evidence

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.

(ACTION 1 continued ...)

* **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.

(... ACTION 1 continued)

SUB-ACTION 1c Biodiversity and underutilized crops	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

Optimizing biodiversity entails promoting inter-species diversity (different kinds of crops) and intra-species diversity (different varieties and cultivars of the same of 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).

- Fungo, R., Muyonga, J., Kabahenda, M., Kaaya, A., Okia, C. A., Donn, P., Mathurin, T., Tchingsabe, O., Tiegehungo, J.C., Loo, J. & Snook, L. 2016. Contribution of forest foods to dietary intake and their association with household food insecurity: A cross-sectional study in women from rural Cameroon. *Public Health Nutrition*, 1-12.

SUB-ACTION 1d Inputs and irrigation for fruit and vegetable gardens and crops	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

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	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

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	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Practice-based studies

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.

ACTION 1. Assessment and information

SUB-ACTION 1a Food composition data for locally available plant foods	CAUSAL LEVEL Basic

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.

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

SUB-ACTION 1b Vulnerability assessment and early warning analysis	CAUSAL LEVEL Basic
SUB-ACTION 1c Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	CAUSAL LEVEL Basic
SUB-ACTION 1d M&E of sub-actions covered by this thematic area	CAUSAL LEVEL Basic

ACTION 2. Policy coherence

SUB-ACTION 2a Policy coherence between Crops/Horticulture issues defined by policies/strategies on agriculture, natural resource management, trade, health, social equity, nutrition and food security	CAUSAL LEVEL Basic

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.

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

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

CAUSAL LEVEL
Basic

NOTES/REMARKS

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.

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

CAUSAL LEVEL
Basic

NOTES/REMARKS

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.

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 supplier in order to protect food safety. It applies to complementary foods as well as other foods (including plant-source foods).

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

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

CAUSAL LEVEL
Basic

NOTES/REMARKS

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.

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 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.

- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013–2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a	CAUSAL LEVEL
Capacity development/strengthening to enable nutrition to be reflected in related agriculture, natural resource management, trade, health, education, and social protection planning and implementation	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	CAUSAL LEVEL
Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora	Underlying/Basic

SUB-ACTION 6b	CAUSAL LEVEL
Market linkages to help facilitate/promote consumption of fruits, vegetables, legumes, and other nutritious plant foods in support of healthy diets	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	CAUSAL LEVEL
Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition	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).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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 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.

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 9. Coordination

SUB-ACTION 9a
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

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
Availability of credit/microcredit and microfinance to farmers, targeting both men and women, so as to help make healthy foods available

CAUSAL LEVEL
Basic

NOTES/REMARKS

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

SUB-ACTION 10b
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

Food Processing, Fortification and Storage

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Food processing (excluding fortification)

SUB-ACTION 1a Malting, drying, pickling and curing at the household level	CAUSAL LEVEL* Immediate/Underlying	EVIDENCE CATEGORY** Primary studies

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.

SUB-ACTION 1b Reformulation of food/beverages for healthier diets	CAUSAL LEVEL Immediate/Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

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

SUB-ACTION 1c Other nutrition-oriented food processing	CAUSAL LEVEL Immediate/Underlying	EVIDENCE CATEGORY Primary studies

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.

- FAO. 2013. *The State of Food and Agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/.

SUB-ACTION 1d Training and sensitization on malting, drying, pickling and curing at the household level	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

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; 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

Fortification (including salt iodization and fortification of complementary foods)

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

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.

SUB-ACTION 2b	CAUSAL LEVEL	EVIDENCE CATEGORY
Community fortification to support good nutrition	Immediate/Underlying	Practice-based studies

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).

- Yiannakis, M.E., Girard, A.W. & MacDonald, A. C. 2014. *Medium-scale fortification: A sustainable food-based approach to improve diets and raise nutrition levels*, Chapter 17: Improving Diets and Nutrition; Food-based approaches, edited by Thompson, B. & Amoroso, L. FAO. Rome.

SUB-ACTION 2c	CAUSAL LEVEL	EVIDENCE CATEGORY
Point-of-use fortification for children	Immediate	Synthesized evidence

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.

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

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.

- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

ACTION 3
Food storage

SUB-ACTION 3a	CAUSAL LEVEL	EVIDENCE CATEGORY
Household food storage/silos support for increased food stability to support healthy diets	Underlying	Primary studies

NOTES/REMARKS

This sub-action includes cold storage space (e.g. solar-panel operated fridges).

This sub-action includes capacity development for appropriate preservation, handling and storage methods, including for forestry products.

In the absence of food safety technology, simple innovations such as food-grade containers and chlorinated water can substantially improve food safety and quality.

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

SUB-ACTION 1a	CAUSAL LEVEL
Food composition data for locally available processed foods	Basic

NOTES/REMARKS

This sub-action includes the generation, compilation and dissemination of data on the nutrient content of locally available processed foods, which is crucial for promoting the integration of nutrient content among food processors and manufacturers.

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

SUB-ACTION 1b	CAUSAL LEVEL
Vulnerability assessment and early warning analysis	Basic

SUB-ACTION 1c	CAUSAL LEVEL
Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	Basic

SUB-ACTION 1d	CAUSAL LEVEL
M&E of sub-actions covered by this thematic area	Basic

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.

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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-fatty acids, free sugars and salt (WHO, 2010).

- WHO. 2010. *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Geneva. Available at http://www.who.int/dietphysicalactivity/publications/recsmarketing/en/.

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.

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

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.

- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013–2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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

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

CAUSAL LEVEL
Underlying

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.

SUB-ACTION 8b
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 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
(5) Using safe water and raw material (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 9. Coordination

SUB-ACTION 9a
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

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, 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

SUB-ACTION 10a
Availability of credit/microcredit and microfinance to farmers, livestock-keepers, agribusiness and food processers, targeting both men and women, to help make healthy foods available including fortified foods

CAUSAL LEVEL
Basic

SUB-ACTION 10b
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

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

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY**
Nutrition education, skills training, participatory cooking sessions/sensitization/ counselling for mothers and other caregivers	Immediate/Underlying	Synthesized evidence

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	CAUSAL LEVEL	EVIDENCE CATEGORY
Nutrition education in schools	Underlying	Synthesized evidence

NOTES/REMARKS

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

- Skar, M. Kirstein, E. & Kapur, A. 2015. Lessons learnt from school-based health promotion projects in low- and middle-income countries. *Child: Care, Health and Development*, Volume 41(6):1114-1123.

SUB-ACTION 1c	CAUSAL LEVEL	EVIDENCE CATEGORY
School-garden based food and nutrition education	Underlying/Basic	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.

* **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.

ACTION 2
Consumer protection to ensure healthy diets

SUB-ACTION 2a Protection from marketing of unhealthy food and beverages	**CAUSAL LEVEL** Underlying/Basic	**EVIDENCE CATEGORY** Synthesized evidence
SUB-ACTION 2b Protection from misleading health and nutrition claims	**CAUSAL LEVEL** Underlying/Basic	**EVIDENCE CATEGORY** Practice-based studies
SUB-ACTION 2c Nutrition labelling, including front-of-pack labelling, on pre-packaged foods and beverages	**CAUSAL LEVEL** Underlying/Basic	**EVIDENCE CATEGORY** Synthesized evidence
SUB-ACTION 2d Portion size control	**CAUSAL LEVEL** Underlying/Basic	**EVIDENCE CATEGORY** Synthesized evidence
SUB-ACTION 2e Food safety measures	**CAUSAL LEVEL** Underlying/Basic	**EVIDENCE CATEGORY** Synthesized evidence and practice-based studies

ACTION 3
Complementary feeding

SUB-ACTION 3a Promotion of dietary diversification as part of optimal complementary feeding	**CAUSAL LEVEL** Immediate/Underlying	**EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

For best results, interventions must be accompanied by other nutrition education actions.

SUB-ACTION 3b Promotion of fortified foods for complementary feeding, where appropriate	**CAUSAL LEVEL** Immediate/Underlying	**EVIDENCE CATEGORY** Synthesized evidence

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 (MNPs) 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.

- Skau, J.K., Touch, B., Chhoun, C., Chea, M., Unni, U.S., Makurat, J., Filteau, S., Wieringa, F.T., Dijkhuizen, M.A., Ritz, C., Wells, J.C., Berger, J., Friis, H.I., Michaelsen, K.F. & Roos, N. 2015. Effects of animal source food and micronutrient fortification in complementary food products on body composition, iron status, and linear growth: A randomized trial in Cambodia. *American Journal of Clinical Nutrition*, Volume 101(4):742-51.

(ACTION 3 continued ...)

(...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]).

- *World Health Assembly. 2010. World Health Assembly resolution WHA63.14: Marketing of food and non-alcoholic beverages to children*. Geneva. Available at http://apps.who.int/gb/ebwha/pdf_files/WHA63-REC1/WHA63_REC1-P2-en.pdf?ua=1.
- WHO. 2015. *Healthy diet fact sheet*. No. 394. Geneva. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.
- WHO. *Five keys to a healthy diet*. Geneva. Available at http://www.who.int/nutrition/topics/5keys_healthydiet/en/.
- WHO. 2015. *Guideline: Sugars intake for adults and children*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/.
- WHO. 2012 (Reprinted 2014). *Guideline: Sodium intake for adults and children*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/sodium_intake/en/.

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).

- WHO. 2013. *Global Action Plan for the Prevention and Control of NCDs 2013-2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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

SUB-ACTION 1a Food composition data for locally available foods	CAUSAL LEVEL Basic

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.

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

SUB-ACTION 1b Vulnerability assessment and early warning analysis	CAUSAL LEVEL Basic
SUB-ACTION 1c Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	CAUSAL LEVEL Basic
SUB-ACTION 1d M&E of sub-actions covered by this thematic area	CAUSAL LEVEL Basic

ACTION 2. Policy coherence

SUB-ACTION 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)	CAUSAL LEVEL Basic

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.

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

SUB-ACTION 3a Progressive realization of the right to adequate food	CAUSAL LEVEL Basic

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 ...)

(... Enabling Environment continued)

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

CAUSAL LEVEL
Basic

NOTES/REMARKS

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.

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

CAUSAL LEVEL
Underlying/Basic

NOTES/REMARKS

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.

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 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.

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

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

CAUSAL LEVEL
Basic

NOTES/REMARKS

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).

- WHO. 2010. *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Geneva. Available at http://www.who.int/dietphysicalactivity/publications/recsmarketing/en/.

SUB-ACTION 3f
Other legislation and regulation to support healthy diets

CAUSAL LEVEL
Basic

NOTES/REMARKS

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-Martin, Ledikwe & Rolls, 2005).

- Ello-Martin, J.A., Ledikwe, J.H. & Rolls, B.J. 2005. The influence of food portion size and energy density on energy intake: implications for weight management. *American Journal of Clinical Nutrition*, Volume 82(Suppl.):236–41.
- Hollands, G.J., Shemilt, I., Marteau, T.M., Jebb, S.A., Lewis, H.B., Wei, Y. Higgins, J.P.T. & Ogilvie, D. 2015. Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco. *Cochrane Database of Systematic Reviews*, Issue 9. Art. No. CD011045.
- Osei-Assibey, G., Dick, S., Macdiarmid, J., Semple, S., Reilly, J.J., Ellaway, A., Cowie, H. & McNeill, G. 2012. The influence of the food environment on overweight and obesity in young children: A systematic review. *BMJ Open*, Volume 2(6):e001538.

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.

- Cabrera Escobar, M.A., Veerman, J.L., Tollman, S.M., Bertram, M.Y. & Hofman, K.J. 2013. Evidence that a tax on sugar sweetened beverages reduces the obesity rate: A meta-analysis. *BMC Public Health*. Volume 13(13):1072. Available at http://www.ncbi.nlm.nih.gov/pubmed/24225016.
- Alagiyawanna, A., Townsend, N., Mytton, O., Scarborough, P., Roberts, N. & Rayner, M. 2015. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications: A systematic review. *BMC Public Health*. Volume 14(15):887. Available at http://www.ncbi.nlm.nih.gov/pubmed/26369695.
- WHO. 2013. *Global Action Plan for the Prevention and Control of NCDs 2013–2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

(Enabling Environment continued ...)

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
(5) Using safe water and raw material (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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).

BIBLIOGRAPHY

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

- Hoddinott, J., Headey, D. & Dereje, M. 2015. Cows, missing milk markets, and nutrition in rural Ethiopia. *Journal of Development Studies,* Volume 51(8):958–975.
- Romeo, A., Demeke, M., Meerman, J. & Asfaw, S. (forthcoming) *Farming practices, diversification and household diet diversity: Evidence from a sample of Kenyan ultra-poor farmers*.
- Sadler, K., Mitchard, E., Abdi, A., Shiferaw, Y., Bekele, G. & Catley, A. 2012. *Milk matters: The impact of dry season livestock support on milk supply and child nutrition in Somali region, Ethiopia*. Feinstein International Center at Tufts University, USAID & Save the Children. Somerville. Available at http://fic.tufts.edu/publication-item/milk-matters/.

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

- Hoddinott, J., Headey, D. & Dereje, M. 2015. Cows, missing milk markets, and nutrition in rural Ethiopia. *Journal of Development Studies,* Volume 51(8):958–975.
- Leroy, J.L. & Frongillo, E.A. 2007. Can interventions to promote animal production ameliorate undernutrition? *Journal of Nutrition*, Volume 137:2311–2316.
- Nielsen, H., Roos, N. & Thilsted, S.H. 2003. Poultry production increased fish consumption via income path: The impact of semi-scavenging poultry production on the consumption of animal source foods by women and girls in Bangladesh. *Journal of Nutrition*, Volume 133(Suppl. 2): 4027–4030.
- Olney, D.K., Pedehombga, A., Ruel, M.T. & Dillon, A. 2015. A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3-12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145(6):1317–1324.
- Randolph, T.F., Schelling, E., Grace, D., Nicholson, C.F., Leroy, J.L., Cole, D.C., Demment, M.W., Omore, A., Zinsstag, J. & Ruel, M.T. 2007. Invited review: Role of livestock in human nutrition and health for poverty reduction in developing countries. *Journal of Animal Science*, Volume 85:2788–2800.
- Rawlins, R., Pimkina, S., Barrett, C., Pedersen, S. & Wydick, B. 2013. Got milk? The impact of Heifer International's livestock donation programs in Rwanda on nutritional outcomes. *Food Policy*, Volume 44(February 2014):202–213.
- Romeo, A., Demeke, M., Meerman, J. & Asfaw, S. (forthcoming) *Farming practices, diversification and household diet diversity: Evidence from a sample of Kenyan ultra-poor farmers.*
- FAO. 2014. *Decision tools for family poultry development.* FAO Animal Production and Health Guidelines No. 16. Rome. Available at http://www.fao.org/3/a-i3542e.pdf.
- The World Bank. 2007. *From agriculture to nutrition: Pathways, synergies, and outcomes*. Washington D.C. Available at http://siteresources.worldbank.org/INTARD/825826-1111134598204/21608903/January2008Final.pdf.

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

- English, R. & Badcock, J. 1998. A community nutrition project in Viet Nam: Effects on child morbidity. *Food, Nutrition and Agriculture*, Volume 22:15–21.
- Kumar, N. & Quisumbing, A.R. 2011. Access, adoption, and diffusion: Understanding the long- term impacts of improved vegetable and fish technologies in Bangladesh. *Journal of Development Effectiveness*, Volume 3(2):193-219.
- Masset, E., Haddad, L., Cornelius, A. & Isaza-Castro, J. 2012. Effectiveness of agricultural interventions that aim to improve nutritional status of children: Systematic review. *British Medical Journal*, Volume 344:d8222.

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

- Van Huis, A., Van Itterbeeck, J., Klunder, H., Mertens, E., Halloran, A., Muir, G. & Vantomme, P. 2013. *Edible insects - Future prospects for food and feed security.* FAO, Rome, Italy. Available at http://www.fao.org/docrep/018/i3253e/i3253e.pdf.
- Upcoming research: http://www.wellcome.ac.uk/Funding/Strategic-funding/Our-planet-our-health/Funded-projects/Global-food-systems-and-health/WTP059778.htm.

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

- Arimond, M. & Ruel, M.T. 2004. Dietary diversity is associated with child nutritional status: Evidence from 11 demographic and health surveys. *Journal of Nutrition*, Volume 134:2579–2585.
- Hoddinott, J., Headey, D. & Dereje, M. 2015. Cows, missing milk markets, and nutrition in rural Ethiopia. *Journal of Development Studies,* Volume 51(8):958–975.

Enabling Environment

ACTION 1. Assessment and information

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

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

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

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

- FAO. 2012. *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*. Rome. Available at http://www.fao.org/nr/tenure/voluntary-guidelines/en/.

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

- FAO. *Food safety and quality.* Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. *Food safety: The five keys to safer food programme*. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.

ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets

- Alagiyawanna, A., Townsend, N., Mytton, O., Scarborough, P., Roberts, N. & Rayner, M. 2015. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications; A systematic review. *BMC Public Health*, Volume 14(15):887. Available at http://www.ncbi.nlm.nih.gov/pubmed/26369695.
- Cabrera Escobar, M.A., Veerman, J.L., Tollman, S.M., Bertram, M.Y. & Hofman, K.J. 2013. Evidence that a tax on sugar sweetened beverages reduces the obesity rate: A meta-analysis. *BMC Public Health*, Volume 13(13):1072. Available at http://www.ncbi.nlm.nih.gov/pubmed/24225016.
- FAO. 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/.
- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013-2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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.
- Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches*. The World Bank, Washington D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.
- FAO. 2013. *Synthesis of guiding principles on agriculture programming for nutrition*. Available at: http://www.fao.org/docrep/017/aq194e/aq194e00.htm.
- WFP. 2014. *A WFP approach to operationalise resilience: Part 3: Community-based participatory planning*. Rome. Available at http://documents.wfp.org/stellent/groups/public/documents/communications/wfp264473.pdf.

ACTION 6. Trade

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

- Hoddinott, J., Headey, D. & Dereje, M. 2015. Cows, missing milk markets, and nutrition in rural Ethiopia. *Journal of Development Studies*, Volume 51(8):958–975.

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

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes.* WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.
- *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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes.* WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 10. Other enabling environment actions

10b. Support with inputs related to animal production

- Sadler, K., Mitchard, E., Abdi, A., Shiferaw, Y., Bekele, G. & Catley, A. 2012. *Milk matters: The impact of dry season livestock support on milk supply and child nutrition in Somali region, Ethiopia*. Feinstein International Center at Tufts University, USAID & Save the Children. Somerville. Available at http://fic.tufts.edu/publication-item/milk-matters/.
- *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

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

Crops/Horticulture

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Diversification and locally adapted varieties

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

- Arimond, M. & Ruel, M.T. 2004. Dietary diversity is associated with child nutritional status: Evidence from 11 demographic and health surveys. *Journal of Nutrition*, Volume 134:2579–2585.
- Berti, P.R., Krasevec, J. & FitzGerald, S. 2004. A review of the effectiveness of agriculture interventions in improving nutrition outcomes. *Public Health Nutrition,* Volume 7(5):599–609.
- Bezner Kerr, R., Berti, P.R. & Shumba, L. 2011. Effects of a participatory agriculture and nutrition education project on child growth in northern Malawi. *Public Health Nutrition*, Volume 14(8):1466-1472.
- DFID. 2014. *Can agriculture interventions promote nutrition?* Department for International Development, London. Available at https://www.gov.uk/government/publications/can-agriculture-interventions-promote-nutrition.
- Fanzo, J., Curran, S., Remans, R., Mara, V., Sanchez Briseño, J., Cisewski, D., Denning, G. & Fracassi, P. 2014. *Simulating potential of nutrition-sensitive investments*. Center for Globalization and Sustainable Development. New York. The Earth Institute. Columbia University.
- Girard, A.W., Self, J.L., McAuliffe, C. & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):205–222.
- Masset, E., Haddad, L., Cornelius, A. & Isaza-Castro, J. 2012. Effectiveness of agricultural interventions that aim to improve nutritional status of children: Systematic review. *British Medical Journal*, Volume 344:d8222.
- Olney, D.K., Pedehombga, A., Ruel, M. T. & Dillon, A. 2015. A 2-year integrated agriculture and nutrition and health behavior change communication program targeted to women in Burkina Faso reduces anemia, wasting, and diarrhea in children 3-12.9 months of age at baseline: A cluster-randomized controlled trial. *Journal of Nutrition*, Volume 145(6):1317–1324.
- Olney, D.K., Talukder, A., Iannotti, L.L., Ruel, M.T. & Quinn, V. 2009. Assessing impact and impact pathways of a homestead food production program on household and child nutrition in Cambodia. *Food and Nutrition Bulletin*, Volume 30:355–369.
- Ruel, M. 2001. Can food-based strategies help reduce vitamin A and iron deficiencies? A review of recent evidence. *Food Policy Review* 5. IFPRI, Washington D.C.
- Ruel, M., Alderman, H. & the Maternal and Child Nutrition Study Group. 2013. Nutrition-sensitive interventions and programmes: How can they help to accelerate progress in improving maternal and child nutrition? *Lance*t, Volume 382:536–551. Available at http://www.sciencedirect.com/science/article/pii/S0140673613608430.
- Sibhatu, K.T., Krishna, V.V. & Qaim, M. 2015. Production diversity and dietary diversity in smallholder farm households. *Proceedings of the National Academy of Sciences of the United States of America,* Volume 112:10657–10662.
- Webb, P. & Block, S. 2012. Support for agriculture during economic transformation: Impacts on poverty and undernutrition. *Proceedings of the National Academy of Sciences of the United States of America*, Volume 109:31.
- FAO. 2014. *A vegetable garden for all* (5th Edition). Rome. Available at http://www.fao.org/docrep/019/i3556e/i3556e.pdf.
- FAO. 2001. *Improving nutrition through home gardening: A training package for preparing field workers in Africa*. Rome. Available at http://www.fao.org/docrep/003/x3996e/x3996e00.htm.
- The World Bank. 2007. *From agriculture to nutrition: Pathways, synergies, and outcomes*. Washington D.C. Available at http://siteresources.worldbank.org/INTARD/825826-1111134598204/21608903/January2008Final.pdf.

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

- FAO. 2011. *The state of the world's land and water resources for food and agriculture (SOLAW) – Managing systems at risk*. Rome. Available at http://www.fao.org/nr/solaw/solaw-home/en/.
- FAO. 2011. *Save and grow: A policymaker's guide to the sustainable intensification of smallholder crop production*. Rome. Available at http://www.fao.org/docrep/014/i2215e/i2215e00.htm.

1c. Biodiversity and underutilized crops

- Bioversity International. 2013. *Diversifying food and diets: Using agricultural biodiversity to improve nutrition and health*, ed. by Fanzo, J., Hunter, D., Borelli, T. & Mattei, F. Available at http://www.bioversityinternational.org/e-library/publications/detail/diversifying-food-and-diets/.
- Ekesa, B.N. 2009. Agricultural biodiversity for food and nutrient security: The Kenyan perspective. *International Journal of Biodiversity and Conservation*, Volume 1(7):208-214.
- Ekesa, B.N., Walingo, M.K. & Abukutsa-Onyango, M.O. 2009. Influence of agricultural biodiversity on dietary diversity of preschool children in Matungu division, Western Kenya. *African Journal of Food, Agriculture, Nutrition and Development*, Volume 8(4):390-404.

- Ekesa, B.N., Walingo, M.K. & Abukutsa-Onyango, M.O. 2009. Accessibility to and consumption of indigenous vegetables and fruits by rural households in Matungu division, Western Kenya. *African Journal of Food, Agriculture, Nutrition and Development*, Volume 9(8):1725-1738.
- Fungo, R., Muyonga, J., Kabahenda, M., Kaaya, A., Okia, C. A., Donn, P., Mathurin, T., Tchingsabe, O., Tiegehungo, J.C., Loo, J. & Snook, L. 2016. Contribution of forest foods to dietary intake and their association with household food insecurity: A cross-sectional study in women from rural Cameroon. *Public Health Nutrition*, 1-12.
- Ickowitz, A., Powell, P. & Sunderland, T. (forthcoming) Forests and child nutrition in Africa. (Manuscript submitted for publication in 2013).
- Mbène Dièye, F., Weber, J.C., Mounkoro, B. & Dakouo, J.M. 2010. Contribution of parkland trees to farmers' livelihoods: A case study from Mali. *Development in Practice*, Volume 20(3):428-434.
- Moreno-Black, G. & Somnasang, P. 2000. In times of plenty and times of scarcity: Nondomesticated food in northeastern Thailand. *Ecology of Food and Nutrition*, Volume 38(6):563-586.
- Powell, B., Hall, J. & Johns, T. 2011. Forest cover, use and dietary intake in the East Usambara Mountains, Tanzania. *International Forestry Review*, Volume 13(3):305–317.
- Powell, B., Ickowitz, A., McMullin, S., Jamnadass, R., Padoch, C., Pinedo-Vasquez, M. & Sunderland, T. 2013. The role of forests, trees and wild biodiversity for nutrition-sensitive food systems and landscapes. *ResearchGate*. Available at https://www.researchgate.net/publication/268667819_The_role_of_forests_trees_and_wild_biodiversity_for_improved_nutrition-sensitivity_of_food_and_agriculture_systems.

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

- Domenech, L. & Ringler, C. 2013. *The impact of irrigation on nutrition, health, and gender*. IFPRI Discussion Paper 01259. IFPRI, Washington D.C. Available at http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127480.

ACTION 2. Biofortification

2a. Introduction of biofortified varieties to support healthy diets

- Bhutta, Z.A., Ahmed, T., Black, R.E., Cousens, S., Dewey, K., Giugliani, E., Haider, B.A., Kirkwood, B., Morris, S.S., Sachdev, P.S. & Shekar, M. for the Maternal and Child Undernutrition Study Group. 2008. Paper 3: What works? Interventions for maternal and child undernutrition and survival. *Lancet*, Volume 371:1-24.
- Black, R.E., Allen, L.H., Bhutta, Z.A., Caulfield, L.E., de Onis, M., Ezzati, M., Mathers, C. & Rivera, J. for the Maternal and Child Undernutrition Study Group. 2008. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet*, Volume 371:243-260.
- Webb Girard, A., Self, J.L., McAuliffe, C. & Olude, O. 2012. The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):205-222.
- Hotz, C., Loechl, C., De Brauw, A., Eozenou, P., Gilligan, D., Moursi, M. & Meenakshi, J. V. 2012. A large-scale intervention to introduce orange sweet potato in rural Mozambique increases vitamin A intakes among children and women. *British Journal of Nutrition*, Volume 108(1):163–176.
- Hotz, C., Loechl, C., Lubowa, A., Tumwine, J. K., Ndeezi, G., Masawi, A.N. & Gilligan, D. O. 2012. Introduction of b-carotene– rich orange sweet potato in rural Uganda results in increased vitamin A intakes among children and women and improved vitamin A status among children. *Journal of Nutrition*, Volume 142(10):1871–1880.
- Lutter, C.K., Rodríguez, A., Fuenmayor, G. Avila, L., Sempertegui, F. & Escobar, J. 2008. Growth and micronutrient status in children receiving a fortified complementary food. *Journal of Nutrition*, Volume 138(2):379-388.
- Masset, E., Haddad, L., Cornelius, A. & Isaza-Castro, J. 2012. Effectiveness of agricultural interventions that aim to improve nutritional status of children: Systematic review. *British Medical Journal*, Volume 344:d8222.
- Battcock, M. & Azam-Ali, S. 1998. *Fermented fruits and vegetables: A global perspective*. FAO. Rome.
- FAO. 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/.
- MI. 2009. *Global Report 2009. Investing in the future: A united call to action on vitamin and mineral deficiencies*. Flour Fortification Initiative, GAIN, MI, USAID, The World Bank & UNICEF. Ottawa. Available at http://www.unitedcalltoaction.org/documents/Investing_in_the_future.pdf.
- WFP. 2012. *Nutrition at the World Food Programme: Programming for nutrition-specific interventions*. Rome.
- WHO. 2009. *Recommendations on wheat and maize flour fortification meeting report: Interim consensus statement*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/wheat_maize_fort.pdf.
- WHO. *Biofortification of staple crops*. e-Library of Evidence for Nutrition Actions (eLENA). Available at http://who.int/elena/titles/biofortification/en/.

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

- Low, J. W., Arimond, M., Osman, N., Osei, A.K., Zano, F., Cunguara, B., Selemane, M.L., Abdullah, D. & Tschirley, D. 2005. *Towards sustainable nutrition improvement in rural Mozambique: Addressing macro- and micro-nutrient malnutrition through new cultivars and new behaviors: Key findings*. Michigan State University Department of Agricultural Economics, East Lansing, Michigan. Available at http://fsg.afre.msu.edu/tsni/TSNI_FINDINGS1_TEXT_DONOR_REPORT.pdf.

Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available plant foods

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition*. Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
- FAO. 2010. Expert consultation on nutrition indicators for biodiversity. 2. *Food consumption*. Available at http://www.fao.org/docrep/014/i1951e/i1951e00.htm.
- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

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

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

- FAO. 2012. *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*. Rome. Available at http://www.fao.org/nr/tenure/voluntary-guidelines/en/.

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. *Food safety: The five keys to safer food programme*. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.

ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets

- Alagiyawanna, A., Townsend, N., Mytton, O., Scarborough, P., Roberts, N. & Rayner, M. 2015. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications; A systematic review. *BMC Public Health*, Volume 14(15):887. Available at http://www.ncbi.nlm.nih.gov/pubmed/26369695.
- Cabrera Escobar, M.A., Veerman, J.L., Tollman, S.M., Bertram, M.Y. & Hofman, K.J. 2013. Evidence that a tax on sugar sweetened beverages reduces the obesity rate: A meta-analysis. *BMC Public Health*, Volume 13(13):1072. Available at http://www.ncbi.nlm.nih.gov/pubmed/24225016.
- FAO. 2013. *The state of food and agriculture: Food systems for better nutrition*. Rome. Available at http://www.fao.org/publications/sofa/2013/en/.
- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013-2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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.
- Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches*. The World Bank, Washington D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.

- FAO. 2013. *Synthesis of guiding principles on agriculture programming for nutrition*. Available at: http://www.fao.org/docrep/017/aq194e/aq194e00.htm.
- WFP. 2014. *A WFP approach to operationalise resilience: Part 3: Community-based participatory planning*. Rome. Available at http://documents.wfp.org/stellent/groups/public/documents/communications/wfp264473.pdf.

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

- Coote, C., Tomlins, K., Massingue, J., Okwadi, J. & Westby, A. 2011. *Understanding consumer decisionmaking to Assist Sustainable Marketing of Vitamin A–Rich Sweet Potato in Mozambique and Uganda*. 2020 Conference Note 2. IFPRI, Washington D.C.
- Gelli, A., Hawkes, C., Donovan, J., Harris, J., Allen, S.L., de Brauw, A., Henson, S., Johnson, N.L., Garrett, J. & Ryckembusch, D. 2015. *Value chains and nutrition: A framework to support the identification, design, and evaluation of interventions*. IFPRI Discussion Paper. IFPRI, Washington D.C.
- Hawkes, C., Turner, R. & Waage, J. 2012 *Current and planned research on agriculture for improved nutrition: A mapping and a gap analysis*. London: Leverhulme Centre for Integrative Research on Agriculture and Health.
- Hawkes, C. & Ruel, M.T. 2011. *Value chains for nutrition*. 2020 Conference Brief 4. IFPRI, Washington D.C. Available at http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/124831/filename/124832.pdf.

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

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

- *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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
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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

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Food Processing, Fortification and Storage

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Food processing (excluding fortification)

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

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1b. Reformulation of food/beverages for healthier diets

- Downs, S.M., Thow, A.M. & Leeder, S.R. 2013. The effectiveness of policies for reducing dietary trans fat: A systematic review of the evidence. *Bulletin of the World Health Organization*. Volume 91(4):262-269H. Available at http://www.ncbi.nlm.nih.gov/pubmed/23599549.
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1d. Training and sensitization on malting, drying, pickling and curing at the household level

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

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

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- WHO. *Iodization of salt for the prevention and control of iodine deficiency disorders*. eLENA. Available at http://www.who.int/elena/titles/salt_iodization/en/.

2b. Community fortification to support good nutrition

- Yiannakis, M.E., Girard, A.W. & MacDonald, A. C. 2014. *Medium-scale fortification: A sustainable food-based approach to improve diets and raise nutrition levels*, Chapter 17: Improving diets and nutrition; Food-based approaches, edited by Thompson, B. & Amoroso, L. FAO. Rome.

2c. Point-of-use fortification for children

- Adu-Afarwuah, S., Lartey, A., Brown, K.H., Zlotkin, S., Briend, A. & Dewey, K.G. 2007. Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: Effects on growth and motor development. *American Journal of Clinical Nutrition*, Volume 86:412-420.
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2d. Production of fortified complementary foods to meet documented nutrient gaps in children 6–23 months

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ACTION 3. Food storage

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

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Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available processed foods

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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

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

- Hawkes, C., Smith, T.G., Jewell, J., Wardle, J., Hammond, R.A., Friel, S., Thow, A.M. & Kain, J. 2015. Smart food policies for obesity prevention. *Lancet*, Volume 385:2410–2421.

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

- Abdulwadud, O.A. & Snow, M.E. 2012. Interventions in the workplace to support breastfeeding for women in employment. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006177. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006177.pub3/abstract.
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- Piwoz, E.G. & Huffman, S.L. 2015. The impact of marketing of breast-milk substitutes on WHO-recommended breastfeeding practices. *Food and Nutrition Bulletin*, Volume 36(4):373-386. Available at http://www.ncbi.nlm.nih.gov/pubmed/26314734.
- Rollins, N.C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C.K., Martines, J.C., Piwoz, E.G., Richter, L.M. & Victora, C.G. on behalf of The Lancet Breastfeeding Series Group. 2016. Why invest, and what it will take to improve breastfeeding practices? *Lancet*, Volume 387:491-504. Available at http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf.

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- Euromonitor International Consulting Ltd. 2015. *Baby food trends in Brazil and Norway*. WHO.
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- World Health Assembly. 2010. *World Health Assembly resolution WHA63.14: Marketing of food and non-alcoholic beverages to children*. Geneva. Available at http://apps.who.int/gb/ebwha/pdf_files/WHA63-REC1/WHA63_REC1-P2-en.pdf?ua=1.
- WHO. *Discussion Paper: Clarification and guidance on inappropriate promotion of foods for infants and young children – Draft*. Consultation on the public draft of the clarification and guidance on inappropriate promotion of foods for infants and young children. 17&18 August 2015, Geneva. Available at http://www.who.int/nutrition/events/inappropriate-food-promotion-consultation-comments/en/.
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- 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

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- Home Fortification Technical Advisory Group. 2013. *Manual for developing and implementing monitoring systems for home fortification interventions*. CDC, GAIN, HKI, MI, Sight and Life, Sprinkles Global Health Initiative, UC DAVIS, UNICEF & WFP.
- WHO. *Food safety: The five keys to safer food programme*. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.

ACTION 4. Fiscal policy

4a. Taxes and subsidies to support healthier diets

- Alagiyawanna, A., Townsend, N., Mytton, O., Scarborough, P., Roberts, N. & Rayner, M. 2015. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications; A systematic review. *BMC Public Health*, Volume 14(15):887. Available at http://www.ncbi.nlm.nih.gov/pubmed/26369695.
- Cabrera Escobar, M.A., Veerman, J.L., Tollman, S.M., Bertram, M.Y. & Hofman, K.J. 2013. Evidence that a tax on sugar sweetened beverages reduces the obesity rate: A meta-analysis. *BMC Public Health*, Volume 13(13):1072. Available at http://www.ncbi.nlm.nih.gov/pubmed/24225016.
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ACTION 5. Trade

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

- Gelli, A., Hawkes, C., Donovan, J., Harris, J., Allen, S.L., de Brauw, A., Henson, S., Johnson, N.L., Garrett, J. & Ryckembusch, D. 2015. *Value chains and nutrition: A framework to support the identification, design, and evaluation of interventions*. IFPRI Discussion Paper. IFPRI, Washington D.C.
- Hawkes, C. & Ruel, M.T. 2011. *Value chains for nutrition*. 2020 Conference Brief 4. IFPRI, Washington D.C. Available at http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/124831/filename/124832.pdf.

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

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

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

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ACTION 8. Infrastructure and technology

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

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
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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

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Food Consumption Practices for Healthy Diets

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Food-based nutrition education

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

- Arikpo, D., Edet, E.S., Chibuzor, M.T., Odey, F. & Caldwell, D.M. 2015. Educational interventions for improving complementary feeding practices (protocol). *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD011768.
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- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.

1b. Nutrition education in schools

- Arimond, M., Hawkes, C., Ruel, M.T., Sifri, Z., Berti, P.R., Leroy, J.L., Low, J.W., Brown, L.R. & Frongillo, E.A. 2010. *Agricultural interventions and nutrition: Lessons from the past and new evidence,* Chapter 3: *Combating micronutrient deficiencies; Food-based approaches*, edited by Thompson, B. & Amoroso, L. FAO & CAB International, Rome.
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ACTION 2. Consumer protection to ensure healthy diets

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2d. Portion size control

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ACTION 3. Complementary feeding

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

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3c. Public information campaigns for optimal complementary feeding practices[27]

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

4a. School programmes promoting healthy diets and good nutrition

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

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- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013-2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

Enabling Environment

ACTION 1. Assessment and information

1a. Food composition data for locally available foods

- FAO. 2016. *Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on nutrition.* Commission on Genetic Resources for Food and Agriculture. Available at www.fao.org/documents/card/en/c/68b200ba-928a-4db9-a6ac-6b8fdc3c464b/.
- FAO/INFOODS. 2016. *Food Composition Database for Biodiversity*. Available at www.fao.org/infoods/infoods/food-biodiversity/en/.
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- FAO. 2008. Expert consultation on nutrition indicators for biodiversity. 1. *Food composition*. Available at http://www.fao.org/docrep/010/a1582e/a1582e00.htm.

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)

- CFS. 2014. *Principles for responsible investment in agriculture and food systems*. Rome. Available at http://www.fao.org/cfs/cfs-home/activities/rai/en/.

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

3a. Progressive realization of the right to adequate food

- FAO. 2005. *Voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security*. Rome. Available at http://www.fao.org/3/a-y7937e.pdf.

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

- Albert, J.L., Samuda, P.M., Molina, V., Regis, T.M., Severin, M., Finlay, B. & Prevost J.L. 2007. Developing food-based dietary guidelines to promote healthy diets and lifestyles in the Eastern Caribbean. *Journal of Nutrition Education and Behavior*, Volume 39(6):343-50.
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- WHO. 2012 (Reprinted 2014). *Guidelines: Potassium intake for adults and children*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/potassium_intake/en/.
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- WHO. *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

- Hawkes, C., Smith, T.G., Jewell, J., Wardle, J., Hammond, R.A., Friel, S., Thow, A.M. & Kain, J. 2015. Smart food policies for obesity prevention. *Lancet*, Volume 385:2410–2421.
- FAO & WHO. *Codex Alimentarius International Food Standards*. Available at http://www.fao.org/fao-who-codexalimentarius/codex-home/en/.
- WHO. 2015. *Eliminating trans fats in Europe; A policy brief*. Copenhagen. Available at http://www.euro.who.int/__data/assets/pdf_file/0010/288442/Eliminating-trans-fats-in-Europe-A-policy-brief.pdf?ua=1.

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. *Food safety: The five keys to safer food programme*. Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.

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

- Abdulwadud, O.A. & Snow, M.E. 2012. Interventions in the workplace to support breastfeeding for women in employment. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006177. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006177.pub3/abstract.
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- Piwoz, E.G. & Huffman, S.L. 2015. The impact of marketing of breast-milk substitutes on WHO-recommended breastfeeding practices. *Food and Nutrition Bulletin,* Volume 36(4):373-386. Available at http://www.ncbi.nlm.nih.gov/pubmed/26314734.
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- Smith, J.P., Sargent, G.M., Mehta, K., James, J., Berry, N., Koh, C., Salmon, L. & Blake, M. 2015. *A rapid evidence assessment. Does marketing of commercially available complementary foods affect infant and young child feeding?* Available at http://www.who.int/nutrition/topics/CF_anu_effects_marketingcommercial.pdf?ua=1.
- Tzioumis, E., Kay, M., Wright, M. & Adair, L. *Health effects of commercially available complementary foods: A systematic review*. Department of Nutrition, Gillings School of Global Public Health, University of North Carolina at Chapel Hill. Chapel Hill. Available at http://www.who.int/nutrition/topics/CF_health_effects_commercially_systematicreview.pdf.
- 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.
- Scientific and Technical Advisory Group on Inappropriate Promotion of Foods for Infants and Young Children. *Background paper 4: Report on the regulatory environment.* WHO. First Meeting of the WHO Scientific and Technical Advisory Group on Inappropriate Promotion of Foods for Infants and Young Children on 24&25 June 2013. Geneva. Available at http://www.who.int/nutrition/topics/CF_stag_backgroundpaper_report_regulatory_environment.pdf.
- Scientific and Technical Advisory Group. *Draft clarification and guidance on inappropriate promotion of foods for infants and young children: Report of the Scientific and Technical Advisory Group (STAG) on inappropriate promotion of foods for infants and young children*. WHO. Available at http://www.who.int/nutrition/events/stag-report-inappropriate-promotion-infant-foods-en.pdf.
- WHO. 2012. *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Available at http://www.who.int/dietphysicalactivity/framework_marketing_food_to_children/en/.
- World Health Assembly. 2010. *World Health Assembly resolution WHA63.14: Marketing of food and non-alcoholic beverages to children*. Geneva. Available at http://apps.who.int/gb/ebwha/pdf_files/WHA63-REC1/WHA63_REC1-P2-en.pdf?ua=1.
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- 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

- Ello-Martin, J.A., Ledikwe, J.H. & Rolls, B.J. 2005. The influence of food portion size and energy density on energy intake: Implications for weight management. *American Journal of Clinical Nutrition*, Volume 82(Suppl.):236– 241.
- Hollands, G.J., Shemilt, I., Marteau, T.M., Jebb, S.A., Lewis, H.B., Wei, Y., Higgins, J.P.T. & Ogilvie, D. 2015. Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco. *Cochrane Database of Systematic Reviews*, Issue 9. Art. No. CD011045. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011045.pub2/abstract.
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- 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

- Alagiyawanna, A., Townsend, N., Mytton, O., Scarborough, P., Roberts, N. & Rayner, M. 2015. Studying the consumption and health outcomes of fiscal interventions (taxes and subsidies) on food and beverages in countries of different income classifications; A systematic review. *BMC Public Health*, Volume 14(15):887. Available at http://www.ncbi.nlm.nih.gov/pubmed/26369695.
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- WHO. 2013. *Global action plan for the prevention and control of NCDs 2013-2020*. Geneva. Available at http://www.who.int/nmh/events/ncd_action_plan/en/.

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.
- Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches.* The World Bank, Washington D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.
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ACTION 7. Social norms: Education/sensitization, BCC and social marketing

7a. Food hygiene education to safeguard nutrition

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. *Food safety: The five keys to safer food programme.* Available at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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

- Arimond, M., Hawkes, C., Ruel, M.T., Sifri, Z., Berti, P.R., Leroy, J.L., Low, J.W., Brown, L.R. & Frongillo, E.A. 2010. *Agricultural interventions and nutrition: Lessons from the past and new evidence,* Chapter 3: *Combating micronutrient deficiencies; Food-based approaches*, edited by Thompson, B. & Amoroso, L. FAO & CAB International, Rome.
- Berti, P.R., Krasevec, J. & FitzGerald, S. 2004. A review of the effectiveness of agriculture interventions in improving nutrition outcomes. *Public Health Nutrition*, Volume 7(5):599–609.
- Gordon, R., McDermott, L., Stead, M. & Angus, K. 2006. The effectiveness of social marketing interventions for health improvement: What's the evidence? *Public Health*, Volume 120(12):1133-1139.
- Ruel, M. 2001. Can food-based strategies help reduce vitamin A and iron deficiencies? A review of recent evidence. *Food Policy Review*, Volume 5. IFPRI, Washington D.C.
- Wang, G. & Labarthe, D. 2011. The cost-effectiveness of interventions designed to reduce sodium intake. *Journal of Hypertension*, Volume 29(9):1693-1699.

ACTION 8. Infrastructure and technology

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

- FAO. *Food safety and quality*. Available at http://www.fao.org/food/food-safety-quality/home-page/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

unicef

MATERNAL & CHILD CARE

COMPENDIUM OF ACTIONS FOR NUTRITION

Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

> "When affordable child care services are unavailable, care of babies may be relegated to child siblings (usually older girls), children may be breastfed less often, time for food preparation may be limited resulting in less nutritious diets, family members may be less likely to access health services, other agricultural production may suffer, and women may avoid off-farm income-earning opportunities." *(Alderman et al., 2013)*

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 the first matrix of this section. 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. 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.

MATERNAL & CHILD CARE

INTRODUCTION

Adequate care – for both mothers and children – is one of the most critical underlying determinants of good nutrition, yet it is often overlooked and undervalued. Maternal and child care encompasses a range of issues, such as infant and child feeding (e.g. breastfeeding and complementary feeding practices), nutritional support for pregnant and lactating women, the promotion of personal and food hygiene, seeking medical attention when one presents signs of illness and looking after children. The available evidence on the first 1,000 days of life underscores the need to act early to safeguard the health and nutrition of pregnant and lactating women – and more broadly, that of all adolescent girls and women of reproductive age.[1]

Internationally recommended breastfeeding practices (such as early initiation,[2] exclusive and continued breastfeeding),[3,4] and adequate complementary feeding have been identified as critical for safeguarding infant and young child nutrition, averting preventable child deaths, supporting healthy growth and development (cognitive and physical), and ensuring good health in adulthood.[5,6] A recent Lancet Series strengthened the empirical evidence on breastfeeding and nutrition: it noted that in addition to breastfeeding's impact on child survival, intelligence and well-being, it also confers benefits to maternal health and well-being. The same series indicated that if breastfeeding was practiced on a large scale, approximately 823,000 child deaths per year (13.8 percent of deaths of children under 2) could be prevented in 75 low and middle income countries with high mortality rates.[7] Other studies have underscored that the promotion of proper complementary feeding is one of the most effective ways to prevent stunting.[8,9]

The 'Care' section of the Compendium of Actions for Nutrition (CAN) includes sub-actions related to infant and young child feeding (IYCF) in view of its critical importance to nutrition (see the '*Care*' matrix 'chapter'). This section supplements other aspects of IYCF, which are discussed in the other sections of the CAN. Links to those thematic areas are identified in the matrices to orient users. The infant feeding-related sub-actions (including breastfeeding education and counselling) presented in the 'Care' section are focused at the community level in order to protect, promote and support recommended breastfeeding practices,[10] including: early initiation of breastfeeding (within one hour of birth); exclusive breastfeeding for the first six months of life; and continued breastfeeding until 2 years or beyond.[11,12]

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1 Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A., Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet*, Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.

2 The World Health Organization (WHO) recommends that mothers initiate breastfeeding within one hour of birth: WHO. *Early initiation of breastfeeding*. e-Library of Evidence for Nutrition Actions (eLENA). Available at http://www.who.int/elena/titles/early_breastfeeding/en/.

3 'Exclusive breastfeeding' refers to the practice whereby, "the infant receives only breast milk. No other liquids or solids are given, not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines". WHO. eLENA *Exclusive breastfeeding*. Available at http://www.who.int/elena/titles/exclusive_breastfeeding/en/.

4 WHO recommends that, "infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed for up to two years or beyond." WHO nutrition guideline, 2013, see http://who.int/elena/titles/exclusive_breastfeeding/en/; WHO. *Continued breastfeeding*. eLENA. Available at http://www.who.int/elena/titles/continued_breastfeeding/en/.

5 WHO. *Exclusive breastfeeding*. eLENA. Available at http://www.who.int/elena/titles/exclusive_breastfeeding/en/.

6 Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R. & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.

7 "Victora, C.G., Bahl, R., Barros, A.J.D., França, G.V.A., Horton, S., Krasevec, J., Murch, S., Sankar, M.J., Walker, N. and Rollins, N.C. for The Lancet Breastfeeding Series Group. 2016. Breastfeeding 1: Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet*, Volume 387:475-490. Available at http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)01024-7/abstract.

8 Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A., Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet*, Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.

9 Lassi, Z.S., Das, J.K., Zahid, G., Imdad, A. & Bhutta, Z.A. 2013. Impact of education and provision of complementary feeding on growth and morbidity in children less than 2 years of age in developing countries: A systematic review. *BMC Public Health*, Volume 13 (Suppl. 3):13.

10 IYCF support provided through health services is captured in the thematic areas on Nutritional Intervention Delivered through Reproductive and Paediatric Health Services.

11 WHO & the United Nations Children's Fund (UNICEF). 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/.

12 WHO. 2013. *Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.

The IYCF matrix points the reader to relevant sub-actions such as infant feeding support provided through health services, which is captured in thematic area on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services. Similarly, the complementary feeding sub-actions included under IYCF in the 'Care' section note that support for the feeding aspects (e.g. frequent and responsive feeding), availability of and access to appropriate, diversified, nutrient-dense foods for complementary feeding,[13] is further detailed in the CAN in thematic areas on Food, Agriculture and Healthy Diets; Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Micronutrient Supplementation (in the Health section); and Social Assistance (in the Social Protection section). Nutrition education, social marketing and behaviour change communication (BCC) activities, and enabling factors as they relate to IYCF, are likewise outlined in the 'Care' matrices.

In an effort to minimize duplication, other aspects of 'Care' have been integrated into related thematic areas in other sections of the CAN. All 'Care' sub-actions should be undertaken in a gender-sensitive manner.

Additional information, including recommendations and links to related thematic areas, are presented in the Notes/ Remarks column of the matrices to enrich multi-sectoral nutrition dialogue at the country level.

Finally, a robust situation analysis is fundamental to the selection of nutrition sub-actions presented in the 'Care' section of the CAN matrix. To this end, nutrition assessment (using anthropometric and micronutrient indicators),[14,15] along with the assessment of breastfeeding and complementary feeding practices among infants and young children[16] is also critical. This will enable country-level stakeholders to obtain an accurate picture of the nutrition situation, recognizing that it should inform policy, planning and programming responses.

13 In addition to the recommended breastfeeding practices mentioned above, WHO recommends that infants should receive nutritionally adequate and safe complementary foods to meet their evolving nutritional requirements from six months of age while continuing to breastfeed until 2 years or beyond. WHO. *Adequate Complementary Feeding*. eLENA. Available at http://www.who.int/elena/titles/complementary_feeding/en/; WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/.

14 WHO. *Nutrition Landscape Information System (NLIS)*. Available at http://www.who.int/nutrition/databases/en/.

15 WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Available at http://www.who.int/vmnis/indicators/en/.

16 WHO. 2015. *Global reference list of 100 core health indicators*. Geneva. Available at http://apps.who.int/iris/bitstream/10665/173589/1/WHO_HIS_HSI_2015.3_eng.pdf?ua=1; WHO. 2010. *Nutrition Landscape Information System (NLIS) Country Profile Indicators: Interpretation Guide*. Geneva. Available at http://www.who.int/nutrition/nlis_interpretationguide_isbn9789241599955/en/; WHO, UNICEF, USAID, AED, UCDAVIS & IFPRI. 2010. *Indicators for assessing infant and young child feeding practices: Part 3 – Country Profiles*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9789241599757/en/; WHO, UNICEF, USAID, AED, UCDAVIS & IFPRI. 2010. *Indicators for assessing infant and young child feeding practices: Part 2 – Measurement*. Geneva. Available at http://www.unicef.org/nutrition/files/IYCF_Indicators_part_II_measurement.pdf; WHO, UNICEF, USAID, AED, UCDAVIS & IFPRI. 2008. *Indicators for assessing infant and young child feeding practices: Part 1 – Definitions*. Geneva. Available at http://whqlibdoc.who.int/publications/2008/9789241596664_eng.pdf.

MATRIX OF ACTIONS

Infant and Young Child Feeding

POSSIBLE INTERVENTION RESPONSES

ACTION 1
SUPPORT for optimal breastfeeding practices

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY**
Breastfeeding education and counselling to SUPPORT optimal breastfeeding practices at the community level	Underlying	Synthesized evidence

NOTES/REMARKS

At the community level (e.g. through mother-to-mother support groups, peer or lay counsellors), this sub-action includes psycho-social support to help mothers to adopt the recommended breastfeeding practices. Hospitals and clinics may refer mothers to these support services upon discharge. IYCF support provided through healthcare systems (except for the Baby-friendly Hospital Initiative) is captured under the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services.

WHO recommends that:

(1) Mothers initiate breastfeeding within 1 hour of birth. Babies should be placed in skin-to-skin contact with their mothers immediately following birth for at least an hour and mothers should be encouraged to recognize when their babies are ready to breastfeed, with help offered if needed.
(2) Infants should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health.
(3) Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed until 2 years of age or beyond.

When breast-milk substitutes are required for social or medical reasons (e.g. for orphans or infants of HIV-positive mothers), efforts are made to provide them as long as they are needed by the concerned infants (WHO & UNICEF, 2003).

- WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/.

SUB-ACTION 1b	CAUSAL LEVEL	EVIDENCE CATEGORY
Counselling and SUPPORT on recommended breastfeeding practices in difficult circumstances	Underlying	Synthesized evidence and practice–based studies depending upon the circumstances

NOTES/REMARKS

This sub-action includes counselling and support on recommended breastfeeding practices in the context of low-birth-weight, emergencies, HIV and other circumstances such as Zika or Ebola virus disease (EVD).

Further information about counselling and support on recommended breastfeeding practices provided through health services is presented under the thematic areas on Nutrition Interventions Delivered though Reproductive & Paediatric Health Services and Nutrition-related Disease Prevention & Management.

- WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/.

(ACTION 1 continued ...)

* **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.

(... ACTION 1 continued)

SUB-ACTION 1c Institutionalization of the 10 Steps to Successful Breastfeeding in all facilities that provide maternity services, including via implementation of the Baby-friendly Hospital Initiative (BFHI)	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that every maternity facility practice the 10 Steps to Successful Breastfeeding as described in the guidance document.

This sub-action helps by "ensuring that hospital routines and procedures remain fully supportive of the successful initiation and establishment of breastfeeding" and "expanding the Initiative to include clinics, health centres and paediatric hospitals" (WHO & UNICEF, 2003). This sub-action also encompasses initiatives to make communities baby-friendly.

This sub-action includes support that is provided during emergencies. Additional IYCF support provided through healthcare systems is captured in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

- WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/.

ACTION 2
SUPPORT for appropriate complementary feeding

SUB-ACTION 2a SUPPORT for access to diversified nutrient-dense foods for complementary feeding	CAUSAL LEVEL Immediate/Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

These foods may include fortified complementary foods to meet documented nutrient gaps in children 6-23 months.

For best results, this sub-action should be carried out in conjunction with nutrition education (Lassi et al., 2013; Girard & Olude, 2012).

This sub-action includes support that is provided during emergencies. Further information about support for access to diversified nutrient-dense foods for complementary feeding (and associated evidence) is disaggregated by support type/modality within the thematic area on Social Assistance (see sub-actions 1a, 2a, 3a, 5b and 6b).

WHO recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while continuing to breastfeed until 2 years or beyond.

- Lassi, Z. S., Das, J. K., Zahid, G., Imdad, A. & Bhutta, Z.A. 2013. Impact of education and provision of complementary feeding on growth and morbidity in children less than 2 years of age in developing countries: A systematic review. *BMC Public Health*, volume 13 (Suppl 3): S13.
- Girard, A.W. & Olude, O. 2012. Nutrition education and counseling provided during pregnancy: Effects on maternal, neonatal and child health outcomes. *Paediatric and Perinatal Epidemiology*, Volume 26(s1):191–204.

SUB-ACTION 2b Nutrition education on appropriate complementary feeding	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods, while continuing to breastfeed until 2 years or beyond. This sub-action should therefore include education on food hygiene in the preparation of complementary foods and counselling on other important behaviours (e.g. responsive feeding) for appropriate complementary feeding (see WHO's guiding principles regarding complementary feeding).

- Pan American Health Organization (PAHO)/WHO. 2003. *Guiding principles for complementary feeding of the breastfed child*. Washington, DC. Available at http://www.who.int/nutrition/publications/guiding_principles_compfeeding_breastfed.pdf.
- WHO. 2005. *Guiding principles for feeding non-breastfed children 6-24 months of age*. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/9241593431/en/.

ACTION 3
PROTECTION of recommended IYCF practices

SUB-ACTION 3a	CAUSAL LEVEL	EVIDENCE CATEGORY
Protecting appropriate IYCF through restricting marketing of breast-milk substitutes and complementary foods as well as through maternity protection for working mothers	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

This sub-action includes restricting the marketing of breast milk substitutes in line with the International Code of Marketing of Breast-milk Substitutes and the guidance on ending the inappropriate marketing of complementary food. It also encompasses maternity protection based on the International Labour Organization (ILO) Maternity Protection Convention 183 (2000) and Recommendation 191 (2000).

Such protection entails the implementation of procedures and mechanisms to enforce and monitor compliance with legislation, regulation/standards, protocols and guidelines to protect recommended IYCF practices.

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

SUB-ACTION 1a	CAUSAL LEVEL
Assessments of recommended IYCF practices	Basic

NOTES/REMARKS

This sub-action includes assessment of the following nutrition indicators:

(1) Early initiation of breastfeeding (% children born in last 24 months who were put to breast within 1 hour of birth);
(2) Exclusive breastfeeding of infants 0–5 months (% infants 0–5 months of age who received only breast milk during the previous day);
(3) Continued breastfeeding (either % children 12–15 months of age who received breast milk during the previous day or % children 20–23 months of age who received breast milk during the previous day); and
(4) Minimum adequate diet among children 6–23 months (% of children 6–23 months of age who receive a minimum acceptable diet).

It should also involve efforts to include these nutrition indicators in health management information systems.

SUB-ACTION 1b	CAUSAL LEVEL
HIV testing in pregnant & lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding	Underlying

NOTES/REMARKS

This sub-action may also be implemented through health services for nutrition-related disease prevention and management, and reproductive health.

For more information, refer to the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

SUB-ACTION 1c	CAUSAL LEVEL
Vulnerability assessment and early warning analysis	Basic

SUB-ACTION 1d	CAUSAL LEVEL
Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	Basic

SUB-ACTION 1e	CAUSAL LEVEL
M&E of sub-actions covered by this thematic area	Basic

ACTION 2. Policy coherence

SUB-ACTION 2a	CAUSAL LEVEL
Policy coherence between policies/strategies on maternal/reproductive and neonatal health, agriculture/food, labour, trade, gender, social protection, industry and nutrition	Basic

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

SUB-ACTION 3a	CAUSAL LEVEL
Legislation and regulations on the following to PROTECT optimal IYCF practices: (1) Maternity protection based on International Labour Organization (ILO) Maternity Protection Convention 183 (2000 and Recommendation 191 (2000); (2) Occupational health based on ILO Occupational Safety and Health Convention No.155 (1981); (3) Ending the inappropriate marketing of complementary food; (4) Implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these; and (5) Standards for childcare centres and services	Basic

NOTES/REMARKS

This sub-action includes the formulation, implementation and enforcement of the legislation and regulations. It reflects the content of all three bullet points listed under 'For protection' in the Global Strategy for IYCF. It may also involve legislation and regulations on physical labour (e.g. heavy lifting) and other types of occupational health issues (e.g. exposure to chemical substances such as fertilizer), which may compromise the health or nutrition of pregnant women, their foetuses or their infants.

- WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en.

SUB-ACTION 3b	CAUSAL LEVEL
Strategies to establish or extend maternity protection for mothers (ideally fathers also) who engage in informal labour or atypical forms of dependent work	Basic

ACTION 4. Fiscal policy

SUB-ACTION 4a	CAUSAL LEVEL
Taxes and subsidies to support good nutrition	Basic

NOTES/REMARKS

This sub-action includes subsidization or removal of taxation on products and related inputs (e.g. fortificants, micronutrient pre-mixes and packaging materials for fortified complementary foods) in order to protect, promote and support recommended IYCF practices.

ACTION 5. Planning, budgeting and management

SUB-ACTION 1a	CAUSAL LEVEL
Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, labour, trade, gender, social protection, industry, and nutrition planning and implementation	Basic

NOTES/REMARKS

This sub-action helps to foster coordinated planning and budgeting for nutrition.

ACTION 6. Social norms: Education/sensitization, BCC and social marketing

SUB-ACTION 6a	CAUSAL LEVEL
BCC (media and social marketing) to PROMOTE recommended IYCF practices	Underlying

NOTES/REMARKS

This sub-action entails, "ensuring that all who are responsible for communicating with the general public, including educational and media authorities, provide accurate and complete information about appropriate IYCF practices, taking into account prevailing social, cultural and environmental circumstances" (WHO & UNICEF, 2003).

Maximum impact is achieved when mass communication is combined with community interpersonal communication and community mobilization (Alive and Thrive, 2014).

- WHO & UNICEF. 2003. *Global strategy for infant and young child feeding*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/9241562218/en.
- Alive and Thrive. 2014. *Mass communication: Infant and young child feeding at scale*. Available at http://www.fhi360.org/resource/mass-communication-infant-and-young-child-feeding-scale.

ACTION 7. Infrastructure and technology

SUB-ACTION 7a	CAUSAL LEVEL
Use of time-saving technologies in other nutrition-related actions/programming to help free time that may be dedicated to childcare, particularly where women/mothers are targeted	Underlying/Basic

NOTES/REMARKS

Mobile phone-based or electronic transfers of cash or vouchers instead of food distribution are examples of how time-saving technology can be used to protect recommended IYCF practices.

Nutrition-related aspects of child care include adopting the recommended IYCF practices.

This sub-action involves guidance on how to use these technologies

ACTION 8. Coordination

SUB-ACTION 8a	CAUSAL LEVEL
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding IYCF to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level	Basic

NOTES/REMARKS

This sub-action includes supporting ministries of health, agriculture, labour, gender and social affairs, industry, and others engaged in multi-stakeholder, multi-sectoral nutrition platforms - both at decision-making and technical levels - to ensure policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 9. Other enabling environment actions

SUB-ACTION 9a
SUPPORT for availability of appropriate, diversified, nutrient-dense foods for complementary feeding, preferably locally available

CAUSAL LEVEL
Immediate/
Underlying

NOTES/REMARKS

These foods may include fortified complementary foods to meet documented nutrient gaps in children 6-23 months.

This sub-action concerns the production of complementary foods. Further information is provided in the thematic areas on Crops/ Horticulture, Livestock and Fisheries, and Food Processing, Fortification and Storage.

For best results, this sub-action should be accompanied by nutrition education (Lassi et al. 2013).

Support for this sub-action is provided in the thematic areas within the section on Food, Agriculture and Healthy Diets.

WHO recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while continuing to breastfeed until 2 years or beyond.

- Lassi, Z. S., Das, J. K., Zahid, G., Imdad, A. & Bhutta, Z.A. 2013. Impact of education and provision of complementary feeding on growth and morbidity in children less than 2 years of age in developing countries: A systematic review. *BMC Public Health*, volume 13 (Suppl. 3):13.

SUB-ACTION 9b
Childcare services and support to protect recommended IYCF practices

CAUSAL LEVEL
Immediate/
Underlying

NOTES/REMARKS

For example, food assistance for assets (FFA) activities (see Action 6 in the thematic area on Labour Market Programmes) "need to envisage the support to pregnant and lactating women to minimize workloads by focusing on lighter activities, and on establishing specific support systems such as crèches for small children while women are at work" (WFP, 2016).

- WFP. 2016. *Food assistance for assets (FFA) for zero hunger and resilient livelihoods: A programme guidance manual*. Rome. Available at http://docustore.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp285184.zip.

SUB-ACTION 9c
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

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ACTION 2. Support for appropriate complementary feeding

2a. Support for access to diversified, nutrient-dense foods for complementary feeding

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ACTION 3. PROTECTION of recommended IYCF practices

3a. Protecting appropriate IYCF through restricting marketing of breast-milk substitutes and complementary foods as well as through maternity protection for working mothers

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Enabling Environment

ACTION 1. Assessment and information

1a. Assessments of recommended IYCF practices

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

3a. Legislation and regulations on the following to PROTECT optimal IYCF practices:

(1) Maternity protection based on ILO Maternity Protection Convention 183 (2000) and Recommendation 191 (2000);
(2) Occupational health based on ILO Occupational Safety and Health Convention No.155 (1981);
(3) Ending the inappropriate marketing of complementary food;
(4) Implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these; and
(5) Standards for childcare centres and services

- Abdulwadud, O.A. & Snow, M.E. 2012. Interventions in the workplace to support breastfeeding for women in employment. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006177. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006177.pub3/abstract.
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ACTION 4. Fiscal policy

4a. Taxes and subsidies to support good nutrition

- FAO. 2013. *The state of food and agriculture: Food systems for better nutrition.* Rome. Available at http://www.fao.org/publications/sofa/2013/en/.
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ACTION 6. Social norms: Education/sensitization, BCC and social marketing

6a. BCC (media and social marketing) to PROMOTE recommended IYCF practices

- Bhutta, Z.A., Ahmed, T., Black, R.E., Cousens, S., Dewey, K., Giugliani, E., Haider, B.A., Kirkwood, B., Morris, S.S., Sachdev, P.S. & Shekar, M. for the Maternal and Child Undernutrition Study Group. 2008. Paper 3: What works? Interventions for maternal and child undernutrition and survival. *Lancet,* Volume 371:1-24.
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ACTION 9. Other enabling environment actions

9a. Support for availability of appropriate, diversified, nutrient-dense foods for complementary feeding, preferably locally available

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A., Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
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- WHO. *Appropriate complementary feeding*. eLENA. Available at http://www.who.int/elena/titles/complementary_feeding/en/.

9b. Childcare services and support to protect recommended IYCF practices

- Leroy, J.L., Gadsden, P. & Guijarro, M. 2012. The impact of daycare programmes on child health, nutrition and development in developing countries: A systematic review. *Journal of Development Effectiveness*, Volume 4(3):472-496.
- WFP. 2016. *Food assistance for assets (FFA) for zero hunger and resilient livelihoods: A programme guidance manual*. Rome.

9c. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

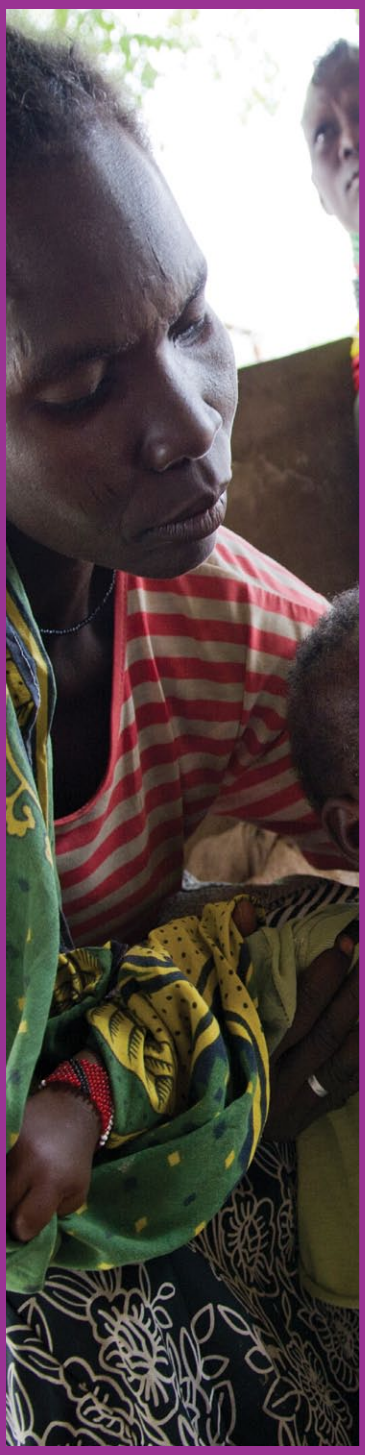
Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

HEALTH



COMPENDIUM OF ACTIONS FOR NUTRITION

Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

> A child weakened by ill-health and disease (e.g. diarrhea) will not absorb sufficient nutrients, however adequate the food provided.
>
> *(Nisbett, Gillespie, Haddad & Harris, 2014)*

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.

HEALTH

INTRODUCTION

The links between health and nutrition are well-established – both in terms of physiological vulnerabilities and the vicious cycle of illness and disease, and malnutrition (see Figure 5). Women and young children are particularly susceptible to undernutrition in view of their physiological and social vulnerabilities. While physiological differences in women may stem from the increased nutritional requirements (e.g. iron) needed to sustain biological processes such as menstruation, pregnancy and lactation, vulnerabilities in young children arise from several other issues. For instance: dietary 'bulk' challenges (the need for nutrient-dense foods[1] and the fact that weaning children can only consume small quantities of food given their small stomach sizes); the rapid growth they undergo in this period; and the still-developing immune system of young children all contribute to vulnerabilities.

The emerging evidence on adolescence includes catch-up linear growth trends.[2] This evidence has elucidated the links between adolescent pregnancies, low-birth-weight (under 2.5 kg) and other poor birth outcomes, stunting among mothers and children, and overweight and obesity. It has also highlighted the links between adolescent anaemia, nutrition during early pregnancy and birth outcomes – underscoring the importance of adopting a lifecycle approach to nutrition.[3,4] Furthermore, social vulnerabilities may adversely affect access to health and sanitation services that are critical for good nutrition.

Health and nutrition are closely interconnected. Individuals afflicted by disease and illness may have heightened nutritional needs to help to fight infection. Poor nutrition, particularly during early childhood (including *in utero*), can impair child growth, impede cognitive and social development, and contribute to child mortality. In fact, there is strong evidence that undernutrition contributes to over 3 million child deaths (among children under 5) each year, or approximately 45 percent of preventable child mortality.[5,6] A study in the 2013 *Lancet* series on maternal and child nutrition indicated that "Severe infectious disease in early childhood – such as measles, diarrhea, pneumonia, meningitis, and malaria – can cause acute wasting and have long-term effects on linear growth".[7] In some cases, there are direct reciprocal relationships between child undernutrition and disease, such as between vitamin A deficiency and measles, whereby one exacerbates the other. Specific micronutrient (vitamin and mineral) deficiencies are also associated with an increased incidence of illnesses and diseases such as diarrhoeal diseases, pneumonia and other acute respiratory infections.[8,9]

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1 Nutrient-dense refers to the amount of nutrients per unit of energy [e.g. mg iron/100 kcal or g protein/100 kcal] (Drewnowski, 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 8: Nutrition and Health in a Developing World. Third edition, edited by De Pee, S., Taren, D. & Bloem, M.W. Humana Press. Totowa.).

2 Prentice, A.M., Ward, K.A., Goldberg, G.R., Jarjou, L.M., Moore, S.E., Fulford, A.J. & Prentice, A. 2013. Critical windows for nutritional interventions against stunting. *American Journal of Clinical Nutrition*. Published ahead of print April 3, 2013 as doi: 10.3945/ajcn.112.052332.

3 United Nations Standing Committee on Nutrition (UNSCN). 2010. 6th *Report on the world nutrition situation: Progress in nutrition*. Geneva.

4 Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R., the Maternal & Child Nutrition Study Group. 2013. Maternal and child nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.

5 *Ibid.*

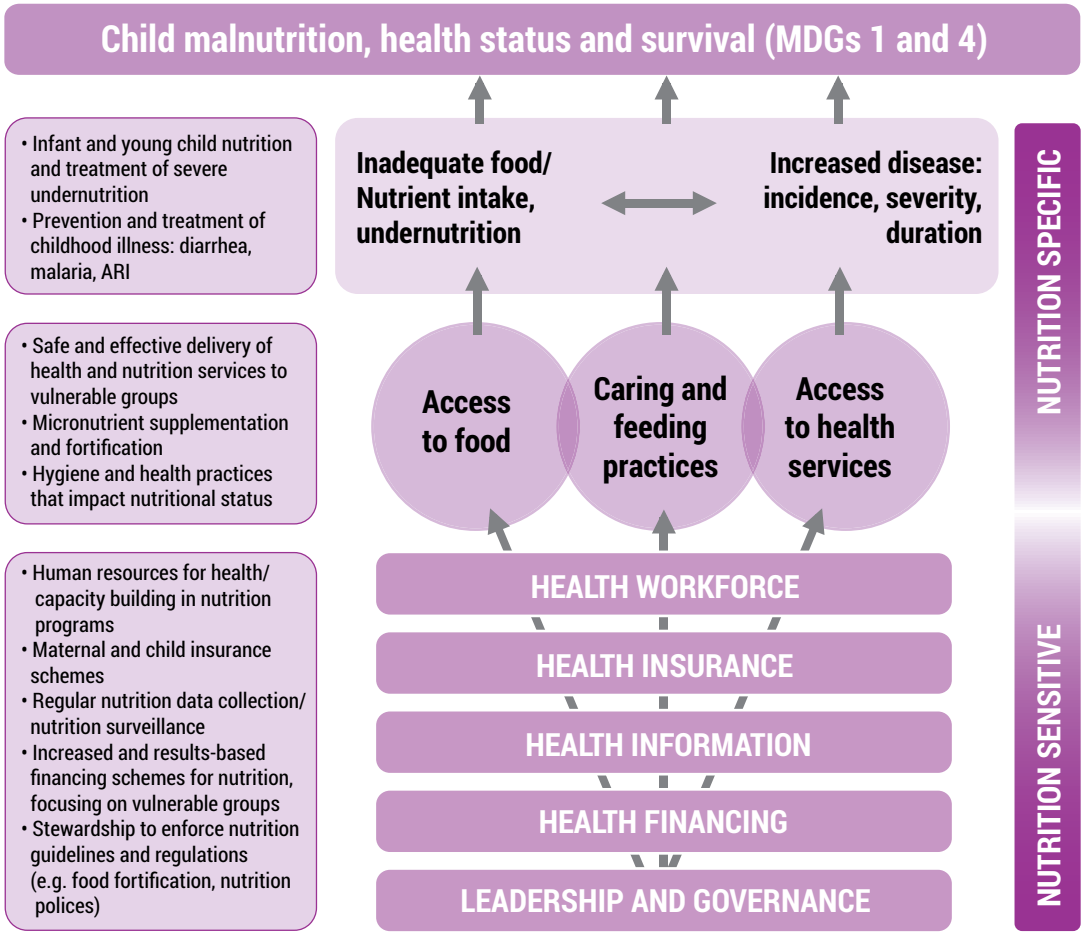
6 Maternal and Child Nutrition Study Group. 2013. Maternal and child nutrition: Building momentum for impact. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60988-5.

7 Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R., the Maternal & Child Nutrition Study Group. 2013. Maternal and child nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.

8 World Health Organization (WHO) & United Nations Children's Fund (UNICEF). 2013. *Ending preventable child deaths from pneumonia and diarrhoea by 2025: The integrated global action plan for pneumonia and diarrhoea* (GAPPD). France.

9 Black, R.E., Allen, L.H., Bhutta, Z.A., Caulfield, L.E., de Onis, M., Ezzati, M., Mathers, C., Rivera, J. for the Maternal and Child Undernutrition Study Group. 2008. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet*, Volume 371:243-260.

FIGURE 5. Causal pathways of health and nutrition[10]



The relationship between nutrition and noncommunicable diseases (NCDs) is well-documented[11] and is becoming increasingly prominent on the international political agenda.[12] There is also a greater understanding of how "undernutrition in early life predisposes to overnutrition and non-communicable disease later in life".[13] A seminal study published in *The Lancet* (2015) identified diet as the top risk factor in the global burden of disease.[14]

Health-based, nutrition-related interventions typically apply a life-cycle approach starting from conception through late adulthood (see Figure 6). These interventions emphasize the critical window of opportunity from conception to a child's second birthday (the first 1,000 days), and use health services such as ante- and post-natal care to provide nutritional support.[15] Empirical evidence demonstrates that women who experience nutritional deficits in the womb

10 Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches.* The World Bank. Washington, D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.

11 WHO. 2015. *Healthy diet fact sheet* No. 394. Geneva. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

12 FAO & WHO. 2014. *Second International Conference on Nutrition Conference outcome document: Framework for action.* Second International Conference on Nutrition, 19-21 November 2014, Rome. Available at http://www.fao.org/about/meetings/icn2/en/.

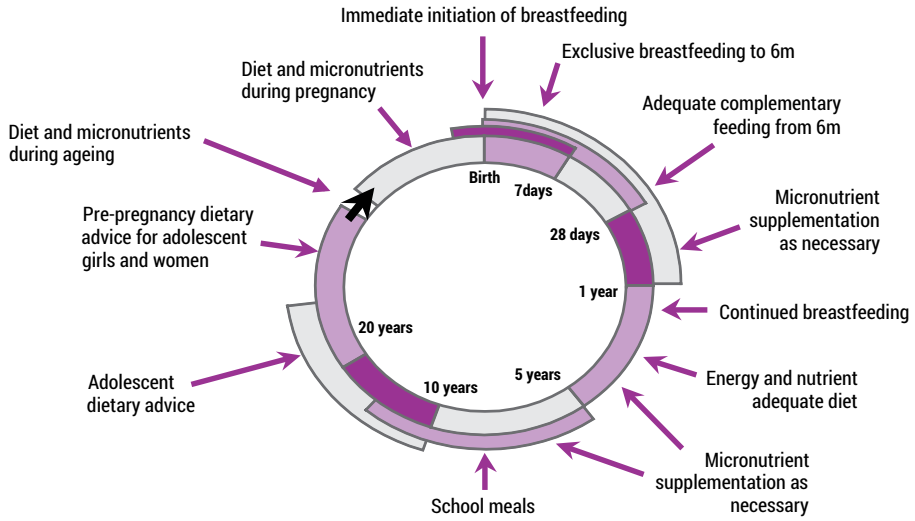
13 De Pee, S. Basel, S. 2013. *The road to good nutrition*. Chapter 13: *The Evolving World of Nutrition*, edited by Eggersdorfer, M., Kraemer, K., Ruel, M., Van Ameringen, M., Biesalski, H.K., Bloem, M., Chen, J., Lateef, A. & Mannar V. Karger A.G., Publishers.

14 Global Burden of Disease (GBD) 2013 Risk Factors Collaborators. 2015. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. *Lancet*, doi: 10.1016/S0140-6736(15)00128-2.

15 Fanzo, J., Curran, S., Remans, R., Mara, V., Sanchez Briseño, J., Cisewski, D., Denning, G. & Fracassi, P. 2014. *Simulating potential of nutrition-sensitive investments*. Center for Globalization and Sustainable Development. New York: The Earth Institute, Columbia University.

or during the first two years of life are likely to become short adults and give birth to low-birth-weight newborns, perpetuating the intergenerational cycle of malnutrition.[16,17,18]

FIGURE 6. Improving nutrition[19] throughout the life cycle[20]



The Health section of the CAN includes five thematic areas: (1) Nutrition Interventions Delivered through Reproductive and Paediatric Health Services; (2) Micronutrient Supplementation;[21,22] (3) Management[23] of Acute Malnutrition; (4) Nutrition-related Disease Prevention and Management; and (5) Water, Sanitation and Hygiene (WASH) for Good Nutrition. Nutrition education, social marketing and behaviour change communication (BCC) activities, and other enabling factors are integrated into these thematic areas.

Actions and sub-actions in these thematic areas should be undertaken in a gender-sensitive manner. Qualifying information, including recommendations and links to related thematic areas in the CAN, is presented in the Notes/Remarks column of the matrices to provide CAN users with contextual information to enrich multi-sectoral nutrition dialogue at the country level.

Regardless of thematic area, it is critical to obtain an accurate depiction of the nutrition situation from the beginning, recognizing that this understanding should inform policy, planning and programming. Nutrition assessment using anthropometric and micronutrient indicators[24,25] among target groups is therefore considered to be a cross-cutting action in all five thematic areas. This will enable the selection of nutrition sub-actions from the Health matrices to be driven by a robust understanding of the nutrition context.

16 The World Bank. 2006. *Repositioning nutrition as central to development: A strategy for large-scale action*. Washington D.C.

17 UNSCN. 2010. 6th *Report on the world nutrition situation: Progress in nutrition*. Geneva.

18 Darnton-Hill, I., Nishida, C. & James, W.P. 2004. A life course approach to diet, nutrition and the prevention of chronic diseases. *Public Health Nutrition*, Volume 7(1A):101–121.

19 Including overnutrition (*Ibid.*)

20 WHO. 2013. *Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en.

21 Including public health prevention programmes using micronutrient supplementation and treatment-related micronutrient supplementation.

22 In addition to the sub-actions listed in this thematic area, several countries carry out vitamin A supplementation in postpartum women in view of the nutritional benefits conferred to infants by improving the vitamin A content of breast milk, as documented in empirical literature (see: de Pee, S. 2012. Benefits of postpartum vitamin A supplementation. *Jornal de Pediatria*, Volume 88(2):99-100). However, vitamin A supplementation is not listed as a discreet sub-action in the CAN in view of the WHO recommendation not to undertake this intervention. WHO's recommendation is based on evidence suggesting that vitamin A supplementation in postpartum women does *not* reduce the risk of illness or death in mothers or their infants. WHO e-Library of Evidence for Nutrition Actions (e-LENA) available at http://www.who.int/elena/titles/vitamina_postpartum/en/ and WHO. 2011. *Guideline: Vitamin A supplementation in postpartum women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/vas_postpartum/en/.

23 This includes both treatment and prevention of acute malnutrition.

24 WHO. *Nutrition Landscape Information System (NLIS)*. Available at http://www.who.int/nutrition/databases/en/.

25 WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Available at http://www.who.int/vmnis/indicators/en/.

MATRIX OF ACTIONS

Nutrition Interventions Delivered through Reproductive and Paediatric Health Services

POSSIBLE INTERVENTION RESPONSES

ACTION 1

Family planning support for optimal birth spacing and to prevent teenage pregnancies as part of reproductive health services

SUB-ACTION 1a Prevention of adolescent pregnancy	CAUSAL LEVEL* Underlying/Basic	EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

During adolescent pregnancy, the nutritional requirements of adolescent girls' growing bodies compete with those of the growing foetus (Gigante et al., 2005). Links have been demonstrated between adolescent pregnancy, an elevated risk of complications and unfavourable birth outcomes, mortality and stunting. This is highly relevant for low and middle-income countries (LMICs) since "adolescent fertility is three times higher in LMICs than in high-income countries" (Black et al., 2013). In addition, "pregnancy in adolescence will slow and stunt a girl's growth" (Black et al., 2013). There is mixed evidence about whether adolescent pregnancy is associated with increased post-pregnancy body-mass index (BMI) among girls who had adolescent pregnancies (Gigante et al., 2005); or weight loss and depletion of fat and lean body mass (Rah et al., 2008).

- Gigante, D.P., Rasmussen, K.M. & Victora, C.G. 2005. Pregnancy increases BMI in adolescents of a population-based birth cohort. *Journal of Nutrition*, Volume 135:74–80.
- Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R. & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.
- Rah, J.H., Christian, P., Shamim, A.A., Arju, U.T., Labrique, A.B. & Rashid, M. 2008. Pregnancy and lactation hinder growth and nutritional status of adolescent girls in rural Bangladesh. *Journal of Nutrition*, Volume 138:1505–1511.

SUB-ACTION 1b Voluntary family planning and reproductive health education and support	CAUSAL LEVEL Underlying/Basic	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action includes the promotion of optimal inter-pregnancy intervals (also known as birth spacing) in view of the demonstrated links between short and long birth intervals, and adverse effects such as maternal anaemia, preterm births and low-birth-weight (Bhutta et al., 2013). This sub-action is particularly important given the links between low-birth-weight and stunting (Black et al., 2013).

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A., Black R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet*. Available at http://download.thelancet.com/pdfs/journals/lancet/PIIS0140673613609964.pdf.
- Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R. & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.

* **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.

ACTION 2

Nutrition interventions through antenatal care, birthing services and postnatal care

SUB-ACTION 2a	CAUSAL LEVEL	EVIDENCE CATEGORY
Maternal, infant, and child nutrition and health counselling	Underlying/ Immediate	Synthesized evidence

NOTES/REMARKS

This sub-action comprises counselling, including on the benefits of breastfeeding and risks of artificial feeding.

Maternal nutrition counselling covers adolescent nutrition in the case of adolescent pregnancies. According to WHO's eLENA, nutrition counselling during pregnancy encompasses: (1) encouraging pregnant women to enhance the quality of their diet by increasing the diversity and amount of foods consumed; (2) promoting adequate weight gain through sufficient and balanced protein and energy intake; and (3) promoting consistent and continued use of micronutrient supplements, food supplements or fortified foods.

WHO recommends that mothers initiate breastfeeding within one hour of birth and that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, WHO recommends that infants receive nutritionally adequate and safe complementary foods while continuing to breastfeed until 2 years or beyond in order to meet their evolving nutritional requirements.

Results from a meta-analysis indicate that interventions providing antenatal and post-natal counselling were more effective than those targeting only one period, whereas interventions targeting fathers yielded mixed results (Rollins et al., 2016).

Infant and young child feeding (IYCF) support provided in special circumstances (e.g. in emergencies, for low-birth-weight and very low-birth-weight [VLBW] infants, and those affected by HIV, Ebola virus disease and Zika), and community-level IYCF support are captured in the thematic area on IYCF.

- Rollins, N.C., Bhandari, N.,Hajeebhoy, N., Horton, S., Lutter, C.K., Martines, J.C., Piwoz, E.G., Richter, L.M. & Victora, C.G. on behalf of The Lancet Breastfeeding Series Group. 2016. Why invest, and what it will take to improve breastfeeding practices? *Lancet*, Volume 387:491-504. Available at http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf.

SUB-ACTION 2b	CAUSAL LEVEL	EVIDENCE CATEGORY
Micronutrient supplementation for pregnant and postpartum women	Immediate	Synthesized evidence

NOTES/REMARKS

More information about micronutrient supplementation and associated evidence, disaggregated by type of micronutrient supplementation, can be found in the thematic area on Micronutrient Supplementation. This sub-action should be carried out in accordance with national policy and guidelines. It is good practice to accompany this sub-action with nutrition education and behaviour change communication on micronutrient supplementation.

SUB-ACTION 2c	CAUSAL LEVEL	EVIDENCE CATEGORY
Long chain polyunsaturated fatty acid supplementation during pregnancy	Immediate	Synthesized evidence

NOTES/REMARKS

Supplementation with n-3 long-chain polyunsaturated fatty acids is associated with a reduced risk of preterm delivery and a modest increase in birth weight.

SUB-ACTION 2d	CAUSAL LEVEL	EVIDENCE CATEGORY
Supplementary feeding (balanced energy and protein) during pregnancy	Immediate	Synthesized evidence

NOTES/REMARKS

Antenatal nutritional advice may be effective in increasing maternal protein intake and reducing the risk of preterm birth.

(ACTION 2 continued ...)

(... ACTION 2 continued)

SUB-ACTION 2e Nutrition-related illness and disease prevention and management among pregnant and postpartum women	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence and primary studies depending upon the type of intervention, target group and circumstances

NOTES/REMARKS

Some aspects of this sub-action are based on synthesized evidence while others have evidence documented in primary studies. Further information about nutrition-related disease prevention and management among pregnant and postpartum women – including evidence categorization – can be found in the thematic area on Nutrition-related Disease Prevention and Management.

SUB-ACTION 2f Optimal time of umbilical cord clamping for the prevention of iron deficiency anaemia among infants	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends delayed umbilical cord clamping (not earlier than one minute after birth) to improve maternal and infant health, and nutrition outcomes. It specifically recommends that the umbilical cord not be clamped earlier than is necessary for applying cord traction to reduce post-partum haemorrhage and speed expulsion of the placenta, which normally takes approximately three minutes (WHO, eLENA).

- WHO. *Optimal timing of cord clamping for the prevention of iron deficiency anaemia in infants*. eLENA. Available at http://www.who.int/elena/titles/full_recommendations/cord_clamping/en/.

SUB-ACTION 2g Support for feeding and care of low-birth-weight and very-low-birth-weight infants	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action includes support on the following aspects of feeding low-birth-weight (LBW) infants in LMICs as per WHO recommendations:

(1) What to feed in terms of choice of milk and supplements;
(2) When and how to initiate feeding;
(3) Optimal duration of exclusive breastfeeding;
(4) How to feed; and
(5) Frequency of feeding and how to increase daily feeding volumes.

WHO recommendations relevant to VLBW infants are also indicated. None of the recommendations on feeding LBW infants refer to sick infants or infants with a birth weight below 1.0 kg. Additional resources on feeding LBW infants are referenced in the CAN bibliography.

SUB-ACTION 2h Kangaroo mother care	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that babies should be placed in skin-to-skin contact with their mothers immediately following birth for at least one hour and mothers should be encouraged to recognize when their babies are ready to breastfeed, offering help if needed. In general, closeness to babies is recommended, such as in the 'rooming-in' aspect of the Ten Steps to Successful Breastfeeding in all facilities that provide maternity services, including via implementation of the Baby-friendly Hospital Initiative (BFHI). Skin-to-skin contact is recommended for all infants, although 'kangaroo care' is particularly helpful for LBW infants (especially when there is limited support).

General breasting support is captured in other sub-actions in this thematic area.

SUB-ACTION 2i Institutionalization of the 10 Steps to Successful Breastfeeding in all facilities that provide maternity services, including via the implementation of the Baby-friendly Hospital Initiative (BFHI)	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

The 10 Steps are identified in the guidance materials below.

- WHO & UNICEF. 2009. *Baby-friendly Hospital Initiative: Revised, updated and expanded for integrated care*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/bfhi_trainingcourse/en/.
- WHO. *Guidance Summary: Implementation of the Baby-friendly Hospital Initiative*. eLENA. http://www.who.int/elena/titles/guidance_summaries/implementation_bfhi/en/.

ACTION 3
Nutrition interventions through primary paediatric health care during early childhood

SUB-ACTION 3a	CAUSAL LEVEL	EVIDENCE CATEGORY
Nutrition-related illness and disease prevention and management during early childhood	Immediate	Synthesized evidence and primary studies depending upon the type of intervention, target group and circumstances

NOTES/REMARKS

This sub-action includes the integrated management of childhood illness (IMCI).

Some aspects of this sub-action are based on synthesized evidence while others have evidence documented in primary studies. For more information, refer to the thematic area on Nutrition-related Disease Prevention and Management, which includes the categorization of evidence.

SUB-ACTION 3b	CAUSAL LEVEL	EVIDENCE CATEGORY
Micronutrient supplementation in children	Underlying/Immediate	Synthesized evidence

NOTES/REMARKS

This sub-action can be classified as having synthesized evidence or evidence documented in primary studies depending upon the specific target group and circumstances. More information about micronutrient supplementation and associated evidence, disaggregated by type of micronutrient supplementation, can be found in the thematic area on Micronutrient Supplementation.

It is also good practice to accompany this sub-action with nutrition education and BCC on micronutrient supplementation.

SUB-ACTION 3c	CAUSAL LEVEL	EVIDENCE CATEGORY
Infant and young child feeding counselling	Underlying/Immediate	Synthesized evidence

NOTES/REMARKS

Counselling includes information on the benefits of breastfeeding and the risks of artificial feeding, and optimal complementary feeding practices.

WHO recommends that mothers initiate breastfeeding within one hour of birth and that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, WHO recommends that infants receive nutritionally adequate and safe complementary foods while continuing to breastfeed until 2 years or beyond to meet their evolving nutritional requirements.

Results from a meta-analysis indicate that interventions providing antenatal and post-natal counselling were more effective than those targeting one period only; interventions targeting fathers yielded mixed results.

IYCF support provided at the community level is captured in the thematic areas on Infant and Young Child Feeding.

SUB-ACTION 3d	CAUSAL LEVEL	EVIDENCE CATEGORY
Vaccinations	Underlying	Synthesized evidence

NOTES/REMARKS

This sub-action includes the measles and rotavirus vaccines.

Individuals suffering from illness may have increased nutritional requirements to fight infection or impaired nutrient absorption. In addition, there is a reciprocal relationship between measles and individuals' vitamin A status. Rotavirus and cholera are associated with about one third of severe diarrhoea cases (Fanzo et al., 2014). Therefore, vaccination against these diseases is particularly relevant for safeguarding nutrient absorption.

- Fanzo, J., Curran, S., Remans, R., Mara, V., Sanchez Briseño, J., Cisewski, D., Denning, G. & Fracassi, P. 2014. *Simulating potential of nutrition-sensitive investments*. Center for Globalization and Sustainable Development. New York. The Earth Institute. Columbia University.

ACTION 4
Nutrition interventions through primary paediatric health care during adolescence

SUB-ACTION 4a Counselling on healthy diets	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

The evidence for this sub-action refers to existing data on nutrition education provided in school settings (see sub-action 1b in the thematic area on Food Consumption Practices for Healthy Diets). Data on this target group in other settings or for other delivery mechanisms are not readily available.

SUB-ACTION 4b Micronutrient supplementation in adolescents	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

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

SUB-ACTION 1a Nutrition assessments as part of reproductive health services, and referral of malnourished pregnant and lactating women to nutrition programmes for the management of acute malnutrition, as appropriate	CAUSAL LEVEL Underlying

NOTES/REMARKS

This sub-action encompasses weight, mid-upper arm circumference (MUAC) in countries where that measurement is undertaken, micronutrient status (e.g. anaemia) among pregnant women and MUAC and micronutrient status among postpartum women. This sub-action includes the adoption of cutoffs for assessing wasting, overweight and obesity based on global standards and the availability of equipment to measure these forms of malnutrition.

For more information on nutrition assessments related to the management of acute malnutrition, refer to the thematic area on the Management of Acute Malnutrition.

SUB-ACTION 1b Growth monitoring and promotion as part of primary paediatric health services for infants and young children	CAUSAL LEVEL Underlying/ Immediate

NOTES/REMARKS

This sub-action includes repeated anthropometric measurement of infants and young children to compare their growth rates against a standard in order to assess growth adequacy and identify growth faltering, with a view to preventing undernutrition. The WHO child growth standards are available at http://www.who.int/childgrowth/en/.

In addition, this sub-action encompasses adopting MUAC and the WHO child growth standards to facilitate the identification of individuals with severe or moderate acute malnutrition. It also includes the adoption of cutoffs for assessing child wasting, stunting, overweight and obesity based on global standards and the availability of equipment to measure these forms of malnutrition. Refer to the thematic area on the Management of Acute Malnutrition for further information on nutrition assessments for acute malnutrition.

SUB-ACTION 1c HIV testing in pregnant and lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding	CAUSAL LEVEL Underlying

NOTES/REMARKS

For more information, refer to the thematic areas on Nutrition-related Disease Prevention and Management, and IYCF.

(Enabling Environment continued ...)

(... Enabling Environment continued)

SUB-ACTION 1d Vulnerability assessment and early warning analysis	**CAUSAL LEVEL** Basic
SUB-ACTION 1e Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic
SUB-ACTION 1f M&E of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic

ACTION 2. Policy coherence

SUB-ACTION 2a Policy coherence between policies/strategies on maternal/reproductive, neonatal, child, and other nutrition-related health, social protection, agriculture/food, trade, labour, nutrition and other relevant cross-cutting issues	**CAUSAL LEVEL** Basic

NOTES/REMARKS

Relevant agriculture and food policies and strategies include fortification policies, while cross-cutting policies and strategies may include those on IYCF and gender. Labour policies are one mechanism for ensuring maternity protection.

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

SUB-ACTION 3a Development of national growth charts	**CAUSAL LEVEL** Underlying/Basic

NOTES/REMARKS

The development of national growth charts should be based on WHO child growth standards.

SUB-ACTION 3b Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions and national measures adopted to give effect to these	**CAUSAL LEVEL** Basic

NOTES/REMARKS

Within the context of reproductive and paediatric health services, this sub-action entails restricting the marketing of breast-milk substitutes within these health services.

SUB-ACTION 3c Legislation and regulation on marketing of food and non-alcoholic beverages and food safety to protect healthy diets	**CAUSAL LEVEL** Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of such legislation and regulations, and it may apply 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 or salt (WHO, 2010).

- WHO. 2010. *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Geneva. Available at http://www.who.int/dietphysicalactivity/publications/recsmarketing/en/.

SUB-ACTION 3d Implementation of maternity protection measures in accordance with ILO Maternity Protection Convention No. 183 (2000) and Recommendation No. 191 (2000)	**CAUSAL LEVEL** Underlying

(Enabling Environment continued ...)

(... Enabling Environment continued)

SUB-ACTION 3e Legislation on minimum age for marriage to prevent child marriage and adolescent pregnancy in an effort to safeguard nutrition among adolescent girls, infants and young children	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes the development, enactment and enforcement of legislation for minimum-age for marriage.

SUB-ACTION 3f Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care, and the prevention and management of nutrition-related illnesses/diseases	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

Further information about nutrition-related health services is provided in the thematic areas on Micronutrient Supplementation and Nutrition-related Disease Prevention and Management. Universal health coverage is also included in the Social Protection section.

SUB-ACTION 3g Legislation on compulsory education for girls and boys	CAUSAL LEVEL Basic

ACTION 4. Fiscal policy

SUB-ACTION 4a Taxes and subsidies to support good nutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action include subsidization or removal of taxation on supplies and equipment for reproductive and paediatric health services.

SUB-ACTION 4b Fiscal policy to support adequate education for girls and boys	CAUSAL LEVEL Basic

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a Capacity development/strengthening to enable nutrition to be reflected in health, education, social protection, agriculture/food, trade, labour and nutrition planning and implementation at the national and decentralized levels	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action helps to foster coordinated planning and budgeting for nutrition in these areas. It involves the following elements to ensure that there is sufficient technical capacity to implement the sub-actions in this thematic area.

(1) Recruitment of nutritionists in government agencies;
(2) Strengthening nutrition curricula in formal education; and
(3) Provision of basic nutrition training for units in charge of planning and implementation.

ACTION 6. Insurance

SUB-ACTION 6a	CAUSAL LEVEL
Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status	Underlying/Basic

NOTES/REMARKS

More information about nutrition-related health services is provided in the thematic areas on Micronutrient Supplementation, and Nutrition-related Disease Prevention and Management.

Some schemes (e.g. health insurance) may be incompatible with a universal healthcare approach, which is increasingly being promoted (see Kutzin, 2013).

Those who are able to contribute can be covered by health insurance while the population that is unable to contribute to health insurance can be subsidized in order to reach universal coverage (International Labour Organization [ILO], 2014).

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/
- ILO. 2014. Colombia: Universalizing health protection. Social protection in action – Building social protection floors, No. 03/2014.

ACTION 7. Social norms: Education/sensitization, behaviour change communication (BCC) and social marketing

SUB-ACTION 7a	CAUSAL LEVEL
Promotion of uptake of reproductive and primary paediatric health services through which nutritional support is provided	Underlying/Basic

SUB-ACTION 7b	CAUSAL LEVEL
Social marketing campaigns about nutrition behaviours related to reproductive and paediatric health services	Underlying/Basic

NOTES/REMARKS

This sub-action covers: family planning and support to help optimize age at first pregnancy, family size and inter-pregnancy intervals; optimal breastfeeding; micronutrient supplementation; and other issues included in this thematic area.

SUB-ACTION 7c	CAUSAL LEVEL
Promotion of increased access to education, particularly for girls, to help prevent adolescent pregnancy	Basic

ACTION 8. Coordination

SUB-ACTION 8a	CAUSAL LEVEL
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding reproductive and paediatric health services to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level	Basic

NOTES/REMARKS

This includes supporting the engagement of ministries of health and other relevant ministries in multi-stakeholder, multi-sectoral nutrition platforms – at both the decision-making and technical levels – to ensure that policies, plans and guidelines are operationalized, and a that there is a coherent, multi-sectoral approach to addressing malnutrition.

ACTION 9. Other enabling environment actions

SUB-ACTION 9a	CAUSAL LEVEL
Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders	Underlying/Basic

Micronutrient Supplementation

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Micronutrient supplementation schemes in women of reproductive age

SUB-ACTION 1a Intermittent iron and folic acid supplementation in non-pregnant women and adolescent girls	CAUSAL LEVEL* Underlying/Immediate	EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

In populations in which the prevalence of anaemia among non-pregnant women of reproductive age is 20 percent or higher, WHO recommends intermittent iron and folic acid supplementation as a public-health intervention to improve menstruating women's haemoglobin concentrations and iron status, and reduce the risk of anaemia.

In malaria-endemic areas, WHO recommends the provision of iron and folic acid supplements in conjunction with adequate measures to prevent, diagnose and treat malaria, including during pregnancy.

SUB-ACTION 1b Daily iron and folic acid supplementation in non-pregnant women and adolescent girls	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

In populations in which the prevalence of anaemia among non-pregnant women of reproductive age is 40 percent or higher, WHO recommends daily iron and folic acid supplementation as a public-health intervention to improve menstruating women's haemoglobin concentrations and iron status and to reduce the risk of anaemia.

In malaria-endemic areas, WHO recommends the provision of iron and folic acid supplements in conjunction with measures to prevent, diagnose and treat malaria, including during pregnancy.

SUB-ACTION 1c Folic acid supplementation in women who are trying to conceive (periconceptional folic acid supplementation)	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that all women take a folic acid supplement from the moment they begin trying to conceive until 12 weeks of gestation. Furthermore, women who have had a foetus diagnosed as affected by a neural tube defect or have given birth to a baby with a neural tube defect should: (1) receive information on the risk of recurrence; (2) be advised on the protective effects of periconceptional folic acid supplementation; (3) be offered high-dose supplementation; and (4) be advised to increase their food intake of folate.

* **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.

ACTION 2

Micronutrient supplementation schemes in pregnant women

SUB-ACTION 2a Daily iron and folic acid supplementation during pregnancy	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Daily oral iron and folic acid supplementation is recommended by WHO as part of antenatal care to reduce the risk of low-birth-weight, maternal anaemia and iron deficiency.

In malaria-endemic areas, WHO recommends the provision of iron and folic acid supplements in conjunction with measures to prevent, diagnose and treat malaria, including during pregnancy.

SUB-ACTION 2b Intermittent iron and folic acid supplementation in non-anaemic pregnant women	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

In populations where the prevalence of anaemia among pregnant women is lower than 20 percent, WHO recommends intermittent use of iron and folic acid supplements by non-anaemic pregnant women as an option to prevent anaemia and improve gestational outcomes.

In malaria-endemic areas, WHO recommends the provision of iron and folic acid supplements in conjunction with measures to prevent, diagnose and treat malaria, including during pregnancy.

SUB-ACTION 2c Vitamin A supplementation in pregnant women	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Vitamin A supplementation during pregnancy as part of routine antenatal care is not recommended for the prevention of maternal and infant morbidity. In settings where there is a severe public health problem related to vitamin A deficiency (prevalence of night blindness is 5 percent or higher in pregnant women or in children 24–59 months), WHO recommends vitamin A supplementation during pregnancy (irrespective of HIV status) to prevent night blindness.

SUB-ACTION 2d Calcium supplementation in pregnant women	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

In populations where calcium intake is low, calcium supplementation as part of antenatal care (including for pregnant women with active Tuberculosis [TB]) is recommended by WHO to prevent pre-eclampsia in pregnant women – particularly among those at high risk of developing hypertension.

SUB-ACTION 2e Iodine supplementation in pregnant women	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO and UNICEF recommend iodine supplementation for pregnant women in countries where less than 20 percent of households have access to iodized salt until the salt iodization programme is scaled up. According to WHO, countries with household access to iodized salt between 20 and 90 percent should make efforts to accelerate salt iodization or assess the feasibility of increasing iodine intake through supplements or iodine-fortified foods for the most susceptible groups.

SUB-ACTION 2f Multiple micronutrient supplements in pregnant women	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

The most current evidence shows that giving multiple micronutrient supplements to pregnant women may reduce the risk of low-birth-weight and small size for gestational age compared with iron and folic acid supplementation alone. A WHO guideline with recommendations related to this sub-action is forthcoming.

SUB-ACTION 2g Zinc supplementation in pregnant women	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Current evidence suggests that this sub-action may help to reduce preterm births in low-income settings, but does not prevent other sub-optimal pregnancy outcomes such as low-birth-weight or pre-eclampsia.

ACTION 3
Micronutrient supplementation schemes in lactating women

SUB-ACTION 3a Daily iron and folic acid supplementation in postpartum women	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends iron and folic acid supplementation for women for at least three months after delivery.

In malaria-endemic areas, WHO recommends the provision of iron and folic acid supplements in conjunction with measures to prevent, diagnose and treat malaria, including during pregnancy.

SUB-ACTION 3b Iodine supplementation in lactating women	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO and UNICEF recommend iodine supplementation for pregnant and lactating women in countries where less than 20 percent of households have access to iodized salt until the salt iodization programme is scaled up. According to WHO, countries with a household access to iodized salt between 20 and 90 percent should make efforts to accelerate salt iodization or assess the feasibility of increasing iodine intake through supplements or iodine-fortified foods for the most susceptible groups.

ACTION 4
Micronutrient supplementation schemes in infants and children

SUB-ACTION 4a Neonatal vitamin K supplementation	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence
SUB-ACTION 4b Daily iron supplementation for infants and children	**CAUSAL LEVEL** Underlying/Immediate	**EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

To prevent iron deficiency and anaemia, WHO recommends daily iron supplementation as a public-health intervention for infants and young children 6 months to 12 years in settings where the prevalence of anaemia is 40 percent or higher in this age group.

SUB-ACTION 4c Intermittent iron supplementation for infants and children	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

In settings where the prevalence of anaemia in preschool (24–59 months) or school-age (5–12 years) children is 20 percent or higher, WHO recommends the intermittent use of iron supplements as a public-health intervention to improve iron status and reduce the risk of anaemia among children. In areas with a high prevalence of malaria, iron supplements should be provided in conjunction with measures to prevent, diagnose and treat malaria.

SUB-ACTION 4d Vitamin A supplementation in children 6–59 months old	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

In settings where vitamin A deficiency is a public health problem (prevalence of night blindness is 1 percent or higher in children 24–59 months or serum retinol 0.70 µmol/l or lower is 20 percent or higher in infants and children 6–59 months), WHO recommends high-dose vitamin A supplementation in infants and children 6–59 months, including in populations where infants and children may be infected with HIV.

In several countries, vitamin A supplementation is also provided to postpartum women in line with their national policies, although 2011 WHO guidelines do not recommend this intervention for the prevention of maternal and infant morbidity and mortality. As described in WHO eLENA: "in settings where vitamin A deficiency and/or undernutrition is common, mothers may produce breast milk with inadequate concentrations of vitamin A. Vitamin A supplementation in postpartum women might be expected to improve maternal vitamin A status, thereby increasing the vitamin A content of breast milk and improving the health of mother and infant. Current evidence suggests however, that vitamin A supplementation in postpartum women does not reduce the risk of illness or death in mothers or their infants. Postpartum women should be encouraged to receive adequate nutrition, which is best achieved through consumption of a balanced healthy diet."

- WHO. 2011. *Guideline: Vitamin A supplementation in postpartum women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/vas_postpartum/en/.
- WHO. *Vitamin A supplementation in postpartum women*. eLENA. Available at http://www.who.int/elena/titles/vitamina_postpartum/en/.

(ACTION 4 continued ...)

(... ACTION 4 continued)

SUB-ACTION 4e Multiple micronutrient powders for children 6–23 months old	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

'Point-of-use fortification' and 'home fortification' are other terms used to refer to the use of multiple micronutrient powders.

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

Further information about this sub-action is provided in the thematic area on Food Processing, Fortification and Storage.

SUB-ACTION 4f Iodine supplementation in children 6–23 months old	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that children 6–23 months receive iodine supplements in settings where household access to iodized salt is less than 20 percent.

SUB-ACTION 4g Zinc supplementation in children 6–59 months old	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action should be taken to support linear growth.

ACTION 5
Micronutrient supplementation in other circumstances

SUB-ACTION 5a Oral rehydration treatment with zinc in children under five years old	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that mothers, other caregivers and health workers provide children experiencing diarrhoea with daily zinc supplementation for 10–14 days.

SUB-ACTION 5b Vitamin A supplementation to children with measles	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Individuals suffering from illness may have increased nutritional requirements to fight infection or impaired nutrient absorption. In addition, there is a reciprocal relationship between measles and vitamin A status. Severe vitamin A deficiency (VAD) among children under 5 can compromise their immunity and increase their risk of morbidity and mortality from measles, among other factors (WHO, 2013).

WHO recommends that all children with measles receive vitamin A supplementation in all countries. The dosage should be increased where measles case fatality is likely to be more than 1 percent, the prevalence of vitamin A deficiency among children under 5 is high or children present clinical signs of Vitamin A deficiency according to the prevailing international guidelines (WHO, 2013).

- WHO. 2013. *Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en.

(ACTION 5 continued ...)

(... ACTION 5 continued)

SUB-ACTION 5c Micronutrient supplementation in very low-birth-weight infants	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Very low-birth-weight (VLBW) refers to infants that weigh less than 1.5 kg.

This sub-action is part of a broader package of care and feeding support for VLBW infants, which is included in the thematic area on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services.

WHO recommends that VLBW infants:

(1) Who are fed their mothers' own milk or donor human milk should be given daily iron supplementation from 2 weeks until 6 months;
(2) Should be given daily vitamin D supplements until 6 months of age; and
(2) Who are fed their mothers' own milk or donor human milk should be given daily calcium and phosphorus supplementation during the first months of life.

SUB-ACTION 5d Vitamin E supplementation in preterm infants	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action is undertaken within the context of the care provided to preterm infants through birthing services.

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

SUB-ACTION 1a Assessment of micronutrient status	CAUSAL LEVEL Underlying

NOTES/REMARKS

This sub-action includes the adoption of cutoffs for micronutrient deficiencies based on global standards and the availability of equipment to measure them (WHO Vitamin and Mineral Nutrition Information System [VMNIS] indicators).

- WHO. *VMNIS*. Available at http://www.who.int/vmnis/indicators/en/.

SUB-ACTION 1b Vulnerability assessment and early warning analysis	CAUSAL LEVEL Basic
SUB-ACTION 1c Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	CAUSAL LEVEL Basic
SUB-ACTION 1d M&E of sub-actions covered by this thematic area	CAUSAL LEVEL Basic

ACTION 2. Policy coherence

SUB-ACTION 2a Policy coherence between policies/strategies on maternal/reproductive health, neonatal health, child survival and health, and adolescent health, food and agriculture (e.g. fortification) and nutrition	CAUSAL LEVEL Basic

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

SUB-ACTION 3a Legislation and standards/regulation on micronutrient supplementation and recommended doses to ensure safety for human intake	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of legislation or regulations on micronutrient supplementation.

SUB-ACTION 3b Protocols for the prevention and treatment of micronutrient deficiencies	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of these protocols, based on WHO guidance.

SUB-ACTION 3c Support for the registration of and other nutrition governance measures for introducing new micronutrient supplementation products, as appropriate	CAUSAL LEVEL Basic
SUB-ACTION 3d Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

Further information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediacric Health Services and Nutrition-related Disease Prevention and Management. In addition, universal health coverage is included in the Social Protection section.

ACTION 4. Fiscal policy

SUB-ACTION 4a Taxes and subsidies to support good nutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes subsidization or removal of taxation on supplies and equipment for micronutrient supplementation.

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, and nutrition planning and implementation	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action fosters coordinated planning and budgeting for nutrition in these areas.

ACTION 6. Insurance

SUB-ACTION 6a
Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status

CAUSAL LEVEL
Underlying/Basic

NOTES/REMARKS

More information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

Some schemes (e.g. health insurance) may be incompatible with a universal healthcare approach, which is increasingly being promoted (Kutzin, 2013). However, those who are able to contribute can be covered by health insurance schemes while the population that is unable to contribute to health insurance can be subsidized to reach universal coverage (ILO, 2014).

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization,* Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/.
- ILO. 2014. Colombia: Universalizing health protection. Social protection in action – Building social protection floors, No. 03/2014.

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

SUB-ACTION 7a
Nutrition education and BCC on micronutrient supplementation

CAUSAL LEVEL
Underlying

NOTES/REMARKS

Food-based approaches may be considered when designing and implementing this sub-action.

Further information about food-based approaches is provided in the Food, Agriculture and Healthy Diets section.

ACTION 8. Coordination

SUB-ACTION 8a
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Micronutrient Supplementation 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 supporting the engagement of ministries of health, agriculture, social affairs, education and other ministries in multi-stakeholder, multi-sectoral nutrition platforms – at both the decision-making and technical levels – to ensure that policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 9. Other enabling environment actions

SUB-ACTION 9a
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

Management of Acute Malnutrition

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Management of severe acute malnutrition (SAM)

SUB-ACTION 1a Outpatient management of SAM	CAUSAL LEVEL* Underlying	EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

WHO recommends that children 6–59 months with SAM and who have an appetite and are clinically well and alert should be treated as outpatients. These children should be given a course of oral antibiotics (e.g. amoxicillin) as part of this sub-action.

WHO also recommends that children who present with either acute or persistent diarrhoea be given ready-to-use therapeutic foods (RUTFs) in the same way as children without diarrhoea, whether they are being managed as inpatients or outpatients. Because RUTFs do not contain water, children should also be offered safe drinking water to drink at will. Breastfeeding should be continued on demand.

Finally, WHO recommends that children 6–59 months with SAM who are admitted to inpatient care for SAM management be transferred to outpatient care when their medical complications – including oedema – are resolved and when they have a good appetite and are clinically well and alert.

SUB-ACTION 1b Inpatient management of SAM	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that infants under 6 months with SAM and who have any complicating factors defined by WHO be admitted for inpatient care. In addition, WHO recommends that infants under 6 months with SAM should receive the same general medical care as infants 6 months or older with SAM. Feeding approaches for infants under 6 months with SAM should prioritize establishing – or re-establishing – exclusive breastfeeding by the mother or other caregiver.

WHO furthermore recommends that children 6–59 months who have medical complications, severe oedema (even if they have no medical complications and have an appetite), poor appetite or one or more IMCI danger signs should be treated as inpatients.

The treatment or prevention of hypoglycaemia and hypothermia should be included in initial treatment provided to severely malnourished children when they are first admitted to inpatient care for SAM according to WHO recommendations. In addition, WHO recommends that all malnourished children with hypothermia should be treated for hypoglycaemia and all malnourished children with suspected hypoglycaemia should also be treated with broad-spectrum antimicrobials for serious systemic infection.

WHO recommendations also indicate that children under 5 with SAM who present with dehydration but who are not shocked should be rehydrated slowly – either orally or by nasogastric tube. Conversely, children under 5 with SAM and signs of shock or severe dehydration, and who cannot be rehydrated orally or by nasogastric tube, should be treated with intravenous fluids.

WHO recommends that all severely malnourished children receive adequate vitamins and minerals. Commercially available therapeutic milks, RUTFs and rehydration solutions for malnourished children contain a mix of micronutrients for this reason. Ready-made micronutrient mixes can also be used in the preparation of local therapeutic foods and rehydration solutions.

According to WHO recommendations, children who present with either acute or persistent diarrhoea can be given RUTFs in the same way as children without diarrhoea, whether they are being managed as inpatients or outpatients. Because RUTFs do not contain water, children should also be offered safe drinking water to drink at will. Breastfeeding should be continued on demand.

Once children are stabilized, have an appetite and oedema is reduced, transition feeding should be undertaken for children 6–59 months receiving inpatient treatment for SAM as they move into the rehabilitation phase, according to WHO.

* **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.

ACTION 2
Management of moderate acute malnutrition (MAM)

SUB-ACTION 2a Targeted supplementary feeding to treat MAM	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that children 6–59 months with MAM consume nutrient-dense foods to meet their extra needs for weight and height gain, and functional recovery (WHO, 2012).

- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

SUB-ACTION 2b Blanket supplementary feeding	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action targets nutritionally vulnerable population sub-groups (e.g. pregnant and lactating women, children 6–23 months and children 6–59 months), in special circumstances, which are typically linked to an external shock (e.g. natural disasters, spikes in food prices) or food scarcity during the lean season. It is time bound – lasting three to six months – and aims to prevent an increased incidence of MAM among target groups. The sub-action thereby reduces the likelihood of an increased caseload for targeted supplementary feeding.

SUB-ACTION 2c Enhanced nutrition counselling	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

"Management of moderate acute malnutrition in children 6–59 months of age should include essential nutrition actions such as breastfeeding promotion and support, education and nutrition counselling for families, and other activities that identify and prevent the underlying causes of malnutrition, including nutrition insecurity" (WHO, 2012).

Counselling encompasses guidance on the dietary management of MAM, promoting "the optimal use of locally available nutrient-dense foods to improve the nutritional status of children and prevent them from becoming severely acutely malnourished or failing to thrive" in normal circumstances (WHO, 2012). It also involves providing information about how animal-source foods are more likely than plant-source foods to provide the nutrients required for recovering children (since anti-nutrients such as phytates and tannins found in plant-source foods impede the absorption of some micronutrients). In addition, counselling includes explaining food processing techniques for plant-source foods (e.g. fermentation, germination, malting and soaking), which can minimize these anti-nutrients (WHO, 2012).

- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

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

SUB-ACTION 1a Adoption of mid-upper arm circumference (MUAC) and WHO child growth standards to facilitate the identification of individuals with severe or moderate acute malnutrition	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

See notes provided for sub-action 1b immediately below.

SUB-ACTION 1b Identification of SAM in children under 5	CAUSAL LEVEL Underlying

NOTES/REMARKS

WHO recommends infants 0–5 months be identified as having SAM if their weight-for-length is less than –3 Z-scores of the WHO Child Growth Standards median or if bilateral pitting oedema is observed.

WHO recommends that children 6–59 months with MUAC of less than 115 mm, weight-for-height/length of less than –3 Z-scores of the WHO Child Growth Standards median or bilateral pitting oedema should be referred to a SAM treatment centre for a full assessment. Furthermore, it advises that assessment of this age cohort should be conducted by trained community health workers and community members within communities, and by healthcare workers in primary health-care facilities and hospitals. In both settings, infants and children should be examined for bilateral pitting oedema.

Children 6–59 months with a weight-for-height between –3 and –2 Z-scores of the WHO Child Growth Standards median but without oedema should be identified as having MAM and referred to appropriate nutrition support programmes for MAM. In addition, CMAM guidance uses MUAC also for identifying children with MAM.

SUB-ACTION 1c Vulnerability assessment and early warning analysis	CAUSAL LEVEL Basic
SUB-ACTION 1d Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	CAUSAL LEVEL Basic
SUB-ACTION 1e M&E of sub-actions covered by this thematic area	CAUSAL LEVEL Basic

ACTION 2. Policy coherence

SUB-ACTION 2a The production, import and use of specially formulated foods for the management of acute malnutrition are integrated into the national policies/strategies for nutrition, agriculture/food, trade and industry, social protection and any cross-cutting IYCF policies to increase policy coherence	CAUSAL LEVEL Basic

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

SUB-ACTION 3a Development and implementation of national protocol(s) for managing acute malnutrition based on WHO standards and guidelines	CAUSAL LEVEL Underlying/Basic

ACTION 4. Fiscal policy

SUB-ACTION 4a Taxes and subsidies to support good nutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes the subsidization of or removal of taxation on supplies (especially formulated foods such as RUTFs and ready-to-use supplementary foods) and related inputs (e.g. fortificants/micronutrient premixes and packaging materials) for the management of acute malnutrition.

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a Capacity development/strengthening to enable nutrition to be reflected in health, trade, agriculture/food, industry, social protection, and nutrition planning and implementation	CAUSAL LEVEL Basic

NOTES/REMARKS

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 (related to the management of acute malnutrition) to be raised in international and national trade fora	CAUSAL LEVEL Underlying/Basic

ACTION 7. Infrastructure and technology

SUB-ACTION 7a Food technology support for local production of specially formulated foods for the management of acute malnutrition in accordance with prevailing international standards, developed by WHO, on local manufacturing of ready-to-use foods so as to help ensure the availability of these foods	CAUSAL LEVEL Underlying/Basic

ACTION 8. Coordination

SUB-ACTION 8a Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding the Management of Acute Malnutrition 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 supporting the engagement of ministries of health, agriculture, industry and other ministries in multi-stakeholder, multi-sectoral nutrition platforms – at both the decision-making and technical levels – to ensure that policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 9. Other enabling environment actions

SUB-ACTION 9a Availability of credit/microcredit and microfinance to farmers, agribusiness and food processers, targeting both men and women, to increase the availability of specially formulated foods used to manage acute malnutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

Credit, micro-credit and microfinance can help: (1) farmers to acquire equipment and storage technologies for inputs to be used in the production of specially formulated foods (including ready-to-use foods) for managing acute malnutrition; and (2) agribusinesses and food processers to acquire food processing technologies and equipment, and ingredients for those foods.

SUB-ACTION 9b Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders	CAUSAL LEVEL Underling/Basic

Nutrition-related Disease Prevention and Management

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Anti-anaemia actions

SUB-ACTION 1a Iron supplementation	CAUSAL LEVEL* Underlying	EVIDENCE CATEGORY** Synthesized evidence

NOTES/REMARKS

"The most common cause of anaemia worldwide is iron deficiency, resulting from prolonged negative iron balance, caused by inadequate dietary iron intake or absorption, increased needs for iron during pregnancy or growth periods, and increased iron loss as a result of menstruation and helminth (intestinal worms) infestation. An estimated 50 percent of anaemia in women worldwide is due to iron deficiency" (WHO, 2014).

Refer to the thematic area on Micronutrient Supplementation for further information about iron supplementation, including evidence categorization, disaggregated by target group, and contextual factors.

- WHO. 2014. *Global nutrition targets 2025: Anaemia policy brief*. Geneva. Available at http://www.who.int/nutrition/publications/globaltargets2025_policybrief_anaemia/en/.

SUB-ACTION 1b Deworming to combat the health and nutritional impact of intestinal parasitic infections	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

"Soil-transmitted helminth infections can affect nutritional status by causing malabsorption of nutrients, loss of appetite and increased blood loss. Heavy infections with whipworm and roundworm can impair growth (O'Lorcain & Holland, 2000). Hookworm infections are a major cause of anaemia in pregnant women and children. As many as one third of pregnant women in Africa are at risk of hookworm-related anaemia (Brooker, Hotez & Bundy, 2008), which in turn increases the risk of preterm delivery and low birth weight babies and, eventually, child undernutrition (Black et al., 2013)." (WHO, 2015).

Updated WHO guidance on deworming is being developed. Nevertheless, WHO recommends periodic treatment with anthelminthic (deworming) medicines for all at-risk people without previous diagnosis (including preschool-aged children, school-aged children, women of childbearing age, pregnant women in the second and third trimesters, and breastfeeding women) living in endemic areas. According to WHO, treatment should be given once per year when the prevalence of soil-transmitted helminth infections in the community is above 20 percent, and twice a year when the prevalence in the community is above 50 percent.

Education on health and hygiene reduces transmission and reinfection by encouraging healthy behaviours, which in turn safeguard nutrient absorption.

The provision of adequate sanitation is also important, but it is not always possible in resource-constrained settings (see the thematic area on Water, Sanitation and Hygiene for Good Nutrition).

- WHO. 2014. *Global nutrition targets 2025: Anaemia policy brief*. Geneva. Available at http://www.who.int/nutrition/publications/globaltargets2025_policybrief_anaemia/en/.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and the United States Agency for International Development (USAID). Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

(ACTION 1 continued ...)

* **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.

(... ACTION 1 continued)

SUB-ACTION 1c Intermittent preventive treatment of malaria for pregnant women	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

The links between undernutrition and malaria are complex and debated. Some empirical evidence suggests a synergistic relationship between malnutrition and malaria morbidity and mortality, while other studies indicate that undernutrition may be protective against malaria, or that there is no association (Alexandre et al., 2015; Deribew et al., 2010; Shikur et al., 2016).

- Alexandre, M.A.A., Gomes Benzecry, S., Machado Siqueira, A., Vitor-Silva, S., Cardoso Melo, G., Monteiro, W.M., Leite, H.P., Guimarães Lacerda , M.V. & Costa Alecrim, M.D.G. 2015. The association between nutritional status and malaria in children from a rural community in the Amazonian region: A longitudinal study. *PLOS Neglected Tropical Disease*, Volume 9(4):e0003743. Available at http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0003743#abstract0.
- Deribew, A., Alemseged, F., Tessema, F., Sena, L., Birhanu, Z., Zeynudin, A., Sudhakar, M., Abdo, N., Deribe, K. & Biadgilign, S. 2010. Malaria and Under-Nutrition: A Community Based Study Among Under-Five Children at Risk of Malaria, South-West Ethiopia. *PLOS ONE*, Volume 5(5):e10775. Available at http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0010775.PDF.
- Shikur, B., Deressa, W. & Lindtjørn, B. 2016. Association between malaria and malnutrition among children aged under-five years in Adami Tulu District, south-central Ethiopia: A case–control study. *BMC Public Health*, Volume 16:174. Available at http://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-2838-y.

SUB-ACTION 1d Distribution of insecticide-treated bednets for malaria control	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that all infants at their first immunization and all pregnant women as early as possible in pregnancy should receive one long-lasting insecticide-treated net in areas with intense malaria transmission (stable malaria).

Bednet distribution should be accompanied with guidance on the proper use and management of insecticide-treated nets.

ACTION 2
Diarrhoea management for improved nutrition

SUB-ACTION 2a Zinc supplementation in the management of diarrhoea	CAUSAL LEVEL Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

According to WHO (2015) "Diarrhoea and undernutrition form part of a vicious cycle. Diarrhoea can impair nutritional status through loss of appetite, malabsorption of nutrients and increased metabolism (Caulfield et al., 2004; Petri et al., 2008; Dewey & Mayers, 2011). Frequent episodes of diarrhoea in the first 2 years of life increase the risk of stunting and can impair cognitive development (Grantham-McGregor et al., 2007; Victora et al., 2008)" (WHO, 2015). Diarrhoea has consistently been shown to be the most important infectious disease determinant of stunting (Black et al., 2013). Furthermore, "undernourished children have weakened immune systems, which make them more susceptible to enteric infections and lead to more severe and prolonged episodes of diarrhoea (Caulfield et al., 2004)" (WHO. 2015). Other empirical evidence indicates that diarrhoea can lead to wasting (Black et al., 2013).

WHO recommends that mothers, other caregivers and health workers provide children with zinc supplements for 10–14 days.

- Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R., Uauy, R. & the Maternal and Child Nutrition Study Group. 2013. Maternal and child nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. Available at http://dx.doi.org/10.1016/S0140-6736(13)60937-X.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

SUB-ACTION 2b Water, sanitation and hygiene interventions to prevent diarrhoea	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Refer to the thematic area on Water, Sanitation, and Hygiene for Good Nutrition. WHO guidance on drinking-water quality can be found in the WHO (2011) Guidelines for drinking-water quality.

- WHO. 2011. *Guidelines for drinking-water qualit.*, Fourth edition. Geneva. Available at http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/.

ACTION 3

Nutritional care and support in HIV prevention and management

SUB-ACTION 3a	CAUSAL LEVEL	EVIDENCE CATEGORY
Infant feeding counselling and support to HIV-positive mothers for improving HIV-free survival	Underlying	Synthesized evidence

NOTES/REMARKS

WHO recommends that mothers known to be infected with HIV be provided with life-long antiretroviral therapy or antiretroviral prophylaxis (for infants) interventions to reduce HIV transmission through breastfeeding. National or sub-national health authorities should decide whether health services will counsel HIV-infected mothers to breastfeed and take anti-retrovirals or to avoid breastfeeding.

In settings where national health authorities recommend breastfeeding for HIV-infected mothers, those known to be HIV-infected (and whose infants are not infected or have unknown HIV status) should exclusively breastfeed their infants for the first six months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first twelve months. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breastmilk can be provided.

SUB-ACTION 3b	CAUSAL LEVEL	EVIDENCE CATEGORY
Supplementation (macronutrient for PLWHIV/AIDS and micronutrient supplementation in HIV-infected women during pregnancy)	Underlying	Synthesized evidence

NOTES/REMARKS

People living with HIV/AIDS (PLWHIV/AIDS) have increased nutrient needs (WHO, 2003; WHO & FAO, 2002). "Weight loss and undernutrition are common in people living with HIV/AIDS and are likely to accelerate disease progression, increase morbidity and reduce survival" (WHO, eLENA).

- WHO. 2003. *Nutrient requirements for people living with HIV/AIDS: Report of a technical consultation*. 13-15 May 2003, Geneva.
- WHO. *Macronutrient supplementation in people living with HIV/AIDS*. eLENA. Available at http://www.who.int/elena/titles/macronutrient_supplementation_HIV/en/.
- WHO & FAO. 2002. *Living well with HIV/AIDS: A manual on nutritional care and support for people living with HIV/AIDS*. Rome. Available at http://www.who.int/nutrition/publications/hivaids/Y416800/en/.

SUB-ACTION 3c	CAUSAL LEVEL	EVIDENCE CATEGORY
Nutrition counselling for adolescents and adults living with HIV/AIDS	Underlying	Synthesized evidence

ACTION 4

Nutritional care and support for tuberculosis (TB) patients

SUB-ACTION 4a	CAUSAL LEVEL	EVIDENCE CATEGORY
Nutrition counselling for people with TB	Underlying	Synthesized evidence

NOTES/REMARKS

"TB makes undernutrition worse and undernutrition weakens immunity, thereby increasing the likelihood that latent TB will develop into active disease. Most individuals with active TB are in a catabolic state, experience weight loss and some show signs of vitamin and mineral deficiencies at diagnosis" (WHO, 2013). Furthermore, active TB is likely to increase energy requirements (WHO, 2013).

WHO recommends that all individuals with active TB should receive a nutritional assessment, and counselling appropriate to their nutritional status.

SUB-ACTION 4b	CAUSAL LEVEL	EVIDENCE CATEGORY
Micronutrient supplementation in individuals with active TB	Underlying	Synthesized evidence

NOTES/REMARKS

WHO recommends that a daily multiple micronutrient supplement (at 1× recommended nutrient intake) be provided in situations when fortified or supplementary foods should have been provided for the management of moderate undernutrition but are unavailable (WHO, 2011). Moreover, WHO recommends that all pregnant and lactating women with active TB receive multiple micronutrient supplements that contain iron, folic acid and other vitamins and minerals, according to the United Nations Multiple Micronutrient Preparation (UNICEF, WHO & United Nations University, 1999). WHO also recommends that calcium supplementation be included in antenatal care for pregnant women with active TB to prevent pre-eclampsia, particularly among pregnant women at high risk of developing hypertension in settings where calcium intake is low.

- WHO. 2013. *Guideline: Nutritional care and support for patients with tuberculosis*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/nutcare_support_patients_with_tb/en/.
- WHO. 2011. *Integrated Management of Adolescent and Adult Illness (IMAI) district clinician manual: Hospital care for adolescents and adults. Guidelines for the management of common illnesses with limited resources*, Volumes 1&2, Geneva. Available at http://www.who.int/hiv/pub/imai/imai2011/en/.
- UNICEF, WHO, United Nations University. 1999. *Composition of a multi-micronutrient supplement to be used in pilot programmes among pregnant women in developing countries*. Workshop report, 9 July 1999. New York. Available at http://apps.who.int/iris/bitstream/10665/75358/1/UNICEF-WHO-multi-micronutrients.pdf?ua=1.

(ACTION 4 continued ...)

(... ACTION 4 continued)

SUB-ACTION 4c Management of MAM in individuals with active TB	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Participation in directly observed treatment, short-course (DOTS) is often a precondition for receiving food supplementation in order to provide an incentive for DOTS. According to WHO recommendations, patients with active multi-drug-resistant TB and moderate undernutrition should be provided with supplementary foods as necessary to restore normal nutritional status.

WHO also recommends that children under 5 with active TB and moderate undernutrition be treated the same as any other children with moderate undernutrition, including with supplementary foods to restore appropriate weight-for-height. In addition, WHO recommends that pregnant women with active TB and moderate undernutrition – or with inadequate weight gain – be provided with supplementary foods as necessary to achieve an average weekly minimum weight gain of 300 g in the second and third trimesters.

SUB-ACTION 4d Management of SAM in individuals with active TB	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

WHO recommends that school-age children and adolescents (5–19 years) and adults, including pregnant and lactating women with active TB and SAM, should be treated according to the WHO recommendations for management of SAM (WHO, 2011). Children under 5 with active TB and SAM should be treated according to WHO's recommendations for the management of SAM in children under 5 (see the WHO [2013a] guidelines and [2013b] updates below).

- WHO. 2011. *IMAI district clinician manual: Hospital care for adolescents and adults. Guidelines for the management of common illnesses with limited resources*, Volumes 1&2, Geneva. Available at http://www.who.int/hiv/pub/imai/imai2011/en/.
- WHO. 2013. *Guidelines on management of severe acute malnutrition in individuals with active tuberculosis*. Available at http://www.who.int/elena/titles/sam_tuberculosis/en/ and http://www.who.int/nutrition/publications/guidelines/nutcare_support_patients_with_tb/en/.
- WHO. 2013. *Updates on the management of severe acute malnutrition in infants and children*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/updates_management_SAM_infantandchildren/en/.

ACTION 5

Nutritional care and support of children with measles

SUB-ACTION 5a Micronutrient supplementation to children with measles	CAUSAL LEVEL Underlying/Immediate	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action refers to Vitamin A supplementation in children under 5.

Individuals suffering from illness may have increased nutritional requirements to fight infection or impaired nutrient absorption. In addition, there is a reciprocal relationship between measles and vitamin A status. Severe vitamin A deficiency (VAD) among children under 5 can compromise their immunity and increase their risk of morbidity and mortality from measles, among other factors (WHO, 2013).

WHO recommends that all children with measles receive vitamin A supplementation in all countries. The dosage should be increased where measles case fatality is likely to be more than 1 percent, the prevalence of vitamin A deficiency among children under 5 is high or children present clinical signs of Vitamin A deficiency according to the prevailing international guidelines (WHO, 2013).

- WHO. 2013. *Essential Nutrition Actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en.

ACTION 6

Nutritional care and support of individuals with Ebola virus disease

SUB-ACTION 6a	CAUSAL LEVEL	EVIDENCE CATEGORY
Supplementation to children and adults with Ebola virus disease in treatment centres	Underlying	Practice-based studies

NOTES/REMARKS

Little is known about the relationship between Ebola virus disease (EVD) and nutrition. Although symptoms of EVD have adverse impacts (direct or indirect) on nutrition, the nutritional requirements of EVD patients vary depending on the stage of the illness and the individuals' pre-disease nutritional status. While the Ebola virus is present in breast milk and there have been observed cases of infants of breastfeeding mothers contracting the virus, the specifics of transmission are unclear (WHO, eLENA).

According to WHO interim recommendations: (1) the nutritional needs and approach to nutritional care in any individual are determined by the patient's pre-disease nutritional status, severity of illness and age; (2) patients should be provided with the minimum recommended daily allowance for each nutrient until further evidence is available; (3) during convalescence, patients should be encouraged to eat as much as they can; and (4) patients should be provided with food if they are conscious and can swallow.

- WHO. *Nutritional care of children and adults with Ebola virus disease in treatment centres. Full set of recommendations*. eLENA. Available at http://www.who.int/elena/titles/full_recommendations/nutrition_ebola/en/.

ACTION 7

Prevention and management of nutrition-related noncommunicable diseases (NCDs)

SUB-ACTION 7a	CAUSAL LEVEL	EVIDENCE CATEGORY
Counselling on healthy diets, using food-based dietary guidelines, and on the importance of physical activity to prevent overweight, obesity and nutrition-related NCDs	Underlying	Synthesized evidence

NOTES/REMARKS

Diabetes, heart disease, stroke and cancer are considered to be related to nutrition in that a healthy diet can help to protect against them (WHO, 2015).

In addition to existing evidence about this type of nutrition counselling, there is evidence that exclusive breastfeeding and reduced consumption of sugar-sweetened beverages in children and adults can help to prevent overweight and obesity.

WHO has made dietary recommendations for preventing overweight, obesity and NCDs. These recommendations cover: breastfeeding and complementary feeding practices, energy balance, fruit and vegetable consumption, and intake of fat, sodium, potassium and sugars (WHO, 2015). A WHO guideline on sugar intake in children and adults is included in the supporting CAN bibliography. Further guidance about healthy diets is outlined in WHO's (2015) Healthy Diet Fact Sheet.

- WHO. 2015. *Healthy diet fact sheet*. Geneva. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

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

SUB-ACTION	CAUSAL LEVEL
SUB-ACTION 1a Nutritional assessment as part of routine care of HIV-infected children and individuals with active TB	**CAUSAL LEVEL** Underlying

NOTES/REMARKS

WHO recommends that children 6 months–14 years living with HIV should be assessed and provided a nutrition care plan to cover their nutrient needs associated with the HIV, and to ensure appropriate growth and development. Likewise, WHO recommends that all individuals with active TB should receive an assessment of their nutritional status (and appropriate counselling based on their nutritional status at diagnosis and throughout treatment). As part of a healthy diet low in fat, sugars and sodium, WHO suggests consuming more than 400 g of fruits and vegetables per day to reduce the risk of certain NCDs.

SUB-ACTION	CAUSAL LEVEL
SUB-ACTION 1b Nutrition assessments (e.g. weight, height, BMI, waist/hip circumference, blood pressure, diabetes) as part of prevention and management to help prevent and manage overweight and obesity and diet-related NCDs	**CAUSAL LEVEL** Underlying
SUB-ACTION 1c HIV testing in pregnant & lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding	**CAUSAL LEVEL** Underlying

NOTES/REMARKS

This sub-action may also be carried out through reproductive health services and as part of counselling and support on recommended breastfeeding practices in the context of HIV.

Refer to the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and IYCF for further information.

SUB-ACTION	CAUSAL LEVEL
SUB-ACTION 1d Vulnerability assessment and early warning analysis	**CAUSAL LEVEL** Basic
SUB-ACTION 1e Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic
SUB-ACTION 1f M&E of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic

ACTION 2. Policy coherence

SUB-ACTION	CAUSAL LEVEL
SUB-ACTION 2a Policy coherence between health policies and strategies which cover nutrition-related infectious diseases and NCDs, reproductive, neonatal and child health, as well as policies/strategies on agriculture/food, trade, education, social protection and nutrition	**CAUSAL LEVEL** Basic

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

SUB-ACTION 3a	CAUSAL LEVEL
Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes, related World Health Assembly resolutions, and national measures adopted to give effect to these	Underlying/Basic

SUB-ACTION 3b	CAUSAL LEVEL
Legislation and standards/regulation on macronutrient (food) and micronutrient supplementation and the prevailing WHO recommended doses for people with the above infectious diseases to ensure safety for human intake in view of their disease/health status	Basic

NOTES/REMARKS

Refer to the WHO guidance on these topics as referenced in the supporting CAN bibliography.

SUB-ACTION 3c	CAUSAL LEVEL
Food labelling in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate	Underlying/Basic

NOTES/REMARKS

Food labelling (e.g. nutrient declaration, front-of-pack labelling), may include information for food tracing and advertising in order to prevent overweight and obesity, nutrition-related NCDs and diarrhoea.

This sub-action includes related enforcement mechanisms.

SUB-ACTION 3d	CAUSAL LEVEL
Legislation and regulation to support healthy diets as part of the efforts to address overweight and obesity and diet-related NCDs	Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of legislation and regulations (e.g. on portion size control).

SUB-ACTION 3e	CAUSAL LEVEL
Legislation and regulation of marketing of food and non-alcoholic beverages and food safety, including to children, so as to protect healthy diets	Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of legislation and regulations on 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. *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Geneva. Available at http://www.who.int/dietphysicalactivity/publications/recsmarketing/en/.

SUB-ACTION 3f	CAUSAL LEVEL
Formulation and implementation of national, food-based dietary guidelines	Basic

NOTES/REMARKS

Food-based Dietary Guidelines (FBDGs) should be aligned with WHO's dietary recommendations to help to prevent malnutrition and NCDs. These recommendations cover: breastfeeding and complementary feeding practices, energy balance, fruit and vegetable consumption, and intake of fat, sodium, potassium and sugars (WHO, 2015). A WHO guideline on sugar intake in children and adults is included in the supporting CAN bibliography.

- WHO. 2015. *Healthy diet fact sheet*. Geneva. Available at http://www.who.int/mediacentre/factsheets/fs394/en/.

(Enabling Environment continued ...)

(... Enabling Environment continued)

SUB-ACTION 3g Formulation or updating of national protocol(s) for preventing and managing nutrition-related infectious diseases and NCDs	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

This sub-action includes nutrition considerations to help to ensure that these protocols are nutrition-sensitive. It may also include support for the registration of new micronutrient supplementation products (e.g. to help to combat anaemia in view of its links to malaria and zinc in view of links to diarrhoea).

SUB-ACTION 3h Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

Further information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services and Micronutrient Supplementation. In addition, universal health coverage is included in the Social Protection section.

ACTION 4. Fiscal policy

SUB-ACTION 4a Taxes and subsidies to support good nutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes the subsidization or removal of taxation on supplies and equipment for nutrition-related disease prevention and management.

ACTION 5. Planning, budgeting and management

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

NOTES/REMARKS

This sub-action fosters coordinated planning and budgeting for nutrition in these areas.

ACTION 6. Insurance

SUB-ACTION 6a Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

More information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

Some schemes (e.g. health insurance) may be incompatible with a universal healthcare approach, which is increasingly being promoted (Kutzin, 2013). Those who are able to contribute can be covered by health insurance schemes while the population that is unable to contribute to health insurance can be subsidized to reach universal coverage (ILO, 2014).

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/.
- ILO. 2014. Colombia: Universalizing health protection. *Social protection in action – Building social protection floors*, No. 03/2014.

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

SUB-ACTION 7a	CAUSAL LEVEL
Promotion of uptake of health services for nutrition-related diseases through which nutritional interventions are provided	Underlying/Basic
SUB-ACTION 7b	**CAUSAL LEVEL**
Social marketing campaigns to promote health behaviours related to Nutrition-related Disease Prevention and Management	Underlying

NOTES/REMARKS

For example, by promoting the use of insecticide-treated bednets.

ACTION 8. Coordination

SUB-ACTION 8a	CAUSAL LEVEL
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Nutrition-related Disease Prevention and Management to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level	Basic

NOTES/REMARKS

This sub-action includes supporting the engagement of ministries of Health and Agriculture in multi-stakeholder, multi-sectoral nutrition platforms – at both the decision-making and technical levels – to ensure that policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 9. Other enabling environment actions

SUB-ACTION 9a	CAUSAL LEVEL
Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders	Underlying/Basic

Water, Sanitation and Hygiene for Good Nutrition

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Hygiene promotion to support good nutrition

SUB-ACTION 1a Handwashing education and promotion at critical periods	CAUSAL LEVEL* Underlying	EVIDENCE CATEGORY** Primary studies

NOTES/REMARKS

This sub-action covers proper handwashing practices at the critical handwashing periods listed below (WHO, 2014; WHO, 2015):

(1) Before preparing food or cooking;
(2) Before eating or feeding a child;
(3) After cleaning a child's bottom; and
(4) After defecation.

- WHO. 2014. *Hand hygiene: Why, how & when?* Geneva. Available at http://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

SUB-ACTION 1b Provision of handwashing supplies and handwashing stations/tippy taps	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action includes the provision of water, soap and other supplies for handwashing. "Setting up dedicated handwashing stations with necessary supplies (soap and water or alcohol-based handrub solution) at key locations in households, schools, healthcare facilities and public spaces can serve as a reminder for handwashing" (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

SUB-ACTION 1c Food hygiene promotion and support	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

This sub-action supports WHO's 5 Keys to Safer Food:

(1) Keep a clean environment for handling food (including handwashing, cleaning key surfaces and utensils, and protecting food preparation areas from insects, pests and other animals);
(2.) Separate raw and cooked food;
(3.) Cook food thoroughly;
(4.) Store food at safe temperature; and
(5.) Use safe water and raw material.

The sub-action also applies to the preparation of complementary foods (WHO, 2015).

Information about food hygiene is also included in the Food, Agriculture and Healthy Diets section.

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

(ACTION 1 continued ...)

* **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.

(... ACTION 1 continued)

SUB-ACTION 1d Environmental hygiene promotion and support for domestic hygiene	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

Information about environmental hygiene concerning the management of animals (e.g. keep animals away from where food is prepared and served to children) is provided in the thematic area on Livestock and Fisheries in the Food, Agriculture and Healthy Diets section.

This sub-action includes: (1) controlling disease vectors such as flies, mosquitoes, cockroaches and rats by covering food, improving drainage and safely disposing of garbage and non-reusable materials into a waste receptacle or protected pit; (2) cleaning key surfaces in latrines, basins, kitchen floors and surfaces with soap and water) and possibly disinfecting after cleaning with a dilute bleach solution, if available; and (3) providing safe areas that can be regularly cleaned where children can play (WHO, 2015).

- WHO. 2015. Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 2
Sanitation systems and management to support good nutrition

SUB-ACTION 2a Community approaches to improving sanitation	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

This sub-action includes community-led total sanitation and school-led total sanitation.

SUB-ACTION 2b Latrine construction and rehabilitation and excreta disposal management	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

This sub-action is undertaken at both the public and household levels, and includes faecal sludge management/pit emptying.

SUB-ACTION 2c Sanitation support for infants and toddlers	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

This sub-action includes:

(1) Promoting the use and safe disposal of diapers (nappies); and safe cleaning of reusable cloth used to contain faeces;
(2) Improving and promoting access to 'enabling products' such as potties and hoes that facilitate getting faeces into latrines for safe disposal; and
(3) Making latrines 'child friendly' by partially covering latrine holes with a small board or using a slab with a child-sized hole to prevent children from falling into the pit, and improving light and ventilation (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

SUB-ACTION 2d Sanitation support for vulnerable groups	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

Vulnerable groups have the right to access sanitation, as upheld in the United Nations Human Right to Water and Sanitation (United Nations, 2010) and the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006).

This sub-action includes:

(1) Making structural improvements to latrines and toilets (e.g. providing poles, support stoles or ropes) that can support ease of access and make them easier to use; and
(2) Clearing obstacles from paths to latrines (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 3
Water quantity and quality to support good nutrition

SUB-ACTION 3a Improvement of water supply systems and services to improve access to safe drinking water	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

This sub-action includes the construction or improvement of water supply systems and services such as piped water on-site, public standpipes, boreholes, protected dug wells, protected springs and rainwater (WHO, 2015).

In addition, WHO guidance on drinking-water quality can be found in the WHO (2011) guidelines on this topic.

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.
- WHO. 2011. *Guidelines for drinking-water quality*. Fourth edition. Geneva. Available at http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/.

SUB-ACTION 3b Household water treatment and safe storage support	CAUSAL LEVEL Underlying	EVIDENCE CATEGORY Synthesized evidence

NOTES/REMARKS

Household water treatment support frequently includes the provision of safe water kits for chemical disinfection, supplies to support filtration, heat (including boiling, pasteurization and ultraviolet radiation) and combined use of flocculants and disinfectants for safeguarding nutrition, particularly nutrient absorption (WHO, 2015).

Safe water storage, use and treatment should be practiced in households, schools and health facilities. Appropriate water-treatment technologies must consider ease of use, cultural preferences and motivations, as well as cost and availability of products (including of spare parts and consumables).

WHO's (2011) guidance on drinking-water quality provides more information.

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.
- WHO. 2011. *Guidelines for drinking-water quality*. Fourth edition. Geneva. Available at http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/.

SUB-ACTION 3c Provision of safe water during special circumstances	CAUSAL LEVEL Immediate/Underlying	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

Special circumstance may include emergency contexts.

This entails integrating WASH into nutrition programming during emergencies. Cluster coordination (e.g. between the Nutrition Cluster and WASH Cluster) can be effective in these situations (WHO, 2015).

- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

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

SUB-ACTION 1a Vulnerability assessment and early warning analysis	**CAUSAL LEVEL** Basic
SUB-ACTION 1b Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic
SUB-ACTION 1c M&E of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic

ACTION 2. Policy coherence

SUB-ACTION 2a Policy coherence between policies/strategies on water, sanitation, hygiene, health, agriculture, education, trade, social protection and nutrition	**CAUSAL LEVEL** Basic

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

SUB-ACTION 3a Legislation and/or regulations on, or relevant to sanitation, water quality, environmental health and public health	**CAUSAL LEVEL** Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of legislation and regulations on: (1) minimum latrine standards; (2) water management from source to tap; (3) water treatment; (4) water contamination; and (5) environmental and public health (as they relate to water and sanitation).

SUB-ACTION 3b Formulation/review of national water and sanitation standards	**CAUSAL LEVEL** Basic

NOTES/REMARKS

National water standards, including on contamination and radiation.

National sanitation standards, including for latrines.

ACTION 4. Fiscal policy

SUB-ACTION 4a WASH-related taxes and subsidies to support good nutrition	**CAUSAL LEVEL** Basic

NOTES/REMARKS

This sub-action includes the subsidization or removal of taxation on WASH supplies and equipment including soap, clean water, latrines and tippy tanks.

ACTION 5. Planning, budgeting and management

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

NOTES/REMARKS

This sub-action fosters coordinated planning and budgeting for nutrition in these areas.

ACTION 6. Social norms: Education/sensitization, BCC and social marketing

SUB-ACTION 6a	CAUSAL LEVEL
Water, sanitation and hygiene education, BCC and social marketing, emphasizing the links between poor WASH and undernutrition	Immediate/ Underlying

NOTES/REMARKS

The water aspect of this sub-action encompasses education, social marketing and BCC on water treatment and storage of drinking water while the sanitation aspect encompasses education, social marketing and BCC on sanitation management for a sanitary environment. The hygiene aspect covers proper handwashing practices at critical periods (WHO, 2014), food hygiene and environmental hygiene practices (WHO, 2015).

- WHO. 2014. *Hand hygiene: Why, how & when?* Geneva. Available at http://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf.
- WHO. 2015. *Improving nutrition outcomes with better water, sanitation and hygiene: Practical solutions for policies and programmes*. WHO, UNICEF and USAID. Geneva. Available at http://www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ACTION 7. Coordination

SUB-ACTION 7a	CAUSAL LEVEL
Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Water, Sanitation and Hygiene for Good Nutrition to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level	Basic

NOTES/REMARKS

This includes supporting the engagement of WASH specialists and authorities in nutrition stakeholder forums, including multi-stakeholder, multi-sectoral nutrition platforms. Support is particularly relevant for the technical level since WASH may already be represented in high-level nutrition coordination mechanisms. This will ensure that policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 8. Other enabling environment actions

SUB-ACTION 8a	CAUSAL LEVEL
Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders	Underlying/Basic

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1a. Prevention of adolescent pregnancy

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- Kozuki, N., Lee, A.C.C., Silveira, M.F., Sania, A., Vogel, J.P., Adair, L., Barros, F., Caulfield, L.E., Christian, P., Fawzi, W., Humphrey, J., Huybregts, L., Mongkolchati, A., Ntozini, R., Osrin, D., Roberfroid, D., Tielsch, J., Vaidya, A., Black, R.E. & Katz, J., Child Health Epidemiology Reference Group (CHERG) Small-for-Gestational-Age-Preterm Birth Working Group. 2013. The association of parity and maternal age with small-for-gestational age, preterm and neonatal and infant mortality: A meta-analysis. *BMC Public Health*, Volume 13(Suppl. 3):2. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3847520/.
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1b. Voluntary family planning and reproductive health education and support

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.

ACTION 2. Nutrition interventions through antenatal care, birthing services and postnatal care

2a. Maternal, infant and child nutrition and health counselling

- Bhutta, Z.A., Ahmed, T., Black, R.E., Cousens, S., Dewey, K., Giugliani, E., Haider, B.A., Kirkwood, B., Morris, S.S., Sachdev, P.S. & Shekar, M. for the Maternal and Child Undernutrition Study Group. 2008. Paper 3: What works? Interventions for maternal and child undernutrition and survival. *Lancet,* Volume 371:1-24.
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2b. Micronutrient supplementation for pregnant and postpartum women

- *Please refer to the thematic area on Micronutrient Supplementation for applicable references.*

2c. Long chain polyunsaturated fatty acid supplementation during pregnancy

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2e. Nutrition-related illness and disease prevention and management among pregnant and postpartum women

- *Please refer to the thematic area on Nutrition-related Disease Prevention and Management.*

2f. Optimal time of umbilical cord clamping for the prevention of iron deficiency anaemia among infants

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ACTION 3. Nutrition interventions through primary paediatric health care during early childhood

3a. Nutrition-related illness and disease prevention and management during early childhood

- *Please refer to the thematic area on Nutrition-related Disease Prevention and Management for applicable references.*

3b. Micronutrient supplementation in children

- *Please refer to the thematic area on Micronutrient Supplementation for applicable references.*

3c. Infant and young child feeding counselling

- *Please refer to the references presented for sub-action 2a on Maternal, infant and child nutrition and health counselling.*

3d. Vaccinations

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ACTION 4. Nutrition interventions through primary paediatric health care during adolescence

4a. Counselling on healthy diets

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- Berti, P.R., Krasevec, J. & FitzGerald, S. 2004. A review of the effectiveness of agriculture interventions in improving nutrition outcomes. *Public Health Nutrition*, Volume 7:599–609.
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- Roosmarijn, V., Roberfroid, D., Lachat, C., Leroy, J.L., Holdsworth, M., Maes, L. & Kolsteren, P.W. 2012. Effectiveness of preventive school-based obesity interventions in low- and middle-income countries: A systematic review. *American Journal of Clinical Nutrition,* Volume 96:415–438.
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- Silveira, J.A., Taddei, J.A., Guerra, P.H. & Nobre, M.R. 2011. Effectiveness of school-based nutrition education interventions to prevent and reduce excessive weight gain in children and adolescents: A systematic review. *Jornal de Pediatria*, Volume 87(5):382-392.

4b. Micronutrient supplementation in adolescents

- Please refer to the thematic area on Micronutrient Supplementation for applicable references.

Enabling Environment

ACTION 1. Assessment and information

1a. Nutrition assessments as part of reproductive health services, and referral of malnourished pregnant and lactating women to nutrition programmes for the management of acute malnutrition, as appropriate

- WHO. 2015. *Global reference list of 100 core health indicators*. Geneva. Available at http://apps.who.int/iris/bitstream/10665/173589/1/WHO_HIS_HSI_2015.3_eng.pdf?ua=1.

1b. Growth monitoring and promotion as part of primary paediatric health services for infants and young children

- WHO. *The WHO child growth standards*. Available at http://www.who.int/childgrowth/en/.
- *Experts' consultation on growth monitoring and promotion strategies: Program guidance for a way forward Recommendations from a Technical Consultation*. UNICEF New York, 16-18 June 2008.

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

3a. Development of national growth charts

- WHO. *The WHO child growth standards*. Available at http://www.who.int/childgrowth/en/.

3b. Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions and national measures adopted to give effect to these

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

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- Smith, J.P., Sargent, G.M., Mehta, K., James, J., Berry, N., Koh, C., Salmon, L. & Blake, M. 2015. *A rapid evidence assessment. Does marketing of commercially available complementary foods affect infant and young child feeding?* Available at http://www.who.int/nutrition/topics/CF_anu_effects_marketingcommercial.pdf?ua=1.
- Tzioumis, E., Kay, M., Wright, M. & Adair, L. *Health effects of commercially available complementary foods: A systematic review*. Department of Nutrition, Gillings School of Global Public Health, University of North Carolina at Chapel Hill. Chapel Hill. Available at http://www.who.int/nutrition/topics/CF_health_effects_commercially_systematicreview.pdf.
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- WHO. *Regulation of marketing breast-milk substitutes*. eLENA. Available at http://www.who.int/elena/titles/regulation_breast-milk_substitutes/en/.

3d. Implementation of maternity protection measures in accordance with ILO Maternity Protection Convention No. 183 (2000) and Recommendation No. 191 (2000)

- Baker, M. & Milligan, K. 2008. Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. *Journal of Health Economics*, Volume 27(4):871–887. Available at http://www.sciencedirect.com/science/article/pii/S0167629608000131.
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- Kamerman, S.B. 2007. *Maternity, paternity, and parental leave policies: The potential impacts on children and their families.* 3rd rev. ed. DSW Compton Foundation Centennial Professor Columbia University, School of Social Work. New York.
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3e. Legislation on minimum age for marriage to prevent child marriage and adolescent pregnancy in an effort to safeguard nutrition among adolescent girls, infants and young children

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- UNFPA. 2012. *Marrying too young: End child marriage*. New York.

3f. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/.

ACTION 6. Insurance

6a. Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status

- Bai, C., Li, H. & Wu, B. 2012. Health insurance and consumption: Evidence from China's new cooperative medical scheme. *Economic Research Journal*, Volume 2:41–53.
- Liang, X., Guo, H., Jin, C., Peng, X. & Zhang, X. 2012. The effect of new cooperative medical scheme on health outcomes and alleviating catastrophic health expenditure in China: A systematic review. *PLOS ONE*, Volume 7(8):e40850. Available at http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0040850.PDF.
- Peng, X. & Conley, D. 2016. The implication of health insurance for child development and maternal nutrition: Evidence from China. *European Journal Health Economics*, Volume 17:521.
- Spaan, E., Mathijssen, J., Tromp, N., McBain, F., ten Have, A. & Baltussen, R. 2012. The impact of health insurance in Africa and Asia: A systematic review. *Bulletin of the World Health Organization*, Volume 90:685–692.
- ILO. 2014. *Colombia: Universalizing health protection.* Social protection in Action – Building Social Protection Floors, No. 03/2014.

ACTION 7. Social norms: Education/sensitization, behaviour change communication (BCC) and social marketing

7b. Social marketing campaigns about nutrition behaviours related to reproductive and paediatric health services

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.

ACTION 9. Other enabling environment actions

9a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

Micronutrient Supplementation

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Micronutrient supplementation schemes in women of reproductive age

1a. Intermittent iron and folic acid supplementation in non-pregnant women and adolescent girls

- Fernández-Gaxiola, A.C. & De-Regil, L.M. 2011. Intermittent iron supplementation for reducing anaemia and its associated impairments in menstruating women. *Cochrane Database of Systematic Reviews*, Issue 12. Art. No. CD009218.
- WHO. 2011. *Guideline: Intermittent iron and folic acid supplementation in menstruating women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/guideline_iron_folicacid_suppl_women/en/.
- WHO. *Intermittent iron and folic acid supplementation in menstruating women.* eLENA. Available at http://www.who.int/elena/titles/iron_women/en/.
- WHO. *Intermittent iron and folic acid supplementation in menstruating women in malaria-endemic areas.* eLENA. Available at http://www.who.int/elena/titles/iron_women_malaria/en/.

1b. Daily iron and folic acid supplementation non-pregnant women and adolescent girls

- Charoenlarp, P., Dhanamitta, S., Kaewvichit, R., Silprasert, A., Suwanaradd, C., Na-Nakorn, S., Prawatnuang, P. et al. 1988. A WHO collaborative study on iron supplementation in Burma and in Thailand. *American Journal of Clinical Nutrition*, Volume 47:280–297.
- Low, M.S.Y., Speedy, J., Styles, C.E., De-Regil, L.M. & Pasricha, S.R. 2016. Daily iron supplementation for improving anaemia, iron status and health in menstruating women. *Cochrane Database of Systematic Reviews*, Issue 4. Art. No. CD009747. Available at https://www.ncbi.nlm.nih.gov/pubmed/27087396.
- WHO. 2016. *Guideline: Daily iron supplementation in adult women and adolescent girls*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_iron_supp_womenandgirls/en/.

1c. Folic acid supplementation in women who are trying to conceive (periconceptional folic acid supplementation)

- De-Regil, L.M., Peña-Rosas, J.P., Fernández-Gaxiola, A.C. & Rayco-Solon, P. 2015. Effects and safety of periconceptional oral folate supplementation for preventing birth defects. *Cochrane Database of Systematic Reviews*, Issue 12. Art. No. CD007950.
- Imdad, A., Yakoob, M.Y. & Bhutta, Z.A. 2011. The effect of folic acid, protein energy and multiple micronutrient supplements in pregnancy on stillbirths. *BMC Public Health*, Volume 11(Suppl. 3):4.
- Ramakrishnan, U., Grant, F., Goldenberg, T., Zongrone, A. & Martorell, R. 2012. Effect of women's nutrition before and during early pregnancy on maternal and infant outcomes: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):285-301.
- WHO. 2012. *Guideline: Daily iron and folic acid supplementation in pregnant women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_ifa_supp_pregnant_women/en/.
- WHO. 2007. *Prevention of neural tube defects*, Chapter: *Standards for maternal and neonatal care*. Geneva. Available at http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/a91272/en/.

ACTION 2. Micronutrient supplementation schemes in pregnant women

2a. Daily iron and folic acid supplementation during pregnancy

- Haider, B.A., Olofin, I., Wang, M., Spiegelman, D., Ezzati, M. & Fawzi, W.W. 2013. Anaemia, prenatal iron use, and risk of adverse pregnancy outcomes: Systematic review and meta-analysis. *BMJ*, Volume 346:f3443.
- Imdad, A. & Bhutta, Z.A. 2012. Routine iron/folate supplementation during pregnancy: Effect on maternal anaemia and birth outcomes. *Paediatric and Perinatal Epidemiology*, Volume 26:168–177.
- Peña-Rosas, J.P., De-Regil, L.M., Dowswell, T. & Viteri, F.E. 2012. Daily oral iron supplementation during pregnancy. *Cochrane Database of Systematic Reviews*, Issue 12. Art. No. CD004736.
- Peña-Rosas, J.P., De-Regil, L.M., Garcia-Casal, M.N. & Dowswell, T. 2015. Daily oral iron supplementation during pregnancy. *Cochrane Database of Systematic Reviews*, Issue 7. Art. No. CD004736.
- Rahman, M.M., Abe, S.K., Rahman, M.S., Kanda, M., Narita, S. & Bilano, V. 2016. Maternal anemia and risk of adverse birth and health outcomes in low- and middle-income countries: Systematic review and meta-analysis. *American Journal of Clinical Nutrition*, Volume 103(2):495-504. Available at http://www.ncbi.nlm.nih.gov/pubmed/26739036.
- Yakoob, M.Y. & Bhutta, Z.A. 2011. Effect of routine iron supplementation with or without folic acid on anemia during pregnancy. *BMC Public Health*, Volume 11(Suppl. 3):21.
- WHO. 2012. *Guideline: Daily iron and folic acid supplementation in pregnant women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_ifa_supp_pregnant_women/en/.

- WHO. 2007. *Prevention of neural tube defects*, Chapter: *Standards for maternal and neonatal care*. Geneva. Available at http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/a91272/en/.
- WHO. *Daily iron and folic acid supplementation during pregnancy.* eLENA. Available at http://www.who.int/elena/titles/daily_iron_pregnancy/en/.
- WHO. *Daily iron and folic acid supplementation during pregnancy in malaria-endemic areas.* eLENA. Available at http://www.who.int/elena/titles/daily_iron_pregnancy_malaria/en/.

2b. Intermittent iron and folic acid supplementation in non-anaemic pregnant women

- Peña-Rosas, J.P., De-Regil, L.M., Dowswell, T. & Viteri, F.E. 2012. Intermittent oral iron supplementation during pregnancy. *Cochrane Database of Systematic Reviews*, Issue 7. Art. No. CD009997.
- Peña-Rosas, J.P., De-Regil, L.M., Gomez Malave, H., Flores-Urrutia, M.C. & Dowswell, T. 2015. Intermittent oral iron supplementation during pregnancy. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD009997.
- Yakoob, M.Y. & Bhutta, Z.A. 2011. Effect of routine iron supplementation with or without folic acid on anemia during pregnancy. *BMC Public Health*, Volume 11(Suppl. 3):21.
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- WHO. *Intermittent iron and folic acid supplementation in non-anaemic pregnant women.* eLENA. Available at http://www.who.int/elena/titles/intermittent_iron_pregnancy/en/.

2c. Vitamin A supplementation for pregnant women

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- McCauley, M.E., van den Broek, N., Dou, L. & Othman, M. 2015. Vitamin A supplementation during pregnancy for maternal and newborn outcomes. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD008666.
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- van den Broek, N., Dou, L., Othman, M., Neilson, J.P., Gates, S. & Gülmezoglu, A.M. 2010. Vitamin A supplementation during pregnancy for maternal and newborn outcomes. *Cochrane Database of Systematic Reviews*, Issue 11. Art. No. CD008666.
- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
- WHO. *Vitamin A supplementation during pregnancy.* eLENA. Available at http://www.who.int/elena/titles/vitamina_pregnancy/en/.

2d. Calcium supplementation in pregnant women

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- Buppasiri, P., Lumbiganon, P., Thinkhamrop, J., Ngamjarus, C., Laopaiboon, M. & Medley, N. 2015. Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes. *Cochrane Database of Systematic Reviews*, Issue 2. Art. No. CD007079.
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- Hofmeyr, G.J., Lawrie, T.A., Atallah, Á.N., Duley, L. & Torloni, M.R. 2014. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD001059.
- Imdad, A. & Bhutta, Z.A. 2012. Effects of calcium supplementation during pregnancy on maternal, fetal and birth outcomes. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):138–152.
- Podcast: Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes. *Cochrane Evidence Pods*. Available at http://www.cochrane.org/podcasts/10.1002/14651858.CD007079.pub3.
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- WHO. *Calcium supplementation during pregnancy for the prevention of pre-eclampsia.* eLENA. Available at http://www.who.int/elena/titles/calcium_pregnancy/en/.

2e. Iodine supplementation in pregnant women

- De-Regil, L.M., Harding, K.B., Peña-Rosas, J.P. & Webster, A.C. 2015. Iodine supplementation for women during the preconception, pregnancy and postpartum period (protocol). *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD011761.
- Zhou, S.J., Anderson, A.J., Gibson, R.A. & Makrides, M. 2013. Effect of iodine supplementation in pregnancy on child development and other clinical outcomes: A systematic review of randomized controlled trials. *American Journal of Clinical Nutrition*, Volume 98(5):1241-1254.
- Zimmermann, M.B. 2012. The effects of iodine deficiency in pregnancy and infancy. *Paediatric and Perinatal Epidemiology*, Volume 26:108–117.
- WHO & UNICEF. 2007. *Reaching optimal iodine nutrition in pregnant and lactating women and young children*; *A joint statement by the World Health Organization and the United Nations Children's Fund*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/WHOStatement_IDD_pregnancy.pdf?ua=1.
- WHO. *Iodine supplementation in pregnant and lactating women*. eLENA. Available at http://www.who.int/elena/titles/iodine_pregnancy/en/.

2f. Multiple micronutrient supplements in pregnant women[26]

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
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- Haider, B.A., Yakoob, M.Y. & Bhutta, Z.A. 2011. Effect of multiple micronutrient supplementation during pregnancy on maternal and birth outcomes. *BMC Public Health*, Volume 11(Suppl. 3):19.
- Kawai, K., Spiegelman, D., Shankar, A.H. & Fawzi, W.W. 2011. Maternal multiple micronutrient supplementation and pregnancy outcomes in developing countries: Meta-analysis and meta-regression. *Bulletin of the World Health Organization*, Volume 89:402–411B.
- Ronsmans, C., Fisher, D.J., Osmond, C., Margetts, B.M. & Fall, C.H.D. 2009. Multiple micronutrient supplementation during pregnancy in low-income countries: A meta-analysis of effects on stillbirths and on early and late neonatal mortality. *Food and Nutrition Bulletin*, Volume 30(Suppl. 4):547–555.
- Shrimpton, R., Huffman, S.L., Zehner, E.R., Darnton-Hill, I. & Dalmiya, N. 2009. Multiple micronutrient supplementation during pregnancy in developing-country settings: Policy and program implications of the results of a meta-analysis. *Food and Nutrition Bulletin,* Volume 30(Suppl.):556-573.
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2g. Zinc supplementation in pregnant women

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- Chaffee, B.W. & King, J.C. 2012. Effect of zinc supplementation on pregnancy and infant outcomes: A systematic review. *Paediatric and Perinatal Epidemiology*, Volume 26(Suppl. 1):118–137.
- Gebreselassie, S.G. & Gashe, F.E. 2011. A systematic review of effect of prenatal zinc supplementation on birthweight: Meta-analysis of 17 randomized controlled trials. *Journal of Health, Population and Nutrition*, Volume 29(2).
- Ota, E., Mori, R., Middleton, P., Tobe-Gai, R., Mahomed, K., Miyazaki, C. & Bhutta, Z.A. 2015. Zinc supplementation for improving pregnancy and infant outcome. *Cochrane Database of Systematic Reviews*. Issue 2. Art. No. CD000230.
- WHO. *Zinc supplementation during pregnancy.* eLENA. Available at http://www.who.int/elena/titles/zinc_pregnancy/en/.

ACTION 3. Micronutrient supplementation schemes in lactating women

3a. Daily iron and folic acid supplementation in postpartum women

- Neufeld, H.J.T., De-Regil, L.M., Dowswell, T. & Rogers, L.M. 2012. Effects of preventive oral supplementation with iron or iron with folic acid for women following childbirth (protocol). *Cochrane Database of Systematic Reviews,* Issue 5. Art. No. CD009842.
- Rogers, L.M., Dowswell, T. & De-Regil, L.M. 2016 (forthcoming) Effects of preventive oral supplementation with iron or iron with folic acid for women following childbirth. *Cochrane Database of Systematic Reviews*.
- WHO, United Nations Population Fund (UNFPA) & UNICEF. 2015. *Pregnancy, childbirth, postpartum and newborn care; A guide for essential practice (3rd edition)*. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/imca-essential-practice-guide/en/.

26 The most current evidence shows that giving multiple micronutrient supplements to pregnant women may reduce the risk of low birth weight and of small size for gestational age, compared with iron and folic acid supplementation alone. A WHO guideline containing recommendations relevant to this sub-action is anticipated for release in 2016.

- WHO. 2016. *Guideline: Daily iron supplementation in postpartum women*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_iron_supp_postpartum_women/en/.
- WHO. 2013. *WHO recommendations on postnatal care of the mother and newborn*. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/postnatal-care-recommendations/en/.
- WHO. *Iron and folic acid supplementation to prevent anaemia in postpartum women*. eLENA. Available at http://www.who.int/elena/titles/iron_postpartum/en/.

3b. Iodine supplementation in lactating women

- De-Regil, L.M., Harding, K.B., Peña-Rosas, J.P. & Webster, A.C. 2015. Iodine supplementation for women during the preconception, pregnancy and postpartum period (protocol). *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD011761.
- Zhou, S.J., Anderson, A.J., Gibson, R.A. & Makrides, M. 2013. Effect of iodine supplementation in pregnancy on child development and other clinical outcomes: A systematic review of randomized controlled trials. *American Journal of Clinical Nutrition*, Volume 98(5):1241-1254.
- Zimmermann, M.B. 2012. The effects of iodine deficiency in pregnancy and infancy. *Paediatric and Perinatal Epidemiology*, Volume 26:108–117.
- WHO & UNICEF. 2007. *Reaching optimal iodine nutrition in pregnant and lactating women and young children*; *A joint statement by the World Health Organization and the United Nations Children's Fund*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/WHOStatement_IDD_pregnancy.pdf?ua=1.
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ACTION 4. Micronutrient supplementation schemes in infants and children

4a. Neonatal vitamin K supplementation

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.

4b. Daily iron supplementation for infants and children

- De-Regil, L.M., Jefferds, M.E.D., Sylvetsky, A.C. & Dowswell, T. 2011. Intermittent iron supplementation for improved nutrition and development in children under 12 years of age. *Cochrane Database of Systematic Reviews,* Issue 12. Art. No. CD009085.
- Gera, T. & Sachdev, H.P.S. 2002. Effect of iron supplementation on incidence of infectious illness in children: Systematic review. *BMJ*, Volume 325:1142.
- Gera, T., Sachdev, H.P.S., Nestel, P. & Sachdev, S.S. 2007. Effect of iron supplementation on haemoglobin response in children: Systematic review of randomized controlled trials. *Journal of Pediatric Gastroenterology and Nutrition*, Volume 44:468–486.
- Neuberger, A., Okebe, J., Yahav, D. & Paul, M. 2016. Oral iron supplements for children in malaria-endemic areas. *Cochrane Database of Systematic Reviews,* Issue 2. Art. No. CD006589.
- Ojukwu, J.U., Okebe, J.U., Yahav, D. & Paul, M. 2009. Oral iron supplementation for preventing or treating anaemia among children in malaria-endemic areas. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No. CD006589.
- Okebe, J.U., Yahav, D., Shbita, R. & Paul, M. 2011. Oral iron supplements for children in malaria-endemic areas. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006589.
- Pasricha, S.R., Hayes, E., Kalumba, K. & Biggs, B.A. 2013. Effect of daily iron supplementation on health in children aged 4-23 months: A systematic review and meta-analysis of randomised controlled trials. *Lancet Global Health*, Volume 1(2):e77-86.
- Sachdev, H.P.S., Gera, T. & Nestel, P. 2006. Effect of iron supplementation on physical growth in children: Systematic review of randomised controlled trials. *Public Health Nutrition*, Volume 9:904–920.
- Szajewska, H., Ruszczynski, M. & Chmielewska, A. 2010. Effects of iron supplementation in nonanemic pregnant women, infants, and young children on the mental performance and psychomotor development of children: A systematic review of randomized controlled trials. *American Journal of Clinical Nutrition*, Volume 91(6):1684–1690.
- WHO. 2016. *Guideline: Daily iron supplementation in infants and children.* Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/daily_iron_supp_childrens/en/.
- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
- WHO. 2001. *Iron deficiency anaemia: Assessment, prevention and control; A guide for programme managers.* Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/anaemia_iron_deficiency/WHO_NHD_01.3/en/.
- WHO. *Daily iron supplementation in children 6–23 months of age.* eLENA. Available at http://www.who.int/elena/titles/iron_supplementation_children/en/.

4c. Intermittent iron supplementation for infants and children

- De-Regil, L.M., Jefferds, M.E.D., Sylvetsky, A.C. & Dowswell, T. 2011. Intermittent iron supplementation for improved nutrition and development in children under 12 years of age. *Cochrane Database of Systematic Reviews,* Issue 12. Art. No. CD009085.
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- WHO. Daily *iron supplementation in children 6–23 months of age.* eLENA. Available at http://www.who.int/elena/titles/iron_supplementation_children/en/.
- WHO. *Intermittent iron supplementation in preschool and school-age children.* eLENA. Available at http://www.who.int/elena/titles/iron_infants/en/.
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4d. Vitamin A supplementation in children 6–59 months old

- De Pee, S. 2012. Benefits of postpartum vitamin A supplementation. *Jornal de Pediatria*, Volume 88(2):99-100.
- Imdad, A., Herzer, K., Mayo-Wilson, E., Yakoob, M.Y. & Bhutta, Z.A. 2010. Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age. *Cochrane Database of Systematic Reviews*, Issue 12. Art. No. CD008524.
- Irlam, J.H., Visser, M.M.E., Rollins, N.N. & Siegfried, N. 2010. Micronutrient supplementation in children and adults with HIV infection. *Cochrane Database of Systematic Reviews*, Issue 12. Art. No. CD003650.
- Mayo-Wilson, E., Imdad, A., Herzer, K., Yakoob, M.Y. & Bhutta, Z.A. 2011. Vitamin A supplements for preventing mortality, illness, and blindness in children aged under 5: Systematic review and meta-analysis. *BMJ*, Volume 343:d5094.
- Podcast: Vitamin A supplementation for preventing morbidity and mortality in children 6 months to five years of age. *Cochrane Evidence Pods*. Available at http://www.cochrane.org/podcasts/10.1002/14651858.CD008524.pub2.
- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
- WHO. 2011. *Guideline: Vitamin A supplementation for infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/micronutrients/guidelines/vas_6to59_months/en/.
- WHO. *Vitamin A supplementation in infants and children 6-59 months of age.* eLENA. Available at http://www.who.int/elena/titles/vitamina_children/en/.

4e. Multiple micronutrient powders for children 6–23 months old

- Please refer to the references listed under sub-action 2c in the thematic area on Food Processing, Fortification and Storage (Food, Agriculture and Healthy Diets section).

4f. Iodine supplementation in children 6–23 months old

- Angermayr, L. & Clar, C. 2004. Iodine supplementation for preventing iodine deficiency disorders in children. *Cochrane Database of Systematic Reviews*. Available at http://www.cochrane.org/CD003819/ENDOC_iodine-supplementation-for-preventing-iodine-deficiency-disorders-in-children.
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4g. Zinc supplementation in children 6–59 months old

- Aggarwal, R., Sentz, J. & Miller, M.A. 2007. Role of zinc administration in prevention of childhood diarrhea and respiratory illnesses: A meta-analysis. *Pediatrics*, Volume 119(6):1120–1130.
- Brown, K.H., Peerson, J.M., Baker, S.K. & Hess, S.Y. 2009. Preventive zinc supplementation among infants, preschoolers, and older prepubertal children. *Food and Nutrition Bulletin*, Volume 30(Suppl. 1):12-40.
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ACTION 5. Micronutrient supplementation in other circumstances

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Enabling Environment

ACTION 1. Assessment and information

1a. Assessments of micronutrient status

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

3d. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases

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ACTION 6. Insurance

6a. Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status

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

7a. Nutrition education and BCC on micronutrient supplementation

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ACTION 9. Other enabling environment actions

9a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

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Management of Acute Malnutrition

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Management of severe acute malnutrition (SAM)

1a. Outpatient management of SAM

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1b. Inpatient management of SAM

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- WHO. *Therapeutic feeding of children 6–59 months of age with severe acute malnutrition and acute or persistent diarrhoea.* eLENA. Available at http://www.who.int/elena/titles/diarrhoea_sam/en/.
- WHO. *Use of antibiotics in the outpatient management of children 6–59 months of age with severe acute malnutrition.* eLENA. Available at http://www.who.int/elena/titles/antibiotics_sam/en/.

ACTION 2. Management of moderate acute malnutrition (MAM)

2a. Targeted supplementary feeding to treat MAM

- Lazzerini, M., Rubert, L. & Pani, P. 2013. Specially formulated foods for treating children with moderate acute malnutrition in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD009584.
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2b. Blanket supplementary feeding

- Lazzerini, M., Rubert, L. & Pani, P. 2013. Specially formulated foods for treating children with moderate acute malnutrition in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD009584.
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- WHO. *Supplementary foods for the management of moderate acute malnutrition in children*. eLENA. Available at http://www.who.int/elena/titles/food_children_mam/en/.

2c. Enhanced nutrition counselling

- Ashworth, A. & Ferguson, E. 2009. Dietary counselling in the management of moderate malnourishment in children. *Food and Nutrition Bulletin*, Volume 30(Suppl. 3):405-433.
- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

Enabling Environment

ACTION 1. Assessment and information

1a. Adoption of mid-upper arm circumference (MUAC) and WHO child growth standards to facilitate the identification of individuals with severe or moderate acute malnutrition

- Roberfroid, D., Hammami, N., Lachat, C., Prinzo, Z.W., Sibson, V., Guesdon, B., Goosens, S. & Kolsteren, P. 2013. *Utilization of mid-upper arm circumference versus weight-for-height in nutritional rehabilitation programmes: A systematic review of evidence*. WHO, Geneva.
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- WHO. 2013. *Guidelines for the management of common childhood illnesses with limited resources: Pocket book of hospital care for children.* Second edition. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/child_hospital_care/en/.
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1b. Identification of severe acute malnutrition in children under 5 years old

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- WHO. *Identification of severe acute malnutrition in infants under 6 months of age*. eLENA. Available at http://www.who.int/elena/titles/sam_identification_infants/en/.
- WHO. *Identification of severe acute malnutrition in children 6-59 months of age*. eLENA. Available at http://www.who.int/elena/titles/sam_identification/en/.

ACTION 2. Policy coherence

2a. The production, import and use of specially formulated foods for the management of acute malnutrition are integrated into the national policy/strategies for nutrition, agriculture/food, trade and industry, social protection and any cross-cutting infant and young child feeding (IYCF) policies to increase policy coherence

- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

ACTION 7. Infrastructure and technology

7a. Food technology support for local production of specially formulated foods for the management of acute malnutrition in accordance with prevailing international standards, developed by WHO, on local manufacturing of ready-to-use foods so as to help ensure the availability of these foods

- WHO. 2012. *Technical note: Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva. Available at http://www.who.int/nutrition/publications/moderate_malnutrition/9789241504423/en/.

ACTION 9. Other enabling environment actions

9b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

Nutrition-related Disease Prevention and Management

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Anti-anaemia actions

1a. Iron supplementation

- Please refer to the thematic area on Micronutrient Supplementation for applicable references.

1b. Deworming to combat the health and nutritional impact of intestinal parasitic infections

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- WHO. *Deworming to combat the health and nutritional impact of helminth infections.* eLENA. Available at http://www.who.int/elena/titles/deworming/en/.

1c. Intermittent preventive treatment of malaria for pregnant women

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- Garner, P. & Gulmezoglu, A.M. 2009. Drugs for preventing malaria in pregnant women. *Cochrane Database of Systematic Reviews*, Volume 4. Art. No. CD000169.
- WHO & UNICEF. 2004. *Focusing on anaemia; Towards an integrated approach for effective anaemia control. Joint Statement by the World Health Organization and the United Nations Children's Fund.* Available at http://www.who.int/nutrition/publications/micronutrients/WHOandUNICEF_statement_anaemia_en.pdf?ua=1.

1d Distribution of insecticide-treated bednets for malaria control

- Bhutta, Z.A., Das, J.K., Rizvi, A., Gaffey, M.F., Walker, N., Horton, S., Webb, P., Lartey, A. & Black, R.E., The Lancet Nutrition Interventions Review Group & the Maternal and Child Nutrition Study Group. 2013. Maternal and Child Nutrition 2: Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? *Lancet,* Volume 382:452–477. Available at http://dx.doi.org/10.1016/S0140-6736(13)60996-4.
- Gamble, C.L., Ekwaru, J.P. & ter Kuile, F.O. 2009. Insecticide-treated nets for preventing malaria in pregnancy. *Cochrane Database of Systematic Reviews*, Volume 2**.** Art. No. CD003755.
- WHO. 2013, revised 2014. *WHO recommendations for achieving universal coverage with long-lasting insecticidal nets in malaria control.* Geneva. Available at http://www.who.int/malaria/publications/atoz/who_recommendation_coverage_llin/en/.
- WHO & UNICEF. 2004. *Focusing on anaemia; Towards an integrated approach for effective anaemia control. Joint statement by the World Health Organization and the United Nations Children's Fund.* Available at http://www.who.int/nutrition/publications/micronutrients/WHOandUNICEF_statement_anaemia_en.pdf?ua=1.
- WHO. *Insecticide-treated nets to reduce the risk of malaria in pregnant women.* eLENA. Available at http://www.who.int/elena/titles/bednets_malaria_pregnancy/en/.

ACTION 2. Diarrhoea management for improved nutrition

2a. Zinc supplementation in the management of diarrhoea

- USAID, UNICEF & WHO. 2005. *Diarrhoea treatment guidelines including new recommendations for the use of ORS and zinc supplementation for clinic-based healthcare workers*. Arlington.
- WHO, UNICEF, Johns Hopkins Bloomberg School of Public Health & USAID. 2006. *Implementing the new recommendations on the clinical management of diarrhoea: Guidelines for policy makers and programme managers*. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/9241594217/en/.
- WHO. 2005. *The treatment of diarrhoea: A manual for physicians and other senior health workers*. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/9241593180/en.

- WHO & UNICEF. 2004. *Clinical management of acute diarrhoea: WHO and UNICEF joint statement*. Geneva. Available at http://apps.who.int/iris/bitstream/10665/68627/1/WHO_FCH_CAH_04.7.pdf.
- Please refer to the thematic area on Micronutrient Supplementation for additional references.

2b. Water, sanitation and hygiene interventions to prevent diarrhoea

- *Please refer to the thematic areas on Water and Sanitation and Hygiene for applicable references.*

ACTION 3. Nutritional care and support in HIV prevention and management

3a. Infant feeding counselling and support to HIV-positive mothers for improving HIV-free survival

- Chetty, T., Naidu, K.K. & Newell, M.L. 2010. *A systematic review of HIV-free survival by feeding practices from birth to 18 months: Annex 2*. WHO, Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/9789241599535_annex_2.pdf?ua=1.
- Chetty, T., Naidu, K.K. & Newell, M.L. 2009. *Evidence summaries of individual reports identified through a systematic review of HIV-free survival by infant feeding practices from birth to 18-24 months Annex 5: Evidence summaries.* WHO, Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/9789241599535_annex_5.pdf?ua=1.
- Horvath, T., Madi, B.C., Iuppa, I.M., Kennedy, G.E., Rutherford, G.W. & Read, J.S. 2009. Interventions for preventing late postnatal mother-to-child transmission of HIV. *Cochrane Database of Systematic Reviews*, Issue 1. Art. No. CD006734.
- UNAIDS. 2014. *Nutrition assessment, counselling and support for adolescents and adults living with HIV: A programming guide.* Guidance Note, Geneva. Available at https://www.wfp.org/content/nutrition-assessment-counselling-and-support-adolescents-and-adults-living-hiv .
- WHO. 2016. *Guideline: Updates on HIV and infant feeding*. Geneva. Available at http://www.who.int/nutrition/publications/hivaids/guideline_hiv_infantfeeding_2016/en/.
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- WHO. 2013. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: Recommendations for a Public Health Approach*. Geneva. Available at http://www.who.int/hiv/pub/guidelines/arv2013/download/en/.
- WHO. 2012. *WHO guidelines: HIV and infant feeding 2010: An updated framework for priority action*. Available at http://www.who.int/maternal_child_adolescent/documents/9241590777/en/.
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- WHO. *Infant feeding for the prevention of mother-to-child transmission of HIV.* eLENA. Available at http://www.who.int/elena/titles/hiv_infant_feeding/en/.
- WHO. *Nutritional care of HIV-infected children.* eLENA. Available at http://www.who.int/elena/titles/nutrition_hiv_children/en/.

3b. Supplementation (macronutrient for PLWHIV/AIDS and micronutrient supplementation in HIV-infected women during pregnancy)

- Grobler, L., Siegfried, N., Visser, M.E., Mahlungulu, S.S.N. & Volmink, J. 2013. Nutritional interventions for reducing morbidity and mortality in people with HIV. *Cochrane Database of Systematic Reviews*, Issue 2. Art. No. CD004536.
- Podcast: Nutritional interventions for reducing morbidity and mortality in people with HIV. *Cochrane Evidence Pods*. Available at http://www.cochrane.org/podcasts/10.1002/14651858.CD004536.pub3.
- Siegfried, N., Irlam, J.H., Visser, M.E. & Rollins, N.N. 2012. Micronutrient supplementation in pregnant women with HIV infection. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No. CD009755.
- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
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- WHO. *Multiple micronutrient supplementation in HIV-infected women during pregnancy.* eLENA. Available at http://www.who.int/elena/titles/micronutrients_hiv_pregnancy/en/.

3c. Nutrition counselling for adolescents and adults living with HIV/AIDS

- Grobler, L., Siegfried, N., Visser, M.E., Mahlungulu, S.S.N. & Volmink, J. 2013. Nutritional interventions for reducing morbidity and mortality in people with HIV. *Cochrane Database of Systematic Reviews*, Issue 2. Art. No. CD004536.
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- WHO. 2003. *Consultative meeting on nutrition interventions for improving the prevention, care and management of HIV/AIDS*. 19-20 November 2003, Durban. Available at http://www.who.int/nutrition/publications/hivaids/meet_nut_interventions_hivaids/en/.
- WHO & FAO. 2002. *Living well with HIV/AIDS*: A *manual on nutritional care and support for people living with HIV/AIDS*. Geneva. Available at http://www.who.int/nutrition/publications/hivaids/y4168E00.pdf?ua=1.
- WHO. *Infant feeding for the prevention of mother-to-child transmission of HIV.* eLENA. Available at http://www.who.int/elena/titles/hiv_infant_feeding/en/.
- WHO. *Nutritional care of HIV-infected children.* eLENA. Available at http://www.who.int/elena/titles/nutrition_hiv_children/en/.
- WHO. *Nutrition counselling for adolescents and adults with HIV/AIDS.* eLENA. Available at http://www.who.int/elena/titles/nutrition_hiv/en/.

ACTION 4. Nutritional care and support for tuberculosis (TB) patients

4a. Nutrition counselling for people with TB

- Sinclair, D., Abba, K., Grobler, L. & Sudarsanam, T.D. 2011. Nutritional supplements for people being treated for active tuberculosis. *Cochrane Database of Systematic Reviews*, Issue 11. Art. No. CD006086.
- WHO. 2014. *Guidance for national tuberculosis programmes on the management of tuberculosis in children, Second Edition.* Geneva. Available at http://www.who.int/tb/publications/childtb_guidelines/en/.
- WHO. 2013. *Guideline: Nutritional care and support for patients with tuberculosis.* Geneva. Available at http://www.who.int/nutrition/publications/guidelines/nutcare_support_patients_with_tb/en/.
- WHO. *Nutrition assessment and counselling in individuals with active tuberculosis.* eLENA. Available at http://www.who.int/elena/titles/nutrition_tuberculosis/en/.

4b. Micronutrient supplementation in individuals with active TB

- Grobler, L., Nagpal, S., Sudarsanam, T.D. & Sinclair, D. 2016. Nutritional supplements for people being treated for active tuberculosis. *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD006086.
- Hofmeyr, G.J., Lawrie, T.A., Atallah, Á.N., Duley, L. & Torloni, M.R. 2014. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews*, Issue 6. Art. No. CD001059.
- Podcast: Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes. *Cochrane Evidence Pods*. Available at http://www.cochrane.org/podcasts/10.1002/14651858.CD007079.pub3.
- Buppasiri, P., Lumbiganon, P., Thinkhamrop, J., Ngamjarus, C. & Laopaiboon, M. 2011. Calcium supplementation (other than for preventing or treating hypertension) for improving pregnancy and infant outcomes. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD007079.
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- WHO. 2011. *IMAI district clinician manual: Hospital care for adolescents and adults. Guidelines for the management of common illnesses with limited resources*. Volumes 1&2. Geneva. Available at http://www.who.int/hiv/pub/imai/imai2011/en/.
- WHO. 2011. *WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia*. Geneva. Available at http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9789241548335/en/.
- UNICEF, WHO & UNU. 1999. *Composition of a multi-micronutrient supplement to be used in pilot programmes among pregnant women in developing countries*. Report of a United Nations Children's Fund (UNICEF), World Health Organization (WHO), United Nations University (UNU). 9 July 1999. New York. Available at http://apps.who.int/iris/bitstream/10665/75358/1/UNICEF-WHO-multi-micronutrients.pdf?ua=1.
- WHO. *Micronutrient supplementation in individuals with active tuberculosis.* eLENA. Available at http://www.who.int/elena/titles/micronutrients_tuberculosis/en/.

4c. Management of moderate acute malnutrition in individuals with active TB

- Picot, J., Hartwell, D., Harris, P., Mendes, D., Clegg, A.J. & Takeda, A. 2012. The effectiveness of interventions to treat severe acute malnutrition in young children: A systematic review. *Health Technology Assessment*, Volume 16(19):1-316.
- Sinclair, D., Abba, K., Grobler, L. & Sudarsanam, T.D. 2011. Nutritional supplements for people being treated for active tuberculosis. *Cochrane Database of Systematic Reviews*, Issue 11. Art. No. CD006086.
- WHO. 2014. *Guidance for national tuberculosis programmes on the management of tuberculosis in children, Second Edition.* Geneva. Available at http://www.who.int/tb/publications/childtb_guidelines/en/.

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- WHO. 2013. *Guideline: Updates on the management of severe acute malnutrition in infants and children*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/updates_management_SAM_infantandchildren/en/.
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- WHO. *Management of severe acute malnutrition in individuals with active tuberculosis.* eLENA. Available at http://www.who.int/elena/titles/sam_tuberculosis/en/.

4d. Management of severe acute malnutrition in individuals with active TB

- Picot, J., Hartwell, D., Harris, P., Mendes, D., Clegg, A.J. & Takeda, A. 2012. The effectiveness of interventions to treat severe acute malnutrition in young children: A systematic review. *Health Technology Assessment*, Volume 16(19):1-316.
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- WHO. *Management of severe acute malnutrition in individuals with active tuberculosis.* eLENA. Available at http://www.who.int/elena/titles/sam_tuberculosis/en/.

ACTION 5. Nutritional care and support of children with measles

5a. Micronutrient supplementation to children with measles

- D'Souza, R.M. & D'Souza, R. 2001. Vitamin A for treating measles in children. *Cochrane Database of Systematic Reviews*, Volume 2. Art. No. CD001479. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001479/full.
- WHO. 2013. *Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition*. Geneva. Available at http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en.
- WHO. 2013. *Guidelines for the management of common childhood illnesses: Pocket book of hospital care for children*. Second edition. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/child_hospital_care/en/.
- WHO, UNICEF & IVACG. 1997. *Vitamin A supplements: A guide to their use in the treatment and prevention of vitamin A deficiency and xerophthalmia*. Second edition. WHO, Geneva.

ACTION 6. Nutritional care and support of individuals with Ebola virus disease

6a. Supplementation to children and adults with Ebola virus disease in treatment centres

- Picot, J., Hartwell, D., Harris, P., Mendes, D., Clegg, A.J. & Takeda, A. 2012. The effectiveness of interventions to treat severe acute malnutrition in young children: A systematic review. *Health Technology Assessment*, Volume 16(19):1-316.
- UNICEF, WHO, CDC & ENN. 2014. *Infant feeding in the context of Ebola: Updated guidance*. Available at http://www.ennonline.net/infantfeedinginthecontextofebola2014.
- WHO, UNICEF & WFP. 2014. *Interim guideline: Nutritional care of children and adults with Ebola virus disease in treatment centres*. Geneva. Available at http://www.who.int/nutrition/publications/guidelines/nutritionalcare_with_ebolavirus/en/.
- WHO. 2013. *Guidelines for the management of common childhood illnesses: Pocket book of hospital care for children.* Second edition. Geneva. Available at http://www.who.int/maternal_child_adolescent/documents/child_hospital_care/en/.
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- WHO. 2010. *Communicable diseases and severe food shortage: WHO technical note*. Geneva. Available at http://www.who.int/diseasecontrol_emergencies/publications/food_shortage/en/.
- WHO. *Nutritional care of children and adults with Ebola virus disease in treatment centres. Full set of recommendations.* eLENA. Available at http://www.who.int/elena/titles/full_recommendations/nutrition_ebola/en/.
- WHO. *Nutritional care of children and adults with Ebola virus disease in treatment centres*. eLENA. Available at http://www.who.int/elena/titles/nutrition_ebola/en/.

ACTION 7. Prevention and management of nutrition-related noncommunicable diseases (NCDs)

7a. Counselling on healthy diets, using food-based dietary guidelines, and on the importance of physical activity to prevent overweight, obesity and nutrition-related NCDs

- Aburto, N.J. & Das, S. 2012. *Effect of reduced sodium intake on blood pressure, renal function, blood lipids and other potential adverse effects*. WHO, Geneva. Available at http://apps.who.int/iris/bitstream/10665/79325/1/9789241504911_eng.pdf?ua=1.
- Aburto, N.J. & Ziolkovska, A. 2012. *Effect of reduced sodium intake on blood pressures and potential adverse effects in children*. WHO, Geneva. Available at http://apps.who.int/iris/bitstream/10665/79328/1/9789241504898_eng.pdf?ua=1.
- Aburto, N.J. & Ziolkovska, A. 2012. *Effect of reduced sodium intake on cardiovascular disease, coronary heart disease and stroke*. WHO, Geneva. Available at http://apps.who.int/iris/bitstream/10665/79322/1/9789241504904_eng.pdf?ua=1.
- Aburto, N.J., Hanson, S., Gutierrez, H., Hooper, L., Elliott, P. & Cappuccio, F.P. 2013. Effect of increased potassium intake on cardiovascular risk factors and disease: Systematic review and meta-analyses. *BMJ*, Volume 346:f1378.
- Aburto, N.J., Hanson, S., Gutierrez, H., Hooper, L., Elliott, P. & Cappuccio, F.P. 2012. *Effect of increased potassium intake on cardiovascular disease, coronary heart disease and stroke*. Geneva. Available at http://apps.who.int/iris/bitstream/10665/79334/1/9789241504867_eng.pdf?ua=1.
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Enabling Environment

ACTION 1. Assessment and information

1a. Nutritional assessment as part of routine care of HIV-infected children and individuals with active TB

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

3a. Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes, related World Health Assembly resolutions, and national measures adopted to give effect to these

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3b. Legislation and standards/regulation on macronutrient (food) and micronutrient supplementation and the prevailing WHO recommended doses for people with above infectious diseases to ensure safety for human intake in view of their disease/health status

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

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3d. Legislation and regulation to support healthy diets as part of the efforts to address overweight and obesity and diet-related NCDs

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- 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/.

3e. Legislation and regulation of marketing of food and non-alcoholic beverages and food safety, including to children, so as to protect healthy diets

- Abdulwadud, O.A. & Snow, M.E. 2012. Interventions in the workplace to support breastfeeding for women in employment. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006177. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006177.pub3/abstract.
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3f. Formulation and implementation of national, food-based dietary guidelines

- FAO & the University of Oxford. 2016. *Plates, pyramids and planets; Developments in national healthy and sustainable dietary guidelines: A state of play assessment.* Rome. Available at http://www.fao.org/documents/card/en/c/d8dfeaf1-f859-4191-954f-e8e1388cd0b7/.
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3h. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases

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ACTION 6. Insurance

6a. Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status

- Bai, C., Li, H. & Wu, B. 2012. Health insurance and consumption: Evidence from China's new cooperative medical scheme. *Economic Research Journal*, Volume 2:41–53.
- Liang, X., Guo, H., Jin, C., Peng, X. & Zhang, X. 2012. The effect of new cooperative medical scheme on health outcomes and alleviating catastrophic health expenditure in China: A systematic review. *PLOS ONE*, Volume 7(8):e40850. Available at http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0040850.PDF.
- Peng, X. & Conley, D. 2016. The implication of health insurance for child development and maternal nutrition: Evidence from China. *European Journal Health Economics*, Volume 17:521.
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- ILO. 2014. *Colombia: Universalizing health protection*. Social protection in Action – Building Social Protection Floors, No. 03/2014.

ACTION 9. Other enabling environment actions

9a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

Water, Sanitation and Hygiene for Good Nutrition

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Hygiene promotion to support good nutrition

1a. Handwashing education and promotion at critical periods

- Mosler, H.J. 2012. A systematic approach to behaviour change interventions for the water and sanitation sector in developing countries: A conceptual model, a review and a guideline. *International Journal of Environmental Health Research*, Volume 22(5):431–449. Available at http://www.ncbi.nlm.nih.gov/pubmed/22292899.
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1b. Provision of handwashing supplies and handwashing stations/tippy taps

- Cairncross, S., Bartram, J., Cumming, O. & Brocklehurst, C. 2010. Hygiene, sanitation, and water: What needs to be done? *PLOS Med.*, Volume 7(11):e1000365.
- Curtis, V., Scott, B. & Cardosi, J., chief contributors. 2009. *The handwashing handbook. A guide for developing a hygiene promotion programme to increase handwashing with soap*. World Bank, Washington D.C. Available at http://esa.un.org/iys/docs/san_lib_docs/Handwashing_Handbook.pdf.
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- Fink, G., Gunther, I. & Hill, K. 2011. The effect of water and sanitation on child health: Evidence from the demographic and health surveys 1986-2007. *International Journal of Epidemiology*, Volume 40(5):1196-1204.
- Perez, E., Cardosi, J., Coombes, Y., Devine, J., Grossman, A., Kullmann, C., Kumar, C.A., Mukherjee, N., Prakash, M., Robiarto, A., Setiwan, D., Singh, U. & Wartono, D. 2012. *What does it take to scale up rural sanitation*? World Bank, Water and Sanitation Program. Washington D.C. Available at https://www.wsp.org/sites/wsp.org/files/publications/WSP-What-does-it-take-to-scale-up-rural-sanitation.pdf.
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ACTION 2. Sanitation systems and management to support good nutrition

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3c. Provision of safe water during special circumstances

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Enabling Environment

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

3a. Legislation and regulations on, or relevant to sanitation, water quality, environmental health and public health

- WHO. 2011. *Guidelines for drinking-water quality, fourth edition.* Geneva. Available at http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/.

3b. Formulation/review of national water and sanitation standards

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ACTION 6. Social norms: Education/sensitization, BCC and social marketing

6a. Water, sanitation and hygiene education, BCC and social marketing, emphasizing the links between poor WASH and undernutrition

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ACTION 8. Other enabling environment actions

8a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

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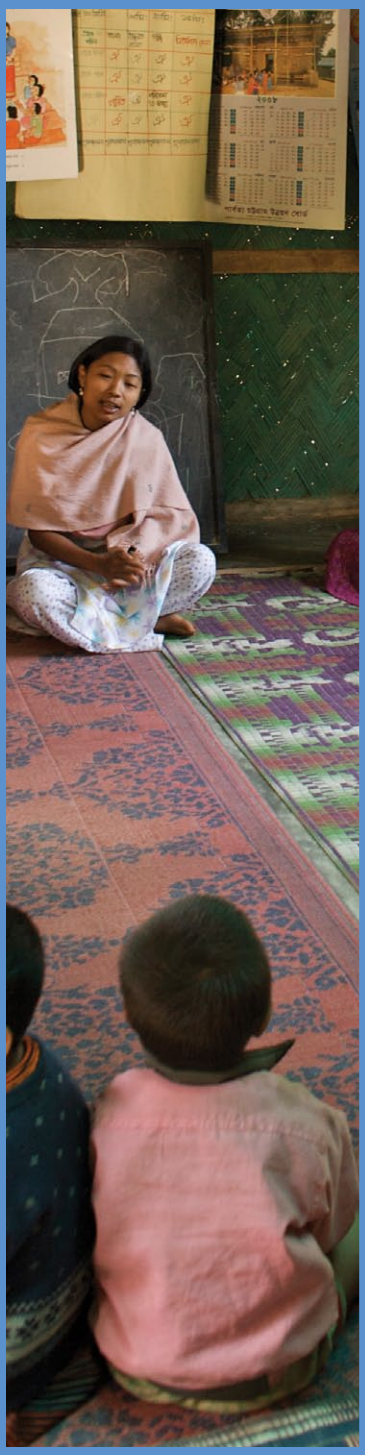
Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

SOCIAL PROTECTION



COMPENDIUM OF ACTIONS FOR NUTRITION

Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

> "Investments in nutrition and early child development are increasingly recognized as integral components of a coherent social protection system to prevent the intergenerational transmission of poverty."
>
> *(Alderman et al., 2013)*

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 section 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. 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.

SOCIAL PROTECTION

INTRODUCTION

Social protection encompasses a range of programmes and policies designed to protect vulnerable groups from exposure to risks (e.g. related to climate, livelihoods and health) while increasing their ability to mitigate them when they do occur. It concurrently promotes development with the ultimate aim of reducing the impacts of poverty. Consequently, actions for social protection can be implemented to address poor people's immediate needs while providing them with social and economic opportunities over the long term.

Social protection systems may have multiple components, including publicly funded schemes that are non-contributory for beneficiaries, and contributory programmes. They include social assistance, social insurance and labour market programmes[1,2,3] as defined below. Furthermore, social protection actions may be targeted to specific vulnerable groups (e.g. specialized food transfers for women and children) or communities (e.g. public works).[4]

- **Social assistance** provides benefits to vulnerable groups within a population (e.g. food assistance), especially households living in poverty. Social assistance schemes may be contributory or non-contributory, and are generally means tested.[5] Social assistance actions include cash transfers, school feeding, food transfers, fee waivers and public works programmes.[6]

- **Social insurance** encompasses contributory insurance, which mitigates the effects of shocks. According to the International Labour Organization (ILO) definition, this insurance mechanism is based on: (1) the prior payment of contributions – before the occurrence of the insured risk; (2) risk sharing or 'pooling'; and (3) a guarantee. Risk pooling is grounded on the principle of solidarity.[7] Examples of this form of social protection include health insurance, targeted weather-based crops insurance, livestock and social security insurance.[8]

- **Labour market programmes** are protection schemes for workers, such as unemployment benefits and skills-development training.[9]

While social protection in sub-Saharan Africa is primarily focused on poor populations through social assistance coverage, there is an increasing recognition of the need for social security and active labour market support for non-poor rural households that are vulnerable to poverty, as well as for those that repeatedly move in and out of poverty.

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1 Committee on World Food Security (CFS). 2012. *Social protection for food security*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.

2 FAO. 2013. *Social Protection and Nutrition*. Rome.

3 Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches*. The World Bank. Washington, D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.

4 CFS. 2012. *Social protection for food security*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.

5 International Labour Organization (ILO). 2014. *World social protection report 2014/15; Building economic recovery, inclusive development and social justice*. Geneva. Available at http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_245201.pdf.

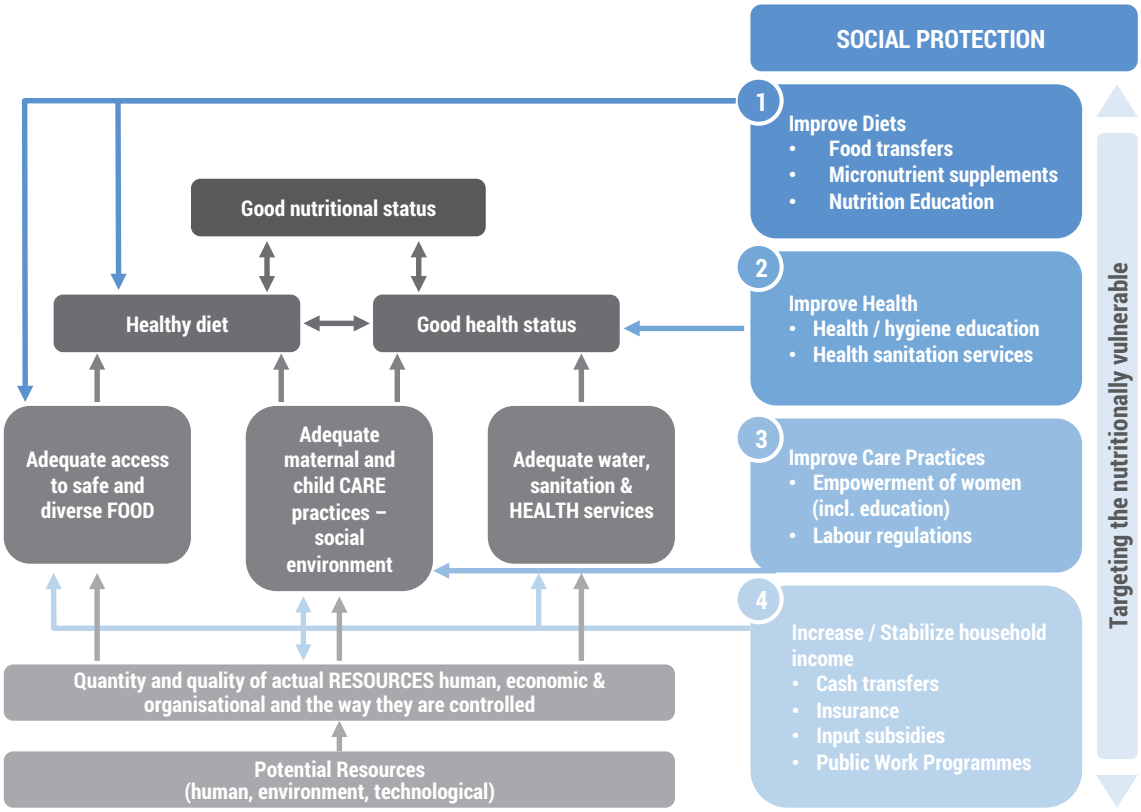
6 FAO. 2015. *The State of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

7 ILO. 2014. *World social protection report 2014/15; Building economic recovery, inclusive development and social justice*. Geneva.

8 FAO. 2015. *The State of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

9 *Ibid*.

FIGURE 7. Improving nutrition through social protection[10]



Households in distress or crisis may adopt negative coping strategies that can jeopardize their nutrition, such as selling productive assets, withdrawing children from school and reducing meal quality or quantity. These actions can have both immediate and long-term impacts on nutrition. Fortunately, there are many pathways for undertaking social protection actions to improve nutrition[11] (see Figure 7). However, the positive impacts of social protection interventions on nutrition are weakened or lost when these pathways are not taken into account or when nutrition objectives are not clearly stated as intervention objectives.

A growing body of evidence indicates that such interventions can improve nutrition outcomes, including reductions in stunting, wasting and anaemia, by addressing the immediate and underlying causes of undernutrition (such as food insecurity and limited access to health services). In addition, social protection actions can tackle basic causes of undernutrition, including poverty, gender discrimination and early marriage by bringing about structural changes that support sustained improvements in human capital.[12] The breadth of nutrition-sensitive social protection actions implicates multiple sectors and even modalities (e.g. conditional cash transfers) that are sometimes integrated.

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10 SUN Movement Secretariat (SMS). 2015. *The contribution of agriculture and social protection to improving nutrition; Scaling Up Nutrition in practice.* Geneva. Available at http://scalingupnutrition.org/wp-content/uploads/2015/09/SUN-IN-PRACTICE-4-SOCIAL-PROTECTION-ENGLISH.pdf.

11 Alderman, H., Elder, L., Goyal, A., Herforth, A., Hoberg, Y.T., Marini, A., Ruel-Bergeron, J., Saavedra, J., Shekar, M., Tiwari, S. & Zaman, H. 2013. *Improving nutrition through multi-sectoral approaches.* The World Bank. Washington D.C. Available at http://documents.worldbank.org/curated/en/2013/01/17211210/improving-nutrition-through-multisectoral-approaches.

12 European Commission. 2012. *Social transfers in the fight against hunger: A resource for development practitioners*. Reference Document; CFS. 2012. *Social protection for food security*. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome; Save the Children. 2012. *A chance to grow: How social protection can tackle child malnutrition and promote economic opportunities*; Devereux, S. 2012. *Social protection for food security: Evidence from Africa*. Rome; Hoddinott, J., Skoufias, E. & Washburn, R. 2000. *The Impact of PROGRESA on Consumption*: Report Submitted to PROGRESA. Mimeograph, International Food Policy Research Institute (IFPRI). Washington D.C.; Maluccio, J.A. & Flores, R. 2005. *Impact evaluation of a conditional cash transfer program: The Nicaraguan Red de Protección Social.* Research Report 41. IFPRI. Washington D.C.; Xu, K., Saksena, P., Joweh, M., Indikadahena, C., Kutzin, J. & Evans, D.B. 2010. *Exploring the thresholds of health expenditure for protection against financial risk*. World Health Report, 2010. Background Paper 19. WHO. Geneva. Available at http://www.who.int/entity/healthsystems/topics/financing/healthreport/19THE-thresv2.pdf?ua=1.

Greater attention to these impact pathways, the inclusion of nutrition indicators in programme design and the addition of nutrition-specific interventions all maximize the potential of social protection measures for achieving nutrition gains.

This section includes three thematic areas: Social Assistance; Social Insurance; and Labour Market Programmes. A menu of possible sub-actions is presented in each thematic area (see the Social Protection matrices), followed by an Enabling Environment section. The inclusion of a consolidated Enabling Environment section (instead of Enabling Environment sections within each thematic area) was influenced by the fact that social protection actions and sub-actions are multi-sectoral and interconnected; creating three discreet Enabling Environment sections would have created an artificial divide. Second, this structure minimizes duplication, which makes this compendium more practical and highlights its broad scope. Nutrition education, social marketing and behaviour change communication (BCC) activities are integrated into the matrix in this section.

All actions and sub-actions should take gender into account and be undertaken in a gender-sensitive manner. Additional information (including official recommendations and links to related thematic areas in other sections of the CAN) is presented in the Notes/Remarks column of the matrices. These notes equip CAN users with brief, focused contextual information to enrich multi-sectoral nutrition dialogue at the country level.

Like other sections of the CAN, nutrition assessment using anthropometric, micronutrient[13,14] and other nutrition-related indicators (e.g. food insecurity, access to health services) is critical for understanding the nutrition situation, and should guide the selection of nutrition sub-actions from this Social Protection section.

13 WHO. *Nutrition Landscape Information System (NLIS)*. Available at http://www.who.int/nutrition/databases/en/.

14 WHO. *Vitamin and Mineral Nutrition Information System (VMNIS)*. Available at http://www.who.int/vmnis/indicators/en/.

MATRIX OF ACTIONS

Social Assistance

POSSIBLE INTERVENTION RESPONSES

ACTION 1
In-kind transfers

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY**
Specialized food transfers for women and children to safeguard maternal, infant and young child nutrition	Immediate	Synthesized evidence

NOTES/REMARKS

Specialized food transfers to women and children used in "interventions to increase birthweight and linear growth during the first two years of life are likely to result in substantial gains in height and schooling (key aspects of human capital), and give some protection from development of adult chronic disease risk factors, with no or negligible adverse trade-offs" (Adair et al., 2013).

Specialized food transfers are typically distributed for a longer period of time than those provided through blanket supplementary feeding, and targeting is based on economic vulnerability (e.g. the the Special Supplemental Nutrition Program for Women, Infants and Children [WIC] in the United States) instead of nutritional vulnerability.

- Adair, L.S., Fall, C.H.D., Osmond, C., Stein, A.D., Martorell, R., Ramirez-Zea, M., Singh Sachdev, H., Dahly, D.L., Bas, I., Norris, S. A. Micklesfield, L., Hallal, P. & Victora, C.G. for the COHORTS Group. 2013. Associations of linear growth and relative weight gain during early life with adult health and human capital in countries of low and middle income: Findings from five birth cohort studies. *Lancet*, Volume 382(9891):525-534.

SUB-ACTION 1b	CAUSAL LEVEL	EVIDENCE CATEGORY
General food distribution to safeguard nutrition	Underlying/Basic	Primary studies

NOTES/REMARKS

This sub-action is typically undertaken in emergency contexts. For best results, general food distribution should be accompanied by nutrition education (Ahmed, Sraboni & Shaba, 2014).

- Ahmed, A.U., Sraboni, E. & Shaba, F.K. 2014. *Safety nets in Bangladesh: Which form of transfer is most beneficial? Operational performance of the Transfer Modality Research Initiative*. WFP & IFPRI. Dhaka.

* **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.

ACTION 2
Quasi in-kind transfers

SUB-ACTION 2a	CAUSAL LEVEL	EVIDENCE CATEGORY
Money vouchers with restricted food choices and Food Denominated Vouchers to safeguard maternal, infant and young child nutrition	Underlying/Basic	Primary studies

NOTES/REMARKS

In general, vouchers are appropriate for areas (especially urban) with well-functioning markets and merchants with the capacity – and working capital – to handle them (CFS, 2012).

Vouchers are typically distributed for a longer period of time than assistance provided through blanket supplementary feeding, and targeting is primarily based on economic vulnerability (e.g. the WIC programme in the United States) instead of nutritional vulnerability.

- CFS. 2012. *Social protection for food security.* A Report by the High level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. Available at http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-4-Social_protection_for_food_security-June_2012.pdf.

SUB-ACTION 2b	CAUSAL LEVEL	EVIDENCE CATEGORY
Vouchers for maternal health services through which nutritional support is provided	Underlying/Basic	Primary studies

NOTES/REMARKS

In general, vouchers are appropriate for areas (especially urban) with well-functioning markets and merchants with the capacity – and working capital – to handle them (CFS, 2012). These vouchers are typically targeted based on economic vulnerability.

- CFS. 2012. *Social protection for food security.* A Report by the High level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. Available at http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-4-Social_protection_for_food_security-June_2012.pdf.

SUB-ACTION 2c	CAUSAL LEVEL	EVIDENCE CATEGORY
Vouchers for child daycare for children to support recommended infant and young child feeding (IYCF) practices	Underlying/Basic	Primary studies

NOTES/REMARKS

These vouchers are typically targeted based on economic vulnerability. The recommended IYCF practices include: (1) early initiation of breastfeeding (within 1 hour of birth); (2) exclusive breastfeeding for the first six months of life; and (3) continued breastfeeding until 2 years or beyond.

SUB-ACTION 2d	CAUSAL LEVEL	EVIDENCE CATEGORY
User fee removal for child health services through which nutritional support is provided	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

User fee removal refers to situations in which at least 75 percent of user fees for assessing health services of children under 5 are removed (Bassani et al., 2013). Any proposed policy for user fee removal should ensure that the service (e.g. health) will be able to meet increased demand.

This sub-action is typically targeted based on economic vulnerability.

- Bassani, D.G., Arora, P., Wazny, K., Gaffey, M.F., Lenters, L. & Bhutta Z.A. 2013. Financial incentives and coverage of child health interventions: A systematic review and meta-analysis. *BMC Public Health*, Volume 13(Suppl. 3):30.

ACTION 3
Unconditional cash transfers

SUB-ACTION 3a	CAUSAL LEVEL	EVIDENCE CATEGORY
Cash transfers to safeguard healthy diets, particularly of pregnant and lactating women and young children	Basic	Synthesized evidence

NOTES/REMARKS

Impact evaluations conducted by FAO and UNICEF through the Protection to Production Project show that factors such as the level, timing and predictability of cash transfers affect the likelihood of households spending resources on food (Davis & Handa, 2014).

Cash transfers can help to place highly nutritious foods such as animal-source foods and fresh produce within families' economic reach; poor families would otherwise have to limit their choices to cheaper – and often less nutritious – foods. They also improve the quality of diets by increasing dietary diversity, and can promote health-seeking behaviours (FAO, 2015).

Evidence from cash-transfer programs in Colombia, Ecuador, Mexico, and Nicaragua reported by Attanasio, Battistin, and Mesnard (2012) and the food stamp programme in the United States (Breunig & Dasgupta, 2005) indicates that households commonly spend more on food and health out of transfer income than from other income sources, even when the transfers are only indirectly linked to nutrition and health (Alderman, 2014). Asfaw et al. (2014) found that the Cash Transfer for Orphans and Vulnerable Children programme in Kenya had positively influenced the consumption of dairy, eggs, meat, fish and fruit in households with fewer members and female-headed households – in part from their own increased production (FAO, 2015).

Unconditional cash transfers are typically distributed for longer periods of time than assistance provided through blanket supplementary feeding, and targeting is primarily based on economic vulnerability instead of nutritional vulnerability.

For best results, unconditional cash transfers should be accompanied by nutrition education (Ahmed, Sraboni & Shaba, 2014).

- Davis, B. and Handa, S. 2014. *The broad range of cash transfer impacts in sub-Saharan Africa: Consumption, human capital and productive activity*. Research brief. Available at https://transfer.cpc.unc.edu/wp-content/uploads/2015/09/TransferProjectBrief_2014-01_BroadImpactsofSCT.pdf.
- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.
- Alderman, H. 2014. *Can transfer programmes be made more nutrition-sensitive?* IFPRI Discussion Paper 01342. Available at http://ssrn.com/abstract=2423776
- Asfaw, S., Davis, B., Dewbre, J., Handa, S. & Winters, P. 2014. Cash transfer programme, productive activities and labour supply: Evidence from a randomised experiment in Kenya. *Journal of Development Studies*, Volume 50(8):1172–1196.
- Ahmed, A.U., Sraboni, E. & Shaba, F.K. 2014. *Safety nets in Bangladesh: Which form of transfer is most beneficial?* Operational performance of the Transfer Modality Research Initiative. WFP & IFPRI. Dhaka.

ACTION 4
School-based programmes

SUB-ACTION 4a	CAUSAL LEVEL	EVIDENCE CATEGORY
School feeding to safeguard nutrition	Underlying/Basic	Primary studies

NOTES/REMARKS

School feeding is targeted to school-age children (beyond the first 1,000 days of life) and serves as both a social safety net and an education programme. However, school feeding programmes can be designed to support nutritional outcomes. For example, the diversification of school meals, the addition of micronutrients to food through fortification, the delivery of micronutrient supplements and deworming are all cost-effective ways of enhancing nutrition in school, which can be integrated with school feeding. The provision of healthy, diversified school meals not only directly impacts children's nutritional status, it helps children to adopt healthy eating habits that can be maintained through life. Long-term positive nutritional impacts can be expected since school feeding and complementary actions lead to improved educational and cognitive outcomes, which have inter-generational benefits (children's education level is a strong determinant of child growth as measured by stunting) (Bundy et al., 2009).

For best results, school feeding should be accompanied by nutrition education (either within the curriculum or as an extra-curricular activity), and parental involvement at school and home (Knai, Pomerleau, Lock & McKee, 2006).

Combining school feeding with locally sourced food can support local production and affect local eating practices, especially when combined with awareness-raising campaigns and nutrition education.

- Bundy, D., Burbano, C., Grosh, M., Gelli, A., Jukes, M. & Drake, L. 2009. *Rethinking school feeding: Social safety nets, child development, and the education sector.* The World Bank. Washington D.C.
- Knai, C., Pomerleau, J., Lock, K. & McKee, M. 2006. Getting children to eat more fruit and vegetables: A systematic review. *Preventive Medicine*, Volume 42(2):85-95.

(ACTION 4 continued ...)

(... ACTION 4 continued)

SUB-ACTION 4b Take home food rations to safeguard nutrition	CAUSAL LEVEL Underlying/Basic	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

Take-home rations are used more as an incentive for schooling or as an in-kind transfer to households than for their nutritional benefits. Take-home rations positively affect school enrolment, attendance and cognitive abilities, which are known to delay the age of first pregnancy (Bundy et al., 2009). More information about the links between adolescent pregnancy and nutrition is provided in sub-action 1a in the thematic area on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services. A cross-sectional study demonstrated that staying in school longer reduced the odds of child stunting in Bangladesh and Indonesia, underscoring the relevance of sub-actions that provide incentives for schooling (Semba, 2008). The 'Cost of Hunger' studies have demonstrated similar results.

- Bundy, D., Burbano, C., Grosh, M., Gelli, A., Jukes, M. & Drake, L. 2009. *Rethinking school feeding: Social safety nets, child development, and the education sector.* The World Bank. Washington D.C.
- Semba, R.D. 2008. Effect of parental formal education on risk of child stunting in Indonesia and Bangladesh: A cross-sectional study. *Lancet*, Volume 371:322-28. Available at http://www.academia.edu/275536/Effect_of_Parental_Formal_Education_on_Risk_of_Child_Stunting_In_Indonesia_and_Bangladesh_a_Cross-Sectional_Study.
- African Union Commission, NEPAD Planning and Coordinating Agency, United Nations Economic Commission for Africa & WFP. *Cost of hunger in Africa series*. Available at http://www.wfp.org/policy-resources/corporate?type=4730&tid_2=All&tid_4=All.

ACTION 5
Social transfers

SUB-ACTION 5a Non-contributory pensions to safeguard nutrition	CAUSAL LEVEL Underlying/Basic	EVIDENCE CATEGORY Primary studies

NOTES/REMARKS

In a study of South Africa's pension programme, Duflo (2003) found that only pensions received by retired women had a significant impact on the nutritional status of their grandchildren. No impact was found for relatives of male pensioners (Alderman, 2015).

Pension programmes can also contribute to food security. For example, Martínez (2004) found that the social (non-contributory) pension provided by Bolivia's Bono Solidario programme was almost entirely spent on increasing food consumption, which rose by 6.3 percent. Most of this increased consumption – achieved in part by greater home production – was comprised of animal-source foods, vegetables and fruit – all critical components of healthy diets (FAO, 2015).

- Duflo E. 2003. Grandmothers and granddaughters: Old age pensions and intrahousehold allocation in South Africa. *World Bank Economic Review*, Volume 17(1):1-25.
- Alderman, H. 2015. *Leveraging social protection programmes for improved nutrition: Summary of evidence prepared for the Global Forum on Nutrition-Sensitive Social Protection Programs,* 2015. The World Bank, Washington D.C. Available at http://documents.worldbank.org/curated/en/462981467040874717/Leveraging-social-protection-programs-for-improved-nutrition-summary-of-evidence-prepared-for-the-global-forum-on-nutrition-sensitive-social-protection-programs-2015.
- Martínez, S. 2004. *Pensions, poverty and household investments in Bolivia*. Doctoral Dissertation. University of California at Berkeley.
- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty.* Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

SUB-ACTION 5b Child support grants to safeguard nutrition	CAUSAL LEVEL Underlying/Basic	EVIDENCE CATEGORY Practice-based studies

NOTES/REMARKS

Participation in a cash transfer programme led to a 10 percent to 30 percent increase in food expenditure in Kenya, Malawi and Zambia. Part of this was spent on significantly larger amounts of animal-source foods such as meat and dairy, contributing to increased dietary diversity among beneficiaries (Davis & Handa, 2014). A review of the project found that predictability and timing played a significant role in enhancing food consumption and dietary diversity.

The impact of cash transfer programmes on anthropometric measures of children has been less clear. Programmes in South Africa and Zambia showed evidence of significantly reduced stunting among better-educated mothers, while in Malawi, the programme significantly reduced undernutrition. In addition to dietary diversity, there were also consistent impacts on meal frequency, food consumption and participation in health and nutrition activities, which contribute to improved nutrition in the long-term. The lack of consistent data on anthropometric outcomes likely stems from the multiple underlying determinants of nutritional status, the short timeframe of most evaluations and the relatively small number of young children among orphan, vulnerable and labour-constrained populations (Davis and Handa, 2014).

This sub-action is typically targeted based on economic vulnerability.

- Davis, B. & Handa, S. 2014. *The broad range of cash transfer impacts in sub-Saharan Africa: Consumption, human capital and productive activity*. Research Brief. Available at https://transfer.cpc.unc.edu/wp-content/uploads/2015/09/TransferProjectBrief_2014-01_BroadImpactsofSCT.pdf.

ACTION 6
Conditional cash/voucher transfers

SUB-ACTION 6a	CAUSAL LEVEL	EVIDENCE CATEGORY
Cash/voucher transfers issued conditionally on meeting child school enrolment and attendance to safeguard child nutrition	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

Impact evaluations conducted by FAO and UNICEF through the Protection to Production project show that factors such as the level, timing and predictability of cash transfers affect the likelihood of households spending resources on food (Davis & Handa, 2014).

This sub-action is typically targeted based on economic vulnerability. Cash transfers can help to place highly nutritious foods such as animal-source foods and fresh produce within families' economic reach; poor families would otherwise have to limit their choices to cheaper – and often less nutritious – foods. In addition, cash transfers improve the quality of diets by increasing dietary diversity.

Mexico's *PROGRESA/Oportunidades/Prospera* programme, which included conditional cash transfers, positively impacted children's physical, cognitive and language development. Specifically, the programme resulted in higher mean growth for children 12–36 months and lower probability of stunting. The improved child growth associated with this programme was estimated to increase lifetime earnings by 2.9 percent. This effect is likely to be higher when the impacts of improved nutrition on cognitive development and education are considered. The programme's positive impact can partly be attributed to its targeting of women as recipients of cash transfers, and awareness-raising on health and nutrition. For children under 5 in the programme localities, health visits increased by 18 percent, reducing illnesses by 12 percent. Greater and more diverse food consumption was accompanied by a range of complementary interventions such as micronutrient supplementation and health care (FAO, 2015).

For best results, conditional cash and voucher transfers should be accompanied by nutrition education (Ahmed, Sraboni & Shaba, 2014).

- Davis, B. & Handa, S. 2014. *The broad range of cash transfer impacts in sub-Saharan Africa: Consumption, human capital and productive activity.* Research brief. Available at https://transfer.cpc.unc.edu/wp-content/uploads/2015/09/TransferProjectBrief_2014-01_BroadImpactsofSCT.pdf.
- FAO. 2015. *The State of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.
- Ahmed, A.U., Sraboni, E. & Shaba, F.K., 2014. *Safety nets in Bangladesh: Which form of transfer is most beneficial? Operational performance of the Transfer Modality Research Initiative*. WFP & IFPRI. Dhaka.

SUB-ACTION 6b	CAUSAL LEVEL	EVIDENCE CATEGORY
Cash/voucher transfers issued conditionally on uptake of mother and child health services to safeguard maternal and child nutrition	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

This sub-action is typically targeted based on economic vulnerability. For best results, conditional cash and voucher transfers should be accompanied by nutrition education (Ahmed, Sraboni & Shaba, 2014).

- Ahmed, A.U., Sraboni, E. & Shaba, F.K. 2014. *Safety nets in Bangladesh: Which form of transfer is most beneficial? Operational performance of the Transfer Modality Research Initiative*. WFP & IFPRI. Dhaka.

SUB-ACTION 6c	CAUSAL LEVEL	EVIDENCE CATEGORY
Cash/voucher transfers issued conditionally on attendance of mothers at nutrition education/ behaviour change sessions	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

This sub-action is typically targeted based on economic vulnerability. The provision of cash transfers or vouchers can be coupled with: nutrition education and BCC to promote optimal IYCF practices; the production and consumption of nutritious foods for healthy diets; and basic sanitation and hygiene practices that support good nutrition (WFP, 2014). This sub-action may also be linked to nutrition counselling sub-actions covered in the Health section of the CAN and food-based nutrition education covered in the thematic area on Food Consumption Practices for Healthy Diets (Food, Agriculture and Healthy Diets section of the CAN).

- WFP. 2014. *Cash and vouchers manual.* Second edition. Rome. Available at http://docustore.wfp.org/stellent/groups/public/documents/staffdev/wfp271375.pdf.

ACTION 7
Public works programmes

SUB-ACTION 7a	CAUSAL LEVEL	EVIDENCE CATEGORY
In-kind food transfers for participation in public works programmes to safeguard healthy diets for good nutrition	Underlying/Basic	Practice-based studies

NOTES/REMARKS

This sub-action is typically targeted based on economic vulnerability. Awareness-raising on health and nutrition can improve results (Ahmed et al., 2010). Day care services can also make the sub-action more nutrition sensitive (see the thematic area on IYCF). It is important to remember that public works target working age, able-bodied individuals, and therefore might exclude the most nutritionally vulnerable members of society.

- Ahmed, A.U., Quisumbing, A., Nasreen, M., Hoddinott, J. & Bryan, E. 2010. *Comparing food and cash transfers to the ultra-poor in Bangladesh*. IFPRI Research Monograph 163. IFPRI, Washington D.C.

SUB-ACTION 7b	CAUSAL LEVEL	EVIDENCE CATEGORY
Cash transfers for participation in public works programmes to safeguard healthy diets for good nutrition	Underlying/Basic	Primary studies

NOTES/REMARKS

This sub-action is typically targeted based on economic vulnerability. The inclusion of awareness-raising on health and nutrition can improve results (Ahmed et al., 2010). Day care services can also make the sub-action more nutrition sensitive (see the thematic area on IYCF). It is important to remember that public works target working age, able-bodied individuals, and therefore might exclude the most nutritionally vulnerable members of society.

In India, Deininger and Liu (2013) found that participants in the Andhra Pradesh National Rural Employment Scheme significantly increased their intake of protein and energy in the short term. "In Bangladesh, road improvement projects led to a 27 percent increase in agricultural wages, an 11 percent increase in per capita consumption and a rise in school enrolment for girls and boys, which can have an indirect positive influence on nutrition (Khandker, Bakht, & Koolwal, 2006)" (FAO, 2015).

- Ahmed, A.U., Quisumbing, A., Nasreen, M., Hoddinott, J. & Bryan, E. 2010. *Comparing food and cash transfers to the ultra-poor in Bangladesh*. IFPRI Research Monograph 163. IFPRI, Washington D.C.
- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: breaking the cycle of rural poverty.* Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

Social Insurance

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Insurance

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY **
Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status	Underlying/Basic	Synthesized evidence

NOTES/REMARKS

Some schemes (e.g. health insurance) may be incompatible with a universal health care approach, which is being increasingly promoted (Kutzin, 2013). However, those who are able to contribute can be covered by health insurance while the population that is unable to contribute to health insurance can be subsidized in order to reach universal coverage (ILO, 2014).

Further information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/.
- ILO. 2014. *Colombia: Universalizing health protection. Social protection in action – Building social protection floors*, No. 03/2014.

SUB-ACTION 1b	CAUSAL LEVEL	EVIDENCE CATEGORY
Targeted weather-based insurance for crops/livestock to safeguard healthy diets for good nutrition	Underlying/Basic	Practice-based studies

NOTES/REMARKS

These insurance schemes include extreme weather risk insurance for smallholder farmers and index-linked livestock insurance for poor livestock keepers. They promote healthy diets for good nutrition by: (1) mitigating crisis and preventing negative coping strategies (including reduced food consumption, depletion of productive assets, migration and risky sexual behaviours), which can have adverse effects on nutritional status; (2) encouraging biodiversity and dietary diversity; and (3) preserving livelihoods.

SUB-ACTION 1c	CAUSAL LEVEL	EVIDENCE CATEGORY
Social security insurance to safeguard nutrition	Underlying/Basic	Primary studies

NOTES/REMARKS

Social security insurance often includes maternity protection and unemployment insurance to safeguard nutrition. More information about maternity protection is provided in the Enabling Environment section under the Legislation, regulations/standards, protocols and guidelines sub-heading.

* **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.

Labour Market Programmes

POSSIBLE INTERVENTION RESPONSES

ACTION 1
Publically funded asset transfers with skills training

SUB-ACTION 1a	CAUSAL LEVEL*	EVIDENCE CATEGORY**
Skills training plus asset transfer to safeguard nutrition	Underlying, Basic and Immediate with livestock	Practice-based studies

NOTES/REMARKS

In the late 1990s, Malawi's Government implemented the Starter Pack programme with donor support, which distributed free seeds and fertilizer to all 2.8 million smallholder families in the country, boosting household maize production by 100-150 kg per household, reducing the annual food gap and helping to stabilize food prices across seasons (Levy, 2005; CFS, 2012).

Combining productive interventions with cash transfers can increase consumption from families' own food production along with dietary diversity. This can be achieved by complementing cash transfers with nutrition-sensitive agricultural extension programmes (CFS, 2012).

Alignment between programmes can achieve synergies. In Ethiopia, links were established between the Productive Safety Nets Programme and Household Asset Building Programme through Ethiopia's Food Security Strategy, which increased food security and improved nutrition outcomes.

- Levy, S., Ed. 2005. *Starter Packs: A strategy to fight hunger in developing and transition countries? Lessons from the Malawi experience, 1998-2003*. Wallingford, CABI.
- CFS. 2012. *Social protection for food security*. A report by the High level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome. Available at http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-4-Social_protection_for_food_security-June_2012.pdf.

SUB-ACTION 1b	CAUSAL LEVEL	EVIDENCE CATEGORY
Skills training, asset transfer, and cash or food transfer to safeguard nutrition	Underlying, Basic and Immediate with livestock	Practice-based studies

NOTES/REMARKS

This sub-action builds 'tangible' assets (e.g. food stores, cash savings, trees, land, livestock, tools, roads and water and sanitation infrastructure) using people's labour, and provides 'intangible' assets (e.g. training in building, management, maintenance, and the use of these assets to increase food production) (WFP, 2016). The sub-action comprises: (1) a one-time productive-asset transfer or support for building a household or community asset; (2) technical skills training on managing the productive asset; (3) a food or cash transfer for a defined amount of time; and (4) when needed, health and nutrition education, basic health services and life-skills training (Banerjee et al., 2015).

This sub-action serves to immediately improve and stabilize food consumption of vulnerable persons in order to safeguard healthy diets by enhancing food availability and dietary diversity, and reducing incentives to sell (or eat) household assets (including productive assets). It also supports one or more of the following longer-term nutrition-related objectives to:

(1) Improve physical access to markets and strengthen and diversify livelihoods and incomes, which support expenditures related to nutrition;
(2) Protect livelihoods from shocks, thereby maintaining local food production and income to support healthy diets in risk-prone areas;
(3) Reduce hardships and women's work burden, freeing time for nutrition-related care practices (such as breastfeeding); and
(4) Improve access to basic social services, WASH and health services (e.g. through the construction of latrines and handwashing facilities) that contribute to good nutrition (WFP, 2016).

This sub-action applies the Graduation Model.

- WFP. 2016. *Food assistance for assets (FFA) for zero hunger and resilient livelihoods: A programme guidance manual*. Rome.
- Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Parienté, W., Shapiro, J., Thuysbaert, B. & Udry, C. 2015. A Multi-faceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, Volume 348(6236).

* **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.

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. One Enabling Environment section was developed for the three thematic areas included in the Social Protection section in view of the transversal nature of Social Protection and in an effort to minimize duplication in the CAN.

ACTION 1. Assessment and information

SUB-ACTION 1a Vulnerability assessment and early warning analysis	**CAUSAL LEVEL** Basic
SUB-ACTION 1b Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic
SUB-ACTION 1c M&E of sub-actions covered by this thematic area	**CAUSAL LEVEL** Basic

ACTION 2. Policy coherence

SUB-ACTION 2a Policy coherence between policies/strategies on maternal/reproductive and neonatal health, agriculture/food, labour, trade, gender, social protection, industry and nutrition	**CAUSAL LEVEL** Basic

NOTES/REMARKS

Social sector policy should be formulated or reformed to promote synergies with nutrition. For instance, an impact evaluation on the combination of cash transfers with vegetable seeds and training in homestead gardening in Lesotho showed greater impacts than stand-alone cash transfers in terms of productive capacity – especially among labour-constrained households (FAO, 2015).

- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

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

SUB-ACTION 3a Legislation and regulations on: (1) maternity protection based on ILO Maternity Protection Convention 183 (2000) and Recommendation 191 (2000); (2) occupational health based on ILO Occupational Safety and Health Convention No.155 (1981); (3) ending the inappropriate marketing of complementary food; and (4) implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these	**CAUSAL LEVEL** Underlying/Basic

NOTES/REMARKS

This sub-action includes the development, implementation and enforcement of related legislation and regulations.

SUB-ACTION 3b Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care, and the prevention and management of nutrition-related illnesses/diseases	**CAUSAL LEVEL** Underlying/Basic

NOTES/REMARKS

Further information about nutrition-related health services is provided in the thematic areas on Nutrition Interventions Delivered through Reproductive and Paediatric Health Services, and Nutrition-related Disease Prevention and Management.

SUB-ACTION 3c Legislation on user fee exemption for child and reproductive health services through which nutrition support is provided	**CAUSAL LEVEL** Basic

ACTION 4. Fiscal policy

SUB-ACTION 4a Taxes and subsidies to support good nutrition	CAUSAL LEVEL Basic

NOTES/REMARKS

This sub-action includes subsidization or removal of taxation on supplies and inputs for social assistance schemes.

ACTION 5. Planning, budgeting and management

SUB-ACTION 5a Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, labour, trade, gender, social protection, industry and nutrition 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.

This sub-action fosters coordinated planning and budgeting for nutrition in these areas.

ACTION 6. Coordination

SUB-ACTION 6a Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Social Protection 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 supporting the engagement of ministries of health, agriculture, gender and social affairs, labour and other ministries in multi-stakeholder, multi-sectoral nutrition platforms – at both the decision-making and technical levels – to ensure that policies, plans and guidelines are operationalized, and that a coherent, multi-sectoral approach is used to address malnutrition.

ACTION 7. Infrastructure and technology

SUB-ACTION 7a Use of time-saving, transfer technologies to help free time that may be dedicated to childcare, particularly where women/mothers are targeted	CAUSAL LEVEL Underlying/Basic

NOTES/REMARKS

Time-saving transfer technologies include mobile phone-based or electronic transfers instead of physical disbursement at physical sites, and facilitated access to energy-saving, low emission stoves and cooking equipment. This sub-action involves guidance on how to use these technologies.

ACTION 8. Other enabling environment actions

SUB-ACTION 8a 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

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POSSIBLE INTERVENTION RESPONSES

ACTION 1. In-kind transfers

1a. Specialized food transfers for women and children to safeguard maternal, infant and young child nutrition

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ACTION 2. Quasi in-kind transfers

2a. Money vouchers with restricted food choices and Food Denominated Vouchers to safeguard maternal, infant and young child nutrition

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2b. Vouchers for maternal health services through which nutritional support is provided

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2d. User fee removal for child health services through which nutritional support is provided

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ACTION 3. Unconditional cash transfers

3a. Cash transfers to safeguard healthy diets, particularly of pregnant and lactating women and young children

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ACTION 6. Conditional cash/voucher transfers

6a. Cash/voucher transfers issued conditionally on meeting child school enrollment and attendance to safeguard child nutrition

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- Hoddinott, J., Gilligan, D., Hidrobo, M., Margolies, A., Roy, S., Sandstrom, S., Schwab, B. & Upton, J. 2013. *Enhancing WFP's capacity and experience to design, implement, monitor, and evaluate vouchers and cash transfer programmes: Study summary*. IFPRI Project Summary. IFPRI, Washington D.C. Available at http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127961.
- Lagarde, M., Haines, A. & Palmer, N. 2009. The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database of Systematic Reviews*, Volume 7(4). Art. No. CD008137.
- WHO. *Conditional cash transfer programmes and nutritional status.* eLENA. Available at http://www.who.int/elena/titles/cash_transfer/en/.

6c. Cash/voucher transfers issued conditionally on attendance of mothers at nutrition education/behavior change sessions

- Bassani, D.G., Arora, P., Wazny, K., Gaffey, M.F., Lenters, L. & Bhutta, Z.A. 2013. Financial incentives and coverage of child health interventions: A systematic review and meta-analysis. *BMC Public Health*, Volume 13(Suppl. 3):30.
- Hidrobo, M., Hoddinott, J., Peterman, A., Margolies, A. & Moreira, V. 2014. Cash, food or vouchers? Evidence from a randomized experiment in Northern Ecuador. *Journal of Development Economics*, Volume 107:144-156.
- Lagarde, M., Haines, A. & Palmer, N. 2009. The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database of Systematic Reviews*, Volume 7(4). Art. No. CD008137.
- WFP. 2014. *Cash and vouchers manual*. Second Edition. Rome.

ACTION 7. Public works programmes

7a. In-kind food transfers for participation in public works programmes to safeguard healthy diets for good nutrition

- Ahmed, A.U., Quisumbing, A., Nasreen, M., Hoddinott, J. & Bryan, E. 2010. *Comparing food and cash transfers to the ultra-poor in Bangladesh*. IFPRI Research Monograph 163. IFPRI, Washington D.C.
- Dandekar, K. 1983. *Employment guarantee scheme: Employment opportunities for women.* Gokhle Institute of Politics and Economics, Pune.
- Webb, P. 1995. *Employment programs for food security in rural and urban Africa: Experiences in Niger and Zimbabwe*, Chapter 7: Employment for Poverty Reduction and Food Security, edited by von Braun, J. IFPRI, Washington D.C.

7b. Cash transfers for participation in public works programmes to safeguard healthy diets for good nutrition

- Ahmed, A.U., Quisumbing, A., Nasreen, M., Hoddinott, J. & Bryan, E. 2010. *Comparing food and cash transfers to the ultra-poor in Bangladesh*. IFPRI Research Monograph 163. IFPRI, Washington D.C.
- Mascie-Taylor, C.G.N., Marks, M.K., Goto, R. & Islam, R. 2010. Impact of a cash for work programme on food consumption and nutrition among women and children facing food insecurity in Bangladesh. *Bulletin of the World Health Organization,* Volume 88:854-860.
- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

Social Insurance

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Insurance

1a. Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status

- Bai, C., Li, H. & Wu, B. 2012. Health insurance and consumption: Evidence from China's new cooperative medical scheme. *Economic Research Journal*, Volume 2:41–53.
- Liang, X., Guo, H., Jin, C., Peng, X. & Zhang, X. 2012. The effect of new cooperative medical scheme on health outcomes and alleviating catastrophic health expenditure in China: A systematic review. *PLOS ONE*, Volume 7(8):e40850. Available at http://journals.plos.org/plosone/article/asset?id=10.1371/journal.pone.0040850.PDF.
- Peng, X. & Conley, D. 2016. The implication of health insurance for child development and maternal nutrition: Evidence from China. *European Journal Health Economics*, Volume 17:521.
- Spaan, E., Mathijssen, J., Tromp, N., McBain, F., ten Have, A. & Baltussen, R. 2012. The impact of health insurance in Africa and Asia: A systematic review. *Bulletin of the World Health Organization*, Volume 90:685–692. Available at https://www.researchgate.net/publication/230864855_The_Impact_of_Health_Insurance_in_Africa_and_Asia_A_Systematic_Review.

1b. Targeted weather-based insurance for crops/livestock to safeguard healthy diets for good nutrition

- CFS. 2012. *Social protection for food security. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome. Available at http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-4-Social_protection_for_food_security-June_2012.pdf.
- Cole, S., Bastian G., Vyas S., Wendel, C. & Stein, D. 2012. *The effectiveness of index-based micro-insurance in helping smallholders manage weather-related risks*. EPPI-Centre, Social Science Research Unit. London. Institute of Education, University of London.
- Hill, R.V. & Viceisza, A. 2010. *An experiment on the impact of weather shocks and insurance on risky investment*. IFPRI Discussion Papers No. 974. IFPRI, Washington D.C.
- Tirivayi, N., Knowles, M. & Davis, B., 2013. *The interaction between social protection and agriculture: A review of evidence*. FAO. Rome.

1c. Social security insurance to safeguard nutrition

- Baker, M. & Milligan, K. 2008. Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. *Journal of Health Economics*, Volume 27(4):871–887. Available at http://www.sciencedirect.com/science/article/pii/S0167629608000131.
- Chuang, C.H., Chang, P.J., Chen, Y.C., Hsieh, W.S., Hurng, B.S., Lin, S.J. & Chen, P.C. 2010. Maternal return to work and breastfeeding: A population-based cohort study. *International Journal of Nursing Studies*, Volume 47(4):461–474.
- Cooklin, A.R., Donath, S.M. & Amir, L.H. 2008. Maternal employment and breastfeeding: Results from the longitudinal study of Australian Children. *Acta Peasiatrica,* University of Melbourne, Volume 97(5):620–623.
- Kamerman, S.B. 2007. *Maternity, paternity, and parental leave policies: The potential impacts on children and their families*. 3rd rev. ed. DSW Compton Foundation Centennial Professor Columbia University, School of Social Work. New York.
- Mirkovic, K., Perrine, C.G. & Scanlon, K.S. 2016. Paid maternity leave and breastfeeding outcomes. *Birth*, Volume Sep;43(3):233-239. Available at https://www.ncbi.nlm.nih.gov/pubmed/26991788.

Labour Market Programmes

POSSIBLE INTERVENTION RESPONSES

ACTION 1. Publically funded asset transfers with skill training

1a. Skills training plus asset transfer to safeguard nutrition

- Argent, J., Augsburg, B. & Rasul, I. 2013. *Livestock asset transfers with and without training. Evidence from Rwanda*. International Growth Centre Working Paper, London School of Economic and Political Science, London. Available at http://www.theigc.org/wp-content/uploads/2014/09/Augsberg-Et-Al-2013-Working-Paper.pdf.
- WFP. 2016. *Food assistance for assets (FFA) for zero hunger and resilient lvelihoods: A Programme Guidance Manual*. Rome.

1b. Skills training, asset transfer, and cash or food transfer to safeguard nutrition

- Bandiera, O., Burgess, R., Das, N., Gulesci, S., Rasul, I. & Sulaiman, M. 2013. *Can basic entrepreneurship transform the economic lives of the poor?* International Growth Centre Working Paper, London School of Economic and Political Science, London. Available at http://eprints.lse.ac.uk/58032/.
- Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Parienté, W., Shapiro, J., Thuysbaert, B. & Udry, C. 2015. A multi-faceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, Volume 348(6236).
- WFP. 2016. *Food assistance for assets (FFA) for zero hunger and resilient livelihoods: A programme guidance manual*. Rome.

ACTION 2. Policy coherence

2a. Policy coherence between policies/strategies on maternal/reproductive and neonatal health, agriculture/food, labour, trade, gender, social protection, industry and nutrition

- Dewbre, J., Daidone, S., Davis, B., Miguélez, B., Niang, O. & Pellerano, L. 2015. *Lesotho Child Grant Programme and Linking Food Security to Social Protection Programme*. PtoP (From Protection to Production) project report, FAO, Rome.
- FAO. 2015. *The state of food and agriculture. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome. Available at http://www.fao.org/3/a-i4910e.pdf.

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

3a. Legislation and regulations on: (1) maternity protection based on ILO Maternity Protection Convention 183 (2000) and Recommendation 191 (2000); (2) occupational health based on ILO Occupational Safety and Health Convention No. 155 (1981); (3) ending the inappropriate marketing of complementary food; and (4) implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these

- Abdulwadud, O.A. & Snow, M.E. 2012. Interventions in the workplace to support breastfeeding for women in employment. *Cochrane Database of Systematic Reviews*, Issue 10. Art. No. CD006177. Available at http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006177.pub3/abstract.
- Baker, M. & Milligan, K. 2008. Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. *Journal of Health Economics,* Volume 27(4):871–887. Available at http://www.sciencedirect.com/science/article/pii/S0167629608000131.
- Chuang, C.H., Chang, P.J., Chen, Y.C., Hsieh, W.S., Hurng, B.S., Lin, S.J. & Chen, P.C. 2010. Maternal return to work and breastfeeding: A population-based cohort study. *International Journal of Nursing Studies*, Volume 47(4):461–474.
- Cooklin, A.R., Donath, S.M. & Amir, L.H. 2008. Maternal employment and breastfeeding: Results from the longitudinal study of Australian Children. *Acta Peasiatrica,* University of Melbourne, Volume 97(5):620–623.
- Euromonitor International Consulting Ltd. 2015. *Baby food trends in Brazil and Norway*. WHO.
- Piwoz, E.G. & Huffman, S.L. 2015. The impact of marketing of breast-milk substitutes on WHO-recommended breastfeeding practices. *Food and Nutrition Bulletin,* Volume 36(4):373-386. Available at http://www.ncbi.nlm.nih.gov/pubmed/26314734.
- Rollins, N.C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C.K., Martines, J.C., Piwoz, E.G., Richter, L.M. & Victora, C.G. on behalf of The Lancet Breastfeeding Series Group. 2016. Why invest, and what it will take to improve breastfeeding practices? *Lancet*, Volume 387:491-504. Available at http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf.
- Smith, J.P., Sargent, G.M., Mehta, K., James, J., Berry, N., Koh, C., Salmon, L. & Blake, M. 2015. *A rapid evidence assessment. Does marketing of commercially available complementary foods affect infant and young child feeding?* Available at http://www.who.int/nutrition/topics/CF_anu_effects_marketingcommercial.pdf?ua=1.
- Tzioumis, E., Kay, M., Wright, M. & Adair, L. *Health effects of commercially available complementary foods: A systematic review*. Department of Nutrition, Gillings School of Global Public Health University of North Carolina at Chapel Hill. Chapel Hill. Available at http://www.who.int/nutrition/topics/CF_health_effects_commercially_systematicreview.pdf.
- 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.
- Scientific and Technical Advisory Group on Inappropriate Promotion of Foods for Infants and Young Children. *Background paper 4: Report on the regulatory environment.* WHO. First Meeting of the WHO Scientific and Technical Advisory Group on Inappropriate Promotion of Foods for Infants and Young Children on 24&25 June 2013. Geneva. Available at http://www.who.int/nutrition/topics/CF_stag_backgroundpaper_report_regulatory_environment.pdf.
- Scientific and Technical Advisory Group. *Draft clarification and guidance on inappropriate promotion of foods for infants and young children: Report of the Scientific and Technical Advisory Group (STAG) on inappropriate promotion of foods for infants and young children*. WHO. Available at http://www.who.int/nutrition/events/stag-report-inappropriate-promotion-infant-foods-en.pdf.
- WHO. 2012. *A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Available at http://www.who.int/dietphysicalactivity/framework_marketing_food_to_children/en/.
- World Health Assembly. 2010. *World Health Assembly resolution WHA63.14: Marketing of food and non-alcoholic beverages to children*. Geneva. Available at http://apps.who.int/gb/ebwha/pdf_files/WHA63-REC1/WHA63_REC1-P2-en.pdf?ua=1.
- WHO. *Discussion paper: Clarification and guidance on inappropriate promotion of foods for infants and young children – Draft*. Consultation on the public draft of the clarification and guidance on inappropriate promotion of foods for infants and young children. 17&18 August 2015, Geneva. Available at http://www.who.int/nutrition/events/inappropriate-food-promotion-consultation-comments/en/.

- WHO. 2010. *Set of recommendations on the marketing of foods and non-alcoholic beverages to children*. Geneva. Available at http://www.who.int/dietphysicalactivity/publications/recsmarketing/en/.
- WHO. 1981. *International code of marketing of breast-milk substitutes*. Geneva. Available at http://www.who.int/nutrition/publications/code_english.pdf.
- WHO. *Guidance on ending the inappropriate promotion of foods for infants and young children*. Geneva. Available at http://www.who.int/nutrition/topics/guidance-inappropriate-food-promotion-iyc/en/.
- 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/.

3b. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care, and the prevention and management of nutrition-related illnesses/diseases

- Kutzin, J. 2013. Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, Volume 9(8):602-611. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3738310/.

ACTION 8. Other enabling environment actions

8a. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

- WHO. 2016. *Technical report: Addressing and managing conflicts of interest in the planning and delivery of nutrition programmes at country level*. Report of a technical consultation convened in Geneva, Switzerland, on 8-9 October 2015. Geneva.

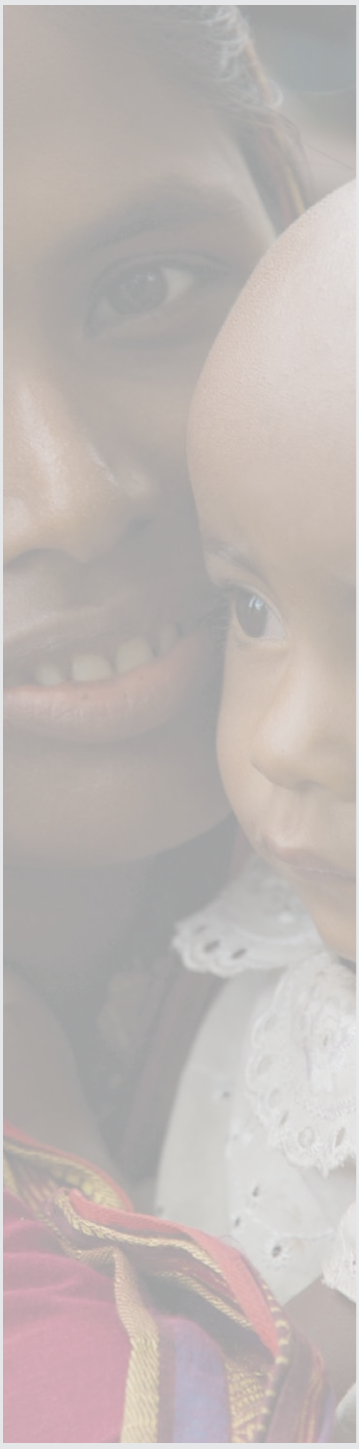
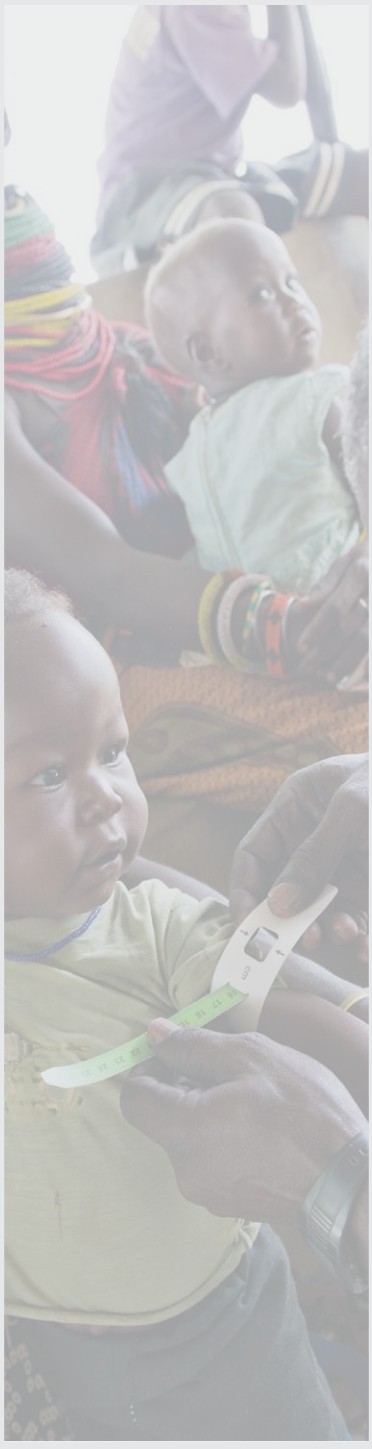
Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

ANNEXES


COMPENDIUM 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 annexes. The annexes also identify factors contributing to an enabling environment for nutrition in each thematic area.

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 actions and sub-actions listed in the annexes, the process of developing the CAN and how to use the tool can be found in the introductory text of the Overview section.

ANNEXES

ANNEX 1

FOOD, AGRICULTURE AND HEALTH DIETS: SUMMARY LIST OF ACTIONS AND SUB-ACTIONS

Livestock and Fisheries

Actions	Sub-actions	Evidence Category *
1. Animal husbandry, fisheries and insect farming	**1a.** Extensive animal rearing for the production of animal-source foods in support of healthy diets	Primary studies
	1b. Homestead animal rearing for the production of animal-source foods in support of healthy diets	Synthesized evidence
	1c. Aquaculture and capture fisheries for the production of animal-source foods in support of healthy diets	Synthesized evidence
	1d. Insect farming for the production of animal-source foods in support of healthy diets	Practice-based studies
	1e. Processing, handling and market access to support healthy consumption of animal-source foods for dietary diversity	Primary studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Food composition data for locally available animal-source foods
	1b. Vulnerability assessment and early warning analysis
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
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
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
	3b. Legislation and regulations on animal breeding, animal fodder, and fish harvesting/farming taking into account nutrition considerations and food safety and hygiene
	3c. Legislation and regulations on consumption of wild meat
	3d. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers

(Enabling Environment continued ...)

* 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. With that said, sub-actions listed in the Enabling Environment section 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.

(... Enabling Environment continued)

Actions	Sub-actions
4. Fiscal policy	**4a.** Taxes and subsidies to support healthier diets
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
6. Trade	**6a.** Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora
	6b. Market linkages to help facilitate/promote the consumption of animal-source foods in support of healthy diets
7. Social norms: Education/ sensitization, behaviour change communication (BCC) and social marketing	**7a.** Promotion of wild meat for consumption for healthy diets in accordance with national legislation and regulations and food safety measures
	7b. Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition
	7c. Basic hygiene education to agriculture extension workers, livestock-keepers, and fishers, with a focus on hygiene after handling animals, carcasses or meat, animal faeces, etc. and links to nutrition
8. Infrastructure and technology	**8a.** Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition
9. Coordination	**9a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Livestock/Fisheries to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
10. Other enabling environment actions	**10a.** Animal health services to support safe animal-source foods for human consumption
	10b. Support with inputs related to animal production
	10c. Availability of credit/microcredit and microfinance to livestock-keepers, agropastoralists and fishers, targeting both men and women, to help make healthy foods available
	10d. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Crops/Horticulture

Actions	Sub-actions	Evidence Category *
1. Diversification and locally adapted varieties	**1a.** Promotion of fruit and vegetable gardens for healthy diets	Synthesized evidence
	1b. Sustainable intensification of staple crop production for dietary diversification	Practice-based studies
	1c. Biodiversity and underutilized crops	Primary studies
	1d. Inputs and irrigation for fruit and vegetable gardens and crops	Primary studies
2. Biofortification	**2a.** Introduction of biofortified varieties to support healthy diets	Synthesized evidence
	2b. Social marketing campaigns on biofortified foods to support healthy diets	Practice-based studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Food composition data for locally available plant foods
	1b. Vulnerability assessment and early warning analysis
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
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
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
	3b. Legislation and regulations which provide harmonized standards for biofortified crops and food products in support of healthy diets
	3c. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers
	3d. Legislation and regulations on crop breeding take into account nutrition considerations
4. Fiscal policy	**4a.** Taxes and subsidies to support healthier diets
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

(Enabling Environment continued ...)

* 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. With that said, sub-actions listed in the Enabling Environment section 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.

(... Enabling Environment continued)

Actions	Sub-actions
6. Trade	**6a.** Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora
	6b. Market linkages to help facilitate/promote consumption of fruits, vegetables, legumes, and other nutritious plant foods in support of healthy diets
7. Social norms: Education/ sensitization, BCC and social marketing	**7a.** Nutrition education to support dietary diversity and food hygiene education to safeguard nutrition
8. Infrastructure and technology	**8a.** Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition
9. Coordination	**9a.** 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
10. Other enabling environment actions	**10a.** Availability of credit/microcredit and microfinance to farmers, targeting both men and women, so as to help make healthy foods available
	10b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Food Processing, Fortification and Storage

Actions	Sub-actions	Evidence Category *
1. Food processing (excluding fortification)	**1a.** Malting, drying, pickling and curing at the household level	Primary studies
	1b. Reformulation of food/beverages for healthier diets	Synthesized evidence
	1c. Other nutrition-oriented food processing	Primary studies
	1d. Training and sensitization on malting, drying, pickling and curing at the household level	Primary studies
2. Fortification (including salt iodization and fortification of complementary foods)	**2a.** Mass fortification to support good nutrition, particularly adequate micronutrient intake	Synthesized evidence (for salt iodization and flour fortification) Primary studies (for flour fortification with iron, vitamin A sugar fortification, folic acid flour fortification)
	2b. Community fortification to support good nutrition	Practice-based studies
	2c. Point-of-use fortification for children	Synthesized evidence
	2d. Production of fortified complementary foods to meet documented nutrient gaps in children 6–23 months	Synthesized evidence
3. Food storage	**3a.** Household food storage/silos support for increased food stability to support healthy diets	Primary studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Food composition data for locally available processed foods
	1b. Vulnerability assessment and early warning analysis
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
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
	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

(Enabling Environment continued ...)

* 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. With that said, sub-actions listed in the Enabling Environment section 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.

(... Enabling Environment continued)

Actions	Sub-actions
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
	3c. Food safety and quality control system, including legislation and regulations, inspection systems, and capacity development for food producers, processors and retailers
4. Fiscal policy	**4a.** Taxes and subsidies to support healthier diets
5. Trade	**5a.** Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora
	5b. Market linkages to facilitate/promote healthy consumption patterns of processed foods, including fortified foods, in support of healthy diets
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
7. Social norms: Education/ sensitization, BCC and social marketing	**7a.** Social marketing campaigns/nutrition education to promote healthy diets
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
9. Coordination	**9a.** 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
10. Other enabling environment actions	**10a.** Availability of credit/microcredit and microfinance to farmers, livestock-keepers, agribusiness and food processers, targeting both men and women, to help make healthy foods available including fortified foods
	10b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Food Consumption Practices for Healthy Diets

Actions	Sub-actions	Evidence Category *
1. Food-based nutrition education	**1a.** Nutrition education, skills training, participatory cooking sessions/sensitization/counselling for mothers and other caregivers	Synthesized evidence
	1b. Nutrition education in schools	Synthesized evidence
	1c. School-garden based food and nutrition education	Primary studies
2. Consumer protection to ensure healthy diets	**2a.** Protection from marketing of unhealthy food and beverages	Synthesized evidence
	2b. Protection from misleading health and nutrition claims	Practice-based studies
	2c. Nutrition labelling, including front-of-pack labelling, on pre-packaged foods and beverages	Synthesized evidence
	2d. Portion size control	Synthesized evidence
	2e. Food safety measures	Synthesized evidence and practice-based studies
3. Complementary feeding	**3a.** Promotion of dietary diversification as part of optimal complementary feeding	Synthesized evidence
	3b. Promotion of fortified foods for complementary feeding, where appropriate	Synthesized evidence
	3c. Public information campaigns for optimal complementary feeding practices	Primary studies
4. Creating supportive environments to promote healthy diets in different settings	**4a.** School programmes promoting healthy diets and good nutrition	Synthesized evidence
	4b. Work place programmes promoting healthy diets and good nutrition	Synthesized evidence

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Food composition data for locally available foods
	1b. Vulnerability assessment and early warning analysis
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
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)

(Enabling Environment continued ...)

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(... Enabling Environment continued)

Actions	Sub-actions
3. Legislation, regulations/standards, protocols and guidelines	**3a.** Progressive realization of the right to adequate food
	3b. Formulation and implementation of national, food-based dietary guidelines
	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
	3f. Other legislation and regulation to support healthy diets
4. Fiscal policy	**4a.** Taxes and subsidies to support healthier diets
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
6. Trade	**6a.** Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations to be raised in international and national trade fora
	6b. Market linkages to help facilitate/promote consumption of nutritious foods in support of healthy diets
7. Social norms: Education/ sensitization, BCC and social marketing	**7a.** Food hygiene education to safeguard nutrition
	7b. Promote the sensitization and mobilization of consumer organizations/interest groups about healthy diets
	7c. Public information campaigns for promotion of nutritious foods for consumption
8. Infrastructure and technology	**8a.** Food hygiene/safety infrastructure, technology and quality assurance (HACCP) to safeguard nutrition
9. Coordination	**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
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
	10b. Provision of safe fuel and fuel-efficient stoves to facilitate cooking

ANNEX 2

MATERNAL AND CHILD CARE: SUMMARY LIST OF ACTIONS AND SUB-ACTIONS

Infant and Young Child Feeding

Actions	Sub-actions	Evidence Category *
1. SUPPORT for optimal breastfeeding practices	**1a.** Breastfeeding education and counselling to SUPPORT optimal breastfeeding practices at the community level	Synthesized evidence
	1b. Counselling and SUPPORT on recommended breastfeeding practices in difficult circumstances	Synthesized evidence and practice-based studies depending upon the circumstances
	1c. Institutionalization of the 10 Steps to Successful Breastfeeding in all facilities that provide maternity services, including via implementation of the Baby-friendly Hospital Initiative (BFHI)	Synthesized evidence
2. SUPPORT for appropriate complementary feeding	**2a.** SUPPORT for access to diversified nutrient-dense foods for complementary feeding	Synthesized evidence
	2b. Nutrition education on appropriate complementary feeding	Synthesized evidence
3. PROTECTION of recommended IYCF practices	**3a.** Protecting appropriate IYCF through restricting marketing of breast-milk substitutes and complementary foods as well as through maternity protection for working mothers	Synthesized evidence

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Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Assessments of recommended IYCF practices
	1b. HIV testing in pregnant and lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding
	1c. Vulnerability assessment and early warning analysis
	1d. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1e. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between policies/strategies on maternal/reproductive and neonatal health, agriculture/food, labour, trade, gender, social protection, industry and nutrition
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Legislation and regulations on the following to PROTECT optimal IYCF practices: (1) Maternity protection based on ILO Maternity Protection Convention 183 (2000) and Recommendation 191 (2000); (2) Occupational health based on ILO Occupational Safety and Health Convention No.155 (1981) ; (3) Ending the inappropriate marketing of complementary food; (4) Implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these; and (5) Standards for childcare centres and services
	3b. Strategies to establish or extend maternity protection for mothers (ideally fathers also) who engage in informal labour or atypical forms of dependent work
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, labour, trade, gender, social protection, industry, and nutrition planning and implementation
6. Social norms: Education/ sensitization, behaviour change communication (BCC) and social marketing	**6a.** BCC (media and social marketing) to PROMOTE recommended IYCF practices
7. Infrastructure and technology	**7a.** Use of time-saving technologies in other nutrition-related actions/programming to help free time that may be dedicated to childcare, particularly where women/mothers are targeted
8. Coordination	**8a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding the IYCF to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
9. Other enabling environment actions	**9a.** SUPPORT for availability of appropriate, diversified, nutrient-dense foods for complementary feeding, preferably locally available
	9b. Childcare services and support to protect recommended IYCF practices
	9c. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

ANNEX 3

HEALTH: SUMMARY LIST OF ACTIONS AND SUB-ACTIONS

Nutrition Interventions Delivered through Reproductive and Paediatric Health Services

Actions	Sub-actions	Evidence Category *
1. Family planning support for optimal birth spacing and to prevent teenage pregnancies as part of reproductive health services	**1a.** Prevention of adolescent pregnancy	Synthesized evidence
	1b. Voluntary family planning and reproductive health education and support	Synthesized evidence
2. Nutrition interventions through antenatal care, birthing services and postnatal care	**2a.** Maternal, infant, and child nutrition and health counselling	Synthesized evidence
	2b. Micronutrient supplementation for pregnant and postpartum women	Synthesized evidence
	2c. Long chain polyunsaturated fatty acid supplementation during pregnancy	Synthesized evidence
	2d. Supplementary feeding (balanced energy and protein) during pregnancy	Synthesized evidence
	2e. Nutrition-related illness and disease prevention and management among pregnant and postpartum women	Synthesized evidence and primary studies depending upon the type of intervention, target group and circumstances
	2f. Optimal time of umbilical cord clamping for the prevention of iron deficiency anaemia among infants	Synthesized evidence
	2g. Support for feeding and care of low-birth-weight and very-low-birth-weight infants	Synthesized evidence
	2h. Kangaroo mother care	Synthesized evidence
	2i. Institutionalization of the 10 Steps to Successful Breastfeeding in all facilities that provide maternity services, including via the implementation of the Babyfriendly Hospital Initiative (BFHI)	Synthesized evidence
3. Nutrition interventions through primary paediatric health care during early childhood	**3a.** Nutrition-related illness and disease prevention and management during early childhood	Synthesized evidence and primary studies, depending upon the type of intervention, target group and circumstances
	3b. Micronutrient supplementation in children	Synthesized evidence
	3c. Infant and young child feeding counselling	Synthesized evidence
	3d. Vaccinations	Synthesized evidence
4. Nutrition interventions through primary paediatric health care during adolescence	**4a.** Counselling on healthy diets	Synthesized evidence
	4b. Micronutrient supplementation in adolescents	Synthesized evidence

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Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Nutrition assessments as part of reproductive health services, and referral of malnourished pregnant and lactating women to nutrition programmes for the management of acute malnutrition, as appropriate
	1b. Growth monitoring and promotion as part of primary paediatric health services for infants and young children
	1c. HIV testing in pregnant and lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding
	1d. Vulnerability assessment and early warning analysis
	1e. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1f. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between policies/strategies on maternal/reproductive, neonatal, child and other nutrition-related health, social protection, agriculture/food, trade, labour, nutrition and other relevant cross-cutting issues
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Development of national growth charts
	3b. Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions and national measures adopted to give effect to these
	3c. Legislation and regulation on marketing of food and non-alcoholic beverages and food safety to protect healthy diets
	3d. Implementation of maternity protection measures in accordance with ILO Maternity Protection Convention No. 183 (2000) and Recommendation No. 191 (2000)
	3e. Legislation on minimum age for marriage to prevent child marriage and adolescent pregnancy in an effort to safeguard nutrition among adolescent girls, infants and young children
	3f. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care, and the prevention and management of nutrition-related illnesses/diseases
	3g. Legislation on compulsory education for girls and boys
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
	4b. Fiscal policy to support adequate education for girls and boys
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, education, social protection, agriculture/food, trade, labour and nutrition planning and implementation at the national and decentralized levels
6. Insurance	**6a.** Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status
7. Social norms: Education/ sensitization, behaviour change communication (BCC) and social marketing	**7a.** Promotion of uptake of reproductive and primary paediatric health services through which nutritional support is provided
	7b. Social marketing campaigns about nutrition behaviours related to reproductive and paediatric health services
	7c. Promotion of increased access to education, particularly for girls, to help prevent adolescent pregnancy
8. Coordination	**8a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding reproductive and paediatric health services to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
9. Other enabling environment actions	**9a.** Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Micronutrient Supplementation

Actions	Sub-actions	Evidence Category *
1. Micronutrient supplementation schemes in women of reproductive age	**1a.** Intermittent iron and folic acid supplementation in non-pregnant women and adolescent girls	Synthesized evidence
	1b. Daily iron and folic acid supplementation in non-pregnant women and adolescent girls	Synthesized evidence
	1c. Folic acid supplementation in women who are trying to conceive (periconceptional folic acid supplementation)	Synthesized evidence
2. Micronutrient supplementation schemes in pregnant women	**2a.** Daily iron and folic acid supplementation during pregnancy	Synthesized evidence
	2b. Intermittent iron and folic acid supplementation in non-anaemic pregnant women	Synthesized evidence
	2c. Vitamin A supplementation in pregnant women	Synthesized evidence
	2d. Calcium supplementation in pregnant women	Synthesized evidence
	2e. Iodine supplementation in pregnant women	Synthesized evidence
	2f. Multiple micronutrient supplements in pregnant women	Synthesized evidence
	2g. Zinc supplementation in pregnant women	Synthesized evidence
3. Micronutrient supplementation schemes in lactating women	**3a.** Daily iron and folic acid supplementation in postpartum women	Synthesized evidence
	3b. Iodine supplementation in lactating women	Synthesized evidence
4. Micronutrient supplementation schemes in infants and children	**4a.** Neonatal vitamin K supplementation	Synthesized evidence
	4b. Daily iron supplementation for infants and children	Synthesized evidence
	4c. Intermittent iron supplementation for infants and children	Synthesized evidence
	4d. Vitamin A supplementation in children 6–59 months old	Synthesized evidence
	4e. Multiple micronutrient powders for children 6–23 months old	Synthesized evidence
	4f. Iodine supplementation in children 6–23 months old	Synthesized evidence
	4g. Zinc supplementation in children 6–59 months old	Synthesized evidence
5. Micronutrient supplementation in other circumstances	**5a.** Oral rehydration treatment with zinc in children under five years old	Synthesized evidence
	5b. Vitamin A supplementation to children with measles	Synthesized evidence
	5c. Micronutrient supplementation in very low-birth-weight infants	Synthesized evidence
	5d. Vitamin E supplementation in preterm infants	Synthesized evidence

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Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Assessment of micronutrient status
	1b. Vulnerability assessment and early warning analysis
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between policies/strategies on maternal/reproductive health, neonatal health, child survival and health, and adolescent health, food and agriculture (e.g. fortification) and nutrition
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Legislation and standards/regulation on micronutrient supplementation and recommended doses to ensure safety for human intake
	3b. Protocols for the prevention and treatment of micronutrient deficiencies
	3c. Support for the registration of and other nutrition governance measures for introducing new micronutrient supplementation products, as appropriate
	3d. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, and nutrition planning and implementation
6. Insurance	**6a.** Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status
7. Social norms: Education/ sensitization, BCC and social marketing	**7a.** Nutrition education and BCC on micronutrient supplementation
8. Coordination	**8a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Micronutrient Supplementation to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
9. Other enabling environment actions	**9a.** Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Management of Acute Malnutrition

Actions	Sub-actions	Evidence Category *
1. Management of severe acute malnutrition (SAM)	**1a.** Outpatient management of SAM	Synthesized evidence
	1b. Inpatient management of SAM	Synthesized evidence
2. Management of moderate acute malnutrition (MAM)	**2a.** Targeted supplementary feeding to treat MAM	Synthesized evidence
	2b. Blanket supplementary feeding	Synthesized evidence
	2c. Enhanced nutrition counselling	Primary studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Adoption of mid-upper arm circumference (MUAC) and WHO child growth standards to facilitate the identification of individuals with severe or moderate acute malnutrition
	1b. Identification of severe acute malnutrition in children under 5 years old
	1c. Vulnerability assessment and early warning analysis
	1d. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1e. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** The production, import and use of specially formulated foods for the management of acute malnutrition are integrated into the national policy/strategies for nutrition, agriculture/food, trade and industry, social protection and any cross-cutting infant and young child feeding (IYCF) policies to increase policy coherence
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Development and implementation of national protocol(s) for managing acute malnutrition based on WHO standards and guidelines
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, trade, agriculture/ food, industry, social protection, and nutrition planning and implementation
6. Trade	**6a.** Leverage analytical tools, capacity development efforts and governance mechanisms to enable nutrition considerations (related to the management of acute malnutrition) to be raised in international and national trade fora
7. Infrastructure and technology	**7a.** Food technology support for local production of specially formulated foods for the management of acute malnutrition in accordance with prevailing international standards, developed by WHO, on local manufacturing of ready-to-use foods so as to help ensure the availability of these foods
8. Coordination	**8a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding the Management of Acute Malnutrition to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
9. Other enabling environment actions	**9a.** Availability of credit/microcredit and microfinance to farmers, agribusiness and food processers, targeting both men and women, to increase the availability of specially formulated foods used to manage acute malnutrition
	9b. Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

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Nutrition-related Disease Prevention and Management

Actions	Sub-actions	Evidence Category *
1. Anti-anaemia actions	**1a.** Iron supplementation	Synthesized evidence
	1b. Deworming to combat the health and nutritional impact of intestinal parasitic infections	Synthesized evidence
	1c. Intermittent preventive treatment of malaria for pregnant women	Synthesized evidence
	1d. Distribution of insecticide-treated bednets for malaria control	Synthesized evidence
2. Diarrhoea management for improved nutrition	**2a.** Zinc supplementation in the management of diarrhoea	Synthesized evidence
	2b. Water, sanitation and hygiene interventions to prevent diarrhoea	Synthesized evidence
3. Nutritional care and support in HIV prevention and management	**3a.** Infant feeding counselling and support to HIV-positive mothers for improving HIV-free survival	Synthesized evidence
	3b. Supplementation (macronutrient for PLWHIV/AIDS and micronutrient supplementation in HIV-infected women during pregnancy)	Synthesized evidence
	3c. Nutrition counselling for adolescents and adults living with HIV/AIDS	Synthesized evidence
4. Nutritional care and support for tuberculosis (TB) patients	**4a.** Nutrition counselling for people with TB	Synthesized evidence
	4b. Micronutrient supplementation in individuals with active TB	Synthesized evidence
	4c. Management of moderate acute malnutrition in individuals with active TB	Synthesized evidence
	4d. Management of severe acute malnutrition in individuals with active TB	Synthesized evidence
5. Nutritional care and support of children with measles	**5a.** Micronutrient supplementation to children with measles	Synthesized evidence
6. Nutritional care and support of individuals with Ebola virus disease	**6a.** Supplementation to children and adults with Ebola virus disease in treatment centres	Practice-based studies
7. Prevention and management of nutrition-related noncommunicable diseases (NCDs)	**7a.** Counselling on healthy diets, using food-based dietary guidelines, and on the importance of physical activity to prevent overweight, obesity and nutrition-related NCDs	Synthesized evidence

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Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Nutritional assessment as part of routine care of HIV-infected children and individuals with active TB
	1b. Nutrition assessments (e.g. weight, height, BMI, waist/hip circumference, blood pressure, diabetes) as part of prevention and management to help prevent and manage overweight and obesity and diet-related NCDs
	1c. HIV testing in pregnant & lactating women to minimize the risk of mother-to-child transmission of HIV through breastfeeding
	1d. Vulnerability assessment and early warning analysis
	1e. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1f. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between health policies and strategies which cover nutrition-related infectious diseases and NCDs, reproductive, neonatal and child health, as well as policies/strategies on agriculture/food, trade, education, social protection and nutrition
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Implementation and monitoring of the International Code of Marketing of Breast-milk Substitutes, related World Health Assembly resolutions, and national measures adopted to give effect to these
	3b. Legislation and standards/regulation on macronutrient (food) and micronutrient supplementation and the prevailing WHO recommended doses for people with the above infectious diseases to ensure safety for human intake in view of their disease/health status
	3c. Food labelling in accordance with the Codex Alimentarius Guidelines and Standards, as appropriate
	3d. Legislation and regulation to support healthy diets as part of the efforts to address overweight and obesity and diet-related NCDs
	3e. Legislation and regulation of marketing of food and non-alcoholic beverages and food safety, including to children, so as to protect healthy diets
	3f. Formulation and implementation of national, food-based dietary guidelines
	3g. Formulation or updating of national protocol(s) for preventing and managing nutrition-related infectious diseases and NCDs
	3h. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care and the prevention and management of nutrition-related illnesses/diseases
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, trade, education, social protection, and nutrition planning and implementation
6. Insurance	**6a.** Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status
7. Social norms: Education/ sensitization, BCC and social marketing	**7a.** Promotion of uptake of health services for nutrition-related diseases through which nutritional interventions are provided
	7b. Social marketing campaigns to promote health behaviours related to Nutrition-related Disease Prevention and Management
8. Coordination	**8a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Nutrition-related Disease Prevention and Management to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
9. Other enabling environment actions	**9a.** Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

Water, Sanitation and Hygiene for Good Nutrition

Actions	Sub-actions	Evidence Category *
1. Hygiene promotion to support good nutrition	**1a.** Handwashing education and promotion at critical periods	Primary studies
	1b. Provision of handwashing supplies and handwashing stations/tippy taps	Synthesized evidence
	1c. Food hygiene promotion and support	Primary studies
	1d. Environmental hygiene promotion and support for domestic hygiene	Primary studies
2. Sanitation systems and management to support good nutrition	**2a.** Community approaches to improving sanitation	Primary studies
	2b. Latrine construction and rehabilitation and excreta disposal management	Primary studies
	2c. Sanitation support for infants and toddlers	Primary studies
	2d. Sanitation support for vulnerable groups	Primary studies
3. Water quantity and quality to support good nutrition	**3a.** Improvement of water supply systems and services to improve access to safe drinking water	Synthesized evidence
	3b. Household water treatment and safe storage support	Synthesized evidence
	3c. Provision of safe water during special circumstances	Primary studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Vulnerability assessment and early warning analysis
	1b. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1c. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between policies/strategies on water, sanitation, hygiene, health, agriculture, education, trade, social protection and nutrition
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Legislation and regulations on, or relevant to sanitation, water quality, environmental health and public health
	3b. Formulation/review of national water and sanitation standards
4. Fiscal policy	**4a.** WASH-related taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, trade, education, social protection and nutrition planning and implementation
6. Social norms: Education/ sensitization, BCC and social marketing	**6a.** Water, sanitation and hygiene education, BCC and social marketing, emphasizing the links between poor WASH and undernutrition
7. Coordination	**7a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Water, Sanitation and Hygiene for Good Nutrition to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
8. Other enabling environment actions	**8a.** Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

* 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. With that said, sub-actions listed in the Enabling Environment section 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.

ANNEX 4

SOCIAL PROTECTION: SUMMARY LIST OF ACTIONS AND SUB-ACTIONS

Social Assistance

Actions	Sub-actions	Evidence Category *
1. In-kind transfers	**1a.** Specialized food transfers for women and children to safeguard maternal, infant and young child nutrition	Synthesized evidence
	1b. General food distribution to safeguard nutrition	Primary studies
2. Quasi in-kind transfers	**2a.** Money vouchers with restricted food choices and Food Denominated Vouchers to safeguard maternal, infant and young child nutrition	Primary studies
	2b. Vouchers for maternal health services through which nutritional support is provided	Primary studies
	2c. Vouchers for child daycare for children to support recommended infant and young child feeding (IYCF) practices	Primary studies
	2d. User fee removal for child health services through which nutritional support is provided	Synthesized evidence
3. Unconditional cash transfers	**3a.** Cash transfers to safeguard healthy diets, particularly of pregnant and lactating women and young children	Synthesized evidence
4. School-based programmes	**4a.** School feeding to safeguard nutrition	Primary studies
	4b. Take home food rations to safeguard nutrition	Primary studies
5. Social transfers	**5a.** Non-contributory pensions to safeguard nutrition	Primary studies
	5b. Child support grants to safeguard nutrition	Practice-based studies
6. Conditional cash/ voucher transfers	**6a.** Cash/voucher transfers issued conditionally on meeting child school enrolment and attendance to safeguard child nutrition	Synthesized evidence
	6b. Cash/voucher transfers issued conditionally on uptake of mother and child health services to safeguard maternal and child nutrition	Synthesized evidence
	6c. Cash/voucher transfers issued conditionally on attendance of mothers at nutrition education/behaviour change sessions	Synthesized evidence
7. Public works programmes	**7a.** In-kind food transfers for participation in public works programmes to safeguard healthy diets for good nutrition	Practice-based studies
	7b. Cash transfers for participation in public works programmes to safeguard healthy diets for good nutrition	Primary studies

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Social Insurance

Actions	Sub-actions	Evidence Category *
1. Insurance	**1a.** Health insurance to increase uptake of nutrition-related health services coupled with enhanced health services and health workforce to foster good health and nutritional status	Synthesized evidence
	1b. Targeted weather-based insurance for crops/livestock to safeguard healthy diets for good nutrition	Practice-based studies
	1c. Social security insurance to safeguard nutrition	Primary studies

Labour Market Programmes

Actions	Sub-actions	Evidence Category *
1. Publically funded asset transfers with skills training	**1a.** Skills training plus asset transfer to safeguard nutrition	Practice-based studies
	1b. Skills training, asset transfer, and cash or food transfer to safeguard nutrition	Practice-based studies

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Vulnerability assessment and early warning analysis
	1b. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1c. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Policy coherence between policies/strategies on maternal/reproductive and neonatal health, agriculture/food, labour, trade, gender, social protection, industry and nutrition
3. Legislation, regulations/ standards, protocols and guidelines	**3a.** Legislation and regulations on: (1) maternity protection based on ILO Maternity Protection Convention 183 (2000) and Recommendation 191 (2000); (2) occupational health based on ILO Occupational Safety and Health Convention No.155 (1981); (3) ending the inappropriate marketing of complementary food; and (4) implementation of the International Code of Marketing of Breast-milk Substitutes, subsequent World Health Assembly resolutions and national measures adopted to give effect to these
	3b. Promotion of universal health coverage to improve access to nutrition-related health services on reproductive health, primary paediatric health care, and the prevention and management of nutrition-related illnesses/diseases
	3c. Legislation on user fee exemption for child and reproductive health services through which nutrition support is provided
4. Fiscal policy	**4a.** Taxes and subsidies to support good nutrition
5. Planning, budgeting and management	**5a.** Capacity development/strengthening to enable nutrition to be reflected in health, agriculture/food, labour, trade, gender, social protection, industry and nutrition planning and implementation
6. Coordination	**6a.** Capacity development/strengthening of governance mechanisms to enable nutrition considerations regarding Social Protection to be raised in political fora and the coordination of coherent, multi-sectoral nutrition action at the country level
7. Infrastructure and technology	**7a.** Use of time-saving, transfer technologies to help free time that may be dedicated to childcare, particularly where women/mothers are targeted
8. Other enabling environment actions	**8a.** Establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

* 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. With that said, sub-actions listed in the Enabling Environment section 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.

ANNEX 5

MULTI-SECTORAL NUTRITION GOVERNANCE: SUMMARY LIST OF ACTIONS AND SUB-ACTIONS

Facilitation of Multi-sectoral Nutrition Governance

Enabling Environment

Actions	Sub-actions
1. Assessment and information	**1a.** Support to national multi-sectoral nutrition analysis (including situation analysis, stakeholder mapping)
	1b. Support for the establishment and implementation of multi-sectoral nutrition information systems (including implementation tracking, virtual portals and nutrition surveillance data)
	1c. Promotion of operational research about nutrition impacts of sub-actions covered by this thematic area
	1d. M&E of sub-actions covered by this thematic area
2. Policy coherence	**2a.** Support to the formulation or review process for national multi-sectoral nutrition policy in order to foster policy coherence across sectors
3. Legislation, regulations/standards, protocols and guidelines	**3a.** Support to the formulation or review processes for legislation, regulations and protocols regarding multi-sectoral nutrition governance
4. Planning, budgeting and management	**4a.** Support for nutrition multi-sectoral planning, budgeting, prioritization and implementation (including CRF, integration of nutrition into sector/sub-sector, sub-national plans)
	4b. Support for a multi-sectoral overview of financial tracking of core nutrition actions across sectors
	4c. Support to increase multi-sectoral financial investment for nutrition by all stakeholders (through roundtables, funding strategies)
5. Advocacy and communications	**5a.** Support for a multi-sectoral vision on nutrition advocacy strategy/nutrition messaging
6. Coordination	**6a.** Ensure leadership and support institutional capacity development for the establishment and functioning of multi-stakeholder, multi-sectoral coordination mechanisms or platforms (both national and sub-national) to support the development of multi-sectoral policies, plans and guidelines to address malnutrition and support their operationalization through a coherent, multi-sectoral approach
	6b. Support human capacity development/strengthening for coordination (e.g. engaging stakeholders and creating common dialogue, brokering agreements, resolving conflicts, building relationships)
7. Other enabling environment actions	**7a.** Support multi-stakeholder, multi-sectoral dialogue regarding the establishment of procedures for preventing and managing conflicts of interest to safeguard public health and nutrition in the engagement with stakeholders

COMPENDIUM OF ACTIONS FOR NUTRITION

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Scaling Up NUTRITION

UN Network

REACH

ACCELERATING THE SCALE-UP OF FOOD AND NUTRITION ACTIONS

COMPENDIUM OF ACTIONS FOR NUTRITION




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