



ETHIOPIA

REVIEW OF EXISTING NUTRITION-RELATED POLICIES, MATERIALS, AND INSTITUTIONS

APRIL 2011



USAID
FROM THE AMERICAN PEOPLE

www.iycn.org

IYCN USAID's Infant
& Young Child
Nutrition Project

This document was produced through support provided by the United States Agency for International Development, under the terms of Cooperative Agreement No. GPO-A-00-06-00008-00. The opinions herein are those of the author(s) and do not necessarily reflect the views of the United States Agency for International Development.

IYCN is implemented by PATH in collaboration with CARE;
The Manoff Group; and University Research Co., LLC.

455 Massachusetts Avenue NW, Suite 1000
Washington, DC 20001 USA
Tel: (202) 822-0033
Fax: (202) 457-1466
Email: info@iycn.org
Web: www.iycn.org

Acknowledgments

We would like to express our appreciation to the United States Agency for International Development (USAID) for funding, facilitating, and providing follow-up for this assessment in Ethiopia. The valuable contributions made by the staff and management of the Federal Ministry of Health are very much appreciated. We would also like to thank all the stakeholders in both the local and international nongovernmental and United Nations agencies, who offered their time, expressed their views, and shared their experiences.

Table of contents

Acknowledgments.....	iii
Acronyms.....	vi
1. Introduction.....	1
1.1 Country profile.....	1
1.2 Concern related to infant and young child nutrition	2
1.3 Objectives	3
1.4 Purpose of the assessment.....	3
1.5 Methodology	3
1.5.1 Data collection instruments.....	4
2. Findings and discussions: Institutions, materials, guidelines, and programs	5
2.1 Supporting government institutions	5
2.1.1 Federal Ministry of Health.....	6
2.1.2 Ethiopian Health and Nutrition Research Institute	6
2.1.3 Ministry of Education	7
2.1.4 Ministry of Agriculture and Rural Development.....	7
2.1.5 Federal Disaster Prevention and Preparedness Agency.....	8
2.1.6 Federal Ministry of Trade and Industry	9
2.2 Supporting academic institutions	9
2.3 Available information, education, and communication materials	11
2.4 Available nutrition guidelines, policies, and curricula	12
2.4.1 National Nutrition Program	12
2.4.2 National Nutrition Strategy.....	12
2.4.3 National Guidelines for HIV/AIDS and Nutrition.....	13
2.4.4 National Nutrition and HIV/AIDS Implementation Reference Manual	13
2.4.5 Ethiopian Guide to Clinical Nutrition Care for Children and Adults with HIV	13
2.4.6 National Guidelines for Control and Prevention of Micronutrient Deficiencies, Ethiopia	14
2.4.7 National Strategy for Infant and Young Child Feeding, Ethiopia	14
2.4.8 Protocol for Management of Severe Acute Malnutrition, Ethiopia	14
2.4.9 Training Guidelines for Management of Severe Malnutrition at the Health Post Level Outpatient Therapeutic Care: Trainer's Manual	15
2.4.10 Guide for Training of Health Workers and Health Extension Workers	15
2.4.11 National Nutrition Communication Framework.....	15
2.4.12 Plan for Accelerated and Sustained Development to End Poverty.....	16
2.4.13 Nutritional Care and Support for People Living with HIV/AIDS: A Training Course for Use in Ethiopia.....	16
2.4.14 Training of Trainers for Introduction of Health Themes to Community Health Promoters by Health Extension Workers.....	16
2.4.15 Infant and Young Child Feeding in the Context of Maternal HIV Infection....	17
2.4.16 Guidelines for the Enhanced Outreach Strategy (EOS) for Child Survival Interventions	17
2.4.17 One Year Middle Level TVET Program Curriculum Guide, Occupational Title: Health Extension Worker.....	17
2.4.18 Infant and Young Child Feeding Counseling: An Integrated Course.....	18
2.5 Selected programs under implementation.....	18
2.5.1 Community-Based Nutrition program	18
2.5.2 The Essential Nutrition Actions.....	20

2.5.3 Food by Prescription program	21
2.5.4 Community-based therapeutic care.....	21
2.5.5 School Health and Nutrition program.....	21
2.5.6 Other programs	22
3. Findings and discussions: Observed gaps.....	23
3.1 Gaps in IEC/BCC materials	23
3.2 Coverage gaps.....	23
3.3 Capacity gaps	24
3.4 Program linkage gaps.....	24
3.5 Package gaps.....	25
4. Recommendations.....	27
4.1 General.....	27
4.2 Infant and young child nutrition materials to be reviewed and adopted.....	28
4.2.1 Essential Nutrition Actions	28
4.2.2 Nutrition care services for people living with HIV/AIDS	28
4.2.3 Community-Based Nutrition program materials	29
4.2.4 Ethiopian Nutrition Institute program materials	29
4.2.5 Infant feeding in the context of HIV counseling card.....	29
4.2.6 Prevention of mother-to-child transmission of HIV materials	29
Appendix 1. Organizations and personnel contacted.....	30
Appendix 2. Nutrition curricula for selected health sciences programs	32
Appendix 3. Graduate programs in nutrition	37
Bibliography	41

Acronyms

AAU	Addis Ababa University
AED	Academy for Educational Development
BCC	behavior change communication
CBN	Community-Based Nutrition program
CHP	Community Health Promoter
CSA	Central Statistical Agency
DHS	Demographic and Health Survey
DPPA	Disaster Prevention and Preparedness Agency
EHNRI	Ethiopian Health and Nutrition Research Institute
ENA	Essential Nutrition Actions
ENCU	Emergency Nutrition Coordination Units
ENI	Ethiopian Nutrition Institute
EOS	Enhanced Outreach Strategy
ESHE	Essential Health Services for Ethiopia
FAO	United Nations Food and Agriculture Organization
FBP	Food by Prescription program
FMOH	Federal Ministry of Health
FSP	Food Security Program
HEP	Health Extension Program
HEW	Health Extension Worker
IEC	information, education, and communication
IYCN	Infant & Young Child Nutrition Project
M&E	monitoring and evaluation
MoARD	Ministry of Agriculture and Rural Development
MOE	Ministry of Education
MoFED	Ministry of Finance and Economic Development
NGO	nongovernmental organization
NNP	National Nutrition Program
NNS	National Nutrition Strategy
OTP	Outpatient Therapeutic Care
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PLWHA	people living with HIV/AIDS
PMTCT	prevention of mother-to-child transmission of HIV
PSNP	Productive Safety Net Program
SHN	School Health and Nutrition program
SNNPR	Southern Nations, Nationalities, and the People's Region
TFP	Therapeutic Feeding Program
TSF	Targeted Supplementary Feeding
TVET	technical and vocational education and training
USAID	United States Agency for International Development
VCHW	Voluntary Community Health Worker
WFP	World Food Programme
WHO	World Health Organization

1. Introduction

1.1 Country profile

Malnutrition is one of the main health problems facing children and women in Ethiopia. The country has the highest rate of malnutrition in sub-Saharan Africa. The Ethiopian population suffers from both acute and chronic malnutrition, and iron-deficiency anemia, vitamin A deficiency, and iodine deficiency disorder are common. According to the 2005 Demographic and Health Survey (DHS), about 47 percent and 11 percent of children younger than 5 years were stunted and wasted, respectively. The weight-for-age indicator showed that 38 percent of children younger than 5 were underweight, and 11 percent were severely underweight. Rates of child malnutrition increase with the age of the child, with the highest rates of malnutrition occurring between the ages of 6 and 24 months. Malnutrition was also prevalent in women, with 27 percent of women chronically malnourished (body mass index [BMI] less than 18.5).

The Ethiopian health system has a decentralized structure that involves the Federal Ministry of Health (FMOH), the Regional Health Bureaus, and the Woreda Health Offices. Decision-making toward the development and implementation of the health system is shared between these structures. The FMOH and the Regional Health Bureaus concentrate on policy matters and technical support, while the Woreda Health Offices manage the operation of primary health care services at the woreda level and below. The country's Health Sector Development Program is organized in four levels, with a primary health care unit, consisting of one health center and five satellite posts, and the district, zonal and specialized hospitals. The primary health care units were designed to serve 25,000 people, while district and zonal hospitals are expected to serve 250,000 and 1 million people, respectively. The Health Extension Program (HEP), an innovative community-based health care delivery system working at the primary health care unit level, conducts health promotion and provides basic preventive and selected high-impact curative health services targeting households. It aims to ensure ownership and participation of community members, helps to reduce maternal and child mortality, and promotes healthy lifestyles of families. Each kebele has a health post that is the operational center for two Health Extension Workers (HEWs), government-salaried females who are responsible for providing outreach services. Some of the nutrition and nutrition-related services include educating communities on environmental health, caring practices, and nutrition; providing basic health care and growth monitoring services; and mobilizing the communities for health care programs. At the community level, the HEWs are supported by Voluntary Community Health Workers (VCHWs).

The Infant & Young Child Nutrition (IYCN) Project is a five-year United States Agency for International Development (USAID)-funded project to improve infant and young child nutritional status, HIV-free survival of infants and young children, and maternal nutritional status. The IYCN Project achieves these goals by identifying, promoting, scaling up, and institutionalizing cost-effective interventions to improve infant and young child feeding and maternal nutrition practices; increasing the prevalence of optimal breastfeeding, complementary feeding, and caring practices; developing and implementing public/private-sector partnerships, strategies, and interventions to increase the availability of high-quality foods for infants and young children; and increasing national and donor commitment to improve infant and young child nutrition.

One of the start-up activities for the IYCN Ethiopia program was to engage a local consultant to conduct an inventory of existing nutrition-related policies, curricula, and information, education, and communication (IEC) materials and job aids related to services for children younger than 2 years and women, with the primary aim of strengthening maternal and infant and young child nutrition within the context of HIV in Ethiopia.

The consultant completed a nutrition landscape analysis of ongoing nutrition programs at the national and regional levels. The inventory focused primarily on IEC/behavior change communication (BCC) materials; nutrition-related services, training, and IEC; curriculum guidelines and policies on nutrition; and recent studies related to infant and young child feeding.

1.2 Concerns related to infant and young child nutrition

In Ethiopia, even though efforts have been made to improve the nutritional status of infants and children, these efforts have often not borne fruit due to reasons such as the following:

- High prevalence of improper child feeding practices, including poor breastfeeding practices that result in about 50,000 infant deaths per year (i.e., 18 percent of all infant deaths every year).
- High level of illiteracy among mothers and caretakers, which causes many mothers to be unaware of proper child feeding practices. As a case in point, only 49 percent of infants under the age of 6 months are exclusively breastfed, with 14.5 percent and 16.5 percent of infants being given water and other milk, respectively, by this time.
- Insufficient knowledge on the part of health care providers regarding proper feeding practices, which leads to mothers receiving incorrect information. Not surprisingly, studies have indicated that only one in two infants 6–9 months of age (54 percent) receive complementary foods.

It is believed that the problem of malnutrition begins early in life, primarily within the first 24 months, when growth faltering occurs due to suboptimal infant feeding practices. After 2 years of age, there is little opportunity for catch-up growth. Stunted infants grow to be stunted children, and thereafter, short adults.

Although the challenges to improve nutrition are significant, there are affordable, evidence-based interventions that can have a significant impact on malnutrition. In most low-income countries, including Ethiopia, growth faltering begins within the first 6 months of life, and age-specific malnutrition rates generally increase until about 2 years of age and then level off. Critically, most of this early damage is irreversible. The damage caused by poor nutrition in the womb or within the first years of life will be a burden to that individual for life. Rarely does a child who is stunted at age 2 catch up on more than a small portion of this growth gap. To a large degree, the stunting is permanent.

The effects of micronutrient deficiencies are similar. As a case in point, iodine deficiency in the womb and within the early years of life, when a child's brain grows most rapidly, results in a permanent deficit in cognitive abilities. Mortality risk is also at its peak within these early years. This shows the importance of addressing issues of infant and young child feeding during the first year of life, particularly promoting optimal breastfeeding and complementary feeding practices.

1.3 Objectives

The main objective of the assessment was to review local supporting institutions, guidelines, programs, curricula, and materials for health workers, case managers, and mother support group mentors in nutrition counseling (focusing on maternal nutrition, early breastfeeding, and the transition to complementary feeding in the 6- to 9-month period) and identify gaps and needs. Additionally, curricula and academic institutions relevant to students of nutrition, medical students, nutritionists, and agriculture extension workers were also reviewed.

1.4 Purpose of the assessment

It is expected that the results of this analysis will improve the environment for provision of maternal and infant and young child nutrition, emphasizing the context of HIV services, as well as help update existing materials and guidelines to ensure the integration, consolidation, and alignment of all co-existing strategies currently being implemented. Moreover, the results of the analysis will help inform better allocation of resources and prioritization of activities, in order to act at scale and accelerate the reduction of maternal and child undernutrition.

The assessment also aimed at contributing to the capacity-building of national nutrition stakeholders to understand the strengths, opportunities, and constraints of all aspects of the ongoing programs, and in so doing, enhance their collaborative efforts. For this reason, the assessment process was made as participatory as possible. Strong efforts were made to ensure that major partners had the opportunity to discuss the issues openly and to incorporate their perspectives.

1.5 Methodology

The inventory was carried out at the federal level in Addis Ababa, the capital of Ethiopia, and included visiting the primary national stakeholders and reviewing available documents. The FMOH, Ministry of Education (MOE), nongovernmental organizations (NGOs), and United Nations agencies and international organizations provided information and guidance in the assessment.

The study report is largely based on qualitative data collected through semi-structured interviews with different actors working in the area of nutrition—specifically on infant and young child nutrition—and review of different guidelines, policies, and IEC/BCC materials and literature. Please refer to Appendix 1 for a list of organizations and people contacted in the course of this assessment. Before embarking on the interviews, literature related to food and nutrition strategies and implementation reports of different programs/projects in the country were reviewed. This review focused on the different policies, strategies, and programs currently under implementation in the country at the national level. The review helped to identify the key players in the area of maternal and child nutrition.

Discussions with stakeholders focused on the overall framework of nutrition programs and projects, with emphasis on the implementation aspects of individual programs/projects. A number of institutions that are considered important in the implementation of the different nutrition programs were visited. Staff, including heads of the institutions and experts with a close link to nutrition-related activities, were interviewed.

1.5.1 Data collection instruments

Questionnaires were used to guide the discussions with people directly involved in nutrition activities carried out within each selected organization.

2. Findings and discussions: Institutions, materials, guidelines, and programs

2.1 Supporting government institutions

During the inventory, major actors working in the area of nutrition were contacted and provided the necessary information as per the interview guide. Most of them were involved and participated in the development of the National Nutrition Program (NNP) and are familiar with its elements and the activities it is conducting.

The FMOH leads the NNP, and ensures the involvement of other pertinent sectors, such as the Ministry of Agriculture and Rural Development (MoARD), MOE, Ministry of Water and Energy, etc. At the federal level, the government has established a National Nutrition Coordination Body (with high-level representation from different key ministries), which deals with policy issues, and a multisectoral National Nutrition Technical Committee, which deals with technical issues. Similar structures are in place at the regional level. The Woreda Development Committee oversees the coordination and implementation of the NNP at the woreda level.

The FMOH in its Five Year Health Sector Strategic Plan has included nutrition as one of the cross-cutting issues. In this same document, the multisectoral nature of nutrition and its importance in economic growth, socioeconomic development through increased labor productivity of adults, and better school performance and cognitive achievements of children are very well described.

HEP, the government's flagship health promotion and disease prevention program, has trained and deployed more than 30,000 HEWs nationwide. The NNP is designed to be implemented mainly using HEP, where nutrition is one of the 16 packages of HEW activities.

Even though HEWs are overloaded with activities and packages, including the nutrition package, they are being trained in the skills necessary to implement nutrition interventions at the community level. VCHWs support the HEWs, and model households are used as a strategy to expand the benefit of the program.

The major partners in nutrition both at the national and regional levels are UNICEF, the World Food Programme (WFP), World Bank, USAID, and NGOs such as Concern. Each of the organizations/agencies has its own nutrition program/package, a dedicated nutrition unit, and well-qualified staff. In addition to supporting the government, most of the agencies have their own vertical programs or are identified with certain specific programs: e.g., UNICEF with the Enhanced Outreach Strategy (EOS), which is transitioning to Child Health Day; the World Bank with the Consultative Group Meeting; USAID with Essential Nutrition Actions (ENA) and the Productive Safety Net Program (PSNP); Concern with the Therapeutic Feeding Program (TFP); and WFP with Targeted Supplementary Feeding (TSF) and school feeding.

Directorates of the FMOH, MOE, MoARD, the Ethiopian Health and Nutrition Research Institute (EHNRI), UNICEF, different USAID-funded projects, Save the Children USA, and other NGOs were included in the assessment, which was supplemented by desk reviews. The summary of findings is presented below.

2.1.1 Federal Ministry of Health

The FMOH was restructured, and the former Family Health Department, under which the Nutrition Unit was active, was dissolved and horizontally placed in a rather fragmented manner under three directorates of the Health Promotion and Disease Prevention General Directorate. The NNP's Community-Based Nutrition (CBN) program is under the Agrarian Health Promotion and Disease Prevention Directorate; the Universal Salt Iodization program is under the Pastoralist Health Promotion and Disease Prevention Directorate; and prevention of mother-to-child transmission of HIV (PMTCT) is under the Urban Health Promotion and Disease Prevention Directorate.

The former Health Education and Extension Centre was dissolved, and staff placed on teams of the above-mentioned and other directorates to support communication activities and related materials production and distribution. There are no clear case team job descriptions, and staff are labeled as “generalists,” dealing with all programs of their respective team.

Under the former and current structures, the FMOH, in collaboration with different partner organizations, has taken several measures to create policies and programs that enhance nutrition activities in the country, mainly toward improving infant, young child, and maternal nutrition. Examples include:

- Existing political commitment for nutrition, including the National Nutrition Strategy (NNS) and the NNP that were developed and launched in 2008 and 2009, respectively.
- Establishment of the National Nutrition Coordination Body, which was a significant step toward coordinating nutrition activities nationally.
- Assignment by United Nations agencies and donors of human and other resources for the support and implementation of the NNP.
- Identification of nutrition as one of the main tasks of HEP and child survival strategies such as integrated management of newborn and childhood illness.
- Significant opportunities to access funds and commitment from development partners such as the World Bank, USAID, UNICEF, Micronutrient Initiative, Canadian International Development Agency, the Embassy of Japan, and the Japan International Cooperation Agency to support the national effort to combat malnutrition.
- Decentralization of the Outpatient Therapeutic Care (OTP) program into HEP.
- Emerging and promising community-based nutrition programs started through HEP, including EOS, TSF, TFP, and Child Health Day.

2.1.2 Ethiopian Health and Nutrition Research Institute

EHNRI is the result of a merger of the former Ethiopian Nutrition Institute (ENI) and the National Health Research Institute/Central Laboratory (formerly Pasteur Institute). EHNRI is an autonomous arm of the FMOH, responsible for health- and nutrition-related research activities. The food and nutrition function is organized under a department whose head is directly responsible to the Director General of the Institute. The department is responsible for conducting nutrition research; the development of new recipes to improve traditional diets and the diets of infants and young children; improvement of the nutritional quality of foods through fortification; and the development of composite flours. Historically, the ENI developed the Ethiopian Food Composition Table, the sorghum-based complementary food Faffa, and other fortified foods like Dubie and Edget to improve the nutritional status of

mothers and children, especially those victims of famine. The EHNRI is currently engaged in research on a variety of relevant topics, including determining the etiologies of malnutrition in Ethiopia, promoting nutritional quality and food safety in the context of traditional diets, developing complementary foods, and recommending interventions to address malnutrition.

2.1.3 Ministry of Education

The MOE is in the process of developing the National School Health and Nutrition Framework, under which every effort will be made to harmonize with the NNP. Efforts will be made within the NNP to include nutrition information (consistent with NNP priority messages) in relevant primary and middle school classes, with particular attention given to key “take-home” messages; provide school health and nutrition inputs (deworming, iodized salt, and iron-folate tablets, in addition to the school meals presently being provided in some areas to improve school attendance); help optimize active learning capacity; and include non-school-going children for weekly nutrition counseling, deworming, and micronutrient provision. School children also will be engaged in soap-making (given the strong association between use of soap by child caretakers and morbidity and malnutrition) and in the testing of iodized salt using salt testing kits.

2.1.4 Ministry of Agriculture and Rural Development

The MoARD is responsible for food production (both animal and plant source) and improvement of productivity through the application of modern technology, research, and extension services. Historically, the MoARD had a department that dealt with women and their livelihoods through the training and deployment of home agents/home economists. These home agents/home economists were trained in several institutions managed by the ministry. Among their responsibilities was child and mother care, including nutrition, home improvement, basic hygiene and sanitation, homemaking, and workload reduction through employment of appropriate and affordable technologies. The program was discontinued, and development agents are not trained to carry out these tasks.

The MoARD plans to utilize agricultural extension workers (development agents), and where available, model farmers and home agents/rural women experts through a rural capacity-building project as change agents to disseminate information on the importance of adequate and diversified food for young children and reproductive-age women, particularly those pregnant or lactating.

The NNP provides funds to the MoARD and the International Maize and Wheat Improvement Centre to intensify research and extension efforts (1) to improve yields of crops disproportionately produced and consumed by low-income households, (2) on nutrient-rich varieties (e.g., high-quality protein maize and micronutrient-rich varieties of cereals), (3) on orange-fleshed sweet potatoes, and (4) to introduce improved processing of crops such as rice and cassava to reduce their goitrogenic properties. These efforts also include facilitation of the re-training of agricultural extension workers, model farmers, and home agents to promote the production and consumption of these crops.

The NNP supports and works closely with the MoARD, PSNP, and Food Security Program (FSP) to make nutritious food crops available at the household level and to increase household income. The NNP specifically helps to ensure (1) that young children and pregnant and lactating women in families that receive aid are being nutritionally monitored, utilizing contact points as opportunities for nutrition counseling on breastfeeding and complementary

feeding practices, optimal pregnancy practices, and iodized salt; (2) iron-folate distribution to pregnant women; and (3) assessment of nutritional status (nutritional anthropometry) when determining food security scores of PSNP and FSP evaluations.

The MoARD, in collaboration with the United Nations Food and Agriculture Organization (FAO), is implementing a project to improve nutrition and household food security in two regions of the country: Amhara and Tigray. The project is addressing food-insecure households, mainly targeting infants, young children, and mothers who are economically weak, by providing food assistance through food for work.

MoARD Food Security Bureau

The Food Security Bureau operates as an autonomous department within the MoARD. Its primary responsibility is management of the National Food Security Policy and Strategy, which includes the major components of the PSNP: resettlement and emergency support. The Bureau serves as a national platform for coordinating different projects and interventions supported by partner agencies, including the World Bank, European Union, USAID, and other bilateral agencies. The Bureau is also charged with developing the NNS.

The National Food Security Policy and Strategy includes a nutrition and health intervention component, which, in addition to income-generation and price support initiatives, was envisaged with the objective of reducing the serious levels of undernutrition observed in the country, with a focus on:

- Minimization of diarrhea in children.
- Promotion of family planning services and targeted nutrition initiatives (including growth monitoring and promotion, nutrition education, and distribution of special weaning foods, such as Faffa).
- Promotion of proper weaning practices through development of a nutritional formulation using local materials and development of community-based nutrition and health interventions.
- Support for micronutrient programs, particularly vitamin A, iodine, and iron.
- Increased investment in environmental sanitation (water supply and sewage through labor-based public works programs).
- Development of EHNRI institutional capacity in collaboration with the federal Disaster Prevention and Preparedness Agency (DPPA) and other organizations concerned with nutrition.

2.1.5 Federal Disaster Prevention and Preparedness Agency

This agency is responsible for emergency relief support, early warning, disaster prevention, and food security.

UNICEF, the Canadian International Development Agency, and the European Union Delegation Office have donated funds to the DPPA and to regional health bureaus in Amhara, Oromiya, SNNPR (Southern Nations, Nationalities, and People's Region), and Tigray to establish Emergency Nutrition Coordination Units (ENCUs) at the federal and regional levels. ENCUs are charged with collection and compilation of data collected by the various governmental, nongovernmental, and United Nations agencies and dissemination to

stakeholders and to anyone interested in the data through the ENCU website at www.dppa.gov.et. The information is used not only in-country but also by countries in the Horn of Africa.

The DPPA was recently restructured, and the disaster prevention and food security units were reassigned to the MoARD. At the regional and woreda levels, these units operate under the MoARD Food Security Bureau.

2.1.6 Federal Ministry of Trade and Industry

The Federal Ministry of Trade and Industry, through its industry sector, has been very active in organizing and overseeing food processing. Some of the food items are processed and produced with the aim of improving the nutritional status of vulnerable groups, including children and mothers. Weaning and complementary foods and fortified foods like Faffa and Famix are good examples of this. Learning from the experiences of developed countries, promotion of and regulation on the fortification of salt with iodine to combat iodine deficiency disorders, fortification of wheat flour with iron, fortification of sugar and vegetable oil with vitamin A, and fortification of complementary foods with multiple vitamins and minerals could be the responsibility of the industry sector. The promotion of small-scale and village-level production of fortified complementary foods is another possibility for the same sector. In the past, this sector had its own food processing trial laboratory, which no longer exists. The revitalization of this laboratory/function may be useful after a thorough assessment is conducted.

2.2 Supporting academic institutions

Training in nutrition and related fields is provided at universities, colleges, and technical and vocational education and trainings (TVETs) in both publicly and privately owned education institutions.

Training in food science and technology (food processing, engineering, and post-harvest technology) are provided in agricultural and engineering colleges for agricultural workers, chemical engineers, and technologists. Few of these also include elements of human nutrition. Most locally trained professionals working in nutrition and related fields come from these training facilities.

Nutrition and nutrition-related trainings are given as supportive courses in higher training institutes for health for students in medicine, pharmacy, and laboratory technology, and for agriculture and engineering students at both the undergraduate and post-graduate levels. Junior colleges and TVETs that train at the diploma and certificate levels (nurses, midwives, laboratory technicians, etc.) also provide pre-service nutrition and nutrition-related courses (food preparation, cooking, confectionary, etc.). HEWs are also trained in nutrition. The training curriculum for development agents (kebele-level MoARD agricultural extension workers) has no nutrition package.

Training in nutrition as a distinct academic discipline is not always provided; there are few training programs in nutrition and nutrition-related fields and their capacity is limited.

Training in human nutrition as a supportive course (in most cases, two credit hours) is provided in:

- Universities that have a medical school and a faculty of health sciences (for MDs, health officers, nurses, laboratory technicians, etc).
- Government-owned health sciences colleges that train mid-level health workers (diploma).
- TVETs (both government and private) that train junior-level health workers.

Nutritionist training at the master's degree level was started at Hawassa, Gondar, and Haromaya Universities, but Gondar and Haromaya no longer offer the program. The Applied Human Nutrition Graduate Program at Hawassa University was begun two years ago as a joint program between the College of Agriculture and the Health Sciences College. There is a plan to begin an undergraduate program in nutrition in the near future.

At Addis Ababa University (AAU), a nutrition course is offered as part of some of the programs. Similarly, at Hawassa University, it is offered to both health and agriculture students, and some doctoral students are completing dissertations related to nutrition. There are no short courses related to nutrition at any of the schools; however, all graduates of medical and health sciences programs will be expected to provide nutrition-related services at some point in their careers.

Some attempts are being made to maximize the contribution of health/agriculture workers in nutrition programs specific to the needs of the country by encouraging students in public health master's programs to conduct research and projects related to nutrition as part of completing their degree. Final-year undergraduate medical and other health sciences students are oriented to and conduct nutrition assessments during their community diagnosis training, and conduct some nutrition interventions (e.g., provision of nutrition information and micronutrient supplementation) in the community. The AAU School of Public Health has identified the need for nutrition-specific training programs and has started to design a curriculum that in the shorter term will provide nutrition as a specialty track; in the long term, it will become a separate master's degree program.

The AAU School of Public Health would like to collaborate with NGOs and governmental organizations in undertaking nutrition-related activities, such as training, surveys, and intervention design and implementation, to enhance the capacity of the school and make effective contributions to the community.

A nutrition course is offered in all medical schools and schools with a faculty of health sciences. The course outline is similar for all schools; for medical students and health officers, it is identical. The overall learning objective in nutrition (some call it public health nutrition) for undergraduates (MDs, health officers, nurses) is to enable the students to acquire theoretical knowledge (principles) and analytical skills (methods). The course content for MDs and health officers is categorized as follows:

- Introduction to nutrition.
- Growth and development.
- Major food sources.
- Nutritional requirements and influencing factors.
- Assessment of nutritional status/nutritional assessment and surveillance.
- Management of malnutrition.
- Food security and food safety/food and nutrition security.

- Nutritional problems of public health importance.
- Nutrition and reproductive health/nutrition throughout the lifecycle.
- Nutrition interventions (e.g., ENA).
- Policies in food and nutrition.

The course content for public health nurses is divided into the following major categories:

- Introduction to human nutrition.
- Factors affecting food preferences.
- Principles of nutrition.
- Assessment of nutritional status.
- Nutritional deficiencies.
- Nutrition interventions.
- Interactions between supplements, foods, and medication.
- Nutrition during pregnancy and lactation.
- Conducting and analyzing the nutrition survey.
- ENA.
- Nutrition and stress.
- Community nutrition.

Nutrition is given as a supportive course for clinical nurses, midwives, and clinical laboratory technicians. The course objective aims at enabling participants to identify and meet the nutritional needs of clients. The course outline includes the following major categories:

- Introduction to nutrition.
- Food groups and elements/composition of food.
- Energy and nutritional requirements.
- Nutrition assessment and surveillance.
- Nutrition interventions.

All of the schools except AAU follow a unified curriculum that is approved by the MOE, and the training is provided through lectures, demonstrations, and practical exercises. Please refer to Appendices 2–5 for more information about courses offered at these institutions.

2.3 Available information, education, and communication materials

Over the years, IEC materials have been produced by a variety of institutions, including the CBN program, the FAO, the ENI, and the LINKAGES Project. IEC materials of the former ENI, including posters, flip charts, leaflets, and booklets on nutrition, including infant and young child nutrition, were observed in use at the facility level in many areas. FAO produced Amharic-language educational posters, pocket guides, charts, and leaflets extracted from national training guidelines on nutrition care and support for people living with HIV/AIDS (PLWHA) that are not currently in circulation. These materials are important in connection with improving the nutritional situation of infants, young children, and mothers living with HIV/AIDS. The CBN program developed a significant number of guides, including community-based nutrition flow, step-by-step growth monitoring and promotion, counseling, referral, household inventory, growth monitoring charts, and others. The materials were translated into three major local languages and are being used by HEWs at the grassroots level in 150 woredas. However, no PMTCT IEC/BCC materials were observed at any level at the facilities visited. Additionally, counseling materials that were produced by ENA and the

LINKAGES Project are very important, though they need to be reviewed before dissemination.

2.4 Available nutrition guidelines, policies, and curricula

All the central organizations interviewed agreed that malnutrition (mainly undernutrition and micronutrient deficiency among vulnerable populations) is a major problem in Ethiopia. This is exacerbated due to absence of leadership, confusion of responsibility, and lack of adequate attention at different levels.

Currently, the government is putting a significant effort toward the implementation of a comprehensive nutrition program. According to respondents, nutrition is part of the family health package, and the program has separate guidelines for implementation by HEWs. HEWs are extensively trained on nutrition problems using modules prepared by partners from academic institutes (AAU, Gondar and Jimma Universities, and the FMOH Family Health Department and other units).

A total of 18 major documents believed to be of importance in the implementation of infant and young child nutrition activities in Ethiopia were reviewed for this inventory and are outlined below.

2.4.1 National Nutrition Program

National Nutrition Program I (July 2008–June 2013): Program Implementation Manual for NNP

Produced by: FMOH

Year and place of publication: July 2008, Addis Ababa

Objective/Purpose of the document: To give a detailed guiding framework for implementation of the NNP.

Major findings: Maternal, infant, and young child nutrition are clearly addressed in the program document, indicating that “the primary impact objective of the NNP is to improve nutritional and micronutrient status of the population, especially mothers and children, through cost-effective and sustainable interventions.”

2.4.2 National Nutrition Strategy

Produced by: FMOH

Year and place of publication: January 2008, Addis Ababa

Objective/Purpose of the document: To provide an overall guiding framework for the implementation of nutrition activities in the country.

Major findings: The document clearly acknowledges the importance of the HEP in addressing the problem of malnutrition in the country, most importantly among vulnerable populations. The strategy prioritizes infants and children younger than 5, especially those less than 2 years old; pregnant and lactating women; and PLWHA. The inclusion of ENA in the strategy is a significant step toward supporting the infant and young child nutrition activities.

2.4.3 National Guidelines for HIV/AIDS and Nutrition

Produced by: FMOH

Year and place of publication: September 2006, Addis Ababa

Objective/Purpose of the document: These national guidelines define the nutrition actions to which service providers should adhere in order to offer quality care and support to PLWHA at HIV counseling and testing, maternal and child health, antiretroviral therapy, orphans and vulnerable children, and home-based care sites.

Major findings: Emphasis is given to inclusion of PMTCT in prenatal and antenatal care and maternal and child health services to support mothers and families in choosing an appropriate feeding option for their newborn. The guidelines highlight the need for counseling materials for maternal and child health services at PMTCT sites, including mini-posters to help providers counsel women, and infant feeding tools to assess whether replacement feeding is acceptable, feasible, affordable, sustainable, and safe. Provision of counseling on infant feeding options is also discussed. The guidelines encourage providing nutrition messages to HIV-positive clients immediately after HIV testing and adoption of optimal nutrition practices among HIV-negative clients.

2.4.4 National Nutrition and HIV/AIDS Implementation Reference Manual

Produced by: FMOH

Year and place of publication: September 2008, Addis Ababa

Objective/Purpose of the document: To help guide the FMOH Family Health Department and the Federal HIV/AIDS Prevention and Control Office on the priority areas of nutrition and HIV programs. The manual also provides information on how to standardize nutrition and HIV services in conjunction with other clinical services for PLWHA.

Major findings: The manual addresses the following key points: (1) standardization of provision of food and nutrition services for clinically malnourished PLWHA, women accessing PMTCT services, and orphans and vulnerable children; (2) human resource capacity-building; (3) dissemination of guidelines relevant to nutrition and HIV/AIDS; (4) distribution of IEC and BCC materials and tools; (5) coordination and collaboration with partners; (6) advocacy; (7) logistics and distribution of commodities; (8) partner roles; (9) monitoring and evaluation (M&E) and integration of nutrition indicators into HIV/AIDS indicators.

2.4.5 Ethiopian Guide to Clinical Nutrition Care for Children and Adults with HIV

Produced by: FMOH

Year and place of publication: September 2008, Addis Ababa

Objective/Purpose of the document: This training manual is intended to equip health care providers with skills to provide clinical nutrition care for PLWHA.

Major findings: The document provides information on assessing and classifying the nutritional status of PLWHA and developing nutrition care plans, including assessing the nutritional status of a client and health conditions that may affect nutrition and nutrition care and support, designing a nutrition care plan for children, and helping clients to carry out the plan.

2.4.6 National Guidelines for Control and Prevention of Micronutrient Deficiencies, Ethiopia

Produced by: FMOH Family Health Department

Year and place of publication: June 2004, Addis Ababa

Objective/Purpose of the document: The main goal of the manual is to help eliminate micronutrient deficiencies in Ethiopia by:

- Increasing micronutrient program coverage.
- Developing standards for national programs.
- Providing tool, materials, and aids to health personnel.

Major findings: The document emphasizes population groups at highest risk for vitamin A deficiency, primarily infants and children younger than 5 years and pregnant and lactating women. Since vitamin A is an essential micronutrient for proper functioning of the immune system, the manual prioritizes improving the vitamin A status of children to increase their ability to resist infections.

2.4.7 National Strategy for Infant and Young Child Feeding, Ethiopia

Produced by: FMOH Family Health Department

Year and place of publication: April 2004, Addis Ababa

Objective/Purpose of the document: The overall goal of this strategy is to improve infant and young child feeding practices in Ethiopia.

Major findings: The national strategy for infant and young child feeding respects the right of the mother to decide how to feed her infant and the right of every child to have access to safe and nutritious food. The strategy also takes into account the latest scientific evidence for promoting and sustaining optimal feeding practices. As part of the implementation of the World Health Organization (WHO)/UNICEF Global Strategy for Infant and Young Child Feeding, the FMOH prepared a national strategy for infant and young child feeding in April 2004. The strategy highlights the infant and young child feeding situation in Ethiopia and provides technical guidance on infant and young child feeding based on three of the ENA (promotion of exclusive breastfeeding, optimal complementary feeding, and feeding of the sick child), infant and young child feeding within the context of HIV/AIDS, child feeding during emergencies, M&E of infant and young child feeding, and the role of partners.

2.4.8 Protocol for Management of Severe Acute Malnutrition, Ethiopia

Produced by: FMOH

Year and place of publication: March 2007, Addis Ababa

Objective/Purpose of the document: In general, to reduce mortality in acutely malnourished infants, children younger than 5 years, and adults (particularly pregnant and lactating women).

Major findings: This document outlines the steps and procedures for treating severely malnourished patients in a hospital therapeutic feeding unit or in the community. The document deals with malnourished patients in two separate age groups: 6 months to adulthood and infants less than 6 months. The document realizes that severe malnutrition has both medical and social etiologies. As a consequence, in addition to presenting information on HIV, malnutrition, and the medical treatment of malnutrition, it discusses such topics as community mobilization and the emotional recovery of patients.

2.4.9 Training Guidelines for Management of Severe Malnutrition at the Health Post Level Outpatient Therapeutic Care: Trainer's Manual

Produced by: FMOH

Year and place of publication: July 2008, Addis Ababa

Objective/Purpose of the document: Upon completion of the two-day training, participants will be able to:

- Perform basic anthropometric measurements (middle-upper arm circumference, weight, and edema) for screening of acute malnutrition in the community and interpret the values.
- Explain the screening and admission procedures of patients with acute malnutrition.
- Describe admission, referral, and discharge criteria for the outpatient treatment program.
- Organize a health post for outpatient treatment of severe acute malnutrition.
- Manage and follow up children with severe acute malnutrition using the OTP protocol.
- Complete reporting and recording forms correctly.
- Describe the contents of the take-home quick reference.

Major findings: The training manual is intended to build the technical skills of HEWs to screen and manage severe acute malnutrition cases at the health post, with special emphasis on OTP and drought-affected woredas. It was developed in accordance with the national protocol for management of severe acute malnutrition (revised in March 2007).

2.4.10 Guide for Training of Health Workers and Health Extension Workers

Produced by: FMOH

Year and place of publication: February 2010, Addis Ababa

Objective/Purpose of the document: This training guide is to be used by master trainers of health workers and HEWs before introduction of community-based nutrition activities.

Major findings: Topics included in the guide: breastfeeding, complementary feeding and key caring practices, common childhood illnesses, feeding and care of the sick child, essential newborn care, maternal nutrition and iron supplementation, and growth monitoring and promotion.

2.4.11 National Nutrition Communication Framework

Produced by: EHNRI

Year and place of publication: January 2009, Addis Ababa

Objective/Purpose of the document: This framework analyzes factors that affect the nutritional status of various populations, including gender, policy, socioeconomic condition, and culture. The framework seeks to use these factors in informing nutrition communication and education strategies to enhance national health.

Major findings: In Ethiopia, there are very few communication materials (i.e., print, audio, etc.) for nutrition communication and education. Most of the available nutrition communication materials are not developed based on formative research and well-designed strategies. Moreover, due to the lack of common standards surrounding the preparation of materials, there has been a lack of communication among the organizations producing and distributing such materials.

2.4.12 Plan for Accelerated and Sustained Development to End Poverty

Produced by: Ministry of Finance and Economic Development

Year and place of publication: September 2006, Addis Ababa

Objective/Purpose of the document: The document describes the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), Ethiopia's framework for the five-year period 2005/06 through 2009/10, which includes the National Health Policy and Strategy.

Major findings: Under the National Health Policy and Strategy, nutrition-related measures/activities include:

- Vigorous implementation of the HEP for the effective prevention and control of communicable diseases and promotion of healthy living.
- Capacity-building of district health offices in the expansion of primary health care facilities and services.
- Implementation of the recently developed NNS.

2.4.13 Nutritional Care and Support for People Living with HIV/AIDS: A Training Course for Use in Ethiopia

Produced by: FAO

Year and place of publication: 2007, Addis Ababa

Objective/Purpose of the document: To assist health workers and other caregivers to improve their knowledge and skills about nutrition care and support for PLWHA, as well appreciate the importance of good communication skills in their work.

Major findings: The primary aim of this course is to increase caregivers' knowledge about nutrition care and support for PLWHA. It may be used in the pre-service training of health workers and development agents, extension workers, and relevant governmental and nongovernmental agencies. The course may also be used to train family members of PLWHA, PLWHA themselves, anti-AIDS clubs, and peer volunteers.

2.4.14 Training of Trainers for Introduction of Health Themes to Community Health Promoters by Health Extension Workers

Produced by: Essential Health Services for Ethiopia (ESHE)/Academy for Educational Development (AED) LINKAGES Project

Year and place of publication: May 2007, Addis Ababa

Objective/Purpose of the document: To train HEWs on how to demonstrate appropriate behaviors while facilitating trainings, effectively train Community Health Promoters (CHPs) using the CHP training manual, use the family health card and other necessary tools to train and mentor CHPs, mentor and encourage CHPs in their promotion activities, coordinate activities between health volunteers in the kebele, and plan training activities for the next two months.

Major findings: This facilitator's guide was developed for training of HEWs on how to train CHPs in their kebele. The main goals are to expand CHP activities in all kebeles of ESHE-focus woredas in a relatively short time and to improve community practice and utilization of services. The objective is to develop the capacity of HEWs in the area of facilitation to help them introduce new themes to and strengthen negotiation skills of CHPs in any opportunity they have in their kebeles. The main focus of the guide is strengthening facilitation skills with reference to child survival practices.

2.4.15 Infant and Young Child Feeding in the Context of Maternal HIV Infection

Produced by: Johns Hopkins University Technical Support for the Ethiopian HIV AIDS Initiative Project

Year and place of publication: 2010 (under review)

Objective/Purpose of the document: To assist health workers and mentors to increase their knowledge and skills around practical feeding of infants within the context of HIV.

Major findings: These training guidelines were prepared for mother support groups and health care providers.

2.4.16 Guidelines for the Enhanced Outreach Strategy (EOS) for Child Survival Interventions

Produced by: FMOH

Year and place of publication: June 2004, Addis Ababa

Objective/Purpose of the document: To reduce mortality and morbidity in children younger than 5 years of age and improve child survival.

Major findings: The EOS is implemented by the FMOH and DPPA in cooperation with UNICEF and WFP. It is a temporary measure to bridge HEWs to full deployment. The EOS/TSF concentrates on biannual screening of acute malnutrition in children younger than 5, biannual vitamin A supplementation and deworming, provision of health and nutrition messages, and referral of acutely malnourished children for TSF. EOS covers 325 woredas, and TSF covers 246 woredas (out of the 325).

2.4.17 One Year Middle Level TVET Program Curriculum Guide, Occupational Title: Health Extension Worker

Produced by: MOE Department of TVET Curriculum Development

Year and place of publication: December 2003, Addis Ababa

Objective/Purpose of the document: The main objective of this approach is to equip participants with the required skills toward employment by the government. By the end of the course, participants are able to:

- Explain the process of conducting a community kebele health survey and establishing baseline data.
- Analyze collected data and interpret, prioritize, and draw a plan of action with active community involvement.
- Describe the process of mobilizing the community in taking preventive measures against epidemic diseases (malaria, HIV/AIDS, tuberculosis, meningitis, etc.), as well as promoting healthy behaviors.
- Demonstrate the necessary skills in providing home-based care (HIV/AIDS) and training of home-based caregivers.
- Explain the concept of health extension packages.
- Identify potential and actual health problems and nutritional disorders among children and adults and refer to the health institution.
- Analyze the beliefs and cultural practices related to health, and design health approaches that adapt and integrate useful practices.
- Demonstrate skills in conducting health education sessions for individuals, families, and communities on priority health problems.

- Demonstrate counseling skills and the ability to disseminate family planning information.
- Explain the importance of maintaining an up-to-date inventory of all records, resources, and registers at the kebele level.
- Describe the sending of consolidated reports to the woreda health office.
- Demonstrate first aid management skills and safe transportation to a health facility.
- Demonstrate skills in antenatal examination and conducting normal deliveries in health centers and homes.
- Explain the proper handling of vaccines, including the cold chain system.
- Demonstrate skills in giving vaccines against the six vaccine-preventable diseases.
- Demonstrate skills in screening eligible couples and distribution of contraceptives, including injectables.

Major findings: This guide tries to take into account all health problems at all levels in the country, so the training is divided into modules.

2.4.18 Infant and Young Child Feeding Counseling: An Integrated Course

Produced by: WHO/UNICEF

Year and place of publication: 2006, Geneva

Objective/Purpose of the document: The document is a training guide that enables trainees to counsel and support mothers (including HIV-positive mothers) to feed their children aged 0–24 months, according to WHO/UNICEF guidelines.

Major findings: The material in this course is primarily derived from three WHO/UNICEF courses: Breastfeeding Counseling: A Training Course (five days); HIV and Infant Feeding Counseling: A Training Course (three days) (with the Joint United Nations Programme on HIV/AIDS); and Complementary Feeding Counseling: A Training Course (three days). The training material is directed toward counselors of infant and young child feeding. The course exposes trainees to basic counseling skills, growth monitoring, knowledge and demonstration of infant feeding techniques, infant feeding in the context of HIV, etc. This course can be used to complement existing courses, such as courses on the integrated management of childhood illnesses.

2.5 Selected programs under implementation

Based on close observations of health facilities and programs and continued consultation with major stakeholders and frontline actors, the following nutrition-related programs and project activities are identified as strong candidates for being scaled up due to their potential for high coverage, impact, and sustainability.

2.5.1 Community-Based Nutrition program

The CBN program seeks to provide community-based nutrition and health services, fully utilizing existing HEP outreach and model household service provision, and seeking to build on these with additional community-based resources and activities in the most efficient and effective manner. The CBN package includes community mobilization/conversation, community-driven growth monitoring and promotion, promotion of ENA, pregnancy weight gain monitoring, and multisectoral linkages using HEWs supported by VCHWs and model households. It will expand geographically in a manner consistent with HEP expansion. In order for the CBN program to work effectively through the triple-A approach (assess, analyze, and take action), it will seek to identify and address both the immediate and

underlying causes of malnutrition. Thus, CBN implementation will actively utilize the presence of other programs (e.g., TSF, TFP, PSNP, and FSP) in order to address some of the underlying causes of malnutrition.

The effectiveness of community-based services increases the effectiveness of health posts and health centers, with a high proportion of needs taken care of within the community itself. With CBN's focus on preventative measures, the burden on the health system of dealing with severe malnutrition and with malnutrition-associated morbidity also will be decreased.

The specific objectives of the CBN program are to:

- Build community capacity for assessment, analysis, and actions specific to preventing child malnutrition (triple-A approach).
- Promote improved caring practices for children and women to prevent malnutrition.
- Improve referral linkages to relevant child health and nutrition services and other linkages for addressing non-health causes of child malnutrition.
- Develop and implement a strong advocacy, communication, and mobilization strategy to support all CBN activities.
- Enhance capacity for CBN implementation at the regional and woreda levels.

The CBN program will concentrate primarily on children younger than 2 years and pregnant and lactating women, and will include growth monitoring and promotion, pregnancy weight gain-based BCC using ENA and “community conversation,” targeted food supplementation, micronutrient supplementation, parasitic control, and hygiene and sanitation. Nutrition is centrally involved in three and closely linked to the others. A mother's understanding of her child's growth by means of the family health card (in her possession), which includes the child's growth chart, may be essential to her sustained active involvement in the behavior change process. Similarly, identification of pregnant women at risk of delivering low-birth-weight infants will permit prioritized attention to them by health workers and by the families of these women. CBN also will follow basic principles of integrated management of newborn and childhood illness at the community level (with the understanding that the primary growth monitoring will take place at outreach centers rather than at the health post).

Special attention across the entire CBN subcomponent is required to address the problem of very late (and sometimes early) introduction of complementary food to young children. Surveys indicate that young children often are not introduced to complementary food until after 1 year of age, and sometimes as late as 15 or 18 months. Delayed introduction relates in part to a fear of diarrheal infection (making oral rehydration solution and eventually zinc availability and associated counseling critically important). Mothers frequently do not understand, however, the increased vulnerability of the child who becomes malnourished as a result. BCC to address this problem, specifically to address the resistance points and constraints inhibiting timely introduction, will be a priority of both HEWs and VCHWs. These messages will be reinforced whenever possible by other accessible media, particularly radio and local folk media, and through community conversations as a triple-A activity both in individual caretaker counseling and in community/group-level discussion/action points.

Priority attention will be given to pregnant women in an effort to reduce maternal malnutrition and child mortality, recognizing that a high proportion of young children who suffer from growth faltering were likely born with a low birth weight. Attention on

adolescents will focus on both counseling and micronutrient provision, recognizing that pre-pregnancy nutritional status is often as important to pregnancy outcomes as nutrition during pregnancy.

2.5.2 The Essential Nutrition Actions

The FMOH, with previous support from the USAID-funded ESHE and LINKAGES projects, is coordinating and implementing ENA. ENA focuses on six actions that include promotion of optimal breastfeeding, complementary feeding, and feeding of sick children; improvement of women's nutrition; and control of vitamin A, iron, and iodine deficiency. ENA will be used as a basis for interpersonal communication (e.g., individual counseling) and group discussions.

ENA is based on three approaches:

1. It is action oriented.
2. It increases coverage of nutrition services beyond growth monitoring and promotion.
3. Each component is based on proven impact.

ENA is promoted in coordinated and integrated fashion through a holistic technical package consisting of:

- Promoting optimal breastfeeding.
- Promoting optimal complementary feeding at 6 months of age.
- Nutrition care of the sick child during and after illness.
- Controlling anemia in women and children.
- Vitamin A deficiency control.
- Iodine deficiency control.

The ENA approach, which is part of the NNS, provides a framework for improving seven clusters of nutrition behaviors with high public-health impact. Promoting optimal breastfeeding is one of the seven components, including the Baby Friendly Hospital Initiative. The ENA approach is implemented through six key contact points in the lifecycle: during pregnancy; delivery and immediate postpartum; postnatal and family planning; immunization; growth monitoring/child well-being; and sick child consultations.

The ENA approach:

- Provides a clear framework for specific actions to improve nutrition, even under conditions of HIV/AIDS.
- Expands nutrition contacts far beyond traditional growth monitoring and promotion programs.
- Provides an action-oriented basis for pre-service and in-service training of health workers.
- Integrates nutrition messages into other child health and reproductive health programs.
- Encourages the coordination of efforts to improve child survival, growth, and development.
- Brings partners together to achieve results.

- Provides a model to other countries to adopt an integrated and overarching approach that can then be adapted to address the specific nutrition problems found in each country.

2.5.3 Food by Prescription program

HIV/AIDS can cause or worsen malnutrition through a combination of reduced food intake, poor nutrient absorption, and metabolic changes, including increased energy needs. Malnutrition can exacerbate the impact of HIV/AIDS by weakening the immune system, increasing susceptibility to opportunistic infections, and reducing the effectiveness of HIV/AIDS treatment. Food by Prescription (FBP) is a program approach that provides food and nutrition interventions as part of clinical HIV care and treatment. FBP is currently being implemented in Ethiopia. According to USAID, the program seeks to target 24,000 malnourished PLWHA (including children and pregnant and lactating women) in Addis Ababa, Dire Dawa, and Oromiya.

Ethiopia has made a serious effort to improve the situation of people affected or infected by HIV/AIDS. Yet, improved access to nutrition support for vulnerable groups remains a critical need. The United States President's Emergency Plan for AIDS Relief has funded the FBP program to support therapeutic and supplementary food support through health facilities for adults and children living with HIV/AIDS who are moderately and severely malnourished.

Save the Children USA, the prime implementer of the project, is collaborating with AED to make available the required food to PLWHA, and is planning to develop and produce tailored BCC materials. The BCC materials are intended to not only increase the acceptability of the food products but also to promote existing feeding practices that can improve health outcomes of PLWHA.

2.5.4 Community-based therapeutic care

Community-based therapeutic care is among the most effective programs being implemented by the government and NGOs. It allows children to be treated in their own homes rather than in large centers. This program mostly operates in drought-prone areas and coverage varies depending on the season of the year. For instance, during periods of drought, program coverage increases. The therapeutic food used is usually Plumpy'nut[®] or Plumpy'doz[®].

The core operating principles of community-based therapeutic care are:

- Maximum coverage and access.
- Timeliness.
- Care for as long as it is needed.

The main implementing agencies in this regard include the government, Catholic Health Services, Save the Children USA, Action Against Hunger, CARE, Concern, GOAL, and others.

2.5.5 School Health and Nutrition program

Save the Children USA's School Health and Nutrition (SHN) program, started in 2003, has shown success in positively changing students' and communities' nutritional status. The primary objective of the project is to improve the living conditions of the target communities through implementing integrated core programs. The main intervention areas in the impact

districts are: primary education and early childhood development, school health and nutrition, HIV/AIDS, adolescent development, reproductive and sexual health, potable water provision, and food and economic opportunities.

SHN program interventions include:

- Training of school facilitators.
- Annual deworming and vitamin A supplementation.
- School-based malaria and simple health and injury treatment.
- Behavior change-centered health, nutrition, and HIV/AIDS prevention education.
- Provision of mini-media and pertinent IEC materials.
- In-school potable water and handwashing facility.
- Promotion and support of school gardening.
- Community sensitization and coordination with school management committees, regularly involving them in discussions and decisions.
- Engagement of parents.
- Networking and advocacy efforts at all levels of government and United Nations agencies.

All activities are carried out by teachers, with oversight by SHN and school administrative staff.

2.5.6 Other programs

Children in Local Development is being implemented by the MOE in cooperation with WFP. The key objectives are to increase attendance and improve children's ability to concentrate and participate while at school. The program targets schools in Afar, Oromiya, SNNPR, Tigray, and Somali regions that teach grades 1 through 8. It provides meals of Famix or Corn Soya Blend, fortified vegetable oil, and iodized salt for primary school children.



3. Findings and discussions: Observed gaps

3.1 Gaps in IEC/BCC materials

Generally speaking, organizations do not periodically review current protocols and national recommendations to make sure their programs and guidelines are up to date and consistent.

The very few materials that are being used at the facility level were produced a long time ago, including those produced by the FAO and former ENI and (e.g., posters, wall charts, and flip charts on basic nutrition and nutrition care for PLWHA). Although useful for now, they need to be evaluated, revised, and well-adapted to the global and national working environment of infant and young child feeding, or the context of the local situation in Ethiopia.

Other gaps include the following:

- Health workers at the grassroots level (HEWs) do not receive sufficient training on the proper use of different support aids, such as counseling cards.
- IEC materials on infant feeding that are provided by companies that produce commercial infant feeding products like powdered milk, biscuits, and crackers may contain contradictory information to priority messages, and a proper controlling mechanism needs to be implemented.
- Counseling and IEC materials (e.g., posters, wall charts, leaflets, and booklets from FAO) are produced in insufficient quantities, and supplies are not being replenished, leaving health workers to share the very few available in order to deliver messages at the facility level.
- Lack of consistency and coordination in the content of IEC materials from different organizations can be a problem in areas with several different sources of materials.
- No IEC/BCC materials on infant and young child feeding as they relate to PMTCT were observed in the facilities visited.

3.2 Coverage gaps

Most health programs are concentrated in specific regions and specific areas of interest. This situation has created faulty distribution of services and available resources. Despite expansion of the CBN program, coverage is limited to certain localities.

There is no comprehensive community-based nutrition program that addresses all forms of malnutrition. Moreover, absence of intersectoral coordination was observed, which leads to fragmentation and limited communication across interventions, further limiting impact on nutrition. Programs and institutions tend to define their own nutrition intervention packages and to implement them with limited supervision and coordination. Synergy between nutrition activities implemented by different agencies is difficult without a clear coordination mechanism to harmonize and integrate approaches and interventions. Community outreach is limited, although significant efforts are being made through health extension and child growth promotion activities.

3.3 Capacity gaps

The NNP promises to address insufficient human resources in the area of nutrition by recommending the creation of a new coordination mechanism at the national, regional, woreda, and kebele levels; however, the current deficiency is being reflected at various levels:

- Lack of adequate staff at all levels, as well as high staff turnover.
- Lack of training on nutrition support for PLWHA.
- Post-training supervision is not always available.
- The lack of a nutrition information system, which is reflected in poor feedback and flow of information.
- The NNS/NNP is not well-disseminated.
- Protocols and guidelines are not available in health facilities at various levels.
- IEC/BCC materials on nutrition in general, and infant and young child nutrition and PMTCT in particular, are not always available, and the few available are not utilized well and have not been revised or updated.
- A shortage or lack of complementary/supplementary foods produced at the community level and available at affordable prices to low-income population groups is evident in some areas.
- Trainings conducted with health care providers are most often in a lecture format, and are not tailored to participants.

3.4 Program linkage gaps

The NNS provides an opportunity to strengthen existing programs that include nutrition activities and create synergies across programs to improve nutritional outcomes broadly. However, a lack of distinct institutional responsibilities, an absence of any shared priorities to address malnutrition and service delivery frameworks, and general organizational and operational fragmentation are major constraints faced by current nutrition interventions and programs. This lack of integration likely leads to missed opportunities, as actions do not create synergy, and therefore, results do not cumulate to produce substantial and durable impact on target populations' nutritional status. The inadequacy of a strategic framework for comprehensively addressing malnutrition has led to an almost exclusive focus on service delivery, while essential functions such as strategic orientation, coordination, and quality assurance remain largely limited. Inadequate communication and collaboration among the nutrition service providers has inevitably resulted in sketchy and uncoordinated actions.

There is a health, population, and nutrition technical working group that UNICEF is currently leading. The topics discussed include issues related to nutrition, updates on current work being done by various stakeholders from different sectors, and the nature of issues that require government involvement for making decisions. However, in general, there is limited exchange of experiences and sharing of lessons learned, preventing nutrition actors from advancing and expanding successful interventions. The main programs that need to be linked with the NNP include FSP, PSNP, the Water Supply and Sanitation Collaborative Council's

WASH Ethiopia Movement,¹ the agriculture and rural capacity-building program, and the education-sector program. Each of these sectors and programs has a large number of activities, and associated costs are included in the respective programs.

The “Linkages” component of the NNP is designed to strengthen the linkage of nutrition to other sectors that affect the underlying causes of malnutrition, and in turn, enhance the nutritional impact of programmatic activity within these sectors. Ethiopia already has well-defined policies, strategies, and implementation activities in other, related sectors that affect nutrition and that lend themselves to the possibility of cooperation to benefit the activities of nutrition and other sectors. Among these, the most notable ones are national food security under the rural development and PASDEP framework, the National Health Sector Strategy and its Health Sector Development Program, the National Education Strategy and its Education Sector Development Program, and the National Universal Access to Potable Water (UAP) program of the Ministry of Water Resources. Given that the government and donors have already mobilized human and financial resources in these programs, the NNP’s responsibility vis-à-vis these sectors is to develop viable linkage activities with them; however, the exact responsible body for creating these linkages is still not clear.

During the assessment, efforts were observed through the National Nutrition Coordination Body to try to coordinate and link actions among various actors. Instituting and strengthening consistency of nutrition advocacy and communication by linking with other activities such as WASH Ethiopia, PSNP, etc., through this body will be an important step toward achieving the intended goal of better nutrition.

3.5 Package gaps

Some of the gaps observed during this assessment included the lack of available IEC/BCC materials, and inadequate quality of the major materials. Most nutrition-related projects are not emphasizing the production and distribution of appropriate IEC materials at the facility and community levels. For instance, prior to dissolution of the ENI, nutrition communication materials were available in adequate quantities, including audio/visual materials; posters; and brochures and leaflets on iodine deficiency disorders, vitamin A, balanced diet, complementary foods, and child care and feeding practices, to name a few. After disbanding of the ENI, updating and distribution of all health and nutrition communication materials was to be continued by the former Health Education and Extension Centre. Efforts of the current study to locate the materials yielded little except for some old posters and flip charts at health facilities.

In general, there is usually no system for ensuring sustainability of materials



Nutrition teaching aid prepared by health care providers in Addis Ababa as a substitute for unavailable standardized informational materials.

¹ The WASH Ethiopia Movement uses advocacy, social mobilization, and strong media involvement to ensure that urban sanitation and hygiene receive adequate attention.

production once a project ends. This requires both a home institution for the materials, money for printing and distribution, and a champion to carry on the work. Second, there is some distribution, but it is inconsistent or perhaps only reaches some of the necessary people.

4. Recommendations

4.1 General

- The FMOH should utilize resources of different organizations to develop IEC and BCC nutrition education materials, including materials produced by FAO and the former ENI that incorporate infant and young child nutrition within the context of HIV/AIDS and PMTCT.
- National guidelines and protocols and IEC/BCC materials on nutrition, HIV/AIDS, and PMTCT need to be regularly updated and distributed in adequate quantities to all health facilities and community levels. As a case in point, nutrition communication materials produced by the former ENI, UNICEF, FAO, MOST, and ESHE/AED LINKAGES should be centrally updated and widely disseminated to help alleviate the enormous nutrition communication gaps.
- NGOs should synchronize their nutrition activities with federal and regional government agencies and among themselves. When there are differences between national policies and protocols and international recommendations, district health care providers should provide suggestions to national authorities to update them. Health workers should then widely disseminate the revised policies and protocols. Organizations can choose different ways to make technical guidelines and protocols known to all staff and workers throughout the district.
- Dissemination of the NNP and NNS should be carried out in such a way that stakeholders and community members become aware of how to implement interventions to improve the nutritional status of infants, young children, and mothers.
- Programs addressing care and prevention should be scaled up (e.g., CBN, ENA).
- The government should allocate additional resources for program support.
- There need to be more trained nutritionists in the government.
- Short- and long-term training schemes (including in-service trainings) should be implemented for a variety of audiences: nurses, midwives, agricultural workers, HEWs, food technologists, etc.
- There needs to be close, continuous, and better professional support at all levels of the health system, including supportive supervision, especially after trainings.
- Nutrition teaching/learning materials such as books, slides, and audio/visual materials should be developed with expert technical assistance and distributed for use in teaching institutions at all levels.
- Both governmental and nongovernmental organizations need to provide IEC materials to health workers at clinics through community-based health workers and supervisors working at the grassroots level. These include materials for training, supervision, counseling, and job support, like the ones being used by IntraHealth, the Integrated Family Health Program, and Save the Children USA. Although some materials were observed during the course of the assessment, teaching aids and guides are not available at the facility level, where they are also needed.
- CBN activities should be expanded to all woredas. Currently, CBN covers only food-insecure woredas due to resource constraints, but calls for the scaling up of community-

based nutrition and proven nutrition interventions (such as complementary feeding, food fortification, infant and young child feeding, and micronutrient supplementation) to reduce maternal, neonatal, and child undernutrition.

- Nutrition programs and interventions should be linked with the FSP, PSNP, WASH Ethiopia, the agriculture and rural capacity-building program, and the education-sector program to operate at the household level, which will help to reduce chronic malnutrition in mothers and children.
- Nutrition should be integrated into non-health sectors, particularly agriculture and education, where increased food production and knowledge will reach mothers and young children.
- A mechanism should be established for national level curriculum development and periodic review.
- Nutrition-related training facilities and curricula at all levels need to be strengthened.
- More training facilities should be established. Health workers at the grassroots level (HEWs) need sufficient training on the proper use of different support aids, such as counseling cards.
- Infant and young child nutrition needs to be incorporated into training facility curricula for nurses, midwives, HEWs, etc. The WHO/UNICEF Infant and Young Child Feeding Counseling: An Integrated Course should be adopted and utilized at the national level.
- The NNP advocacy and communication component indicated that it is focusing on capacity-building of implementing institutions, advocacy and communication activities, M&E, and linkages with other relevant programs. The major related cost items include revision and development of the communication strategy, preparation of special nutrition events, development of IEC materials, and procurement of air time for dissemination of relevant nutrition messages. This opportunity needs to be fully utilized by different stakeholders in order to achieve the goals.

4.2 Infant and young child nutrition materials to be reviewed and adopted

4.2.1 Essential Nutrition Actions

The ENA approach focuses on the nutrition of women and children younger than 2 years. Most growth faltering occurs during the first year of life. Much of the damage from malnutrition is irreversible after the first two years. Therefore, any serious effort to address malnutrition and child mortality must focus on improving infant feeding behaviors in the early developmental period. Counseling materials that were produced by ENA and the AED LINKAGES Project are very important, provided that they are reviewed and distributed to the facility level for health care providers, who are in great need.

4.2.2 Nutrition care services for people living with HIV/AIDS

FAO-produced Amharic-language educational posters, pocket guides, charts, and leaflets extracted from national training guidelines on nutrition care and support for PLWHA are currently not in circulation. However, given their importance in improving the nutritional status of infants, young children, and mothers living with HIV/AIDS, the materials could be reprinted and circulated to all facilities in need of them at different levels. This could be done in agreement with the producers.

4.2.3 Community-Based Nutrition program materials

The CBN program developed a significant number of guides that were translated into three local languages. Although the materials are currently used by HEWs, they lack information on nutrition counseling and need to be updated to include this information.

4.2.4 Ethiopian Nutrition Institute program materials

Posters, flip charts, leaflets, and booklets on nutrition, including infant and young child nutrition, developed by the former ENI are still used in facilities. Their content should be revised in collaboration with the FMOH and EHNRI according to current international and national protocols, including those on nutrition within the context of HIV/AIDS.

4.2.5 Infant feeding in the context of HIV counseling card

An Amharic-language counseling card similar to the one developed by WHO/UNICEF does not currently exist. However, it would be a useful tool for grassroots-level health care providers. Health workers would also need to be trained to use these counseling cards.

4.2.6 Prevention of mother-to-child transmission of HIV materials

No PMTCT IEC/BCC materials related to infant and young child feeding were observed at any level at the facilities visited. The situation calls for immediate development and distribution of well-designed, appropriate materials.

Appendix 1. Organizations and personnel contacted

Federal Ministry of Health

Dr. Nigist Tesfaye	Urban Health Promotion and Disease Prevention Directorate
Dr. Abdulaziz Ali	Nutrition and HIV/AIDS Advisor
Mrs. Mehret Huluf	Agrarian Health Promotion and Disease Prevention Directorate
Mrs. Haregewien Keiflom	Nutrition focal person (assigned to assist with the assessment)
Dr. Esmael Hassen	Pastoralist Health Promotion and Disease Prevention Directorate

Ministry of Education

Mr. Tenaye Assefa	Resource Mobilization Expert
Mr. Nega Gichille	Science Curriculum Expert

United Nations Children's Fund

Mr. Abebe Hailemariam	Nutrition Project Officer
Dr. Teweldeberhan Daniel	Nutrition Specialist

Health Education and Extension Centre (Ras Emeru compound)

Zewdu Yared	Printing and Distribution Case Team Coordinator
-------------	---

World Bank

Mr. Frew Tekabe	Nutrition Advisor
-----------------	-------------------

Federal HIV/AIDS Prevention and Control Office

Mr. Tsegaye Ketema	Public Relations Officer
--------------------	--------------------------

AIDS Resource Centre

Yewebdar Mamo	AIDS Resource Centre Officer
---------------	------------------------------

IntraHealth

Mr. Aweke Teklu	Infant and Young Child Feeding and Nutrition Advisor
-----------------	--

Ethiopian Health and Nutrition Research Institute

Tsegenesh Tsegaye	Communications and materials production point person
-------------------	--

Alive & Thrive

Mr. Mesfin Tesfaye	Monitoring and Evaluation Specialist
Mr. Andenet Haile	Public Affairs and Advocacy Specialist

Integrated Family Health Program

Dr. Ephrem Teferi	Child Health and Nutrition Advisor
-------------------	------------------------------------

Johns Hopkins University – Technical Support for the Ethiopian HIV/AIDS Initiative (TSEHAI)

Dr. Daniel Kinde Lead PMTCT Advisor
Dr. Alemayehu Mekonen Pediatric and PMTCT Advisor

SAVE-US

Mrs. Yetayesh Marru Nutrition Advisor

Health facilities

Woreda 23 Health Centre, Addis Ababa
Bekele Gelaye, Acting Head
Sr. Mertnesh Selfu, Health Promotion and Disease Prevention

Zewditu Referral Hospital, Addis Ababa
Sr. Maedot Hailu, Health Promotion and Disease Prevention

Kerkos Sub-city Meshwalekia Health Centre, Addis Ababa
Yehenew Zurebachew, Head, Health Promotion and Disease Prevention
Sr. Meskerem Demes, Assistant, Health Promotion and Disease Prevention

Kazanchis Health Centre, Addis Ababa
Sr. Hirut Sahlu, Head, Health Promotion and Disease Prevention

Nefas Silk Lafto Sub-city, Kebele 02 Health Post, Addis Ababa
Sr. Mestawet Haile Mechael, Head, Health Promotion and Disease Prevention

Akaki Kality Health Centre, Addis Ababa
Observation of activities

Appendix 2. Nutrition curricula for selected health sciences programs

The following are supportive courses for graduate and post-graduate studies.

Course objective	Course content
Addis Ababa University School of Public Health/Faculty of Medicine (2 credit hours)	
To enable graduate students to acquire theoretical knowledge (principles) and analytical skills (methods) in public health nutrition.	Modules <ul style="list-style-type: none"> • Introduction to Public Health Nutrition • Nutritional Requirements • Assessment of Nutritional Status • Food Security and Food Safety • Nutritional Problems of Public Health Importance • Nutrition and Reproductive Health • Nutrition Interventions
Haromya University (2 credit hours)	
Not indicated.	Introduction <ul style="list-style-type: none"> • Definition of terminology • Components of food and their classification • Staple foods • The fundamental causes of malnutrition Carbohydrates <ul style="list-style-type: none"> • Sources • Digestion and absorption • Metabolism • Malabsorption syndrome Protein <ul style="list-style-type: none"> • The importance of protein • Essential and non-essential amino acids • Sources of protein • Digestion and absorption • Protein metabolism • Protein-energy malnutrition • Basal metabolism Lipids (fats and oils) <ul style="list-style-type: none"> • Classification of fats and oils • Sources of fats • The importance of fats • Digestion, absorption, and metabolism of fat Vitamins <ul style="list-style-type: none"> • Definition • Types of vitamins • Functions of vitamins • Characteristics of vitamins • Uses of vitamins • Deficiency syndrome and treatment Minerals/salts <ul style="list-style-type: none"> • Functions • Sources • Deficiency of minerals • Prevention and treatment Water <ul style="list-style-type: none"> • Body water and its distribution • Water in relation to body functions • Loss of water and dehydration Growth and development <ul style="list-style-type: none"> • Components of weight gain during pregnancy • Birth weight and causes of low birth weight

Course objective	Course content
	<ul style="list-style-type: none"> • Development from birth and children at risk • Assessment of nutritional status Nutrition surveillance <ul style="list-style-type: none"> • Objectives • Uses and users of nutrition surveillance • Agriculture and rural development • The health sector • Early (timely) warning system Nutrition intervention <ul style="list-style-type: none"> • Mechanisms of nutrition intervention • Criteria for successful intervention Nutrition anthropology <ul style="list-style-type: none"> • Sociocultural factors in food production • Ecological anthropology • Sociocultural factors in food intake Food and nutrition policy <ul style="list-style-type: none"> • Objectives of food and nutrition policy Nutrition planning <ul style="list-style-type: none"> • Objectives of health and nutrition planning • The planning cycle • Requirements for planning • Evaluation
Mekele University	
<p>To:</p> <ul style="list-style-type: none"> • Acquire knowledge on the principles of nutrition and its relationship to the body, health, and disease. • Apply the knowledge in the promotion of health. • Assess the nutritional status of the community using different methods. • Identify specific nutrient deficiencies and treat as needed. • Advise mothers to prepare weaning food and start supplementary feeding on time. • Participate in the planning of food to meet special needs. • Learn the fundamental causes of malnutrition. 	Introduction Constituents <ul style="list-style-type: none"> • Protein • Carbohydrates • Fats and oils • Vitamins and minerals • Water • Their sources, functions, requirements, and deficiency syndromes Growth and development <ul style="list-style-type: none"> • Components of weight during pregnancy and birth weight • Development from birth • Children at risk • Assessment of nutritional status Nutrition intervention <ul style="list-style-type: none"> • Types of interventions • Availability of food • Accessibility of food • Food utilization at the household level • Distribution in the household • Physiological utilization Nutrition anthropology <ul style="list-style-type: none"> • Sociocultural factors in food production • Ecological anthropology • Sociocultural factors in food intake Food and nutrition policies <ul style="list-style-type: none"> • Self-sufficiency • Food security • Alleviation of current malnutrition • Alleviation of poverty Nutrition planning <ul style="list-style-type: none"> • Health and nutrition planning • Requirements for planning • The planning cycle • Evaluation Essential Nutrition Actions approach <ul style="list-style-type: none"> • Promotion of breastfeeding

Course objective	Course content
	<ul style="list-style-type: none"> • Appropriate complementary feeding • Feeding of the sick child • Women's nutrition • Control of vitamin A deficiency • Control of anemia • Control of iodine deficiency disorders • During antenatal care • Delivery • Postnatal and family planning • Immunization • Well child growth monitoring and promotion • Sick child • Integrating Essential Nutrition Actions into other health programs
Bahir Dar University (2 credit hours)	
Identical to Haromaya University	
Wolaita Sodo University (3 credit hours)	
<p>To:</p> <ul style="list-style-type: none"> • Describe types of nutrients (macro and micro). • Describe different factors involved in malnutrition. • Understand different nutrition assessment methods. • Describe the Essential Nutrition Actions. • Discuss national nutrition policy. 	<p>Introduction to nutrition</p> <ul style="list-style-type: none"> • Definition of terms • History of nutrition • Recommended daily allowance (RDA) <ul style="list-style-type: none"> ◦ Factors affecting RDA ◦ Requirements and RDA ◦ Importance of RDA <p>Carbohydrates</p> <ul style="list-style-type: none"> • Introduction • Classification • Functions • RDA • Food sources • Dietary fiber <ul style="list-style-type: none"> ◦ Types ◦ Physiological effects ◦ RDA ◦ Food sources <p>Fats/Lipids</p> <ul style="list-style-type: none"> • Introduction • Classification • Fats in the body • Functions • Essential fatty acids <p>Protein</p> <ul style="list-style-type: none"> • Introduction • Nutrition classification • Nitrogen balance • Functions • Factors affecting protein utilization • Quality of protein • Complementary value of protein • RDA • Food sources <p>Energy metabolism</p> <ul style="list-style-type: none"> • Introduction • Basal metabolic rate determinants • Resting energy expenditure • Thermic effect of food • Measuring energy expenditure • RDA • Food sources

Course objective	Course content
	<p>Protein-energy malnutrition</p> <ul style="list-style-type: none"> • Introduction • Prevalence • Etiology • Features • Nutritional requirements (F-75, F-100...) • Ecology of undernutrition <p>Minerals</p> <ul style="list-style-type: none"> • Introduction • Macro and micro minerals <ul style="list-style-type: none"> ◦ Functions ◦ Deficiency disorders ◦ RDA ◦ Food sources <p>Vitamins</p> <ul style="list-style-type: none"> • Introduction • Water- and fat-soluble vitamins <ul style="list-style-type: none"> ◦ Functions ◦ Dietary disorders ◦ RDA ◦ Food sources <p>Antioxidants</p> <p>Water and electrolytes</p> <ul style="list-style-type: none"> • Introduction • Functions • Water balance • Electrolyte balance <p>Assessment of nutritional status</p> <ul style="list-style-type: none"> • Introduction • Anthropometric assessment <ul style="list-style-type: none"> ◦ Head circumference ◦ Recumbent length ◦ Height ◦ Weight ◦ Skin fold circumference ◦ Indices derived from anthropometric measurement (W/h, H/age) ◦ Anthropometric reference data (National Center for Health Statistics, Harvard University, UK, and Canadian references) • Clinical examination • Biophysical and radiological measurement • Functional assessment • Biochemical assessment • Dietary assessment <p>Essential Nutrition Actions</p> <ul style="list-style-type: none"> • Introduction • Essential Nutrition Actions approach <p>Nutrition policy and programs</p> <ul style="list-style-type: none"> • Introduction • National policy • Nutrition intervention <p>Nutrition anthropology</p> <ul style="list-style-type: none"> • Factors in food selection • Economic and ecological factors affecting food choices • Sensory characteristics affecting food selection

Course objective	Course content
Addis Continental Institute of Public Health/Haromaya University joint master's program in public health (public health nutrition) (2 credit hours)	
<p>By the end of the course, students should be able to:</p> <ul style="list-style-type: none"> Describe essential nutrients for human beings and their necessity for good health. Assess and utilize the different techniques of nutrition assessment methods, such as dietary survey and anthropometry. Understand the importance and application of nutrition surveillance as an important part of public health surveillance. Evaluate critically the findings of scientific studies in nutrition. Identify and formulate appropriate responses and intervention strategies to address nutrition issues, taking into account public health and social policy contexts. Describe food security as a necessary condition for attainment of nutrition security. Visualize nutrition problems throughout the lifecycle Describe the role of public health nutrition in the prevention and control of common nutrition problems in developing countries. <p>Methods: Lectures, plenary presentations, group work.</p>	<p>Introduction</p> <ul style="list-style-type: none"> Definition of public health nutrition Brief introduction to essential nutrients Nutrition and development (why invest in nutrition?) <p>Nutrition requirements</p> <ul style="list-style-type: none"> Principles of determination of nutritional requirements Factors to be considered in estimating nutritional requirements Nutritional requirements during pregnancy, lactation, infancy, childhood, adolescence, and old age <p>Nutrition assessment</p> <ul style="list-style-type: none"> Nutrition assessment methods Anthropometry Biochemical/Biophysical Clinical Food consumption survey <p>Nutrition surveillance</p> <ul style="list-style-type: none"> Definition Objective Uses and users Indicators Timely warning system <p>Nutrition problems of public health importance in Ethiopia</p> <ul style="list-style-type: none"> Protein-energy malnutrition/severe acute malnutrition; vitamin A, iodine, and iron deficiency disorders; zinc deficiency <p>Nutrition throughout the lifecycle</p> <ul style="list-style-type: none"> Introduction to maternal and child nutrition: the intricate relationship Low birth weight prevalence, determinants, and consequences Maternal nutrition, fetal growth, and adult degenerative disease Direct interventions to address nutrition problems of mothers and children Child growth <p>Food and nutrition security</p> <ul style="list-style-type: none"> Introduction (evolution of food and nutrition security concerns) Conceptual framework of food and nutrition security Current state of food security Current state of food insecurity Assessment of food and nutrition situations Food strategy framework of Ethiopia <p>Nutrition intervention</p> <ul style="list-style-type: none"> Essential Nutrition Actions Nutrition intervention at the household level Nutrition intervention at the community level <p>Policies in food and nutrition</p> <ul style="list-style-type: none"> Introduction Models in policymaking Goals of food and nutrition policies Policymaking process <p>Evaluation methods Final exam = 70% Group presentation + term paper = 30%</p>

Appendix 3. Graduate programs in nutrition

Hawassa University

Objectives

To produce specialists:

- In human nutrition who will be able to teach and advise policymakers regarding the nutrition situation in Ethiopia.
- Trained in nutrition counseling at various levels to bring desired behavior change.
- Who will tackle nutrition problems related to communities, to:
 - Enhance the capacity of research on various nutrition problems of the country.
 - Increase the quality of research conducted by academic staff.
 - Strengthen local, regional, and international collaborations in nutrition training and research.

Courses	Credit hours
Year I – Semester I	
Biostatistics	3
Nutritional Biochemistry	3
Nutritional Metabolism	3
Introduction to Public Health	2
Principles of Epidemiology	2
Total credit hours	13
Year I – Semester II	
Community Nutrition	3
Research Methods in Applied Human Nutrition	2
Nutritional Assessment	3
Maternal, Infant, and Child Nutrition	2
Clinical Nutrition and Dietetics	3
Total credit hours	13
Year II – Semester I	
Thesis	6
Current Topic in Applied Human Nutrition	1
Nutrition in Emergencies	2
Total credit hours	9
Year II – Semester II	
Thesis	
Seminar in Applied Nutrition	1
Food and Nutrition Policy, Program Design, and Evaluation	3
Total credit hours	4

University of Gondar (nutrition track program)

The courses for a master's degree in public health with a specialty in nutrition are shown below.

Course title	Course code	Credit hours	Remarks
Introduction to Public Health Nutrition	PH 701	2	Staff
Nutritional Epidemiology and Nutritional Assessment	PH 710	3	Guest lecturer (from Jimma University)
Nutrition of Mothers and Children	PH 713	3	Staff
Nutrition Policy and Programmes	PH 712	2	Guest lecturer (from Addis Ababa University)
Research Methods	PH 706		
Thesis	PH 707	6	
Total credit hours		16	

Addis Ababa University graduate programs in food science

Objective

To train experts who will lead, support, and advance the development of strong management and regulatory agencies on food science issues in Ethiopia.

Course outline

No.	Course title	Credits
Master's courses (2 years)		
1	Computational Methods in Food Formulation	3
2	Food Chemistry and Toxicology	3
3	Food Processing Technology	3
4	Food Microbiology	3
5	Advanced Sensory Instrumental Analysis	3
6	Industrial Microbiology	3
7	Food Industry Management	2
8	Advanced Food Science Seminar	1
9	Food Analysis	2
10	Quality Assurance in Food and Legislation	3
11	Thesis	
	Total credit hours	26
Doctoral courses (3-4 years)		
1	Chemical and Physical Changes in Food	3
2	Chemistry and Nutrition	3
3	Special Topic I	1
4	Food Sensory Perception and Chemical Senses	3
5	Critical Review of Ethiopian Industries: Case Study	2
6	Special Topic II	2
	Dissertation	
	Total credit hours	14

Haromaya University (proposed)

Master's-level program in food science and technology and food engineering.

Objectives

- To produce highly qualified professionals:
 - In food science, technology, and engineering to meet the demands of the food industry, regulatory agencies, standards organizations, and health and agriculture research institutes.
 - Capable of applying principles of food science and engineering to ensure the safety and quality of processed products and development of new consumer-driven products.
- To strengthen the undergraduate program through research and related activities.

The program is divided into two areas of study:

- Food science and technology.
- Food engineering.

Courses common to both programs

No.	Course title	Credit hours	
		Semester I	Semester II
1	Fundamentals of Food Processing Technology	3	0
2	Experimental Design and Analysis in Food Science and Technology	2	0
3	Graduate Seminar on Current Topics in the Field of Specialization	1	0
4	Food Packaging	0	2

Food science and technology courses

No.	Course title	Course code	Credit hours	
			Semester I	Semester II
Required courses				
1	Advanced Food Chemistry	FSTC 511	3	0
2	Advanced Food Microbiology	FSTC 521	3	0
3	Advanced Food Analysis	FSTC 531		
4	Grain Science and Technology	FSTC 512	0	3
5	Fruit and Vegetable Science and Technology	FSTC 522	0	3
6	Dairy Science and Technology	FSTC 532	0	3
7	Meat Science and Technology	FSTC 542	0	2
8	Waste Management	FSTC 592	0	2
Elective courses				
1	Coffee, Tea, and Spices Processing Technology		0	3
2	Human Nutrition		0	3
3	Beverage Science and Technology		0	3
4	Food Biotechnology		0	3
5	Computer Modeling and Risk Assessment		3	
6	Engineering Design for Food Quality and Safety		0	3

Food engineering courses

No.	Course title	Credit hours	
		Semester I	Semester II
Required courses			
1	Food Engineering Operations	3	0
2	Transport Phenomenon	2	0
3	Design of Food Machinery	3	0
4	Engineering Properties of Food Material	2	0
5	Computer Modeling and Risk Assessment	3	0
6	Food Engineering Laboratory	0	2
7	Engineering of Food Storage Facilities	0	3
8	Engineering Design for Food Quality and Safety	0	2
9	Food Process Instrumentation and Control	0	2
10	Waste Management	0	2
11	Thesis	6	
Elective courses			
	Reaction Kinetics and Bioreactor Design	0	2

Bibliography

- Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, Mathers C, Rivera J, for the Maternal and Child Undernutrition Study Group. Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet*. 2008;371(9608):243–260.
- Central Statistical Agency, ORC Macro. *Ethiopia Demographic and Health Survey 2005*. Calverton, MD: ORC Macro; 2006. Available at: <http://www.measuredhs.com/pubs/pdf/FR179/FR179%2Epdf>.
- Central Statistical Agency. *Report on the 1999/2000 Household Incomes, Consumption and Expenditure Survey*. Addis Ababa, Ethiopia: Central Statistical Agency; 2001.
- Central Statistical Agency. *Report on the Year 2000 Welfare Monitoring Survey*. Addis Ababa, Ethiopia: Central Statistical Agency; 2001.
- Economic Commission for Africa. *Harnessing Technologies for Development*. Policy Research Report. Addis Ababa, Ethiopia: Economic Commission for Africa; 2002.
- Ethiopia: Country Brief page (last updated May 2007). World Bank website. Available at: <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/ETHIOPIAEXTN/0,,menuPK:295939~pagePK:141132~piPK:141107~theSitePK:295930,00.html>.
- Field EM, Robles O, Torero M. *The cognitive link between geography and development: Iodine deficiency and schooling attainment in Tanzania*. Cambridge, MA: The National Bureau of Economic Research; 2008.
- Horton R. Maternal and child undernutrition: an urgent opportunity. *The Lancet*. 2008;371(9608):179.
- Melaku U, West CE, Jemal H, Deurenberg P, Hautvast JGA. Zinc supplementation and stunted infants in Ethiopia: a randomised controlled trial. *The Lancet*. 2000;355(9220):2021–2026.
- Federal Ministry of Health (FMOH). *National Nutrition Strategy, Ethiopia*. Addis Ababa, Ethiopia: FMOH; 2008.
- United Nations. *How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children in Household Surveys*. New York, NY: United Nations Department of Technical Cooperation for Development and Statistical Office; 1986.
- United Nations Food and Agriculture Organization, World Health Organization (WHO). *Handbook on Human Nutritional Requirements*. Geneva: WHO; 1980 (third printing).
- Valid International, Concern Worldwide. *Community-based Therapeutic Care (CTC): A Field Manual*. Oxford, UK: Valid International; 2006 (first edition). Available at: http://www.fantaproject.org/downloads/pdfs/CTC_Manual_v1_Oct06.pdf.

Wolde-Gebriel Z. *Micronutrient Deficiencies in Ethiopia and Their Inter-relationships*. Doctoral thesis, Wageningen University, Netherlands; 1992.

Wolde-Gebriel Z, Demeke T, West CE. Xerophthalmia in Ethiopia: a nationwide ophthalmological, biochemical and anthropometric survey. *European Journal of Clinical Nutrition*. 1991;45(1):469–478.

Zewditu G, Kelbessa U, Timothewos G, Ayele N. Review of the status of malnutrition and trends in Ethiopia. *Ethiopian Journal of Health Development*. 2001;15(2):55–74.