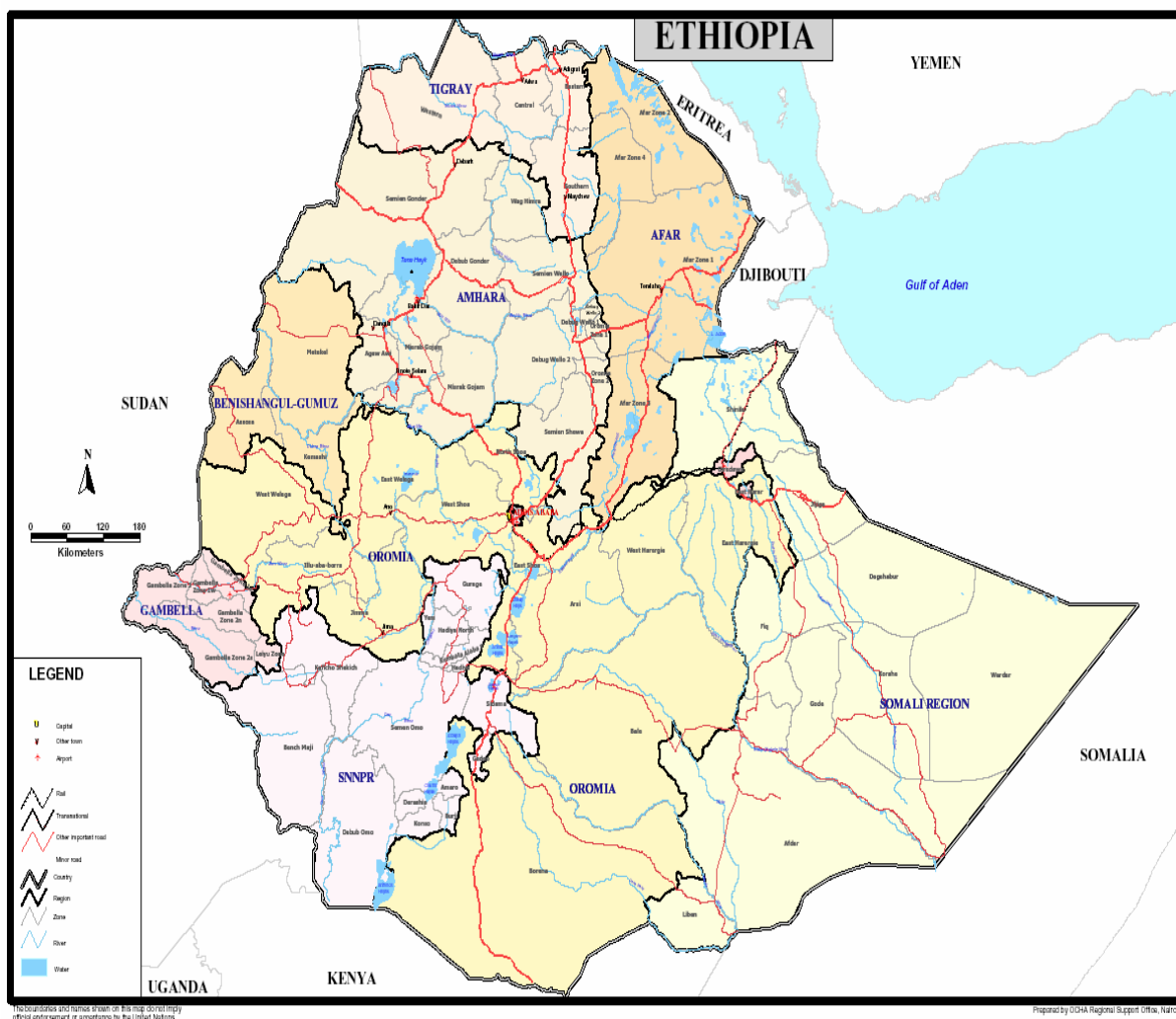


NUTRITION COUNTRY PROFILE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA



Source : Inter-Agency Working Group, UN OCHA.



Acknowledgments

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Summary

The Federal Democratic Republic of Ethiopia is a landlocked mountainous country located in the North-eastern horn of Africa. Ethiopia, which is the second most populated country in Sub-Saharan Africa, is experiencing rapid population growth. The population is very young and is one of the least urbanized in the world.

Ethiopia is heavily dependant on the agricultural sector which accounts for almost half of the GDP. About three-quarters of the population are engaged in agriculture, mainly in subsistence and rain-fed farming and livestock production. Since 2000, the economy has been growing steadily. However, Ethiopia remains one of the poorest nations in the world, with almost a quarter of Ethiopians living with less than 1\$ a day.

High incidence of infectious diseases and nutritional deficiencies, low immunization coverage, and very low access to improved water sources and sanitation are the major factors contributing to high morbidity. Due to a shortage of skilled health personnel and health facilities, access to basic health care is still very limited. Consequently, infant and under-five mortality rates remain very high, although some progress has been recorded. The maternal mortality ratio also remains unacceptably high.

The Ethiopian diet is mainly composed of cereals (*teff*, maize, sorghum), tubers and root crops (*ensete*, potatoes, sweet potatoes), pulses and oil seeds. Despite a large livestock population, the food supply of animal products is very limited, and consumption of these products is especially low in rural areas, except in nomadic areas where milk is a major component of the diet. Environmental and man-made factors cause widespread and severe food insecurity. The dietary energy supply is not sufficient to meet population energy requirements and almost half of the population is undernourished. Besides being quantitatively insufficient, food supplies also lack diversity.

Breastfeeding is widespread and early initiation is common. However, the duration of exclusive breastfeeding remains very short, bottle-feeding is frequent and complementary feeding practices are inadequate. These inappropriate practices, combined with poverty, food insecurity and limited access to health services, are major determinants of the high prevalence of malnutrition among young children. Almost half of underfives are stunted. Although the prevalence of stunting has declined slightly over the last five years, special attention still needs to be given to this silent emergency in order to obtain further reduction in prevalence. More than a quarter of women are affected by chronic energy deficiency.

Although recent data are lacking, it is likely that iodine deficiency disorders are still highly prevalent, especially in the mountainous parts of the country. There is currently no universal salt iodization programme in Ethiopia but a pilot project is envisaged. In the meantime alternative approaches such as iodized oil capsules should be implemented urgently. Vitamin A deficiency is a severe public health problem, affecting young children and mothers and reaching alarming levels in Amhara and Tigray. Vitamin A supplementation coverage remains limited, especially in rural areas. Intensification of vitamin A supplementation and implementation of long-term food-based interventions are needed. Anemia is also a public health problem: more than half of underfives and more than a quarter of women are anemic. Iron deficiency due to low consumption of foods of animal origin is the main cause, compounded by high incidence of malaria and other parasitic diseases. Iron supplementation of pregnant women, which reaches only a limited number of women, and nutrition education are the only interventions that are currently implemented to combat iron deficiency anemia. More efforts are needed to address this public health problem.

Severely affected by poverty, food insecurity and morbidity, rural populations are highly exposed to undernutrition and micronutrient deficiencies. Major efforts are needed to rapidly and sustainably improve the health and nutritional status of the population, which would have a positive impact on economic growth and development of the country.

Summary Table				
Basic Indicators				Year
Population				
Total population	77.431	million		2005
Rural population	84	%		2005
Population under 15 years of age	45	%		2005
Annual population growth rate	2.4	%		2000/05
Life expectancy at birth	48	years		2000/05
Agriculture				
Agricultural area	32	%		2003
Arable and permanent cropland per agricultural inhabitant	<1	Ha		2003
Human development and poverty				
Human development index	0.371	[0-1]		2004
Proportion of population living with less than 1\$ a day (PPP)	<i>MDG1</i>	23	%	2000
Proportion of the population living below the national poverty line	<i>MDG1</i>	44	%	1990-2003
Education				
Net primary enrolment ratio	<i>MDG2</i>	56	%	2004
Youth literacy rate (15-24 years)	<i>MDG2</i>	61	%	2000/04
Ratio of girls to boys in primary education	<i>MDG3</i>	0.77	girl per 1 boy	2002/03
Health				
Infant mortality rate	<i>MDG4</i>	77	‰	2006
Under-five mortality rate	<i>MDG4</i>	123	‰	2006
Maternal mortality ratio (adjusted)	<i>MDG5</i>	850	per 100 000 live births	2000
Proportion of 1-year old children immunized against measles	<i>MDG4</i>	35	%	2005
Environment				
Sustainable access to an improved water source in rural area	<i>MDG7</i>	11	% of population	2002
Food and nutrition situation				Year
Energy requirements				
Population energy requirements	2056	kcal per capita/day		2000
Food Supply				
Dietary Energy Supply (DES)	1855	kcal per capita/day		2001-03
Prevalence of undernourishment	<i>MDG1</i>	46	%	2001-03
Share of protein in DES		12	%	2001-03
Share of lipids in DES		9	%	2001-03
Food diversification index		19	%	2001-03
Food consumption				
Average energy intake (per capita or per adult)	n.a.			
Percent of energy from protein	n.a.			
Percent of energy from lipids	n.a.			
Infant and young child feeding				
Exclusive breastfeeding rate (<6 months)	49	%		2005
Timely complementary feeding rate (6-9 months)	54	%		2005
Bottle-feeding rate (0-11 months)	15	%		2005
Continued breastfeeding rate at 2 years of age	61	%		2005
Nutritional anthropometry				
Prevalence of stunting in children under 5 years	47	%		2005
Prevalence of wasting in children under 5 years	11	%		2005
Prevalence of underweight in children under 5 years	<i>MDG1</i>	38	%	2005
Proportion of women with BMI<18.5 kg/m ²		27	%	2005
Micronutrient deficiencies				
Prevalence of goitre in school-age children	n.a.			
Percentage of households consuming adequately iodized salt	20	%		2005
Prevalence of sub-clinical vitamin A deficiency in preschool children	n.a.			
Prevalence of vitamin A supplementation in children	46	%		2005
Prevalence of vitamin A supplementation in mothers	21	%		2005
Prevalence of anemia in women	27	%		2005
Prevalence of iron supplementation in mothers	10	%		2005

MDG: Millennium Development Goal; n.a.: not available

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Acronyms	
BCG	Bacille Calmette-Guérin
BMI	Body mass index
CED	Chronic energy deficiency
CSA	Central Statistics Agency
DPT3	Diphtheria, pertussis (whooping cough) and tetanus vaccine – three doses
DES	Dietary energy supply
EDHS	Ethiopia Demographic and Health Survey
EHNRI	Health and Nutrition Research Institute
ENA	Essential Nutrition Actions
ESDP	Education Sector Development Programme
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Databases
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
FSCB	Food Security Coordination Bureau
FSP	Food Security Programme
GDI	Gender related development Index
GDP	Gross domestic product
GIEWS	Global Information and Early Warning System on food and agriculture
GNP	Gross national product
HDI	Human development index
HEWP	Health Extension Worker Programme
HIV/AIDS	Human immunodeficiency virus/Acquired immunodeficiency syndrome
HPI-1	Human poverty index
ICCIDD	International Council for the Control of Iodine Deficiency
IDA	Iron deficiency anemia
IDD	Iodine deficiency disorders
IEC	Information, education, communication
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
IRIN	Integrated Regional Information Networks
ITU	International Telecommunication Union
MDG	Millennium Development Goals
MoFED	Ministry of Finance and Economic Development
MOH	Ministry of Health
NCFSE	New Coalition for Food Security in Ethiopia
NGOs	Non-Governmental Organizations
NNP	National Nutrition Program
NNS	National Nutrition Strategy
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PBS	Protecting Basic Services
PPP	Purchase power parity
PSNP	Productive Safety Nets Programme
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Cooperation and Development
SNNP	Southern Nations Nationalities and People's regions
SWAP	Sector Wide Approach
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNSTAT	United Nations Statistics Division
USAID	United States Agency for International Development
VAD	Vitamin A deficiency
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

Part I: Basic indicators

I.1 Geographic information

The Federal Democratic Republic of Ethiopia covers a total area of 1 104 300 km² and is located in the North-eastern horn of Africa. It is a landlocked country bounded on the North-East by Eritrea and Djibouti, on the East and South-East by Somalia, on the South-West by Kenya and on the West and North-West by Sudan.

A vast mountain mass between 2 100 and 2 500 m in altitude (with peaks above 4 000 m) rises in the heart of the country. The massif is divided into two plateaus (the Central Ethiopian and Galla-Somali) separated by the Rift Valley, along which lie several rivers and lakes. Lake Tana, the country's largest lake, lies in the North-West.

Although the entire country lies within the tropics, only the lowlands have a hot climate. Lowland climates range from dry semi-desert in the plains to humid and tropical in the deep valleys. The highlands although close to the equator feature temperate conditions due to high altitude. The high mountains are characterised by a cold, alpine climate.

Average temperatures in the hot lowlands vary between 20°C and 29°C, in the temperate highlands between 16°C and 20°C and in the mountains between 10°C and 16°C. The relative humidity, which is very low on the eastern and western plains, varies greatly going from 20% in the North up to 80% in the South.

There are also great differences in precipitation levels, which are low in the North and Eastern plains, but reach levels eight times higher in the South-West. The rainy season occurs between mid-June and September, followed by a dry season occasionally interrupted in February or March by another short rainy season (FAO, Forestry Division).

Administratively Ethiopia is structured into nine regional states and two city administrations, Addis Ababa and Dire Dawa (CSA and ORC Macro, 2006).

After the de facto separation of Eritrea from Ethiopian rule in 1991, Eritrea gained independence in 1993 following a referendum. In the late 1990s, poor border demarcation caused a new conflict in which tens of thousands of people were killed.

I.2 Population

Population indicators

Ethiopia, with a population of 77.431 million in 2005, is the second most populated country in Sub-Saharan Africa. The population is very young (65% are under age 25 years) and is growing at an annual rate of 2.44%. Rapid population growth continues despite high mortality rates among young children and women and low life expectancy at birth (48 years) (UNPD). Population growth is driven by a very high crude birth rate (Table 1).

Ethiopia is one of the least urbanized countries in the world (84% of the population is rural) (UNPD). Nevertheless, the urban population is growing quickly, at an annual rate of 5% (UNESCO, 2004a). Rural to urban migration is important, especially as a result of natural or man-made disasters, when people are forced to leave rural areas in search of job opportunities and better living conditions. However, up to recent times, the dominant type of migration in the country was rural to rural, from North to South, as the northern highlands are very populated and suffer from severe land degradation (UNESCO, 2004a).

The Ethiopian population is concentrated in the highlands and it is estimated that nearly 80% of the population lives on 37% of the total area of the country (UNESCO, 2004a).

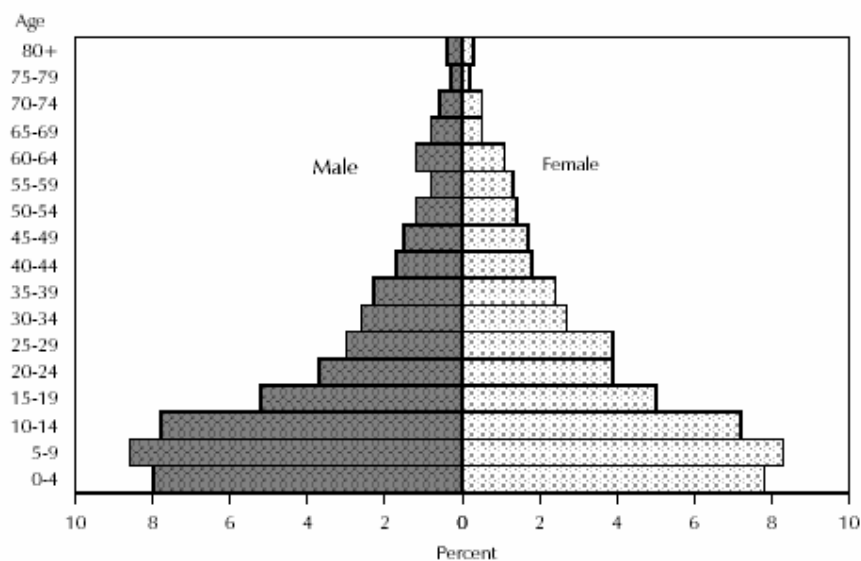
According to UNHCR, Ethiopia is currently hosting approximately 99 000 refugees from Eritrea, Somalia, and Sudan (USAID, 2007).

The distribution of religious affiliation shows that half of the population is Orthodox Christian and nearly 30% is Muslim. Protestants account for about 19%. More than 80 ethnic groups populate the country (CSA and ORC Macro, 2006).

Table 1: Population indicators

Indicator	Estimate	Unit	Reference Period	Source
Total population	77.431	million	2005	UNPD
Annual population growth rate	2.44	%	2000-2005	UNPD
Crude birth rate	41.1	‰	2000-2005	UNPD
Population distribution by age:				UNPD
0-4 years	17	%	2005	
5-14 years	28	%	2005	
15-24 years	20	%	2005	
60 and over	5	%	2005	
Rural population	84	%	2005	UNPD
Agricultural population	75	%	2004	FAOSTAT
Population density	70	inhabitants per km ²	2005	UNPD
Median age	18	years	2005	UNPD
Life expectancy at birth	48	years	2000-2005	UNPD
Population sex ratio	99	males per 100 female	2005	UNPD
Net migration rate	- 0.4	‰	2000-2005	UNPD
Total dependency rate	48	%	2005	UNPD

Population pyramid



Source: CSA and ORC Macro, 2006

I.3 Agriculture

Ethiopia is heavily dependant on the agricultural sector, which provides livelihood for 75% of the population and accounts for 48% of the country GDP (WB; FAO, Faostat - Population). Farming in Ethiopia is mainly subsistence and rain-fed farming.

Ethiopia is characterized by a variety of agricultural production systems, according to geographical position and altitude. The agriculture sector is largely based on a mixed farming system (crops and livestock production), especially in the highlands above 1500m, whereas in the lowlands below 1500 m, an agricultural production system dominates. In Afar and Somali regions, the nomadic population mainly relies on livestock production, while shifting cultivation is practiced in the Southern and Western parts of the country. Finally, commercial agriculture has only recently been introduced in the country (FAO, AQUASTAT).

Land use and irrigation statistics

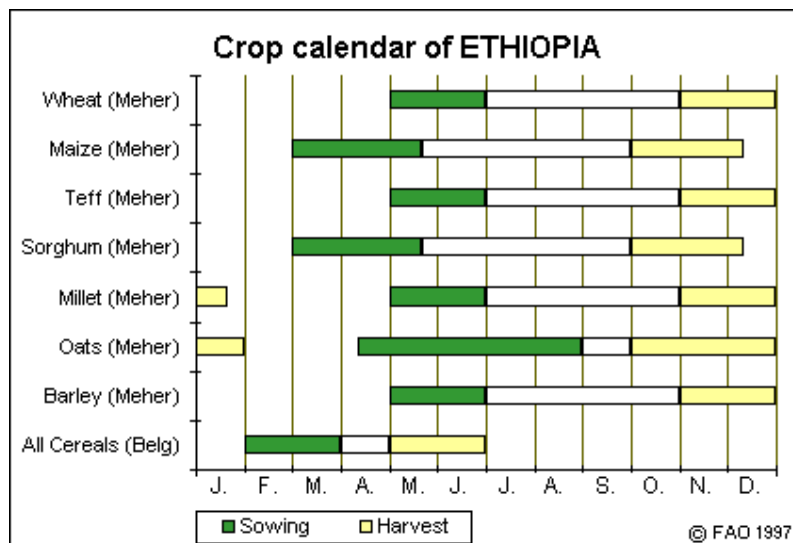
Table 2: Land use and irrigation

Type of area	Estimate	Unit	Reference period	Source
Total Land Area	100 000	1000 Ha	2003	FAO
Agricultural Area	32	%	2003	FAO
Arable lands & Permanent Crops	12	%	2003	FAO
Permanent Crops	<1	%	2003	FAO
Permanent Pasture	25	%	2003	FAO
Forested land areas	13	%	1994	FAO
Irrigated agricultural land	<1	%	2003	FAO
Arable & Permanent cropland in Ha per agricultural inhabitant	<1	Ha	2003	FAO

N.B. Percents are calculated on the total land area.

Main crops, agricultural calendar, seasonal food shortage

According to FAO estimates, the 5 major food and agricultural commodities produced in Ethiopia in 2004 were roots and tubers, maize, sorghum and other cereals and cow milk (FAO, Statistics Division). All these productions were mainly for local human consumption (FAO, Faostat).



Meher and belg are the two major agricultural seasons.
Source: FAO/GIEWS.

July, August and September are the three crucial months of food shortage in the country during which many of farmers migrate to the nearest urban centres in search of temporary jobs.

Livestock production and fishery

Ethiopia has the largest population of livestock, particularly cattle, of any country of Africa. Livestock is mainly concentrated in the rural highlands of the country (Halderman, 2004).

Small ruminants are suitable for the marginal agricultural conditions that prevail in the cold highlands of the north and in the drylands of southern and eastern (Ogaden) parts of the country. Small ruminant production (sheep and goats) is found in areas characterized by high population, fragmented land holdings, land degradation and arid climate (MoFED, 2005).

The livestock sector contributes 12-16% to the total GDP and 30-35% to the agricultural GDP (Halderman, 2004). For many years, the export of livestock and livestock products has been important, but this sector has registered negative trends over the past 30 years with a severe decline in official exports, especially for cattle (Halderman, 2004).

In rural Ethiopia, in areas where mixed farming (crops and livestock production) is undertaken, farmers use livestock for coping with adverse situations such as crop failure by selling animals.

The country's fresh-water fish resources are declining. The currently observed unlimited exploitation of fish and progressive deterioration of fish resources calls for issuing and enforcing appropriate laws and regulations to allow for their revival (MoFED, 2005).

Table 3: Livestock and fishery statistics

Livestock production and fishery	Estimate	Unit	Reference period	Source
Cattle	38 500 000	number of heads	2005	FAO
Sheep and goats	26 626 000	number of heads	2005	FAO
Poultry birds	39 000	thousands	2005	FAO
Fish catch and aquaculture	27 000	tons	2005	MoFED
Camels	434	thousands	2005/06	CSA

I.4 Economy

The economic performance of Ethiopia is largely determined by the agricultural sector (48% of GDP), which in turn is extremely dependant on climatic conditions (WB).

The country is making steady progress in economic growth since emerging from the conflict with Eritrea in 2000. In 2001, GDP annual growth reached 7.7% from a yearly level of 4.8% during the period 1994-95 (WB; OECD, 2003). After a year of negative real GDP growth of -3.5% in 2003 as a result of drought, a strong positive GDP annual growth of 13.1% and 10.2% was observed during the subsequent two years, 2004 and 2005 respectively, due to sustained high agricultural performance and higher and more diversified exports (WB; WB, 2007).

However, external shocks (increased oil prices and reduced external assistance) in the context of high growth have created pressure on inflation and exchange rate. The official inflation rate reached 12% in 2006 resulting from a strong upward pressure on food (+14%), and non-food prices (+7%), partly caused by the significant realignment of domestic oil prices in 2006 to international levels. Exports grew at a 21% rate in 2006, but imports increased 22% (WB, 2007).

Despite the strong economic growth, Ethiopia remains one of the poorest countries in the world. In 2004, per capita GDP (756 PPP US\$) was less than half the average for Sub-Saharan Africa (approx. 1946 PPP US\$) (UNDP, 2006).

In Ethiopia, the communication and transport infrastructures are still poor, but are among the faster growing sectors (MoFED, 2005; CSA, 2006).

Table 4: Basic economic indicators

Indicator	Estimate	Unit	Reference period	Source
Gross Domestic Product per capita	756	PPP US \$	2004	UNDP
GDP annual growth	10.2	%	2005	WB
Gross National Income per capita	160	\$	2005	WB
Industry as % of GDP	13	%	2005	WB
Agriculture as % of GDP	48	%	2005	WB
Services as % of GDP	39	%	2005	WB
Paved roads as % of total roads	13	%	2003	WB
Internet users	2	per 1 000 people	2004	WB
Total debt service as % of GDP	1.4	%	2003	UNDP
Military Public expenditure	4.3	% of GDP	2003	UNDP

During 2004-2005 gold and tantalum were among the major non-food exports along with textile, leather and derived products. During the same period, machines, transport equipment, semi-finished goods, durable consumer goods, fuel and raw materials were among the major non-food imports (CSA, 2006).

I.5 Social indicators

Health indicators

Ethiopia experiences a heavy burden of communicable diseases. Many Ethiopians face high morbidity and mortality risks, largely attributable to preventable infectious diseases and nutritional deficiencies (CSA and ORC Macro, 2006). HIV/AIDS is an additional burden but prevalence was only 3.5% among adults in 2005.

The infant mortality rate has decreased in the last decade from 122‰ in 1990 to 77‰ in 2006. The under-five mortality rate also showed great improvement, decreasing from 204 ‰ in 1990 to 123‰ in 2006 (UNICEF). Despite these improvements, the country continues to have one of the highest infant and young child mortality rates in the world. Almost 400,000 children under-five years still die every year from preventable diseases (UNICEF, *Information by country*).

The main causes of death among children under five years are reported to be neonatal causes (26% of deaths), pneumonia (21%), diarrhoeal diseases and malaria (17% each) (WHO, 2006). Ethiopia is one of the countries of Africa with the highest incidence of malaria attacks, with about 15 million cases registered annually: however, less than five million are treated in a health facility (IRIN, 2007). Moreover, among children under five years, less than 2% slept under an insecticide-treated bednet in 2005 (CSA and ORC Macro, 2006).

Maternal mortality remains extremely high. Indirect indicators of maternal mortality show that improvement related to ante- and postnatal care is limited. In 2005, only 28% of mothers received antenatal care (27% in 2000) (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006). Merely 6% of births took place in a health facility and were delivered with the assistance of a trained health professional (CSA and ORC Macro, 2006). Postnatal care is almost non-existent as more than nine of ten mothers received no postnatal care at all and only 5% received care within the critical two days after delivery (CSA and ORC Macro, 2006). This lack of access to health care is a major factor, among others, contributing to high maternal mortality.

Immunization coverage remains low in Ethiopia. Only 20% of children aged 12-23 months were fully immunized (BCG, measles, and three doses of DPT and polio vaccine) in 2005. Children living in urban areas were almost three times (49%) more likely to be fully immunized than children living in rural areas (18%) (CSA and ORC Macro, 2006).

Vaccination coverage has improved from 14% of children aged 12-23 months fully vaccinated in 2000 to 20% in 2005. However, at the same time, the percentage of children age 12-23 months who had received none of the basic vaccinations increased from 17% in 2000 to 24% in 2005 (CSA and ORC Macro, 2006).

Table 5: Health indicators

Indicator	Estimate	Unit	Reference period	Source
<i>Mortality:</i>				
Infant mortality	77	‰	2006	UNICEF
Under-five mortality	123	‰	2006	UNICEF
Maternal mortality ratio :				
reported	870	per 100 000 live births	1990-2004	UNICEF
adjusted	850	per 100 000 live births	2000	UNICEF
<i>Morbidity:</i>				
Percentage of under-fives sleeping under a treated bed net	1.8	%	2005	EDHS
Prevalence of diarrhea in the last 2 weeks in under-fives	18	%	2005	EDHS
Oral rehydration rate among under-fives	37	%	2005	EDHS
Percentage of under-fives with acute respiratory infections in the last 2 weeks	13	%	2005	EDHS
Tuberculosis prevalence	507	per 100 000 people	2003	UNDP
<i>AIDS/HIV:</i>				
Prevalence in adults 15-49 years	3.5	%	2005	EDHS
Percentage of women (15-24) who know that a person can protect herself from HIV infection by consistent condom use	47	%	2005	EDHS
<i>Immunization:</i>				
Percent of infants with immunization against tuberculosis at 1 year of age	60	%	2005	EDHS
Percent of infants with DTP3 immunization at 1 year of age	32	%	2005	EDHS
Percent of infants with immunization against measles at 1 year of age	35	%	2005	EDHS
Percent of pregnant women immunized against tetanus	28	%	2005	EDHS

Water and sanitation

Ethiopia suffers from one of the lowest levels of access to water and sanitation in the world (WB, 2005). In rural areas, where the majority of Ethiopians live, in 2002, only 11% had access to an improved water source (UNICEF, 2006). Moreover, the percentage of people using adequate sanitation facilities is extremely low (UNICEF, 2006). Lack of clean drinking water, poor sanitation and lack of community education programmes are contributing to continued outbreaks of acute watery diarrhoea in some regions of the country (USAID, 2007).

Table 6: Access to safe water and sanitation

Indicator	Estimate	Unit	Reference period	Source
<i>Sustainable access to an improved water source:</i>				
Urban	81	% of population	2002	UNICEF/WHO
Rural	11	% of population	2002	UNICEF/WHO
<i>Access to improved sanitation:</i>				
Combined urban/rural	6	% of population	2002	UNICEF/WHO

Access to health services

The number of trained doctors per capita is very low (3 per 100 000) (UNDP, 2006). In rural areas, only about a third of the population has some kind of health facility within 5 km (77% travel more than 20 km), while almost all of the urban population has a health facility within that distance (MoFED, 2005/06).

Recognizing the low level of access to health care in Ethiopia, and to improve services in this sector, the health strategy of the Government is targeting the most common poverty-related diseases including malaria, tuberculosis, childhood illnesses and HIV/AIDS. The Government has launched the Health Extension Worker Programme (HEWP), to move services from facilities to village and household level and to improve rural people's health (MoFED, 2005/06). Nevertheless the level of public spending on health remains low.

Table 7: Access to health services

Indicator	Estimate	Unit	Reference period	Source
Health personnel: number of physicians	3	per 100 000 inhabitants	1990-2004	UNDP
Percentage of children under-five with fever (in the last two weeks) receiving anti-malarial drugs	3	%	2005	EDHS
Percent of births attended by skilled health personnel	6	%	2005	UNDP
Public expenditure on health	2.7	% of GDP	2002	UNDP

Education

The government adopted the Education Sector Development Programme (ESDP) in 1998. As a result, primary school net enrolment rates in the country have increased considerably (UNICEF, 2004). These efforts were reinforced by the Second Education Sector Development Programme (ESPD-II), developed for the period 2003-2005 (UNESCO, 2004b).

Improvements in access to primary education since 1998-99 resulted in reduced gender and rural-urban disparities (UNESCO, 2004b). In 1999, the net primary enrolment ratio was only 33% (38% for male pupils and 28% for females). In 2004, the ratio had improved to 56% (58% for male pupils and 55% for females) (UNESCO, 2006).

Despite improvements, many children still do not have access to education. School fees and lack of class-room furniture are the main reasons hampering access to education (UNICEF, *Information by country*). In rural areas, where school attendance is particularly low, special programmes such as the mobile education system in Afar region attempt to respond to the reality of these regions (UNESCO, 2004b; MoFED 2005/06).

Table 8: Education

Indicator	Estimate	Unit	Reference period	Source
Adult literacy	45	%	2000-2004	UNESCO
Adult literacy rate : females as % of males	69	%	2003	UNDP
Youth literacy (15-24 years)	61	%	2000-2004	UNESCO
Net primary enrolment ratio	56	%	2004	UNESCO
Grade 5 completion rate	62	%	2001-2002	UNESCO
Ratio of girls to boys in primary education	0.77	number of girls per 1 boy	2002-2003	UNESCO
Public expenditure on education	5	% of GNP	2001-2002	UNESCO

Level of development, poverty

According to the human development index (HDI), Ethiopia ranks 170th out of 177 countries (UNDP, 2006). Ethiopia is one of the poorest countries in the world (WB, 2004). Some progress is reported in the proportion of population living with less than 1\$ a day (PPP), which declined from 31% in 1995 to 23% in 2000 (WB, 2007).

Government resource allocation is geared towards investment on development and pro-poor sectors (agriculture and food security, education, health, HIV/AIDS and provision of clean water supply) as well as on infrastructure development, particularly in road construction. In general, the total government expenditure on poverty-oriented sectors has increased to 57% in 2004-2005 from 44% in 2001-2002 (MoFED, 2005/06).

Table 9: Human development and poverty

Indicator	Estimate	Unit	Reference period	Source
Human development index (HDI)	0.371	value between 0-1	2004	UNDP
Proportion of population living with less than 1\$ a day (PPP)	23	%	2000	WB
Population living below the national poverty line	44	%	1990-2003	UNDP
Human poverty index (HPI-1)	55	%	2005	UNDP

Other social indicators

Since the strategic direction pursued by the Government has placed a strong emphasis on the participation of women in the development process, policies have been formulated to integrate and mainstream the gender dimensions in economic, social and political decisions. Hence, the Government has taken strong measures in placing gender responsive goals and targets to reduce the workload of women so as to enable them to participate in political and socio-economic decision-making. Protective legislations have been passed in terms of women's access to land, credit facilities and productive resources (MoFED, 2005). Nevertheless the level of the Gender related development index (GDI) is still very low.

Although the ILO Convention 182 on "The Worst Forms of Child Labour" has been ratified by the Ethiopian government, child labour is very common in the agricultural sector, often in difficult and dangerous conditions. The 2001 Ethiopia child labor survey indicated that 91% of working children were engaged in agriculture, hunting, fishing and forestry. Fifty-two percent of children aged 5-17 years were engaged in productive activities which excluded housekeeping (ILO, 2007).

Table 10: Other social indicators

Indicator	Estimate	Unit	Reference period	Source
Gender related development index (GDI)	0.355	value between 0-1	2005	UNDP
Women's wage employment in non-agricultural sector as % of total non agricultural employees	40	%	2004	UNSTAT
Ratification of ILO Convention 182 on The Worst Forms of Child Labour	ratified		2003	ILO

II.1 Qualitative aspects of the diet and food security

Food consumption patterns

In Ethiopia, the diet is mainly composed of cereals, starchy roots and tubers, livestock products, pulses and oil seeds.

Cereals, particularly *teff* (*Eragrostis tef*), but also maize, barley, sorghum, wheat and millet are the main staples in most parts of the country. *Enjeera*, the main traditional staple dish, is a large pancake made from fermented *teff* that is accompanied by a legume or meat based sauce. It is shared by family members from a large common dish.

Tubers, comprising potatoes, sweet potatoes and *ensete* (*Ensete ventricosum*, also known as “false banana”) are commonly consumed. Legumes and oil seeds are also important in the daily diet. Fruits and vegetables are not commonly consumed, except in cities (Wolde-Gebriel, 1992).

Although Ethiopia has a very large livestock population, availability of meat for local human consumption is limited (FAO, Faostat). Beef accounts for over half of meat consumption followed by sheep, poultry, and goat. Milk production and consumption by the rural population is limited because the local cattle breeds produce little milk which is usually sold on local markets to purchase other goods, except in nomadic areas where the population depends on milk as a major component of the daily diet. Poultry is raised by most households in both rural and urban settings but the poultry products are mostly consumed by urban households.

Although Ethiopia has abundant fish resources in its lakes and large rivers, fish consumption is very limited. This is due to cultural factors and to poor connections between production areas and markets. Fish is mostly consumed in large towns during periods of religious fasting.

The Ethiopian food consumption patterns vary from one region to another depending on differences in agricultural production, ethnic, cultural and religious backgrounds. While *enjeera* made from *teff* is consumed in most regions, the staple is maize in Kaffa, Illubabor and Sidamo, in the South-western part of the country.

Food security situation

Food security is defined as “A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FIVIMS). Food insecurity may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity may be chronic, seasonal or transitory.

Food insecurity is widespread and severe in Ethiopia, affecting as much as 45% of the population (FSCB, 2004-document not provided). It is the result of a combination of environmental and man-made factors. Food insecurity is chronic, but the population is at risk of acute food insecurity in the event of drought and other climatic shocks (NCFSE, 2003).

Ecological vulnerability is a major cause of food insecurity as it limits agricultural production. Factors contributing to ecological stress are adverse climate conditions, reduced soil fertility, deforestation, hillside farming due to shortage of land and population pressure, and the drying up of both surface and sub-surface water (Asmamaw, 2004). Furthermore, poor farming practices, overgrazing and improper land use worsen the situation (NCFSE, 2003).

Poverty affects a majority of the population, especially in rural areas where 84% of the population depend on rain-fed subsistence farming and have limited possibility of livelihood diversification. Only a minority of farmer households produce enough food to feed their families throughout the year. Therefore many farming households access food through purchase, social support or a combination of

both. Moreover access to credit is very limited. Therefore resources for accessing food are very limited for many rural households (UNPD; NCFSE, 2003).

Moreover, markets are not integrated; as a result price differentials between farm gate and consumer markets negatively affect consumers (NCFSE, 2003).

Coping mechanisms when facing food insecurity include engaging in wage labour, borrowing, selling livestock, selling land, reducing meal frequency and/or portions and eating wild foods (PLAN International, 2006; FAO, 2005a). Recurrent droughts deplete the asset base of rural households which are obliged to sell their assets in order to cope with shocks.

II.2 National food supply data

Supply of major food groups

Table 11: Per capita supply of major foods groups (in g/per day)

Major food groups	Supply for human consumption in g/day	
	1994-96	2001-2003
Cereals (excl. beer)	325	384
Starchy roots	168	168
Milk and eggs	43	63
Fruit and vegetables	40	59
Pulses, nuts, oilcrops	34	40
Other	32	35
Meat and offals	26	27
Sweeteners	10	12
Vegetable oils	4	4
Animal fats	1	2
Fish and shellfish	0	1

Due to the separation of Eritrea from Ethiopia in 1993 there are no national supply statistics for the period prior to 1994
Source: FAO, Faostat

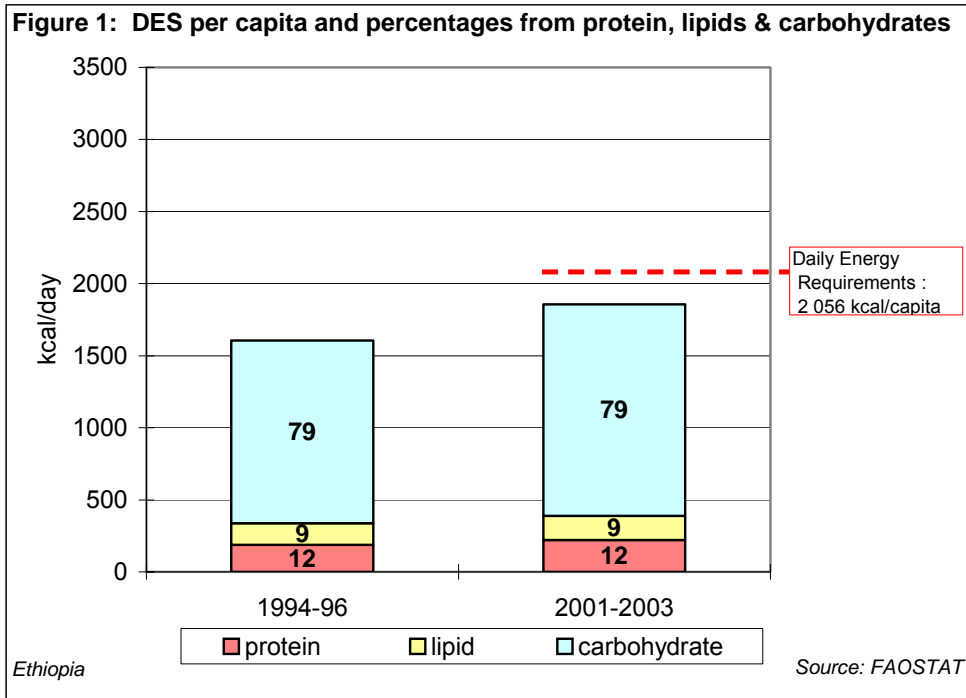
In Ethiopia, the two major food groups in terms of supply for human consumption are cereals and starchy roots (Table 11). Cereals are mainly represented by maize, sorghum and *teff* (FAO, Faostat). *Teff* is largely consumed in northern and central parts of the country as well as in urban centres. The supply of starchy roots is mostly comprised of *ensete*, potatoes and sweet potatoes. The per capita cereal supply has increased slightly since 1994-96 while the supply of starchy roots has remained stable (FAO, Faostat).

Supplies of all other food groups are low. Fruit and vegetables, including mainly papayas, guavas, mangos, bananas, onions, cabbage and other *brassica* type vegetables, represent a potentially important source of micronutrients but availability is limited. The per capita supply of the fruit and vegetable group has increased from 40 g/day in 1994-96 to 59 g/day in 2001-2003, but remains very low (FAO, Faostat).

The per capita supply of milk and eggs, which are important sources of protein and micronutrients, has increased during the period but still remains low. Moreover, the supply of meat/offals and of fish is very low. The Ethiopian food supply is poor in animal products. The supply of fats and oils is also extremely low (FAO, Faostat).

Dietary energy supply, distribution by macronutrient and diversity of the food supplies

- Figure 1: Dietary energy supply (DES) and distribution by macronutrient



Due to the separation of Eritrea from Ethiopia in 1993 there are no national statistics for the period prior to 1994
Source: FAO, Faostat

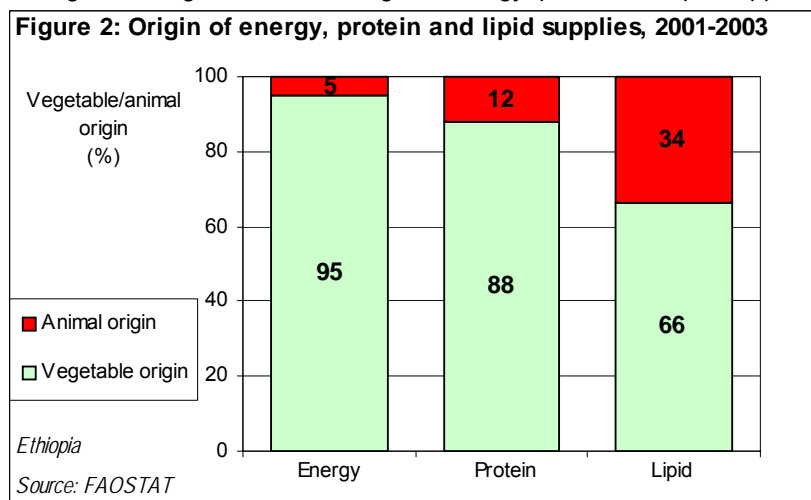
Between 1994-96 and 2001-2003, the dietary energy supply (DES) increased but not sufficiently to meet daily energy requirements estimated at 2056 kcal per capita/day¹ (FAO, 2004). According to “The State of Food Insecurity in the World”, in 2001-2003 the prevalence of undernourishment was 46%, which represents a reduction by 15 percentage points over a decade (FAO, 2006). Despite this improvement, the prevalence of undernourishment in Ethiopia remains one of the highest in East Africa (FAO, 2006).

The share of carbohydrate in the total DES is very high, estimated at 79%. The share of energy from protein (12%) complies with recommendations (10-15%) while that from lipids (9%) is much lower than the recommended level of 15-30% of energy from lipids (FAO, Faostat; WHO/FAO, 2003).

¹ Energy requirements are for a healthy and active lifestyle. Software default values attribute to 90 % of the urban adult population a light Physical Activity Level (PAL=1.55) and greater than light activity to the remaining 10% (PAL=1.85), and to 50% of the rural adult population a light activity (PAL=1.65) and greater than light physical activity (PAL=1.95) to the other 50% (FAO, 2004).

Vegetable/animal origin of macronutrients

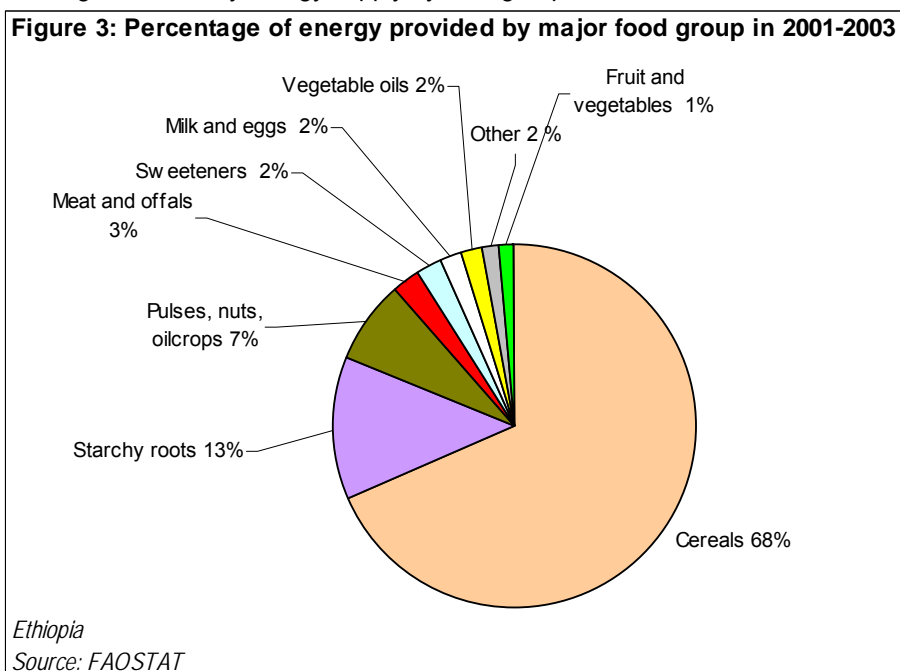
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies



The food supply is mainly of vegetable origin, and this is reflected in the high share of energy, protein and lipid from plant foods (Figure 2). Low supplies of animal foods imply limited intake of essential micronutrients such as iron and calcium.

Dietary energy supply by food group

- Figure 3: Dietary energy supply by food group



Cereals represent the main source of energy in Ethiopia, providing 68% of the DES in 2001-2003. Cereals and starchy roots together represent 81% of the DES. Animal foods (meat/offals, milk/eggs, animal fats and fish) contribute only 6% to total energy (FAO, Faostat).

The level of diversification of the diet is very low. The food diversification index, i.e. the contribution of food groups other than cereals and starchy roots to DES, is very low, estimated at 19% in 2001-2003 (FAO, Faostat). The low contribution of fruit and vegetables and of foods of animal origin to the DES implies that the diet is poor in several essential micronutrients.

Table 12: Share of the main food groups in the Dietary Energy Supply (DES)

Food groups	% of DES	
	1994-96	2001-2003
Cereals (excl. beer)	67	68
Starchy roots	14	13
Pulses, nuts, oilcrops	7	7
Meat and offals	3	3
Sweeteners	2	2
Vegetable oils	2	2
Milk and eggs	2	2
Other	2	2
Fruit and vegetables	1	1
Animal fats	1	1
Fish and shellfish	0	0

Source: FAO, Faostat

Due to the separation of Eritrea from Ethiopia in 1993 there are no national statistics for the period prior to 1994

Food imports and exports

Ethiopia's food exports are limited. Stimulants (mainly coffee), oil crops and sweeteners represent the three major exported food groups, but importance is limited with respect to the national dietary energy supply. The country exports 61% of its coffee production. Export of oil crops (mainly sesame seeds), representing Ethiopia's major food export item in terms of percentage of DES, showed a marked relative increase between 1994-96 and 2001-2003 but remained limited (<1% of DES) (FAO, Faostat). Export of oil crops corresponds to about one-third of production. Export of sweeteners remained very low in terms of DES and relatively constant (FAO, Faostat; MoFED, 2005/06).

Cereals and vegetable oils are the major imported food groups. The import of cereals, mostly comprised of wheat, showed marked increase between 1994-96 and 2001-2003 mainly resulting from drought that caused an important shortfall in local production. Imports of vegetable oils, mostly comprised of palm oil, also increased during the period (FAO, Faostat). Ethiopia is highly dependent on imports for its oil supply which represent 58% of total supply. For cereals production far exceeds imports which represent only 18% of supply.

Food aid

Due to crop failure and other shocks, every year millions of people rely on food distributed for free or under food-for-work programmes (IFPRI, 2005). In 2006, Ethiopia received a total food assistance of 805 644 t, of which 749 065 t of cereals (mainly wheat and wheat flour) and 56 579 t of non-cereal foods (mainly pulses, oils and fats). This food assistance was mainly delivered as emergency food aid (729 706 t) and, to a lesser extent, as project food aid (75 938)² (WFP, 2007). During years of crop failure, food aid can amount to a substantial proportion of the domestic needs, as in 2003 when it reached 2 million tonnes (WFP, 2007).

II.3 Food consumption

National level surveys

An analysis of the trends in food consumption using the Household Income Expenditure surveys shows that energy availability at household level has increased from 1954 kcal per adult equivalent per day in 1995-96 to 2606 kcal in 1999-2000 and 2746 kcal in 2004-05 (MoFED, 2005/06). Reasons

² *Emergency* food aid is destined to victims of natural or man-made disasters; *Project* food aid aims at supporting specific poverty-alleviation and disaster-prevention activities; *Programme* food aid is usually supplied as a resource transfer for balance of payments or budgetary support activities. Unlike most of the food aid provided for project or emergency purposes, it is not targeted to specific beneficiary groups. It is sold on the open market, and provided either as a grant, or as a loan.

for this increase and analysis by sector and region are not available³. Nevertheless the trend in energy availability at household level is consistent with the trend of the food poverty index which progressed during the latter period: the national food poverty index which measures the proportion of people that fall below the food poverty line declined from 42% in 1999-2000 to 38% in 2004-05 (MoFED, 2005/06).

II.4 Infant and young child feeding practices

Two national surveys document infant and young child feeding practices in Ethiopia: the first Ethiopia Demographic and Health Survey, conducted in 2000 (EDHS-I), and the second Ethiopia Demographic and Health Survey (EDHS-II) conducted in 2005 (CSA and ORC Macro, 2001 & 2006).

According to the EDHS-II breastfeeding is a universal practice in Ethiopia, as 96% of children under five years of age have been breastfed (Table 13). The percentage of children everbreastfed ranged from 93% in Addis Ababa to 99% in Tigray. There were no substantial variations by other background characteristics (CSA and ORC Macro, 2006). Similar levels of breastfeeding (96%) were observed in the EDHS-I conducted in 2000 (CSA and ORC Macro, 2001).

In 2005, among children everbreastfed, 69% were put to the breast within one hour of birth (early initiation) and 86% within 24 hours of birth. Infants from rural areas were slightly more likely to be breastfed within one hour after delivery than their counterparts from urban areas. The proportion of infants whose mother practiced early initiation was highest in Somali (91%) and lowest in Tigray (53%). Early initiation was slightly more prevalent among mothers with no education (CSA and ORC Macro, 2006). Prevalence of early initiation has improved since 2000 when it was only 52% (CSA and ORC Macro, 2001).

According to EDHS-II, the median duration of breastfeeding is high (26 months) but there are differences by sector (median duration is shorter in the urban sector) and according to level of education (educated mothers breastfeed for a shorter time) (CSA and ORC Macro, 2006). The duration of breastfeeding has not changed since 2000 (CSA and ORC Macro, 2001).

³ Due to separation of Ethiopia and Eritrea in 1993, data may refer to different populations.

Table 13: Initiation and duration of breastfeeding

Survey name/date (Reference)	Background characteristics	Sample size (all children under five years)	Percentage of children under five years ever-breastfed	Number of children under five years ever breastfed	Among children ever-breastfed, percentage breastfed within one hour of birth	Among children ever-breastfed, percentage breastfed within 24 hours of birth ¹	Number of children under three years	Median duration of breastfeeding in children under three years (in months)
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	11163	96.0	7109	69.1	85.7	6548	25.5
	Sex							
	M	5723	96.0	3668	68.4	85.2	3428	25.5
	F	5440	95.9	3441	69.8	86.3	3120	26.2
	Residence							
	urban	815	95.0	608	64.8	81.9	491	24.8
	rural	10348	96.0	6501	69.5	86.1	6057	25.9
	Region							
	Tigray	698	98.5	475	52.9	73.7	397	25.9
	Afar	107	97.2	67	86.4	91.1	65	24.5
	Amhara	2621	97.1	1823	62.6	77.4	1527	≥36.0
	Oromiya	4411	94.8	2624	72.1	88.5	2633	24.6
	Somali	477	95.1	275	91.4	94.0	279	21.8
	Benishangul-Gumuz	105	96.7	67	72.1	80.3	61	23.1
	SNNP	2500	96.4	1596	71.4	92.7	1447	26.1
	Addis Ababa	153	92.9	120	66.2	86.7	87	25.7
	Mother's education							
no education	8838	96.2	5594	70.4	86.2	5116	26.2	
primary	1855	95.1	1157	64.8	84.6	1142	24.9	
secondary or higher	470	95.4	357	63.0	81.5	290	23.3	

¹ Includes children who started breastfeeding within one hour of birth

Note: The median duration of any breastfeeding is shown as ≥36.0 for groups in which the exact median cannot be calculated because the proportion of breastfeeding does not drop below 50 percent in any age group for children under 36 months of age. Results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50.

SNNP: Southern Nations Nationalities and People's regions

Exclusive breastfeeding for the first six months is not widely practiced in Ethiopia. In 2005, only half (49%) of infants under six months of age were exclusively breastfed (CSA and ORC Macro, 2006). The rate has decreased slightly since 2000 when it was 54% (CSA and ORC Macro, 2001).

WHO recommends the introduction of complementary foods around the age of 6 months because by that age breastmilk alone is no longer sufficient to support optimal growth. However, in Ethiopia, at 6-9 months of age, only one in two infants (54%) was receiving complementary foods (CSA and ORC Macro, 2006). There has been some improvement, however, since 2000 when only 43% of children were given complementary foods at this age (CSA and ORC Macro, 2001).

Bottle-feeding, although discouraged by health professionals, is still widely practiced (the rate is 15% among infants aged 0-11 months) (CSA and ORC Macro, 2006). Moreover the rate has not declined since the previous survey in 2000 (CSA and ORC Macro, 2001).

Table 14: Type of infant and young child feeding

Survey name/date (Reference)	Type of feeding in the 24 hours preceding the survey		
	Indicator by age	Sample size	Percentage of children
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Exclusive breastfeeding rate		
	<i>0-1 month</i>	328	67.3
	<i>2-3 months</i>	458	49.4
	<i>4-5 months</i>	355	31.6
	<i><6 months</i>	1142	49.0
	Timely complementary feeding rate		
	<i>6-9 months</i>	791	54.4
	Bottle-feeding rate		
	<i>0-11 months</i>	2223	15.4
	Continued breastfeeding rate		
	<i>12-23 months (1 year)</i>	1809	91.4
<i>24-35 months (2 years)</i>	1442	61.2	

In Ethiopia, the introduction of liquids other than breastmilk, such as water, juice, and animal milk takes place earlier than the recommended age of about 6 months. Even among the youngest breastfed infants (less than 2 months), 10% are given other liquids and 12% are given animal milk. Moreover, under 6 months of age, 14% of breastfed infants were given complementary foods.

Many Ethiopian mothers do not realize the importance of giving special foods to their children. Whenever cow milk is available, it is given first. However, in urbanized communities where cow milk has to be purchased, low income mothers dilute it and handle it non hygienically. Usually complementary foods based on cereal gruel and porridges are given until family food is introduced (CSA and ORC Macro, 2006).

Between 6 and 11 months of age, about half of the infants were given animal milk and dairy products. This proportion decreased to one-third among children aged 12-23 months. The introduction of other animal foods in the diet was late and few children received them: at age 6-11 months, only 6% of children were receiving meat/fish/eggs and even at age 24-35 months, only 12% of children were given such foods (CSA and ORC Macro, 2006).

Consumption of fruit and vegetables rich in vitamin A is not widespread. Only 7% of infants 6-11 months old were given fruit and vegetables rich in vitamin A and less than one-quarter of children aged 24-35 months had consumed this type of food in the 24 hours preceding the survey (CSA and ORC Macro, 2006). In conclusion, although infants and young children are commonly given dairy products, their complementary foods are insufficiently diversified; in particular, consumption of foods from the meat/fish group which play an important role as enhancers of iron absorption is not common even in the older age group.

Use of infant formula is not a common practice in Ethiopia (CSA and ORC Macro, 2006).

The approach designated as "Essential Nutrition Actions" (ENA), which is part of the Ethiopian National Nutrition Policy, provides a framework for improving seven clusters of nutrition behaviours 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 life cycle: during pregnancy, delivery and immediate postpartum, postnatal and family planning, immunization, growth monitoring/child well being, and sick child consultations (NNS, 2005 document not provided).

Table 15: Consumption of complementary foods, and meal frequency by breastfeeding status and age

Survey name/date (Reference)	Age (months)	Breastfeeding status*	Number of children	Foods consumed by children in the 24 hours preceding the survey					
				Percent of children having consumed the following foods					
				Infant formula	Other milk and dairy products	Pulses	Meat/ fish/ eggs	Foods with oil/ fat/butter	Fruits and vegetables rich in vit. A
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	6-11	BF	1023	0.8	45.7	12.4	5.5	19.3	7.1
	12-23	BF	1653	0.9	33.6	35.0	13.0	43.2	17.7
	24-35	BF+ NBF	1442	1.4	34.1	44.4	11.9	48.1	23.3

* Breastfed children (BF) or non breastfed children (NBF) or breastfed and non breastfed taken together
n.a.: not available

II.5 Nutritional anthropometry

Low birth weight (less than 2500g)

According to the EDHS-II, conducted in 2005, among children born in the five years preceding the survey and whose birth weight was recorded, the prevalence of low birth weight was 14%. However, only 3% of children were weighed at birth. This is due to the very low proportion of births (6%) taking place in a health facility. Moreover, children born in urban areas were 20 times more likely to be delivered in a health facility than children born in rural areas (CSA and ORC Macro, 2006). Due to the very low proportion of newborns weighed at birth and the lack of representativity of recorded birth weights, the prevalence of low birth weight must be interpreted with caution and could be considerably under-estimated.

In 2005, mothers' subjective assessment of the size of their baby showed that 21% of newborns were considered very small and 7% were considered smaller than average (CSA and ORC Macro, 2006).

Anthropometry of preschool children

Two national surveys provide information on anthropometry of preschool children: EDHS-I conducted in 2000 and EDHS-II in 2005 (CSA and ORC Macro, 2006; CSA and ORC Macro, 2001).

According to EDHS-II, in 2005 almost half (47%) of children under five years were stunted while the prevalence of wasting was 11% and that of underweight 38% (CSA and ORC Macro, 2006). Given the high prevalence of stunting and underweight, the severity of malnutrition in Ethiopia is defined as "very high" according to WHO criteria, having prevalence of underweight $\geq 30\%$ and prevalence of stunting $\geq 40\%$ (WHO, 1995).

Stunting is an indicator of chronic malnutrition, meaning long-term or accumulated nutritional deficiency resulting from lack of adequate dietary intake over a long period of time and/or recurrent illness. At national level in 2005, almost half of the children under five were stunted and nearly one-quarter were severely stunted (Table 16). There were no differences in prevalence by gender. Stunting increased rapidly with age. Among infants 0-6 months of age 8% of the infants were stunted, probably as a consequence of intrauterine growth retardation or prematurity. Prevalence increased during the first two years of life reaching 52% among children aged 12-23 months (CSA and ORC Macro, 2006). Deterioration of the nutritional status after the age of 6 months can be related to inappropriate complementary feeding practices, combined with cumulative effects of recurrent illnesses and lack of access to health care. After the age of two years, the prevalence of stunting remained high (CSA and ORC Macro, 2006).

The prevalence of stunting appeared significantly higher in rural areas (48%) than in urban areas (30%) (Table 16). Interregional variations in the prevalence of stunting were marked: in Amhara and SNNP, prevalence of stunting was above the national average (CSA and ORC Macro, 2006). Widespread poverty and lack of health facilities, particularly in SNNP region, are among the factors

contributing to high prevalence of stunting in these areas (WB, 2004). The prevalence of severe stunting reached the extremely high level of 27% in Amhara, 29% in SNNP and 30% in Somali. Mothers' level of education was strongly associated with the prevalence of stunting: children of mothers with no education experienced twice the risk of stunting (49%) compared with children of mothers with secondary or higher education (24%) (CSA and ORC Macro, 2006). These differences are not necessarily due to education alone as higher education levels are related to higher economic status.

At national level, the prevalence of wasting was 11% and that of severe wasting was 2%. Differences by gender were not marked. The prevalence of wasting increased with age, ranging from 6% among children aged 0-6 months to 18% among children aged 1-2 years. After this age, the prevalence of wasting decreased and remained almost constant (9%) up to 5 years. Wasting was more prevalent in rural areas than in urban areas. There were large regional differences in prevalence, ranging from 24% in Somali to 7% in SNNP (CSA and ORC Macro, 2006). The high prevalence of wasting in the eastern Somali region at this time could be related to the floods that occurred in this region in April-May 2005 (IRIN, 2005). Floods destroyed both infrastructures and crops and, in this pastoralist area, tens of thousands of livestock died, further affecting the livelihoods of people already rendered vulnerable by protracted drought conditions (OCHA, 2005). The prevalence of wasting appears to be associated with mothers' level of education (CSA and ORC Macro, 2006).

Underweight affected 38% of preschool children and the prevalence of severe underweight was 11%. The prevalence of underweight varied with age, residence, region and mother's education. In Somali, Amhara and Tigray, the prevalence of underweight was above the national average (CSA and ORC Macro, 2006).

Comparison of the two EDHS surveys of 2000 and 2005 shows that both the prevalence of stunting and underweight have decreased over time. The prevalence of stunting decreased from 52% in 2000 to 47% in 2005. Most of the reduction in stunting prevalence took place in the urban sector – from 42% in 2000 to 30% in 2005 – while in rural areas the prevalence decreased only from 53% to 48% during the same period (CSA and ORC Macro, 2001; 2006). The prevalence of wasting remained stable during the five-year period considered (2000-2005) (CSA and ORC Macro, 2001; 2006). However, since wasting is a measure of acute malnutrition, it should be noted that the two surveys were not carried out during the same season. The EDHS-II was carried out between April and August – July and August being the months of food shortage – while the EDHS-I of 2000 was not conducted during the food shortage season. However the prevalence of wasting in 2000 was probably influenced by the drought that affected the country that year.

While during episodes of severe hunger, such as that which followed the 2002 drought, the population received immediate attention, stunting on the contrary, i.e. chronic malnutrition, is a hidden emergency that is hindering the economic and human development of the country (IFPRI, 2005). Among the various factors that account for high prevalence of chronic malnutrition, widespread poverty and food insecurity, limited access to health services in the context of a heavy burden of diseases, and inadequate young child feeding practices hold the most important responsibility.

Table 16: Anthropometry of preschool children

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	Prevalence of malnutrition Percentage of children with														
					Stunting Height-for-age		Wasting Weight-for-height		Underweight Weight-for-age		Overweight Weight-for-height								
					< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	> +2 Z-scores							
					24.1	46.5	2.2	10.5	11.1	38.4	n.a.	n.a.							
Total		0-4.99	M/F	4586															
Ethiopia Demographic and Health Survey 2005 (April-August 2005) (CSA and ORC Macro, 2006)																			
	Sex	0-4.99	M	2317	24.1	47.2	2.8	11.4	11.5	38.9	n.a.	n.a.							
		0-4.99	F	2269	24.2	45.8	1.7	9.6	10.7	37.9	n.a.	n.a.							
	Age	0-0.49	M/F	389	1.3	8.1	1.0	6.4	0.0	4.4	n.a.	n.a.							
		0.5-0.99	M/F	454	7.8	29.4	1.2	12.1	9.0	28.0	n.a.	n.a.							
		1-1.99	M/F	836	23.5	52.3	3.6	17.9	15.0	47.8	n.a.	n.a.							
		2-2.99	M/F	901	27.7	51.3	1.7	9.0	12.7	42.2	n.a.	n.a.							
		3-3.99	M/F	1016	30.5	52.5	2.4	8.5	13.2	40.9	n.a.	n.a.							
		4-4.99	M/F	989	31.3	54.1	2.4	8.5	9.5	42.6	n.a.	n.a.							
	Residence																		
	urban	0-4.99	M/F	362	10.2	29.8	2.5	6.3	4.8	22.9	n.a.	n.a.							
	rural	0-4.99	M/F	4224	25.3	47.9	2.2	10.9	11.6	39.7	n.a.	n.a.							
	Region																		
	Tigray	0-4.99	M/F	316	16.7	41.0	1.9	11.6	11.3	41.9	n.a.	n.a.							
	Amhara	0-4.99	M/F	973	26.5	56.6	3.0	14.2	15.0	48.9	n.a.	n.a.							
	Oromiya	0-4.99	M/F	1867	21.8	41.0	2.4	9.6	8.2	34.4	n.a.	n.a.							
	Somali	0-4.99	M/F	177	30.3	45.2	5.1	23.7	17.8	50.9	n.a.	n.a.							
	SNNP	0-4.99	M/F	1057	29.1	51.6	0.9	6.5	11.9	34.7	n.a.	n.a.							
	Addis Ababa	0-4.99	M/F	(67)	(5.4)	(18.4)	(0.0)	(1.7)	(1.5)	(11.0)	n.a.	n.a.							
	Mother's education																		
	no education	0-4.99	M/F	3450	26.3	49.1	2.3	11.2	12.3	41.4	n.a.	n.a.							
	primary	0-4.99	M/F	754	17.9	39.8	1.7	10.1	7.6	32.0	n.a.	n.a.							
	secondary or higher	0-4.99	M/F	204	4.7	24.0	0.0	1.3	2.6	13.6	n.a.	n.a.							

* Category <2 Z-scores includes <3 Z-scores

Note: Results for Afar, Benishangul-Gumuz, Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50. Results in parenthesis are based on small samples and therefore must be interpreted with caution.

n.a.: not available

Table 16: Anthropometry of preschool children (cont'd)

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	Prevalence of malnutrition Percentage of children with						
					Stunting Height-for-age		Wasting Weight-for-height		Underweight Weight-for-age		Overweight Weight-for-height
					< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	
Total		0-4.99	M/F	10449	26.3	51.5	1.4	10.5	16.1	47.2	n.a.
Ethiopia Demographic and Health Survey 2000											
		0-4.99	M	5255	27.1	52.2	1.7	11.4	16.4	48.1	n.a.
		0-4.99	F	5193	25.6	50.8	1.1	9.6	15.9	46.2	n.a.
Age											
		0-0.49	M/F	877	2.1	10.6	1.3	4.1	2.0	6.6	n.a.
		0.5-0.99	M/F	1051	11.6	28.7	1.5	13.9	13.2	37.4	n.a.
		1-1.99	M/F	2074	29.6	57.2	3.1	19.5	21.6	56.1	n.a.
		2-2.99	M/F	2073	28.6	56.1	1.1	9.3	19.6	54.8	n.a.
		3-3.99	M/F	2291	33.1	60.7	1.0	6.4	15.8	49.6	n.a.
		4-4.99	M/F	2082	31.0	60.1	0.5	8.4	15.1	50.1	n.a.
Residence											
		0-4.99	M/F	1067	18.9	42.3	0.7	5.5	7.9	33.7	n.a.
		0-4.99	M/F	9382	27.2	52.6	1.5	11.1	17.1	48.7	n.a.
Region											
		0-4.99	M/F	689	26.5	55.3	0.9	11.1	16.1	47.9	n.a.
		0-4.99	M/F	(94)	(26.5)	(47.6)	(1.7)	(12.6)	(17.8)	(50.5)	n.a.
		0-4.99	M/F	2712	29.0	57.0	1.1	9.5	16.5	51.8	n.a.
		0-4.99	M/F	4288	22.1	47.2	1.6	10.4	13.6	42.4	n.a.
		0-4.99	M/F	(83)	(25.9)	(46.4)	(2.5)	(15.8)	(16.2)	(44.3)	n.a.
		0-4.99	M/F	101	19.7	41.3	2.2	14.2	12.2	42.3	n.a.
		0-4.99	M/F	2237	33.2	55.4	1.5	11.8	22.0	53.7	n.a.
		0-4.99	M/F	165	8.1	26.8	0.5	4.2	2.6	14.1	n.a.
Mother's education											
		0-4.99	M/F	7968	27.5	52.9	1.6	11.4	17.3	49.6	n.a.
		0-4.99	M/F	1286	22.4	49.1	0.8	8.8	13.4	40.4	n.a.
		0-4.99	M/F	520	11.0	32.9	0.5	6.7	3.7	27.7	n.a.

* Category <-2 Z-scores includes <-3 Z-scores

Note: Results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50. Results in parenthesis are based on small samples and therefore must be interpreted with caution.

n.a.: not available

Anthropometry of school-age children

There is currently no data available on anthropometry of school-age children.

Anthropometry of adolescents

There is currently no data available on anthropometry of adolescents.

Anthropometry of adult women

The EDHS-I and II, conducted in 2000 and 2005 respectively, collected data on anthropometry of adult women of child-bearing age at national level (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006).

In 2005, women's mean height was 157 cm and only 3% measured less than 145 cm, a cut-off below which risks of difficult delivery and of giving birth to a low birth weight baby is higher due to intrauterine growth retardation (CSA and ORC Macro, 2006).

Mean body mass index (BMI) was 20 kg/m² and 27% of women of childbearing age were affected by chronic energy deficiency (CED) (BMI<18.5 kg/m²) while only 4% were overweight or obese (BMI≥25.0 kg/m²) (CSA and ORC Macro, 2006).

The prevalence of CED was higher among young women (15-19 years) and women 40-49 years; in these two age groups CED affected almost a third of the women (Table 17). The proportion of women with CED was higher in rural areas and among women with lower educational level. The highest prevalence of CED was observed in Tigray and Somali and the lowest in Addis Ababa (15%) (CSA and ORC Macro, 2006).

These data reveal that CED, which constitutes a risk in terms of pregnancy outcome and maternal mortality, affects a large proportion of women. The high prevalence of CED among women of childbearing age is also correlated with the high prevalence of malnutrition among young children.

The prevalence of overweight and obesity was noticeable in urban areas (14%) while it was negligible in rural areas (2%). At regional level, the highest prevalence of overweight and obesity was observed in Addis Ababa region (18%). The percentage of overweight or obese women increased with increasing educational level (CSA and ORC Macro, 2006), but this observation is mostly a reflection of the relationship between overnutrition and high socio-economic level.

The prevalence of CED among women did not decrease substantially during the last five-year period (prevalence was 30% in 2000 and 27% in 2005) (CSA and ORC Macro, 2001; 2006). Large efforts are needed to improve the nutritional status of women in Ethiopia.

Table 17: Anthropometry of adult women

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Height			Anthropometry of adult women							
			Sample size	Mean (cm)	% of women with height < 1.45 m	Sample size	Mean (kg/m ²)	Body Mass Index ¹ (kg/m ²) (BMI)					
								<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)		
Total		15-49	6636	156.5	3.2	5901	20.2	26.5	69.1	3.7	0.7		
Ethiopia Demographic and Health Survey 2005 (April-August 2005) (CSA and ORC Macro, 2006)		Age											
		15-19	1608	155.5	4.8	1517	19.7	32.5	64.5	2.8	0.1		
		20-29	2358	156.8	3.1	2002	20.3	20.8	75.8	3.0	0.4		
		30-39	1596	156.9	2.4	1359	20.4	24.8	68.9	5.4	0.9		
		40-49	1074	156.9	2.1	1024	20.2	30.9	63.2	4.2	1.8		
Residence		15-49	1145	156.9	1.9	1112	21.5	18.8	67.0	11.9	2.3		
		15-49	5492	156.4	3.4	4789	19.9	28.3	69.6	1.8	0.3		
Region		Tigray	443	156.8	2.8	390	19.3	37.5	60.8	1.6	0.0		
		Afar	69										
		Amhara	1609	155.1	4.3	1471	19.9	27.0	70.5	2.0	0.4		
		Oromiya	2331	156.9	2.2	2036	20.4	24.3	71.1	3.9	0.7		
		Somali	230	162.0	1.9	202	20.1	34.9	55.4	8.6	1.1		
		Benishangul-Gumuz	61										
		SNNP	1490	156.3	4.1	1295	20.0	26.7	70.2	2.9	0.2		
		Addis Ababa	329	156.8	2.1	325	22.0	15.4	67.2	13.0	4.5		
		Education's level		no education	4336	156.5	3.3	3761	20.0	27.4	69.7	2.4	0.4
				primary	1535	156.1	3.8	1393	20.0	28.1	68.4	3.1	0.4
secondary or higher	766			157.7	1.5	747	21.4	18.8	67.1	11.4	2.7		

¹ excludes pregnant women and women with a birth in the 2 preceding months

Notes : - the sample represents all women of childbearing age.

- results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50. Sample size for Afar and Benishangul-Gumuz are shown, but not the results.

Table 17: Anthropometry of adult women (cont'd)

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Anthropometry of adult women				Body Mass Index ¹ (kg/m ²) (BMI)				
			Height		Sample size	Mean (kg/m ²)	Percentage of women with BMI				
			Sample size	Mean (cm)			% of women with height < 1.45 m	<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Total		15-49	15230	155.9	3.6	13447	19.8	30.1	n.a.	n.a.	n.a.
Ethiopia Demographic and Health Survey 2000 (February-May 2000) (CSA and ORC Macro, 2001)		Age									
		15-19	3671	154.6	7.0	3456	19.2	38.4	n.a.	n.a.	n.a.
		20-24	2828	156.2	2.2	2389	20.2	23.4	n.a.	n.a.	n.a.
		25-29	2563	156.5	2.8	2083	20.1	24.1	n.a.	n.a.	n.a.
		30-34	1832	156.2	2.2	1531	20.1	23.7	n.a.	n.a.	n.a.
		35-49	4336	156.4	2.5	3988	19.8	32.7	n.a.	n.a.	n.a.
		Residence									
		urban	2763	156.6	2.5	2559	20.8	23.2	n.a.	n.a.	n.a.
		rural	12466	155.8	3.8	10888	19.5	31.8	n.a.	n.a.	n.a.
		Region									
		Tigray	965	155.0	4.8	861	19.4	34.9	n.a.	n.a.	n.a.
		Afar	175	155.2	4.3	157	19.4	42.0	n.a.	n.a.	n.a.
		Amhara	3772	154.9	4.1	3388	19.6	31.4	n.a.	n.a.	n.a.
		Oromiya	5891	156.8	3.0	5121	19.8	28.7	n.a.	n.a.	n.a.
		Somali	168	161.2	1.5	141	19.1	48.3	n.a.	n.a.	n.a.
		Benishangul-Gumuz	158	156.6	2.7	138	19.2	38.1	n.a.	n.a.	n.a.
		SNNP	3265	155.5	3.9	2847	19.8	30.7	n.a.	n.a.	n.a.
		Addis Ababa	678	156.2	2.9	650	21.6	17.9	n.a.	n.a.	n.a.
		Education's level									
		no education	11439	155.8	3.7	9956	19.6	30.9	n.a.	n.a.	n.a.
		primary	2412	155.7	4.4	2199	19.8	30.5	n.a.	n.a.	n.a.
		secondary or higher	1379	157.7	0.7	1292	20.9	23.8	n.a.	n.a.	n.a.

¹ excludes pregnant women and women with a birth in the 2 preceding months

n.a.: not available

Notes: - the sample represents all women of childbearing age.

- results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50.

Anthropometry of adult men

There is currently no data available on anthropometry of adult men.

II.6 Micronutrient deficiencies

Iodine deficiency disorders (IDD)

Prevalence of goitre and urinary iodine

The iodine depletion of soil and water sources, especially in the mountainous parts of the country, is the main cause of iodine deficiency in Ethiopia (Wolde-Gebriel, 1992).

A large survey was conducted in 1980-81 on 35 635 school children and adolescents aged 5-19 years (19 159 boys and 16 476 girls) and 19 158 adult household members (7 649 males and 11 509 females) in all regions of Ethiopia except Eritrea and Tigray. The survey, conducted in 38 provinces (population of 19 million people) out of 85 (population of 50 million people), showed that iodine deficiency disorders were prevalent in Ethiopia. The total goitre rate among school children/adolescents and household members was 31% and 19% respectively while that of visible goitre was 2% and 3% respectively. Prevalence was higher in females (36% among female school children/adolescents and 27% among female adult household members). Prevalence rates were highest in remote mountain areas at altitudes above 2 000 m (Wolde-Gebriel, 1992).

The rate of cretinism was estimated on the basis of the prevalence of goitre using an epidemiological model described by Wolde-Gebriel (1992). Estimated rates varied from 0.09 to 16 per 1000 births (Wolde-Gebriel, 1992).

In 1993-94, a study was conducted in ten villages from four administrative regions namely Shoa, Jimma, Arsi and Gamu-Gofa, in the highlands of the Oromia and the SNNP regions. The sample consisted of 2485 randomly selected elementary school children of both sexes. The prevalence of total goitre among school-children was 53% (Cherinet and Kelbessa, 2000; Zewditu et al., 2001; Network for sustained elimination of iodine deficiency, 2007). Prevalence was slightly higher among girls (56%) than among boys (51%). The highest prevalence was observed in the villages of Lotte (82%) and Kodowono (91%) in SNNP Region.

Overall, on the basis of these two surveys, the prevalence of IDD is classified as severe according to the WHO/UNICEF/ICCIDD classification (WHO et al, 2001). More recent data, representative at national level, are urgently needed to evaluate the current magnitude of IDD in the country.

Iodization of salt at household level

The most efficient strategy for eliminating goitre is universal salt iodization. A programme has recently been started in collaboration with UNICEF in Afar, where private enterprises are producing iodized salt. At present there is no universal salt iodization programme in Ethiopia (UNICEF, 2005).

In the 2005 EDHS-II, households' cooking salt was tested for iodine content. Salt that contains at least 15 ppm of iodine is considered to be adequately iodized. Results showed that only 20% of households consumed adequately iodized salt. Overall, there was no difference between urban and rural areas. Prevalence of salt iodization was low in all regions, except in Dire Dawa but the sample in that region was very small and the estimate cannot be considered as meaningful. Moreover in Addis Ababa region the percentage of households using adequately iodized salt was lower than 20% (CSA and ORC Macro, 2006).

While universal salt iodization is a preferred approach, this requires action at national level (e.g. infrastructure, legislation and the establishment of control and enforcement mechanisms). National salt iodization may not be feasible in the short term. Given the severity of the situation in the country, alternative approaches could be applied, e.g. local water iodination and distribution of iodized oil capsules, but none of these are currently being implemented.

Table 18: Iodization of salt at household level

Survey name/date (Reference)	Background characteristics	Number of households where salt was available for testing	Percentage of households tested	Iodine level of household salt		
				None (0 ppm)	Inadequate (<15 ppm)	Adequate (≥15 ppm)
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	13721	98.7	45.7	34.4	19.9
	Residence					
	urban	1974	98.2	46.1	32.9	21.0
	rural	11747	98.8	45.6	34.7	19.7
	Region					
	Tigray	940	99.2	43.7	28.3	28.0
	Afar	138	98.8	39.0	38.0	23.0
	Amhara	3709	98.6	53.4	31.7	14.9
	Oromiya	4790	99.1	40.3	37.7	22.0
	Somali	540	99.0	41.8	33.6	24.7
	Benishangul-Gumuz	128	99.4	58.7	27.7	13.6
	SNNP	2802	98.0	45.9	35.6	18.5
	Addis Ababa	525	98.4	50.4	31.7	17.9
Dire Dawa	(64)	98.5	(8.3)	(29.4)	(62.3)	

Note: ppm = parts per million ; estimates in parenthesis based on small sample size should be interpreted with caution

Vitamin A deficiency (VAD)

Prevalence of clinical vitamin A deficiency

Clinical vitamin A deficiency among children and women of childbearing age was assessed in a national survey conducted in 2005 by the Ethiopian Health and Nutrition Research Institute (EHNRI) (Tsegaye, 2006). According to this survey, among 23148 sampled preschool children aged 6 to 71 months, the prevalence of night blindness was 0.7% at national level. The prevalence of Bitot spots was 1.7% (confidence interval 1.6-1.9%), more than 3 fold the WHO threshold (0.5%) indicating that vitamin A deficiency is a public health problem. The highest prevalence was recorded in Amhara (3.2%). Also prevalence of maternal night blindness (during last pregnancy, adjusted for daytime blindness) at national level was 1.8%. The situation was particularly alarming in Tigray, where 14.1% of women were affected (Tsegaye, 2006).

Table 19: Prevalence of clinical vitamin A deficiency in children from 6 months to 6 years

Survey name/date (Reference)	Background characteristics	Age (years)	Sex	Clinical signs of xerophthalmia		
				Sample size	Bitot spots	Child night blindness
Ethiopian Health and Nutrition Research Institute Survey 2005 (Tsegaye, 2006)	Total	0.5-5.99	M/F	23148	1.7	0.7
	Region					
	Afar	0.5-5.99	M/F	2334	2.1	0.9
	Tigray	0.5-5.99	M/F	2902	0.7	0.9
	Amhara	0.5-5.99	M/F	2708	3.2	1.0
	Addis Ababa	0.5-5.99	M/F	2508	1.4	0.5
	Oromia	0.5-5.99	M/F	2509	1.5	0.5
	SNNPR	0.5-5.99	M/F	2544	0.7	0.7
	Beneshengul	0.5-5.99	M/F	2671	0.8	1.0
	Harari	0.5-5.99	M/F	2528	1.2	1.1
Dire Dawa	0.5-5.99	M/F	2444	1.1	0.3	

The two EDHS surveys of 2000 and 2005 also documented the prevalence of night blindness among mothers during pregnancy (CSA and ORC Macro, 2006; CSA and ORC Macro, 2001). In 2005, prevalence of night blindness adjusted for daytime blindness was 6%, which is higher than the WHO

level (5%) indicating that vitamin A deficiency is a public health problem (CSA and ORC Macro, 2006; WHO, 1996). Prevalence in rural areas adjusted for daytime blindness was double (6%) that in urban areas (3%). The prevalence of night blindness varied considerably according to region, and was particularly high in Amhara (CSA and ORC Macro, 2006).

Comparison with data from the 2000 EDHS-I reveals that the prevalence of night blindness adjusted for daytime blindness has remained stable over time (5% in 2000, 6% in 2005) (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006).

There are very large discrepancies between the results of the EHNRI and EDHS surveys which cannot be explained by differences in geographical coverage or changes overtime. However both sources show that VAD is highly prevalent in Ethiopia.

Sub-clinical vitamin A deficiency among mothers (based on low level of serum retinol or retinol in breastmilk) is not documented.

Table 20: Prevalence of clinical vitamin A deficiency in mothers during their last pregnancy and in breastfeeding mothers

Survey name/date (Reference)	Background characteristics	Age* (years)	Prevalence of night blindness during pregnancy ¹	
			Number of mothers	Percentage adjusted for daytime blindness
Ethiopia Demographic and Health Survey 2005 (CSA and ORC, 2006)	Total	<20-49	7307	6.1
	Residence			
	urban	<20-49	634	3.1
	rural	<20-49	6674	6.4
	Region			
	Tigray	<20-49	480	8.3
	Afar	<20-49	(68)	(4.1)
	Amhara	<20-49	1856	11.7
	Oromiya	<20-49	2723	4.6
	Somali	<20-49	288	4.5
	Benishangul-Gumuz	<20-49	(69)	(5.8)
	SNNP	<20-49	1632	2.6
Addis Ababa	<20-49	129	0.9	

*Age: 15-49 years or other non standard age

¹ During last pregnancy of women with a live birth in the 5 years preceding the survey

Note: results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50. Estimates in parenthesis based on small sample size should be interpreted with caution

In Ethiopia, Vitamin A deficiency is a major public health problem. The main causes of vitamin A deficiency in the country are a very low intake of foods of animal origin, which contain high amounts of preformed retinol, and very low availability and intake of fruit and vegetables rich in carotenoids. Chronic malnutrition is also a contributing factor. Furthermore, there is a lack of knowledge among mothers regarding the importance of vitamin A and foods sources of the vitamin.

The EHNRI survey of 2005 investigated the potential determinants of the deficiency by administering a questionnaire to 2565 households (95% responded). Results showed that in many regions not only many households did not produce dark green leafy vegetables or yellow/red vegetables and Vitamin A rich fruits, but also that households members were not able to purchase such foods in local markets, as they were not available. Ninety-five percent of households in Afar and 86% in Tigray had not produced any dark green leafy vegetables in the past year. Similar percentages were recorded for the production of red/ yellow vegetables (carrots, tomatoes, pumpkin, yellow sweet potato). Furthermore, almost eight of ten households in Afar reported that none of the dark green leafy vegetables listed in the questionnaire (which included an Ethiopian cabbage with dark green leaves, *kale*, bell pepper, spinach, cabbage and *haleko* (Moringa tree leaves) were available in nearby markets (Tsegaye, 2006).

Survey findings indicated that in all regions children consumed dark green leafy vegetables, red/yellow vegetables and fruits less than three times a week (Tsegaye, 2006). According to WHO, when less

than 75% of children aged 6-71 months consume vitamin A rich foods less than three times a week, the community must be considered at risk of vitamin A deficiency.

It is interesting to note that also in the city of Addis Ababa, where availability of fruit and vegetables is very high in markets, Vitamin A deficiency is a serious problem as shown by a high proportion of children that had not consumed any dark green leafy vegetables, yellow/red vegetables and fruit over the past week (59%, 43%, 34% respectively) (Tsegaye, 2006).

Vitamin A supplementation

In 1995, the Ministry of Health and UNICEF began implementing several programmes aimed at improving vitamin A status. Vitamin A supplementation of children under five years and of mothers in the postpartum period was carried out as part of the Extended Programme on Immunization and Mother and Child health care activities. Supplementation was integrated with non-health measures in sixty districts selected by UNICEF, which included provision of horticultural seeds, strengthened IEC (Information, education, communication) activities. In this programme, delivery of capsules, distribution of horticultural seeds and IEC were implemented at village level by “micronutrient ladies” elected by the communities.

Beginning in 1997, the Ministry of Health started systematic bi-annual vitamin A capsule distribution campaigns as either a stand-alone activity or integrated with the National Immunization days (Tsegaye, 2006). The programme targeted all underfives but reached mostly children under one year due to the linkage with immunization. Health facilities also provided vitamin A capsules to children with chronic diarrhea, acute malnutrition, measles or signs of xerophthalmia and distributed capsules to communities (MOH, 2004).

The 2000 and the 2005 EDHS provide nationally representative data on vitamin A supplementation of children and mothers (CSA and ORC Macro, 2006; CSA and ORC Macro, 2001). In 2005, nearly one in two (46%) children aged 6-59 months had received vitamin A supplements in the 6 months preceding the survey. There were no differences by gender. Children living in urban areas were more likely to have received vitamin A supplements (62%) than children living in rural areas (45%). Regional variations in supplementation were marked, ranging from 39% in Somali to 65% in Tigray (estimates based on small sample size are not commented on) (CSA and ORC Macro, 2006).

Among mothers with a birth in the five years preceding the survey, only 21% had been provided vitamin A supplements within 2 months postpartum. Women living in urban areas were almost twice as likely to receive Vitamin A supplements (CSA and ORC Macro, 2006).

Comparison with data collected in the 2000 EDHS indicates that vitamin A supplementation of children decreased from 56% in 2000 to 46% in 2005. On the contrary, the percentage of mothers who received vitamin A supplements within 2 months postpartum increased from 12% in 2000 to 21% in 2005 (CSA and ORC Macro, 2001; CSA and ORC Macro, 2006). Reasons for these changes are not clear. It is possible that supplementation services for young children have decreased at community level.

Intensification of vitamin A supplementation is needed for young children and mothers, particularly in rural areas.

Table 21: Vitamin A supplementation of children and mothers

Survey name/date (Reference)	Background characteristics	Children				Mothers		
		Age (months)	Sex	Number of children	Percent of children who received vit. A supplements in the 6 months preceding the survey	Age (years)	Number of mothers ¹	Percent of mothers who received vit. A supplements within 2 months postpartum
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	6-59	M/F	8958	45.8	15-49	7307	20.6
	Sex							
		6-59	M	4508	45.7	15-49	-	-
		6-59	F	4450	45.9	15-49	-	-
	Residence							
	urban	6-59	M/F	673	62.0	15-49	634	36.0
	rural	6-59	M/F	8285	44.5	15-49	6674	19.1
	Region							
	Tigray	6-59	M/F	591	65.3	15-49	480	17.5
	Afar	6-59	M/F	(85)	(33.3)	15-49	(68)	(18.4)
	Amhara	6-59	M/F	2026	43.2	15-49	1856	16.2
	Oromiya	6-59	M/F	3599	43.0	15-49	2723	23.9
	Somali	6-59	M/F	383	38.8	15-49	288	14.5
	Benishangul-Gumuz	6-59	M/F	(83)	(27.4)	15-49	(69)	(13.2)
SNNP	6-59	M/F	1986	49.9	15-49	1632	22.1	
Addis Ababa	6-59	M/F	130	53.2	15-49	129	21.8	

¹ Women with a birth in the 5 years preceding the survey. For women with two or more births in the five-year period, data refer to the most recent birth.

Results in parenthesis are based on small samples and therefore must be interpreted with caution. Results for Gambela, Harari, Dire Dawa are not shown as the sample size (for children and mothers) is smaller than 50.

Iron deficiency anemia (IDA)

Prevalence of IDA

The EDHS-II of 2005 is the only nationally representative survey that documents the prevalence of anemia among preschool children and women of childbearing age (CSA and ORC Macro, 2006). The size of the sample was adequate for the national level, but for the sub-national level sample size was sometimes limited and therefore interpretation of the results must be done with caution.

According to this survey, in 2005, among children aged 6-59 months, more than half (54%) were anemic (hemoglobin <11.0 g/dL) and 4% were severely anemic (hemoglobin <7.0 g/dL) (CSA and ORC Macro, 2006). The prevalence of anemia was above the threshold (40%) defined by WHO to consider anemia a severe public health problem among the population (WHO, 2001).

Among infants 6-8 months, at national level, prevalence was 77% (CSA and ORC Macro, 2006). During the complementary feeding period iron requirements are high. Higher prevalence of anemia among children aged 6-8 months could consequently be related to increasing iron requirements coupled with inadequate complementary feeding practices. In fact, iron deficiency commonly develops after six months of age if complementary foods do not provide sufficient absorbable iron.

Disparities in prevalence by place of residence and regions were observed: in urban areas, 47% of children were affected by anemia versus 54% in rural areas. Somali was the most affected region with a prevalence of anemia reaching 86% (CSA and ORC Macro, 2006).

The prevalence of severe anemia was highest among children age 9-11 months, male children, and among children of mothers with little or no education. However, the prevalence of severe anemia did not vary by urban-rural residence.

The data indicate the widespread nature of the problem and the need to intensify the anemia control strategy (MoFED 2005/06; CSA and ORC Macro, 2006).

Table 22: Prevalence of anemia in preschool children

Survey name/date (Reference)	Background characteristics	Age* (months)	Sex	Sample size	Percentage of children with	
					Any anemia (Hb <11.0 g/dL)	Severe anemia (Hb <7.0 g/dL)
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	6-59	M/F	4138	53.5	3.9
	Sex					
		6-59	M	2055	55.0	4.6
		6-59	F	2083	52.1	3.3
	Age					
		6-8	M/F	226	77.2	3.4
		9-11	M/F	199	73.3	8.3
		12-23	M/F	865	69.1	5.5
		24-35	M/F	882	50.7	3.5
		36-47	M/F	1002	48.1	2.5
		48-59	M/F	965	38.2	3.6
	Residence					
	urban	6-59	M/F	270	46.8	3.5
	rural	6-59	M/F	3868	54.0	3.9
	Region					
	Tigray	6-59	M/F	288	56.5	3.8
Amhara	6-59	M/F	858	52.0	5.4	
Oromiya	6-59	M/F	1717	56.0	3.5	
Somali	6-59	M/F	124	85.6	14.1	
SNNP	6-59	M/F	1004	46.2	2.0	

Hb: hemoglobin

Note: Results for Afar, Benishangul-Gumuz, Gambela, Harari, Addis Ababa, and Dire Dawa are not shown as the sample size is smaller than 50.

According to EDHS-II of 2005, the prevalence of anemia among women of childbearing age was 27% and severe anemia affected 1% of women. Pregnant and breastfeeding women were slightly more likely to be anemic than non-pregnant and non-breastfeeding women (Table 23). Women living in rural areas and those living in Somali were more likely to be affected by anemia than women living in urban areas or other regions (CSA and ORC Macro, 2006).

Table 23: Prevalence of anemia in women of childbearing age

Survey name/date (Reference)	Background characteristics	Age* (years)	Sample size	Percentage of women with	
				Any anemia (pregnant women Hb<11.0 g/dL; non pregnant women Hb<12.0 g/dL)	Severe anemia (all women Hb<7.0 g/dL)
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	15-49	6141	26.6	1.3
	Age				
		15-19	1489	24.8	0.9
		20-29	2163	24.5	1.2
		30-39	1489	30.6	1.9
		40-49	1000	27.7	1.3
	Pregnancy/Breastfeeding status				
	Pregnant	15-49	520	30.6	3.0
	Breastfeeding	15-49	2222	29.8	1.3
	Non-pregnant/Non-breastfeeding	15-49	3398	23.9	1.0
	Residence				
	urban	15-49	948	17.8	0.7
	rural	15-49	5193	28.2	1.4
	Region				
	Tigray	15-49	411	29.3	0.6
	Afar	15-49	(55)	(40.4)	(3.4)
	Amhara	15-49	1486	31.0	1.5
	Oromiya	15-49	2177	24.9	1.2
	Somali	15-49	181	39.8	4.8
	Benishangul-Gumuz	15-49	(59)	(31.3)	(0.8)
SNNP	15-49	1437	23.5	1.0	
Addis Ababa	15-49	271	14.6	0.8	

Hb: Hemoglobin

Note: Results for Gambela, Harari and Dire Dawa are not shown as the sample size is smaller than 50. Results in parenthesis, based on small sample size, should be interpreted with caution.

The causes of IDA include poor bioavailability of iron in the diet due to very low intake of meat, fish and vitamin C rich foods, along with malaria, and high prevalence of parasitic diseases such as hookworm and schistosomiasis (PLAN International, 2006).

It is believed that consumption of *teff*, the traditional cereal, is protective against iron deficiency (FAO, 1997). The iron content of this cereal is high, mostly due to iron contamination from soil, but the bioavailability of the iron is low. Nonetheless lower prevalence of anemia in Addis Ababa and western regions (eg SNNP) has been attributed to high consumption of *teff* (NRC, 1996). However, anemia remains a severe public health problem at national level in Ethiopia.

It is interesting to note that food aid to Ethiopia, which at some periods in time represented a significant proportion of food supplies, was mostly based on wheat, substituting for the traditional consumption of *teff*. It is hypothesized that the resulting change in consumption patterns could have contributed even further to iron deficiency because wheat contains less iron than *teff* (IFPRI, 2005).

The EDHS-II of 2005 documented the consumption of iron-rich foods⁴ among mothers with a living child under 3 years of age. The results showed that only 14% of mothers had consumed this type of food in the 24 hours preceding the survey (CSA and ORC Macro, 2006).

Interventions to combat IDA

The strategy of food fortification with iron would be beneficial for the whole population. It would be feasible if a food vehicle existed that is processed at central level. Unfortunately, it is difficult to identify a food vehicle which would be industrially processed at central level and consumed by all communities of the country. A large proportion of cereals, for example, are not industrially processed. Food

⁴ Iron-rich foods, according to this publication include meat, organ meat, fish, poultry and eggs (CSA and ORC Macro, 2006).

fortification is not well known in Ethiopia, thus the required equipment will have to be imported and capacity building will be needed before this strategy can be implemented (MOH, 2004).

At the moment, iron supplementation of mothers during pregnancy and nutrition education are the only interventions that are implemented to combat IDA.

The EDHS-II of 2005 documents iron supplementation of mothers during pregnancy (CSA and ORC Macro, 2006). At national level, only one in ten women took iron tablets/syrups during pregnancy. The supplementation coverage in the urban area was almost double that of the rural areas (Table 24) (CSA and ORC Macro, 2006).

Table 24: Percentage of mothers who took iron tablets/syrups during pregnancy

Survey name/date (Reference)	Background characteristics	Number of mothers with a birth in the 5 years preceding the survey	Percent who took iron tablets/syrups during pregnancy
Ethiopia Demographic and Health Survey 2005 (CSA and ORC Macro, 2006)	Total	7307	9.5
	Residence		
	urban	634	16.5
	rural	6674	8.9
	Region		
	Tigray	480	10.3
	Afar	(68)	(6.1)
	Amhara	1856	7.4
	Oromiya	2723	9.7
	Somali	288	7.4
	Benishangul-Gumuz	(69)	7.1
SNNP	1632	11.2	
Addis Ababa	129	16.7	

Note: Results for Gambela, Harari, Dire Dawa regions are not shown as the sample size is smaller than 50
Results in parenthesis are based on small samples and therefore must be interpreted with caution

1.7 Policies and programmes aiming to improve nutrition and food security

The Government of Ethiopia in cooperation and coordination with donors, and international and local NGOs, has implemented a range of nutrition programmes that aim to prevent and mitigate the consequences of malnutrition. The programmes that have the greatest impact on malnutrition or health include the direct Nutrition Intervention Programmes and Food Security Programmes.

Nutrition Intervention Programmes:

A National Nutrition Program (NNP) Sector Wide Approach (SWAP) has been established for 2007-2017. The objective of the National Nutrition Strategy (NNS) is to ensure, in a sustainable way, that all Ethiopians have an adequate nutritional status, which is an essential requirement for a healthy and productive life. The NNS is a crucial milestone to enhance nutrition activities in the country. It provides an opportunity to strengthen existing programmes that include nutrition activities and create synergies across programmes to improve nutritional outcomes broadly.

The NNP is designed to address the challenges by focusing on large scale preventive nutrition programmes, community empowerment, policy definition, multisectoral coordination, capacity building, and nutrition information systems. The NNP is designed to address these challenges in harmonized and coordinated manner. The nutrition interventions cover Therapeutic and Supplementary feeding; bi-annual screening for acute malnutrition in children under five years; bi-annual vitamin A supplementation and de-worming; other micronutrient supplementation; salt iodization; nutrition education; institutional and community-based child growth promotion and school feeding. Emergency nutrition programmes to combat malnutrition are also quite extensive.

Food Security Programmes:

In Ethiopia, considerable effort has been made in addressing the problem of food insecurity. The current food security programmes are quite large, covering approximately 8-million food insecure people. Among such programmes, there are the Productive Safety Nets Programme (PSNP), the Government's Food Security Program, the externally supported Food Security Project and the Protecting Basic Services project (PBS).

The Food Security Programme (FSP) is designed to address problems of shortfalls in food production and vulnerability to shocks. The core objectives of the FSP are twofold : i) to enable the 8 million "chronically" food insecure people to attain food security within a five year period, and ii) to improve significantly the food security situation of 6.7 million facing "transitory" food insecurity problems (MoFED, 2005). Above all, the implementation of the national FSP is designed to interrupt the cycle of dependence on emergency relief.

The PASDEP (Plan for Accelerated and Sustained Development to End Poverty) 2005/06-2009/10, includes measures to reduce the variability in crop production and overall food availability – through more irrigation and water control, diversification of crops, better integration of markets, transport and information links, as well as expansion of off-farm employment and income-earning opportunities, better functioning of credit markets, introduction of innovative measures, such as experiments with crop and weather-based insurance mechanisms.

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