NUTRITION COUNTRY PROFILE
REPUBLIC OF ARMENIA

Map No. 3762 Rev. 3 UNITED NATIONS
January 2004

Department of Peacekeeping Operations
Cartographic Section

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Acknowledgments

This profile was prepared by Marine Adamyan, DVM, MPH, Middle East and Eastern Europe Regional HIV/AIDS and Health Advisor, World Vision International, and Karine Babikyan, MD, Doctor of Preventive Medicine and Nutrition, Food Hygiene and Sanitation Inspector, State Hygiene & Anti-Epidemic Inspection Center of Armavir province, Armenia, in collaboration with Estelle Bader and Chiara Deligia, Consultants, and Marie Claude Dop, Nutrition Officer, Nutrition Planning, Assessment and Evaluation Service, Food and Nutrition Division, Food and Agriculture Organization of the United Nations.

Summary

After becoming independent in 1991, Armenia suffered a difficult transition to a market economy. Factors such as the 1989-94 Nagorno-Karabakh conflict, earthquakes and droughts further affected the socio-economic situation. Agricultural reforms implemented after independence did not succeed in enhancing the sector's low productivity. Despite economic growth over the past eight years, the combined effects of mass impoverishment, rising unemployment and declining access to public services have led to a decline in the quality of life. Trends indicate that poverty could become structural.

Armenia is a low income food deficit country. Although food supply and consumption statistics indicate that the dietary energy supply is low, not meeting population energy requirements, there is a very high prevalence of overweight and obesity among adults. This discrepancy could be explained by the fact that a substantial proportion of production is self-consumed by farmer households and does not appear in supply statistics.

The diet is rich in carbohydrates as cereals, starchy roots and sweeteners provide more than two thirds of the energy. The food diversification index remains low. While consumption of meat and fish is low, that of milk and eggs as well as fruit and vegetables, is substantial.

While breastfeeding is common, many infants are not exclusively breastfed and the duration of breastfeeding is short. Moreover, bottle-feeding is frequent. Efforts to promote breastfeeding have been very successful but further improvements are needed.

As a consequence of widespread and increasing food insecurity and a decline in access to quality health services, stunting of preschool children is not declining. School-age children and young adolescents are both stunted and wasted. At the same time overweight is emerging among all age groups. The double burden of malnutrition — persistent undernutrition together with overnutrition — is affecting both the preschool and school-age children. Overnutrition is highly prevalent among adult women. This nutrition transition will trigger a rise in the incidence of chronic diseases which will impose further stress on an already strained health system.

Micronutrient deficiencies are still very common. Prevalence of iodine deficiency disorders was still quite high among women during the last decade. A programme of salt iodization provides adequately iodized salt to most households but coverage is still insufficient in some regions. Iron deficiency anemia is highly prevalent among women of childbearing age and young children. Strategies for combating iron deficiency anemia are urgently needed.

Summary Table

Basic Indicators				Year
Population				
Total population		3. 082	million	2000
Rural population		35	%	2000
Population under 15 years of age		26	%	2000
Annual population growth rate		- 0.43	%	2000/05
Life expectancy at birth		71	years	2000/05
Agriculture				
Agricultural area		49	%	2002
Arable and permanent cropland per agricultural inhabitant		1.7	Ha	2002
Level of development				
Human development and poverty				
Human development index		0.754	[0-1]	2002
Proportion of population living with less than 1$ a day (PPP)	***MDG1***	13	%	1998
Population living below the national poverty line	***MDG1***	51	%	2001
Education				
Net primary enrolment ratio	***MDG2***	85	%	2001/02
Youth literacy (15-24 years)	***MDG2***	100	%	2002
Ratio of girls to boys in primary education	***MDG3***	0.98	girl per 1 boy	2001/02
Health				
Infant mortality rate	***MDG4***	30	‰	2003
Under-five mortality rate	***MDG4***	33	‰	2003
Maternal mortality ratio (adjusted)	***MDG5***	55	per 100 000 live births	2000
Tuberculosis prevalence	***MDG6***	89	per 100 000 people	2003
Environment				
Sustainable access to an improved water source in rural area	***MDG7***	80	% of population	2002
Nutrition indicators				*Year*
Energy requirements				
Population energy requirements		2 260	kcal per capita/day	2001
Food supply				
Dietary Energy Supply (DES)		2 210	kcal per capita/day	2001
Prevalence of undernourishment	***MDG1***	34	%	2000/02
Share of protein in DES		12	%	2000/02
Share of lipids in DES		16	%	2000/02
Food diversification index		38	%	2000/02
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	**Age**			
Exclusive breastfeeding rate	<6 months	30	%	2000
Timely complementary feeding rate	6-9 months	51	%	2000
Bottle-feeding rate	0-11 months	44	%	2000
Continued breastfeeding rate at 2 years of age		13	%	2000
Nutritional anthropometry				
Stunting in children under 5 years		13	%	2000
Underweight in children under 5 years	***MDG1***	3	%	2000
Women with BMI<18.5 kg/m²		4	%	2000
Micronutrients deficiencies				
Prevalence of goitre in school-age children		n.a.		
Percentage of households consuming adequately iodized salt		84	%	2000
Prevalence of sub-clinical vitamin A deficiency in preschool children		<1	%	1998
Prevalence of anemia in women		12	%	2000
Prevalence of iron supplementation in mothers		1	%	2000

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

Table of Contents

List of Tables and Figures

List of tables

List of figures

Acronyms	
BFHI	Baby-Friendly Hospital Initiative
BMI	Body mass index
CED	Chronic energy deficiency
DES	Dietary energy supply
DHS	Demographic and Health Survey
DPT3	Diphtheria, pertussis (whooping cough) and tetanus vaccine – three doses
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Databases
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
GIEWS	Global Information and Early Warning System
GDP	Gross domestic product
GNP	Gross national product
GOA	Government of Armenia
HDEC	Human Development Expert Club
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDA	Iron deficiency anemia
IDD	Iodine deficiency disorders
ILO	International Labour Organization
IMF	International Monetary Fund
ITU	International Telecommunication Union
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
NSS	National Statistical Service
PPP	Purchase power parity
SuRF	Surveillance of chronic disease Risk Factors
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
VAD	Vitamin A deficiency
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

Part I: Overview and basic indicators

I.1 Context

The Republic of Armenia is the smallest, second most densely populated and most ethnically homogenous nation of the former Soviet republics. Situated in the south-western part of Asia, between the Caucasus, the Black Sea and the Caspian Sea, the country is bordered by Georgia on the north, Azerbaijan on the east, Iran on the south, the Azerbaijani exclave of Nakhichevan on the south-west, and Turkey on the west. The highest elevation is the peak of mount Aragat (4090 m).

The country has a total area of 29 743 km2. Agricultural land occupies 47% of the total area; mountains, plateaux and other land occupy 35%, forest 13% and water surface 5% (NSS, 2004a).

Armenia is landlocked but comprises about 100 mountain lakes, the largest of which is Lake Sevan, located in the north-east which covers about 5% of the country. Many of the country's rivers flow into Lake Sevan. The main outlet is the Hrazdan River, which flows south to join the Aras (known in Armenia as the Arax), Armenia's largest and longest river, which separates Armenia from Turkey.

The climate of Armenia varies by altitude but is predominantly dry and continental, with hot summers and moderate winters. January temperatures usually range from -12 to -5°C. July temperatures average about 10°C in the mountains and about 25°C elsewhere. Precipitations vary by location and are heaviest in autumn. Armenia receives a yearly rainfall of about 200 to 800 mm, rising with elevation. The most arid region of the country is along the Aras River (FAO, Forestry Division).

Since independence, Armenia has been experiencing a difficult transition from a centrally planned to a market economy. The 1989–1994 conflict with Azerbaijan over the Nagorno-Karabakh territory and the ensuing economic blockade imposed by Azerbaijan and Turkey further affected the socio-economic situation. Armenia's longest borders with Azerbaijan and Turkey remain closed, damaging trade and economic development (WFP, 2004a).

Presently, Armenia is ranked among countries with mid-level development (HDEC, 2001).

I.2 Population

Population indicators

The permanent population in Armenia was estimated at 3.1 million persons in 2004, with 64% living in urban areas, half of which were living in the capital Yerevan (NSS, 2004a; IMF, 2003).

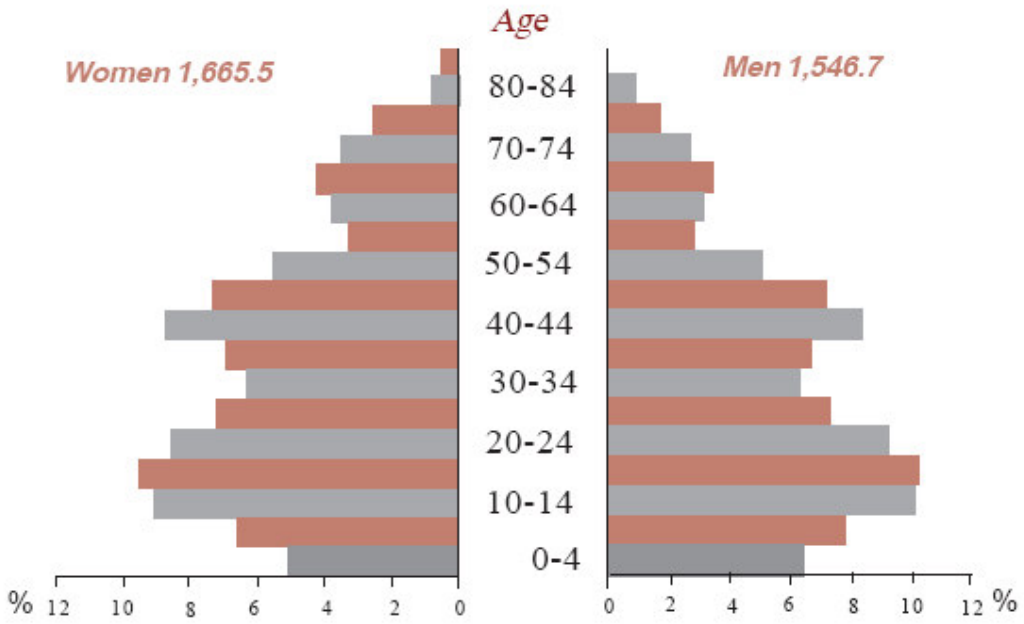
Birth rates have been decreasing since 1990. There was growth in the birth rate in 2002-2003, but overall population growth is still negative (NSS, 2004a).

According to official data, there has been net out-migration from Armenia since the 1980s due to difficult socio-economic conditions exacerbated by the 1988 earthquake. The belief in better opportunities in foreign countries and the persistence of ties to emigrated relatives and friends have resulted in sustained out migration. In 1989-91, the trend was inverted, due to the inflow of refugees and displaced persons resulting from the Nagorno-Karabakh conflict but presently out-migration persists (GOA & UNDP, 2001; WFP, 2004a).

Table 1: Population indicators

Indicator	Estimate	Unit	Reference Period	Source
Total population	3.082	million	2000	UNPD
Annual population growth rate	-0.43	%	2000-2005	UNPD
Crude birth rate	11.1	‰	2000-2005	UNPD
Population distribution by age:			2000	UNPD
0-4 years	6	%		
5-14 years	20	%		
15-24 years	17	%		
60 and over	15	%		
Rural population	35	%	2000	UNPD
Agricultural population	11	%	2004	FAOSTAT
Population density	103	inhabitants per km^2	2000	UNPD
Median age	30	years	2000	UNPD
Life expectancy at birth	71	years	2000-2005	UNPD
Population sex ratio	89	males per 100 female	2000	UNDP
Net migration rate	-6.6	‰	2000-2005	UNPD
Total dependency rate	56	%	2000	UNPD

Population pyramid for 2004



Source: NSS, 2005. Numbers are in thousands.

I.3 Agriculture

Agriculture is greatly influenced by the topography of the country, most of the cultivated land lying within an altitude range of 600-2 500 m. The agricultural area is estimated at 49% of the total land area of the country (FAO, 1997; FAO, FAOSTAT Database).

As a result of land privatization started in 1991, Armenia's huge collective farms were dismantled. There are today more than 334 000 farms with an average size of 1.37ha, varying from 0.61ha in Ararat Province to 3ha in Syooneek Province (IMF, 2003). The profile of Armenian agriculture that has emerged from the initial crisis of independence has placed a new emphasis on staple food crops, such as wheat and potatoes (GOA & UNDP, 2001). In 2003, agriculture contributed 24% of Armenia's GDP (WB, World Development Indicators Database). Those working in the agricultural sector made up 44% of the employed population, but 40% of them were employed only 7 to 9 months in the year. Productivity in agriculture was estimated to be lower than in industry (IMF, 2003).

In 2004, the agricultural sector performed better, with a growth attributed to progress in farming (except vegetables) and cattle breading. Although environmental conditions influence the agricultural sector (droughts, earthquakes, etc), the main constraint on progress in the sector is the underdevelopment of infrastructure and funding mechanisms (IMF, 2005).

Land use and irrigation statistics

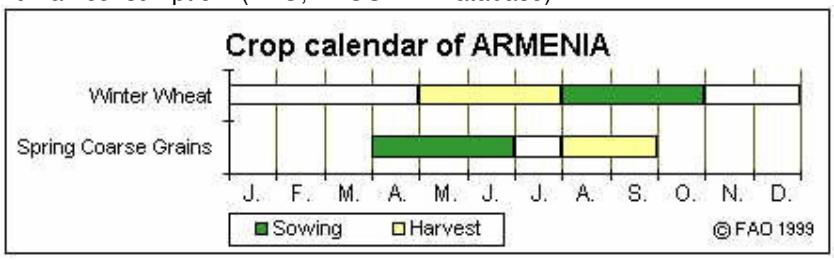
Table 2: Land use and irrigation

Type of area	Estimate	Unit	Reference period	Source
Total Land Area	2 820	1000 Ha	2002	FAO
Agricultural Area	49	%	2002	FAO
Arable lands & Permanent Crops	20	%	2002	FAO
Permanent Crops	2	%	2002	FAO
Permanent Pasture	30	%	2002	FAO
Forested land areas	12	%	2000	FAO
Irrigated agricultural land	10	%	2002	FAO
Arable & Permanent cropland in Ha per agricultural inhabitant	1.7	Ha	2002	FAO

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

Main crops, agricultural calendar, seasonal food shortage

The 5 major food and agricultural commodities produced by Armenia in 2002 were cow milk, potatoes, wheat, tomatoes and other vegetables (FAO, Statistics Division). Milk is used both as animal feed and for human consumption, while potatoes, tomatoes, other vegetables and wheat are mainly for local human consumption. (FAO, FAOSTAT Database).



Given the long winter season and high poverty rates, food shortages may occur in May and June, when basic food supplies are depleted and new crops are not yet harvested.

Livestock production and fisheries

The livestock production in Armenia is not sufficient to meet domestic needs (FAO, 2001).

Table 3: Livestock and fisheries statistics

Livestock production and fisheries	Estimate	Unit	Reference period	Source
Cattle	514 244	number of heads	2002	FAO
Sheep and Goats	592 086	number of heads	2002	FAO
Poultry Birds	3 120	thousands	2002	FAO
Fish catch and aquaculture	2 197	tons	2001	FAO

I.4 Economy

Independence and transition to a market economy posed serious challenges to almost all post-Communist countries throughout the 1990s (GOA & UNDP, 2001). Years of economic decline resulted in rapidly spreading mass poverty and were accompanied by significant social losses (UNDP, 2005).

During the period 1994-2002, continuous economic growth was fuelled by stabilization, the end of the Nagorno-Karabakh conflict, an "open" model of economy and external financing from official foreign and international assistance (7% of GDP) and non official transfers (8-9% of GDP) from emigrants. Despite this growth, employment decreased substantially (UNDP & MTED, 2003).

Armenia is still recovering from the huge economic decline which marked its transition from a Republic of the Soviet Union to an independent market economy. The country is making efforts to revitalize the spheres where it formerly had a certain comparative advantage, among which are textile, food processing, chemical industry, processing of precious stones and production of mineral resources. Efforts are being made to develop tourism and the sector of information technologies. Despite economic growth over the past eight years, the combined effects of mass impoverishment, declining access to public services and inadequate governance have created polarization of the Armenian society. The society is now split between a small stratum of people capturing the benefits of growth and a large underclass, who are unable to find gainful employment or access quality social services. Unemployment has spurred the population to migrate in search of employment (WFP, 2004a; GOA & UNDP, 2001; HDEC, 2001).

Table 4: Basic economic indicators

Indicator	Estimate	Unit	Reference Period	Source
Gross Domestic Product per capita	3 120	PPP US $	2002	UNDP
GDP annual growth	14	%	2003	WB
Gross National Income per capita	950	$	2003	WB
Industry as % of GDP	39	%	2003	WB
Agriculture as % of GDP	24	%	2003	WB
Services as % of GDP	37	%	2003	WB
Paved roads as % of total roads	97	%	2002	WB
Internet users	368	per 10 000 people	2003	ITU
Total debt service as % of GDP	9	%	2003	WB
Military Public expenditure	2.7	% of GDP	2002	UNDP

The major non-food exports of Armenia include precious stones and metals, copper, base metal, iron and aluminium. The major non-food imports include precious stones and metals, refined petrol and gas (UNSTAT, 2004).

I.5 Social indicators

Health indicators

Armenia's socio-economic difficulties have had a negative impact on the health status of the population. The health conditions of the population, particularly women and children, are not satisfactory and utilization of the health care services is declining dramatically (NSS, MOH & ORC Macro, 2001). Maternal and infant death rates are increasing, due to diminished access and poor quality of health care services. Infant mortality, at 30‰, remains high, and the maternal mortality rate of 48 per 100,000 live births for the three-year period 1999-2001 is the highest level in 15 years (UNICEF, information by country; NSS, MOH & ORC Macro, 2001). Immunization coverage remains nevertheless high.

Table 5: Health indicators

Indicator	Estimate	Unit	Reference Period	Source
Mortality				
Infant mortality	30	‰	2003	UNICEF
Under-five mortality	33	‰	2003	UNICEF
Maternal mortality ratio :				UNICEF
reported	48	per 100 000 live births	1999-2001	NSS, MOH & ORC Macro
adjusted	55	per 100 000 live births	2000	UNICEF
Morbidity				
Prevalence of diarrhoea in the last two weeks in under-fives	8	%	2000	DHS
Oral Rehydration rate among under-fives	48	%	1994-2003	UNICEF/MICS
Percentage of under-fives with acute respiratory infections in the last 2 weeks	11	%	1998-2003	UNICEF/MICS
Tuberculosis prevalence	89	per 100 000 people	2003	WHO
AIDS/HIV				
Prevalence in adults	0.1	%	2003	UNAIDS
Percentage of women (15-24) who know that a person can protect herself from HIV infection by consistent condom use	42	%	2001	UNSTAT
Immunization				
Percent of infants with immunization against tuberculosis at 1 year of age	92	%	2003	UNICEF/WHO
Percent of infants with DTP3 immunization at 1 year of age	94	%	2003	UNICEF/WHO
Percent of infants with immunization against measles at 1 year of age	94	%	2003	UNICEF/WHO
Percent of mothers of infants immunized against tetanus	n.a.			

n.a.: not available

Over the last 10 years, the incidence of tuberculosis has tripled, probably as a result of inadequate treatment. The prevalence of chronic, non-communicable diseases such as cardiovascular disease, diabetes and obesity, mental disorders and substance abuse, and cancer has increased. Moreover

there is poor knowledge among the population about sexually transmitted infections (STI), and the prevalence of these infections has increased (MOH, 2001).

Water and sanitation

Overall, the access to safe water and improved sanitation in Armenia is considered good. In both rural and urban areas the access to improved water source is over 80% as well as the combined urban/rural access to improved sanitation (UNICEF & WHO, 2004a).

Table 6: Access to safe water and sanitation

Indicator	Estimate	Unit	Reference period	Source
Sustainable access to an improved water source:				
Urban	99	% of population	2002	WHO
Rural	80	% of population	2002	WHO
Access to improved sanitation:				
Combined urban/rural	84	% of population	2002	UNICEF

Access to health services

There is lack of availability and affordability of health care services in Armenia. The availability of medical care depends on the ability to pay for services provided at health facilities, creating great difficulties for the low-income groups of the population (NSS, 2004b). Many of the rural primary care facilities such as rural ambulatories and health posts do not have the appropriate equipment and supplies. Health providers in these facilities have not been appropriately trained, suffer from a lack of supportive supervision, and are poorly paid. Moreover, urban referral sites do not effectively coordinate with rural ambulatories or health posts (Fort et al, 2003).

Table 7: Access to Health Services

Indicator	Estimate	Unit	Reference Period	Source
Health personnel: number of physicians	287	per 100 000 people	1990-2003	WHO
Population with sustainable access to affordable essential drugs *	Very low access		1999	WHO
Percent of births attended by skilled health personnel	97	%	2000 (WB)	UNICEF
Public expenditure on Health	3.2	% of GDP	2001	UNESCO

** estimated at 0-49% of total population.*

Education

Education has traditionally been one of the central national values in Armenia. The analysis of links between education and poverty during the transition reveals there is a tendency to increased rates of drop-out. Although all schools have canteens remaining from Soviet times, lunches are no longer provided, thus most canteens are not operational. Kindergarten schools provide meals with foods donated or purchased through parents' payment for child attendance (up to $0.15 a day) (NSS, 2004b).

In Armenia only 13% of preschool children attended kindergarten in 2003, because many mothers were unemployed (42.6%), or due to the absence of kindergarten in the vicinity (14%) or to lack of financial means (7.9%). In Armenia, enrolment in primary and secondary education is very high, as 97% of children 7-9 years old, 99% of 10-14 years old and 86% of 15-16 years old attended school (NSS, 2004b).

Table 8: Education

Indicator	Estimate	Unit	Reference Period	Source
Adult literacy	98	%	2000	UNESCO
Adult literacy rate : females as % of males	99	%	2000	UNESCO
Youth literacy (15-24 years)	99.8	%	2002	UNESCO
Net primary enrolment ratio	85	%	2001-2002	UNESCO
Grade 5 completion rate	n.a.			
Ratio of girls to boys in primary education	0.98	number of girls per 1 boy	2001-2002	UNESCO
Public expenditure on education	3.2	% of GDP	1999-2001	UNESCO

n.a.: not available

Level of development, poverty

Severe family impoverishment is widespread in Armenia: in 2001 more than half of the population (51%) was considered to be living below the poverty line (minimum consumption line) and 23% were below the food line (GOA & UNDP, 2001; HDEC, 2001). The proportion of population living below the poverty food line is higher in urban areas than in rural areas (NSS, 2004b). Although poverty in Armenia is still considered to be of transitory nature, some trends of structural poverty are already noticeable (HDEC, 2001).

Table 9: Human development and poverty

Indicator	Estimate	Unit	Reference period	Source
Human development index (HDI)	0.754	value between 0-1	2002	UNDP
Proportion of population living with less than 1$ a day (PPP)	13	%	1998	WB
Population living below the national poverty line	51	%	2001	UNDP
Human poverty index (HPI-1)	6.59	%	2000	UNDP

Other social indicators

Although Armenia appears to have a fairly good legal framework for equal rights and enforcement mechanisms, the strong patriarchal traditions and Armenia's demography have led to an unbalanced gender situation. Men's out-migration and women carrying the full burden of caring for the family, domestic violence and health related issues are the prevailing expressions of an unbalanced gender situation. Due to out-migration of men, women's employment rate is quite high despite the traditional context (NSS, 2005).

The Constitution prohibits forced and bonded labour. The new labour code of Armenia adopted on 19 March 2005 is largely consistent with ILO Convention 182 regulating child labour. Data show that very few children (less than 0.1%) were involved in family businesses or in other types of activity such as agriculture (NSS, 2004c). However, attention should be paid to the effects of widespread poverty on child labour trends, which could adversely affect gender balance in schools (HDEC, 2001).

Table 10: Other social indicators

Indicator	Estimate	Unit	Reference period	Source
Gender related development index (GDI)	0.752	value between 0-1	2002	UNDP
Women's wage employment in non-agricultural sector as % of total non agricultural employees	47.7	%	2002	ILO
Ratification of ILO Convention 182 on The Worst Forms of Child Labour	Not ratified			ILO

Part II: Food and nutrition situation

II.1 Qualitative aspects of the diet and food security

Food consumption patterns

In Armenia staple foods are cereals, principally wheat bread and also potatoes, rice and pasta. In mountainous areas, potatoes can be cheaper than wheat and become the staple (FAO, GIEWS & WFP, 2000). Fruit (apple, pear and grapes), vegetables (carrots, cabbage, red beets and onions) and nuts, in season, complement the staples. Imported fruit are high-cost products rarely consumed by most people. Consumption of home made canned fruit and vegetables mainly during winter and spring seasons is common. The consumption of meat and fish is limited. Meat is mainly constituted of poultry and beef products. The cost of meat is the main limiting factor to frequent consumption. Eggs are an animal food product that is more frequently consumed. Cheese and traditional plain yoghurt (*matsun*) are the most frequently consumed dairy products. A majority of the population use animal fat and vegetable oil as an affordable and accessible source of fat for cooking. Fat and oil consumption other than for cooking purposes is limited to butter, margarine and mayonnaise. Among vulnerable communities, the main source of food is self-produced plant foods, milk and dairy products.

The Armenian diet is considered as a high in fat. Fats and oils, canned and processed foods are common in the diet (O'Grady & Channon, 2001). During the winter, the situation is exacerbated with high consumption of high sugar jams and canned fruit, salt and oil-rich canned vegetables, and canned meat which is high in saturated fats, cholesterol and sodium, which is also frequently boiled in lard.

Households who are able to cultivate land have, in many cases, better access to food than the urban population, particularly the poor. In 1998 for example, dependence on own production for consumption on family farms was estimated at about 90% for poultry, 80% for milk and eggs, 60% for cereals, 30-40% for fruit and vegetables, roughly one third of potatoes and one fifth of beef and pork consumption (WFP, UNICEF & UNHCR, 2000).

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.

Armenia is classified as a Low Income Food Deficit Country (WFP, UNICEF & UNHCR, 2000). After the collapse of the USSR (Union of Soviet Socialist Republics) and the ensuing economic difficulties, food security in a broader sense declined rapidly up to 1995 (HDEC, 2001).

Although the agricultural potential of the country is high, the development of the food production sector is hindered by many problems, unfavorable climatic conditions, poor infrastructure, out-dated farming techniques.

In 2000, a drought hampered harvests, particularly in the north. The resultant poor harvests pushed up prices of domestic agricultural products (O'Grady & Channon, 2001). In 2002/03, a harsh winter frost had severely damaged vineyards, other crops and orchards across the country, sharply reducing the grape and fruit production in 2003 and in the following years (WFP, 2005a).

Agrarian reform is still underway. The reform has not been accompanied by the development of support structures that would have permitted the rural production sector to increase its potential. Privatisation of farms brought higher productivity, although the apportionment in small parcels together with poor production techniques and poor management of the agricultural infrastructure limit the growth potential of the sector (O'Grady & Channon, 2001). Topography and climatic conditions, soil fertility and the access to irrigation water vary greatly and affect yields (FAO, GIEWS & WFP, 2000).

Transport and access to markets are important obstacles to a recovery of agricultural production and to an improvement of food security. The domestic market is small and contracting and access to external markets remains very difficult. Road, rail and market infrastructure are inadequate, reducing the physical access to markets and exports (FAO, GIEWS & WFP, 2000).

Nevertheless, there is more food available in the domestic market than people can afford to buy. Urban markets, notably Yerevan, are well supplied, with a mix of domestic and imported fresh and processed products. Urban markets are markedly better patronized than rural markets and have a wider selection of products, reflecting also farmers' tendency to consume their own produce and to barter (FAO, GIEWS & WFP, 2000).

Problems of economical access to food are a prevailing determinant of food insecurity in Armenia. A large section of the population is facing a precarious food security situation mainly due to lack of purchasing power. After a decade of high levels of unemployment, low wages for the majority and the steady erosion of safeguards against poverty, living conditions are precarious (FAO, GIEWS & WFP, 2000). An Integrated Household Survey carried out in 1998/99 revealed that more than 60% of household expenditure was devoted to food. This increased to 73% for the extremely poor group. According to the same survey, 55% of the population were below the poverty line, and 28% were very poor. Poverty was somewhat higher in urban as opposed to rural areas. This is probably explained by the fact that the majority of rural households consumed their own food production and little produce, if any, is available for off-farm marketing (O'Grady & Channon, 2001). More than 10% of households relied on private food donations (WFP, UNICEF & UNHCR, 2000). A major coping strategy is sale of assets (FAO, GIEWS & WFP, 2000).

II.2 National food supply data

Supply of major food groups

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

Major food groups	Supply for human consumption in g/day	
	1993-95	2000-2002
Cereals (excl. beer)	405	428
Starchy roots	222	201
Sweeteners	21	57
Pulses, nuts, oilcrops	0	1
Fruit and vegetables	488	480
Vegetable oils	7	10
Animal fats	8	8
Meat and offals	62	69
Fish, seafood	3	3
Milk and eggs	204	252
Other	29	28

Source: FAOSTAT

Data on the food supply for human consumption are not available for the period before independence (1991). The data presented here are relevant to the period 1993 to 2002 (FAO, FAOSTAT Database).

The food supply is marked by the importance of cereals (principally imported wheat) and fruit and vegetables (locally produced grapes and tomatoes). A slight increase in the supply of cereals can be observed between 1993/95 and 2000/02, while the supply of fruit and vegetables remained stable. The supply of starchy roots is high (201g/per capita/day in 2000/02) and principally constituted of locally produced potatoes. The supply of vegetable oils (locally produced sunflower seed oil) increased slightly to reach 10g/per capita/day in 2000/02.

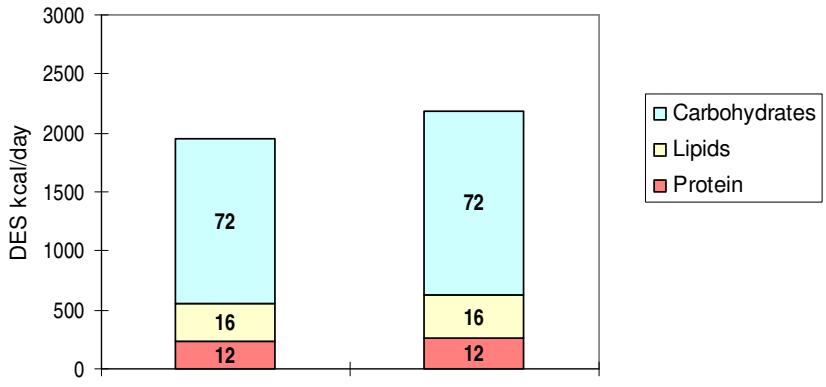
Since 1993/95, the per capita supply of milk and eggs increased to reach 252g/day in 2000/02. The supply of meat and offals, principally locally produced bovine meat, and of fish were relatively weak.

The analysis of the supply by food groups shows the importance of vegetable products (cereals, fruit and vegetables, starchy roots) and the relative weakness of the supply of animal products, which are principally represented by milk and eggs.

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

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

Figure 1: Trends in DES per capita and percentages from protein, lipids and carbohydrates



In 2001, the dietary energy supply (DES) was 2 210 kcal per capita/day, slightly lower than the population energy requirements estimated at 2 260 kcal per capita/day[1]. As a consequence of inequality of distribution of food within the population, the prevalence of undernourishment was estimated at 34% in 2000/02 (FAO, 2004b). DES has slightly increased from 1 953 kcal per capita/day in 1993/95 to 2 189 kcal per capita/day in 2000/02, but this increase is still insufficient to meet requirements.

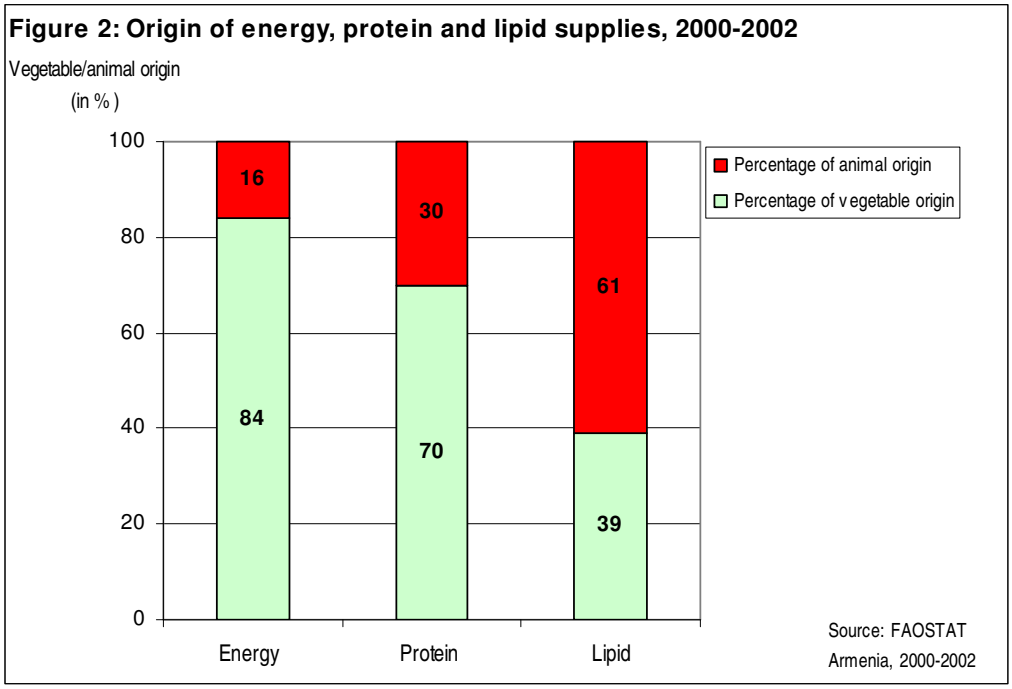
The share of carbohydrates, lipids and protein in the total DES remained stable (72%, 16% and 12% respectively). The share of lipids is adequate with respect to recommendations (energy from lipids not exceeding 30%) (WHO, 2003).

When confronted to data on the nutritional status of the population, particularly that of women (see section “anthropometry of adult women”) characterized by a high prevalence of overnutrition, the level of DES appears implausibly low. It is possible that a part of the food supply is not accounted for. In particular consumption of own-production could be underestimated.

[1] Energy requirements are for a healthy and active lifestyle, calculated using the FAO software (FAO, 2004a). 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%.

Vegetable/animal origin of macronutrients

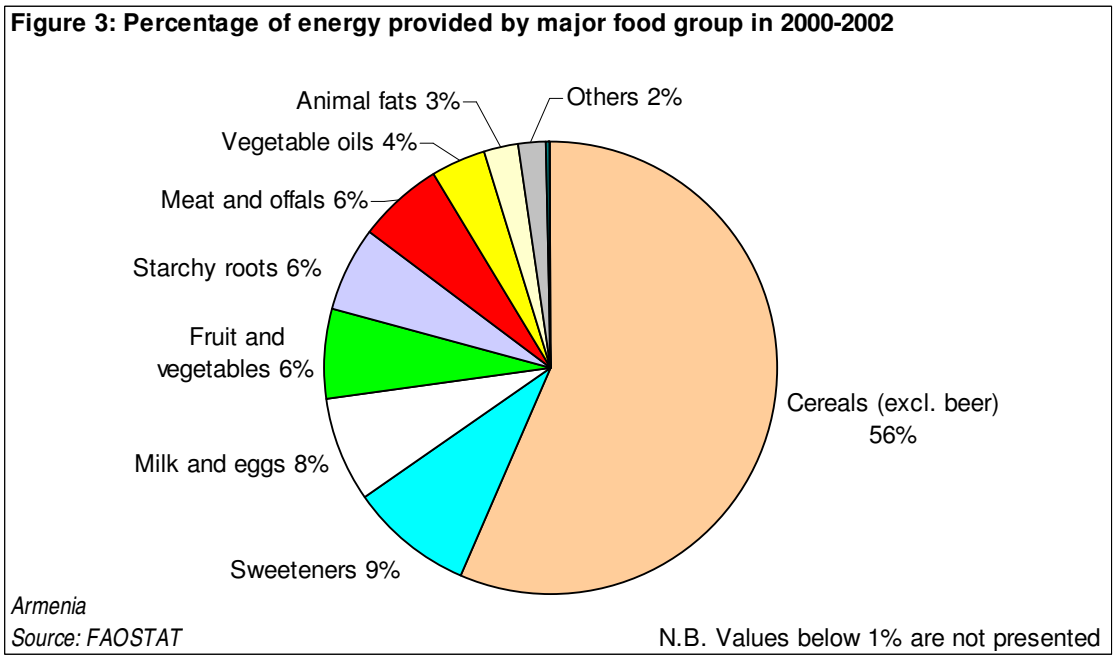
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies



As a consequence of the high supply of fruit and vegetables, cereals and starchy roots, the share of macronutrient supplies of vegetable origin is important. In 2000/02, 84% of the energy supply and 70% of the protein supply were of vegetable origin. For the lipid supply, which is limited, the percentage of animal origin was 61%, mainly provided by animal fats and milk.

Dietary energy supply

- Figure 3: Dietary energy supply by food group



In 2000/02, cereals contributed to more than half of the total DES, followed by sweeteners (9%) and by milk and eggs (8%). About three-quarter (73%) of the DES were constituted with these three food groups. If the energy from staples (cereals and starchy roots), sweeteners, animal fats and vegetable oils are added, the total comes up to 78% of the total DES.

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

Food groups	% of DES	
	1993-95	2000-2002
Cereals (excl. beer)	59	56
Starchy roots	8	6
Sweeteners	4	9
Pulses, nuts, oilcrops	0	0
Fruit and vegetables	8	6
Vegetable oils	3	4
Animal fats	3	3
Meat and offals	7	6
Fish, seafood	0	0
Milk and eggs	7	8
Other	2	2

Source: FAOSTAT

Animal products (milk and eggs, meat and offals) contribute only about 14% of the total DES in 2000/02. The share of non-staple food groups in the DES barely increased between 1993/95 and 2000/02. In 1993/95, the food diversification index (proportion of the DES provided by food groups other than cereals and starchy roots) was of 33% whereas it reached 38% in 2000/02. The diet is becoming slightly more diverse, but diversification is still insufficient.

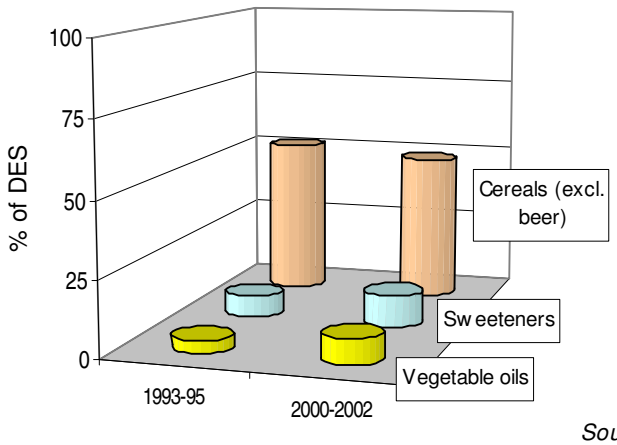
Food imports and exports expressed as percentage of DES

Food exports are limited to alcoholic beverages, representing 0.6% of DES in 2000/02, and a limited amount of vegetables (tomatoes and other fresh vegetables).

Armenia is highly dependant on imports of cereals. In 2000/02, these imports represented about half of the DES. They were for human consumption and animal feed. Imports declined insignificantly since 1993/95 (by 3 percentage points only). Cereal imports are mainly constituted of wheat. Sweeteners and vegetable oils (sunflower seed oil) constitute the two other main food imports.

- Figure 4: Major food imports as percentage of Dietary Energy Supply (DES), trends.

Figure 4: Food imports expressed as percentage of DES. Trends from 1993-95 to 2000-2002.



Armenia
Source: FAOSTAT

Food aid

In 2003, Armenia received a total food aid of 42 833 t, of which 36 839 t of cereals (mainly wheat) and 5 994 t of non-cereals (mainly oils & fats, dairy products and pulses). Cereal food aid represented about 8% of the cereal food supply of the country. Food aid was mainly delivered as project food aid (73%), while emergency food aid represented 25% of the total, and programme aid 2%[2] (WFP, 2004b). Food aid was provided to compensate for the collapse of the economy and for the prevailing poverty aggravated by natural disasters affecting harvests.

The World Food Programme has been present in Armenia since late 1993s and is currently the largest food aid provider in Armenia. Food distributions started in 1994 under an emergency operation targeting refugees from Azerbaijan. In 1999, the emergency operation was replaced with a protracted relief and recovery operation (PRRO). The PRRO targets 110 000 people per year in the capital Yerevan as well as in four provinces with the highest number of socially vulnerable people (Gegharkunik, Lori, Shirak and Tavush) (WFP, 2005b).

II.3 Food consumption

National level surveys

A nation-wide survey carried out in 2000 documents dietary patterns of households on the basis of a seven-day food frequency questionnaire. The survey showed that 98% of households consumed bread daily. The second most frequent groups were sugar, sweets and potatoes, with a frequency of consumption of 5 times/week. Households eat fresh fruit and vegetables 3.5 times per week on average. Legumes were consumed once a week, with more than half the households reporting no consumption of legumes during the week. About a third of households did not consume dairy products during the previous week. On average, frequency was 2.5/week for dairy products. A large number of households did not consume food products that are good sources of iron. On average, meat was eaten less than once every two weeks and more than 80% of households had had no intake of meat during the previous week (WFP, UNICEF & UNHCR, 2000). The survey shows that the diet of Armenian households is monotonous, based on carbohydrate-rich foods, poorly diversified and not rich in animal products.

Differences existed between food consumption patterns of rural and urban households. Urban households consumed meat, poultry and fish more frequently than rural households. Inversely, rural households consumed dairy products, eggs, legumes and fresh vegetables more frequently. Regional variations in food consumption frequency were also noted. Shirak, Lori and Tavush consumed less often than average bread, meat, eggs, poultry and dairy products, but more often than average potatoes, fruit, vegetables and legumes. The region with the most frequent potato consumption had the least diverse diet (Gegharkunik in particular) (WFP, UNICEF & UNHCR, 2000).

A national household survey of population living standards was conducted in 2003 (NSS, 2003; NSS, 2004b). This survey provided quantitative estimates of food consumption. Consumption of staple-foods was estimated at 453g/per capita/day for bread products and 120g/per capita/day for potatoes. Consumption of fruit and vegetables was about 300g/per capita/day (100g of fruit, 200g of vegetables). The average per capita consumption of animal products was low: 53g/day for meat, 60g/day for milk and yogurt, 23g/day for cheese as well as for butter and 13g/day for eggs as well as for fish, 20g/day for sugar and 7g/day for oils (NSS, 2004b).

Taking into account the different nature of food supply statistics (table 11) and household consumption data, there is no major discrepancy between these two data sources except for minor food groups such as fish. Moreover, both data sources tend to imperfectly reflect consumption of own-production which is common among rural households in Armenia. Thus the data must be interpreted with caution. Nevertheless both sources show that the diet relies on carbohydrate-rich foods, while the

[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.

consumption of fruit and vegetables is substantial but not sufficient with respect to recommendations and the consumption of micronutrient-rich animal foods is low with the exception of milk and dairy products (WHO, 2003).

II.4 Infant and young child feeding practices

The nation-wide DHS survey conducted in 2000 documents infant and young child feeding practices (NSS, MOH & ORC Macro, 2001). While the size of the sample of mothers was adequate for retrospective indicators such as percent ever breastfed, it was too small to provide reliable estimates of some current practices such as timely complementary feeding rate.

Breastfeeding is a common practice in Armenia, as 88% of children under five years have been breastfed. Initiation of breastfeeding after birth is usually delayed. It is common to give neonates fluids or formula before breastfeeding. Consequently more than 20% of neonates were not breastfed until more than 24 hours after birth.

Breastfeeding duration is short, and at one year of age less than a third of children were still breastfed. Exclusive breastfeeding is not a common practice. Only 30% of children under 6 months of age were currently exclusively breastfed. Moreover, bottle-feeding is highly prevalent (NSS, MOH & ORC Macro, 2001).

Breastfeeding practices are not optimal. Nevertheless, over the last years, efforts by the Ministry of Health and UNICEF have led to an increase in the rate of exclusive breastfeeding in infants under 4 months from less than 1% in 1993 to an estimated 45% in 2000 (UNICEF, 2005a).

In 1993, the Ministry of Health launched the national programme of breastfeeding promotion and introduced the Baby-Friendly Hospital Initiative (BFHI) which brought significant improvements (Hekimian, 1997). During the period from 1993 to 2002, the BFHI was initiated in 10 maternity hospitals, 3 of them in the capital Yerevan. In these maternity hospitals the "Ten steps to successful breastfeeding" are implemented, whereas other maternity wards throughout the country implement only the first five steps. There are currently 15 Baby-friendly hospitals. In July 2005, UNICEF and MOH called for increased commitment in promoting and protecting early and exclusive breastfeeding (UNICEF, 2005a).

Progress made can be easily undermined if companies are allowed to continue unethical marketing or distribution of breastmilk substitutes. Monitoring has revealed violations of the International Code of Marketing of Breastmilk Substitutes (UNICEF, 2005a).

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)
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Total**	1 657	88.1	1 460	24.1	77.5	880	9.1
	Sex							
	M	937	88.9	833	24.5	79.0	501	9.1
	F	719	87.1	626	23.7	75.4	378	9.1
	Residence							
	Urban	838	87.3	732	27.0	77.0	453	10.1
	Rural	819	89.0	729	21.3	78.0	427	8.2
	Region							
	Yerevan	459	83.5	383	27.2	77.1	252	10.5
	Ararat	207	84.6	175	18.8	75.3	114	8.3
	Armavir	164	91.8	151	22.2	67.4	n.a.	n.a.
	Gegharkunik	182	90.8	165	34.7	84.4	103	9.1
	Lori	142	95.8	136	29.8	83.3	n.a.	n.a.
	Kotayk	106	93.5	99	17.2	83.9	n.a.	n.a.
	Shirak	117	79.8	93	20.0	81.3	n.a.	n.a.

[1] Includes children who started breastfeeding within one hour of birth.
Note: For region where less than 100 children under five years were sampled, estimates are not shown.
n.a.: not available.

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
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Exclusive breastfeeding rate**		
	<4 months	95	44.7
	<6 months	149	30.0
	Timely complementary feeding rate		
	6-9 months	97	50.8
	Bottle-feeding rate		
	0-11 months	299	43.7
	Continued breastfeeding rate		
	12-15 months (1 year)	110	28.8
	20-23 months (2 years)	99	12.5

Note: For exclusive breastfeeding rate, where sample comprises less than 100 children per monthly age group, estimates are not shown and a recalculation for all children under 4 months was done.

Data on complementary feeding practices are limited. Complementary feeding of children aged 1 and 2 years was predominantly based on milk and dairy products, but other animal products were also given to them. Frequency of consumption of fruit and vegetables was not documented (NSS, MOH & ORC Macro, 2001).

Table 15: Consumption of complementary foods 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	Fruit and vegetables rich in vit. A
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**12-23**	non breastfed	236	6.8	85.6	15.2	55.2	n.a.	n.a.
	24-35	non breastfed	264	3.7	81.0	18.4	61.8	n.a.	n.a.

n.a.: not available.

II.5 Nutritional anthropometry

Low birth weight

In 2000, the prevalence of low birth weight (less than 2 500g) was 7% and the large majority (96%) of neonates were weighed (NSS, MOH & ORC Macro, 2001; UNICEF & WHO, 2004b). The proportion of low birth weight is not negligible and is probably a determinant of later stunting among young children.

Anthropometry of preschool children

Two national surveys document the nutritional status of preschool children, conducted in 1998 and 2000 (Branca et al, 1998; NSS, MOH & ORC Macro, 2001).

The most recent survey, conducted in 2000, showed that 13% of children under five years were stunted. Stunting was more prevalent in rural areas. There were some regional differences in prevalence, but in some regions sample size was too small to draw any definite conclusions. There was a clear relationship between stunting and mother's education although confounding by other socio-economic factors cannot be excluded: prevalence among children of mothers with a higher education was less than half that of children of mothers who only completed primary school. This may be due in part to lack of knowledge about improved child feeding, hygiene or care-seeking practices.

There was no wasting or underweight. By definition a prevalence of 2.5% or less implies that the proportion of children <-2 Zscores is the same as that in the reference population (WHO, 1983).

Comparison with the earlier survey of 1998, shows that prevalence of stunting did not decrease but severe stunting regressed (4.5% and 2.5% respectively) (Branca et al, 1998; NSS, MOH & ORC Macro, 2001). Wasting and underweight which were at very low levels were eliminated. Various factors can explain the lack of progress made regarding stunting; inadequate breastfeeding practices, low diversity of the diet and lack of access to quality health care, particularly in rural areas, and food insecurity of households are the most likely underlying causes.

Both surveys document the prevalence of overweight among preschool children. The 2000 survey shows that overweight affects both the urban and rural children, even if prevalence is somewhat higher in the urban sector. Comparison with the 1998 survey reveals an upward trend in prevalence of overweight, which can be interpreted as a sign of the nutrition transition that is affecting the country (Branca et al, 1998; NSS, MOH & ORC Macro, 2001).

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 [1] Weight- for-height
					< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	< -3 Z-scores	< -2 Z-scores*	> +2 Z-scores
Armenia Demographic and Health Survey, 2000 (Oct-Dec. 2000) (NSS, MOH & ORC Macro, 2001)	**Total**	0-4.99	M/F	1 463	2.5	13.0	0.3	2.0	0.2	2.6	10.4
	Sex										
		0-4.99	M	837	3.0	12.3	0.4	2.2	0.2	2.4	12.2
		0-4.99	F	626	2.0	14.0	0.1	1.7	0.2	2.8	7.7
	Age										
		0-0.49	M/F	132	0.0	4.0	0.0	3.7	0.4	1.6	12.8
		0.5-0.99	M/F	135	1.8	5.9	0.4	2.5	0.2	2.0	11.9
		1-1.99	M/F	276	1.2	15.2	0.8	3.7	0.4	2.8	14.1
		2-2.99	M/F	262	1.9	11.6	0.5	1.1	0.0	3.0	9.2
		3-3.99	M/F	318	4.9	16.1	0.0	0.4	0.4	2.3	8.8
		4-4.99	M/F	340	3.2	15.7	0.0	1.9	0.0	3.0	8.3
	Residence										
	urban	0-4.99	M/F	750	1.6	10.1	0.5	2.2	0.2	2.4	11.7
	rural	0-4.99	M/F	713	3.6	16.0	0.1	1.7	0.3	2.8	9.0
	Region										
	Yerevan	0-4.99	M/F	422	0.7	7.5	0.3	2.3	0.0	0.7	11.1
	Ararat	0-4.99	M/F	171	2.7	15.3	0.0	0.0	0.0	3.3	3.5
	Armavir	0-4.99	M/F	154	1.4	8.7	0.0	0.0	0.7	1.4	11.0
	Gegharkunik	0-4.99	M/F	139	8.6	32.1	0.0	1.4	0.0	3.6	8.6
	Lori	0-4.99	M/F	127	5.7	12.3	0.0	0.9	0.0	0.0	22.8
	Shirak	0-4.99	M/F	106	3.5	22.4	0.0	2.4	0.0	5.9	16.2
	Mother's education										
	no education	0-4.99	M/F	0							
	primary	0-4.99	M/F	126	4.8	21.0	0.0	1.9	0.0	6.5	n.a.
	secondary and secondary-special	0-4.99	M/F	1 081	2.7	13.3	0.3	2.0	0.3	2.4	n.a.
	higher	0-4.99	M/F	255	0.7	7.9	0.2	1.7	0.0	1.2	n.a.

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

[1] Data on overweight taken from the WHO Global Database on Child Growth and Malnutrition.

Note: For region where less than 100 children were sampled, estimates are not shown.

n.a.: not available.

Table 16: Anthropometry of preschool children (cont.)

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*	> +2 Z-scores
The health and nutritional status of children and women in Armenia (May-June 1998) (Branca et al, 1998)	**Total**	0-4.99	M/F	3 080	4.5	12.3	0.7	3.5	0.3	3.3	6.3
	Sex										
		0-4.99	M	1 679	3.9	11.4	0.9	4.6	0.4	3.2	5.8
		0-4.99	F	1 401	5.3	13.3	0.5	2.1	0.2	3.6	7.0
	Age										
		0-0.49	M/F	115	0.0	4.4	2.0	4.3	0.0	0.0	8.7
		0.5-0.99	M/F	326	0.6	4.2	1.0	4.5	0.4	2.3	3.7
		1-1.99	M/F	656	3.1	7.9	2.2	8.8	0.6	5.9	4.9
		2-2.99	M/F	644	6.2	16.6	0.0	1.1	0.1	2.4	7.5
		3-3.99	M/F	635	5.6	13.3	0.0	2.1	0.1	3.1	4.1
		4-4.99	M/F	704	6.3	16.8	0.2	1.2	0.4	2.9	9.6

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

Anthropometry of school-age children

A national survey conducted in 1997 showed an alarmingly high prevalence of underweight, stunting and wasting among school-age children (Adamyan, 1998). Almost 20% of school-age children (8-12.99 years) were stunted, 9% were wasted and 17% were underweight. The nutritional status of the children worsened after 10 years of age. Overweight affected 9% of children and particularly children 8 and 9 years of age (Adamyan, 1998).

Table 17: Anthropometry of school-age children

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	**Prevalence of malnutrition**			
					Percentage of children with			
					Height for age (stunting)	Weight for height (wasting)	Weight for age (underweight)	Weight for height (overweight)
					< -2 Z-scores*	< -2 Z-scores*	< -2 Z-scores*	> +2 Z-scores
Anthropometrical assessment of nutritional status of children aged 8-12 years in Armenia (March-Aug. 1997) (Adamyan, 1998)	**Total**	8-12.99	M/F	1 641	18.7	8.8	17.2	8.5
	Age							
		8-8.99	M/F	180	22.1	3.0	4.0	27.2
		9-9.99	M/F	346	19.0	10.7	9.3	14.1
		10-10.99	M/F	383	20.7	10.4	14.8	8.2
		11-11.99	M/F	374	32.2	13.9	24.9	4.3
		12-12.99	M/F	358	32.5	17.6	25.4	2.1
	Region							
	Yerevan	8-12.99	M/F	331	16.6	10.6	26.9	2.7
	Ararat	8-12.99	M/F	134	17.9	14.2	20.9	7.5
	Armavir	8-12.99	M/F	105	13.3	14.3	23.8	0.0
	Gegharkunik	8-12.99	M/F	162	25.3	4.3	10.5	18.5
	Lori	8-12.99	M/F	181	11.6	9.9	16.0	5.5
	Shirak	8-12.99	M/F	231	21.6	7.0	16.0	13.9
	Kotayk	8-12.99	M/F	146	15.7	15.7	21.2	5.5

*Category <-2 Z-scores includes <-3 Z-scores.
Note: For region where less than 100 children were sampled, estimates are not shown.
n.a.: not available.

Anthropometry of adolescents

Currently, there are no data on anthropometry of adolescents beyond 12 years of age.

Anthropometry of adult women

The national survey of 2000 documented the nutritional status of adult women 15-49 years of age (NSS, MOH & ORC Macro, 2001). The prevalence of short stature (<1.45m) was low as well as the prevalence of chronic energy deficiency (CED). Only 4% had CED, with a slightly higher prevalence among young women 15-24 years (6 to 7%). The major nutritional problem of women in Armenia is overweight and obesity, which affected 27% and 14% respectively of the women. Overweight and obesity increased sharply with age (NSS, MOH & ORC Macro, 2001). There was no difference in prevalence between urban and rural women, indicating that the nutrition transition affects all sectors of the population.

The previous national survey (1998) showed comparable levels of overweight and obesity in women 23-45 years of age, with 24% overweight and 12% who were obese as defined by a body mass index of 25.1-30.0 kg/m^2 and 30.1 and over, respectively (Branca et al, 1998).

Table 18: Anthropometry of adult women

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Anthropometry of adult women								
			Height			Body Mass Index[1] (BMI) (kg/m²)					
								Percentage of women with BMI			
			Sample size	Mean (m)	% of women with height < 1.45 m	Sample size	Mean (kg/m²)	<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Armenia Demographic and Health Survey, 2000 (Oct-Dec. 2000) (NSS, MOH & ORC Macro, 2001)	**Total**	15-49	6 166	1.58	1.1	5 962	24.9	3.5	55.0	27.4	14.1
	Age										
		15-19	1 106	1.58	1.3	1 080	22.3	6.4	77.9	13.4	2.2
		20-24	963	1.58	1.0	871	22.8	6.7	71.9	18.1	3.3
		25-29	735	1.58	1.8	686	23.7	4.3	64.9	24.2	6.6
		30-34	739	1.58	0.4	711	24.8	3.3	54.8	29.2	12.6
		35-39	922	1.58	1.3	914	26.0	1.3	46.4	35.5	16.9
		40-44	910	1.57	1.2	907	27.3	0.6	35.1	37.8	26.5
		45-49	791	1.57	1.0	791	28.0	1.4	29.4	36.6	32.6
	Residence										
	urban	15-49	3 783	1.59	0.8	3 698	24.8	4.1	55.0	27.5	13.3
	rural	15-49	2 383	1.57	1.7	2 294	25.1	2.6	54.9	27.1	15.3
	Region										
	Yerevan	15-49	2 103	1.59	0.9	2 061	24.6	4.3	57.3	25.8	12.6
	Aragatsotn	15-49	278	1.57	1.5	263	24.8	2.9	56.3	27.5	13.4
	Ararat	15-49	603	1.56	1.7	570	25.4	3.2	52.1	24.4	20.4
	Armavir	15-49	550	1.57	0.4	522	25.7	3.0	49.7	28.5	18.8
	Gegharkunik	15-49	415	1.57	2.6	397	24.5	3.0	61.1	23.7	12.2
	Lori	15-49	479	1.57	1.2	467	24.8	4.6	51.2	30.7	13.6
	Kotayk	15-49	493	1.57	0.9	481	25.4	3.3	50.2	30.0	16.5
	Shirak	15-49	609	1.59	0.0	592	24.7	1.9	57.1	34.2	6.7
	Syunik	15-49	258	1.56	2.3	249	25.1	4.0	52.6	26.4	17.0
	Vayots Dzor	15-49	106	1.55	4.8	102	24.8	2.4	59.4	22.9	15.2
	Tavush	15-49	273	1.56	1.4	259	25.3	2.6	54.3	26.8	16.2
	Education's level										
	no education	15-49	0			0					
	primary	15-49	566	1.57	1.2	550	24.1	5.8	60.9	20.9	12.3
	secondary /secondary-special	15-49	4 450	1.57	1.2	4 300	25.0	3.6	53.7	27.8	14.9
	higher	15-49	1 150	1.59	0.8	1 112	24.8	2.3	57.0	29.1	11.6

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

This survey includes women aged 15-49 years.

Anthropometry of adult men

According to the SuRF report, the mean body mass index of men aged 15 years and above was 25.5 kg/m². The prevalences of overweight and obesity were 54% and 12% respectively (WHO, 2005). These prevalences are extremely high, nevertheless representativeness of the data is not clear and it is unlikely that these estimates reflect the situation of Armenian adult men of the country as a whole.

II.6 Micronutrient deficiencies

Iodine deficiency disorders (IDD)

Prevalence of goitre and urinary iodine level

Armenia is considered endemic for goitre. Evidence of iodine deficiency has been found among both women and children.

In the national survey of 1998, carried out among 2 569 women aged 15-45 years, a palpable thyroid was detected in one woman out of four, and 6% of women had visible goitre. In southern regions (Vayots Dzor and Syunik) thyroid palpation was positive in more than 40% of the cases. The prevalence in Yerevan area was close to the national average. Among young children aged 6-59 months, mild (50-99µg/L) and moderately (20-49µg/L) low levels of urinary iodine were observed in about 31%, while very low levels (<20µg/L) were found in less than 1% (Branca et al, 1998).

The high prevalence of goitre among women was reported to be due to pregnancy-induced goitre persisting after delivery, low iodization levels of salt due to poor storage practices and use of imported non-iodized salt (Branca et al, 1998).

Iodization of salt at household level

The salt iodization programme started in 1997. Legislation on iodization of salt is currently in place, and quality control of production and distribution levels is implemented by the Government (ICCIDD, 2003). As a part of the legislation, in 2004 the Government approved the Decree on Prevention of Iodine Deficiency Disorders (UNICEF, 2005b).

Currently, the majority of households (84%) use iodized salt. However, use of iodized salt varied considerably by region and in Tavush only 59% of households used adequately iodized salt (NSS, MOH & ORC Macro, 2001).

Table 19: Iodization of salt at household level

Survey name/date (Reference)	Background characteristics	Number of household where salt was available for testing [1]	Iodine level of household salt		
			None (0 ppm)	Inadequate (<15 ppm)	Adequate (≥15 ppm)
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Total**	5 976	9.6	6.3	83.6
	Residence				
	urban	3 630	6.9	6.9	85.5
	rural	2 346	13.7	5.3	80.5
	Region				
	Yerevan	1 944	1.1	8.5	89.7
	Aragatsotn	248	6.4	1.9	90.0
	Ararat	580	2.1	2.5	95.2
	Armavir	496	3.3	1.6	94.9
	Gegharkunik	505	16.2	7.5	76.0
	Lori	519	24.3	5.2	69.1
	Kotayk	413	7.2	5.0	87.0
	Shirak	602	27.3	4.5	68.2
	Syunik	258	7.7	2.2	89.5
	Vayots Dzor	111	10.9	12.5	76.1
	Tavush	300	24.2	16.1	59.1

Note: ppm: parts per million.

[1] Ninety-nine percent of households were tested.

Vitamin A deficiency (VAD)

Prevalence of sub-clinical and clinical vitamin A deficiency

Vitamin A deficiency is not a public health problem in Armenia. Intake of vitamin A appears to be adequate due to the frequent consumption of milk, butter and vitamin A-fortified imported vegetable oils. The national survey of 1998, conducted among 2 341 children aged 0-5 years, showed that 3% of children had experienced night blindness (based on mothers' reports) and low values of serum retinol (<20µg/L) were observed in less than 1% of the children (Branca et al, 1998).

Among mothers, less than 2% had experienced night blindness during pregnancy (NSS, MOH & ORC Macro, 2001).

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

Survey name/date (Reference)	Background characteristics	Age (years)	Prevalence of night blindness during pregnancy[1]		
			Number of mothers	Percentage non adjusted	Percentage adjusted for daytime blindness
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Total**	15-49	809	1.4	0.9
	Residence				
	urban	15-49	427	1.9	1.3
	rural	15-49	382	0.8	0.6
	Region				
	Yerevan	15-49	241	2.9	1.7
	Ararat	15-49	100	0.0	0.0

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

Note: For region where less than 100 mothers were sampled, estimates are not shown.

Vitamin A supplementation

Although no vitamin A supplementation is done in Armenia, consumption of milk, butter and vitamin A-fortified oil helps the population meet vitamin A requirements.

Iron deficiency anemia (IDA)

Prevalence of IDA

Iron deficiency anemia is of concern in Armenia, especially among young children and pregnant women.

Prevalence of anemia is documented by a survey carried out in 2000 among preschool children and women of childbearing age (NSS, MOH & ORC Macro, 2001). About one quarter of the children aged 6-59 months were anemic, and prevalence among rural children was twice that found in urban areas. Prevalence was highest among the younger age groups (NSS, MOH & ORC Macro, 2001). Among women, prevalence was 12%, and again prevalence was higher in rural areas. Important variations were observed by region and Syunik was the most affected (NSS, MOH & ORC Macro, 2001).

According to the previous survey of 1998, only 12% of children age 6-59 months had mild or moderate anemia (Branca et al, 1998). Comparison of the data from these two surveys suggests that prevalence of anemia has increased sharply among children within a short period of time but differences in methodology or sampling are a more likely explanation as such an rapid change is unusual (NSS, MOH & ORC Macro, 2001).

Table 21: 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)
Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Total**	6-59	M/F	1 334	23.9	0.4
	Sex					
		6-59	M	756	25.3	0.5
		6-59	F	579	22.2	0.2
	Age					
		6-11	M/F	136	48.2	0.0
		12-23	M/F	281	39.5	1.4
		24-35	M/F	262	21.4	0.2
		36-47	M/F	314	15.5	0.2
		48-59	M/F	341	11.2	0.0
	Residence					
	urban	6-59	M/F	684	15.6	0.2
	rural	6-59	M/F	650	32.8	0.6
	Region					
	Yerevan	6-59	M/F	385	12.9	0.0
	Ararat	6-59	M/F	159	30.7	0.0
	Armavir	6-59	M/F	140	32.8	0.8
	Gegharkunik	6-59	M/F	123	31.5	0.0
	Lori	6-59	M/F	110	31.5	0.0

Hb: Hemoglobin.

Note: For region where less than 100 children were sampled, estimates are not shown. Prevalence is adjusted for altitude level using a formula in Dirren et al., 1994.

Table 22: 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)
r Armenia Demographic and Health Survey, 2000 (NSS, MOH & ORC Macro, 2001)	**Total**	15-49	6 137	12.4	0.3
	Age				
		15-19	1 103	8.9	0.0
		20-24	952	11.3	0.2
		25-29	730	14.4	0.2
		30-34	739	10.9	0.0
		35-39	922	14.7	0.1
		40-44	902	13.1	0.6
		45-49	789	15.0	0.6
	Pregnancy/Breastfeeding status				
	Pregnant	15-49	169	12.0	0.0
	Breastfeeding	15-49	274	12.9	0.4
	Non-pregnant/non-breastfeeding	15-49	5 694	12.4	0.2
	Residence				
	urban	15-49	3 762	9.9	0.2
	rural	15-49	2 376	16.5	0.3
	Region				
	Yerevan	15-49	2 093	5.6	0.1
	Aragatsotn	15-49	277	11.7	0.2
	Ararat	15-49	601	16.3	0.4
	Armavir	15-49	546	18.0	0.2
	Gegharkunik	15-49	411	17.3	0.2
	Lori	15-49	481	17.9	0.0
	Kotayk	15-49	490	10.6	0.7
	Shirak	15-49	608	17.2	0.2
	Syunik	15-49	256	20.2	0.6
	Vayots Dzor	15-49	106	10.2	0.2
	Tavush	15-49	269	15.6	0.4

Hb: Hemoglobin.
Note: This survey includes all women aged 15-49 years. Prevalence is adjusted for altitude level using a formula in Dirren et al., 1994.

Major factors contributing to anemia could be the low dietary intake of iron and the presence of inhibitors of iron absorption in cereals, particularly in rural areas. Meat, a food product rich in bio-available iron, is rarely consumed due to its high cost. Consumption of fruit and vegetables, containing enhancers of iron absorption, is highly seasonal. The widespread and frequent consumption by both adults and children of tea and coffee, containing strong inhibitors of iron absorption, also contributes to poor iron status. The specific contribution of helminth infestation is not known, but may play a role as well.

Interventions to combat IDA

Some foods provided through food aid programmes are fortified with iron, but no strategies such as supplementation, fortification or education were implemented. As a consequence, only 1% of women took iron tablets or syrups during pregnancy whereas more than one out of ten women of childbearing age is anemic (NSS, MOH & ORC Macro, 2001).

Table 23: Iron supplementation: percentage of mothers who took iron tablets/syrups during pregnancy

Survey name/date (Reference)	Background characteristics	Number of mothers with a birth in the 3 years preceding the survey	Percent who took iron tablets/syrups during pregnancy
Armenia Demographic and Health Survey, 2000 (NSS, MOH Yerevan et ORC Macro, 2001)	**Total**	809	1.4
	Residence		
	urban	427	1.4
	rural	382	1.5
	Region		
	Yerevan	241	0.6
	Ararat	100	1.1

Note: For region where less than 100 mothers were sampled, estimates are not shown.

Other micronutrient deficiencies

Rickets, related to vitamin D deficiency, are also a problem of public health significance, particularly among children born during the winter months. Young children's lack of exposure to sunlight due to seasonal and cultural practices (i.e. traditional practice of swaddling infants) is a contributing factor to vitamin D deficiency. In 1998, frontal and parietal bossing was found in 22% of children aged 12-36 months, but biochemical confirmation of rickets was only obtained in 4% of these children. Educational messages encourage mothers to take their child outside for at least 15 minutes each day (even in the winter) and not to swaddle the child as traditionally done (Branca et al, 1998).

No national data are available on zinc status but high prevalence of stunting could be an indication of possible mild zinc deficiency.

II.7 Policies and programmes aiming to improve nutrition and food security

National nutrition guidelines do not formally exist. Current internationally recommended intakes of protein, vitamin A, vitamin C, calcium and iron are not used in Armenia. The official nutritional guidelines followed by professionals have not been updated since the 1970s-80s and have kept the tendency to allow high levels of consumption of energy, animal protein and animal fat. As a result, the population of Armenia follows eating patterns that do not meet current WHO recommendations (Adamyan & Siekmans, 2004).

Efforts have been made recently to create official national recommended nutrient intakes, taking into consideration WHO, West European and some CIS (Commonwealth of Independant States) country standards. The minimum food basket was worked out in 1999, recommending 2 413 kcal/day for an average adult[3]. The recommended breakdown was 12% of energy from protein, 27% from fat and 61% from carbohydrates. These recommendations were presented to the Government of Armenia, but have not yet been officially approved.

Therefore, high fat diets, poor food safety practices and obsolete criteria regarding healthy food consumption are main areas of concern to nutritionists in Armenia. Limited access, availability and awareness of healthy foods are significant barriers to healthy food consumption. The situation could be improved through multi-disciplinary interventions. A nutrition policy based on the most recent scientific information is needed. The Ministry of Health is currently working to develop food-based dietary guidelines.

The National food security policy set by the Government is targeted towards the following:

- improvement of the overall situation in the agricultural sector,
- increase in agricultural production,
- regulation of import and export of agricultural products, and constant supply of food products,
- increase in income and purchasing capacity of the population to ensure access to food,
- improvement of the regulatory functions of the State towards vulnerable groups.

[3] personal communication from the Ministry of Health

Several food commodities are currently subsidized, namely wheat flour, vegetable oils and lentils.

UNICEF has developed a national life skills program, which includes some nutrition education and healthy diet promotion (UNICEF, 2005b). It does not, however, cover all age groups and is only school based. Some NGOs have developed comprehensive age adjusted and culture specific nutrition Information-Education-Communication materials, but their use is not yet widespread.

Reference list

Adamyan, M. 1998. *Nutritional status of children aged 8-12 in Armenia [assessed by anthropometric status]. Report on a national survey: March-August 1997*. Yerevan. Masters Thesis. American University of Armenia.

Adamyan, M. & Siekmans, K. 2004. *Health and nutritional survey among children and their mothers/caregivers*. World Vision Armenia. Yerevan.

Branca, F., Napoletano, A., Coclite, D., & Rossi, L. 1998. *The health and nutritional status of children and women in Armenia.* National Institute of Nutrition, Rome, and United Nations Children's Fund, New-York, United Nations High Commissioner for Refugees, Geneva, World Health Organization, Geneva, Ministry of Health, Armenia.

Dirren, H., Logman, M.H., Barclay, D.V. & Freire, W.B..1994. Altitude adjustment for haemoglobin. *Eur. J. Clin. Nutr.* Sep; 48 (9): 625-32.

FAO. 2004a. *Calculating population energy requirements and food needs. Software application*. Accompanying: FAO Food and Nutrition Technical Report Series No. 1. Food and Agriculture Organization of the United Nations. Rome.

FAO. 2004b. *The State of Food Insecurity in the World, 2004*. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/y5650e/y5650e00.htm).

FAO. 2001. *Country Pasture/Forage Resource Profiles – Armenia*. By Robert Tumanian, Grassland and Pasture Crops Group, Crop and Grassland Service, AGP Plant production and protection division, Agriculture Department. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/ag/AGP/AGPC/doc/Counprof/Armenia.htm).

FAO. 1997. *Aquastat Country Profiles – Armenia*. Information System on Water and Agriculture, Land and Water Development Division. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/ag/agl/aglw/aquastat/countries/armenia/index.stm).

FAO. FAOSTAT Database. Food and Agriculture Organization of the United Nations. Rome.
(available at http://faostat.external.fao.org/faostat).
Accessed May 2005.

FAO. Statistics Division. *Database on Major Food and Agricultural Commodities and Producers: commodities by country*. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/es/ess/top/country.jsp).
Accessed May 2005.

FAO. Forestry Division. *Country Profiles*. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?sitetreeId=18927&langId=1&geoId=0).
Accessed May 2005.

FAO. *GIEWS workstation*. Food and Agriculture Organization of the United Nations. Rome.
(available at http://www.fao.org/giews/workstation/english/index.htm).
Accessed May 2005.

FAO, GIEWS & WFP. 2000. *Crop and Food Supply Situation in Armenia.* Food and Agriculture Organization, Global Information and Early Warning System on Food and Agriculture, World Food Programme. Rome.
(available at http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/004/x7953e/x7953e00.htm).

Fort, A., Gyuzalyan, H., Kohler, R., and Voltero, L. 2003. *Reproductive Health Care at the Primary Level in Armenia: Assessment of Providers, Services and the Factors Affecting Performance*. PRIME Technical Report 46, PRIME II Project, IntraHealth. Chapel Hill, USA.
(available at http://www.prime2.org/prime2/techreport/home/50f2f9.html?article=390).

GOA & UNDP. 2001. *National Human Development Report – Armenia: Ten years of Independence and Transition in Armenia.*The Government of Armenia and the United Nations' Development Programme.
(available at http://www.undp.am).

Hekimian, K. 1997. *Infant Feeding Practices in Armenia, Report on Comparative Study and National Survey*. American University of Armenia and Centre for Health Service Research. Yerevan.

HDEC. 2001. *Millennium Development Goals. Status of Implementation.* Human Development Expert Club. Yerevan.
(available at http://www.undg.org/documents/89-Armenia_MDG_Report_-_Millenium_Development_Goa.doc).

ICCIDD. 2003. *IDD Prevalence and Control Program Data, Armenia*. International Council for the Control of Iodine Deficiency Disorders.
(available at http://www.people.virginia.edu/~jtd/iccidd/mi/idd_008.htm).
Accessed in May 2005.

ILO. *C182 Worst Forms of Child Labour Convention, 1999 – list of ratifications*. International Labour Organization. Geneva.
(available at http://www.ilo.org/ilolex/cgi-lex/ratifce.pl?C182).
Accessed in May 2005.

IMF. 2005. *Republic of Armenia: Poverty Reduction Strategy Paper Progress Report.* International Monetary Fund Country Report No. 05/175; May 2005. International Monetary Fund. Washington D.C.
(available at http://www.imf.org/external/np/prsp/prsp.asp).

IMF. 2003. *Republic of Armenia: Poverty Reduction Strategy Paper*. International Monetary Fund Country Report No. 03/362, November 2003. International Monetary Fund. Washington D.C.
(available at http://www.imf.org/external/np/prsp/prsp.asp).

ITU. *World Telecommunication Indicators Database.* International Telecommunication Union.
(available at http://www.itu.int/ITU-D/ict/statistics/).
Accessed May 2005.

MOH. 2001. *Armenian health statistics yearbook 2000.* Ministry of Health. Yerevan.
(available at http://www.arminhealth.am/).

NSS. 2005. *Women and men in Armenia: a Statistical Booklet*. National Statistical Service of the Republic of Armenia. Updated Edition. Yerevan.
(available at http://www.armstat.am).

NSS. 2004a. *Armenia in Figures: General Characteristics of the Republic of Armenia*. National Statistical Service of the Republic of Armenia. Yerevan.
(available at http://www.armstat.am).

NSS. 2004b. *Social Snapshot Report, NSS, Yerevan, Armenia 2004.* National Statistical Service of the Republic of Armenia. Yerevan.
(available at http://www.armstat.am).

NSS. 2004c. *Labour force and child labour in Armenia, Report*. National Statistical Service of the Republic of Armenia. Yerevan.
(available at http://www.armstat.am).

NSS. 2003. *Household integrated surveys.* National Statistical Service of the Republic of Armenia. Yerevan.
(available at http://www.armstat.am).

NSS, MOH & ORC Macro. 2001. *Armenia Demographic and Health Survey 2000*. Yerevan, National Statistical Service, Ministry of Health, and Calverton, Maryland, ORC Macro. USA.
(available at http://www.measuredhs.com/countries/country.cfm).

O'Grady, S. & Channon, J. 2001. *European Commission Food Security Programme, Armenia 1999, Final Review*. European Food Security Network (RESAL).
(available at
http://europa.eu.int/comm/europeaid/projects/resal/Download/report/mission/nei/0701starmsum.pdf).

UNAIDS. 2002. *Epidemiological Fact Sheets, Armenia*. Joint United Nations Programme on HIV/AIDS. Geneva.
(available at http://www.who.int/emc-hiv/fact_sheets/All_countries.html).

UNDP. 2005. *Human Poverty and Pro-poor Policies. Armenia*. Yerevan. United Nations Development Programme. New York.
(available at http://www.undp.am/publications/poverty/humanpoverty/Zekuyc-Eng.pdf).

UNDP. 2004. *Human Development Report 2004*. United Nations Development Programme. New York.
(available at http://hdr.undp.org/reports/global/2004/).

UNDP & MTED. 2003. *The Concept Paper: Sustainable Economic Development Policy for Armenia. Prepared for the "Sustainable Economic Development Policy for Armenia" project*. Yerevan. United Nations Development Programme, New-York and Ministry of Trade and Economy Development of the Republic of Armenia.
(available at http://www.undp.am/publications/ecodev/sedp-eng.pdf).

UNESCO. 2004. *Global Education Digest 2004*. The United Nations Educational, Scientific and Cultural Organization Institute for Statistics. Montreal.
(available at http://www.uis.unesco.org/TEMPLATE/pdf/ged/2004/GED2004_EN.pdf).

UNICEF. 2005a. *Armenia calls for action on breastfeeding.* Armenia Media Centre and United Nations Children's Fund. New York.
(available at http://www.unicef.org/armenia/media_2319.html).

UNICEF. 2005b. *UNICEF Armenia Website, Health*. United Nations Children's Fund. New York.
(available at http://www.unicef.org/armenia/health.html).

UNICEF. *End-decade Databases, Child Nutrition*. United Nations Children's Fund. New York.
(available at http://www.childinfo.org/eddb/index.htm).
Accessed June 2005.

UNICEF. *Information by country*. United Nations Children's Fund. New York.
(available at http://www.unicef.org/statistics/).
Accessed May 2005.

UNICEF. *The State of the World's Children 2005.* United Nations Children's Fund. New York.
(available at http://www.unicef.org/publications/index_24432.html).

UNICEF & WHO. 2004a. Coverage *Estimates: Improved sanitation. Joint monitoring program for water safety and sanitation*, *Armenia 2004*. United Nations Children's Fund, New-York and World Health Organization, Geneva.

UNICEF & WHO. 2004b. *Low birthweight. Country, Regional and Global Estimates*. United Nations Children's Fund, New-York and World Health Organization, Geneva.
(available at http://www.unicef.org/publications/files/low_birthweight_from_EY.pdf).

UNPD. *World Population Prospects: the 2004 Revision*. Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. New York, USA.
(available at http://esa.un.org/unpp).
Accessed in 2005.

UNSTAT. 2004. *International Trade Statistics*. United Nations Statistics Division. New York.
(available at http://unstats.un.org/unsd/trade/default.htm).

UNSTAT. *Millennium Indicators Database*. United Nations Statistics Division. New York.
(available at http://unstats.un.org/unsd/mi/mi_goals.asp).
Accessed May 2005.

WB. *World Development Indicators Database*. World Bank. Washington D.C.
(available at http://devdata.worldbank.org/data-query/).
Accessed May 2005.

WFP. 2005a. *Armenia Food security Overview*. World Food Programme of the United Nations. Rome.
(available at http://www.wfp.org/country_brief/indexcountry.asp?country=051).

WFP. 2005b. *Emergency Report n.5*. World Food Programme of the United Nations. Rome.
(available at http://www.wfp.org/english/?n=34&k=615#051).

WFP. 2004a. *Protracted Relief and Recovery Operation - Armenia 10053.1* WFP/EB.1/2004/8-B/4. World Food Programme of the United Nations. Rome.
(available at http://www.wfp.org/eb/docs/2004/wfp024513~2.pdf).

WFP. 2004b. *Food Aid Monitor 2004.* International Food Aid Information System (INTERFAIS). World Food Programme of the United Nations. Rome.
*(*available at http://www.wfp.org/interfais/index2.htm#).

WFP, UNICEF & UNHCR. 2000. *Food Security and Nutritional Status Survey*. World Food Programme of the United Nations, Rome, United Nations Children's Fund, New-York, and United Nations High Commissioner for Refugees, Geneva.
(available at
http://www.db.idpproject.org/Sites/IdpProjectDb/idpSurvey.nsf/AllDocWeb/E09ABB96366AF9BCC1256A87004A01B5/$file/wfp-arm-30sep00.pdf).

WHO. 2005. *The SuRF Report 2. Surveillance of chronic disease Risk Factor. Country-level data and comparable estimates*. World Health Organization. Geneva.
(available at http://www.who.int/ncd_surveillance/infobase/web//surf2/start.html).

WHO. 2003. *Diet, nutrition and the prevention of chronic diseases*. Report of a joint WHO/FAO Expert Consultation. WHO Technical Report Series 916. World Health Organization. Geneva.
(available at http://www.who.int/nut/documents/trs_916.pdf).

WHO.1983. *Measuring Change in Nutritional Status.* World Health Organization. Geneva.

WHO. *Global Database on Child Growth and Malnutrition*. World Health Organization. Geneva.
(available at http://www.who.int/nutgrowthdb/).
Accessed July 2005.

World Vision Armenia. 2003. *World Vision Armenia addressed health and nutrition issues*. World Vision Armenia.
(available at
http://www.reliefweb.int/rw/rwb.nsf/AllDocsByUNID/16670931953b54f249256d43001a6b6f).

World Vision Armenia.
(available at http://www.wvarmenia.am/armenia.htm).