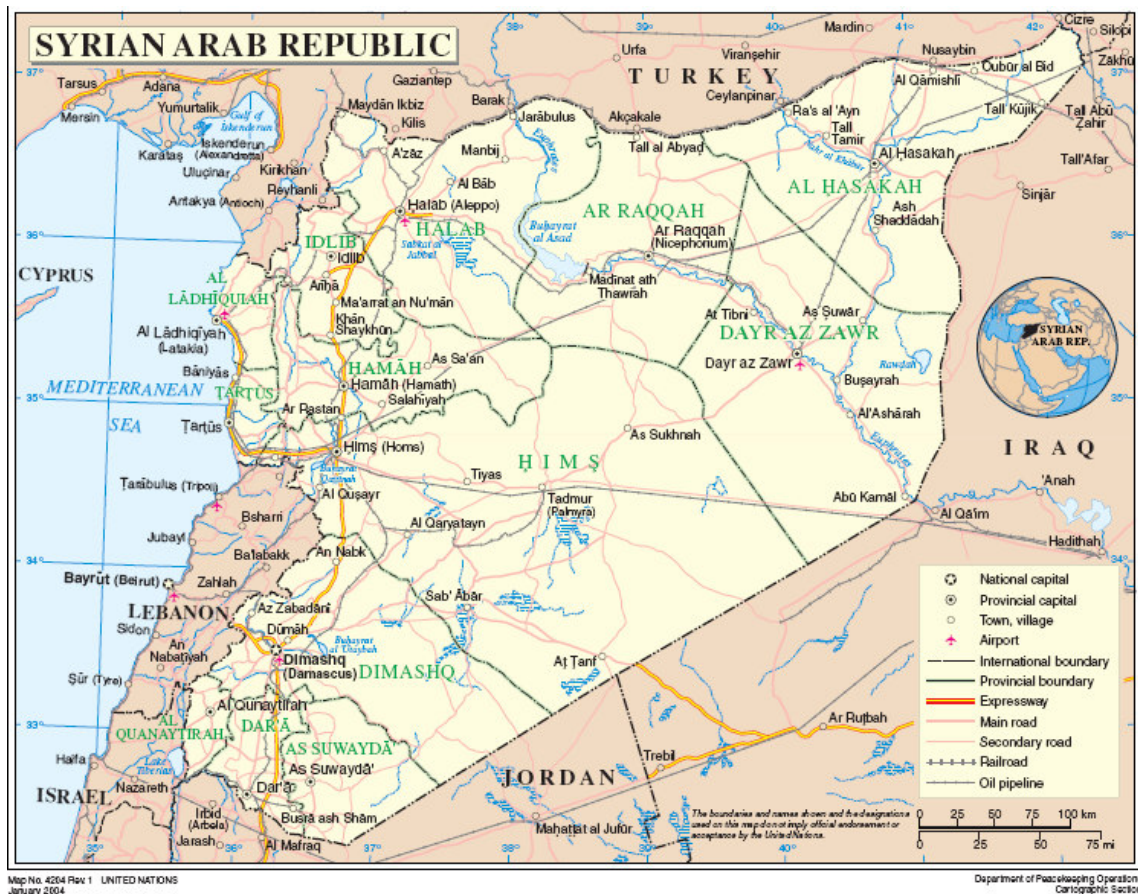


NUTRITION COUNTRY PROFILE

SYRIAN ARAB REPUBLIC



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



Acknowledgments

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Summary

The Syrian Arab Republic suffers from limited rainfall and scarcity of water resources, but despite these difficult conditions, agricultural production has increased notably during the last decades. Syria is a middle-income country.

The Human Development Index increased considerably during the last 25-year period, but about one fifth of Syrian people still live below the national poverty line.

Constant progress has been made in maternal and child health services leading to a significant reduction in infant and maternal mortality, and to a very good level of immunization. Nevertheless, diarrheal diseases are still among the main causes of death of children, particularly in rural areas where access to health services but also to clean water and adequate sanitation are more limited.

The dietary energy supply largely fulfils population energy requirements. Food diversification is increasing but is still insufficient, as staple foods such as cereals, vegetable oils and sugar still provide almost three-quarters of dietary energy. The dietary supply of lipids, representing 30% of energy, is at the upper limit of recommendations. Increasing urbanization induces changes in the diet. The high energy density of the diet contributes to the development of overweight and obesity in adults.

Rates of breastfeeding and exclusive breastfeeding are very high, but progress is needed in complementary feeding. Despite achievements in health care, the prevalence of undernutrition in pre-school children is not declining. In 2001, one-quarter of preschool children were stunted and more than one out of ten remained underweight. The Eastern region was the most affected by undernutrition. At the same time, the country is undergoing a nutrition transition and a high prevalence of overweight and obesity was observed among adult women.

Micronutrient deficiencies remain an important public health problem. Iodine deficiency was highly prevalent in the 1990s, but an effective programme of iodization of salt is now in place. High prevalences of iron deficiency anemia affect preschool children and women, but more data are needed to better define the vulnerable areas of the country, and more widespread and systematic interventions are needed.

Summary Table				
Basic Indicators				Year
Population				
Total population	16.813	million		2000
Rural population	50	%		2000
Population under 15 years of age	40	%		2000
Annual population growth rate	2.49	%		2000/05
Life expectancy at birth	75	years		2000/05
Agriculture				
Agricultural area	75	%		2002
Arable and permanent cropland per agricultural inhabitant	1.2	Ha		2002
Level of development				
Human development and poverty				
Human development index	0.710	[0-1]		2002
Proportion of population living with less than 1\$ a day (PPP)	MDG1	n.a.		
Population living below the national poverty line	MDG1	22	%	2004
Education				
Net primary enrolment ratio	MDG2	98	%	2001/02
Youth literacy (15-24 years)	MDG2	95	%	2000/04
Ratio of girls to boys in primary education	MDG3	0.93	girl per 1 boy	2001/02
Health				
Infant mortality rate	MDG4	16	‰	2003
Under-five mortality rate	MDG4	18	‰	2003
Maternal mortality ratio (adjusted)	MDG5	160	per 100 000 live births	2000
Tuberculosis prevalence	MDG6	52	per 100 000 people	2003
Environment				
Sustainable access to an improved water source in rural area	MDG7	67	% of population	2002
Nutrition indicators				Year
Energy requirements				
Population energy requirements	2 132	kcal per capita/day		2001
Food Supply				
Dietary Energy Supply (DES)	3 043	kcal per capita/day		2001
Prevalence of undernourishment	MDG1	4	%	2000/02
Share of protein in DES		10	%	2000/02
Share of lipids in DES		30	%	2000/02
Food diversification index		53	%	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	<4 months	81	%	1993
Timely complementary feeding rate	6-9 months	50	%	1993
Bottle-feeding rate	0-11 months	n.a.		
Continued breastfeeding rate at 2 years of age		n.a.		
Nutritional anthropometry				
Stunting in children under 5 years		26	%	2001
Wasting in children under 5 years		9	%	2001
Underweight in children under 5 years	MDG1	11	%	2001
Women with BMI<18.5 kg/m ²		n.a.		
Micronutrient deficiencies				
Prevalence of goitre in school-age children		73	%	1990/91
Percentage of households consuming adequately iodized salt		79	%	2004
Prevalence of sub-clinical vitamin A deficiency in preschool children		9	%	1998
Prevalence of vitamin A supplementation in children		n.a.		
Prevalence of vitamin A supplementation in mothers		n.a.		
Prevalence of anemia in women		41	%	1997
Prevalence of iron supplementation in mothers		57	%	2001

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

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Acronyms	
AHDR	Arab Human Development Report
BMI	Body mass index
DES	Dietary energy supply
DPT3	Diphtheria, pertussis (whooping cough) and tetanus vaccine – three doses
ECOSOC	Economic and Social Council of the United Nations
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Databases
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
GDP	Gross domestic product
HIV/ AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDA	Iron deficiency anemia
IDD	Iodine deficiency disorders
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
ITU	International Telecommunication Union
MI	Micronutrient Initiative
MICS	Multiple Indicator Cluster Survey
PAPCHILD	Pan-Arab Project for Child Surveys
PAPFAM	Pan-Arab Project Family Survey
PPP	Purchase power parity
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNSTAT	United Nations Statistics Division
USDA	United States Department of Agriculture
SCBS	Syrian Central Bureau of Statistics
SMOH	Syrian Ministry of Health
SOFI	The State of Food Insecurity in the World
SPC	Syrian Arab Republic State Planning Commission
SuRF	Surveillance of chronic disease Risk Factors
UNRWA	United Nations Relief and Work Agency
VAD	Vitamin A deficiency
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

I.1 Context

The Syrian Arab Republic, located in the Near East, is bounded on the north by Turkey, on the east by Iraq, on the south by Jordan and Israel and on the west by Lebanon and the Mediterranean Sea. It has an area of 185 180 km².

The coast is a narrow plain extended along the Mediterranean Sea, bordered by mountains running mostly north to south. These include the Jabal and Nusayriyah range east of the coast; the Anti-Lebanon Mountains along the border with Lebanon; and the Jabal ad Duruz, a mountain south-east of the Anti-Lebanon range. Mount Hermon, in the Anti-Lebanon Range, is the highest point in the country at 2814 m. Much of the rest of the country consists of a plateau that is bisected in the north-east by the valley of the Euphrates (known in Syria as Al Furât) River.

Moist sea winds give the coastal region a mild, humid Mediterranean climate. Temperatures average about 9°C in January and about 27°C in July and yearly precipitation is about 1 000 mm. The mountains to the east are cooler, averaging about 5° C less in both summer and winter. Rainfall is very limited in the valleys and plains east of the mountains. Temperatures in that area average about 5° C in January and about 31° C in July (FAO, Forestry Division).

About one third of Syria's total land area is classified as arable. Steppe and pastureland account for almost half of the land area, and the remaining is rocky land or wasteland, or covered by forest (IFAD, 2004).

I.2 Population

Population indicators

In 2004, the total population of Syria was estimated at about 17,980 million (SCBS, 2004), concentrated mainly in the area delimited by the cities of Aleppo, Latakia, Tartous and Damascus (IFAD, 2004).

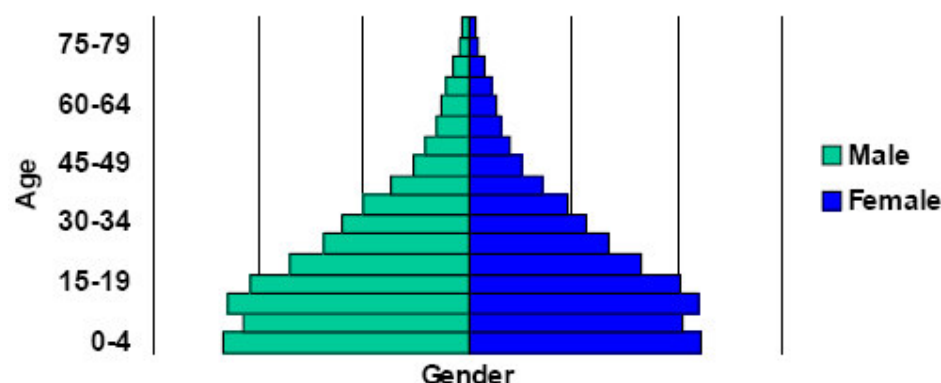
The population is very young; about 40% are under 15 years. The total dependency ratio is estimated at about 76%. Syria is known for its relatively high population growth rate which is currently estimated at 2.49%. Nearly half of the population lives in rural areas. Life expectancy at birth has increased in recent years; it is currently estimated at 75 years.

A total of 427 000 Palestinian refugees are registered in Syria as of June 2005, mainly in camps in the area of Damascus, assisted by UNRWA (UNRWA, 2005a and 2005b).

Table 1: Population indicators

Indicator	Estimate	Unit	Reference Period	Source
Total population	16.813	million	2000	UNPD
Annual population growth rate	2.49	%	2000-2005	UNPD
Crude birth rate	28.7	‰	2000-2005	UNPD
Population distribution by age:			2000	UNPD
0-4 years	14	%		
5-14 years	26	%		
15-24 years	23	%		
60 and over	5	%		
Rural population	50	%	2000	UNPD
Agricultural population	26	%	2004	FAOSTAT
Population density	91	inhabitants per km ²	2000	UNPD
Median age	19	years	2000	UNPD
Life expectancy at birth	75	years	2000-2005	UNPD
Population sex ratio	101.2	males per 100 female	2000	UNDP
Net migration rate	-0.3	‰	2000-2005	UNPD
Total dependency rate	76	%	2000	UNPD

Population pyramid for 2001



Source: UNAIDS, 2002.

I.3 Agriculture

In the past decades, the agricultural sector has been the focus of the efforts of the Syrian government. Nearly one third of the country is cultivated, of which a third is irrigated (SCBS, 2004). The barren nature of much of the land and the scarcity of water resources, including low rainfall, hinder agricultural development (IFAD, 2004). Syria achieved self-sufficiency in the food sector in the early 1990s, and is now able to export fruit and vegetables. Another promising agricultural product is olive oil. In 2000, the olive crop showed a four fold increase over the yield of 1991. In 2003, the production of cereals and dry legumes showed a four-fold increase over the yield of 1999 (SCBS, 2004). The government aims at expanding and diversifying food production and thus supports irrigated agriculture, in addition to encouraging the practice of double cropping. Syria's agro-business sector can benefit from an influx of modern farming technology and effective de-rocking techniques (IFAD, 2004).

Land use and irrigation statistics

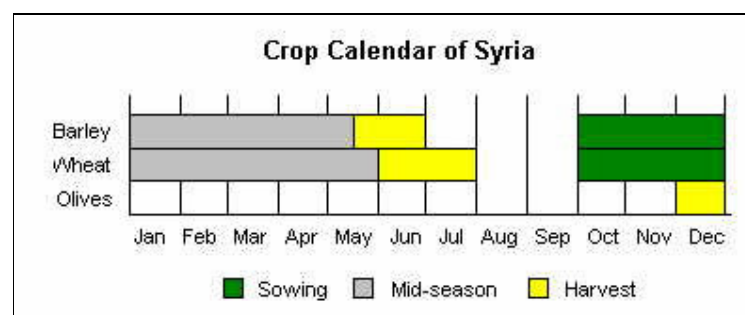
Table 2: Land use and irrigation

Type of area	Estimate	Unit	Reference period	Source
Total Land Area	18 378	1000 Ha	2002	FAO
Agricultural Area	75	%	2002	FAO
Arable lands & Permanent Crops	29	%	2002	FAO
Permanent Crops	5	%	2002	FAO
Permanent Pasture	45	%	2002	FAO
Forested land areas	6	%	2000	FAO
Irrigated agricultural land	7	%	2002	FAO
Arable & Permanent cropland in Ha per agricultural inhabitant	1.2	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 Syria in 2002 were wheat, sugar beets, cow milk, olives and barley (FAO, Statistics Division). Wheat and cow milk are mainly destined to local human consumption, sugar beets are used as animal feed and in the food industry. Olives are mainly destined to food industries, and barley is mainly used as animal feed (FAO, FAOSTAT Database).



Source: USDA, 2002.

Due to the diversification in food production, there is no food shortage throughout the year.

Livestock production and fishery

Syria has a large livestock production. Livestock is raised by both settled farmers and nomadic herders (IFAD, 2004). Dairy cattle represent the main share of livestock and are mainly kept close to towns where prices of dairy products are good and where water is available for forage production. Sheep, raised in the steppe, and goats, raised in the mountain ranges close to forested areas, are also an important part of the country's livestock resources (FAO, 2001).

Table 3: Livestock and fishery statistics

Livestock production and fishery	Estimate	Unit	Reference period	Source
Cattle	866 675	number of heads	2002	FAO
Sheep and Goats	14 429 367	number of heads	2002	FAO
Poultry Birds	28 969	thousands	2002	FAO
Fish catch and aquaculture	15 166	tons	2002	FAO

I.4 Economy

The Gross Domestic Product (GDP) per capita was of US\$ 3620 in 2002. Components of the Syrian economy include agriculture, as well as industry (textile, food processing, chemicals including pharmaceutical products) and domestic appliances. Agriculture and manufacturing industries account for half of the GDP. Oil is a major component of the Syrian economy since the early 1990s, making up for two thirds of the country's exports. Recently, the information technology industry has become important for the country's economy. Syria is also implementing an economic reform, moving from a state-owned system to a more market-oriented economy (SCBS, 2004).

Table 4: Basic economic indicators

Indicator	Estimate	Unit	Reference Period	Source
Gross Domestic Product per capita	3 620	PPP US \$	2002	UNDP
GDP annual growth	3	%	2003	WB
Gross National Income per capita	1 160	\$	2003	WB
Industry as % of GDP	29	%	2003	WB
Agriculture as % of GDP	23	%	2003	WB
Services as % of GDP	48	%	2003	WB
Paved roads as % of total roads	14	%	2002	WB
Internet users	348	per 10 000 people	2003	ITU
Total debt service as % of GDP	1.2	%	2002	WB
Military Public expenditure	6.1	% of GDP	2002	UNDP

The major non-food imports are cement, steel, refined oil, while the major exports are crude oil and natural phosphates (SCBS, 2004).

I.5 Social indicators

Health indicators

Maternal and child health services have been for many years a priority of the Syrian government. A reduction in the infant mortality rate (IMR) by about 50% occurred between 1993 and 2001. IMR decreased from 35‰ live births in 1993 to 18‰ in 2001 (SCBS, 1993 & 2002). A similar reduction in the Maternal Mortality Ratio (MMR) was also reported. Population-based studies carried out in the country have clearly indicated the relatively rapid decrease in the MMR, from 107 per 100 000 live births in 1993 to 65 in 2001 (SCBS, 1993 & 2002), representing a reduction by about 40% over an 8-year span.

Whereas HIV-AIDS is rare in Syria and malaria has almost been eradicated, leishmaniasis is on the rise and tuberculosis remains endemic (SPC & UNDP, 2003).

The Syrian Ministry of Health has achieved a great success with its National Immunization Programme. However, diarrheal diseases and acute respiratory infections (ARI) remain among the main causes of death of Syrian children (Abu-Rshaid et al, 1996; SMOH 2002).

Table 5: Health indicators

Indicator	Estimate	Unit	Reference Period	Source
<i>Mortality</i>				
Infant mortality	16	‰	2003	UNICEF
Under-five mortality	18	‰	2003	UNICEF
Maternal mortality ratio :				UNICEF
reported	65	per 100 000 live births	1985-2003	UNICEF
adjusted	160	per 100 000 live births	2000	UNICEF
<i>Morbidity</i>				
Prevalence of diarrhoea in the last 2 weeks in under-fives	8	%	2000	UNICEF/MICS
Oral Rehydration rate among under-fives	n.a.			
Percentage of under-fives with acute respiratory infections in the last 2 weeks	18	%	1998-2003	UNICEF/MICS
Tuberculosis prevalence	52	per 100 000 people	2003	WHO
<i>AIDS/HIV</i>				
Prevalence in adults	<0.1	%	2003	UNSTAT
Percentage of women (15-24) who know that a person can protect herself from HIV infection by consistent condom use	n.a.			
<i>Immunization</i>				
Percent of infants with immunization against tuberculosis at 1 year of age	99	%	2003	UNICEF/WHO
Percent of infants with DTP3 immunization at 1 year of age	99	%	2003	UNICEF/WHO
Percent of infants with immunization against measles at 1 year of age	98	%	2003	UNICEF
Percent of pregnant women immunized against tetanus	79	%	2000	UNICEF/MICS

n.a.: not available

Water and sanitation

According to the PAPFAM survey that covered 9 500 households, 95% of the urban population and 67% of the rural population has access to an improved water source. A percentage of 96% in urban areas and 46% of rural areas have access to improved sanitation (SCBS, 2002). Some rural areas are still deprived of water and sanitation services.

Table 6: Access to safe water and sanitation

Indicator	Estimate	Unit	Reference period	Source
<i>Sustainable access to an improved water source:</i>				
Urban	95	% of population	2002	SCBS
Rural	67	% of population	2002	SCBS
<i>Access to improved sanitation:</i>				
Combined urban/rural	77	% of population	2002	UNICEF

Access to health services

Health personnel are unequally distributed between the different regions of the country. Estimates indicate that the mean number of inhabitants per physician is 717. However, the figure is as high as 1 968 in the Eastern province of Hassakah, and as low as 361 in Damascus, the capital (SCBS, 2004). The PAPFAM study reported that 87% of births were attended by skilled health personnel (SCBS, 2002).

Table 7: Access to Health Services

Indicator	Estimate	Unit	Reference Period	Source
Health personnel: number of physicians	142	per 100 000 people	1990-2003	WHO
Population with sustainable access to affordable essential drugs	medium access*		1999	UNDP
Percent of births attended by skilled health personnel	87	%	2002	SCBS
Public expenditure on Health	2.4	% of GDP	2001	UNESCO

* estimated at 80-94% of total population

Education

It appears that Syria has made major strides during the past three decades in increasing literacy, particularly concerning female literacy. Problems of education were extensively discussed in the recent National Human Development Report (UNDP, 2005). Education is free and obligatory for 9 years of schooling. The net enrolment rate is around 98%. Schools are distributed into public, private and combined sectors. The Ministry of education estimates drop-out from the primary schools at 8% in 2001/02, with higher rates among girls (UNDP, 2005).

Table 8: Education

Indicator	Estimate	Unit	Reference Period	Source
Adult literacy	83	%	2000-2004	UNESCO
Adult literacy rate : females as % of males	68	%	2000	UNESCO
Youth literacy (15-24 years)	95	%	2000-2004	UNESCO
Net primary enrolment ratio	98	%	2001-2002	UNESCO
Grade 5 completion rate	92	%	2001-2002	UNESCO
Ratio of girls to boys in primary education	0.93	number of girls per 1 boy	2001-2002	UNESCO
Public expenditure on education	4.0	% of GDP	1999-2001	UNESCO

Level of development, poverty

According to the Arab Human Development Report of 2004, the proportion of population living below the national poverty line is 22%. The government has been working to establish a national strategy for poverty reduction so as to meet the National Millennium Development Goals. Some income-generating projects were under implementation in 2004, but they were at a rather small scale.

The country's Human development index has increased from 0.534 in 1975 to 0.710 in 2002. The unemployment rate is estimated at about 12% for the period 1999-2002 (UNDP, 2004).

Table 9: Human development and poverty

Indicator	Estimate	Unit	Reference period	Source
Human development index (HDI)	0.710	value between 0-1	2002	UNDP
Proportion of population living with less than 1\$ a day (PPP)	n.a.			
Population living below the national poverty line	22	%	2004	UNDP/AHDR
Human poverty index (HPI-1)	13.7	%	2002	UNDP

n.a.: not available

Other social indicators

The Government of Syria has made some efforts to enhance the status of women and widen their involvement in the development process. Syrian women contribute to 70% of agricultural activities, where the percentage of female agricultural workers increased from 28% in 1994 to 59% in 2000. A special unit for Rural Woman Development was established at the Ministry of Agriculture in 2000 (UN, 2004).

The Ministry of Social Affairs is taking the lead to study and combat the problem of child labour, in areas where the problem exists (SCBS, 2002). About 18% of children (around 620 000) aged 10-17 years are part of the labour force in the country. Almost two-thirds of working children reside in rural districts, and half of them are unpaid workers in family businesses, most often in agriculture (UNICEF, 2002; ECOSOC, 2003).

Table 10: Other social indicators

Indicator	Estimate	Unit	Reference period	Source
Gender related development index (GDI)	0.689	value between 0-1	2002	UNDP
Women's wage employment in non-agricultural sector as % of total non agricultural employees	18.4	%	2002	ILO
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

Most of the Syrian people rely on the so-called Mediterranean diet, which can be described as an abundance of plant foods (wheat, rice and other cereals, vegetables, potatoes, beans, and seeds) usually locally grown, seasonally fresh or home-preserved, and minimally processed. Fresh fruit is the typical dessert, with sweets consumed a few times per week. Vegetable oils (principally olive oil) are the principal sources of fat. Dairy products (principally cheese and yoghurt) are consumed daily. Fish and poultry are consumed in low to moderate amounts; the consumption of red meat is less common. Eggs are consumed weekly.

No major differences in food habits exist in the country. However, differences in access to food as well as food availability issues could be the main factors contributing to some regional differences.

Syrian families still enjoy to some extent the sharing of meals where all the family members join for a meal. The average number of meals is 2-3 per day.

With increasing urbanization and the rapid development of the food processing industry, changes in food patterns are taking place. Processed foods are becoming more available. Snacking is becoming very common especially in the urban areas. Adolescents are at high risk as their food habits are becoming unhealthy. Girls are more aware of their body image which can lead them to adopting risky dietary patterns. Moreover there is a lack of wide and effective nutritional education programmes to prevent the adoption of unhealthy food patterns.

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.

In 1999, as in other countries in the region, the worst drought since 1959 devastated crop and livestock production in Syria. In 1998/99 wheat production was estimated at 2.74 million tonnes, down by one third compared to 1998, while barley output fell to 380 000 tonnes, 61% below the previous year. This, in turn, had serious repercussions on the food security of a large segment of the population as incomes fell sharply. Although the Government made extensive efforts to reduce the effects of the drought, especially on herders by providing extra resources, feed rations, water and veterinary supplies, the scale and severity of the problem was such that the measures were not sufficient (FAO, 1999).

Agriculture is an important sector of Syria's economy and it is a key to achieving food security. Yet, only one third of total area of the country is cultivated. The high rate of population growth places pressure on infrastructure and natural resources, particularly water. As the population grows, employment opportunities diminish (IFAD, 2004). According to the Arab Human Development Report 2004, the proportion of population living below the national poverty line is 22% (UNDP, 2005). This important proportion suggests that economical access to food is limited for a large part of the population.

II.2 National food supply data

Supply of major food groups for human consumption

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					
	1965-67	1972-74	1979-81	1986-88	1993-95	2000-2002
Cereals (excl. beer)	423	469	478	503	478	465
Starchy roots	20	38	69	66	52	62
Sweeteners	49	66	97	94	103	107
Pulses, nuts, oilcrops	36	46	49	52	44	69
Fruit and vegetables	514	660	1069	799	521	477
Vegetable oils	22	25	29	32	47	56
Animal fats	11	9	14	10	7	8
Meat and offals	38	37	64	59	53	65
Fish, seafood	2	5	7	2	2	7
Milk and eggs	172	154	280	259	240	261
Other	6	6	9	10	12	14

Source: FAOSTAT

In terms of supply, the major foods groups are fruit and vegetables (oranges, mandarins, grapes), cereals (wheat, rice and maize), and milk and eggs.

The per capita supply of cereals fluctuated during the period 1965/2002. During the first period, from 1965/67 to 1986/88, the supply increased from 423g/day to 503g/day. After 1986/88, it decreased slightly to reach 465g/day in 2000/02. The supplies of wheat come principally from the local production, while maize and rice are mostly imported.

The per capita supply of starchy roots has tripled during the 40-year period considered. It consists predominantly of potatoes, which are locally produced. The supply of fruit and vegetables was highest for the period 1979/81 and thereafter there was a downward trend to a level of 477g/day in 2000/02. The supply of vegetable oils (olive oil, principally) has more than doubled during the 40-year period considered. The supply of sweeteners also doubled during the period.

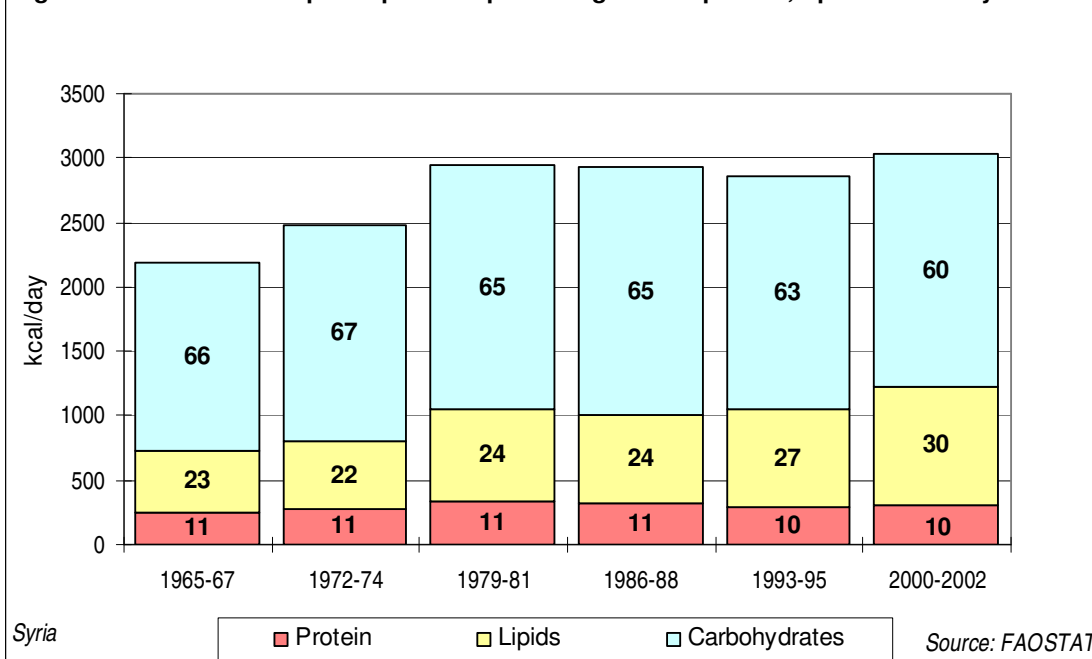
The supply of animal products has increased during the last 40 years. Milk and eggs per capita supply increased from 172g/day in 1965/67 to 261g/day in 2000/02 while the supply of meat globally increased to reach a level of 65g/day in 2000/02. The supply of fish fluctuated. A decrease in the supply of animal fats was noted.

Overall, since 1986/88, a decrease can be observed in the supply of the two major food groups, cereals and fruit and vegetables. A contributing factor to the decrease observed at the end of this period may be the drought which affected the country in 1999.

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

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

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



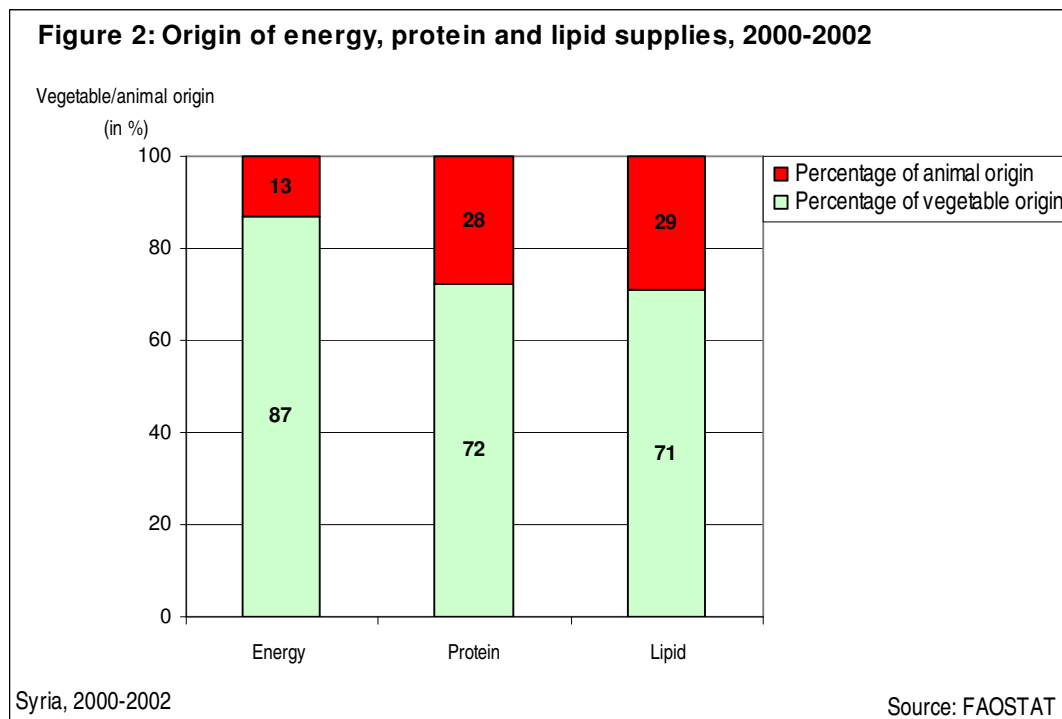
The per capita DES has steadily increased during the 40-year period considered and reached 3 043 kcal/day in 2001, well above the population energy requirements of 2 132 kcal/per capita/day¹. According to *“The State of Food Insecurity in the World”* (SOFI), the prevalence of undernourishment was 4% in 2000/02, one percentage point below the prevalence estimated in 1990/92 (FAO, 2004b).

While the share of protein in energy fluctuated between 10-11% throughout the period, the share of lipids increased from 23% in 1965/67 to 30% in 2000/02 in relation with the increasing supply of vegetable oils. The share of lipids reached the upper limit of recommendations (energy from lipids not exceeding 30%) (WHO, 2003).

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

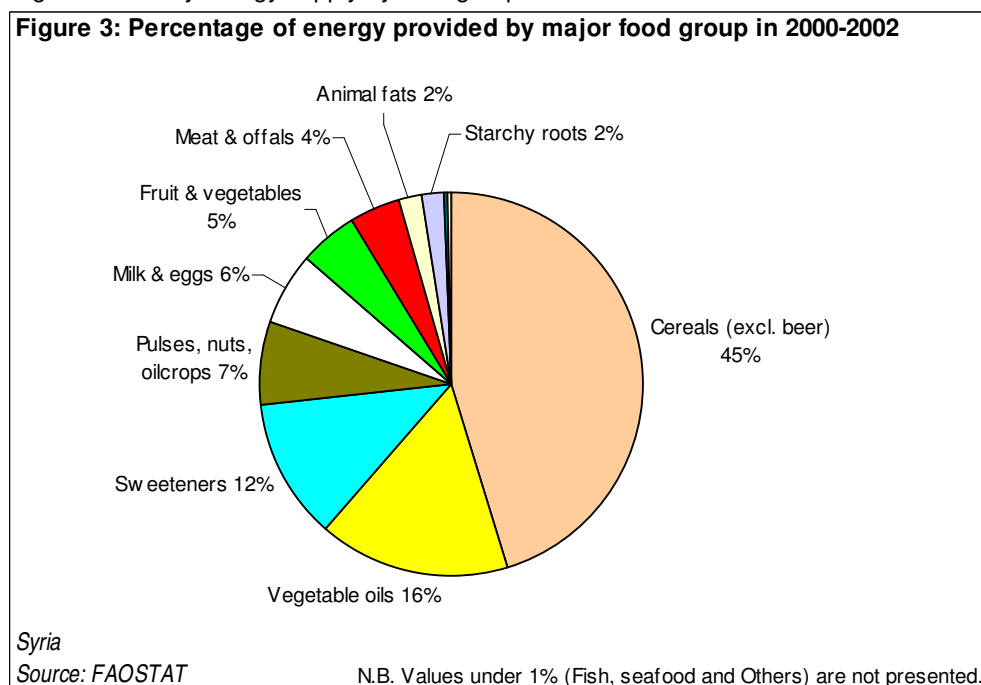
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies



Dietary supplies are still mainly of plant origin.

Dietary energy supply by food group

- Figure 3: Dietary energy supply by food group



In 2000/02, cereals contributed to 45% of the total DES, followed by vegetable oils (16%) and sweeteners (12%). These three food groups represent about three-quarters (73%) of the DES.

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

Food groups	% of DES					
	1965-67	1972-74	1979-81	1986-88	1993-95	2000-2002
Cereals (excl. beer)	56	55	47	50	49	45
Vegetable oils	9	9	9	10	14	16
Sweeteners	8	9	12	11	13	12
Pulses, nuts, oilcrops	5	7	6	6	5	7
Milk and eggs	5	4	7	7	6	6
Fruit and vegetables	8	8	10	8	6	5
Meat and offals	4	3	4	4	4	4
Animal fats	4	3	4	3	2	2
Starchy roots	1	1	2	2	1	2
Fish, seafood	<1	<1	<1	0	<1	<1
Others	<1	<1	<1	<1	<1	<1

Throughout the period from 1965 to 2002, cereals, vegetable oils and sweeteners have been the main food groups contributing to the DES. The share of non-staple food groups in the DES is increasing. In 1965/67, the food diversification index (proportion of the DES provided by food groups other than cereals and starchy roots) was 43% while it reached 53% in 2000/02. This increase shows that the diet is becoming more diverse and of better quality.

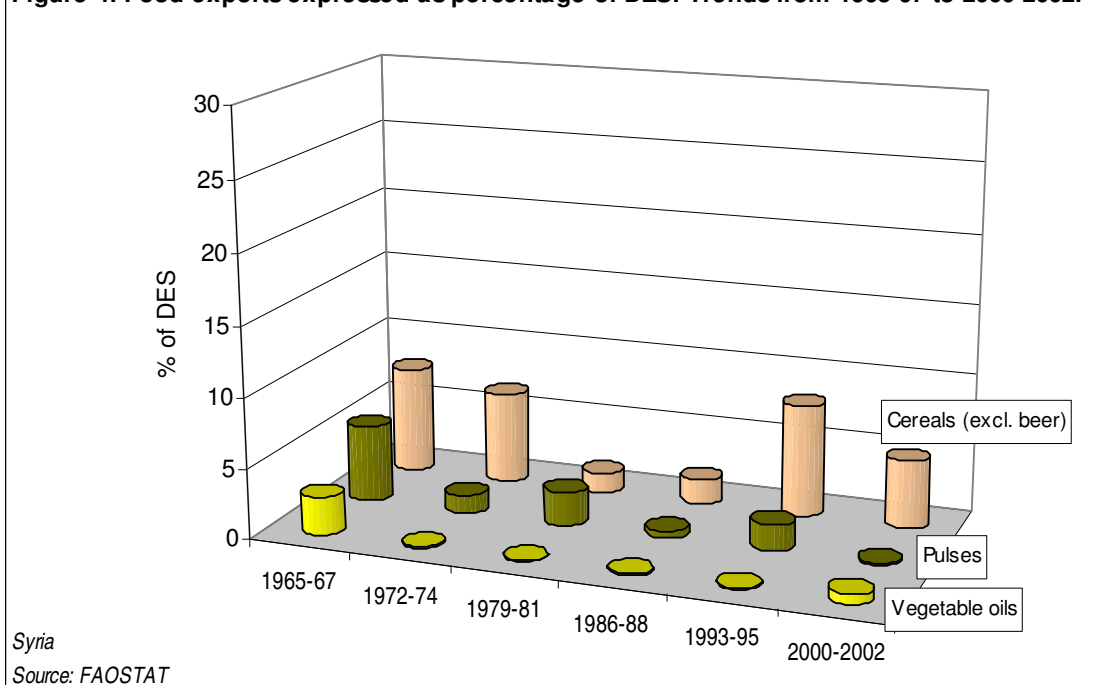
Urbanization could be a contributing factor to the increase in the diversity of the diet. Agricultural policies, such as encouragement and support to peasants to increase and diversify production, also play a role, as well as strengthening of the private sector and efforts to improve marketing.

Food imports and exports expressed as percentage of DES

Food exports expressed as a percentage of DES fluctuated in the period 1965-2002. Cereals, particularly wheat, largely accounted for the food exports with a contribution equal to 5% of DES in 2000/02. More limited amounts of pulses and vegetable oils (cottonseed oil) were also exported.

•Figure 4: Major food exports as percentage of Dietary Energy Supply (DES), trends

Figure 4: Food exports expressed as percentage of DES. Trends from 1965-67 to 2000-2002.

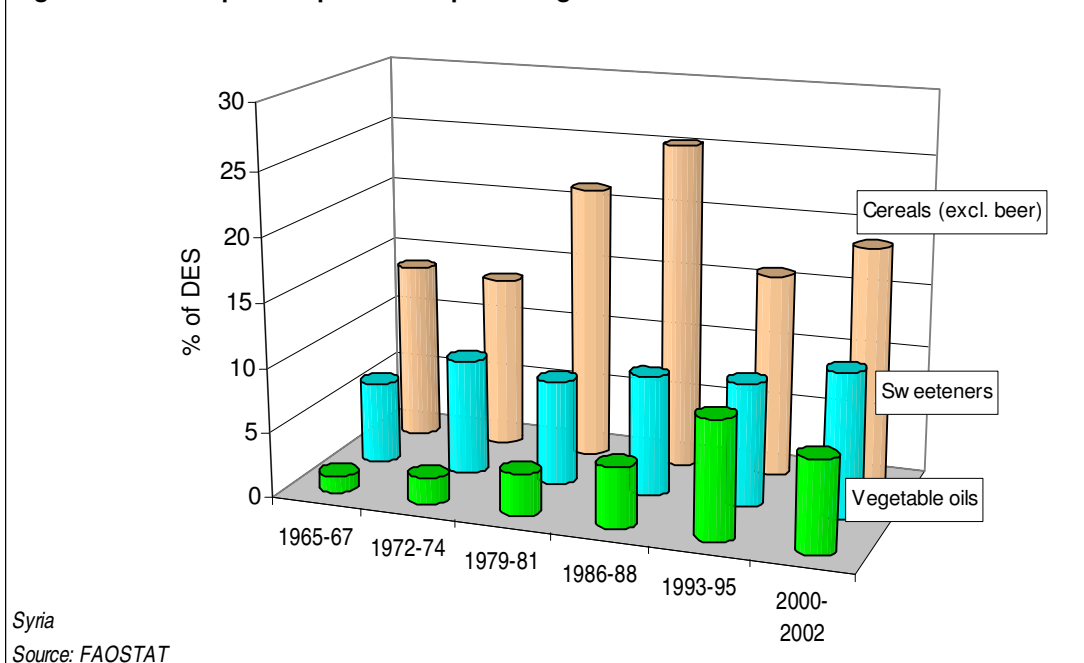


Note that only the 3 most important food groups are shown.

Syria depends on imports of cereals (particularly maize and rice), which globally accounted for 19% of DES in 2000/02. Imports of sweeteners accounted for 11% of DES because production of these products is very limited in the country. Vegetable oils are both imported (palm, sunflower and cotton seed oil) and exported.

•Figure 5: Major food imports as percentage of Dietary Energy Supply (DES), trends

Figure 5: Food imports expressed as percentage of DES. Trends from 1965-67 to 2000-2002.



Note that only the 3 most important food groups are shown.

Food aid

Syria receives a limited amount of food aid (11 794 t in 2003), mainly destined to Palestinian refugee camps in the eastern part of the country and in the peri-urban areas around Damascus. In 2003, this food aid was mainly delivered as emergency food aid (73%) and project food aid (27%). No programme food aid was delivered² (WFP, 2004; UNRWA 2005a and 2005b).

II.3 Food consumption

National level surveys

Food consumption data are not available. Household income and expenditure surveys have been conducted in Syria but intake of food is not documented. According to the household income and expenditure survey of 1996/97, food expenditure represented 57% of total expenditures, with an equal share in urban and rural areas. Overall, high expenditures were for meat, fish and eggs (21%) followed by vegetables (17%) and cereals (16%). In urban areas, the highest expenditures were for meat, fish and eggs (23%) while in rural areas they were for cereals (19%) (SCBS, 1997).

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.

II.4 Infant and young child feeding practices

Breastfeeding is a very common practice among Syrian women as 95% of children under three years of age are reported to have been breastfed. The proportion of children everbreastfed is about the same in rural and urban areas (97% and 94%, respectively). Early initiation of breastfeeding, i.e. within the first hour after birth, was not common (SCBS, 2002). The mean duration of breastfeeding was about 16 months in children under three years and 60% of children were still breastfed at 12-15 months of age (SCBS, 1995; SCBS, 2002). The rate of exclusive breastfeeding was very high, concerning 81% of infants under 4 months (SCBS, 1995). This practice is favourable to infants' health and growth.

However, the introduction of complementary feeding was too late. At 6-9 months of age, when complementary food is necessary to complement breastfeeding, only half of the children were receiving complementary foods (SCBS, 1995). Information on complementary foods given to infants and young children is limited.

The prevalence of bottle-feeding is not documented but this practice seems limited. Regarding the Baby Friendly Hospital Initiative (BFHI), there are 34 baby friendly hospitals in the country, and in addition, as of 2003, 18 hospitals had introduced the Ten Steps to Successful Breastfeeding (SMOH, personal communication).

Table 13: Initiation and duration of breastfeeding

Survey name/date (Reference)	Background characteristics	Sample size (all children under three years)	Percentage of children under three years everbreastfed	Number of children under three years everbreastfed	Among children everbreastfed, percentage breastfed within one hour of birth	Among children everbreastfed, percentage breastfed within 24 hours of birth ¹	Number of children under three years	Mean duration of breastfeeding in children under three years (in months)
The Pan-Arab Project Family Survey (PAPFAM Survey) (2001) (SCBS, 2002)	Total	3 130	95.4	2 985	44.3	n.a.	3 130	15.8
	Sex							
	M	1 577	95.3	1 503	44.4	"	1 577	17.1
	F	1 553	95.4	1 482	44.1	"	1 553	14.2
	Residence							
	urban	1 524	94.2	1 435	42.6	"	1 524	15.1
	rural	1 606	96.5	1 550	45.8	"	1 606	16.4
	Mother's education							
	no education	800	95.6	765	42.0	"	n.a.	n.a.
	primary	1 455	94.8	1 379	45.9	"	1 455	16.1
	secondary or higher	875	96.1	841	43.6	"	875	14.0

¹ Includes children who started breastfeeding within one hour of birth.

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
The Pan-Arab Project for Child Survey (PAPCHILD Survey) (1993) (SCBS, 1995)	Exclusive breastfeeding rate		
	<4 months	287	80.5
	Timely complementary feeding rate		
	6-9 months	n.a.	50.4
	Bottle-feeding rate		
	0-11 months	n.a.	n.a.
	Continued breastfeeding rate		
	12-15 months (1 year)	n.a.	59.6
	20-23 months (2 years)	n.a.	n.a.

n.a.: not available.

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 juice
A study on breastfeeding practices and sources of information (2000) (SMOH, 2000)	6-11	breastfed	139	9.8	42.7	n.a.	n.a.	n.a.	35.2
	12-23	breastfed	544	1.7	53.7	n.a.	n.a.	n.a.	26.5
	24-35	breastfed	721	1.5	52.3	n.a.	n.a.	n.a.	25.1

n.a.: not available.

II.5 Nutritional anthropometry

Low birth weight

In 2000, the prevalence of low birth weight (less than 2 500g) was estimated at 6% (UNICEF, End-decade Database on Low Birthweight). Since a majority of births (87%) were attended by skilled health personnel this estimate can be considered as representative of births in the country (SCBS, 2002).

Anthropometry of preschool children

Four consecutive national surveys, conducted in 1993, 1995, 2000 and 2001, document the nutritional status of preschool children (SCBS, 1995; 1996; 2000; 2002).

The last survey, conducted in 2001, revealed that over one-quarter of Syrian preschool children were stunted. Prevalence of wasting was 9% and 11% of children were underweight (SCBS, 2002).

For stunting, male children were more likely to be stunted than female children (28 and 23%, respectively). Prevalence was somewhat lower in the urban sector (24%) than in the rural (27%). Stunting affected children immediately after birth; in the first 6 months of life already 15% were stunted. Prevalence was highest at 1 year (35%) but remained over 15% until the age of 5 years (SCBS, 2002). Severe stunting was not uncommon, as it affected 12% of underfives.

Wasting was more prevalent in urban areas (10% as compared to 7% in rural areas) (SCBS, 2002). This might be due to migration of rural populations to suburban areas where poverty and crowding are very prevalent.

Regional differences are not documented in the last survey, but only in the 2000 and 1995 surveys (SCBS, 1996 & 2000). In both surveys prevalence of stunting was high in the Eastern region. For other regions prevalence seemed to fluctuate between surveys. Regarding wasting, the Eastern region had the highest prevalence in both surveys, but there were large differences between surveys (7 and 14% in 2000 and 1995 respectively).

When examining trends in prevalence across all surveys, the prevalence of stunting appears to fluctuate between 19 and 27%, with no clear pattern; in particular prevalence does not seem to be declining. Prevalence of wasting remains stable at 8-9 % across three surveys with the exception of the 2000 survey where it is much lower (4%). These discrepancies regarding wasting could be due to a seasonal effect, as the surveys were conducted at different times of the year, but the fluctuations in stunting are more difficult to explain; thus it is more likely that discrepancies are due to problems of sampling.

Differences in income as well as food availability influence the level of malnutrition. Inadequate practices regarding complementary feeding and health problems also play a role. The high prevalence of

malnutrition in the Eastern region could be related to the underdevelopment, poverty and limited access to health facilities that prevail in this region.

In all the national surveys on anthropometry of preschool children, only undernutrition is documented and prevalence of overweight and obesity are not reported.

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*	> +2 Z-scores
Total		0-4.99	M/F	5 452	12.3	25.7	2.6	8.6	2.1	10.9	n.a.
Sex											
		0-4.99	M	2 806	13.5	28.0	2.7	9.1	2.2	12.3	"
		0-4.99	F	2 646	11.0	23.2	2.6	8.2	2.0	9.4	"
Age											
		0-0.49	M/F	404	5.4	15.1	1.2	5.7	1.5	3.5	"
		0.5-0.99	M/F	437	9.9	23.8	2.5	8.9	3.5	12.7	"
		1-1.99	M/F	991	18.2	34.6	2.3	8.2	2.9	11.8	"
		2-2.99	M/F	1 222	15.6	28.6	2.4	8.5	2.6	11.8	"
		3-3.99	M/F	1 240	12.1	26.2	3.1	8.7	1.5	15.7	"
		4-4.99	M/F	1 158	7.4	18.9	3.2	10.0	1.3	11.1	"
Residence											
	urban	0-4.99	M/F	2 574	10.6	23.7	3.2	10.2	1.8	10.7	"
	rural	0-4.99	M/F	2 878	13.7	27.4	2.1	7.3	2.4	11.1	"

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

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*		
Total		0-4.99	M/F	6 262	8.2	18.8	0.8	3.8	1.7	6.9	n.a.
Sex											
		0-4.99	M	3 304	8.8	19.3	1.2	4.6	1.9	7.4	"
		0-4.99	F	2 958	7.6	18.4	0.5	3.0	1.7	6.5	"
Age											
		0-0.49	M/F	353	4.2	13.8	1.7	6.8	0.7	4.3	"
		0.5-0.99	M/F	587	6.3	16.9	2.4	7.2	2.9	10.6	"
		1-1.99	M/F	1 116	8.8	20.2	0.5	5.4	2.5	8.2	"
		2-2.99	M/F	1 344	9.0	18.3	1.0	3.7	2.4	7.6	"
		3-3.99	M/F	1 492	9.7	21.2	0.5	2.1	1.1	6.3	"
		4-4.99	M/F	1 370	7.1	17.7	0.5	2.3	0.8	4.9	"
Residence											
	urban	0-4.99	M/F	2 776	6.4	15.2	0.9	4.1	1.3	5.6	"
	rural	0-4.99	M/F	3 486	9.6	21.7	0.8	3.6	1.9	7.7	"
Region											
	Damascus	0-4.99	M/F	512	5.4	11.0	1.0	4.7	0.9	3.8	"
	Middle	0-4.99	M/F	973	11.4	23.3	0.3	2.4	1.4	7.0	"
	Coastal	0-4.99	M/F	444	1.6	7.9	0.7	1.6	0.2	3.0	"
	Northern	0-4.99	M/F	1 902	9.1	21.9	0.6	3.2	2.4	7.6	"
	Eastern	0-4.99	M/F	1 055	11.6	21.6	1.7	7.0	2.2	10.0	"
	Southern	0-4.99	M/F	1 376	5.3	15.8	0.9	3.5	1.1	5.3	"

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

¹ Data taken from WHO Global Database on Child Growth and Malnutrition.
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 <-2 Z-scores*	Wasting Weight-for-height <-2 Z-scores*		Underweight Weight-for-age <-3 Z-scores		Overweight Weight-for-height > +2 Z-scores	
						<-3 Z-scores	<-2 Z-scores	<-3 Z-scores	<-2 Z-scores*		
Total		0-4.99	M/F	2 425	10.1	20.8	8.7	2.5	3.7	12.9	n.a.
Sex											
		0-4.99	M	1 283	11.6	23.1	9.4	2.9	3.9	13.9	"
		0-4.99	F	1 142	8.5	18.3	8.0	2.1	3.4	11.7	"
Age											
		0-0.49	M/F	228	3.5	4.8	5.3	1.3	0.9	2.8	"
		0.5-0.99	M/F	281	7.9	15.8	5.4	1.4	2.5	8.6	"
		1-1.99	M/F	471	12.0	24.4	6.0	1.8	2.8	12.4	"
		2-2.99	M/F	507	13.7	24.6	9.1	2.2	6.2	17.3	"
		3-3.99	M/F	480	8.2	22.1	9.5	1.9	2.9	13.1	"
		4-4.99	M/F	458	9.9	21.5	11.6	4.4	4.2	15.6	"
Residence											
urban		0-4.99	M/F	941	10.9	20.3	9.5	2.7	3.8	12.1	"
rural		0-4.99	M/F	1 225	10.4	22.2	8.7	2.8	4.1	14.0	"
Region											
Damascus		0-4.99	M/F	514	12.5	22.6	8.6	1.2	2.7	15.0	"
Middle		0-4.99	M/F	576	6.9	14.3	6.6	2.1	1.6	9.0	"
Coastal		0-4.99	M/F	205	4.9	15.6	2.0	0.5	0.0	2.9	"
Northern		0-4.99	M/F	551	8.3	20.8	10.7	3.3	3.4	14.3	"
Eastern		0-4.99	M/F	379	16.4	26.2	14.0	5.3	11.9	19.3	"
Southern		0-4.99	M/F	200	12.0	26.5	7.0	2.0	1.0	12.5	"

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

¹ Data taken from WHO Global Database on Child Growth and Malnutrition.

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*	> +2 Z-scores	
Total		0-4.99	M/F	3 903	11.9	26.6	2.1	8.1	3.0	12.1	n.a.
Sex											
		0-4.99	M	2 014	12.9	27.8	2.6	8.5	2.8	12.9	"
		0-4.99	F	1 889	11.0	25.8	1.5	7.7	3.2	11.3	"
Age											
		0-0.49	M/F	464	6.0	17.6	2.4	9.7	3.0	8.2	"
		0.5-0.99	M/F	314	9.2	24.2	2.2	6.0	2.5	11.7	"
		1-1.99	M/F	813	12.9	27.4	2.8	10.2	4.3	13.6	"
		2-2.99	M/F	835	14.6	28.5	1.8	6.6	3.1	12.4	"
		3-3.99	M/F	836	12.9	28.8	1.7	7.1	2.5	13.1	"
		4-4.99	M/F	641	11.7	27.9	1.7	8.7	2.0	11.5	"
Residence											
urban		0-4.99	M/F	1 920	11.4	26.0	2.0	8.7	2.7	11.5	"
rural		0-4.99	M/F	1 983	12.5	27.6	2.1	7.5	3.3	12.8	"

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

† Data taken from WHO Global Database on Child Growth and Malnutrition.

n.a.: not available.

Anthropometry of school-age children

There are no national estimates of the prevalence of malnutrition among school age children. Although some research studies were carried out at the local level, they do not represent the whole country.

In 2003, a study was conducted to assess energy intake coming specifically from breakfast among a sample of primary school children (10-14 years) in Damascus. It also aimed to describe the effect of this daily intake on anthropometric measurements and blood sugar. The study covered a total of 484 primary school children chosen randomly from six schools in Damascus City. Children were interviewed and were asked to recall the food consumed in the past 24 hours. Weight, height and morning blood sugar were measured. The results showed that nearly half the study subjects had skipped breakfast, and that total daily intake was much less than intake recommended for this age group. The results were clearly reflected on the nutritional status of the children. More than one out of ten children (11%) were stunted (height-for-age < -2 Z-scores) and 10% were underweight (weight-for-age < -2 Z-scores) (Cheikh Issa & Bashour, 2003).

Nutrition education could greatly contribute to school health programmes. The paramount importance of breakfast needs to be better communicated (Cheikh Issa & Bashour, 2003).

Anthropometry of adolescents

No studies were carried out to assess the nutritional status of adolescents at national level.

The unpublished data from the SuRF study of 2003 covered a total of 1 288 adolescents in the country, from 15 to 19 years. The mean body mass index (BMI) was 22.6 kg/m²; 81% had a BMI less than 25, 16% were overweight with a BMI of 25-29.9, and 3% were obese with a BMI of 30 or over (WHO, personal communication). The representativeness of the survey is nevertheless not clear.

Anthropometry of adult women

The anthropometry of women 15 years and above was studied as part of the nationwide SuRF study carried out in 2002. More than half (56%) of the women were overweight (BMI of 25-29.9 kg/m²) and one woman out of five was obese (BMI ≥ 30.0). Overall, 77% of Syrian women were overweight or obese, and this can be considered as a major public health problem (WHO, 2005). The representativeness of the data is however not documented.

Anthropometry of adult men

In 2002, overweight and obesity among men above 15 years were also of concern as 47% were overweight and 11% were obese (WHO, 2005). The representativeness of the data is however not documented.

II.6 Micronutrient deficiencies

Iodine deficiency disorders (IDD)

Prevalence of goitre and urinary iodine level

A national prevalence survey conducted in 1990/91 estimated that 73% of school-age children had goitre. In many areas goitre prevalence exceeded 70%, including in Rural Damascus, Aleppo, Idleb, Reqqa, Sweida, Der'a, Tartous and Quneitra. Rates were higher in rural areas than in urban areas (77% and 69% respectively) (Moussa, 1998). More recent data are not available.

Table 17: Prevalence of goitre in school-age children

Survey name/date (Reference)	Background characteristics	Age (years)	Sex	Prevalence of goitre	
				Sample size	Percentage with goitre [Total goitre]
Assignment report (1990/91) (Moussa, 1998)	Total	SAC	M/F	n.a.	73
	Sex				
		SAC	M	"	n.a.
		SAC	F	"	"
	Residence				
	urban	SAC	M/F	"	69
	rural	SAC	M/F	"	77
	Region				
	Aleppo	SAC	M/F	"	90
	Damascus rural	SAC	M/F	"	96
	Damascus city	SAC	M/F	"	59
	Deir Al Zour	SAC	M/F	"	63
	Der'a	SAC	M/F	"	87
	Hama	SAC	M/F	"	47
	Hassakeh	SAC	M/F	"	54
	Homs	SAC	M/F	"	38
	Idleb	SAC	M/F	"	84
	Latakia	SAC	M/F	"	57
	Quneitra	SAC	M/F	"	86
	Reqqa	SAC	M/F	"	91
	Sweida	SAC	M/F	"	86
	Tartous	SAC	M/F	"	86

SAC: School-age children.

Note: Data taken from WHO Global Database on Iodine Deficiency.

Iodization of salt at household level

The programme of iodization of salt was started in 1992 (ICCIDD, 2002). By 1995, universal salt iodization was achieved in the country. The level of iodization was initially of 30-50 ppm of iodine, and then was reduced to 18-30 ppm. Frequent surveys of availability at household-level were carried out; the most recent was done in 2004. The findings revealed that 79% of households consumed adequately iodized salt, compared to only 38% in 1997 (SMOH, 1997a; SMOH, 2004 personal communication). Important variations were observed among regions. In the Southern region, only half of the households consumed adequately iodized salt. In that region households might be getting salt from uncontrolled sources. Deficiencies in monitoring local products and in ensuring that they follow national standards could be the reason for this problem. Lack of awareness also hinders utilization of iodized salt.

As a result of the programme, a decrease in prevalence of IDD is expected but no data on urinary iodine are available to document its impact.

Table 18: Iodization of salt at household level

Survey name/date (Reference)	Background characteristics	Number of households where salt was available for testing	Iodine level of household salt		Percentage of households tested
			Inadequate (0-15 ppm)	Adequate (≥15 ppm)	
A study on Syrian families' utilization of the iodized salt, (2004) (SMOH, 2004)	Total	n.a.	20.7	79.3	n.a.
	Residence				
	urban	"	34.0	66.0	"
	rural	"	24.0	76.0	"
	Region				
	Damascus	"	6.0	94.0	"
	Internal	"	7.0	93.0	"
	Coastal	"	14.6	85.4	"
	Northern	"	20.3	79.7	"
	Eastern	"	9.5	90.5	"
	Southern	"	50.0	50.0	"
A survey on the households utilization of the iodized salt, (1997) (SMOH, 1997a)	Total	2 144	62.0	38.0	"
	Residence				
	urban	1 320	56.0	44.0	"
	rural	824	71.0	29.0	"

Note: ppm: parts per million.

n.a.: not available.

Vitamin A deficiency (VAD)

Prevalence of sub-clinical and clinical vitamin A deficiency

In 1998, the Syrian Ministry of Health in collaboration with UN organizations carried out the first study in the country to describe the vitamin A status of children under 6 years of age and that of their mothers. The study sample was drawn at the household level from all the provinces. A total of 1 118 children and 252 mothers were included in the assessment of clinical signs and measurement of serum retinol, and a total of 2 873 households were interviewed for the study of food consumption patterns. Findings from the study show that only 0.3% of children had clinical signs, and 9% had low serum retinol (sub-clinical vitamin A deficiency). The prevalence of sub-clinical vitamin A deficiency was higher among male and rural children. Serum retinol was low (<20µg/dL) in only one woman out of the 252 under study (SMOH, 1998).

Patterns of food consumption varied somewhat between rural and urban areas but differences were not very large. Among urban households, 76% reported a frequency of consumption of fruit of more than 3 times per week versus 70% in rural areas. For meat including poultry, 39% of urban households reported a frequency of more than 3 times per week versus 20% of rural households. Differences in prevalence were found between provinces but the small size of the sample by province precludes drawing any conclusions on the regional distribution of the deficiency (SMOH, 1998).

Table 19: Prevalence of sub-clinical and clinical vitamin A deficiency in children under 6 years

Survey name/date (Reference)	Background characteristics	Age (years)	Sex	Prevalence of low level of serum retinol		Clinical signs of xerophthalmia		
				Sample size	Percentage with serum retinol <20 µg/dL or 0.70 µmol/L	Sample size	Type of sign	Percentage
A study of vitamin A status among children under 6 years of age (1998) (SMOH, 1998)	Total	0-5.99	M/F	1 118	8.7	1 118	Corneal scars	0.3
	Sex							
		0-5.99	M	551	10.0	n.a.	n.a.	n.a.
		0-5.99	F	567	7.4	n.a.	n.a.	n.a.
	Residence							
	urban	0-5.99	M/F	600	7.3	n.a.	n.a.	n.a.
	rural	0-5.99	M/F	518	10.2	n.a.	n.a.	n.a.

n.a.: not available.

Vitamin A supplementation

This study was not followed by a programme for dietary improvement. However, vitamin A supplementation was recently introduced in the country following the WHO strategy, where all children contacting health centres for measles vaccination at 10 months of age according to the National Immunization Schedule receive a vitamin A supplement of 100.000 IU. Vitamin A is also used for the case management of measles as part of the strategy of the National Programme for Elimination of Measles (Nasri, personal communication).

Iron deficiency anemia (IDA)

Prevalence of IDA

According to the nation-wide study carried out by the Ministry of Health in 1997 more than one-quarter of preschool children were anemic. The prevalence of anemia was higher in male and younger children, but the largest difference was observed between urban and rural prevalence (20 and 40% respectively). Because the sample by region was very small it is impossible to draw conclusions on the regional distribution of anemia in children. In this study, serum ferritin was less than 10µg/L among 50% of 155 children tested, indicating low iron stores (SMOH, 1997b).

Table 20: 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)
A study on the prevalence and determinants of Iron Deficiency Anemia (1997) (SMOH, 1997b)	Total	6-59	M/F	439	27.3	0.9
	Sex					
		6-59	M	237	30.4	n.a
		6-59	F	202	23.3	"
	Age					
		6-11	M/F	11	45.5	"
		12-23	M/F	56	50.0	"
		24-35	M/F	80	33.8	"
		36-47	M/F	103	25.2	"
		48-59	M/F	189	17.9	"
	Residence					
	urban	6-59	M/F	271	19.6	"
	rural	6-59	M/F	168	39.9	"

Hb: Hemoglobin.
n.a.: not available.

The study revealed that the overall prevalence of anemia in women (defined as Hemoglobin<12g/dL) was 41%. Prevalence was higher in rural areas. Samples by region were too small to permit any conclusion at regional level, as well as by physiological status (pregnancy and breastfeeding). Among a small sample of 111 women, prevalence of low serum ferritin (<16µg/L) was 68% (SMOH, 1997b).

Prevalence of iron deficiency anemia is insufficiently documented in Syria. Moreover there are no data on school children and adult men. Iron deficiency anemia is most probably due to low dietary intake of bioavailable iron or to the presence of inhibitors of iron absorption in the diet. This issue needs to be investigated further.

Table 21: Prevalence of anemia in women of childbearing age

Survey name/date (Reference)	Background characteristics	Age (years)	Sample size	Percentage of women with
				Any anemia (Hb <12.0g/dL)
A study on the prevalence and determinants of Iron Deficiency Anemia (1997) (SMOH, 1997b)	Total	15-49	451	40.6
	Age			
		15-19	77	40.3
		20-24	90	45.6
		25-29	89	34.8
		30-34	72	45.8
		35-39	65	43.1
		40-44	40	35.0
		45-49	18	27.8
	Residence			
	urban	15-49	255	32.2
	rural	15-49	196	51.5

Hb: Hemoglobin.

Interventions to combat IDA

All pregnant women who visit health centres are given iron and folic acid supplements (MI & UNICEF, 2004). This is part of the antenatal package provided at the health centres and it is considered by the Ministry of Health as a preventive strategy. This is also practiced by Syrian obstetricians. As a result, more than half of women took iron tablets/syrup in their previous pregnancy. However, the coverage is not homogenous and women living in rural areas are less supplemented than those living in urban areas because they receive less antenatal care (SCBS, 2002). There is no programme for supplementation of children.

The Syrian Ministry of Health is running a pilot iron flour fortification project, with the prospect of implementing a long term fortification strategy to combat iron deficiency. The plan is to expand the project throughout the country. Presently, no evaluation of the project has yet been carried out.

Table 22: 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 5 years preceding the survey	Percent who took iron tablets/syrups during pregnancy
The Pan-Arab Project Family Survey (PAPFAM Survey) (2001) (SCBS, 2002)	Total	4 038	57.0
	Residence		
	urban	2 028	66.3
	rural	2 010	47.6

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

The Syrian Government puts great emphasis on agricultural development. The country has set up policies of self-sufficiency and food security. At the policy level, the government encourages public-private cooperation in marketing agricultural products. Agricultural research was also encouraged by the Higher Council. The General Union of Peasants plays a great role in assisting peasants and helping them market their products. Studies have shown that government policies were successful in improving agriculture (Sammak, 1997; Al-Halab & Gabbarin, 1997). Currently, the government works to implement specifications in agreement with international standards in order to promote the export of food products.

A policy of food subsidies has been implemented by the Government in order to protect and improve the nutritional status of its population. A decree on Food Subsidization was issued in 1972. Subsequently more decrees defined or adapted the food items that were covered, the means of distribution as well as the target population (Official Decrees). A wide sector of the population is covered including foreigners working in the country. Food Cards are distributed at the lowest peripheral level and issued to families based on local registers. Divorced women, children and groups with special needs also benefit of this system. The average monthly portion per individual is 1000g of sugar and 500g of rice. Others items are also subsidized and available on sale in the General Establishment of Consumption (GEC): these include vegetable oil and tea. In 2003, the sales of GEC reached 192.978 tonnes of sugar and 81.749 tonnes of rice. The government regulates the price of bread, a highly consumed food in the country (SCBS, 2004).

Some nutritional programmes have been introduced in the country, but their coverage is limited and funding is often dependent on donor agencies. Such programmes include food distribution at health centres (mainly milk and infant formula), distribution of school breakfast to some schools in the most deprived areas. Nutrition education programmes have been developed by the Ministry of Health (such as the promotion of breastfeeding) and by the Ministry of Education ("Healthy Curriculum"). However, these programmes are in major need of review as well as impact studies. Although growth monitoring is implemented in the health centres, only the children who use the centres benefit from this service. At school entry all children are weighed and their height is measured. The data are however neither complete nor accurate. There is no nutrition surveillance system. The country has not yet published specific food-based dietary guidelines.

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