NUTRITION COUNTRY PROFILE
LIBYAN ARAB JAMAHIRIYA

Map No. 3787 Rev. 4 United Nations
June 2004

Department of Peacekeeping Operations
Cartographic Section

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Acknowledgments

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The contribution of volunteer Amélie Solal-Céligny is gratefully acknowledged.

Summary

The Libyan Arab Jamahiriya, situated in North Africa, is a mostly desert country facing strong constraints in terms of availability of water resources and of food self-sufficiency. The population is relatively young, mostly urban and concentrated in the coastal area. Agriculture is not sufficiently productive to meet the food needs of the population. The country's economy, largely state controlled, is heavily dependant on oil production and exports.

The government has invested in health care, sanitation and education. As a result, levels of immunization of children are high, polio has been eradicated, access to improved water sources and sanitation is good, and important efforts are made to combat the spread of HIV/AIDS.

The food supply, characterized by a high availability of fruit and vegetables, has increased markedly overtime, particularly since the late 1970s. The dietary energy supply largely satisfies the population's energy requirements. Moreover the three most important food groups, cereals, vegetable oil and sweeteners provide almost three quarters of the energy supply. This diet, dense in energy and poor in micronutrients is conducive to overnutrition. Currently, Libya is totally dependant on imports of cereals.

Breastfeeding is widespread and its early initiation is common. However, the duration of exclusive breastfeeding remains very short and bottle-feeding is frequent. In 1995, almost one child out of six was stunted, but more recent estimates are needed to assess the current nutritional status of preschool children. Meanwhile the country is undergoing a nutrition transition. Consequently adult women are affected by a high prevalence of overweight and obesity. Among women both undernutrition and overnutrition are prevalent. The country thus suffers from the double burden of malnutrition.

Due to lack of data, assessing the extent of micronutrient deficiencies remains difficult. A salt iodization programme is in place but no data are available to assess its impact. Prevalence of vitamin A deficiency is not documented. Anemia could be a major public health issue, as recent but limited data from Tripoli, the capital, showed that more than two-thirds of school-age children were affected. There is currently no programme to address iron deficiency anemia. It is of vital importance to carry out a national nutrition survey to assess the current prevalence of nutrition problems, to target vulnerable groups and to define effective strategies to combat both undernutrition and overnutrition.

Summary Table

Basic Indicators				Year
Population				
Total population		5.8	million	2004
Rural population		15	%	2000
Population under 15 years of age		33	%	2000
Annual population growth rate		2	%	2000/05
Life expectancy at birth		73	years	2000/05
Agriculture				
Agricultural area		9	%	2002
Arable and permanent cropland per agricultural inhabitant		6	Ha	2002
Level of development				
Human development and poverty				
Human development index		0.794	[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***	n.a.		
Education				
Net primary enrolment ratio	***MDG2***	96	%	1990/91
Youth literacy (15-24 years)	***MDG2***	97	%	2002
Ratio of girls to boys in primary education	***MDG3***	1	girl per 1 boy	2001
Health				
Infant mortality rate	***MDG4***	13	‰	2003
Under-five mortality rate	***MDG4***	16	‰	2003
Maternal mortality ratio (adjusted)	***MDG5***	97	per 100 000 live births	2000
Tuberculosis prevalence	***MDG6***	21	per 100 000 people	2003
Environment				
Sustainable access to an improved water source in rural area	***MDG7***	68	% of population	2002
Nutrition indicators				*Year*
Energy requirements				
Population energy requirements		2 144	kcal per capita/day	2001
Food supply				
Dietary Energy Supply (DES)		3 327	kcal per capita/day	2001
Prevalence of undernourishment	***MDG1***	n.a.		
Share of protein in DES		11	%	2000/02
Share of lipids in DES		27	%	2000/02
Food diversification index		51	%	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	n.a.		
Timely complementary feeding rate	6-9 months	n.a.		
Bottle-feeding rate	0-11 months	n.a.		
Continued breastfeeding rate at 2 years of age		23	%	1995
Nutritional anthropometry				
Stunting in children under 5 years		15	%	1995
Wasting in children under 5 years		3	%	1995
Underweight in children under 5 years	***MDG1***	5	%	1995
Women with BMI<18.5 kg/m²		n.a.		
Micronutrient deficiencies				
Prevalence of goitre in school-age children		n.a.		
Percentage of households consuming adequately iodized salt		n.a.		
Prevalence of vitamin A deficiency in preschool children		n.a.		
Prevalence of vitamin A supplementation in preschool children		n.a.		
Prevalence of vitamin A supplementation in mothers		n.a.		
Prevalence of anemia in women		n.a.		
Prevalence of iron supplementation in mothers		n.a.		

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

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Acronyms	
ALMCHS	Arab League Mother and Child Survey
BMI	Body mass index
CED	Chronic energy deficiency
DES	Dietary energy supply
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
GDP	Gross domestic product
GNP	Gross national product
HIV/AIDS	Human immunodeficiency virus/ acquired immunodeficiency syndrome
ICCIDD	International Council for Control of Iodine Deficiency Disorders
IDA	Iron deficiency anemia
IDD	Iodine deficiency disorders
ILO	International Labour Organization
ILRI	International Livestock Research Institute
IMF	International Monetary Fund
ITU	International Telecommunication Union
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
PAPCHILD	Pan-Arab Project for Child Surveys
PPP	Purchase power parity
SuRF	Surveillance of chronic disease Risk Factor
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
VAD	Vitamin A deficiency
WB	World Bank
WHO	World Health Organization

Part I: Overview and basic indicators

I.1 Context

The Libyan Arab Jamahiriya has a total area of about 1.76 million km^2, bordered in the north by the Mediterranean Sea, in the east by Egypt and Sudan, in the south by Chad and Niger, and in the west by Algeria and Tunisia. There are four types of areas in Libya: the coastal plains, that run along the Mediterranean sea and vary in width; the northern mountains, that run close to the coastal plains and include the Jabal Nafusah in the west and Jabal al Akhdar in the east; the internal depressions, that cover the centre of Libya and include several oases; and the southern and western mountains.

About 95% of the country is covered by desert. The climate conditions are influenced by the Mediterranean Sea to the north and the Sahara desert to the south, resulting in an abrupt transition from one kind of weather to the other. The Mediterranean coastal strip has dry summers and relatively wet winters, whereas the Jabal Natusah and Jabal Akhdar highlands present a plateau climate with higher rainfall and humidity and low winter temperatures. In the southern inland part, pre-desert and desert climate conditions prevail, with torrid temperatures and large thermal amplitudes. Rains are rare and irregular.

Annual rainfall is extremely low, with about 93% of the land surface receiving less than 100 mm/year. The highest rainfall occurs in the northern Tripoli region (Jabal Nafusah and Jifarah Plain) and in the northern Benghazi region (Jabal al Akhdar), these two areas being the only ones where the average annual rainfall exceeds the minimum value (250-300 mm) considered necessary to sustain rain fed agriculture. Rainfall occurs during the winter months, but great variability is observed from place to place and from year to year. Average annual rainfall for the country as a whole is 26 mm (FAO, 2005a).

The country's isolation, resulting in part from the United Nations' sanctions imposed until April 1999 has hampered economic development (IMF, 2003).

I.2 Population

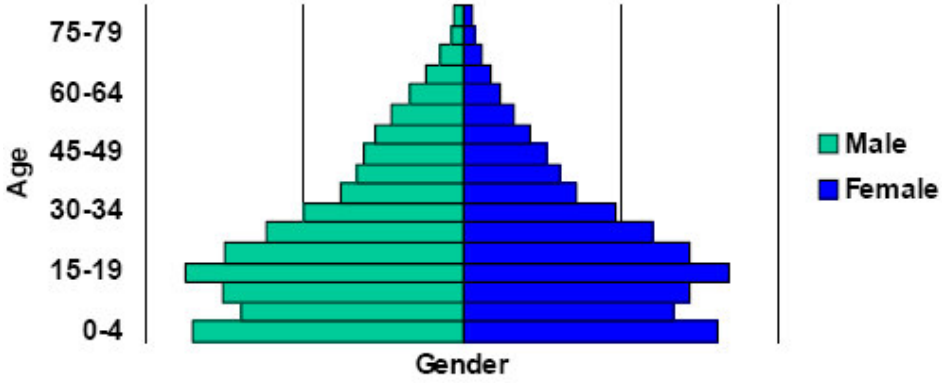
Population indicators

The Libyan population is relatively young, with 33% under 15 years of age. Over the last 30 years, Libya's population has grown at rates of about 2-3% per year. As a result, the working-age population has been growing at about the same rate in the 1990s and is still growing currently (IMF, 2003; UNPD, World Population Prospects). However, population growth takes place only in the urban areas, the rural population showing a slight decline. Average population density varies from 150 inhabitants/km^2 in the northern regions to less than 1 inhabitant/km^2 in the rest of the country. About 75% of the population is concentrated in 1.5% of the country, mainly in the coastal areas (FAO, 2005a). The population is essentially urban.

Table 1: Population indicators

Indicator	Estimate	Unit	Reference Period	Source
Total population	5.8	Million	2004	NIDA
Annual population growth rate	1.96	%	2000-2005	UNPD
Crude birth rate	23.3	‰	2000-2005	UNPD
Population distribution by age:			2000	UNPD
0-4 years	11	%		
5-14 years	22	%		
15-24 years	24	%		
60 and over	6	%		
Rural population	15	%	2000	UNPD
Agricultural population	5	%	2004	FAOSTAT
Population density	3	Inhabitants per km^2	2000	UNPD
Median age	22	years	2000	UNPD
Life expectancy at birth	73	years	2000-2005	UNPD
Population sex ratio	107.5	males per 100 female	2000	UNDP
Net migration rate	0.4	‰	2000-2005	UNPD
Total dependency rate	57	%	2000	UNPD

Population pyramid for 2001



Source: UNAIDS, 2002

I.3 Agriculture

Agriculture contributes to about 9% of the Gross Domestic Product (GDP) and provides employment to about 5% of the total economically active population (FAO, 2005a).

Hot and dry desert climate and scarcity of water affect agricultural production. Less than 10% of the total surface of Libya is suitable for agriculture. This area is limited to a long narrow strip along the Mediterranean coast, low mountains and oases in the desert. Areas of arid land and desert cover up about 90% of the total area (Al-Idrissi et al, 1996; FAO, FAOSTAT Database).

Agriculture in Libya is seasonal; data for 2003 show that 78 % of the cultivable area is not irrigated (FAO, FAOSTAT Database).

Agricultural production depends both on the private and the state sector, the latter being the predominant producer of grains (Al-Idrissi et al, 1996).

Given the arid nature of much of the territory, irrigated farming systems have always been of crucial importance in generating much of the countries agricultural output. About 50% of the cereal production and about 90% of the fruit and vegetables' production originates from irrigated agriculture (FAO, 2005a).

Land use and irrigation statistics

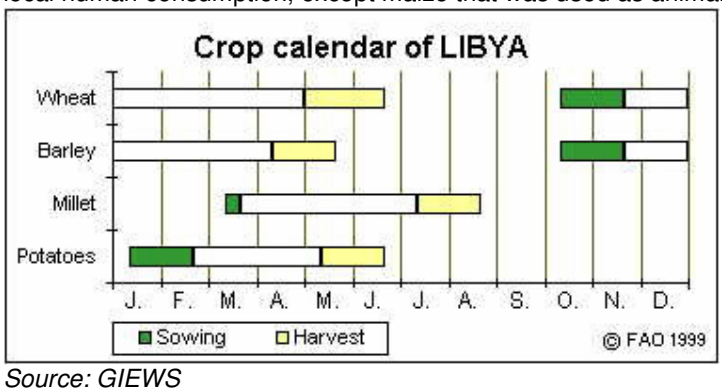
Table 2: Land use and irrigation

Type of area	Estimate	Unit	Reference period	Source
Total Land Area	175 954	1000 Ha	2002	FAO
Agricultural Area	9	%	2002	FAO
Arable lands and Permanent Crops	1	%	2002	FAO
Permanent Crops	<1	%	2002	FAO
Permanent Pasture	8	%	2002	FAO
Forested Land Areas	<1	%	2000	FAO
Irrigated Agricultural Land	<1	%	2002	FAO
Arable & Permanent Cropland in Ha per agricultural inhabitant	6	Ha	2002	FAO

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

Main crops, agricultural calendar, seasonal food shortage

The 5 main food commodities produced in Libya in 2002 were cow milk, wheat, watermelons, fresh vegetables and maize (FAO, Statistics Division). All these commodities were almost entirely used for local human consumption, except maize that was used as animal feed (FAO, FAOSTAT Database).



Source: GIEWS

Livestock production and fishery

Animal production contributes approximately 30% of the total agricultural production, providing meat, milk, dairy products and eggs. Sheep, goats and camels are the main livestock species. The supply of animal products does not meet the national demand, partly because of climate conditions, feed shortage and lack of governmental support (Al-Masri, 2000).

Fisheries in Libya are mainly marine, with negligible inland fisheries and aquaculture. Fish products are destined to local human consumption. Per capita supply of fisheries products was of about 7 kg per year in 2001 (FAO, 2005b).

Table 3: Livestock and fishery statistics

Livestock production and fishery	Estimate	Unit	Reference period	Source
Cattle	130 000	number of heads	2002	FAO
Sheep and Goats	5 765 000	number of heads	2002	FAO
Poultry Birds	25 000	thousands	2002	FAO
Fish catch and aquaculture	33 666	tons	2002	FAO

I.4 Economy

Libya's economy, which remains largely state controlled and heavily dependent on the oil sector, grew solidly in 2003/04, reflecting favourable developments in world oil markets (IMF, 2005). The oil sector contributes practically all export earnings and about 25% of the GDP. The non-oil manufacturing and construction sectors have expanded from processing mostly agricultural products to including the production of petrochemicals, iron, steel, and aluminium (FAO, 2005a).

The public sector plays a dominant role: to absorb the labour force resulting from to the growth of the working-age population, the government increased public sector employment. In 2001, civil service and public sector represented respectively 53% and 24% of total employment of Libyan nationals (IMF, 2003).

Table 4: Basic economic indicators

Indicator	Estimate	Unit	Reference Period	Source
Gross Domestic Product per capita	7 570	PPP US $	2002	UNDP
GDP annual growth	3.2 (estimate)	%	2005	FAO
Gross National Income per capita	4 450	$	2004	WB
Industry as % of GDP	36	%	2002	WB
Agriculture as % of GDP	9	%	2002	FAO
Services as % of GDP	39	%	1984	WB
Paved roads as % of total roads	57	%	1999	WB
Internet users	16	per 10 000 people	2003	ITU
Total debt service as % of GDP	12	%	94	WB
Military Public expenditure	2.4	% of GDP	2002	UNDP

Oil earnings constituted about 95% of the Libyan exports' value and 60% of budgetary revenue in 1997-2002. Non-oil activities and the private sector remain hindered by a complex regulatory regime and widespread government interventions. The public sector also accounts for 73% all imports, constituted by machinery, transport equipment, semi-finished goods, food commodities and consumer products (IMF, 2003).

I.5 Social indicators

Health indicators

Libya has invested in public health. Some health indicators are very favourable. Infant and underfive mortality rates are low. According to the PAPCHILD 1995 survey on mother and child health, about 81% of pregnant women received antenatal care, and 82% of children received complete vaccination, with no significant difference between urban and rural areas but only 17% of pregnant women were vaccinated for tetanus (ALMCHS, 1995). Polio was eradicated in 2003. In September 2002, the Libyan government launched a National Programme for combating HIV/AIDS. A key component was the active participation of both public and NGO sectors, including mosques, sports clubs and communities (UNICEF, information by country).

Table 5: Health indicators

Indicator	Estimate	Unit	Reference Period	Source
Mortality				
Infant mortality	13	‰	2003	UNICEF
Under-five mortality	16	‰	2003	UNICEF
Maternal mortality ratio:				UNICEF
reported	77	per 100 000 live births	1985-2003	UNICEF
adjusted	97	per 100 000 live births	2000	UNICEF
Morbidity				
Prevalence of diarrhoea in the last 2 weeks in under-fives	n.a.			
Oral Rehydration rate among under-fives	n.a.			
Percentage of under-fives with acute respiratory infections in the last 2 weeks	n.a.			
Tuberculosis prevalence	21	per 100 000 people	2003	UNSTAT
HIV/AIDS				
Prevalence of HIV/AIDS cases in adults	0.3	%	2003	UNSTAT
Percentage of women (15-24) who know that a person can protect herself from HIV infection by consistent condom use	n.a.			
Immunization				
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	93	%	2003	UNICEF/WHO
Percent of infants with immunization against measles at 1 year of age	91	%	2003	UNICEF/WHO
Percent of pregnant women immunized against tetanus	17	%	1995	ALMCHS

n.a.: not available

Water and sanitation

In 2002, 71% of the total population had access to improved drinking water sources. About 97% of the urban population and 96% of the rural population had access to improved sanitation services.

Table 6: Access to safe water and sanitation

Indicator	Estimate	Unit	Reference period	Source
Sustainable access to an improved water source:				
Urban	72	% of population	2002	WHO
Rural	68	% of population	2002	WHO
Access to improved sanitation:				
Combined urban/rural	97	% of population	2002	UNICEF

Access to health services

Detailed information on access to health services is lacking. Although the health system is quite well developed in Libya, UNICEF reports indicate that many Libyans seek medical services in neighbouring countries, especially in Tunisia (UNICEF, information by country).

Table 7: Access to Health Services

Indicator	Estimate	Unit	Reference Period	Source
Health personnel: number of physicians	120	per 100 000 people	1990-2003	WHO
Population with sustainable access to affordable essential drugs	good access*		1999	UNDP
Percent of births attended by skilled health personnel	94	%	1995	UNICEF
Public expenditure on Health	1.6	% of GDP	2001	UNESCO

* estimated at 95-100% of total population

Education

Compulsory basic education has been extended to nine years instead of the former six years; the rate of attendance in elementary, secondary and high school is about 92%. Adult literacy rate is 91% for males and 68% for females (UNICEF, 2004). However, the educational system is not able to provide an adequately skilled workforce to match the needs of the employment market (IMF, 2003).

Table 8: Education

Indicator	Estimate	Unit	Reference Period	Source
Adult literacy rate	82	%	2002	UNESCO
Adult literacy rate : females as % of males	77	%	2002	UNESCO
Youth literacy (15-24 years)	97	%	2002	UNESCO
Net primary enrolment rate	96	%	1990-1991	UNESCO
Grade 5 completion rate	n.a.			
Ratio of girls to boys in primary education	1.0	number of girls per 1 boy	2001	UNESCO
Public expenditure on education	2.7	% of GDP	1999-2001	UNESCO

n.a.: not available

Level of development, poverty

There are no official data available on poverty rates and revenue distribution in Libya.

The limit of the employment capacity of the public sector has been reached. The inadequacy of the educational system to satisfy the needs of the market has resulted in the employment of foreign, better-educated labour forces, which are paid higher wages (IMF, 2003). The unemployment rate is high, at about 30% (FAO, 2005a).

Table 9: Human development and poverty

Indicator	Estimate	Unit	Reference period	Source
Human development index (HDI)	0.794	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	n.a.			
Human poverty index (HPI-1)	15.3	%	2003	UNDP

n.a.: not available

Other social indicators

While women represenr 25% of the economically active population, in the agricultural sector women account for 67% of the labour force (FAO, 2005a).

Table 10: Other social indicators

Indicator	Estimate	Unit	Reference period	Source
Gender related development index (GDI)	n.a.			
Women's wage employment in non-agricultural sector as % of total non agricultural employees	15	%	1990	UNSTAT
Ratification of ILO Convention 182 on The Worst Forms of Child Labour	ratified		2000	ILO

n.a.: not available

Part II: Food and nutrition situation

II.1 Qualitative aspects of the diet and food security

Food consumption patterns

Wheat is the staple food of the Libyan diet, consumed principally as bread, couscous and macaroni. Couscous is the major traditional food whereas macaroni is the easily prepared fast-growing dish. Rice consumption is spreading and it is the only food product totally imported. Of pulses, the most consumed are chickpeas, lentils, dried beans and fava beans. Meat, principally poultry, lamb and mutton, beef or camel, is an important part of Libyan meals. Milk is consumed mainly for breakfast, with increased consumption in the month of Ramadan. A wide variety of seasonal vegetables and fruit are abundantly available with a large production of citrus fruit and dates. Olive oil is produced locally, but imports of subsidized corn oil – which is widely used for cooking, frying and baking – have increased. Animal fat is rarely used. Usually, there are three meals a day, lunch being the main meal.

Food security situation

With very limited renewable water resources, Libya relies heavily on imports to match food needs. In 2000, import of cereals, sugar and oil represented a large share of the national budget. Presently, food security at national level has been achieved (FAO, 2005a). No data are currently available on the food security situation at sub-national level.

II.2 National food supply data

Supply of major food groups

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

Major food groups	Supply for human consumption in g/day					
	1965-67	1972-74	1979-81	1986-88	1993-95	2000-2002
Fruit and vegetables	335	714	856	714	716	701
Cereals (excl. beer)	384	476	539	523	534	549
Milk and eggs	136	215	295	304	270	222
Sweeteners	62	105	105	115	87	98
Starchy roots	16	42	78	76	95	94
Meat and offals	59	89	144	105	97	86
Pulses, nuts, oilcrops	27	36	43	52	60	75
Vegetable oils	26	43	51	56	65	61
Fish, seafood	7	24	22	15	21	19
Other	28	20	16	12	10	10
Animal fats	2	4	9	6	5	4

Source: FAOSTAT

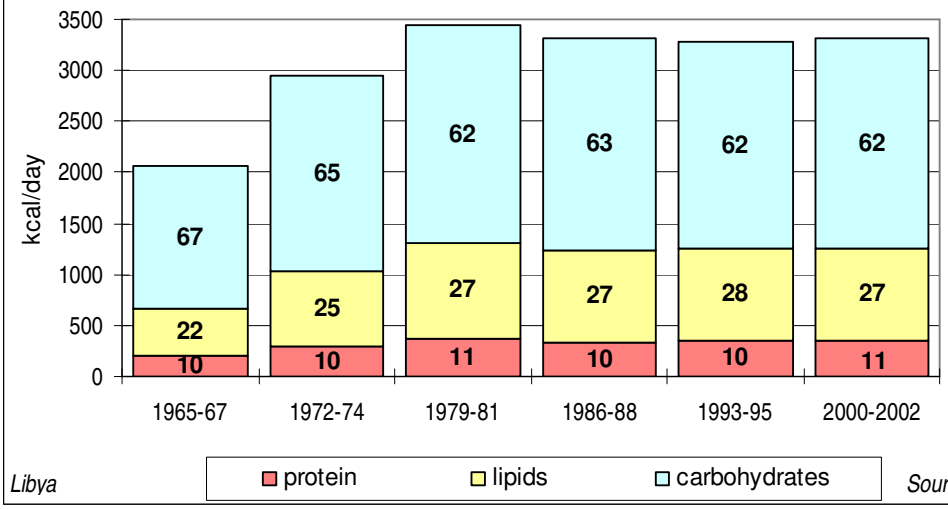
The food supply of Libya is very abundant. The supply of major food groups has increased markedly overtime. The supplies of fruit and vegetables, pulses and vegetable oils have more than doubled between 1965/67 and 2000/02. The supply of starchy roots increased six-fold during the same period. The increasing trend in food supply from 1965/67 can be explained by the prosperous economy due to oil production. During the 1980's, for several food groups such as cereals, meat, milk and eggs, fruit and vegetables, there was a decrease in supplies due to changes in national policies which aimed to reduce imports and rely more on local production to meet the country's food requirements.

The food supply is characterised by a high availability of fruit and vegetables (locally produced dates and imported tomatoes in majority) as compared to other North African countries. Between 1965/67 and 1972/74, this supply has more than doubled and then remained above 700g/per capita/day. Cereals are the second major food group in terms of supply, rising since 1965/67. The supply of cereals is mainly constituted by imported wheat, which represented about 70% of the total supply of cereals in 2002. The supply of starchy roots (locally produced potatoes) increased considerably, particularly between 1965/67 and 1979/81. The same observation is valid for vegetable oils (maize germ oil, olive oil) the supply of which reached 61g/day in 2000/02. Since 1965/67, the supply of animal products has also increased. Current per capita supply of milk and eggs, meat (poultry, mutton and goat meat) and fish are relatively important (FAO, FAOSTAT Database).

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 & carbohydrates



Libya *Source: FAOSTAT*

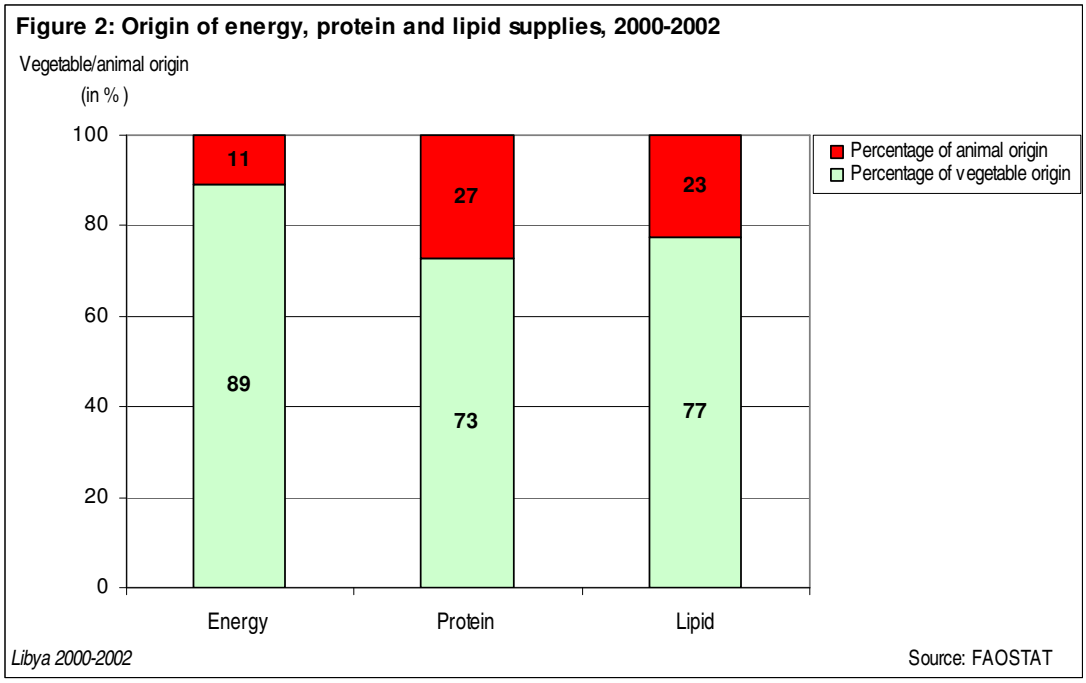
In 2001, the dietary energy supply (DES) was 3 327 kcal/per capita/day, which is well above population energy requirements of 2 144 kcal/per capita/day[1].

The per capita DES increased from 2 061 kcal/day in 1965/67 to 3 324 kcal/day in 2000/02. Presently, the share of macronutrients in the total DES is 62% for carbohydrates, 27% for lipids and 11% for protein (FAO, FAOSTAT Database). The share of lipids is adequate in comparison to recommendations (energy from lipids not exceeding 30%) (WHO, 2003). Between 1965/67 and 2000/02, the share of protein remained stable, whereas there was an increase in the share of DES from lipids and a decrease in that from carbohydrates (FAO, FAOSTAT Database).

[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

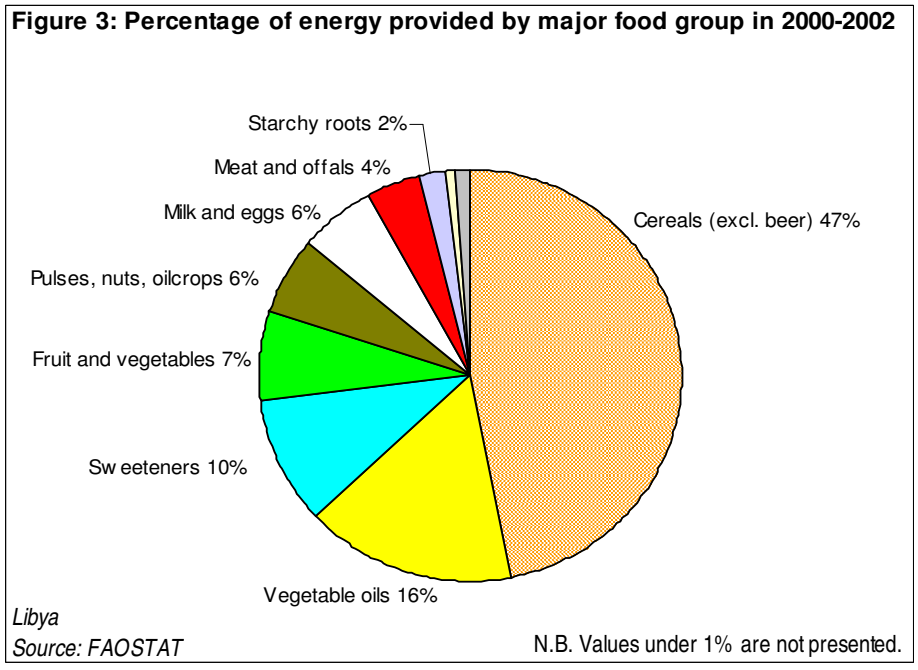
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies



As a result of the high supply of vegetable food groups, macronutrients are predominantly of vegetable origin. Vegetable foods provide 89% of total energy, 73% of protein and 77% of lipids (FAO, FAOSTAT Database).

Dietary energy supply by food group

- Figure 3: Dietary energy supply by food group



Energy provided by the most important food groups, namely cereals, vegetable oils and sweeteners, amounts to almost three-quarters of the DES. Consequently the diet can be considered as energy-dense. These three food groups are subsidized by the Libyan government.

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)	52	45	44	44	46	47
Vegetable oils	11	13	13	15	18	16
Sweeteners	11	13	11	12	10	10
Fruit and vegetables	9	9	9	8	7	7
Pulses, nuts, oilcrops	4	4	4	4	5	6
Milk and eggs	5	6	6	7	6	6
Meat and offals	6	6	8	6	5	4
Starchy roots	<1	1	2	2	2	2
Animal fats	1	1	2	1	1	<1
Fish, seafood	<1	1	1	<1	<1	<1
Other	1	<1	<1	<1	<1	<1

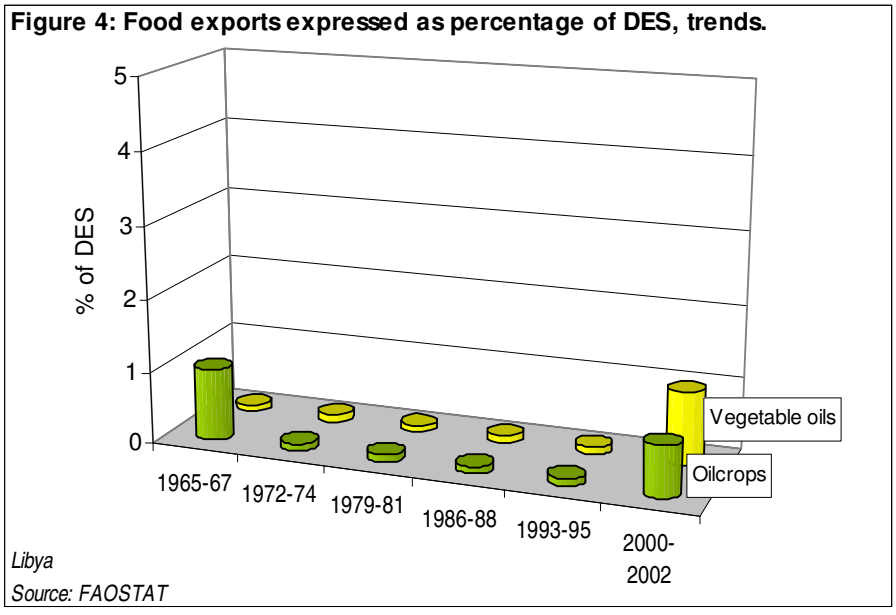
Source: FAOSTAT

The share of cereals in DES decreased between 1965/67 and 1986/88 and then slightly increased in comparison with the previous period (FAO, FAOSTAT Database). The food diversification index (energy provided by groups other than cereal and starchy roots) increased from 47% in 1965/67 to 51% in 2000/02. The diet is becoming more diverse although this change is slow and still insufficient. This progress is linked to the rapidly growing urbanization.

Food imports and exports expressed as percentage of DES

Oilcrops (groundnut oil) and vegetable oils are the main food exports but they remain quantitatively limited.

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

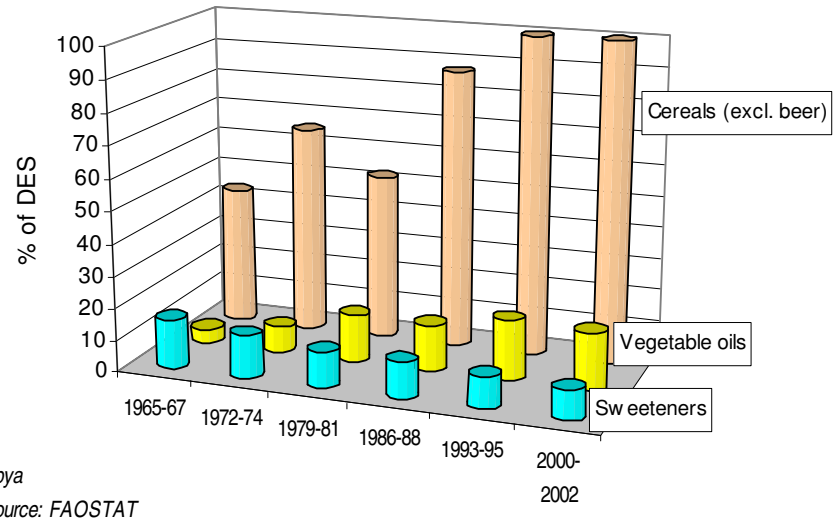


Note that only the 3 most important food groups are shown.

Libya is highly dependant on imports of cereals, principally wheat. These imports have increased throughout the period. Population growth increased cereal needs and local production of wheat could not meet the domestic demand. Imported cereals are for both human consumption and animal feed. While the country produces and exports olive oil, it nevertheless imports maize germ oil, which represents more than half of the supply of vegetable oils (FAO, FAOSTAT Database).

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

Figure 5: Food imports expressed as percentage of DES, trends.



Libya

Source: FAOSTAT

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

II.3 Food consumption

National level surveys

There is a lack of recent and nationally representative data on food consumption.

In 1999, a study of individual dietary intake estimated energy intake at 2 149 kcal/day for men aged 15-50 years and 2 039 kcal/day for women of the same age range (Swedan, 2000). The percentage of energy provided by protein was 12% and by lipids about 30%. The share of lipids in the energy intake was at the upper limit of recommendations (WHO, 2003). In the younger age groups (7-14 years) the share of macronutrients in the energy intake was similar to that of adults.

A study conducted in 1995 found similar levels of energy intake for adults. The share of energy from lipids was similar (29 %) (Najah, 1995).

The study by Al-Arbah (1996) showed that cereals, oil and sweeteners provided the largest shares of energy, respectively 41, 12 and 11%.

Table 13: Food consumption data

Survey name and date (Reference)	Region	Survey population households/ individuals	Sample characteristics			Average food consumption								
			Age (years)	Sex	Sample size	Nutrient intake (per person/day)								
						Energy (kcal)	% from protein	% from lipid		Protein (g)	% protein from animal origin		Lipid (g)	% lipid from animal origin
Nutritional indices in some provinces in Libya, 1999 (Swedan, 2000)	7 provinces	Individuals	7-10	M	92	1 863	12	31		57	n.a.		64	n.a.
	7 provinces	"	11-14	M	117	2 052	14	29		70	"		69	"
	7 provinces	"	15-50	M	588	2 149	12	30		63	"		69	"
	7 provinces	"	7-10	F	92	1 823	12	30		54	"		60	"
	7 provinces	"	11-14	F	117	1 871	14	29		73	"		59	"
	7 provinces	"	15-50	F	588	2 039	12	29		62	"		66	"
Effect of nutritional and other factor on heart disease, 1995 (Najah, 1995)	Tajora	Individuals	25-65	M	200	2 210	14	28		75	"		68	"
	Tajora	"	25-65	F	200	1 982	13	27		66	"		60	"
						Percentage of energy intake provided by								
						Cereals	Starchy roots	Pulses, nuts & oilcrops	Fruit & vegetables	Oils & fats	Meat & offals	Fish & seafood	Milk, dairy products & eggs	Sugar & derived products
Food security, its limitation and achievement, 1996 (Al-Arbah, 1996)	National	n.a.	All	M/F	n.a.	41	2	3	8	12	6	n.a.	4	11

n.a.: not available.

II.4 Infant and young child feeding practices

Breastfeeding is a common practice in urban and rural areas, as more than 90% of children were breastfed in 1995. Main characteristics are an early initiation of breastfeeding as 73% of neonates started breastfeeding within six hours of birth and a medium duration (the mean duration of breastfeeding was 11 months). Thirty-nine percent of children were still breastfed between 12 and 15 months and 23% between 20 and 23 months of age (ALMCHS, 1995).

However, the duration of exclusive breastfeeding was short, on average 1.3 months. The practice of giving sweetened water, traditional liquids and fruit juice very early is widespread among mothers. While only 6% of children were never breastfed, 40% were mixed-fed, receiving the breast and the bottle during the first month, and this practice increased to 61% for the second and third months of age (ALMCHS, 1995).

The primary reason reported for early and sudden weaning was insufficient amount of breastmilk and the second was refusal of the breast by the child due to the early introduction of bottle-feeding and liquids other than breastmilk (Ghashut, 1991; ALMCHS, 1995).

II.5 Nutritional anthropometry

Low birth weight

In 1995, the prevalence of low birth weight (less than 2 500g) was 7% (UNICEF, End-decade Database on Low Birth Weight). The percentage of newborns that were weighed was not available but the percentage of births attended by skilled health personnel was 94% in 1995 (UNICEF, Information by country); therefore the estimated prevalence of low birth weight is probably representative at national level.

Anthropometry of preschool children

The national survey on mother and child health carried out in 1995 is the only source of information available on the nutritional status of preschool children. The survey was conducted in seven geographical regions (ALMCHS, 1995).

In 1995, 15% of children were stunted and 5% were severely stunted. Stunting appeared at birth, with a 10% prevalence among infants under 6 months. This could be related to low birth weight (which affected 7% of neonates) and to the short duration of exclusive breastfeeding. After 6 months of age, prevalence of stunting increased to reach a peak at 12-23 months (22%). Some regional differences in prevalence of stunting were observed, with higher prevalences in the provinces of Jabel El-Achdar, Jabel El-Gharbi and Golf of Serte (ALMCHS, 1995).

There was no wasting except in the regions of Sebha and Golf of Serte (5% for both). The prevalence of underweight was 5%, slightly higher in rural than urban areas (6% and 4% respectively) (ALMCHS, 1995).

More up-to-date data are needed to assess the current nutritional status of preschool children.

Table 13: Food consumption data

Survey name and date (Reference)	Region	Survey population households/ individuals	Sample characteristics			Average food consumption								
			Age (years)	Sex	Sample size	Nutrient intake (per person/day)								
						Energy (kcal)	% from protein	% from lipid		Protein (g)	% protein from animal origin		Lipid (g)	% lipid from animal origin
Nutritional indices in some provinces in Libya, 1999 (Swedan, 2000)	7 provinces	Individuals	7-10	M	92	1 863	12	31		57	n.a.		64	n.a.
	7 provinces	"	11-14	M	117	2 052	14	29		70	"		69	"
	7 provinces	"	15-50	M	588	2 149	12	30		63	"		69	"
	7 provinces	"	7-10	F	92	1 823	12	30		54	"		60	"
	7 provinces	"	11-14	F	117	1 871	14	29		73	"		59	"
	7 provinces	"	15-50	F	588	2 039	12	29		62	"		66	"
Effect of nutritional and other factor on heart disease, 1995 (Najah, 1995)	Tajora	Individuals	25-65	M	200	2 210	14	28		75	"		68	"
	Tajora	"	25-65	F	200	1 982	13	27		66	"		60	"
						Percentage of energy intake provided by								
						Cereals	Starchy roots	Pulses, nuts & oilcrops	Fruit & vegetables	Oils & fats	Meat & offals	Fish & seafood	Milk, dairy products & eggs	Sugar & derived products
Food security, its limitation and achievement, 1996 (Al-Arbah, 1996)	National	n.a.	All	M/F	n.a.	41	2	3	8	12	6	n.a.	4	11

n.a.: not available.

Table 14: 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
Libyan Mother and Child Health Survey 1995. PAPCHILD Survey (Jul.-Nov. 1995) (ALMCHS, 1995)[1]	**Total**	0-4.99	M/F	4 354	4.5	15.1	0.4	2.7	0.6	4.7	n.a.
	Sex										
		0-4.99	M	2 167	5.1	16.4	0.5	2.7	0.8	5.0	"
		0-4.99	F	2 188	3.9	13.8	0.3	2.7	0.4	4.4	"
	Age										
		0-0.49	M/F	278	1.6	9.8	0.4	5.3	0.7	1.8	"
		0.5-0.99	M/F	448	3.9	16.1	0.0	1.7	0.6	3.6	"
		1-1.99	M/F	863	5.3	21.7	0.7	4.4	0.8	4.9	"
		2-2.99	M/F	953	5.4	13.5	0.4	1.9	0.9	4.5	"
		3-3.99	M/F	960	4.6	13.2	0.4	2.4	0.4	5.3	"
		4-4.99	M/F	852	3.7	13.7	0.3	2.1	0.3	5.6	"
	Residence										
	urban	0-4.99	M/F	3 029	4.1	13.9	0.3	2.5	0.5	4.2	"
	rural	0-4.99	M/F	1 325	5.3	18.1	0.7	3.3	0.8	5.9	"
	Region										
	Bengasi	0-4.99	M/F	596	2.2	11.1	0.7	2.0	0.5	3.8	"
	El-Zawia	0-4.99	M/F	396	5.2	15.0	0.0	3.7	0.7	3.5	"
	Golf of Serte	0-4.99	M/F	607	3.7	18.2	0.5	4.7	0.8	6.7	"
	Jabel El-Achdar	0-4.99	M/F	519	8.8	21.0	0.6	2.1	0.8	4.0	"
	Jabel El-Gharbi	0-4.99	M/F	476	5.8	20.2	0.6	3.3	0.6	6.7	"
	Sebha	0-4.99	M/F	296	3.5	12.5	0.8	5.4	0.8	6.7	"
	Tripoli	0-4.99	M/F	1 465	3.8	12.4	0.1	1.5	0.4	3.8	"

* 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 14: 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
Libyan Mother and Child Health Survey 1995. PAPCHILD Survey (Jul.-Nov. 1995) (ALMCHS, 1995)[1]	**Total**	0-4.99	M/F	4 354	4.5	15.1	0.4	2.7	0.6	4.7	n.a.
	Sex										
		0-4.99	M	2 167	5.1	16.4	0.5	2.7	0.8	5.0	"
		0-4.99	F	2 188	3.9	13.8	0.3	2.7	0.4	4.4	"
	Age										
		0-0.49	M/F	278	1.6	9.8	0.4	5.3	0.7	1.8	"
		0.5-0.99	M/F	448	3.9	16.1	0.0	1.7	0.6	3.6	"
		1-1.99	M/F	863	5.3	21.7	0.7	4.4	0.8	4.9	"
		2-2.99	M/F	953	5.4	13.5	0.4	1.9	0.9	4.5	"
		3-3.99	M/F	960	4.6	13.2	0.4	2.4	0.4	5.3	"
		4-4.99	M/F	852	3.7	13.7	0.3	2.1	0.3	5.6	"
	Residence										
	urban	0-4.99	M/F	3 029	4.1	13.9	0.3	2.5	0.5	4.2	"
	rural	0-4.99	M/F	1 325	5.3	18.1	0.7	3.3	0.8	5.9	"
	Region										
	Bengasi	0-4.99	M/F	596	2.2	11.1	0.7	2.0	0.5	3.8	"
	El-Zawia	0-4.99	M/F	396	5.2	15.0	0.0	3.7	0.7	3.5	"
	Golf of Serte	0-4.99	M/F	607	3.7	18.2	0.5	4.7	0.8	6.7	"
	Jabel El-Achdar	0-4.99	M/F	519	8.8	21.0	0.6	2.1	0.8	4.0	"
	Jabel El-Gharbi	0-4.99	M/F	476	5.8	20.2	0.6	3.3	0.6	6.7	"
	Sebha	0-4.99	M/F	296	3.5	12.5	0.8	5.4	0.8	6.7	"
	Tripoli	0-4.99	M/F	1 465	3.8	12.4	0.1	1.5	0.4	3.8	"

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

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

n.a.: not available.

Anthropometry of school-age children and adolescents

Currently no data are available on anthropometry of school-age children and adolescents.

Anthropometry of adult women

In 1995, among women aged 25-65 years living in Tripoli, the mean body mass index (BMI) was 28.5 kg/m² (Najah, 1995). Two years later, in the same town, the mean BMI among women aged 30-65 years was 26.7 kg/m² (Al-Amary, 1998).

In 1999, a large-scale study was carried out in six provinces. Overall, among women 15-50 years 15% had chronic energy deficiency (BMI<18.5 kg/m²). Prevalence reached 17% in the province of Brak. Overweight and obesity affected a large proportion of the women. More than one out of five women were overweight (BMI 25.0-29.9) and 7% were obese (BMI≥30.0). The prevalence of overweight was higher in the province of Zentan (26%) while obesity was most common in the province of Musrata (12%) (Swedan, 2000).

Data taken from the SuRF Report indicate a mean BMI of 25.9 kg/m² among women aged 15 years and above, which is comparable to the estimates from the previous studies. However, there is a discrepancy in estimates prevalence of overweight and obesity. According to the SuRF Report, prevalence of overweight is 56% and that of obesity is 21%, representing 77% of women with a BMI above 25.0 kg/m² (WHO, 2005). Representativeness of the data is not documented. This discrepancy between the studies could be due to methodological differences but are more likely due to sampling.

Libya is affected by the double burden of malnutrition, with the simultaneous occurrence of chronic energy deficiency and of a very high prevalence of overweight and obesity. This nutrition transition is probably due to improving living standards, to urbanization which modifies dietary patterns and to a decrease in physical activity.

Table 15: Anthropometry of adult women

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Anthropometry of adult women					
			Body Mass Index[1] (BMI) (kg/m²)					
					Percentage of women with BMI			
			Sample size	Mean (kg/m²)	<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Nutritional indices in some provinces in Libya (1999) (Swedan, 2000)	**Total**	15-50	350	n.a.	14.7	57.1	21.1	7.1
	Region							
	Garian	15-50	n.a.	n.a.	16.3	51.9	21.6	10.2
	Zentan	15-50	"	"	7.2	62.7	25.5	4.6
	Tripoli	15-50	"	"	14.5	56.0	21.5	8.0
	Musrata	15-50	"	"	16.4	50.4	21.5	11.7
	Brak	15-50	"	"	17.4	60.2	14.4	8.0
	Albeda	15-50	"	"	15.7	54.4	22.0	7.9

[1] excludes pregnant women and women with a birth in the 2 preceding months.
n.a.: not available.

Anthropometry of adult men

In 1999, chronic energy deficiency (CED) affected about 18% of adult men. Important variations were observed between regions, and in Tripoli and Brak, about one out of five men had CED. Overweight and obesity affected about one quarter of men, and prevalence was particularly high in the province of Musrata (Swedan, 2000).

According to the SuRF Report, the mean BMI among men aged 15 years and above is 24.9 kg/m². As with the data on women, there is a discrepancy between the study by Swedan and the data provided by WHO. According to the WHO, in 2002, the prevalence of overweight was about 48% and the prevalence of obesity was of 11%. Thus, the overall proportion of men with a BMI of 25.0 kg/m² and more was estimated at 69% (WHO, 2005). Representativeness of the data is not documented.

Table 16: Anthropometry of adult men

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sample size	**Anthropometry of adult men**				
				Body Mass Index (BMI) (kg/m²)				
				Mean (kg/m²)	Percentage of men with BMI			
					<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Nutritional indices in some provinces in Libya (1999) (Swedan, 2000)	**Total**	15-50	334	n.a.	17.7	57.3	19.2	5.8
	Regions							
	Garian	15-50	n.a.	n.a.	18.5	60.3	17.5	3.7
	Zentan	15-50	"	"	14.2	58.8	24.0	3.0
	Tripoli	15-50	"	"	20.8	54.1	18.5	6.6
	Musrata	15-50	"	"	18.6	49.8	19.6	12.0
	Brak	15-50	"	"	20.4	61.4	16.4	1.8
	Albeda	15-50	"	"	13.6	64.0	19.0	3.4

n.a.: not available.

II.6 Micronutrient deficiencies

Iodine deficiency disorders (IDD)

Prevalence of goitre and urinary iodine level

Data concerning iodine deficiency disorders are very limited. In 1993, a survey conducted in the north including children of all ages showed a prevalence of goitre of 23% (ICCIDD, 2002).

Iodization of salt at household level

There is legislation for iodization of salt and iodized salt became available on the markets in 1992.

Vitamin A deficiency (VAD)

Prevalence of sub-clinical and clinical vitamin A deficiency and supplementation

Currently, no data are available on the prevalence of vitamin A deficiency or on supplementation.

Iron deficiency anemia (IDA)

Prevalence of IDA

In 2002, a survey carried out among school-age (6-12 years) children of Tripoli indicated that 69% of were anemic. Anemia was defined as hemoglobin (Hb) <12g/dL (Mahfuz, 2002). In Sabretha in 1999, the prevalence of anemia (Hb<12g/dL) was 11% among 370 male children aged 6-14 years and 13% among 341 female children of the same age (Jbireal, 1999). The discrepancy between the two studies is difficult to interpret, but both surveys were local and differences in methodology cannot be ruled out.

A study was carried out in 1999 among adults in 7 provinces, including 350 women and 334 men. The prevalence of IDA among women (Hb<12g/dL) aged 15-50 years was 18%. Among women aged 19-24 years, prevalence reached 20%. Among men, prevalence was 9% (Hb<13 g/dL) (Swedan, 2000).

Among the causes of IDA, the high consumption of strong tea and the practice of serving tea to children at a young age could reduce the bioavailability of iron and thus expose large numbers of children and adults to iron deficiency (Swedan, 2000).

Interventions to combat IDA

Currently no data are available on interventions to combat iron deficiency anemia.

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

Libya has established a nutritional policy aiming to provide for the basic food needs of people all over the country, by lowering food prices through subsidizing major food groups that supply energy such as cereals, vegetable oils and sugar. Since cereals supply 45% of the DES, strategies for cereal fortification with iron should be considered. Since more than one quarter of the adult population in some provinces is overweight or obese, the relevance of subsidizing energy dense but micronutrient poor foods such as sugar and vegetable oil should be questioned.

It is important to consolidate nutrition education, to enhance nutrition awareness in order to improve the nutritional status of the population. It is also of vital importance to carry out a national nutrition survey and to establish a nutrition information system.

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