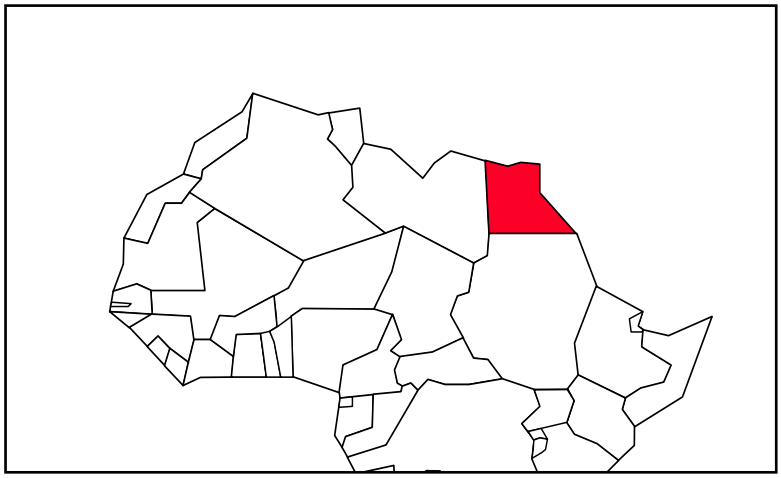
FAO - NUTRITION COUNTRY PROFILES

EGYPT



FOOD AND AGRICULTURE ORGANIZATION

OF THE UNITED NATIONS

Note for the reader

The objective of the Nutrition Country Profiles (NCP) is to provide concise analytical summaries describing the food and nutrition situation in individual countries with background statistics on food-related factors. The profiles present consistent and comparable statistics in a standard format. This pre-defined format combines a set of graphics, tables and maps each supported by a short explanatory text. Information regarding the agricultural production, demography and socio-economic level of the country are also presented.

In general, data presented in the NCP are derived from national sources as well as from international databases (FAO, WHO...).

Technical notes giving detailed information on the definition and use of the indicators provided in the profile can be obtained from ESNA upon request. An information note describing the objectives of the NCP is also available.

Useful suggestions or observations to improve the quality of this product are welcome.

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FAO, 2003

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Graphs, tables and maps can be visualised by clicking on the words in bold and underlined, only in the "Full profile" pdf file.

SUMMARY

Egypt is the largest Arab country by population and possesses the second largest economy in the Arab world. Egypt is an independent republic with a democratic government. The annual average population growth rate was 1.9% for the 1995-2000 period. The last three decades showed slow paced urbanization in comparison to the expected fast pace for the following three decades. Thus, dietary energy supplies will have to increase in the following years.

*The share of energy supply of both carbohydrates and proteins increased during the last two decades in comparison to the contribution of fats, which decreased gradually. The availability of major food groups has increased, apart from the supplies of vegetable oils and animal fats which decreased gradually (**Figure 1**). Although the major food groups are available and there was an increase in the dietary energy supply; maldistribution of the available food supplies, according to the different socio-economic classes occurred. Cereals represent the main source of energy in the Egyptian diet, however, cereal imports were irregular. Therefore food exports of cereals and sweeteners have severely declined through the last three decades (**Figure 4** and **Figure 5**).*

*Food consumption studies showed that consumption of animal protein and animal fat were higher among urban areas. Consumption of fat & oils and sugar are within the healthy range as recommended by WHO (**Table 3c**). Results showed that the intake of vitamin A, iron, calcium, iodine, selenium and zinc are insufficient.*
*(**Tables 7**).*

*Child growth, development and well being are determined by the feeding practices and nutritional status of the child. Infant feeding practices in most of Egypt surveys showed that the majority of infants are breastfed. Exclusive breast-feeding is common but not universal in early infancy. Surveys showed that breast-feeding continued for the majority of children beyond the first year of life. The percentage of children aged 6-9 months who received both breast milk and solid food is higher in urban areas. In rural areas, mothers are more likely to initiate and continue breast-feeding than mothers in urban areas (**Tables 4**).*

*The results of nationwide nutrition surveys suggest that the nutritional status of young children in Egypt has improved during the 1995-2000 period. The main problem among pre-school child is stunting which is considered a moderate public health problem according to WHO criteria (**Table 5a-1**, **Table 5a-2,** **Table 5a-3**, **Map 1ab**, **Map 2ab** and **Map 3ab)**. Different surveys in Egypt concluded that the primary nutritional problem for many Egyptian adults is a tendency towards obesity (**Table 5c**).*

*Regarding micronutrient deficiencies; anaemia is considered the most prevalent. The groups most affected are preschool children and their mothers (**Table 6b**). According to WHO criteria, iron deficiency anaemia (IDA) is considered to be a moderate public health problem in Egypt. Also, vitamin A deficiency (VAD) among preschoolers and their mothers is considered to be a subclinical, mild-to-moderate, public health problem (**Table 6a**). According to the figures in the latest surveys, iodine deficiency disorders (IDD) were considered a public health problem, since the total goitre rate (TGR) was higher than 5% among different vulnerable populations (**Table 6c-1**, **6c-2** & **6c-3**). After the current programs of vitamin A supplementation for young children and mothers during the postpartum period, as well as the universal salt iodization, an improvement in the micronutrient malnutrition indicators is expected (**Map 4**).*

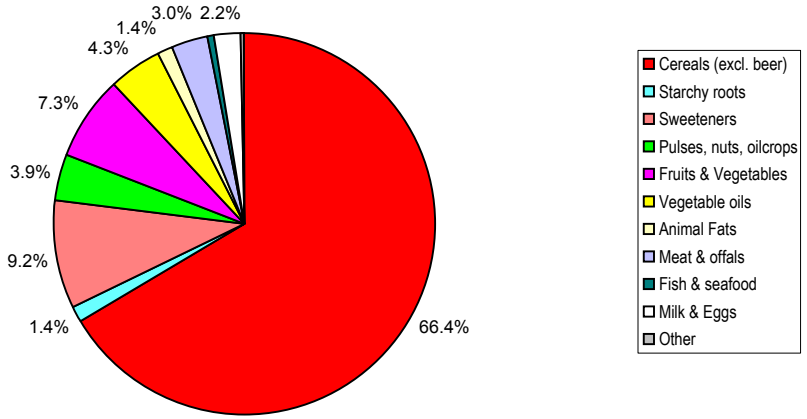
TABLE 1: GENERAL STATISTICS OF EGYPT

Last updated: 08/08/2003

Indicator (§)	Year	Unit	
A. Land in use for agriculture			
1. Agricultural land	2000	ha per person	0.049
2. Arable and permanent crop land	2000	ha per person	0.049
B. Livestock			
1. Cattle	1998-2000	thousands	3390
2. Sheep & goats	1998-2000	thousands	7737
3. Pigs	1998-2000	thousands	29
4. Chickens	1998-2000	millions	87
C. Population			
1. Total population	2000	thousands	68470
2. 0-4 years	2000	% of total pop.	11.8
3. 5-14 years	2000	% of total pop.	23.6
4. 15-24 years	2000	% of total pop.	20.3
5. >= 60 years	2000	% of total pop.	6.3
6. Rural population	2000	% of total pop.	54.8
7. Annual population growth rate, Total	1995-2000	% of total pop.	1.7
8. Annual population growth rate, Rural	1995-2000	% of rural pop.	1.2
9. Projected total population in 2030	2030	thousands	100371
10. Agricultural population	2000	% of total pop.	36.6
11. Population density	2000	pop. per km^2	67.8
D. Level of Development			
1. GNP per capita, Atlas Method	1998	current US$	1 290
2. Human Development Index rating (new)	1999	min[0] - max[1]	0.635
3. Incidence of poverty, Total	1996	% of population	23
4. Incidence of poverty, Urban	1996	% of population	42
5. Life expectancy at birth (both sexes)	2000-2005	years	68.3
6. Under-five mortality rate	2000	per 1,000 live births	43
E. Food Trade			
1. Food Imports (US $)	1998-2000	% of total imports	17.5
2. Food Exports (US $)	1998-2000	% of total exports	6.5
3. Cereal Food Aid (100 t)	1998-2000	% of cereals imports	0.5
F. Indices of Food Production			
1. Food Production Index	1998-2000	1989-91=100	153.0
2. Food Production Index Per Capita	1998-2000	1989-91=100	129.0

Indicator (§)	Year	Unit	
G. Average Food Supply			
1. **Dietary Energy Supply (DES)**	1998-2000	kcal/caput/day	3318

Percentage of DES by major food groups



Note: Value not indicated if below 1%

% Energy from:			
2. Protein	1998-2000	% of total energy	11.4
3. Fat	1998-2000	% of total energy	14.5
4. **Proteins**	1998-2000	g/caput/day	92
5. Vegetable products	1998-2000	% of total proteins	81.8
6. Animal products	1998-2000	% of total proteins	18.2
H. Food Inadequacy			
1. Total population "undernourished"	1997-99	millions	2.5
2. % population "undernourished"	1997-99	% of total pop.	4.0

_ Data not determined. § see References for data sources used

See Technical Notes for definitions used.

EGYPT

I. OVERVIEW

1. Geography

Egypt is situated in the northeastern corner of Africa, with a total area of about 1 million km^2. It is bordered in the north by the Mediterranean Sea, in the east by Gaza Strip, Israel and the Red Sea, in the south by Sudan and in the west by Libya. Egypt enjoys a unique, strategic location controlling the Suez Canal, the shortest sea link between the Indian Ocean and the Mediterranean Sea; and the Sinai Peninsula, the only land bridge between Africa and remainder of Eastern Hemisphere (CIA, 2000).

The Nile traverses over 1 500km^2 within Egypt from Wadi Halfa in the south to the Mediterranean in the north. It divides the country into four broad regions: the Western Desert, which occupies almost two-thirds of the total area; the Eastern Desert; the Sinai Peninsula; and the Nile Valley and Delta, which is the most densely populated region of the country.

Administratively, Egypt is divided into 26 governorates and Luxor City (EDHS 2000). Cairo, the capital of Egypt, is the largest city in Africa, the Arab world and the Middle East. It is also the industrial and commercial center of Egypt. Other major towns include Alexandria, Egypt's chief port, Port Said, Luxor, Aswan, Zagazig and Assiut.

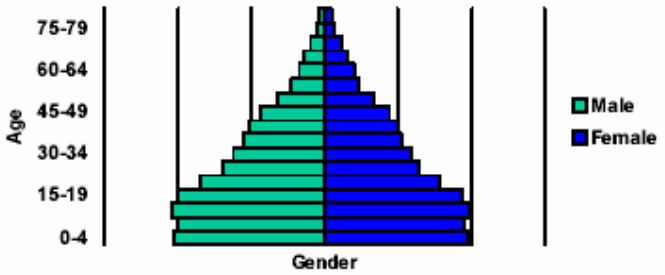
Throughout most of the year Egypt is hot and dry. Egypt has only two seasons: a mild winter from November to April and a hot summer from May to October. Alexandria and the Mediterranean coastal communities experience milder weather where temperatures range between an average minimum of 14°C in winter and an average maximum of 30°C in summer. Given this climate, only 4% of Egypt's total area is arable land (**General Map**).

2. Population

Egypt's population was estimated to be around 68.5 million according to 2000 statistics, of which the rural population accounts for 55%. The population is growing at an annual rate of 1.7% and is estimated to reach over 100 million by the year 2030 (FAOSTAT, 2002). Egypt is characterized by a young age structure (around 43% of the population is less than 18 years of age). The average population density was estimated to exceed 1 685 inhabitants/km^2 (CAPMAS 1999), but ranges from 2 inhabitants/km^2 over 96% of the total area, to 1 492 inhabitants/km^2 in the Nile Valley and Delta. This area, where population density is among the highest in the world, represents only 6% of the total area.

The Egyptian population became steadily more urbanized during the last century reaching 43% of the total population in 1996 (CAPMAS 2000) and 45% in 2000 (UN, 2001). The official language is Arabic, but English and French are widely spoken among educated classes.

Population Pyramid



Source: UNAIDS/WHO, 2002.

3. Level of development: poverty, education and health

According to the Economic Intelligence Report: Egypt 1996/97, Egypt has the largest population and the second largest economy, after Saudi Arabia, in the Arab world. Egypt Human Development Report/1996 illustrated that nearly 23% of Egyptians live below the poverty line, 42% of the poor live in urban areas. The poor make up 18% of the total number of households. Some 18% of urban households are illiterate or have a poor level of education, most often engaged in marginal economic activities and/or low wage work (UNDP, 1998).

The literacy rate is about 48% of the adult population. Education is free through university and compulsory from ages 6 to 12 years. About 87% of children enter primary school; half drop out after their sixth year. There are 20 000 primary and secondary schools with some 10 million students, 12 major universities with about 500 000 students, and 67 teacher colleges. Major universities include Cairo University (100 000 students), Alexandria University, and the 1 000-year-old Al-Azhar University, one of the world's major centers of Islamic learning.

Egypt has a relatively well-established network of health facilities in rural and urban areas. It was one of the first countries in the area to set up a comprehensive, nation-wide health system. Nearly 100% of the Egyptian population has access to health care services (USAID, 2001).

The major health problems include endemic diseases such as gastro-intestinal diseases, diarrhoeal diseases, anaemia, trachoma, chronic infections and parasitic diseases. While potable water is available to almost all the population, unsanitary disposal of liquid and solid wastes and inadequate personal hygiene are still major sources for dissemination and prevalence of infectious diseases (United Nations Commission on Sustainable Development, 1997).

It is estimated that the total number of people living with HIV/AIDS at the end of 2001 was 8 000 adults (15-49 years) with 780 being women (UNAIDS/WHO, 2002).

Egypt has made impressive strides over the past two decades in providing universal access to health care, reducing infant and child mortality. As a result of the long-term family planning, the percentage of married women using contraception reached 56% in 2000 – more than double the 1980 rate. The total fertility rate has fallen by a third — from 5.3 in 1980 to 3.5 in 2000 (USAID, 2001).

The Egyptian Child Survival programme has been a remarkable success. The infant mortality rate was reduced by 65% between 1976 and 1997 reaching 51 per 1000 live births in 1995-2000 (UN, 2001). The under five mortality rate declined by 73% during the same period

and reached 35.9 per 1 000 in 1998 (NICHP 2000). United Nations published slightly higher values for 2000 with an under five mortality rate of 43 per 1000 live births (UN, 2001). Similar gains in this regard have been achieved for maternal mortality across the same period.

From 1992 to 2000, the coverage rate for fully vaccinated children (aged 12 to 23 months) has increased from 67% to 92%. Confirmed polio cases fell from 35 cases in 1998 to only three in 2000 (USAID, 2001).

4. Agricultural production, land use and food security

Agriculture remains one of Egypt's most important economic sectors. However, the sector's contribution to GDP shrank from 20% in 1986/87 to 17% in 1998/99. The number of Egyptians employed in the agricultural sector also fell from 50% of the total labour force to the current level of 32%. Despite productivity gains since the mid-1980s, Egypt remains one of the world's largest food importers (AAFC, 2001).

In Egypt, farming is confined to less than 4% of the total land area because the country falls within arid and hyper-arid zones. About 90% of the agricultural area is concentrated in the Nile delta and the rest is located within a narrow ribbon along the Nile between Aswan and Cairo (Upper Egypt) and a strip along the Mediterranean. In 2000, agricultural land represented 0.049 ha per person and 0.049 ha per person as arable and permanent cropland (**Table 1**) (FAOSTAT).

Cultivated lands in the desert and along the coast increased by 43% from 1986 to 1993, due to reclamation of desert and coastal lands. Nevertheless, the relative scarcity of arable land, coupled with, among other things, high population growth, makes Egypt dependent on external sources for about half of its food supply (U.S. Department of State, 2000).

As part of a national land reclamation project, the government started one of the world's largest planned agricultural developments in Toshka in January 1997. The project aims to double the size of Egypt's arable land in fifteen years' time. The project's estimated cost is around $86.5 billion over the coming 20 years until 2017 (U.S. Department of State, 2001).

By the end of the 1980's, the self-sufficiency ratio was only around 20% for wheat, lentils and edible oil. The major basic staple for which Egypt did not rely on external supply sources was rice. The country also produced most of its poultry and eggs requirements. On the whole, it imported more than one-half (65%) of the food consumed and food imports made up about one-quarter of total imports.

Egypt continues to espouse a policy of self-sufficiency in wheat production by encouraging the expansion of acreage and the use of newly developed high-yielding wheat varieties. The present status is much better, almost reaching 55% self-sufficiency. A contributing factor is mixing of corn (20%) with wheat for subsidized balady bread (Ministry of Supply 2001). Although total planted area did not increase in 1999, the production of wheat is estimated to be higher than 1998 (U.S. Department of State, 2001).

In recent years, Egypt’s farmers have realized major increases in the exports of high-value crops such as grapes, melons, strawberries and potatoes. USAID programs have supported specialization in the agricultural sector and export expansion through technological assistance, managerial training, and the dissemination of market information to farmers. These activities have contributed significantly to increased productivity, employment generation, rural income growth and poverty alleviation (USAID, 2001).

5. Economy

Egypt's economic performance has fluctuated sharply during the past two decades, but the outlook for the economy is favourable if it adopts key structural reforms. A decade of rapid growth ended in 1986 when a decline in oil prices caused a regional economic slowdown. Egypt temporarily responded by adopting inward-oriented policies, which, combined with heavy borrowing, resulted in large macroeconomic imbalances. Between 1986 and 1992, per capita income grew by only 10% (World Bank, 2001).

The macroeconomic stabilization efforts that Egypt made in the early 1990s have been a success. The average gross domestic product (GDP) growth rate accelerated from 1.9% per annum during 1991-92 to 5.9% during 1995-2000 (World Bank, 2001). GDP per capita has risen to $1 570, categorizing Egypt as a middle-income country. During the same period, inflation fell from 21% to less than 3% per annum (EDHS, 2000). The fiscal balance, foreign reserves, and external debt have also improved compared to the late 1980s. With these positive trends now well established, Egypt continues to be well positioned to achieve high economic growth. In 1999, agriculture accounted for 17% of Egypt's GDP and provided employment to 40% of the labour force.

Egypt's labour force of 23.7 million is 70% male and 30% female. The largest proportion of the labour force works in agriculture or fishing, which employ 34% of all workers. The services sector employs 44%, and industry (including manufacturing and construction) employs the remaining 22%. There are few skilled workers, since training is usually rudimentary and one-third of the adult population is illiterate.

II. THE FOOD AND NUTRITION SITUATION

1. Trends in energy requirements and energy supplies

The percentage of population in urban areas only slightly increased from 41% to 45%. This indicates that the pace of urbanization was slow **(Table 2)**. However, the pace of urbanization is expected to increase faster within the next thirty years to reach 62% of the total population, which will lead to an increase in the total energy requirements. Consequently, the total dietary energy supplies will need to be increased during the following years.

The per capita energy supplies which were adequate in 1965 have increased and are presently very high in comparison to requirements (FAOSTAT, 2002).

Table 2: Total population, urbanisation, energy requirements and dietary energy supplies (DES) per person and per day in 1965, 2000 and 2030

Year	1965	2000	2030
Total population *(thousands)*	31563	68470	100371
Percentage urban *(%)*	40.7	45.2	61.9
Per caput energy requirements *(kcal/day)* [a]	2131	2388	2244
Per caput DES *(kcal/day)* [b]	2287	3318	__

[a] Source: James and Schofield, 1990.
[b] Source: FAOSTAT, 2002. Three-year average calculated for 1964-66 and 1998-2000

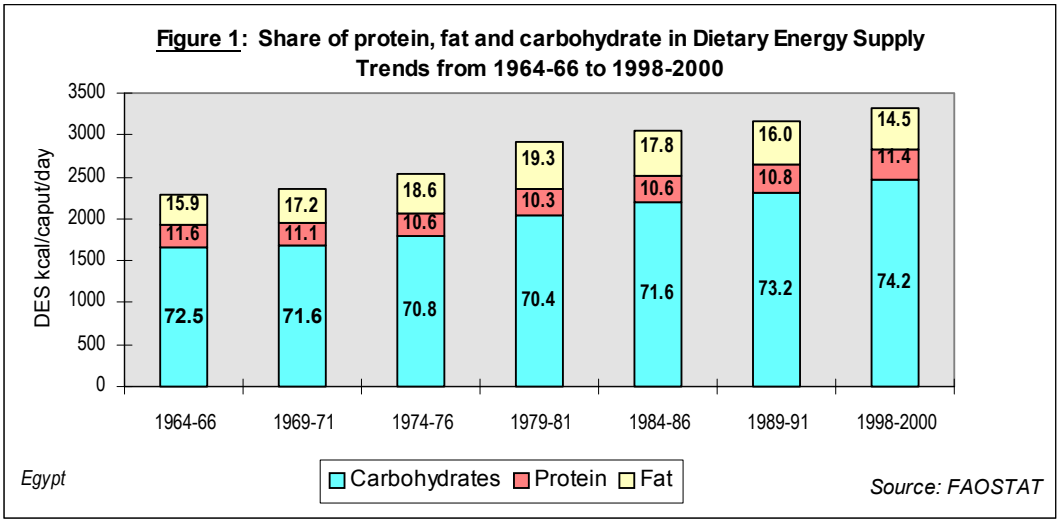


Figure 1 shows the gradual increase in the dietary energy supplies (DES) since 1964. Based on data from food balance sheets, the majority of energy supply through the last three decades was derived from carbohydrates reaching 74% of the total energy supply in 1998-2000 followed by fats and proteins which provided 15% and 11%, respectively.

Although the share of energy supply of both carbohydrates and proteins had declined in comparison with fats which had increased from 1964-66 to 1979-81, the contrary occurred from 1979-81 to 1998-2000 where the share of energy supply of both carbohydrates and proteins increased and the contribution of fats decreased gradually.

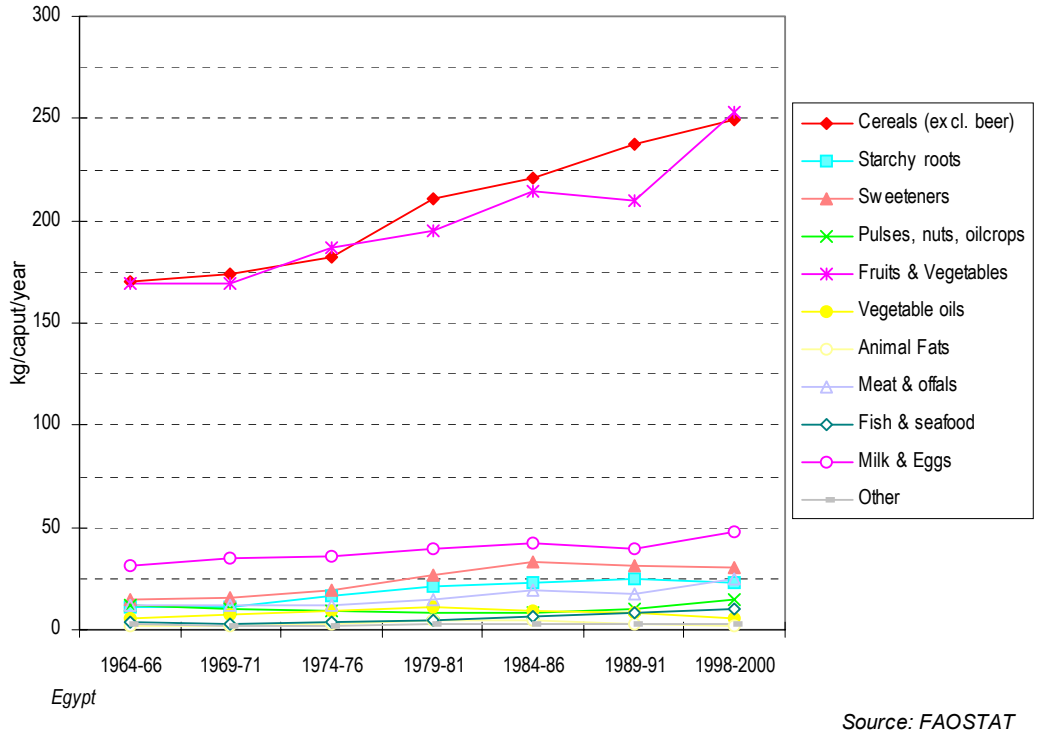
2. Trends in food supplies

Quantity: The trends in food availability and composition of food supplies in Egypt are presented in **Figure 2** and **Figure 3**. These figures estimate the amount of food that was available to the population and not what has been consumed.

Cereals as well as fruits and vegetables availability have increased from 171 kg/caput/year and 169 kg/caput/year respectively in 1964-66 to 250 kg/caput/year and 253 kg/caput/year receptively in 1998-2000.

The supplies of starchy roots, meat, offals, fish, seafood as well as milk and eggs have increased gradually between 1964-66 and 1998-2000. The supplies of vegetable oils and animal fats have increased gradually until 1981, and then gradually decreased till 1998-2000 (FAOSTAT, 2002).

Figure 2: Supplies of major food groups (in kg/caput/year)
Trends from 1964-66 to 1998-2000

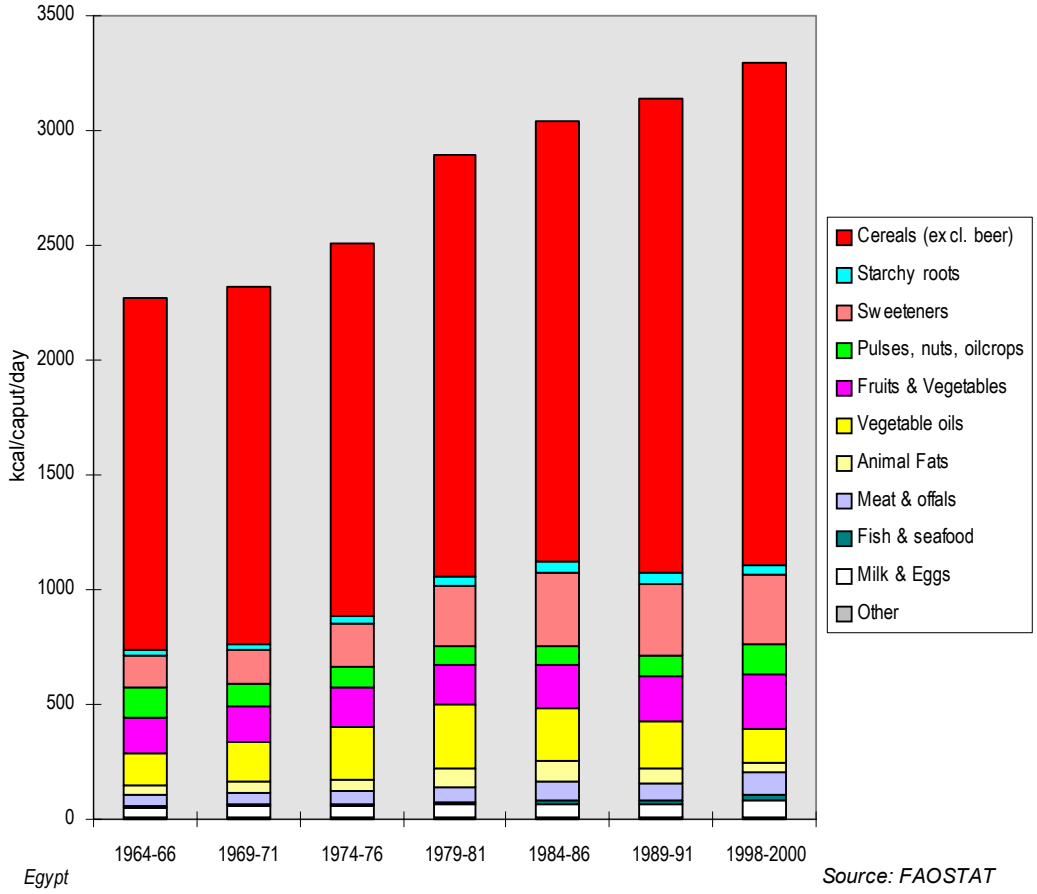


Egypt

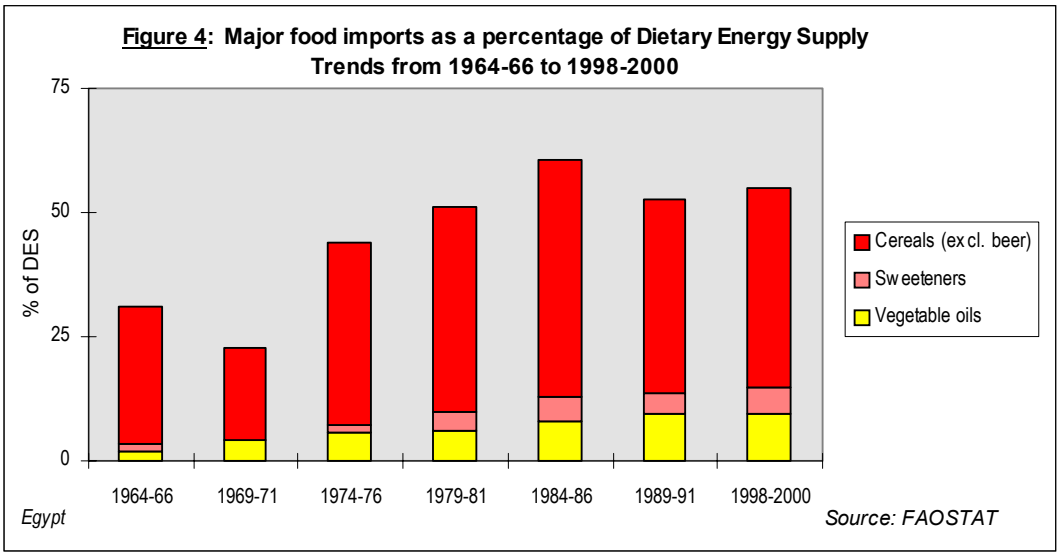
Source: FAOSTAT

Energy: The relative contributions of major food groups in daily per caput energy supply are shown in **Figure 3**. The dietary energy supply (DES) has increased from 2287 kcal/caput/day to 3318 kcal/caput/day between 1964-66 and 1998-2000. Cereals represent the main source of energy in the Egyptian diet, providing about 66% of the total energy (FAOSTAT, 2002).

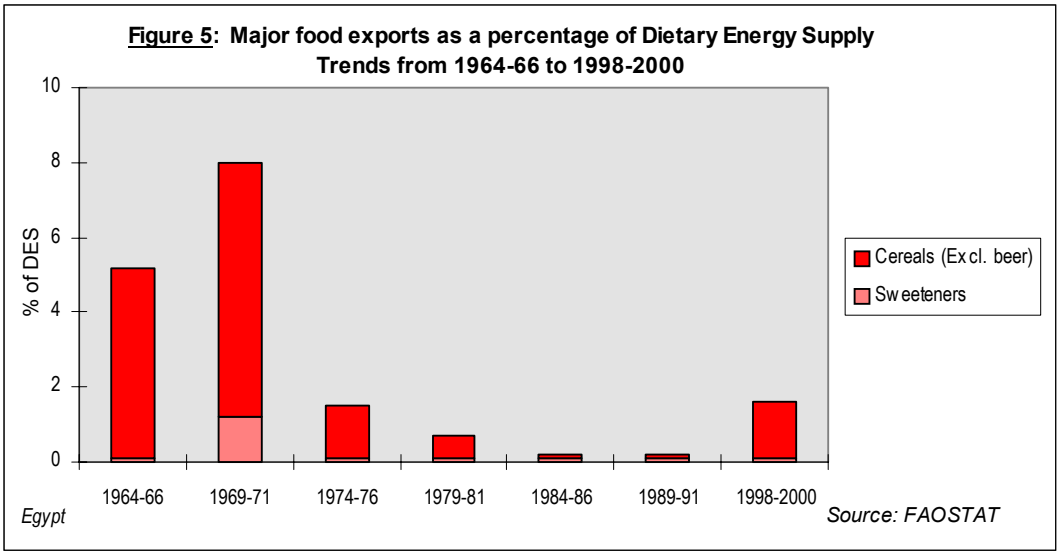
Figure 3: Share of major food groups in Dietary Energy Supply Trends from 1964-66 to 1998-2000



Major food imports and exports: Food imports as a percentage of DES have been irregular and have undergone noticeable changes over the past 36 years. **Figure 4** shows the increase of cereal imports from 19% of DES in 1969-71 to 48% of DES in 1984-86, then declining to 40% in 1998-2000. There was an increase in the imports of vegetable oils and sweeteners; these food groups represented 10% and 5%, respectively, of DES in 1998-2000 (FAOSTAT, 2002).



Food exports of cereals and sweeteners have declined from 7% and 1% of DES respectively in 1969-71 to 1% and less than 1% % of DES in 1974-76. This decline remained for two decades reaching less than 1% of DES, in 1989-91, for both major food supplies. However, there was a slight increase in cereals export, reaching 2% of DES in 1998-2000 **(Figure 5)** (FAOSTAT, 2002).



3. Food consumption

Nutrition is recognized in a significant number of studies as an outcome of various inputs. Adequate food and access to health services are usually regarded as the main determinants for the nutrition status of the population.

Several food consumption surveys were conducted in Egypt since the 1950s. Only the results of the main surveys conducted between 1995 and 2000 will be presented in this profile.

Dietary assessment was done through relevant information that was collected through a specially designed questionnaire. The questionnaire included information about:

- The dietary pattern as obtained by the food frequency method on both qualitative and quantitative level.
- The adequacy of the diet regarding energy, protein and some selected micronutrients as obtained by the 24 hour recall method.
- Egypt National Food Consumption Survey that was carried out by the National Nutrition Institute in collaboration with WHO (Hassanyn, 2000) included 1669 households with 9134 individuals from six different governorates representing different geographical areas of Egypt. The survey showed the following results:

A. Dietary pattern

Different types of bread were consumed daily by almost 100% of the households. The most commonly used was the subsidized wheat bread, followed by wheat-maize home backed bread in rural areas. However, consumption of home-made bread decreased from 81% in 1981 to 29% in 2000 among rural families. Also it decreased among urban families from 40% to 3% within 19 years period (Aly et al., 1981)

Food items consumed daily by more than 50% of total households were: wheat bread (97% of households), tea (99%), ghee or butter (97%), sugar (91%), milk (58%), powdered milk (61%) and vegetables (52%).

Almost all families in both urban and rural areas consume 3 meals daily. Lunch was the main meal for the majority of urban households (88%) and for 57% of rural households.

Table 3a shows mean per caput daily intake of different food groups in the study governorates as obtained by the quantitative food frequency method (Hassanyn, 2000). Mean per caput daily intake of cereals in the total sample was 434.3 g, with higher intake among rural (488.3 g) areas. The highest intake of cereals was in Fayoum rural areas (513.1 g) and the lowest was in Cairo governorate (385.9 g).

Mean per caput daily intake of roots and tubers was 215.4 g in the total sample. Also consumption of roots and tubers was higher in rural areas, compared to urban areas (227.5 g and 208.5 g) respectively. The lowest intake was in Cairo governorate (197.1 g) and it increased gradually in other governorates to reach 247.2 g in rural area of Souhag governorate.

For pulses, the mean intake was 54.5g in total rural areas and 52.7 g in total urban areas. Variation in pulses consumption was minimal within different governorates and ranged from 50.6 g in Sharkia rural areas to 63.5 g in urban areas of Souhag governorate.

Consumption of fruits and vegetables was higher in rural (142.0 g) than in urban areas (119.5 g), with a mean intake of 128.2 g for the whole of the sample.

Mean fat and oils intake was 39.7 g for the total sample, with a slightly higher intake among urban than rural areas (40.5 g, 38.5 g) respectively.

Mean meat intake was higher among rural (102.9 g) areas, compared to urban areas (80.9 g). The mean intake was 89.4 g for the whole of the sample (Hassanyn, 2000).

Table 3a: Food Consumption

Source/ Year of survey	Location	Sample Number households	Sample Number individuals	Sex	Age Years	Average food intake: Major Food Groups (kg/caput/year) Cereals	Roots/ Tubers	Pulses	Fruits/ Vege-tables	Oils/ Fats	Meat	Poultry	Fish	Milk prod.	Sweet-eners
Hassanyn	Cairo	510	2608	M/F	All	140.6	72.0	18.7	41.3	15.3	29.3	39.4	20.4	20.2	13.5
2000	Alexandria	270	1418	"	"	158.3	79.8	19.2	43.6	14.5	28.2	40.3	17.3	19.7	14.3
	Sharkia														
	Urban	60	238	"	"	164.3	76.8	18.8	47.0	15.4	27.4	39.9	19.0	20.6	16.6
	Rural	210	993	"	"	180.6	79.4	18.5	53.9	22.7	33.8	38.4	15.0	23.1	16.5
	Total	270	1231	"	"	174.0	78.3	18.6	51.0	19.6	31.3	39.1	17.0	21.9	16.6
	Beheira														
	Urban	60	304	"	"	145.1	87.0	20.5	56.7	14.5	35.8	40.6	19.5	25.5	14.0
	Rural	180	1182	"	"	171.8	81.9	20.0	59.8	13.8	40.1	39.2	18.5	24.0	12.0
	Total	240	1486	"	"	165.2	93.1	20.1	59.1	13.9	39.1	39.6	18.4	24.4	12.4
	Fayoum														
	Urban	45	311	"	"	154.3	78.2	20.9	45.9	11.9	31.1	41.3	18.4	23.1	10.5
	Rural	1564	1030	"	"	187.3	80.6	18.8	45.5	13.3	35.4	36.9	16.7	23.6	10.5
	Total	199	1341	"	"	177.5	79.9	19.4	45.6	13.0	34.4	38.0	17.1	23.5	10.5
	Souhag														
	Urban	30	153	"	"	142.4	81.3	23.2	45.4	14.8	33.0	39.7	17.6	25.7	10.7
	Rural	150	897	"	"	176.1	90.2	21.7	47.4	12.2	38.3	36.4	17.5	21.7	10.7
	Total	180	1050	"	"	170.4	88.5	22.0	47.0	12.6	37.4	36.9	17.5	22.5	10.7
	Total														
	Urban	975	5032	"	"	147.8	76.1	19.2	43.6	14.8	29.5	39.9	19.1	20.8	13.6
	Rural	694	4102	"	"	178.2	83.0	19.9	51.8	14.1	37.6	37.7	17.4	23.2	11.7
	Total	1669	9134	"	"	158.5	78.6	19.5	46.8	14.5	32.6	39.0	18.5	21.6	12.9

						Major Food Groups (g/caput/day) Cereals	Roots/ Tubers	Pulses	Fruits/ Vege-tables	Oils/ Fats	Meat	Poultry	Fish	Milk Products	Sweet-eners
Hassanyn	Cairo	510	2608	M/F	All	385.9	197.1	51.3	113.2	41.9	80.2	107.8	55.9	55.4	37.0
2000	Alexandria	270	1418	"	"	433.7	218.6	52.6	119.5	39.8	77.3	110.4	47.5	54.0	39.1
	Sharkia														
	Urban	60	238	"	"	450.0	210.5	51.5	128.8	42.3	75.0	109.4	52.1	56.4	45.5
	Rural	210	993	"	"	494.9	217.5	50.6	147.5	62.1	92.5	105.3	42.6	63.2	45.3
	Total	270	1231	"	"	476.6	214.5	51.0	139.8	53.7	85.7	107.0	46.5	60.0	45.4
	Beheira														
	Urban	60	304	"	"	397.5	238.3	56.1	155.3	39.7	98.0	111.3	53.5	69.7	38.4
	Rural	180	1182	"	"	470.7	224.4	54.7	163.9	37.8	109.8	107.5	50.8	65.8	32.8
	Total	240	1486	"	"	452.6	227.7	55.1	162.0	38.2	107.0	108.4	51.4	66.9	34.1
	Fayoum														
	Urban	45	311	"	"	422.8	214.1	57.3	125.7	32.6	85.1	113.1	50.4	63.3	28.7
	Rural	1564	1030	"	"	513.1	220.8	51.6	124.8	36.5	97.1	101.1	45.7	64.7	28.7
	Total	199	1341	"	"	486.2	219.0	53.0	125.0	35.5	94.1	104.1	46.9	64.3	28.7
	Souhag														
	Urban	30	153	"	"	390.2	222.6	63.5	124.4	40.4	90.4	108.8	48.3	70.3	29.4
	Rural	150	897	"	"	482.6	247.2	59.0	129.7	33.3	105.0	99.7	47.9	59.4	29.4
	Total	180	1050	"	"	466.9	242.5	60.0	128.8	34.6	102.6	101.2	48.0	61.7	29.4
	Total														
	Urban	975	5032	"	"	405.0	208.5	52.7	119.5	40.5	80.9	109.2	52.4	56.9	37.3
	Rural	694	4102	"	"	488.3	227.5	54.5	142.0	38.5	102.9	103.4	47.7	63.6	32.1
	Total	1669	9134	"	"	434.3	215.4	53.4	128.2	39.7	89.4	107.0	50.6	59.1	35.3

Table 3b presents the share of major food groups in total energy intake. Cereals were the main contributors to total energy intake in Egypt, as the energy share of cereals was 64%, with a higher figure among urban (66%) than among rural areas (59%). Cereals also are the main source of protein in Egypt (Hassanya, 2000).

Energy derived from fat and oils represented 12% of total energy intake for the whole sample. Fat and oil's energy intake ranged from 10% in Fayoum urban areas to 18% in

Sharkia rural areas. However, it should be noted that these values do not include invisible fat, but only express added fats & oils in recipes of cooked meals (Hassanya, 2000).

Sugar accounted for 6% of energy in the total sample (7% in total urban and 6% in total rural areas). Although this result indicates that households were consuming sugar within the levels recommended by WHO (1990) for a healthy diet (<10% of total energy), it should e noted that these values do not include sugar within recipes but only added sugar to tea, coffee and other beverages.

Pulses, mainly lentils and fava beans, which are popular substitutes of animal protein sources in Egypt supply 7% of energy in the total sample (Hassanya, 2000).

Table 3b: Food Consumption

Source/ Year of survey	Location	Sample									
		Number		Sex	Age	Nutrient Intake (person/day)					
		households	individuals		Years	Energy (kcal)	% Protein	% Fat	Protein (g)	% Animal products	Fat (g)
Hassanyn	Cairo	510	2608	M/F	All	2370.9	14.7	27.3	87.0	34.0	72.0
2000	Alexandria	270	1418	"	"	2352.3	14.5	26.0	85.4	35.4	68.0
	Sharkia										
	Urban	60	238	"	"	2456.1	14.8	26.4	90.8	35.8/	72.2
	Rural	210	993	"	"	2636.9	13.2	25.0	87.2	25.4	73.3
	Total	270	1231	"	"	2596.7	13.6	25.3	88.0	27.7	73.1
	Beheira										
	Urban	60	304	"	"	24.0.3	15.1	24.3	91.5	36.4	65.3
	Rural	180	1182	"	"	2768.8	12.0	28.6	84.4	25.7	78.8
	Total	240	1486	"	"	2677.4	12.9	25.2	86.1	28.4	75.4
	Fayoum										
	Urban	45	311	"	"	2476.7	14.0	27.3	87.1	33.0	74.9
	Rural	1564	1030	"	"	28.4.2	14.0	22.8	98.2	25.9	70.9
	Total	199	1341	"	"	2730.1	14.0	23.7	95.7	25.7	71.8
	Souhag										
	Urban	30	153	"	"	2778.7	15.5	25.6	108.3	41.9	79.4
	Rural	150	897	"	"	2600.5	15.1	20.1	97.7	20.5	58.4
	Total	180	1050	"	"	2600.2	15.4	21.5	99.5	24.0	61.9
	Total										
	Urban	975	5032	"	"	2300.4	15.3	27.7	87.7	34.8	70.8
	Rural	694	4102	"	"	2700.4	13.4	23.7	91.2	24.5	71.0
	Total	1669	9134	"	"	2519.3	14.1	25.3	89.2	30.5	70.9

Table 3c: Food Consumption

Source/ Year of survey	Location	Sample				Average food intake									
		Number		Sex	Age										
		households	individuals		Years										
						Share of major food groups in total energy intake (%)									
						Cereals	Roots/ Tubers	Pulses	Fruits/ Vege-tables	Oils/ Fats	Meat	Poultry	Fish	Milk prod.	Sweet-eners
Hassanyn	Cairo	510	2608	M/F	All	70.4	6.1	6.5	3.7	12.3	6.5	7.5	2.7	8.1	6.6
2000	Alexandria	270	1418	"	"	60.2	6.7	6.7	3.9	11.7	6.2	7.7	2.3	7.9	7.0
	Sharkia														
	Urban	60	238	"	"	66.8	6.5	6.6	4.3	12.4	6.1	7.6	2.5	8.3	8.1
	Rural	210	993	"	"	60.4	6.7	6.4	4.9	18.2	7.5	7.3	2.0	9.3	8.1
	Total	270	1231	"	"	63.0	6.6	6.5	4.6	15.7	6.9	7.4	2.2	8.8	8.1
	Beheira														
	Urban	60	304	"	"	65.5	7.3	7.1	5.1	11.6	7.9	7.7	2.5	10.2	6.9
	Rural	180	1182	"	"	61.2	6.9	7.0	5.4	11.1	8.6	7.5	2.4	9.7	5.9
	Total	240	1486	"	"	62.3	7.0	7.0	5.3	11.2	8.6	7.5	2.4	9.8	6.1
	Fayoum														
	Urban	45	311	"	"	59.1	7.3	7.3	4.1	9.6	6.9	7.8	2.4	9.3	5.1
	Rural	1564	1030	"	"	62.1	6.6	6.6	4.1	10.7	7.8	7.0	2.2	9.5	5.1
	Total	199	1341	"	"	61.2	6.7	6.7	4.1	10.4	7.6	7.2	2.2	9.4	5.1
	Souhag														
	Urban	30	153	"	"	59.8	8.1	8.1	4.1	11.9	7.3	7.5	2.3	10.3	5.3
	Rural	150	897	"	"	53.1	7.6	7.6	4.3	9.8	8.5	6.9	2.3	8.7	5.3
	Total	180	1050	"	"	54.2	7.7	7.7	4.3	10.1	8.3	7.0	2.3	9.1	5.3
	Total														
	Urban	975	5032	"	"	66.1	6.7	6.7	3.9	11.9	6.5	7.6	2.5	8.7	6.7
	Rural	694	4102	"	"	59.1	6.9	6.9	4.7	11.3	8.3	7.2	2.3	9.3	5.7
	Total	1669	9134	"	"	63.6	6.8	6.8	4.2	11.7	7.2	7.4	2.4	8.7	6.3

B. Energy and Nutrient Intake:

Mean energy and macronutrient intake were determined using the 24 hour recall method and sample weighing method as shown in **Table 3c** (Hassanyn, 2000).

The mean per caput daily energy intake of the total sample was of 2519 kcal with a higher figure in the rural than in the urban areas (2700 kcal and 2300 kcal respectively). The energy intake was higher in the 1981 National food consumption survey, both in urban (2742 kcal) and in rural (2985 kcal) areas (Aly et al., 1981).

According to the 2000 survey, the mean per caput daily total protein consumption was 89.2 g for the whole sample. Total protein intake was higher in rural (91.2 g) than in urban areas (87.7 g), but contribution of animal protein to total intake was higher in urban (35%) than in rural areas (25%). However, the majority of the studied households (58.5%) had a protein energy ratio of their diet within the level recommended by WHO for a healthy diet from 10-15% (Hassanya, 2000).

High total protein intake is mostly due to over consumption of bread. Animal protein intake was higher in the 2000 survey than in the 1981 food consumption survey.

The mean per caput daily total fat intake was of 70.9 g for the total sample, with more or less an equal consumption in both urban (70.8 g) and rural areas (71.0 g). However, contribution of animal fat to total fat consumption was higher in urban than in rural areas (45% & 37% respectively). The intake ranged from 20 to 30% of the total energy intake, which matches with WHO recommendations for a healthy diet (Hassanya, 2000).

C. Adequacy of Egyptian diet:

Quantitative adequacy is defined here by the capability of the diet to satisfy the energy needs presented by percentage of the recommended dietary allowance (%RDA) of individuals. Qualitative adequacy is indicated by the capability of the diet to satisfy the individual macro and micronutrient needs. The RDA used was that of WHO, FAO and UNU (WHO, FAO, UNU, 1985; WHO, 1989; WHO/FAO, 1975).

A national survey for assessment of vitamin A status in Egypt, conducted by the National Nutrition Institute (Moussa et al., 1995) and showed that 71% of mothers consumed than 100% of their RDA for energy. The same trend was observed for children (6-71 months) where 86% of them received less than 100% of RDA. **Table 3d** also shows that a majority of mothers (87%) in urban and rural areas got more than 100% of their protein RDA, while two thirds of the children received less than 100% protein RDA (Moussa et al., 1995).

The Egypt National Food Consumption Survey showed that 54% of total households consumed ≥100% energy RDA, with a higher proportion in rural areas compared to urban areas **(Table 3e)**. The same table shows that the majority of the studied households (more than 90%) in both urban and rural areas consumed ≥100% RDA of total protein (Hassanyn, 2000).

Another Survey was done in 1998 by the National Nutrition Institute to assess Nutritional deficiencies among primary school children in Egypt (Hassan, 1998). Results **(Table 3f)** reveal that the majority of school children (65% of males & 60% of females) got more than 75% of their RDA energy. Consumption of total protein showed that more than 90% of children got more than 75% of their RDA protein. For greater detail about the micronutrient deficiency level assessments for these studies see *Section 5 on Micronutrient Deficiencies.*

Table 3d: Percentage distribution of mothers and children by adequacy of their diet regarding energy and protein among total urban and rural areas in the total sample (Moussa et al. 1995).

%RDA	Children						Mothers					
	Urban		Rural		Total		Urban		Rural		Total	
	N*	%	N*	%	N*	%	N*	%	N*	%	N*	%
ENERGY												
< 50	194	20.0	139	21.3	333	20.5	40	8.2	31	9.4	71	8.7
50 -<75	385	39.6	260	39.8	654	39.7	138	28.1	97	29.5	235	28.7
75 -<100	257	26.4	157	24.0	414	25.5	162	33.1	101	33.4	272	33.2
≥ 100	136	14.0	97	14.9	233	14.3	150	30.6	91	27.7	241	29.4
Total	**972**	**59.8**	**653**	**40.2**	**1625**	**100.0**	**490**	**59.8**	**329**	**40.2**	**819**	**100.0**
X^2 = 1.4 =0.69 N.S.							**X^2 = 1.1 =0.78 N.S.**					
PROTEIN												
< 50	156	16.0	136	20.8	292	18.0	9	1.8	6	1.8	15	1.8
50 -<75	225	23.1	132	20.2	357	22.0	20	4.1	10	3.0	30	3.7
75 -<100	199	20.5	138	21.1	337	20.7	32	6.5	30	9.1	62	7.6
≥ 100	392	40.3	274	37.8	639	39.3	429	87.6	283	86.0	712	86.9
Total	972	59.8	653	40.2	1625	100.0	490	59.8	329	40.2	819	100.0
X^2 = 7.2 =0.07 N.S.							**X^2 = 2.4 =0.05 N.S.**					

Source: Moussa et al., 1995.

Note: *N= Number of subjects

Table 3e: Distribution of households by dietary adequacy of energy and protein (Hassanya, 2000)

% RDA	Urban		Rural		Total	
	N*	%	N*	%	N*	%
ENERGY						
< 50	31	3.2	8	1.2	39	2.3
50 -<75	173	17.7	59	8.5	232	13.9
75 -<100	311	31.9	181	26.1	492	29.5
≥ 100	460	47.2	446	64.3	906	54.3
Total	975	100.0	694	100.0	1669	100.0
PROTEIN						
< 50	6	0.6	-	-	6	0.4
50 -<75	17	1.7	7	1.0	24	1.4
75 -<100	68	7.0	31	4.5	99	5.9
≥ 100	884	90.7	656	94.5	1540	92.3
Total	975	100.0	694	100.0	1669	100.0

Source: Hassanyn , 2000.

Note: *N= Number of subjects

Table 3f: Percentage distribution of primary school children by adequacy of their diet regarding energy and protein among urban and rural areas in different governorates (Hassan, 1998)

% RDA	Sex	Urban		Rural		Total	
		%	N*	%	N*	%	N*
ENERGY							
< 50	M	22	8.1	7	5.7	29	7.4
	F	18	7.8	12	9.5	30	8.4
50-<75	M	68	25.1	42	34.1	110	27.9
	F	65	28.3	51	40.5	116	32.6
75+	M	181	66.8	74	60.2	225	64.7
	F	147	63.9	63	50.0	210	58.9
PROTEIN							
< 50	M	3	1.1	0	0	3	0.8
	F	1	0.4	1	0.8	2	0.6
50-<75	M	6	2.2	2	1.6	8	2.0
	F	8	3.5	3	2.4	11	3.1
75+	M	262	96.7	121	98.4	383	97.2
	F	221	96.1	122	96.8	343	96.3

Source: Hassan, 1998.

Note: *N= Number of subjects

4. Infant feeding practices

The pattern of infant feeding has an important influence on the health of children. According to the Egypt Demographic and Health Surveys (EDHS) of 1995 and 2000 results, almost all Egyptian children are breastfed for some period of time. At least 92% or more of the children were reported as ever breast fed. Among children who are ever breast fed, the majority began breast feeding soon after birth (EDHS, 1995; 2000). In general mother's characteristics associated with facility deliveries or medical assistance at delivery (e.g. urban residence and higher educational level) are also associated with later initiation of breast feeding **(Table 4a** and **Table 4b).** According to results of EDHS, 2000 slightly more than half of all children born in the five years prior to the survey received prelacteal feeds during the first three days after birth. Place of residence is strongly associated with the practice, with infants in Upper Egypt and the Frontier Governorates being much more likely to have received prelacteal feeds than children in Lower Egypt and the urban Governorates. A 1997 survey conducted by the Social Research Center (SRC), American University in Cairo (AUC) with the support of UNICEF reported that almost all children (96%) in rural and random housing areas are

breastfed for sometime after birth. In urban areas, 92% of the children under one year received breast milk (El-Tawila, 1997).

Information on patterns of breast feeding and supplementation are presented in **Table 4c** and **Table 4d** (EDHS, 1995; 2000). The Ministry of Health and Population has adopted the UNICEF and WHO recommendation that during the first 6 months of life, children should be exclusively breast fed, i.e. should be given only breast milk and not receive other complementary liquids (including plain water) or solids. According to results, exclusive breast feeding is common but not universal in early infancy in Egypt and breast feeding continues for the majority of Egyptian children beyond the first year of life. At the age of 12-13 months, more than 80% of children are still being breastfed, and about half of the children between 18 and 19 months continue to be breastfed. Complete weaning, i.e. cessation of breast feeding, takes place rapidly after this age, and fewer than one in six children aged 24-26 months are still breastfed. Results of the survey done by SRC/AUC revealed that the highest proportion of children under 4 months who were being exclusively breastfed at the time of the survey was found in random housing areas (63%) then in rural areas (58%) and was lowest in urban areas (51%). The percentage of children aged 6-9 months who received both breast milk and solid or mushy food is also highest in random housing areas. As in rural areas, mothers are more likely to initiate and continue breast feeding than mothers in other urban areas. However, mothers in urban areas are more likely to introduce solid food to their children earlier than mothers in rural areas. Almost two thirds of infants aged 6-9 months do not receive one of the two essential components of their diet at this age: either breast milk or solid food. Overall, 62% of children aged 9-23 months receive breast milk (El-Tawila, 1997).

Information on the types of foods given to children during the 24 hour period before the survey is shown in **Table 4e** and **Table 4f** (EDHS, 1995; 2000).

The results suggest that Egyptian mothers are less likely to give a child infant formula rather than other types of milk (e.g. fresh milk or powdered milk) or other liquids. As expected, milk supplements are introduced at an earlier age among non breast fed children than among breast fed children. Semi-solid or solid foods, porridge and other grain-based foods are the most common weaning foods, followed by fruits, sweet potatoes and other tubers, fish, eggs or poultry and meat. The extent to which Egyptian children are bottle-fed is also presented in the previous tables. Overall, only a minority of Egyptian children are fed with a bottle. At younger ages, non breast fed children are more likely to be bottle fed than breast fed children (EDHS, 1995; 2000).

Differentials in the median duration of breast feeding and in the prevalence of bottle-feeding are presented in **Table 4g** and **Table 4h**. The median duration of breast feeding is 18.9 months in 1995 compared to 18.4 months in 2000. Children are exclusively breastfed or predominantly breastfed for less than recommended 6 months (2.9 months and 3.3 months in 1995 compared to 3 months and 3.8 months in 2000). EDHS, 2000 reported that males tend to be breastfed on average for a somewhat longer period than females. The average breast feeding duration is somewhat longer for rural children than for urban children. The median duration ranges from a low of 16.2 months in the urban Governorates to 19.7 months in rural Upper Egypt. Children born of mothers with less than a primary education are breastfed two or three months longer on average than children born of more-educated mothers. Results of EDHS, 2000 also revealed that the median duration of breast feeding is slightly longer for children born of women who were not working for cash than for other children. Overall, only 16% of the children under 2 years of age were bottle fed during the 24 hours before the survey (EDHS, 2000). Bottle feeding is more common among children whose mothers received assistance at delivery from a doctor or trained nurse. Bottle-feeding is more common

in urban areas than in rural ones. By place of residence, the percentage of children who are bottle fed ranges from less than 14% in rural lower Egypt to 22% among mothers in urban Upper Egypt. Among children under six months, 92% (EDHS, 2000) compared to 70% in 1995 were breastfed at least 6 times during the 24 hour period before the survey. Mothers reported a mean of 5.9 day times feeds and 4.8 night time feeds. The largest differentials in the measure of breast feeding frequency are by place of residence, with lower mean feeding frequencies, particularly at night, observed in the urban Governorates than in other areas (EDHS, 1995; 2000).

The number of hospitals/maternities officially designated by UNICEF as "Baby Friendly" having fulfilled 10 criteria supportive of breastfeeding is 95 out of 3880 hospitals/maternities in Egypt. The length of maternity leave in Egypt is a minimum of 50 days, and paternity leave is 3 days. Cash benefit for maternity leave is 100% of wages, which is paid by social services and the employers (UNICEF, 1999).

Table 4a: Initial breast feeding (EDHS, 1995)

Background characteristics	Percentage ever breasted	Among last-born children, percentage who started breast feeding		Number of children
		Within 1 hour of birth	Within 1 day of birth	
Sex				
Male	94.7	40.2	73.7	5912
Female	95.0	42.3	75.6	5542
Urban-rural residence				
Urban	94.1	43.4	81.1	4381
Rural	95.4	39.8	70.7	7073
Place of residence				
Urban governorates	94.7	47.9	82.1	1990
Lower Egypt	94.9	41.5	76.9	4377
Urban	94.2	43.8	79.6	1057
Rural	95.1	40.8	76.0	3321
Upper Egypt	94.9	37.8	69.4	4973
Urban	92.9	34.8	80.4	1269
Rural	95.6	38.8	65.7	3705
Frontier governorates	96.7	59.2	88.6	113
Mother's education				
No education	95.6	39.9	71.1	5266
Some primary	94.0	41.9	73.6	2063
Primary through secondary	93.9	44.0	82.0	1320
Completed secondary/ high	94.6	41.8	78.8	2805
Work status				
Working for cash	93.1	43.6	78.6	1462
Not working for cash	95.1	40.9	74.1	9993
Assistance at delivery				
Medically trained person	93.4	38.3	75.7	5297
Daya	96.1	43.4	73.7	5555
Other or none	96.5	48.2	76.8	573
Place of delivery				
Public health facility	92.4	39.0	74.7	2049
Private health facility	93.3	31.6	73.8	1673
At home	95.8	43.9	75.1	7709
All children	94.9	41.2	74.7	11454

Note: Figures are based on all children born in the five years preceding the survey, whether living or dead at the time of the interview. Percentage of children born in the five years preceding the survey who were ever breastfed, and the percentage of last-born children who started breast feeding within one hour of birth and within one day of birth, by selected background characteristics, Egypt 1995.
Source: EDHS, 1995.

Table 4b: Initial breast feeding (EDHS, 2000)

Background characteristics	Percentage ever breasted	Percentage who started breast feeding		Percentage who received pre lacteal feeding	Number of children
		Within 1 hour of birth	Within 1 day of birth		
Sex					
Male	95.1	56.6	88.4	52.9	5837
Female	95.9	57.3	87.9	54.3	5523
Urban-rural residence					
Urban	94.8	53.5	87.6	52.2	4374
Rural	95.9	59.1	88.5	54.4	6987
Place of residence					
Urban governorates	95.6	50.8	86.5	48.3	1813
Lower Egypt	95.0	52.7	86.5	44.8	4679
Urban	93.4	51.4	85.6	46.0	1230
Rural	95.6	53.1	86.8	44.4	3448
Upper Egypt	95.9	63.1	90.4	63.8	4690
Urban	95.1	58.4	91.3	63.0	1227
Rural	96.2	64.8	90.1	64.1	3463
Frontier governorates	95.5	68.0	89.4	67.0	179
Mother's education					
No education	95.5	62.0	89.5	54.1	4559
Some primary	95.3	56.1	89.0	57.6	1309
Primary through secondary	95.4	55.0	86.5	53.2	1572
Completed secondary/ high	95.5	52.1	87.0	51.7	3921
Work status					
Working for cash	94.9	51.5	86.5	52.4	1333
Not working for cash	95.5	57.7	88.4	53.7	10027
Assistance at delivery					
Medically trained person	94.9	50.8	86.2	53.0	6914
Daya	96.5	66.5	91.3	55.3	4032
Other or none	95.4	64.5	89.3	46.7	414
Place of delivery					
Public health facility	93.4	52.2	85.7	50.9	2522
Private health facility	95.3	46.4	83.8	55.7	2949
At home	96.5	64.2	91.3	53.6	5889
All children	95.5	57.0	88.1	53.6	11361

Source: EDHS, 2000.

Table 4c: Breast feeding status among children less than 36 months (EDHS, 1995)

Age in months	Not breast-fed	Exclusively breast-fed	Percentage of living children who are: breast-fed and given		Number of living children
			Plain water only	Supplements	
<2	0.8	77.6	0.8	20.8	330
2-3	2.4	59.9	2.7	35.0	431
4-5	3.1	30.8	6.0	60.1	344
6-7	6.2	10.6	7.2	76.0	360
8-9	9.9	3.9	5.5	80.6	349
10-11	13.0	2.0	5.1	79.9	391
12-13	18.6	0.8	2.0	78.6	329
14-15	22.8	0.4	1.3	75.5	399
16-17	33.0	0.6	0.5	65.8	334
18-19	45.7	0.5	0.2	53.7	275
20-21	51.9	0.8	0.6	46.7	375
22-23	67.1	0.4	0.0	32.5	372
24-26	83.3	0.0	0.7	15.9	365
26-27	89.6	0.1	0.0	10.3	378
28-29	95.2	0.0	0.0	4.8	352
30-31	94.6	0.1	0.0	5.3	320
32-33	93.1	0.0	0.0	6.9	284
34-35	94.1	0.0	0.0	5.9	362
0-3 months	1.7	67.6	1.9	28.8	762
4-6 months	4.7	24.1	6.0	65.2	352
7-9 months	8.2	5.7	6.5	79.6	522

Note: Breast feeding status refers to preceding 24 hours, children classified as breastfed and plain water only receive no supplements. Source: EDHS, 1995

Table 4d: Breast feeding status among children less than 36 months (EDHS, 2000)

Age in months	Not breastfed	Exclusively breast-fed	Percentage of living children who are: breast-fed and given			Number of living children
			Plain water only	Water based liquids and juices	Complem-entary foods milk	
<2	1.0	78.6	1.5	13.1	5.9	360
2-3	3.4	59.6	8.1	10.3	18.6	467
4-5	6.3	33.5	11.5	6.0	42.7	384
6-7	9.8	13.7	6.5	2.4	67.5	416
8-9	11.0	7.2	5.3	1.4	75.2	396
10-11	12.2	3.3	4.8	0.5	79.3	338
12-13	18.0	2.5	2.2	0.7	76.7	377
14-15	22.1	0.8	1.0	1.6	74.5	393
16-17	33.2	0.6	0.3	0.4	65.5	333
18-19	48.2	0.2	1.0	0.0	50.5	408
20-21	62.9	0.5	0.9	0.0	35.7	354
22-23	78.0	0.0	0.0	0.0	22.0	306
24-25	86.0	0.0	0.0	0.0	14.0	405
26-27	94.1	0.0	0.0	0.0	5.9	394
28-29	97.3	0.3	0.0	0.0	2.5	355
30-31	99.0	0.0	0.0	0.0	1.0	386
32-33	99.2	0.0	0.0	0.0	0.8	341
34-35	98.6	0.0	0.0	0.0	1.4	329
0-3 months	2.3	67.8	5.2	11.5	13.1	828
4-6 months	7.7	27.5	9.7	4.5	50.7	619
7-9 months	10.6	7.7	5.5	1.9	74.3	577

Note: Breast feeding status refers to preceding 24 hours.
Source: EDHS, 2000.

Table 4e: Breast feeding, bottle feeding and complementary feeding status among children less than 36 months (EDHS, 1995)

Age (in months)	Breast Milk only	Infant formula	Other milk	Other Liquids	Meat	Fish/ eggs poultry	Grain/ flour cereal	Sweet potatoes/ other tubers	Fruits	Others	Any solid/ semi-solid	Using bottle with a nipple	Number of children
Breast feeding children													
0-1	78.2	0.8	8.6	15.8	0.0	0.6	0.9	1.1	0.7	1.9	1.9	15.5	328
2-3	61.4	6.0	10.6	24.2	0.7	0.3	3.3	0.7	3.7	6.5	8.0	21.8	421
4-5	31.8	13.9	27.8	41.7	0.4	5.1	15.9	11.0	13.3	27.0	35.5	23.2	334
6-7	11.3	15.6	32.2	46.8	5.1	15.4	40.9	28.0	25.8	57.0	70.7	16.1	338
8-9	4.4	14.1	35.0	46.6	13.5	18.7	59.9	27.5	34.9	62.2	80.3	11.3	314
10-11	2.3	7.3	35.3	52.3	13.4	27.8	68.3	31.2	43.5	73.6	86.9	13.6	340
12-13	1.0	7.8	46.2	54.2	18.3	29.1	76.0	43.5	55.8	86.2	92.8	12.2	268
14-15	0.6	8.0	41.5	64.5	25.4	34.1	79.2	40.1	57.6	88.4	95.8	8.7	308
16-17	0.9	7.9	42.5	60.5	18.6	42.2	83.5	41.7	59.4	87.7	96.5	6.2	224
18-23	1.3	5.3	40.0	60.8	24.9	35.5	79.3	39.5	53.1	88.8	95.7	5.1	453
24-29	0.3	2.1	40.3	45.5	27.9	32.7	83.1	50.7	47.7	77.8	97.4	5.9	117
30-35	0.6	3.9	35.5	61.3	26.3	50.1	87.0	51.6	47.8	85.9	99.4	2.0	58
0-3 m	68.7	3.7	9.7	20.5	0.4	0.4	2.3	0.9	2.4	4.5	5.3	19.0	748
4-6 m	25.3	15.1	30.9	43.4	0.8	7.6	23.4	15.4	14.9	36.6	47.6	20.0	507
7-9 m	6.2	14.0	32.4	46.7	11.9	18.7	54.4	29.2	34.7	61.2	77.0	13.8	479
Total	19.8	8.2	31.4	46.2	12.5	20.9	50.5	26.6	28.8	57.2	66.0	13.1	3502
<7	_	27.7	72.9	50.8	1.2	11.9	37.9	18.0	26.2	42.3	58.6	76.1	46
8-9	-	25.1	82.7	57.7	9.9	21.3	59.9	36.6	28.7	78.0	80.3	71.0	35
10-11	_	24.0	82.0	69.5	18.6	23.7	77.5	41.9	52.3	73.3	85.7	70.0	51
12-13	_	14.2	88.4	81.6	22.8	50.9	92.9	57.0	67.3	86.4	98.6	57.1	61
14-15	_	14.8	73.8	78.5	27.2	50.4	81.7	60.5	62.5	89.4	95.1	44.2	91
16-17	_	9.0	62.1	73.7	30.2	56.9	89.7	57.9	73.9	93.3	99.1	17.0	110
18-23	_	4.1	63.7	74.1	26.4	44.1	89.7	49.3	67.2	93.2	98.6	9.8	570
24-29	_	4.8	51.2	72.2	30.9	50.7	90.1	47.8	68.8	91.8	98.4	4.2	979
30-35	_	4.7	51.1	65.9	36.2	47.2	91.8	47.9	68.4	91.9	99.2	6.0	908
Total	_	6.3	56.9	70.5	30.4	47.0	88.9	48.4	66.9	90.7	97.6	10.2	2850

Note: - Data not available
Source: EDHS, 1995

Table 4f: Breast feeding, bottle feeding and complementary feeding status among children less than 36 months (EDHS, 2000)

Age (in months)	Breast Milk only	Infant formula	Other milk	Other liquids	Meat	Fish/ eggs poultry	Porridge/ bread/ rice/ macaroni	Sweet potatoes/ other tubers	Fruits	Others	Any solid/ semi-solid	Using bottle with a nipple	Number of Children
0-1	79.3	0.9	5.2	17.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	15.2	357
2-3	61.4	3.2	9.8	22.2	0.0	0.8	2.1	2.0	1.1	7.7	9.7	20.2	451
4-5	35.8	11.5	16.1	31.9	0.7	5.8	11.0	9.5	8.1	25.1	35.0	17.2	359
6-7	15.2	15.9	33.6	43.4	5.5	21.2	34.3	26.5	19.0	40.6	63.4	16.9	375
8-9	8.1	15.0	35.9	51.7	9.4	30.7	54.7	45.1	33.2	54.5	79.9	15.4	353
10-11	3.7	20.3	38.2	58.7	14.5	42.3	66.1	48.5	48.2	57.6	87.4	10.9	297
12-13	3.0	10.7	46.5	60.6	19.1	46.8	76.6	56.8	54.0	65.3	90.1	7.5	309
14-15	1.1	7.8	46.0	65.4	24.4	43.6	82.1	60.9	55.5	72.2	95.0	8.7	306
16-17	0.9	8.5	53.0	67.2	29.0	48.3	82.3	71.0	57.1	74.6	98.1	10.1	223
18-23	0.7	7.7	47.3	65.2	25.1	49.4	84.9	63.4	58.6	76.6	97.1	3.9	410
24-29	0.9	7.2	53.1	67.6	30.9	49.0	88.1	62.1	47.8	72.2	99.1	5.9	101
0-3 m	69.5	2.2	7.7	19.9	0.0	0.4	1.2	1.1	0.6	4.5	5.6	18.0	808
4-6 m	29.8	12.0	22.7	35.2	2.4	11.4	18.9	15.3	11.1	29.5	43.5	16.1	572
7-9 m	8.6	16.5	35.1	50.2	8.3	27.8	49.1	39.7	29.9	51.7	77.0	17.0	516
Total	22.7	9.8	32.1	47.1	12.2	27.5	47.3	36.4	31.6	45.7	63.1	12.8	3541
0-6 m	_	36.6	85.9	52.7	1.9	8.0	14.0	16.3	10.6	21.4	33.0	83.5	66
7-9 m	-	40.2	71.2	75.3	14.7	32.3	56.4	49.9	39.8	60.2	85.9	68.9	61
10-11	_	26.9	91.1	80.6	10.5	26.5	71.8	57.9	44.3	67.6	90.1	72.3	41
12-13	_	25.2	81.1	67.6	24.1	41.1	74.4	74.5	52.7	80.2	98.7	60.7	68
14-15	_	23.6	80.9	75.6	41.4	61.2	83.1	66.2	68.8	84.3	99.1	33.9	87
16-17	_	8.8	65.7	74.3	27.0	56.3	88.7	70.6	63.0	75.8	95.7	18.7	110
18-23	_	10.3	69.5	75.8	41.1	60.5	89.1	68.1	69.2	82.4	98.7	8.0	657
24-29	_	5.4	66.6	74.0	40.1	60.9	91.0	70.6	70.3	80.5	99.6	2.0	1063
30-35	_	5.8	64.8	74.5	41.3	61.7	90.4	72.5	70.5	84.8	99.8	1.3	1045
Total	_	9.1	68.1	74.1	38.3	58.4	87.3	69.0	67.3	80.5	97.5	9.6	3200

Note: - Data not available
Source: EDHS, 2000

Table 4g: Median duration of breast feeding and prevalence of bottle feeding among children less than 3 years (EDHS, 1995)

Background Characteristic	Among children < 3 years, median duration in months			Number of Children < 3 years of age	Percentage < 6 months breastfed 6+times in last 24 hours	Number of children <6 months	Percentage of children <2 years bottled	Number of children < 2 years
	Any breast-feeding	Exclusive breast feeding	Full breast feeding					
Sex								
Male	19.9	2.8	3.2	3477	79.8	577	17.6	2208
Female	18.2	3.1	3.4	3289	78.7	529	14.8	2083
Urban-rural residence								
Urban	17.9	2.4	2.6	2619	83.5	441	20.7	1744
Rural	19.5	3.4	3.9	4147	76.4	665	13.2	2547
Place of residence								
Urban governorates	17.1	2.2	2.5	1207	77.0	196	21.7	812
Lower Egypt	19.0	3.3	3.5	2569	77.8	450	14.2	1657
Urban	19.6	*	*	616	81.9	111	18.1	436
Rural	18.9	3.4	3.7	1953	76.5	339	12.8	1221
Upper Egypt	19.9	3.1	3.6	2921	81.6	449	15.7	1780
Urban	17.5	2.4	2.5	756	95.0	128	21.6	471
Rural	20.7	3.5	4.2	2165	76.2	321	13.5	1308
Frontier governorates	18.9	1.1	1.2	68	84.3	10	17.6	43
Mother's education								
No education	20.0	3.6	4.2	3024	78.2	485	13.1	1826
Some primary	20.4	3.0	3.4	1168	77.3	170	12.3	741
Primary through secondary	17.4	2.2	2.3	823	73.1	159	19.5	578
Completed secondary/ high	17.8	2.4	2.6	1751	85.4	292	22.2	1146
Work status								
Working for cash	19.1	2.4	2.7	805	80.9	105	23.0	499
Not working for cash	18.9	3.0	3.4	5961	79.1	1001	15.4	3792
Assistance at delivery								
Medically trained person	18.0	2.8	3.0	3272	79.7	601	20.4	2170
Traditional birth attendant	19.9	3.2	3.8	3160	79.2	458	12.1	1912
Other or none	21.8	3.0	3.5	322	75.7	45	10.8	208
All children	18.9	2.9	3.3	6766	79.2	1106	16.3	4291
Mean	18.8	4.1	4.7	_	-	_	_	_
Prevalence incidence mean	18.4	3.6	4.3	_	_	_	_	_

Note: - Data not available.
Source: EDHS, 1995

Table 4h: Median duration of breast feeding and prevalence of bottle feeding among children less than 3 years (EDHS, 2000)

Background	Among children < 3 years, median duration in months			Number of children < 3 years of age	Percentage of children <2 years bottle fed	Number of Children < 2 years
	Any breast-feeding	Exclusive breast feeding	Full breast feeding			
Sex						
Male	19.0	3.1	3.8	3602	15.6	2333
Female	17.7	2.9	3.7	3424	16.1	2199
Urban-rural residence						
Urban	17.2	2.2	2.8	2715	18.8	1778
Rural	19.0	3.6	4.4	4311	13.9	2755
Place of residence						
Urban governorates	16.2	2.1	3.1	1130	16.8	750
Lower Egypt	18.3	3.4	4.0	2907	15.0	1861
Urban	17.2	2.3	2.5	769	18.7	507
Rural	18.6	3.8	4.5	2138	13.6	1354
Upper Egypt	19.4	3.0	3.8	2884	16.1	1852
Urban	18.7	2.3	2.7	754	22.1	482
Rural	19.7	3.4	4.3	2130	14.0	1370
Frontier governorates	18.2	3.1	3.6	105	20.2	70
Mother's education						
No education	19.3	3.7	4.8	2691	12.8	1696
Primary incomplete Some primary	20.0	2.7	3.7	762	15.2	468
Primary complete through secondary	17.8	3.2	3.8	993	17.6	648
Completed secondary/ high	17.2	2.5	3.1	2580	18.3	1720
Mothers work status						
Working for 17.1cash	17.1	1.9	2.2	778	23.1	505
Not working for cash	18.6	3.2	4.0	6248	14.9	4027
Assistance at delivery						
Medically trained person	17.9	2.6	3.3	4466	18.6	2984
Daya	19.3	3.8	4.9	2327	10.6	1390
Other or none	19.8	4.0	4.7	233	10.0	159
All children	18.4	3.0	3.8	7026	15.8	4532
Mean	18.0	4.4	5.1	_	_	_
Prevalence/ incidence mean	17.9	4.1	4.9	_	_	_

Note: - Data not available.
Source: EDHS, 2000

5. Anthropometric data

A. Preschool age children:

In order to assess nutritional status, the nutritional status of children less than six years using 3 indices were used: weight-for-height which reflects acute growth disturbances, height-for-age which reflects long-term growth faltering and weight-for-age which is a composite indicator of both long- and short-term effects. Weights and heights of children are compared with the reference standards and the prevalence of anthropometric deficits are usually expressed as a percentage of children below a specific cut-off points such as minus 2 standard deviations from the median value of the international reference data (e.g. NCHS/CDC/WHO) (WHO, 1993).

Table 5a-1, **5a-2** and **5a-3** illustrate results of surveys conducted since 1995 concerning anthropometry of preschool children. The Egypt Demographic Health Survey conducted in 1995 for children under 5 years of age suggests that there is a medium prevalence of stunting among Egyptian children. Results of the same survey (EDHS, 1995) revealed that 12% of the children under 5 years were underweight for their age. Underweight is more common among children 6-23 months than among older or younger children. Underweight is more common among rural children and children in Upper Egypt (El-Zanaty et al., 1996) (**Table 5a-2**).

Within the national survey for assessment of vitamin A status in Egypt (Moussa et al., 1995), the nutritional status of children from 6 to 72 months of age was studied. Details of the survey for anthropometric data are included in **Table 5a-2** and **Table 5a-3.** The prevalence of underweight among preschool children was 17%. The highest prevalence of underweight was found in Upper Egypt, then in the Canal area and then in Lower Egypt. The lowest prevalence of underweight was in the Metropolitan and Coastal areas (**Table 5a-3**).

A survey conducted by SRC/AUC in 21 governorates in Egypt showed almost similar results (**Table 5a-2**) (**Map 1a** and **Map 1b**) (El-Tawila, 1997).

Although the changes are not uniform, the overall trend in the nutritional status indicators suggests that the nutritional status of young children in Egypt improved during the period between 1995-2000. This can be deducted from results of the national surveys completed during the year 2000; (Hassanyn 2000; Shaheen & Tawfik, 2000; EDHS, 2000).

The results of the 1996 survey revealed that: overall 30% of children under five are stunted, and 13% can be considered to be severely stunted (<-3SD). The prevalence of stunting among male children was slightly higher than for female children. Stunting increased rapidly with age from only 7% of the children under 6 months of age to 38% of the children aged 12-23 months, before falling to 22% of the children aged four years and older. The prevalence of stunted children varied from 18% in the urban governorates to 40% in rural Upper Egypt (**Table 5a-2**) (El Zanaty et al., 1996).

However, other results show that stunting was prevalent among preschool children in Egypt (22%). The prevalence of stunting was lowest in Lower Egypt (17%) (**Table 5a-3**) (Moussa et al. 1995).

Assessment of nutritional status of children under 5 years was done by SRC/AUC (El Tawila, 1997). The prevalence of stunting H/A (<-2SD) was 30% and 23% among boys and girls respectively. The lowest prevalence of this indicator was found in the Qena area (20%) for boys, and in Greater Cairo (19%) for girls. The highest was found in Assiut where it reached 39% among boys and 37% among girls (**Table 5a-2**) (**Map 2a** and **Map 2b**).

Results of the Intra-household food distribution study (Shaheen & Tawfik, 2000) revealed that 21% of preschoolers were stunted; a higher prevalence was observed among males than females (20% & 19% respectively). Results of EDHS, 2000 suggests that 19% of children under five years were stunted, so there is a decrease in the prevalence of children who were stunted compared to the previous surveys (El-Zanaty et al., 1995; 1997; EDHS, 2000). Stunting increased with age, from 8% among children under 6 months of age to 32% among children 12-23 months, before falling to 15% among children age 4 years and older. Again, the prevalence of stunting was slightly higher for male children than for females. Stunting varied from 10% in the urban Lower Egypt to 25% in rural Upper Egypt (El-Zanaty, 1999).

An earlier study found that the overall prevalence of wasting was 5% among Egyptian children. It is more common among children under two than among older children. Wasting prevalences were slightly higher in the urban governorates and Upper Egypt than in Lower Egypt (**Table 5a-2**) (El-Zanaty et al., 1996).

Another survey, showed a 10% prevalence of wasting among children less than five years, while 5% were overweight (W/H >+2SD). The highest prevalence of wasting was in Upper Egypt (14%), while the highest prevalence of overweight was in the Metropolitan area (11%) (Moussa et al., 1995).

Results among children under 5 revealed that wasting at the national level had a prevalence of 7% (7% and 5% among boys and girls respectively). The prevalence of wasting was very high in Upper Egypt. Generally, this index was greatly affected by children failing to receive adequate nutrition in the period immediately preceding the survey due to illness or other reasons (**Table 5a-2**) (El Tawila, 1997) (**Map 3a** and **Map 3b**).

Shaheen and Tawfik, 2000 showed that 7% of preschoolers (2-6 years) were wasted.

The Demographic and Health Survey, 2000 studied children under 5 years and stated that 3% of Egyptian children were wasted (EDHS, 2000).

Table 5a-1: Anthropometric data on children

Source/ Year of survey	Location	Sample			Percentage of malnutrition						
		Size	Sex	Age							
		Number		Years							
					Underweight % Weight/Age		Stunting % Height/Age		Wasting % Weight/Height		Overweight % Weight/Height
					< -3SD	< -2SD*	< -3SD	< -2SD*	< -3SD	< -2SD*	> +2SD
Hassanyn, 2000	**National**	371	M/F	2-6	2.7	13.7	11.6	14.0	7.5	11.1	7.3
		168	M	2-6	4.2	14.9	13.1	16.1	9.5	13.7	7.1
		203	F	2-6	1.5	NA	10.3	12.3	5.9	8.9	7.4
Shaheen & Tawfik, 2000	**National**	700	M/F	2-6	2.7	NA	8.1	21.2	1.8	7.2	12.3
		380	M	2-6	1.3	NA	9.7	20.1	2.5	7.0	12.1
		320	F	2-6	2.0	NA	8.6	18.7	2.2	7.1	12.5
EDHS, 2000	**National**	10194	M/F	0-4.99	0.5	4.0	6.2	18.7	0.4	2.5	NA
		5250	M	0-4.99	0.6	4.4	6.6	19.8	0.5	2.9	NA
		4943	F	0-4.99	0.4	3.6	5.8	17.4	0.3	2.2	NA
El- Zanaty, 1999	**National**	3997	M/F	0-4.99	2.6	10.7	8.5	20.6	1.3	5.1	NA
1998	Lower Egypt	1591	M/F	0-4.99	2.0	8.4	6.0	16.3	1.0	3.7	NA
	L. Egypt (rural)	1214	M/F	0-4.99	2.4	9.5	6.4	18.2	1.1	3.7	NA
	L. Egypt (urban)	377	M/F	0-4.99	0.6	4.7	4.7	10.3	0.6	3.6	NA
	Upper Egypt	1669	M/F	0-4.99	3.3	13.7	10.9	24.1	1.9	7.2	NA
	U. Egypt (rural)	1225	M/F	0-4.99	3.5	14.2	11.4	24.9	2.4	8.1	NA
	U. Egypt (urban)	444	M/F	0-4.99	2.9	12.1	9.5	22.1	0.5	4.6	NA
	Urban governorates	737	M/F	0-4.99	2.5	9.2	8.2	21.9	0.6	3.3	NA
		418	M/F	0-0.49	0.8	4.3	1.7	8.0	1.8	7.8	NA
		436	M/F	0.5-0.99	7.9	21.9	11.8	27.9	2.5	8.6	NA
		740	M/F	1	3.5	15.6	16.0	31.5	1.4	4.8	NA
		803	M/F	2	2.5	12.3	9.1	23.1	1.8	6.4	NA
		811	M/F	3	1.9	6.9	5.4	16.4	0.7	3.4	NA
		790	M/F	4	0.8	5.7	5.7	14.8	0.5	2.3	NA
	URBAN	1559	M/F	0-4.99	2.1	8.9	7.7	19.1	0.6	3.7	NA
	RURAL	2439	M/F	0-4.99	3.0	11.9	9.0	21.6	1.8	5.9	NA
		2066	M	0-4.99	2.6	11.4	9.3	21.3	1.6	5.6	NA
		1391	F	0-4.99	2.7	10.0	7.6	19.9	1.0	4.5	NA
El- Zanaty, 1998	**National**	3328	M/F	0-4.99	2.8	11.7	10.2	24.9	1.8	6.1	NA
1997 - 1998	Lower Egypt	1357	M/F	0-4.99	2.0	9.1	8.1	21.5	1.1	4.6	NA
	L. Egypt (rural)	1023	M/F	0-4.99	2.2	9.7	8.7	22.8	1.0	4.6	NA
	L. Egypt (urban)	333	M/F	0-4.99	1.5	7.4	6.4	17.6	1.6	4.6	NA
	Upper Egypt	1342	M/F	0-4.99	3.8	14.6	13.8	31.4	2.3	7.8	NA
	U. Egypt (rural)	961	M/F	0-4.99	4.6	16.8	15.8	34.0	2.5	8.6	NA
	U. Egypt (urban)	381	M/F	0-4.99	1.8	8.9	9.0	24.7	1.7	5.7	NA
	Urban governorates	629	M/F	0-4.99	2.1	11.0	6.9	18.4	2.1	5.9	NA
		310	M/F	0-0.49	0.0	2.8	3.3	9.4	1.1	8.1	NA
		286	M/F	0.5-0.99	7.4	20.2	12.0	25.1	3.4	11.2	NA
		666	M/F	1	4.2	16.4	13.7	31.0	2.2	6.6	NA
		675	M/F	2	3.3	12.7	13.0	25.5	1.6	4.6	NA
		692	M/F	3	1.5	11.2	9.5	27.3	1.8	5.5	NA
		699	M/F	4	1.4	7.0	7.2	22.9	1.2	4.8	NA
	URBAN	1344	M/F	0-4.99	1.9	9.5	7.4	20.0	1.9	5.5	NA
	RURAL	1984	M/F	0-4.99	3.4	13.1	12.1	28.2	1.7	6.5	NA
	RURAL	1735	M	0-4.99	3.1	12.4	10.2	25.6	1.7	6.2	NA
	RURAL	1593	F	0-4.99	2.4	10.9	10.2	24.1	1.8	6.1	NA

Notes: - Data not available.

Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population. * Includes children who are below -3 SD.

Table 5a-2: Anthropometric data on children

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Percentage of malnutrition						
					Underweight % Weight/Age		Stunting % Height/Age		Wasting % Weight/Height		Overweight % Weight/Height
					< -3SD	< -2SD*	< -3SD	< -2SD*	< -3SD	< -2SD*	> +2SD
El Tawila S, 1997 AUC/UNICEF	**National**	10973	M	0-4.99	3.5	15.2	11.8	25.9	2.2	7.3	NA
			F	0-4.99	4.0	139.0	10.5	23.1	1.2	5.3	NA
El Tawila S, 1997	**National**	814	M	0-4.99	3.5	15.2	11.8	25.9	2.2	7.3	NA
MICS, 1996	Alexandria		M	0-4.99	2.6	9.5	7.7	20.1	0.7	3.9	NA
	Assiut		M	0-4.99	8.2	24.9	20.4	39.2	3.0	8.6	NA
	Aswan		M	0-4.99	4.7	18.9	13.6	28.0	6.3	20.6	NA
	Greater Cairo		M	0-4.99	3.7	13.6	10.2	20.1	1.9	4.9	NA
	Qena		M	0-4.99	8.5	31.7	5.8	19.7	4.4	17.3	NA
	Sohag		M	0-4.99	6.5	25.8	9.7	25.1	3.7	12.3	NA
	urban		M	0-4.99	3.3	13.8	10.0	21.5	1.9	5.7	NA
	urban (Random housing area)		M	0-4.99	1.1	6.4	7.9	22.7	2.4	5.0	NA
	rural		M	0-4.99	3.6	15.9	12.5	27.7	2.4	7.9	NA
	National	815	F	0-4.99	4.0	13.9	10.5	23.1	1.2	5.3	NA
	Alexandria		F	0-4.99	0.5	6.7	13.7	21.0	1.2	2.8	NA
	Assiut		F	0-4.99	8.7	25.4	17.3	36.7	3.3	8.4	NA
	Aswan		F	0-4.99	9.1	18.9	13.0	28.0	3.0	12.1	NA
	Greater Cairo		F	0-4.99	3.8	12.4	10.9	19.1	0.9	5.5	NA
	Qena		F	0-4.99	6.4	23.2	6.4	20.6	3.7	11.2	NA
	Sohag		F	0-4.99	6.9	25.1	11.4	26.0	1.8	8.5	NA
	urban		F	0-4.99	2.7	12.4	10.0	20.9	0.9	4.4	NA
	urban (Random housing area)		F	0-4.99	4.7	15.1	11.0	22.2	1.3	4.0	NA
	rural		F	0-4.99	4.6	14.5	10.7	24.0	1.4	5.7	NA
El- Zanaty et al. 1996	**National**	9766	M/F	0-4.99	2.6	12.4	13.4	29.8	1.2	4.6	8.6
EDHS, 1995	Frontier governorates	96	M/F	0-4.99	8.5	35.2	16.1	32.5	8.6	26.1	4.7
	Lower Egypt	3807	M/F	0-4.99	1.5	9.6	12.7	28.0	0.6	3.0	7.7
	L. Egypt (rural)	2869	M/F	0-4.99	1.7	9.9	12.9	28.8	0.7	3.2	7.4
	L. Egypt (urban)	938	M/F	0-4.99	1.0	8.8	12.0	25.6	0.4	2.4	8.5
	Upper Egypt	4067	M/F	0-4.99	4.2	16.0	16.7	36.4	1.5	5.2	8.9
	U. Egypt (rural)	3004	M/F	0-4.99	4.7	17.8	19.1	39.7	1.5	5.3	9.5
	U. Egypt (urban)	1063	M/F	0-4.99	3.0	11.0	10.0	27.7	1.6	4.7	7.1
	Urban governorates	1796	M/F	0-4.99	1.2	9.1	7.3	18.4	1.5	5.4	10.0
		978	M/F	0-0.49	0.3	2.8	1.0	6.7	2.1	5.4	13.2
		1024	M/F	0.5-0.99	6.1	21.8	12.4	27.9	2.8	9.9	8.5
		1893	M/F	1	4.5	19.1	18.3	38.0	1.5	6.0	8.1
		1884	M/F	2	3.0	13.3	18.1	35.0	0.6	3.2	8.6
		1958	M/F	3	1.8	11.0	18.4	37.5	0.9	3.0	9.9
		2029	M/F	4	0.9	6.7	6.3	22.0	0.8	3.1	5.5
	URBAN	3854	M/F	0-4.99	1.7	9.9	9.4	22.8	1.3	4.7	8.7
	RURAL	5912	M/F	0-4.99	3.3	14.1	16.1	34.4	1.2	4.5	8.5
		5093	M	0-4.99	2.9	12.7	14.1	31.0	1.5	4.7	7.4
		520	M	0-4.99	0.6	2.7	1.1	6.2	3.3	6.4	10.5
		505	M	0.5-0.99	7.6	23.7	13.6	28.6	3.5	9.4	8.0
		990	M	1	5.2	20.9	20.1	40.5	1.8	7.0	6.4
		974	M	2	3.0	12.9	18.7	36.6	0.6	2.8	7.7
		1046	M	3	1.2	10.5	18.7	37.1	0.7	3.1	8.7
		1059	M	4	1.2	6.8	6.5	24.5	0.9	2.6	4.8
		4674	F	0-4.99	2.4	12.2	12.7	28.4	1.0	4.5	9.9
		458	F	0-0.49	0.0	3.0	0.8	7.3	0.8	4.3	16.3
		520	F	0.5-0.99	4.7	20.0	11.2	27.2	2.0	10.3	9.0
		904	F	1	3.7	17.3	16.4	35.3	1.1	4.9	10.0
		910	F	2	3.0	13.7	17.5	33.3	0.6	3.6	9.5
		912	F	3	2.4	11.7	18.1	37.9	1.1	2.8	11.3
		968	F	4	0.6	6.6	6.0	19.3	0.7	3.6	6.3

Notes: - Data not available.
Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population. * Includes children who are below -3 SD.

Table 5a-3 Anthropometric data on children

Source/ Year of survey	Location	Sample Size Number W/A,H/A,W/H	Sex	Age Years	Percentage of malnutrition								
					Underweight % Weight/Age			Stunting % Height/Age			Wasting % Weight/Height		Overweight
					< -2SD	-2SD>+2SD	< +2SD	< -2SD	-2SD>+2SD	< +2SD	< -2SD	-2SD>+2SD	> +2SD
Moussa et al., 1995	Metropolitan	330	M/F	0.5-5.99	9.7	86.1	4.2	22.1	72.1	5.8	8.2	80.6	11.2
		167/169/137	M	0.5-5.99	8.4	88	3.6	25.1	66.5	8.4	7.2	82	10.8
		163/161/163	F	0.5-5.99	11.1	84	4.9	19.1	77.2	3.7	9.3	79	11.7
	Coastal	320	M/F	0.5-5.99	10.6	88.4	0.9	23.4	75	1.6	4.7	92	3.1
		153/153/154	M	0.5-5.99	11.7	87	1.3	25.3	74	0.7	4.5	92	3.3
		167/167/166	F	0.5-5.99	9	89.8	1.2	21.6	76	2.4	4.2	92	3.6
	Canal	322	M/F	0.5-5.99	23	74.2	2.8	23.6	75.5	0.9	11.5	84.5	4
		170/168/168	M	0.5-5.99	21	76.8	1.8	22	77.4	0.6	10.7	86.3	3
		152/154/154	F	0.5-5.99	24.2	71.2	3.3	25.3	73.4	1.3	12.4	83	4.6
	Lower Egypt	321	M/F	0.5-5.99	15	85	0	16.5	82.2	1.3	9.7	87.5	2.8
		174/175/174	M	0.5-5.99	13.2	86.8	0	16.1	83.9	0	10.3	88.5	11.1
		147/146/147	F	0.5-5.99	17.1	82.9	0	17.1	80.1	2.7	8.9	86.3	4.8
	Upper Egypt	335	M/F	0.5-5.99	25.4	73.7	0.9	22.4	75	2.6	14.3	83	2.7
		192/190/190	M	0.5-5.99	25.8	74.2	0	22.1	75.3	2.6	13.7	84.7	1.6
		145/145/145	F	0.5-5.99	24.8	73.1	2.1	22.8	74.5	2.9	15.2	80.7	4.1
	Total	1628	M/F	0.5-5.99	16.8	81.4	1.8	21.6	75.9	2.5	9.7	85.5	4.8
		854/855/853	M	0.5-5.99	16.4	82.2	1.4	22.1	75.5	2.5	9.5	86.6	3.9
		774/773/775	F	0.5-5.99	16.9	80.9	2.2	20.8	76.5	2.7	9.8	84.3	5.9
					Underweight % Weight/Age			**Stunting** % Height/Age			**Wasting** % Weight/Height		**Overweight** % Weight/Height
					< -3SD	< -2SD*		< -3SD	< -2SD*		< -3SD	< -2SD*	> +2SD
Moussa et al. 1995	**National**	1628	M/F	0.5-5.99	4.2	16.8		7.5	21.6		2.8	9.7	4.8
		856	M	0.5-5.99	4.6	16.4		8.2	22.1		3.2	9.5	3.9
		772	F	0.5-5.99	3.9	16.9		6.7	20.8		2.3	7.3	5.9

Notes: - Data not available

Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population. * Includes children who are below -3 SD.

B. Adolescents

Table 5b shows anthropometric data on adolescents (10-19 years). Hassanyn, (2000) shows that the mean height for the total sample of adolescents 10-<20 years was 147.2 cm ±14.7 cm. Meanwhile, mean BMI (WHO, 1995) for the total sample was 19.8±4.6 with higher mean among females (20.2±4.5) than among males (19.5±4.6). Hassan, (1998) studied the nutritional status of school children (10-14 years) in Cairo, El-Sharkia and Quena. Results revealed that mean height among them was 133.4±6.8 cm. Shaheen & Tawfik (2000) studied the nutritional status of adolescents (10-14y) and yield nearly the same results as previous surveys in Egypt, mean BMI among males was 20.4±3.9 and among females 22.1±4.5.

Table 5b: Anthropometric data on adolescents

Source/ Year of survey	Location	Sample Size (Number)	Sex	Age (Years)	Anthropometric status: Height (cm) mean	Height (cm) median	Body Mass Index (kg/m²) mean	Body Mass Index (kg/m²) median
Shaheen & Tawfik, 2000	Cairo	382	M	10-14	NA	NA	20.4 ± 3.9	19.9
	Qualyobia & Beheira	482	F	10-14	NA	NA	22.1 ± 4.5	21.6
Hassanyn, 2000	National	142	M	10-<20	146.9 ± 15.8	146.8	19.5 ± 4.6	18.5
		140	F	10-<20	147.4 ± 13.6	150.5	20.2 ± 4.5	19.5
		282	M/F	10-<20	147.2 ± 14.7	148.0	19.8 ± 4.6	18.9
EDHS, 1995	National	256	F	15-19	158.0		24.0	

C. Adults

The 1995 EDHS obtained information on the height and weight of women who had a live birth in the previous 5 years to assess their nutritional status **Table 5c.** It is important to recognize that these anthropometric data are not representative of all women aged 15-49 years in Egypt since women who were not married or who had not had a recent birth were excluded from the sub-sample for anthropometric data. Maternal nutritional status was assessed using height and weight of women and the body mass index BMI (WHO, 1995). The mean height of mothers measured in the EDHS, 1995 was 158 cm. Results showed that mean BMI for Egyptian mothers is 26.3 kg/m^2. Only 2% have BMI below 18.5 kg/m^2, indicating chronic energy deficiency. Nearly the same results were obtained by survey for assessment of vitamin A status in Egypt (Moussa et al., 1995) which concluded that the prevalence of overweight and obesity (BMI ≥25 kg/m^2) was 58% in the total sample. It was highest in Metropolitan (70%) and lowest in Upper Egypt (39%). Underweight among mothers as found by Moussa et al, (1995) is rare not exceeding 3% in the Metropolitan area and Lower Egypt, while reaching 16% in Upper Egypt. According to the results of Hassanyn (2000) there was increase in mean BMI to reach 30±4 kg/m^2 as well as increase in prevalence of obese mothers (42%) (BMI ≥30 kg/m^2). Almost similar results were found by Shaheen & Tawfik (2000). The prevalence

of obese fathers (50%) were higher than obese mothers (21%) however, overweight was higher among males (41%) than among females (28%) (Shaheen & Tawfik, 2000). Thus, the primary nutritional problem for many Egyptian women is the tendency toward obesity.

Table 5c: Anthropometric data on adults

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Anthropometric status and Percentage of malnutrition							
					Body Mass Index (kg/m^2)			Chronic Energy Deficiency % BMI			Overweight % BMI	Obesity % BMI
					mean	SD	median	<16.0	16.0-16.9	17.0-<18.5	25.0 - 29.9	>30.0
Hassan, 2001	National	4825	M/F	>65	29.9±8.1		29.4	NA	NA	NA	NA	NA
		1845	M	>65	28.8±9.7		28.1	NA	NA	NA	NA	NA
		2980	F	>65	30.6±6.7		30.3	NA	NA	NA	NA	NA
Hassanyn, 2000	National	835	Mothers	20-48	30.4±26.4		28.7	20.0	0.1	0.7	31.3	42.1
Shaheen &	Subnational	187	Mothers	30-65	26.7±4.8		26.4	NA	NA	2.7	41.1	21.1
Tawfik, 2000		1470	Fathers	20-48	30.6±6.7		29.9	NA	NA	0.5	27.7	50.4
EDHS, 2000	National	13624	Mothers	15-49	29.3		NA	0.0	0.0	0.5	36.4	40.8
EDHS, 1995	National	6314	Mothers	15-49	26.3		NA	0.2	0.3	1.1	31.3	20.5
Moussa et al., 1995	National	1629	Mothers	15-49	26.8±9.2		26.1	1.0	0.4	2.0	33.0	25.5

Note: - Data not available.

The nutritional status of ever married women 15-49 years among 13 624 women in Egypt. The mean height of mothers measured in EDHS, 2000 was 157.5 cm. The mean BMI of Egyptian women is 29.3 kg/m^2. Less than 1% have a BMI under 18.5 kg/m^2. Nearly 77% of women had a BMI of 25 kg/m^2 or higher. The mean body mass index varied directly with the woman's age and is higher among urban women than among rural women. The mean BMI ranges from 26.4 kg/m^2 among women in rural Upper Egypt to 31.5 kg/m^2 in urban Lower Egypt (EDHS, 2000).

A recent survey was designed to assess the nutritional status of the elderly (>65 years). Preliminary results revealed high mean BMI reaching 30.6 ± 6.7 kg/m^2 among females and 28.8 ± 9.7 kg/m^2 among males (Hassan, 2001).

6. Micronutrient deficiencies

Vitamin A Deficiency (VAD)

Values of plasma retinol were available for 1577 preschool children (6-71 months) and 754 mothers in the National Survey for assessment of vitamin A status in Egypt (Moussa et al., 1995; 1997). Results as shown in **Table 6a** and **Table 7a** denoted that vitamin A deficiency is considered to be moderate sub-clinical public health problem in Egypt. Children with low plasma retinol level (< 20 µg/dL) were 12% of the total sample. The respective value was 10% for mothers. Results showed that the highest prevalence of VAD exists among the age group 12-<24 months. The second year of life is the most risky age due to weaning problems. Severe VAD (plasma retinol <10 µg/dL) amounts to 0.6% of total children. There is no significant difference between urban and rural areas. Only one child from metropolitan area showed retinol level <10 µg/dL. Marginal VAD (plasma retinol 10-<20 µg/dL) slightly decreases with urbanization. This is true for all regions with exception of Lower Egypt where the reverse is true. The highest rate of marginal deficiency is found in Lower Egypt while the lowest rate is noticed in the coastal area for preschool children. There is no significant difference between males and females in the different regions regarding retinol levels.

For mothers, the prevalence of severe VAD is 0.4%, while marginal deficiency is 10%. Marginal VAD among mothers decreases with urbanization in Coastal, Canal and Upper Egypt regions. In Lower Egypt, the prevalence of mothers in urban area having marginal VAD is double that of rural area. The highest marginal VAD is found in Upper Egypt, while the lowest deficiency is found in Coastal region.

Results of the survey for assessment of micronutrient deficiency among primary school children in 3 governorates (Cairo, Sharkia and Quena) showed girls had low serum retinol levels (< 20 µg/dL) compared to boys **(Table 6a)** (Hassan, 1998).

Generally, the prevalence of VAD among children was found to be higher than among mothers in all areas except in Upper Egypt. **Table 7a** presents percentage distribution of mothers and children by adequacy of their diet regarding certain micronutrients among total urban and total rural areas in total sample. It is found that 83% of mothers and about half of the children got less than 100% RDA of vitamin A. Thirty six percent of children and 73% of mothers get less than 75% of RDA of vitamin A (Moussa et al., 1995; 1997). Regarding dietary adequacy of some micronutrients, **Table 7b** shows that about one third of total households consumed less than 50% of the RDA for vitamin A, with a higher consumption in rural areas than in urban areas. Only one-third of urban households and less than one-fourth of rural households satisfied their RDA of vitamin A (Hassanyn, 2000). **Table 7c** showed that the majority of both male and female primary school children get less than 75% RDA vitamin A, with a higher percentage in urban areas than in rural areas (Hassan, 1998).

As a result of the national survey for assessment of vitamin A status, Egypt has started a program of vitamin A supplementation for mothers and children early in the year 1999. The program includes 2 elements. First, a vitamin A capsule (200 000 IU) is given to mothers within the first 2 months after delivery, with the goal that the infant will receive an adequate quantity of the vitamin to ensure healthy development through the mother's breast milk. Second, beginning at the age of 9 months (at the time the child receives the measles vaccination) young children are given one vitamin A capsule (100 000 IU). Two additional capsules (total 200 000 IU) are given to children at age 18 months with the activated polio dose.

The extent of the coverage of vitamin A supplementation among children 12-13 months was about 20% (EDHS, 2000). There is no gender difference in the prevalence of VAD among children that received at least one capsule. Vitamin A supplementation is more common for

children living in urban areas, particularly in the urban governorates and in Lower Egypt, than for rural children.

Iron Deficiency Anaemia (IDA)

In the results of the National Survey for assessment of vitamin A status (Moussa et al., 1995), hematocrit values were available for 1613 preschool children (6 months to 6 years) and 382 mothers (**Table 6b**). Preschool children and pregnant mothers with a hematocrit value equal or under 33% (Hb<11 g/dL) are considered anaemic (WHO, 1989). Non pregnant mothers with a hematocrit value equal to or less than 36% (i.e. Hb< 12 g/dL) are considered anaemic (WHO, 1989).

Prevalence of anaemia amounts to 25% among preschool children in the survey **(Table 6b).** This prevalence is less than that observed from 1978 National Nutrition Survey which showed an anaemia prevalence of 38%. Prevalence of anaemia in the 1995 survey among studied mothers was 26% for pregnant mothers, 19% for lactating and 11% for non pregnant non lactating mothers (Moussa et al., 1995).

The 2000 EDHS included direct measurement of hemoglobin levels in a sub-sample of one half of all households for 3 groups of ever married women aged 15-49 years, children under 6 years of age and boys and girls aged 11-19 years. Anaemia is classified as mild, moderate or severe based on the concentration of hemoglobin in the blood. Mild anaemia corresponds to a level of hemoglobin concentration of 10-10.9 g/dL for pregnant women and young children, 10-11.9 g/dL for non pregnant women, girls aged 11-19 years and boys aged 11-13 years, and 10.0-12.9 g/dL for boys aged 14-19 years. For all the tested groups, moderate anaemia corresponds to a level of 7-9.9 g/dL, while severe anaemia corresponds to a level of under 7 g/dL. Around 3 in 10 women had some degree of anaemia. The level of anaemia was severe in less than 1% of the women (0.3%), while 5% had a moderate level (EDHS, 2000).

Prevalence of anaemia among young children revealed that about 3 in 10 children suffer from some degree of anaemia. This is similar to the prevalence of anaemia that was found among women. However, 11% of young children had a moderate level of anaemia, and less than 1% were classified as having severe anaemia. Children under 2 were more likely to be anaemic than older children. Rural children were more likely to be anaemic than urban children (33% and 24% respectively). Children aged 6-59 months in rural Upper Egypt and the Frontier governorates have the highest prevalence of anaemia (38%) and children in urban Lower Egypt have the lowest prevalence (23%) (EDHS, 2000).

Around 3 in 10 children aged 11-19 years are anaemic. Most were considered to be mildly anaemic, 2% were classified as having moderate anaemia and a negligible proportion were severely anaemic. The prevalence of anaemia among children aged 11-19 years increased with age. In part, this reflects the onset of menarche among girls and subsequent regular blood loss.

Eighty six percent of mothers get over 100% of their RDA of iron, while 67% of children get under 100% of their RDA of iron, out of which, 53% get under 75% of their iron RDA (Moussa et al., 1995) (**Table 7a**). Iron adequacy of the diet is much lower in urban than in the rural areas, as only 12% of urban and 24% of rural households consume over 100% iron RDA.

About half of the studied households consumed less than 100% calcium RDA, low calcium intake was higher among rural than among urban areas (**Table 7b**).

Dietary adequacy of some micronutrients among primary school children is shown in **Table 7d.** Only 22% of male children and 13% of females got more than 75% iron RDA. Inadequate iron intake was higher among females than males, also higher in urban than in rural

areas. The same result was true with selenium as only 20% of males and 14% of females consumed over 75% of their RDA of selenium.

Regarding dietary adequacy of zinc, **Table 7d** also showed that 64% of male children and 77% of female children consumed less than 75% of their RDA, with more or less equal distribution among urban and rural areas.

Iodine Deficiency Disorders (IDD)

Results of the National survey conducted by the Nutrition Institute (NI) in collaboration with WHO (Hussein et al., 1992) found a high prevalence of IDD as manifested by total goitre rate (TGR), are presented in **Table 6c-1**, **6c-2** and **6c-3**. School children were the target population for this study which included all governorates in Egypt except Aswan, Gharbia, the Red Sea and North Sinai (**Map 4**). Total sample size was 30 858 school children. The age of the primary school children ranged between 6-11 years, that of the preparatory level children ranged between 11-14 years and the secondary between 14-17 years. According to the results of this survey (Hussein et al., 1992) the overall prevalence among all the 3 educational levels was 7%. Among primary school children it was 5% (**Table 6c-1**), among preparatory 6% (**Table 6c-2**) and among secondary school children it was 8% (**Table 6c-3**). Thus, the prevalence of goiter was found to increase with age. The highest prevalence of goiter was found in the New Valley (38%), the second highest prevalence rate was observed in Souhag Governorate (15%). The majority of governorates have prevalence rate that ranged between 3 to 8%. The lowest figures were found in Beheira, Menofia, and Port Said governorates (0.2%, 0.4% and 2%) respectively. There was no to higher prevalence among rural versus urban school children (7%, 6% respectively). However, females showed higher prevalence of goiter in the 3 educational levels (6%, 8% and 11%) with increasing prevalence of goitre with advancing of age, compared to males (5%, 5% and 4%) for primary, preparatory and secondary school children respectively. The overall prevalence rate of IDD amongst females was 9% compared to 4% among males.

Results of the TGR survey among mothers and their preschool children (3-6 years) in the National survey for assessment of vitamin A status in Egypt (Moussa et al., 1995) revealed that the prevalence of TGR was 7%, being slightly higher in urban (7%) than in rural areas (6%). Higher prevalences of TGR among children were found in Canal, Coastal, and Upper Egypt, than in Metropolitan areas. TGR among mothers in the total sample was 21%, 23% in rural areas and 20% in urban areas. The highest prevalence of TGR among mothers was present in Canal, Lower Egypt and Coastal areas, the lowest prevalence was found in Metropolitan Cairo (**Table 6c-1**).

Table 7d shows that only 3% of the studied households consumed the recommended RDA for iodine, but the majority of them consumed less than 50% of the iodine RDA (with a higher prevalence in rural than in urban areas). Iodine intake in Table 7d does not include the amount consumed from iodized salt.

Only 4% of male and female children consumed over 75% iodine RDA. Iodine content of iodized salt is not included in the results (Hassan, 1998).

Egypt has adopted a program of fortifying salt with iodine since January 1996 to prevent iodine deficiency. In the 2000 EDHS, the iodine content of the salt used in the household was measured using a rapid-test kit provided by UNICEF. Results showed that 28% of households used salt with iodine content exceeding 25 ppm (parts per million). In another 28% of the households, the iodine content of the salt fell below 25 ppm, while the salt used by 44% of the households was not found to contain iodine. The salt was not iodized at all in slightly more than half of rural households and in one third of urban households. The percentage of households

using non-iodized salt ranged from 22% in the Frontier governorates to 57% in rural Lower Egypt (EDHS, 2000).

Table 6a: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
	Vitamin A					
Hassan, 1998	Serun retinol	Urban	272	M	6-11	10.3
	<20 µg/dL		228	F	6-11	11.0
		Rural	122	M	6-11	8.2
			128	F	6-11	18.0
Moussa et al.,	Serum retinol	Total sample	1577	M/F	0.5-5.99*	11.9
1995-1997	<20 µg/dL or<0.70 µmol/L	Urban	957		0.5-5.99*	11.4
		Rural	620		0.5-5.99*	12.7
		Metropolitan	317		0.5-5.99*	10.4
		Coastal	321		0.5-5.99*	9.7
		Canal	301		0.5-5.99*	12.0
		Lower Egypt	318		0.5-5.99*	15.4
		Upper Egypt	320		0.5-5.99*	11.9
		Total sample	NA	M	0.5-5.99*	12.5
		Total sample	NA	F	0.5-5.99*	11.1
		Total sample	754	Mothers**	Child	10.2
		Urban	455		Bearing	11.0
		Rural	299		Age	9.0
		Metropolitan	149			12.8
		Coastal	150			8.0
		Canal	165			3.0
		Lower Egypt	150			12.0
		Upper Egypt	140			16.4

Notes: - Data not available. * Preschool children. ** Not pregnant, not lactating.

Table 6b: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location/Subjects	Sample			Percentage
			Size Number	Sex	Age Years	
	Iron					
EDHS, 2000	IDA (hematochrit)	Total ever married	7684	F	15-49	29.2
2000	Severe anemia (Hb< 7g/dL)	women				0.3
	Moderate anemia (Hb 7-9.9 g/dL)					4.6
	Mild anemia (Hb 10-10.9 g/dL)					24.3
		Total children	4708	M/F	0.5-4.99	29.9
	Severe anemia (Hb< 7g/dL)					0.2
	Moderate anemia (Hb 7-9.9 g/dL)					11.2
	Mild anemia (Hb 10-10.9 g/dL)					18.5
		Total children		M/F	11-19	29.7
				M	11-19	30.7
Moussa et al.	IDA (hematochrit		1613	M/F	0.5-5.99	25.2
1995	<33% for children & pregnant mothers)		851	M	"	23.7
	(<36% for non pregnant mothers)		851	F	"	26.7
			382	Mothers**	Child	11.0
			281	Pregnant	Bearing	26.0
			1832	Lactating	Age	19.0

Note: **not pregnant, not lactating.

Table 6c-1: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Subjects/Sex	Age Years	
	Iodine					
Moussa et al.	TGR	Egypt Total	1629	Mothers	20-45	21.4
1995			593	Preschoolers	3-<6	6.5
		Metropolitan	112	Preschoolers	3-<6	2.5
		Coastal	106	Preschoolers	3-<6	6.6
		Canal	102	Preschoolers	3-<6	15.7
		Lower Egypt	139	Preschoolers	3-<6	4.3
		Upper Egypt	124	Preschoolers	3-<6	5.6
		Metropolitan	329	Mothers	20-45	11.6
		Coastal	320	Mothers	20-45	18.4
		Canal	323	Mothers	20-45	44.0
		Lower Egypt	322	Mothers	20-45	19.3
		Upper Egypt	335	Mothers	20-45	14.0
Hussein et al.	TGR	Egypt Total	30858	M/F	6-18	6.5
1992		Primary school	9538	M/F	6-11	5.2
		Preparatory school	11466	M/F	11-14	6.4
		Secondary school	9854	M/F	14-17	7.8
	TGR	**Primary Schools**				
		Cairo	422	M/F	6-11	5.2
		Giza	273	M/F	6-11	3.7
		Fayoum	408	M/F	6-11	3.7
		Beni-Swief	361	M/F	6-11	1.3
		El Menia	361	M/F	6-11	1.8
		Assuit	385	M/F	6-11	1.8
		Souhag	392	M/F	6-11	8.7
		Quena	438	M/F	6-11	1.8
		Suez	730	M/F	6-11	1.1
		Port-Said	480	M/F	6-11	1.7
		Ismailia	399	M/F	6-11	3.0
		Alexandria	652	M/F	6-11	6.7
		Marsa Mattroh	346	M/F	6-11	10.1
		El Behira	479	M/F	6-11	0.2
		El Menofia	421	M/F	6-11	0.0
		El Dakahlia	378	M/F	6-11	7.9
		El Kalyobia	478	M/F	6-11	4.8
		El Sharkia	475	M/F	6-11	11.4
		Kafr El Shikh	85	M/F	6-11	15.3
		Domietta	820	M/F	6-11	5.6
		South Sinai	328	M/F	6-11	0.0
		New Valley	403	M/F	6-11	26.4

Table 6c-2: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Subjects/Sex	Age Years	
	Iodine					
Hussein et al.	TGR	**Preparatory School**				
1992		Cairo	464	M/F	11-14	5.2
		Giza	303	M/F	11-14	15.2
		Fayoum	519	M/F	11-14	4.4
		Beni-Swief	409	M/F	11-14	1.2
		El Menia	519	M/F	11-14	8.1
		Assuit	648	M/F	11-14	0.5
		Souhag	481	M/F	11-14	13.7
		Quena	416	M/F	11-14	2.6
		Suez	496	M/F	11-14	5.4
		Port-Said	637	M/F	11-14	1.9
		Ismailia	482	M/F	11-14	1.2
		Alexandria	598	M/F	11-14	3.5
		Marsa Mattroh	521	M/F	11-14	5.8
		El Behira	632	M/F	11-14	0.5
		El Menofia	523	M/F	11-14	0.2
		El Dakahlia	466	M/F	11-14	7.5
		El Kalyobia	643	M/F	11-14	4.5
		El Sharkia	462	M/F	11-14	5.8
		Kafr El Shikh	482	M/F	11-14	9.3
		Domietta	959	M/F	11-14	8.8
		South Sinai	317	M/F	11-14	0.6
		New Valley	489	M/F	11-14	40.1

Table 6c-3: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Subjects/Sex	Age Years	
	Iodine					
Hussein et al.	TGR	**Secondary School**				
1992		Cairo	352	M/F	14-17	8.5
		Giza	493	M/F	14-17	7.5
		Fayoum	617	M/F	14-17	5.7
		Beni-Swief	467	M/F	14-17	3.2
		El Menia	477	M/F	14-17	12.3
		Assuit	646	M/F	14-17	0.3
		Souhag	479	M/F	14-17	21.3
		Quena	295	M/F	14-17	4.7
		Suez	239	M/F	14-17	8.8
		Port-Said	283	M/F	14-17	0.7
		Ismailia	472	M/F	14-17	3.2
		Alexandria	230	M/F	14-17	1.7
		Marsa Mattroh	189	M/F	14-17	6.3
		El Behira	638	M/F	14-17	0.2
		El Menofia	495	M/F	14-17	1.0
		El Dakahlia	410	M/F	14-17	6.1
		El Kalyobia	637	M/F	14-17	6.7
		El Sharkia	372	M/F	14-17	4.8
		Kafr El Shikh	533	M/F	14-17	16.1
		Domietta	959	M/F	14-17	7.9
		South Sinai	272	M/F	14-17	4.4
		New Valley	299	M/F	14-17	50.8

Table 7a: Percentage distribution of mothers and children by adequacy of their diet regarding some micronutrients among total urban and total rural areas in total sample (Moussa et al., 1995)

%RDA	Children						Mothers					
	Urban		Rural		Total		Urban		Rural		Total	
	N*	%	N*	%	N*	%	N*	%	N*	%	N*	%
VITAMIN A												
< 50	226	23.3	154	23.6	380	23.4	265	54.1	187	56.8	452	55.2
50 -<75	111	11.4	86	13.2	197	12.1	93	19.0	56	17.0	149	18.2
75 -<100	108	11.1	70	10.7	178	11.0	49	10.0	31	9.4	80	9.8
≥ 100	527	54.2	343	52.5	870	53.5	83	16.9	55	16.7	138	16.8
Total	**972**	**59.8**	**653**	**40.2**	**1625**	**100.0**	**490**	**59.8**	**329**	**40.2**	**819**	**100.0**
VITAMIN C												
< 50	106	10.9	66	10.1	172	10.6	37	7.6	35	10.6	72	8.8
50 -<75	44	4.5	28	4.3	72	4.4	13	2.7	19	5.8	32	3.9
75 -<100	37	3.8	24	3.7	61	3.8	28	5.7	18	5.5	46	5.6
≥ 100	285	80.8	535	81.9	1320	81.2	412	84.1	257	78.1	669	81.7
Total	**972**	**59.8**	**653**	**40.2**	**1625**	**100.0**	**490**	**59.8**	**329**	**40.2**	**819**	**100.0**
IRON												
< 50	306	31.5	212	32.5	518	31.9	12	2.4	8	2.4	20	2.4
50 -<75	216	22.2	118	18.1	334	20.6	19	3.9	19	5.8	38	4.6
75 -<100	154	15.8	87	13.3	241	14.8	30	6.1	26	7.9	56	6.8
≥ 100	296	30.5	236	36.1	532	32.7	429	87.6	276	83.9	705	86.1
Total	**972**	**59.8**	**653**	**40.2**	**1625**	**100.0**	**490**	**59.8**	**329**	**40.2**	**819**	**100.0**

Source: Moussa et al., 1995
Note: N*= number of subjects

Table 7b: Distribution of households by dietary adequacy of some micronutrients (Hassanyn, 2000)

% RDA	Urban		Rural		Total	
	N*	%	N*	%	N*	%
VITAMIN A						
< 50	269	27.6	262	37.8	531	31.8
50 -<75	201	20.6	170	24.5	371	22.2
75 -<100	176	18.1	103	14.8	279	16.7
≥ 100	329	33.7	159	22.9	488	29.2
Total	975	100.0	694	100.0	1669	100.0
VITAMIN C						
< 50	42	4.3	25	3.6	67	4.0
50 -<75	36	3.7	18	2.6	54	3.2
75 -<100	54	5.5	29	4.2	83	5.0
≥ 100	843	86.5	622	89.6	1465	87.8
Total	975	100.0	694	100.0	1669	100.0
IRON						
< 50	324	33.2	123	17.7	447	26.8
50 -<75	370	37.9	265	38.2	635	38.0
75 -<100	166	17.0	143	20.6	309	18.5
≥ 100	115	11.8	163	23.5	278	16.7
Total	**975**	**100.0**	**694**	**100.0**	**1669**	**100.0**
CALCIUM						
< 50	88	9.0	100	14.4	188	11.3
50 -<75	171	17.5	159	22.9	330	19.7
75 -<100	190	19.5	128	18.4	318	19.1
≥ 100	526	53.9	307	44.3	833	49.9
Total	975	100.0	694	100.0	1669	100.0
IODINE						
< 50	658	67.5	523	75.4	1181	70.8
50 -<75	231	23.7	112	16.1	343	20.6
75 -<100	65	6.7	33	4.8	98	5.9
≥ 100	21	2.2	26	3.7	47	2.8
Total	**975**	**100.0**	**694**	**100.0**	**1669**	**100.0**

Source: Hassanyn, 2000
Note: N*= Number of subjects

Table 7c: Percentage distribution of primary school children by adequacy of their diet regarding some vitamins among urban and rural areas in the total sample (Hassan, 1998).

% RDA		Urban		Rural		Total	
		N*	%	N*	%	N*	%
VITAMIN A							
< 50	M	94	34.7	45	36.6	139	35.3
	F	75	32.6	61	48.4	136	38.2
50 -<75	M	68	25.1	29	23.6	97	24.6
	F	50	21.7	28	22.2	78	21.9
75 +	M	109	40.2	49	39.8	158	40.1
	F	105	45.7	37	29.4	142	39.1
VITAMIN C							
< 50	M	19	7.0	8	6.5	27	6.9
	F	13	5.7	11	8.7	24	6.7
50-<75	M	20	7.4	4	3.3	24	6.1
	F	18	7.8	9	7.1	27	7.6
75 +	M	232	85.6	111	90.2	343	87.0
	F	199	86.5	106	84.2	305	85.7

Source: Hassan, 1998
Note: N*= Number of subjects.

Table 7d: Percentage distribution of primary school children by adequacy of their diet regarding some micronutrients among urban and rural areas in total sample (Hassan, 1998)

% RDA		Urban		Rural		Total	
		N*	%	N*	%	N*	%
IRON							
< 50	M	133	49.1	36	29.3	169	42.9
	F	134	58.3	53	42.1	187	52.5
50 -<75	M	90	33.2	49	39.8	139	35.3
	F	68	29.6	56	44.4	124	34.8
75 +	M	49	17.7	38	30.9	86	21.8
	F	28	12.1	17	13.5	45	12.7
SELENIUM							
< 50	M	133	49.1	60	48.8	193	48.9
	F	149	65.1	76	60.3	225	63.3
50 -<75	M	83	30.6	38	30.9	121	30.7
	F	53	23.1	27	21.4	80	22.5
75 +	M	55	20.3	25	20.3	80	20.4
	F	27	11.8	23	18.3	50	14.2
ZINC							
< 50	M	78	28.8	39	31.7	117	29.7
	F	85	36.9	51	40.5	136	38.2
50 -<75	M	97	35.8	39	31.7	136	34.5
	F	94	40.9	45	35.7	139	39.1
75 +	M	56	35.4	45	36.6	141	35.8
	F	51	22.2	30	23.8	81	22.7
IODINE							
< 50	M	209	77.1	109	88.6	318	80.7
	F	186	80.9	111	88.1	297	83.5
50 -<75	M	49	18.1	12	9.8	61	15.5
	F	35	15.3	11	8.7	46	12.9
75 +	M	13	4.8	2	1.6	15	3.8
	F	9	3.8	4	3.2	13	3.7

Source: Hassan, 1998
Note: N*= Number of subjects

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References of data presented in Table 1, unless otherwise stated:

Source:	*Indicator:*
FAOSTAT. 2002.	*A.1-2, B, C.10-11, E.1-3, F, G*
UN. 1999/2000 rev.	*C.1-9, D.5*
World Bank. 2000.	*D.1*
UNDP. 2001.	*D.2*
UNDP. 1998.	*D.3-4*
UNICEF. 2002.	*D.6*
FAO/WFS. 2002.	*H*

NCP of EGYPT
MAPS

General map of Egypt

Map 1a: Prevalence of underweight among boys less than 5 years in 1996 (El Tawila, 1997).

Map 1b: Prevalence of underweight among girls less than 5 years in 1996 (El Tawila, 1997).

Map 2a: Prevalence of stunting among boys less than 5 years in 1996 (El Tawila, 1997).

Map 2b: Prevalence of stunting among girls less than 5 years in 1996 (El Tawila, 1997).

Map 3a: Prevalence of wasting among boys less than 5 years in 1996 (El Tawila, 1997).

Map 3b: Prevalence of wasting among girls less than 5 years in 1996 (El Tawila, 1997).

Map 4: Prevalence of goitre among school children (6-11 years) by governorate (Hussein et al., 1992).