

Global trends in dietary energy supply from 1961 to 1999¹

Sources of energy and recommendations for energy intake

Undernutrition remains a severe problem in many developing regions. The prevalence of stunting, indicating chronic malnutrition, affects 226 million children under the age of five in developing countries (UNICEF, 1998). In some regions, such as sub-Saharan Africa and South Asia, nearly half of the children under five are stunted (de Onis *et al.*, 1993). The primary factors contributing to undernutrition are insufficient access to food, poor care practices, weak health care services and inadequate water and sanitation (ACC/SCN, 2000). Concurrently, there is a burgeoning problem of overnutrition, mainly in developed regions but also in countries in economic transition as well as in some developing countries. Contributing causes to overweight and obesity are sedentary lifestyle and overconsumption of kilocalories. Both problems of under- and overnutrition exact a heavy toll on the health and well-being of populations.

An analysis of trends in the supply of dietary energy can help to reveal patterns

that provide a basis for assessing the adequacy of the food supply, from which nutritional inferences can be drawn. Carbohydrates, fat and protein comprise the three principal sources of energy in the human diet. Alcohol is another potential source of energy in the human diet, but does not generally contribute substantially to overall population energy intake and will not be considered in this review. Individual foods contain different proportions of the three principal macronutrients. Animal products (meat and dairy) are rich sources of protein and fat, while cereals, fruits and vegetables contain a large proportion of carbohydrate. The quantity and quality of each component is particularly important when analysing nutritional adequacy.

During previous expert consultations, general dietary guidelines for carbohydrates and fats in the diet were established.

The expert consultation on carbohydrates (FAO, 1998a) suggested that:

- 55 percent of total energy should come from a variety of carbohydrates;
- the majority of carbohydrate foods consumed should be rich in non-starch polysaccharides with a low glycaemic index;
- a variety of appropriately processed cereals, vegetables, legumes and fruits should be eaten.

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The expert consultation on fats and oils (FAO, 1994a) proposed that:

- for most adults, dietary fat should supply a minimum of 15 percent of total energy intake, but not exceed 30–35 percent of total energy intake (approximately 40 g);
- for women of reproductive age, 20 percent of energy intake should come from dietary fat;
- for children under two years of age, 30–40 percent of energy should come from fat;
- saturated fat (visible animal fat, products such as lard, butter and ghee) should be limited to 10 percent of energy intake.

balance sheets provide information on the supply and utilization of many different commodities. Factors accounting for food supply include production, imports, stock changes and exports, while utilization covers animal feed, seed, processing, waste, other uses and food. Extrapolating from these data, per capita supply of energy, protein and fat is calculated for all food commodities.

When analysing FAO food supply statistics, an important aspect to consider is the application of the per capita measurements. These figures are based on population totals and represent *average, not actual* per capita availability. Actual food availability may

500 kcal/capita/day. Regional analysis shows this change has not been equal across regions; per capita supply of calories has remained stagnant in Oceania and has recently been showing a decreasing trend in Eastern Europe. In contrast, the per capita supply of energy has risen dramatically in China (by 1 300 kcal/capita/day) and in North Africa (by 1 100 kcal/capita/day).

Protein

A closer look at regional trends in food availability is provided in Tables 1 and 2. Table 1 shows data on regional per capita supply of grams of protein. Globally, per capita protein supply has been steadily in-

FAO maintains a comprehensive database of food production. Country-specific food balance sheets provide information on the supply and utilization of many different commodities

The discussion of dietary requirements for protein has shifted somewhat to a discussion of essential amino acid requirements. While general recommendations for levels of overall protein are still provided, it is now recognized that another crucial aspect of protein nutrition is the provision of essential amino acids. New guidelines on protein requirements are expected to become available in 2002.

Dietary guidelines from the 1990s for protein (FAO, 1997) suggest that 8–12 percent of total energy should come from protein (approximately 20–30 g, depending on protein quality).

The aim of this article is to review trends in food availability and broad consumption patterns based on an analysis of FAO statistical data and recent national and subnational dietary intake surveys. Changes in per capita supply of energy, protein and fat will be highlighted and compared to national-level dietary intake data.

Analysis of FAO statistical data

FAO maintains a comprehensive database of food production. Country-specific food

vary by region, socio-economic level and season. Certain difficulties are encountered when estimating trade, production and stock changes on an annual scale. In order to reduce these errors, three-year averages are calculated. In the following analysis the periods of 1961–63, 1967–69, 1977–79, 1987–89 and 1997–99 are used.

The FAO statistical database contains many different regional and economic aggregate groupings. For the purpose of this review, eleven regions and three economic groupings were selected. A comprehensive list of regional and economic country aggregates is available at <http://apps.fao.org> (FAOSTAT, 2001). Not all countries in the established aggregates provide food supply data, and the data in FAOSTAT are periodically updated. The annex provides a comprehensive list of the countries in each aggregate. Some aggregates include only developed or developing countries while others include both.

Energy

Figure 1 displays trends in kilocalories per capita per day from 1961 to 1999. Globally, there has been an increase of approximately

creasing. Dramatic increases in per capita supply of protein are seen in China and North Africa, while protein supply has remained unchanged in sub-Saharan Africa and Oceania.

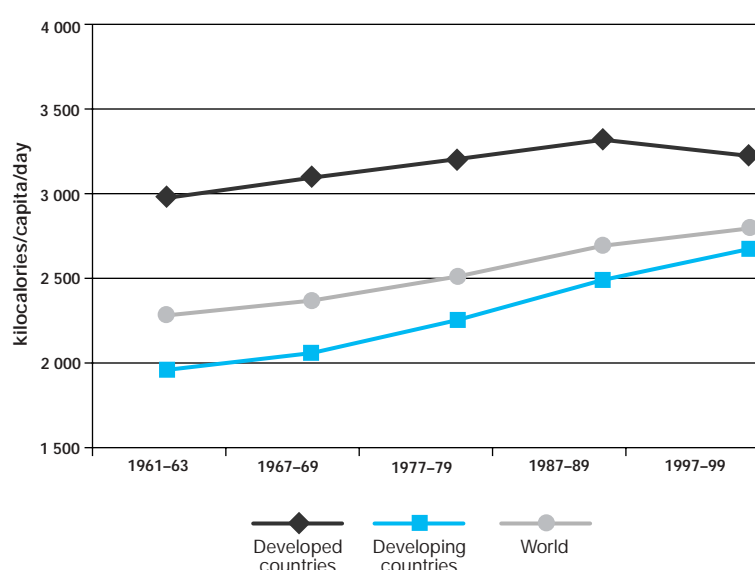
Total grams of protein can be further divided into grams supplied from plant or animal origin. Proteins from animal sources are considered of high quality in the human diet as they contain the most complete range of essential amino acids; no single vegetable source provides all essential amino acids. Diets limited in animal source proteins need to contain a mixture of vegetable foods such as cereals in combination with pulses or nuts in order to meet essential amino acid requirements.

Figure 2 shows the shift in percentage of total protein supplied from animal sources. Between 1961–63 and 1997–99 there has been a slight global shift from 32 to 37 percent of total protein supplied from animal sources. The most dramatic change has occurred in China, where the percentage of protein supplied from animal sources has jumped from 9 to 34 percent.

Twenty percent of available protein comes from animal sources in North

FIGURE 1

Trends in global dietary energy supply



Source: FAOSTAT

Africa, sub-Saharan Africa and South Asia. Owing to the large reliance on vegetable sources of food in these regions, one would hope to find a diverse mixture of high-quality vegetable source proteins available, such as pulses, beans and nuts, which should be combined with staple grains to fulfil requirements for essential amino acids. An analysis of trends in the supply of pulses, beans and nuts reveals that actual per capita availability of these foods has been decreasing – in some cases dramatically. Per capita supply of pulses, groundnuts and beans has decreased in both South Asia and sub-Saharan Africa. In South Asia, the decline in supply of pulses has dropped considerably, from 18.2 in 1961–63 to 10.8 kg/capita/year in 1997–99. In terms of protein in grams per capita per day (g/c/d), the supply from pulses has fallen from 10.2 in 1961–63 to 6.1 g in 1997–99. Similarly, in sub-Saharan Africa, g/c/d of protein from beans, pulses and groundnuts have all de-

There is growing recognition that this focus needs to shift from the supply of one or two staple foods to availability of a diverse range of foods in order to reduce malnutrition and improve food security

TABLE 1

Regional trends in grams/capita/day supply of protein

Regional aggregate	1967-69	1977-79	1987-89	1997-99	Change between 1967-69 and 1997-99
World	64	66	71	75	11
China	47	52	64	83	36
East and Southeast Asia (developing)	47	52	58	63	16
Eastern Europe	95	103	102	93	-2
European Community (15)	91	97	103	105	14
Latin America and the Caribbean	65	66	69	75	10
Near East in Asia	69	76	82	76	7
North Africa	60	69	81	87	27
North America (developed)	99	99	106	112	13
Oceania	95	97	96	94	-1
South Asia	49	51	55	58	9
Sub-Saharan Africa (developing) excluding South Africa	53	52	52	53	0

Source: FAOSTAT

creased since the 1960s. The decline in availability of high-quality vegetable proteins is in part due to the agricultural focus on increasing the supply of food staples, which was considered necessary to feed the world's growing population. There is growing recognition that this focus needs to shift from the supply of one or two staple foods to the availability of a diverse range of foods

in order to reduce malnutrition and improve food security.

Fat

The total increase in dietary fat supply has been more dramatic than the change observed in dietary protein. The world supply in g/c/d of fat has increased by 24 grams since 1961–63. The absolute change

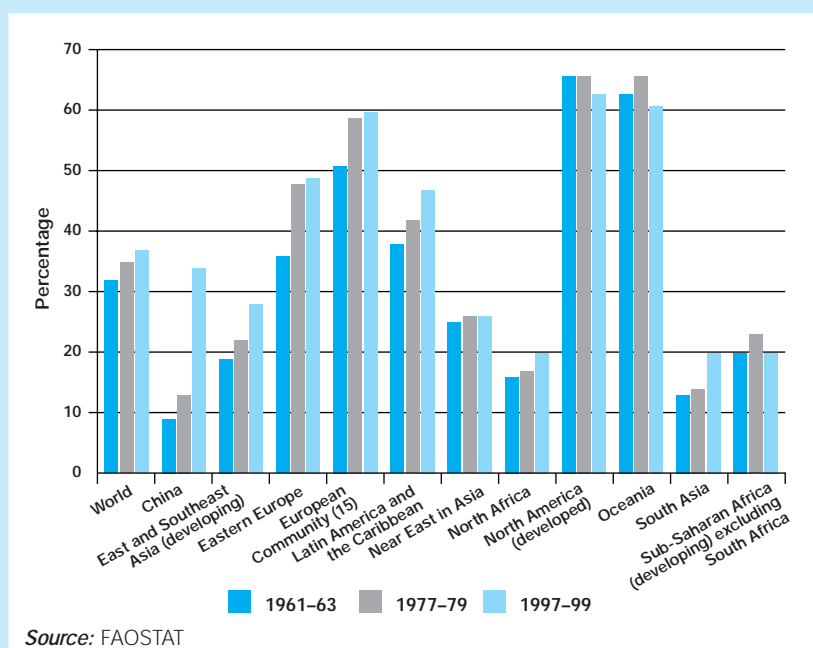
in g/c/d has been most dramatic in Asia, the European Community and the Americas.

The increase in total grams of fat by region is unlikely to be spread evenly across all countries in any given region. A fat–energy ratio (FER) can be calculated by dividing the total supply of kcal by kcal derived from fat. As stated earlier in the opening section on recommendations, dietary fat should supply a minimum of 15 percent of total energy, but not exceed 30–35 percent of total energy. The country-specific analysis of FAO statistical data from 1988–90 (FAO, 1994a) found a range in FER of 7–46 percent. Nineteen countries fell below the minimum recommendation of 15 percent of dietary energy supply from fat, the majority of which were in sub-Saharan Africa and the remainder in South Asia. Twenty-four countries exceeded the 35 percent maximum, with the majority being in Western Europe and North America.

The ratio of dietary fat from animal sources is a key health indicator. Foods from animal sources are high in saturated fat and therefore increases in the availability and consumption of these foods can contribute to non-infectious chronic diseases such as coronary heart disease and stroke. The same data set as that used to calculate country-specific FER was used to

FIGURE 2

Percentage of protein from animal sources



Source: FAOSTAT

TABLE 2

Regional trends in grams/capita/day supply of fat

Regional aggregate	1967-69	1977-79	1987-89	1997-99	Change between 1967-69 and 1997-99
World	53	57	67	73	20
China	24	27	48	79	55
East and Southeast Asia (developing)	28	32	44	52	24
Eastern Europe	90	111	116	104	14
European Community (15)	117	128	143	148	31
Latin America and the Caribbean	54	65	73	79	25
Near East in Asia	51	62	73	70	19
North Africa	44	58	65	64	20
North America (developed)	117	125	138	143	26
Oceania	102	102	113	113	11
South Asia	29	32	39	45	16
Sub-Saharan Africa (developing) excluding South Africa	41	43	41	45	4

Source: FAOSTAT

calculate the proportion of animal fat to total fat. This analysis indicated that the proportion of animal fat to total fat was lower than 10 percent in some countries (Mozambique, Nigeria, Sao Tome and

Energy

Table 3 shows a current level of 2 681 kcal/capita/day in developing countries, 2 906 in transition markets and 3 380 in industrialized countries. The available kcal/capita/

The animal protein ratio (APR) can be calculated by dividing total grams per capita of protein by grams of protein supplied from animal sources. The disparity between developing and industrialized countries is

Foods from animal sources are high in saturated fat – therefore increases in the availability and consumption of these foods can contribute to non-infectious chronic diseases such as coronary heart disease and stroke

Principe and Sierra Leone) and above 75 percent in others (Denmark, Finland, Hungary, Mongolia, Poland and Uruguay). These findings are not strictly divided along economic lines, as not all of the countries in the highest range represent the most affluent. Country-specific food availability and cultural dietary preferences and norms determine these patterns to some extent.

Economic groupings

In addition to regional groupings, economic groupings can provide some information on global trends. FAO's statistical service uses three economic groupings, defined as developing, transitional and industrialized markets. The developing grouping is a composite of 124 countries; transitional markets include 27 countries and the industrialized markets comprise 25 countries.

day has increased in developing and industrialized countries from 1967–69 to 1997–99, but declined for countries in transition.

The per capita energy supply for countries in transition has declined for both animal and vegetable sources. The supply of kcal from both animal and vegetable sources has increased in the developing and industrialized countries.

Table 4 shows the same trend for protein as that seen with energy – availability has increased for developing and industrialized countries but decreased for countries in transition. Although the global supply of protein has been increasing, the distribution of the overall protein supply is unequal. The per capita supply of vegetable protein is slightly higher in developing countries, while the supply of animal protein is three times higher in the industrialized grouping.

quite evident – 29 percent of protein in the developing world is supplied by animal sources compared with 60 percent in industrialized countries.

Fat

Developing countries have had a significant increase in per capita supply of fats since 1961, with the change being distributed relatively evenly between animal and vegetable sources. The per capita availability of fats has also increased in industrialized countries, with the larger increase being seen in fats from vegetable sources. Countries in transition are experiencing a decrease in per capita availability of fats and, compared with 1961–63, a much larger percentage of total available fats now comes from vegetable sources.

Figures 3 and 4 provide a comparison of the distribution of world population in

TABLE 3

Trends in dietary energy supply by economic group

	1967–69			1977–79			1987–89			1997–99		
	T	V	A	T	V	A	T	V	A	T	V	A
	(kcal/capita/day)											
Developing countries	2 059	1 898	161	2 254	2 070	184	2 490	2 248	242	2 681	2 344	337
Transition countries	3 287	2 507	780	3 400	2 507	893	3 396	2 455	941	2 906	2 235	671
Industrialized countries	3 003	2 132	871	3 112	2 206	906	3 283	2 333	950	3 380	2 437	943

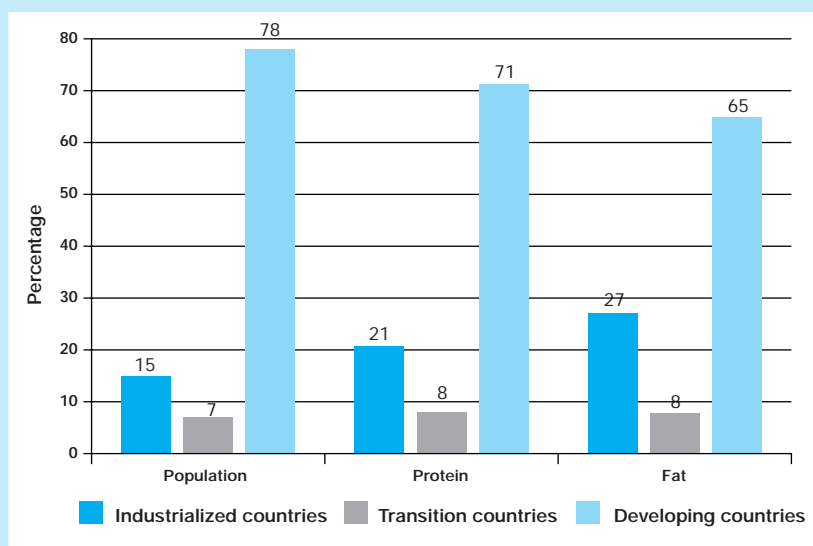
Note: T = total, V = vegetable, A = animal.
Source: FAOSTAT

TABLE 4
Trends in protein supply by economic group

	1967-69			1977-79			1987-89			1997-99		
	T	V	A	T	V	A	T	V	A	T	V	A
(Grams of protein/capita/day)												
Developing countries	52	42	10	55	44	11	61	47	14	69	49	20
Transition countries	99	57	42	103	53	50	105	51	54	86	46	40
Industrialized countries	91	39	52	95	38	57	102	40	62	104	42	62

Note: T = total, V = vegetable, A = animal.
Source: FAOSTAT

FIGURE 3
Percentage share of global protein and fat supply, 1997-99



Source: FAOSTAT

Household-level data on protein consumption

The above section highlighted the changes in per capita availability of energy, protein and fat. In addition to providing national-level food commodity data, household dietary intake surveys can be used to give a more robust and detailed picture of consumption patterns. These data can show differences in consumption trends by socio-economic level, urban and rural living environments, and gender.

Socio-economic differences

The same basic trends as those observed on a global scale are exhibited at the country level. People with higher income levels consume more total grams of protein and fat, particularly from animal sources. Dietary intake data from Togo (1988/89) demonstrated that fish and meat account

Food consumption patterns are not equal for all segments or regions within a given population. As incomes rise, so does consumption of animal foods rich in protein and fat

relation to global share of fat and protein supply. Fifteen percent of the world's population lives in industrialized countries with 21 and 27 percent of the world share of protein and fat. Conversely, 78 percent of the world's population is in developing countries, with about 71 and 65 percent shares in global protein and fat supplies, respectively.

The breakdown of protein and fat supplies by animal and vegetable sources reveals greater disparity. The share of the industrialized countries in the global supply of protein and fat from animal sources is 34 percent and 30 percent, respectively, while in developing countries the percentage share is 56 and 60.

for an average of 50 kcal/capita/day for the lowest income decile and 197 kcal/capita/day for the highest income decile (FAO, 1994b). This difference of 147 kcal/capita/day supplied from meat and fish, when multiplied for a month, would be 4 410 kcal. In Tunisia (1985), meat and fish accounted for 13 kcal/capita/day in the low-

TABLE 5
Trends in fat supply by economic group

	1967-69			1977-79			1987-89			1997-99		
	T	V	A	T	V	A	T	V	A	T	V	A
(Grams of fat/capita/day)												
Developing countries	32.4	20.7	11.7	37.6	24.2	13.4	48.7	30.7	18	61	35.8	25.4
Transition countries	85.8	26.8	59	98.9	31	67.9	108	36.3	71.9	81.4	33.1	48.4
Industrialized countries	106	42	64	115	49.7	65.7	128	59.9	68.5	133	65	68

Note: T = total, V = vegetable, A = animal.
Source: FAOSTAT

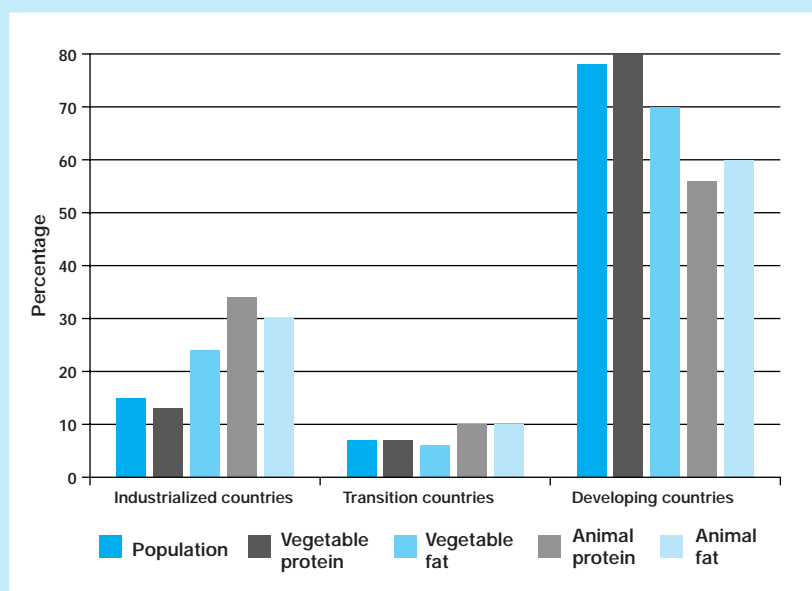
est expenditure class and 223 kcal/capita/day in the highest expenditure class; cereals supplied 90 percent of all protein in the lowest expenditure class and 50 percent of protein in the highest expenditure group (FAO, 1994b).

In the China Health and Nutrition Survey (1989), people in the higher income groups consumed more rice, fresh fruit, fish and red meat, while people of lower socio-economic status consumed more millet, maize and sorghum (Popkin *et al.*, 1993). Table 6 shows consumption of animal foods and rice, by income. Consumption of red meat more than doubled from the low- to high-income group, while fish consumption more than tripled. Consumption of rice across all income groups remained relatively stable.

In India, data from the Ministry of Human Resources Development 1996 State Nutrition Profiles for India (n = 37 032) found the range of intakes to be 269–631 g/consumption unit/day² for cereals, 11–85 g pulses, 4–138 g green leaves, 14–344 g milk and milk products, 3–49 g fats and oils, and 1–193 g meat, fish and eggs (FAO, 1998b). The consumption of cereals decreased with income, while consumption of pulses, milk, fish and fats increased. Consumption patterns varied according to geography and income – people in the south and east consumed more rice, while more wheat was consumed in the northern and central regions.

² Consumption units are based on a reference man, 20–39 years old, weighing 60 kg and engaged in sedentary work.

FIGURE 4
Percentage share of animal and vegetable sources of protein and fat, 1997–99



Source: FAOSTAT

Urban and rural differences

Trends in urban and rural consumption follow a less obvious pattern. Provincial-level survey data from China show that in some provinces the rural population consumes more calories, while in other provinces the opposite pattern was observed (FAO, 1999a). A socio-economic survey in Cambodia in 1993–94 showed that the rural population consumed more calories than the urban population. The dietary energy intake per capita across income strata was higher in rural areas, ranging from 2 135 to 2 659 kcal/day compared with 1 892 to 2 657 in urban areas (FAO, 1999b).

Gender differences

Certain differences in food consumption patterns by gender have been observed. A household food frequency questionnaire in urban China found that women consumed more fruits, vegetables, nuts, fish, eggs and milk, while men consumed more wheat, red meat and tea (Fu *et al.*, 1998). Similarly, dietary surveys from Australia and six European countries showed that women consume more fruits and vegetables than men (Lester, 1994; Beer-Borst *et al.*, 2000). A survey of people over 65 years of age in the United Kingdom showed that women consumed more fruit, butter and

TABLE 6
Food intakes in China by income level

Food item	Low income (n = 1972)	Middle income (n = 1989)	High income (n = 1925)
	(Mean g/capita/day)		
Rice	331.2	341.0	324.6
Red meat	31.9	52.9	63.1
Poultry	4.3	6.4	7.7
Fish	9.6	21.5	35.0

Source: Popkin et al., 1993.

Conclusion

This analysis has highlighted trends in the availability of energy, protein and fat by regional and economic groupings. The brief review of national and subnational dietary surveys has also shown the economic, gender, and urban and rural patterns in dietary supply. Since the 1960s, the global supply of dietary energy, protein and fat has increased, although the rate of increase has not been equal across regions. In Oceania and sub-Saharan Africa, gains in per capita supplies of fat and protein have been stagnant to minimal, while in China and North Africa increases have been substantial. Between 1987–89 and 1997–99, countries in transition experienced a decline in per capita supplies of dietary energy, fat and protein.

Patterns in the supply of protein from animal foods merit serious consideration, in view of the superior quality of animal protein as single source foods, in terms of meeting essential amino acid requirements. Globally, the proportion of protein supplied from animal sources has increased by 5 percent. Regionally, the shift has been most dramatic in China, with a proportional increase of 20 percent. The proportion of animal source proteins has declined or remained the same since the late 1970s in sub-Saharan Africa, the Near East, North America and Oceania. However, in the latter two regions, the proportion of protein from animal sources is above 60 percent, so deficiency in essential amino acids is not likely to be a problem for these regions.



FAO/20984/R, Faidutti

whole milk, while men ate more eggs, sausages, other meat products and sugar (Bates, Prentice and Finch, 1999). An Italian survey showed that men consumed more meat, fish, cheese and fruit, while women consumed more yoghurt (Turrini *et al.*, 2001).

People in the lower income brackets face a greater risk of malnutrition as they are less able to diversify their diets through the consumption of more expensive animal foods, pulses and fruits.

There are also observed differences in consumption patterns by gender, indicat-

People in the lower income brackets face a greater risk of malnutrition as they are less able to diversify their diets through the consumption of more expensive animal foods, pulses and fruits

These studies illustrate that food consumption patterns are not equal for all segments or regions within a given population. As incomes rise, so does consumption of animal foods rich in protein and fat. Peo-

ple in the lower income brackets face a greater risk of malnutrition as they are less able to diversify their diets through the consumption of more expensive animal foods, pulses and fruits. This pattern is likely to differ by country, as evidenced by the Italian dietary survey.

Overall g/capita/day supplied from animal source proteins remains low in sub-Saharan Africa and South Asia. Similarly, there has been an alarming decline in the supply of vegetable protein from foods such

as legumes, beans and nuts, which complement the amino acid profile of staple grains. This situation requires urgent action on the part of the nutrition and agriculture communities.

The supply of fat from animal food sources also has health implications, since animal foods, particularly untrimmed red meat and products made from whole milk and butter, contain large amounts of saturated fats. High intake of saturated fats contributes to several chronic diseases, most notably coronary heart disease, and stroke. The per capita supply of fat from animal foods has increased by 14 and 4 g/capita/day in developing and industrialized countries, respectively, while there has been a decrease of 11 g/capita/day for countries in transition. Country-specific nutrition education messages that provide consumers with information on how best to limit saturated fat intake and maintain appropriate body weight are essential.

Inequalities in national food consumption patterns should not be neglected. As evidenced on a global scale, there are dramatic inequalities in the distribution of food supply based on income – a pattern that is also borne out on a national scale. It is well established that the diets of those in lower income groups tend to be less diversified and of a lower overall quality than those of higher income groups. Several strategies such as home gardens and small livestock and fish production have been supported at the community level to promote dietary diversification. Similarly, larger-scale programmes such as school feeding initiatives and integration of supplementation into the public health services package have been employed. These efforts should continue to be targeted towards the specific foods and nutrients lacking in the overall dietary patterns of those with lower incomes.

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Economic and regional aggregate groupings

The economic groupings “Developing”, “Industrial” and “Transition” were those established by the United Nations in the 1940s and have been retained as such by FAOSTAT for analytical purposes (FAO, 1996).

Developing countries: Afghanistan, Algeria, Angola, Antigua and Barbuda, Argentina, Bahamas, Bangladesh, Barbados, Belize, Benin, Bermuda, Bolivia, Botswana, Brazil, Brunei Darussalam, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, China (includes Hong Kong SAR, Macao SAR, Taiwan Province of China), Colombia, Comoros, Congo, Costa Rica, Côte d'Ivoire, Cuba, Cyprus, Democratic Republic of the Congo, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea (1993), Ethiopia (1993), Ethiopia PDR (until 1992), Fiji Islands, French Polynesia, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Iraq, Jamaica, Jordan, Kenya, Kiribati, Democratic People's Republic of Korea, Republic of Korea, Kuwait, Lao People's Democratic Republic, Lebanon, Lesotho, Liberia, Libyan Arab Jamahiriya, Madagascar, Malawi, Malaysia, Maldives, Mali, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands Antilles, New Caledonia, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, Sri Lanka, Sudan, Suriname, Swaziland, Syrian Arab Republic, United Republic of Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, United Arab Emirates, Uruguay, Vanuatu, Venezuela, Viet Nam, Yemen, Zambia, Zimbabwe

Industrialized markets: Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Malta, Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America

Transition markets: Albania, Armenia (1992), Azerbaijan (1992), Belarus (1992), Bosnia and Herzegovina (1992), Bulgaria, Croatia (1992), Czech Republic (1993), Czechoslovakia (until 1992), Estonia (1992), Georgia (1992), Hungary, Kazakhstan (1992), Kyrgyzstan (1992), Latvia (1992), Lithuania (1992), The Former Yugoslav Republic of Macedonia (1992), Republic of Moldova (1992), Poland, Romania, Russian Federation (1992), Slovakia (1993), Slovenia (1992), Tajikistan (1992), Turkmenistan (1992), Ukraine (1992), USSR (until 1991), Uzbekistan (1992), Yugoslavia (1992), Yugoslavia SFR (until 1991)

North Africa: Algeria, Egypt, Libyan Arab Jamahiriya, Morocco, Tunisia

Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea (1993), Ethiopia (1993), Ethiopia PDR (until 1992), Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe

North America developed: Canada, United States of America

Latin America and the Caribbean: Antigua and Barbuda, Argentina, Bahamas, Barbados, Bolivia, Brazil, Belize, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, St Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

East and Southeast Asia: Brunei Darussalam, Cambodia, Democratic People's Republic of Korea, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Thailand, Viet Nam

South Asia: Bangladesh, India, Maldives, Nepal, Pakistan, Sri Lanka

China*

Near East in Asia: Afghanistan, Cyprus, Iran, Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

Eastern Europe: Albania, Bosnia Herzegovina (1992), Bulgaria, Croatia (1992), Czech Republic (1993), Czechoslovakia (until 1992), Hungary, The Former Yugoslav Republic of Macedonia (1992), Poland, Romania, Slovakia (1993) Slovenia (1992), Yugoslavia (1992), Yugoslavia SFR (until 1991)

European Community 15: Austria, Belgium-Luxembourg, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, United Kingdom

Oceania: Australia, Fiji Islands, French Polynesia, Kiribati, New Caledonia, New Zealand, Papua New Guinea, Solomon Islands, Vanuatu

* includes Taiwan Province of China