

## CHAPTER 1

# Trends in availability and composition of food supplies

- Trends in dietary energy supply

- DES growth in relation  
to population growth

- Trends in availability of dietary  
protein and fats

- Distribution of food in the world

- Changes in food composition

This chapter presents an analysis of the availability and composition of food in the world, both globally and by region.<sup>3</sup> Trends in the per caput availability of dietary energy, proteins and fats are discussed, as are the distribution of food among different parts of the world and the changing patterns of food consumption in both developed and developing countries. The basic data for this analysis are derived from the food balance sheets compiled every year by FAO with country-level data on the production and trade of food commodities.<sup>4</sup> Using these data and the available information on seed rates, waste coefficients, stock changes and types of utilization (feed, food, other uses), a supply/utilization account is prepared for each commodity in weight terms. The food component, which is usually derived as a balancing item, refers to the total amount of the commodity available for human consumption during the year. Besides commodity-by-commodity information, the FAO food balance sheets also provide total food availability estimates by aggregating the food component of all commodities after conversion into nutritive values. From these values and the available population estimates, the per caput dietary energy, protein and fat supplies, which form the basis of the analysis in this chapter, are derived.

In attempting to obtain a consistent estimate of food supply within a specified year, certain difficulties are faced when matching the reference periods of trade and agricultural production data and when estimating annual changes in stocks. However, the effect of possible errors owing to these difficulties can be reduced if the analysis of food supply is based on averages of two or more years. As in the past, the present world food survey is based on three-year averages, with information covering the most recent period for which data are available, i.e. 1990-92, as well as 1969-71 and 1979-81 in order to indicate the broad trends. The survey covers 98 developing countries and 31 developed countries (countries with a population of less than one million were excluded).

### TRENDS IN DIETARY ENERGY SUPPLY

Worldwide, per caput dietary energy supply (DES) increased by 11 percent – from 2 440 to 2 720 kcal/day – during the 21-year period between 1969-71 and 1990-92 (Table 1). This translates into an average annual growth rate of about 0.5 percent over the two decades. It is worth

<sup>3</sup> The country composition of the regional aggregates and economic groups is presented in Appendix 1.

<sup>4</sup> These annual statistics are published occasionally as three-year averages, e.g. *FAO Food Balance Sheets, 1984-86 average*, published in 1991.

noting several aspects of this overall performance, some of which signify positive achievements and others which do not. The positive achievements can be enumerated as follows:

- First and foremost these figures indicate that, in the world as a whole, food production has continued to outstrip population growth, although not universally so.
- Second, the developing countries as a group have continued to increase their per caput DES at a faster rate than the developed countries in spite of experiencing a much higher rate of population growth. In the 1980s, for example, the annual average growth rate of per caput DES was 0.7 percent in the developing countries as against 0.2 percent in the developed countries (Table 1). This was partly because the former had started from a much lower base, but it may also be a reflection of the fact that, owing to technological and other advances, they were able to make good use of available resources in an effort to keep ahead of population growth.

Against these positive achievements, one must also weigh two disconcerting developments: the worldwide slowdown in the growth of per caput DES and the absolute decline in per caput DES in large parts of the world.

- Both the developed and the developing regions experienced a slight slowdown in the growth of per caput DES in the 1980s compared with the 1970s – from 0.3 to 0.2 percent and from 0.9 to 0.7 percent, respectively (Table 1). There were, however, significant intraregional variations. In the developed world, the slowdown was exclusively confined to the transition economies where the annual growth rate in fact turned negative in the 1980s from a small but positive rate (0.2 percent) achieved in the 1970s. By contrast, the annual growth rate of per caput DES in the industrialized countries increased from 0.3 percent to 0.5 percent during the same period.

There were also variations within the developing world. Considering the geographical classification first, the slowdown in the growth of per caput DES was confined mostly to East and Southeast Asia and the Latin American and Caribbean countries. Sub-Saharan Africa continued to experience a virtually unchanged negative growth, while South Asia emerged as an exception by experiencing a change from almost zero growth in the 1970s to an average annual rate of 0.9 percent in the 1980s (Table 1).

The sharpest decelerations in annual growth in per caput DES were mostly confined to the two regions which had already attained a

fairly high level of per caput DES by the end of the 1970s (the Near East and North Africa and Latin America and the Caribbean), while the countries in the "low-income" and "low-income food-deficit" groups on the whole maintained steady growth, as can be seen from Table 1. These countries either experienced a slight acceleration in the growth of per caput DES or maintained a steady growth. However, this is not true for all countries in these regions, especially those that belong to the group of least developed countries (LDCs).

- Even more disconcerting than the phenomenon of declining growth in per caput DES is that it failed to grow at all in many parts of the world, and, in some parts, even declined in absolute terms. Considering the two decades together, there was an absolute decline in per caput DES in sub-Saharan Africa and the transition economies and stagnation in the LDCs as a whole (Table 1). The problem seems

TABLE 1

Region/economic group	PER CAPUT DES BY REGION AND ECONOMIC GROUP, 1969-71, 1979-81 AND 1990-92			Average annual rate of increase	
	Per caput DES			Average annual rate of increase	
	1969-71	1979-81	1990-92	1969-71 to 1979-81	1979-81 to 1990-92
	(kcal/day)			(Percentage)	
<b>Developed countries</b>	3 190	3 280	3 350	0.3	0.2
Industrialized countries	3 120	3 220	3 410	0.3	0.5
Transition economies	3 330	3 400	3 230	0.2	-0.5
<b>Developing countries</b>	2 140	2 330	2 520	0.9	0.7
Latin America and the Caribbean	2 510	2 720	2 740	0.8	0.0
Sub-Saharan Africa	2 140	2 080	2 040	-0.3	-0.2
Near East and North Africa	2 380	2 850	2 960	1.8	0.3
East and Southeast Asia	2 060	2 370	2 680	1.4	1.1
South Asia	2 060	2 070	2 290	0.0	0.9
<b>Economic groups of developing countries</b>					
Least developed	2 060	2 040	2 040	-0.1	0.0
Low-income food-deficit	2 060	2 230	2 450	0.8	0.8
Low-income	2 060	2 210	2 430	0.7	0.9
Middle-income	2 360	2 670	2 760	1.2	0.3
<b>World</b>	<b>2 440</b>	<b>2 580</b>	<b>2 720</b>	<b>0.5</b>	<b>0.5</b>

to have become endemic in sub-Saharan Africa, where the per caput DES declined in each of the two decades, whereas for the transition economies the decline was more marked in the 1980s. The same decade also brought stagnation to the indebted Latin American and Caribbean countries, which had done reasonably well in the preceding decade.

Once again, it needs to be emphasized that what is true for group averages is not necessarily true for each individual country within the group. Performance varied significantly even among countries within regional groups.

Table 2 lists the top five and bottom five countries within the developing world as judged by the growth of per caput DES achieved in the two decades between 1969-71 and 1990-92. Each of the top five countries (Algeria, Saudi Arabia, Tunisia, Lebanon and the Syrian Arab Republic) achieved growth rates in excess of 1.5 percent per annum, which is three times the world average of 0.5 percent, while the bottom five countries (the Central African Republic, Afghanistan, Liberia, Malawi and Peru) suffered a negative annual growth rate of between -1 and -1.5 percent.

### DES GROWTH IN RELATION TO POPULATION GROWTH

This analysis has so far been concerned with the level and growth of per caput DES which is the result of two separate trends, one involving total DES and the other involving population. Since these need not move in the same direction, it would be useful to consider them separately and look at their relationship so as to give a clearer picture of how the trends in per caput DES came about. The relevant figures are presented in Table 3.

TABLE 2

TOP FIVE AND BOTTOM FIVE DEVELOPING COUNTRIES IN TERMS OF PER CAPUT DES GROWTH RATES, 1969-71 TO 1990-92

Average annual rate of increase			
Top five countries		Bottom five countries	
(Percentage)			
Algeria	2.2	Central African Rep.	-1.5
Saudi Arabia	1.8	Afghanistan	-1.3
Tunisia	1.7	Liberia	-1.1
Lebanon	1.6	Malawi	-1.0
Syrian Arab Rep.	1.5	Peru	-1.0

TABLE 3

DES AND POPULATION GROWTH BY REGION AND ECONOMIC GROUP,  
1969-71 TO 1979-81 AND 1979-81 TO 1990-92

Region/economic group	Average annual rate of increase		
	DES	Population (Percentage)	Per caput DES
<b>Developed countries</b>			
1969-71 to 1979-81	1.1	0.8	0.3
1979-81 to 1990-92	0.9	0.7	0.2
<b>Industrialized countries</b>			
1969-71 to 1979-81	1.1	0.8	0.3
1979-81 to 1990-92	1.2	0.7	0.5
<b>Transition economies</b>			
1969-71 to 1979-81	1.1	0.9	0.2
1979-81 to 1990-92	0.2	0.7	-0.5
<b>Developing countries</b>			
1969-71 to 1979-81	3.1	2.2	0.9
1979-81 to 1990-92	2.8	2.1	0.7
<b>Latin America and the Caribbean</b>			
1969-71 to 1979-81	3.2	2.4	0.8
1979-81 to 1990-92	2.1	2.1	0.0
<b>Sub-Saharan Africa</b>			
1969-71 to 1979-81	2.6	2.9	-0.3
1979-81 to 1990-92	2.9	3.1	-0.2
<b>Near East and North Africa</b>			
1969-71 to 1979-81	4.5	2.7	1.8
1979-81 to 1990-92	3.1	2.8	0.3
<b>East and Southeast Asia</b>			
1969-71 to 1979-81	3.4	2.0	1.4
1979-81 to 1990-92	2.7	1.6	1.1
<b>South Asia</b>			
1969-71 to 1979-81	2.3	2.3	0.0
1979-81 to 1990-92	3.1	2.2	0.9
<b>Economic groups of developing countries</b>			
<b>Least developed</b>			
1969-71 to 1979-81	2.5	2.4	-0.1
1979-81 to 1990-92	2.6	2.6	0.0
<b>Low-income food-deficit</b>			
1969-71 to 1979-81	3.0	2.2	0.8
1979-81 to 1990-92	2.9	2.1	0.8
<b>Low-income</b>			
1969-71 to 1979-81	2.8	2.1	0.7
1979-81 to 1990-92	2.9	2.0	0.9
<b>Middle-income</b>			
1969-71 to 1979-81	3.7	2.5	1.2
1979-81 to 1990-92	2.5	2.2	0.3
<b>World</b>			
1969-71 to 1979-81	2.4	1.9	0.5
1979-81 to 1990-92	2.2	1.7	0.5

It was noted earlier that global per caput DES grew at a more or less constant rate in the two decades under consideration. It can now be seen that this constancy was the result of a mutually offsetting deceleration in the growth of food supplies and population. In other words, the growth of world food supplies slowed down over time – from an annual rate of 2.4 percent in the 1970s to 2.2 percent in the 1980s – and, despite this slowdown, a constant rate of growth in per caput DES was maintained because population growth also slowed down correspondingly from 1.9 to 1.7 percent per annum. This offsetting slowdown in the growth of DES and population is also evident in most of the broad regions but there are some notable variations in pattern.

- In the transition economies, the growth of DES slowed down more than population growth, resulting in negative growth of per caput DES in the 1980s.
- The LDCs, and especially the countries of sub-Saharan Africa, experienced the opposite phenomenon of high DES growth being offset by high population growth. Contrary to the overall trend, both the DES and the population grew faster in the second decade in these regions but DES growth was again offset by population growth. Thus, although both the transition economies and sub-Saharan Africa experienced negative growth in per caput DES in the 1980s, this was explained by different sets of forces in each case.
- South Asia and, to a lesser extent, the industrialized world, diverged from the overall pattern of DES and population growth. In these regions, the rate of DES growth accelerated while population growth declined, thus producing a higher rate of growth in per caput DES in the 1980s compared with the 1970s.

The analysis of DES growth in relation to population growth throws an interesting light on the comparative experiences of South Asia and sub-Saharan Africa – the two most impoverished regions of the world. In the two decades whether taken together or separately, these regions did not differ much in terms of growth of aggregate DES but, in South Asia, population growth was lower and declining while, in sub-Saharan Africa, it was higher and on the rise (Table 3). As a result, per caput DES rose in South Asia, especially in the 1980s, while it declined in sub-Saharan Africa in both decades.

In addition to relating DES growth to population growth, it is useful to relate DES growth with initial levels of per caput DES. The higher the initial level, the more difficult it is to achieve a given rate of growth. This means that a low rate of growth at higher levels of per caput DES is a qualitatively different phenomenon from slow growth at lower initial

levels; it is necessary to distinguish between the two in order to identify the nature of constraints affecting per caput DES growth. A proper analysis requires the classification of countries according to initial levels of per caput DES and population growth. Such a two-way classification according to the initial per caput DES level was made, taking 2 500 kcal/day as the dividing line on the grounds that no developed country has a per caput DES below this level (see Appendix 2), while the classification according to population growth was made with 2 percent per annum as the dividing line.

A comparison of per caput DES growth rates of developing countries classified in this manner produces the following results (Table 4): A few countries experienced slow growth in per caput DES despite having relatively low rates of population growth as well as low initial levels of per caput DES. Prime examples are Haiti, Afghanistan and Cambodia, where the per caput DES actually declined over the two decades. At the opposite end of the scale, a few countries (notably Mexico, Egypt and Turkey) registered relatively high rates of growth in per caput DES, despite experiencing a high initial per caput DES and high rate of population growth.

TABLE 4

DISTRIBUTION OF 98 DEVELOPING COUNTRIES BY PER CAPUT DES IN 1969-71 AND ITS GROWTH FROM 1969-71 TO 1990-92, AND BY POPULATION GROWTH								
Per caput DES 1969-71:	≤2 500 kcal/day				>2500 kcal/day			
	>2%		≤2%		>2%		≤2%	
Annual population growth rate, 1969-71 to 1990-92:	≤0.5%	>0.5%	≤0.5%	>0.5%	≤0.5%	>0.5%	≤0.5%	>0.5%
Per caput DES annual growth rate, 1969-71 to 1990-92:	≤0.5%	>0.5%	≤0.5%	>0.5%	≤0.5%	>0.5%	≤0.5%	>0.5%
(Number of countries)								
<b>Developing countries</b>	45	28	5	6	3	3	5	3
Latin America and the Caribbean	7	5	2	2	1	1	5	1
Sub-Saharan Africa	31	7	0	1	0	0	0	0
Near East and North Africa	1	9	1	1	2	2	0	0
East and Southeast Asia	4	4	1	2	0	0	0	2
South Asia	2	2	1	0	0	0	0	0
<b>Economic groups of developing countries</b>								
Least developed	23	8	3	0	0	0	0	0
Low-income food-deficit	37	18	4	2	0	1	0	0
Low-income	32	9	5	1	0	1	0	0
Middle-income	13	19	0	5	3	2	5	3



TABLE 5

TOTAL AND ANIMAL PROTEIN SUPPLIES BY REGION AND ECONOMIC GROUP,  
1969-71, 1979-81 AND 1990-92

Region/economic group	Total protein			Animal protein		
	1969-71	1979-81	1990-92	1969-71	1979-81	1990-92
	<i>(g/per caput/day)</i>					
<b>Developed countries</b>	95	99	102	51	56	59
Industrialized countries	93	97	103	54	58	63
Transition economies	100	103	100	44	51	51
<b>Developing countries</b>	53	57	62	10	12	15
Latin America and the Caribbean	65	68	68	25	29	29
Sub-Saharan Africa	54	51	49	11	12	10
Near East and North Africa	66	77	80	14	18	18
East and Southeast Asia	49	56	65	7	9	16
South Asia	51	50	55	7	7	10
<b>Economic groups of developing countries</b>						
Least developed	52	51	50	10	10	9
Low-income food-deficit	50	53	59	8	9	12
Low-income	51	53	59	7	8	12
Middle-income	59	66	69	18	21	23
<b>World</b>	65	68	71	22	23	25

TRENDS IN AVAILABILITY OF DIETARY PROTEIN  
AND FATS

As changes in food supply levels are usually accompanied by modifications in food consumption patterns, the changes in protein and fat supply levels can differ to a certain extent from those in energy supply. Specific information on dietary protein and fats for 1969-71, 1979-81 and 1990-92 is presented in Tables 5 and 6.

As in the case of DES, per caput protein and fat supplies in the world as a whole increased steadily in the two decades from 1969-71. The same pattern of steady increases is also observed for the broad groupings of developed and developing countries. However, variations in this pattern

TABLE 6

TOTAL AND ANIMAL FAT SUPPLIES BY REGION AND ECONOMIC GROUP,  
1969-71, 1979-81 AND 1990-92

Region/economic group	Total fats			Animal fats		
	1969-71	1979-81	1990-92	1969-71	1979-81	1990-92
	<i>(g/per caput/day)</i>					
<b>Developed countries</b>	<b>108</b>	<b>118</b>	<b>125</b>	<b>68</b>	<b>73</b>	<b>73</b>
Industrialized countries	117	127	138	72	75	76
Transition economies	89	100	98	61	69	67
<b>Developing countries</b>	<b>33</b>	<b>40</b>	<b>51</b>	<b>12</b>	<b>15</b>	<b>19</b>
Latin America and the Caribbean	57	71	78	30	34	34
Sub-Saharan Africa	41	42	41	9	10	9
Near East and North Africa	50	65	70	18	22	20
East and Southeast Asia	25	33	51	10	14	24
South Asia	29	32	41	8	8	11
<b>Economic groups of developing countries</b>						
Least developed	31	31	32	9	9	8
Low-income food-deficit	29	35	46	10	12	18
Low-income	28	34	45	9	12	18
Middle-income	46	58	68	20	23	24
<b>World</b>	<b>55</b>	<b>61</b>	<b>69</b>	<b>28</b>	<b>30</b>	<b>32</b>

begin to emerge as soon as the analysis is disaggregated into smaller groupings.

In the developing regions, changes in per caput protein supplies seem to have followed four broad patterns. In sub-Saharan Africa per caput protein supply declined in each of the two decades, which parallels the decrease in that region's per caput energy supply. In Latin America and the Caribbean and the Near East and North Africa positive gains were made in the 1970s but this momentum was lost in the 1980s. In East and Southeast Asia increases occurred in both decades. Finally, in South Asia the supplies remained constant in the 1970s and then increased in the 1980s.

The patterns of change in per caput fat supply are similar to those of

protein supply but with the following differences: first, in sub-Saharan Africa, per caput fat supply remained constant over the two decades instead of declining in absolute terms as did the per caput protein supply; second, the acceleration in the growth of per caput fat supply in Asia occurred in the 1980s, not only in East and Southeast Asia (as in the case of protein) but also in South Asia.

Considering the dietary energy, protein and fat contents of aggregate food supplies, and on the basis of the experience of the two decades from 1969-71 to 1990-92, it is possible to distinguish three regional groupings in the developing world:

- i) Sub-Saharan Africa, which experienced absolute declines in per caput energy and protein supplies but a constant per caput fat supply.
- ii) Latin America and the Caribbean and the Near East and North Africa, where strong growth in the 1970s turned into either much slower growth or complete stagnation in the 1980s with respect to per caput dietary, protein and fat supplies.
- iii) East, Southeast and South Asia, where steady or accelerated increases in per caput dietary energy, protein and fat supplies occurred in the 1980s.

### DISTRIBUTION OF FOOD IN THE WORLD

As a result of various changes in the availability of food in different parts of the world, the distribution of food among regions and countries as well as the disparities between different parts of the world are changing over time. This section attempts to delineate some of the changes.

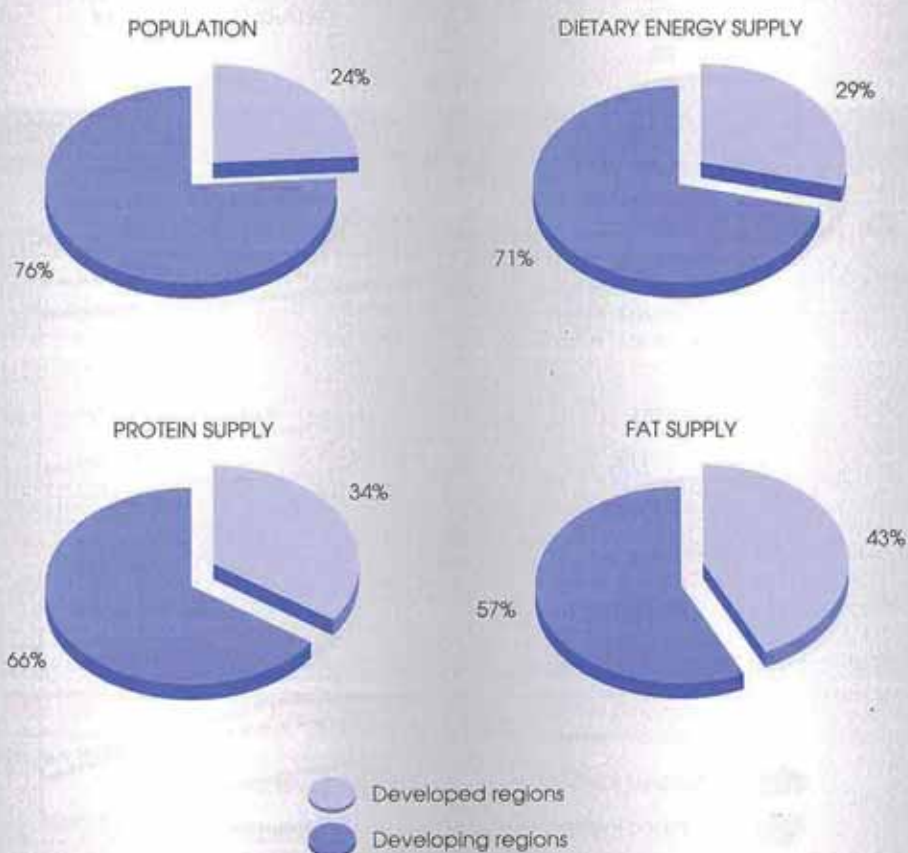
During 1990-92 the developing regions, which contained 76 percent of the world's population, had access to 71 percent of the world's DES, 66 percent of its protein supply and 57 percent of its fat supply (Figure 1). The disparity between the two parts of the world is obviously much sharper with respect to protein and fat supplies than with respect to energy for the simple reason that protein-rich and fatty foods are normally more expensive than basic energy-rich foods. Nevertheless, the difference in per caput DES is still quite large. As can be seen from Table 1, per caput DES in the developed world was 3 350 kcal in 1990-92 compared with 2 520 kcal in the developing countries, i.e. the average person in the developed world consumed one-third more calories than the average person in the developing world.

Since considerable disparities exist within both the developed and developing regions, the data were disaggregated further so as to present a clearer picture of the distribution of per caput DES. The developed regions were divided into industrialized countries and the transition

economies (i.e. the former USSR and the East European countries), while the developing regions were classified as the LDCs and others (for details of classification, see Appendix 1). The distribution of food and population for 1990-92 in these four regions is shown in Figure 2. The industrialized countries' share of the world's DES was far in excess of its population share, while the opposite was true for the LDCs. The

FIGURE 1

## DISTRIBUTION OF POPULATION AND FOOD SUPPLY IN DEVELOPED AND DEVELOPING REGIONS, 1990-92

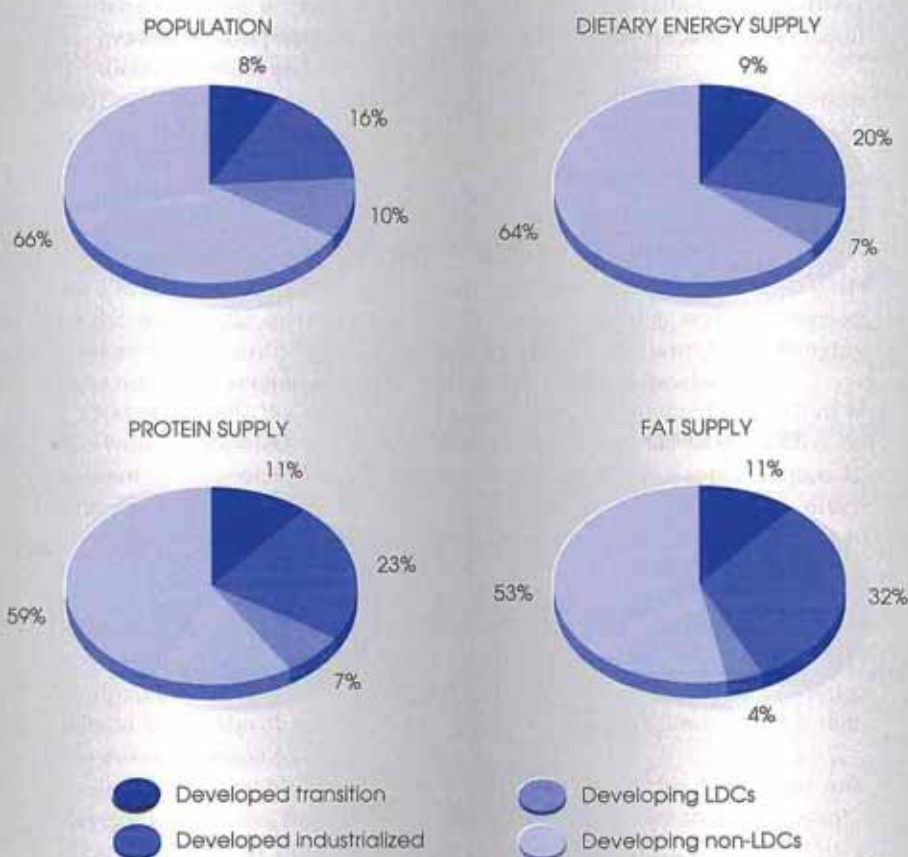


remaining two groups' shares of DES and population were fairly close to each other.

The disparity in per caput DES between the richest and poorest parts of the world becomes much more pronounced at this lower level of aggregation. Whereas the average person in the developed regions as a whole consumed one-third more calories than his or her counterpart in

FIGURE 2

DISTRIBUTION OF POPULATION AND FOOD SUPPLY IN LDCs, NON-LDCs, INDUSTRIALIZED COUNTRIES AND TRANSITION ECONOMIES, 1990-92



the developing regions in 1990-92, the average person in the industrialized countries consumed two-thirds more calories than his or her counterpart in the LDCs. If account were to be taken of disparities in available food supplies among individuals within countries, undoubtedly the most privileged would be found to be consuming a multiple of the amount of calories consumed by the poor.

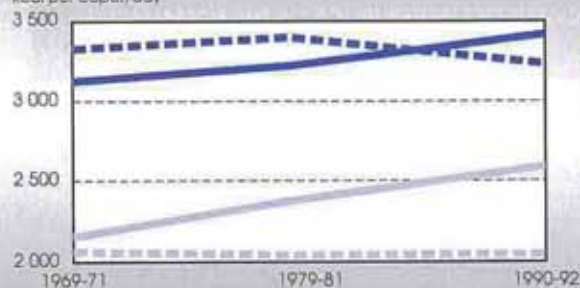
The LDCs lagged way behind even in comparison with the more privileged parts of the developing world. Thus, for example, the average person in the so-called middle-income countries of the developing world consumed just over one-third more calories than the average person in the LDCs (Table 1).

As a result of widely different changes in the availability of food in the world, the gap between the richest and poorest countries has become wider over time (Figure 3). Widening gaps are observed both between the developed and developing regions and within the developing world itself.

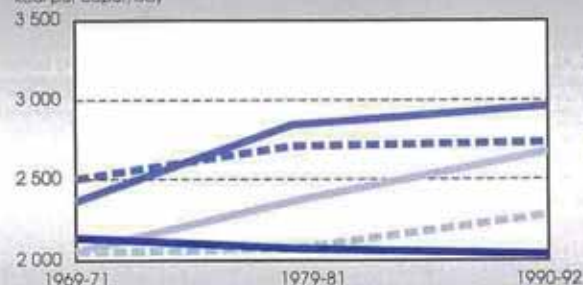
FIGURE 3

## PER CAPUT DES IN DEVELOPED AND DEVELOPING REGIONS

kcal per caput/day



kcal per caput/day



DEVELOPING REGIONS

- Developed industrialized
- - - Developed transition
- Developing non-LDCs
- - - Developing LDCs
- Near East and North Africa
- - - Latin America and the Caribbean
- East and Southeast Asia
- - - South Asia
- Sub-Saharan Africa

## BOX 1

## FOOD SITUATION IN THE REPUBLICS OF THE FORMER USSR

FAO has made a preliminary attempt to assess the emerging food situation in the republics of the former USSR. The figure below is based on the estimates of per caput DES for the periods 1986-88 and 1989-91; these estimates do not include alcoholic beverages.

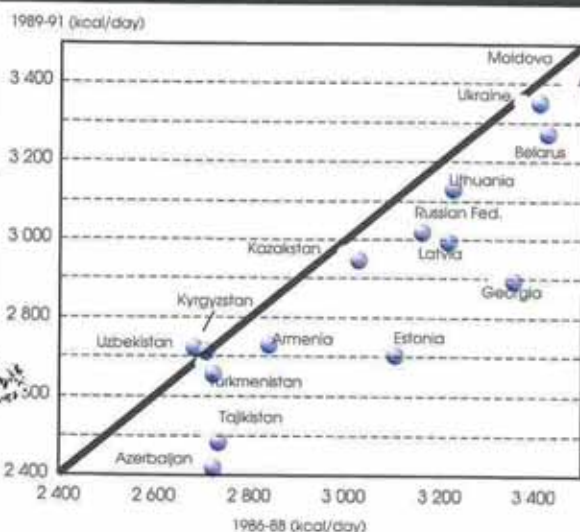
The republics can be grouped into three broad categories according to their per caput DES in 1986-88. The group with the lowest levels of per caput DES – about 2 700 to 2 800 kcal – comprised the Republics of Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan, Azerbaijan and Armenia. The top group – with a per caput DES of more than 3 300 kcal – comprised the Republics of Georgia, Ukraine, Belarus and Moldova. The Republics of Kazakhstan, Estonia, Latvia and Lithuania as well as the Russian Federation belonged to the middle group.

The major changes that occurred by 1989-91 can be summed up as follows:

- Two of the republics from the bottom group, Azerbaijan and Tajikistan, fell further to a per caput DES level of about 2 500 kcal.
- Among the republics of the middle group, Estonia experienced a sharp decline in per caput DES which fell to the levels of the bottom group.
- Within the erstwhile top group, Georgia slipped badly and joined the ranks of the middle group.

Overall, there was no upward movement in per caput DES; some republics within each group suffered a decline while others remained constant. The most serious situations were those of Azerbaijan and Tajikistan, where per caput DES declined from levels that were already low in relation to the rest of the region and not much above those of the developing world.

PER CAPUT DES IN REPUBLICS OF THE FORMER USSR,  
1986-88 AND 1989-91



Source: Based on FAO preliminary estimates.

## CHANGES IN FOOD COMPOSITION

This section delineates the broad contours of changing food composition that are currently being observed in different regions. Three aspects are highlighted: the relative contribution of vegetable and animal products in total supplies of energy, protein and fats; the extent of food diversification observed in different parts of the world; and the changing importance of staple foods in aggregate food supplies.

In the world as a whole, the relative contribution of vegetable and animal products to total energy supplies remained remarkably stable throughout the 1970s and 1980s. The share of vegetable products, for example, stabilized at about 84 percent (Table 7). The same pattern is also observed for the developed countries, where the share of vegetable products stabilized at about 71 percent, although in the developing

TABLE 7

## SHARE OF MAJOR FOOD GROUPS IN TOTAL DES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	World		Developed countries		Developing countries	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)					
<b>Vegetable products</b>	<b>84.4</b>	<b>84.3</b>	<b>71.7</b>	<b>70.9</b>	<b>92.3</b>	<b>89.7</b>
Cereals	50.1	51.2	32.6	30.4	60.9	59.6
Sugar	9.1	8.8	13.2	12.8	6.6	7.2
Vegetable oils and fats	5.7	8.2	8.2	11.1	4.1	7.0
Roots and tubers	7.5	5.0	5.0	3.8	9.0	5.4
Vegetables and fruits	4.2	4.3	4.5	4.9	4.5	4.8
Pulses and nuts	4.8	4.0	2.3	2.3	2.3	4.7
Alcoholic beverages	2.7	2.4	5.3	4.9	5.3	1.3
Stimulants and spices	0.4	0.4	0.4	0.6	0.4	0.4
<b>Animal products</b>	<b>15.6</b>	<b>15.7</b>	<b>28.3</b>	<b>29.1</b>	<b>7.7</b>	<b>10.3</b>
Meat and offal	6.4	7.4	11.1	12.8	3.5	5.2
Milk	4.8	4.3	8.9	8.6	2.2	2.6
Animal oils and fats	2.7	2.0	5.4	4.4	1.0	1.1
Eggs	0.8	0.9	1.5	1.8	0.3	0.7
Fish	0.9	1.0	1.4	1.3	0.6	0.7

(continued)



(continued)

TABLE 7

Food group	Developed countries				Developing countries					
	Industrialized		Transition economies		Least developed		Low-income food-deficit <sup>†</sup>		Low-income	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)									
<b>Vegetable products</b>	69.6	70.2	75.6	72.4	93.4	94.0	93.7	90.8	93.9	90.7
Cereals	27.5	26.2	42.3	39.7	60.8	62.4	63.2	62.6	64.5	63.8
Sugar	13.9	13.1	11.8	12.3	4.3	3.5	5.5	6.1	5.0	5.6
Vegetable oils and fats	10.0	13.1	4.9	6.6	3.9	5.2	3.8	6.2	3.6	5.9
Roots and tubers	4.1	3.4	6.8	4.8	11.5	11.6	10.1	6.0	9.9	6.0
Vegetables and fruits	5.3	5.6	3.1	3.4	4.2	4.0	3.5	3.6	3.2	3.4
Pulses and nuts	2.6	2.8	1.7	1.1	6.7	5.7	6.5	4.8	6.5	4.6
Alcoholic beverages	5.5	5.3	4.9	4.2	1.4	1.1	0.9	1.1	0.9	1.1
Stimulants and spices	0.6	0.7	0.2	0.3	0.6	0.4	0.4	0.4	0.4	0.4
<b>Animal products</b>	30.4	29.8	24.4	27.6	6.6	6.0	6.3	9.2	6.1	9.3
Meat and offal	12.7	13.8	7.9	10.7	2.8	2.4	2.9	4.9	2.9	5.0
Milk	8.8	8.8	9.2	8.1	2.3	2.3	1.8	2.2	1.7	2.2
Animal oils and fats	5.5	3.9	5.2	5.3	0.7	0.5	0.8	1.0	0.8	1.0
Eggs	1.8	1.5	1.1	1.6	0.2	0.2	0.3	0.6	0.3	0.6
Fish	1.6	1.8	1.1	1.8	0.7	0.6	0.5	0.6	0.5	0.5

(continued)

countries there was a slight decline in the share of vegetable products and a corresponding increase in the share of animal products, from nearly 8 percent in 1969-71 to more than 10 percent in 1990-92.

There are, however, variations within each of these broad regions. In the developed regions, the share of animal products increased slightly in the transition economies, from approximately 24 to 28 percent. In the developing regions, the increased share of animal products was most evident in East and Southeast Asia, followed by South Asia and Latin American and Caribbean countries, whereas a similar increase did not occur in sub-Saharan Africa or countries of the Near East and North Africa. An increasing share of animal products in total DES is observed in both

(continued)

TABLE 7

## SHARE OF MAJOR FOOD GROUPS IN TOTAL DES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	Developing regions									
	Latin America and Caribbean		Sub-Saharan Africa		Near East and North Africa		East and Southeast Asia		South Asia	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)									
<b>Vegetable products</b>	83.5	82.6	93.3	93.4	89.6	90.4	93.8	89.1	94.4	92.6
Cereals	39.4	38.4	43.7	44.7	61.1	56.9	67.7	66.5	67.0	64.5
Sugar	15.5	16.3	3.4	4.1	8.5	9.3	2.6	3.8	9.6	9.5
Vegetable oils and fats	6.0	11.1	6.4	8.0	7.3	10.6	2.4	5.1	4.3	6.8
Roots and tubers	7.2	4.1	21.7	21.0	1.3	2.2	12.2	5.1	1.8	1.6
Vegetables and fruits	6.0	5.2	6.0	5.6	7.1	7.0	2.8	3.3	2.8	3.0
Pulses and nuts	6.7	4.8	9.0	7.2	3.7	4.0	4.8	3.4	8.2	6.3
Alcoholic beverages	2.4	2.5	2.2	2.1	0.2	0.2	1.2	1.7	0.1	0.3
Stimulants and spices	0.3	0.3	0.8	0.6	0.4	0.4	0.1	0.2	0.6	0.6
<b>Animal products</b>	16.5	17.4	6.7	6.6	10.4	9.6	6.2	10.9	5.6	7.4
Meat and offal	8.1	8.4	3.0	2.9	3.2	3.3	4.0	7.7	0.9	1.1
Milk	5.2	5.4	2.3	2.4	4.7	3.9	0.3	0.5	3.2	4.5
Animal oils and fats	2.1	2.0	0.6	0.5	2.0	1.5	0.6	0.7	1.0	1.4
Eggs	0.6	1.0	0.2	0.2	0.3	0.6	0.5	1.0	0.1	0.2
Fish	0.5	0.5	0.6	0.7	0.2	0.3	0.8	1.0	0.3	0.3

low-income and low-income food-deficit countries, but not in the LDCs.

The situation regarding the sources of aggregate protein supplies is slightly different from that of aggregate energy supplies. The share of animal products in total protein supplies rose in both the developed and developing countries (Table 8). The same pattern is observed in both parts of the developed world – the industrialized countries and the transition economies – and also in all subgroups of the developing world, with the sole exception of sub-Saharan Africa where a rising share in the 1970s was completely offset by a decline in the 1980s. The most significant increase was observed in East and Southeast Asia, where the share of animal products in protein supplies increased from 15 percent in

TABLE 8

## SHARE OF MAJOR FOOD GROUPS IN TOTAL PROTEIN SUPPLIES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	World		Developed countries		Developing countries					
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92				
(Percentage)										
<b>Vegetable products</b>	<b>66.3</b>	<b>64.5</b>	<b>46.4</b>	<b>42.3</b>	<b>81.1</b>	<b>75.8</b>				
Cereals	46.3	47.2	32.2	29.0	56.8	56.2				
Pulses and nuts	10.0	8.3	4.1	3.9	14.3	10.5				
Vegetables and fruits	4.5	4.8	4.3	4.5	4.7	5.0				
Roots and tubers	4.0	2.7	4.0	2.9	4.0	2.5				
Other vegetable products	1.5	1.5	1.8	2.1	1.2	1.2				
<b>Animal products</b>	<b>33.7</b>	<b>35.5</b>	<b>53.6</b>	<b>57.7</b>	<b>18.9</b>	<b>24.2</b>				
Meat and offal	15.6	17.2	24.9	28.3	8.8	11.6				
Milk	10.4	9.6	17.4	16.6	5.2	6.0				
Fish	5.2	5.9	7.0	8.6	3.9	4.5				
Eggs	2.4	2.8	4.1	4.1	1.1	2.1				
Animal oils and fats	0.1	0.1	0.1	0.1	0.0	0.0				
Food group	Developed countries				Developing countries					
	Industrialized		Transition economies		Least developed		Low-income food-deficit		Low-income	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
(Percentage)										
<b>Vegetable products</b>	<b>41.4</b>	<b>39.0</b>	<b>56.0</b>	<b>49.3</b>	<b>80.9</b>	<b>82.3</b>	<b>84.6</b>	<b>78.9</b>	<b>85.5</b>	<b>79.5</b>
Cereals	26.4	24.2	43.4	39.2	56.4	60.0	59.2	59.3	60.1	60.5
Pulses and nuts	4.6	4.8	3.2	1.9	14.9	13.2	15.2	10.8	15.3	10.2
Vegetables and fruits	5.0	5.0	3.2	3.4	3.7	3.4	4.7	4.9	4.6	5.0
Roots and tubers	3.2	2.6	5.4	3.6	4.1	4.3	4.4	2.7	4.4	2.7
Other veg. products	2.3	2.5	0.8	1.1	1.7	1.3	1.2	1.1	1.1	1.1
<b>Animal products</b>	<b>58.6</b>	<b>61.0</b>	<b>44.0</b>	<b>50.7</b>	<b>19.1</b>	<b>17.7</b>	<b>15.4</b>	<b>21.1</b>	<b>14.5</b>	<b>20.5</b>
Meat and offal	28.4	30.5	18.2	23.5	9.2	8.3	6.8	9.9	6.6	9.8
Milk	17.6	17.5	17.0	14.7	4.8	5.0	4.2	5.1	4.0	5.1
Fish	7.6	8.8	5.9	8.2	4.5	3.9	3.5	4.1	3.2	3.6
Eggs	4.8	4.0	2.8	4.1	0.5	0.5	0.8	1.9	0.8	1.9
Animal oils and fats	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

(continued)

(continued)

TABLE 8

## SHARE OF MAJOR FOOD GROUPS IN TOTAL PROTEIN SUPPLIES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	Developing regions									
	Latin America and Caribbean		Sub-Saharan Africa		Near East and North Africa		East and Southeast Asia		South Asia	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)									
<b>Vegetable products</b>	<b>61.9</b>	<b>57.1</b>	<b>79.6</b>	<b>79.2</b>	<b>78.7</b>	<b>77.4</b>	<b>84.5</b>	<b>75.8</b>	<b>86.7</b>	<b>82.6</b>
Cereals	37.6	38.1	45.7	48.2	63.6	60.8	60.6	59.1	63.1	62.3
Pulses and nuts	14.6	10.8	19.0	16.8	7.1	7.6	12.9	8.2	17.1	13.2
Vegetables and fruits	4.1	3.9	4.6	4.4	6.0	6.4	5.1	5.5	3.9	4.3
Roots and tubers	3.8	2.6	8.3	7.9	1.0	1.6	5.6	2.4	0.8	1.1
Other veg. products	1.9	1.7	2.1	1.9	1.1	1.2	0.4	0.6	1.9	1.7
<b>Animal products</b>	<b>38.1</b>	<b>42.9</b>	<b>20.4</b>	<b>20.8</b>	<b>21.3</b>	<b>22.6</b>	<b>15.5</b>	<b>24.2</b>	<b>13.3</b>	<b>17.4</b>
Meat and offal	21.8	24.2	10.7	10.4	8.9	10.0	7.5	13.2	3.4	4.0
Milk	11.4	12.2	4.8	5.2	10.2	8.9	0.8	1.3	7.4	10.4
Fish	2.9	3.3	4.3	4.4	1.3	1.9	5.7	6.6	2.1	2.3
Eggs	1.9	3.1	0.6	0.8	0.8	1.7	1.5	3.1	0.3	0.7
Animal oils and fats	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0

1969-71 to 24 percent in 1990-92, whereas in the developing countries as a whole the share rose from about 19 to 24 percent.

The situation regarding the sources of fat supply is different again (Table 9). The share of animal products in total fat supplies has been falling both in developed countries and in the world as a whole but rising in the developing countries. While the share of animal products declined from nearly 64 to 58 percent in the developed countries, it increased slightly from 36 to 38 percent in the developing countries. However, this increase was confined almost entirely to East and Southeast Asia and, to a lesser extent, to South Asia; elsewhere in the developing world the share of animal products in total fat supplies actually declined over the two decades from 1969-71.

These changes suggest that some regions are diversifying their diets more than others. The nature and extent of such diversification can be gauged from Table 10 which shows the share in total energy supplies of

TABLE 9

## SHARE OF MAJOR FOOD GROUPS IN TOTAL FAT SUPPLIES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	World		Developed countries		Developing countries					
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92				
	(Percentage)									
<b>Vegetable products</b>	48.0	53.3	36.3	41.7	63.7	62.0				
Vegetable oils and fats	28.7	36.6	27.6	33.3	30.2	39.1				
Cereals	9.7	8.3	3.8	3.3	17.7	12.2				
Pulses and nuts	6.8	6.1	3.1	3.3	11.8	8.2				
Other vegetable products	2.7	2.3	1.8	1.9	3.9	2.6				
<b>Animal products</b>	52.0	46.7	63.7	58.3	36.3	38.0				
Meat and offal	22.8	23.9	25.9	26.7	18.6	21.8				
Milk	11.9	9.7	15.0	13.6	7.7	6.8				
Animal oils and fats	13.4	9.0	18.0	13.1	7.2	6.0				
Eggs	2.5	2.6	3.2	2.9	1.5	2.3				
Fish	1.4	1.5	1.6	2.0	1.2	1.1				
Food group	Developed countries				Developing countries					
	Industrialized		Transition economies		Least developed		Low-income food-deficit		Low-income	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)									
<b>Vegetable products</b>	38.4	45.1	30.7	32.2	70.8	74.6	67.5	62.3	67.0	60.6
Vegetable oils and fats	30.1	36.4	20.9	24.1	29.5	38.1	29.8	36.9	29.3	35.6
Cereals	2.9	2.7	6.3	5.0	22.2	21.3	20.2	13.6	21.0	14.2
Pulses and nuts	3.5	3.9	1.8	1.5	15.1	11.7	13.2	9.2	12.4	8.1
Other veg. products	1.9	2.1	1.7	1.5	4.0	3.5	4.3	2.7	4.3	2.7
<b>Animal products</b>	61.6	54.9	69.3	67.8	29.2	25.4	32.5	37.7	33.0	39.4
Meat and offal	26.9	26.8	23.0	26.7	13.1	11.3	16.8	22.4	17.4	23.8
Milk	13.1	12.8	20.2	15.7	8.7	8.2	6.8	6.3	6.9	6.5
Animal oils and fats	16.6	10.9	21.9	19.3	5.0	3.8	6.4	5.7	6.4	5.9
Eggs	3.4	2.7	2.8	3.6	0.8	0.8	1.3	2.3	1.3	2.3
Fish	1.6	1.8	1.5	2.5	1.6	1.3	1.1	1.0	1.0	0.9

(continued)

(continued)

TABLE 9

## SHARE OF MAJOR FOOD GROUPS IN TOTAL FAT SUPPLIES BY REGION AND ECONOMIC GROUP, 1969-71 AND 1990-92

Food group	Developing regions									
	Latin America and Caribbean		Sub-Saharan Africa		Near East and North Africa		East and Southeast Asia		South Asia	
	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92	1969-71	1990-92
	(Percentage)									
<b>Vegetable products</b>	48.2	56.5	78.0	78.7	64.0	71.5	59.6	52.2	73.6	72.2
Vegetable oils and fats	29.8	44.0	37.4	45.1	39.4	50.6	22.2	30.4	34.2	43.4
Cereals	9.2	7.1	19.0	17.0	15.6	12.3	19.1	11.0	22.5	15.9
Pulses and nuts	6.4	3.4	17.2	12.6	6.3	6.0	13.3	8.4	13.6	10.2
Other-veg. products	2.8	2.0	4.4	4.0	2.7	2.6	5.1	2.4	3.3	2.6
<b>Animal products</b>	51.8	43.5	22.0	21.3	36.0	28.5	40.4	47.8	26.4	27.8
Meat and offal	27.1	22.6	10.5	9.9	11.5	10.2	29.1	36.8	4.5	4.0
Milk	11.8	10.0	6.4	6.5	12.3	8.8	1.4	1.4	12.4	13.7
Animal oils and fats	10.3	7.9	3.5	2.9	10.9	7.2	5.2	4.3	8.3	8.6
Eggs	1.8	2.3	0.6	0.7	1.0	1.8	2.7	3.6	0.4	0.9
Fish	0.7	0.7	1.1	1.2	0.4	0.6	2.0	1.7	0.8	0.6

whatever happens to be the major food group in a country. The lower the share, the more diversified a country's diet is assumed to be. Using this criterion, it is obvious that the diets of the developed world are much more diversified than those of the developing world but there are two interesting points to note. First, even in the developed regions there are countries (such as South Africa and Albania) in which the extent of diversification is no greater than the average of the developing world while, on the other hand, the diversification level achieved in Latin America is close to that of the transition economies. Second, in all developing regions except sub-Saharan Africa, the extent of diversification is increasing over time, especially in the countries of the two groups, East and Southeast Asia and the Near East and North Africa.

Another aspect of food composition pertains to the relative importance of major staple cereals and roots in the world. As can be seen from Table 11, rice continues to be the major cereal in the world, followed closely by wheat. The share of rice actually increased somewhat between 1969-71

TABLE 10

## EXTENT OF DIVERSIFICATION OF NATIONAL DIETS BY REGION, 1969-71 AND 1990-92

Region/economic group	Share of the main food group <sup>1</sup> in DES		
	Average of countries in region	Most diversified country	Least diversified country
..... (Percentage) .....			
<b>Industrialized countries</b>			
1969-71	27.9	18.8 (United States)	52.8 (South Africa)
1990-92	25.8	16.9 (Netherlands)	53.7 (South Africa)
<b>Transition economies</b>			
1969-71	46.1	32.5 (Czechoslovakia)	63.9 (Albania)
1990-92	40.8	28.8 (Hungary)	61.6 (Albania)
<b>Latin America and the Caribbean</b>			
1969-71	41.3	25.1 (Dominican Rep.)	63.0 (Guatemala)
1990-92	40.5	24.0 (Paraguay)	60.0 (Guatemala)
<b>Sub-Saharan Africa</b>			
1969-71	50.8	23.8 (Uganda)	81.4 (Lesotho)
1990-92	50.2	25.9 (Gabon)	77.8 (Lesotho)
<b>Near East and North Africa</b>			
1969-71	58.4	43.4 (Kuwait)	80.5 (Afghanistan)
1990-92	53.1	33.7 (United Arab Emirates)	76.3 (Afghanistan)
<b>East and Southeast Asia</b>			
1969-71	66.6	45.7 (Mongolia)	84.1 (Cambodia)
1990-92	60.7	33.5 (Hong Kong)	84.7 (Cambodia)
<b>South Asia</b>			
1969-71	69.4	55.5 (Sri Lanka)	81.0 (Nepal)
1990-92	67.7	55.8 (Pakistan)	83.8 (Bangladesh)

<sup>1</sup> The main food group is that with the highest share in a country's total DES.

and 1990-92, but this was mainly because the population share of the rice-eating parts of the world increased during this time. In the major rice-eating areas, i.e. East, Southeast and South Asia, the share of rice in total energy supplies actually declined over the two decades while that of wheat increased. The share of maize in the total world DES increased from 5.4 to 6.1 percent between 1969-71 and 1990-92. The increase in the percentage was significant in the industrialized countries and in sub-Saharan Africa. However, there was a decline in the Near East and North Africa as well as in South Asia. In Latin America and the Caribbean,

TABLE 11

## SHARE OF MAIN CEREALS AND ROOTS IN TOTAL DES BY REGION, 1969-71 AND 1990-92

Region/economic group	Share in total DES				
	Rice	Wheat	Maize	Sorghum and millet	Cassava
	(Percentage)				
<b>World</b>					
1969-71	20.3	17.5	5.4	4.4	1.7
1990-92	22.0	19.5	6.1	2.6	1.6
<b>Industrialized countries</b>					
1969-71	5.1	18.5	2.0	0.1	0.0
1990-92	4.4	17.3	3.2	0.1	0.0
<b>Transition economies</b>					
1969-71	1.1	32.7	1.4	0.6	0.0
1990-92	1.3	32.9	1.2	0.2	0.0
<b>Latin America and the Caribbean</b>					
1969-71	9.0	13.9	15.7	0.3	4.2
1990-92	9.4	13.2	15.3	0.1	2.2
<b>Sub-Saharan Africa</b>					
1969-71	4.8	3.6	13.5	19.2	14.3
1990-92	7.8	5.4	14.7	14.6	14.9
<b>Near East and North Africa</b>					
1969-71	6.2	41.7	6.1	2.6	0.0
1990-92	6.2	42.8	4.7	0.8	0.0
<b>East and Southeast Asia</b>					
1969-71	43.9	9.8	6.8	4.6	1.1
1990-92	40.8	17.1	6.8	0.9	0.9
<b>South Asia</b>					
1969-71	35.4	16.8	3.4	10.5	0.0
1990-92	33.7	21.0	2.8	6.6	0.5

where maize is the most significant staple food, its share in the DES remained essentially unchanged, as it also did in the transition economies and in East and Southeast Asia. Among the minor cereals, the share of sorghum and millet declined at the world level, mainly because of their declining importance in the populous parts of Asia; cassava, on the other hand, maintained its standing in sub-Saharan Africa, although it is losing its already reduced importance in Latin America.