



Hunger, nutrition and human security

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Hunger is the most prevalent threat to human security, and one of the gravest. Without sufficient nourishment to furnish the energy for the basic functions of life, no individual can be secure in his or her person or exercise any human capability.

Notwithstanding its ample resources, and low incidence of hunger relative to other regions, the Arab region is seeing hunger and malnutrition among its people rise. Although prevalence rates and absolute numbers in individual countries vary quite markedly, the region, as a whole, is falling behind in achieving Goal One of the MDGs and is not positioned to halve the proportion of its hungry compared to 1990 by the year 2015. In addition, the backlog from hunger and malnutrition in the past continues: in some countries, underweight children shoulder a disproportionately greater share of that burden, and continue to pay a disproportionately greater price among the poor who live on less than two dollars a day.

The Arab region is falling behind Goal One of the Millennium Development Goals

This chapter first outlines the effects of hunger on human security. It then reviews the status and causes of hunger and its various manifestations in the region, taking into account factors such as food shortages. Lastly, it considers measures for ensuring food sufficiency in Arab countries through regional cooperation and integration and by benefiting from the experiences of other countries in reducing hunger through targeted policies.

How hunger affects human security¹

At the individual level

Hunger attacks health: it inhibits the physical, mental, and cognitive growth of children, thus reducing the ability to learn, to concentrate, and to attend school

regularly. The effects of malnourishment in infancy are irremediable. Even if living conditions improve in later years, children exposed to malnutrition in infancy will continue to bear the marks it has taken on their health (stunted growth, wasting, and mental retardation) and on their lost opportunities for cognitive and income acquisition.

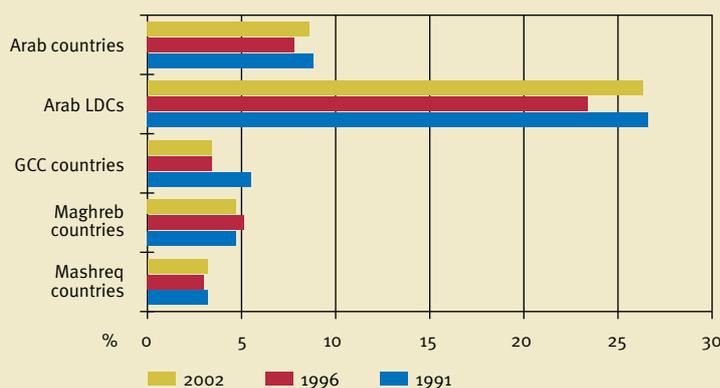
Hunger makes curable childhood diseases lethal: undernourishment and shortages in micronutrients (such as vitamin A, zinc, iodine and iron) weaken children's bodies and impair their immune systems, thereby increasing the risk of death from communicable but ordinarily curable diseases such as dysentery, measles, malaria, and pulmonary infections. Such causes account for three-fourths of infant deaths in most of the Arab countries, for which relevant data are available, and half the infant deaths in the "rich" ones.

Target 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger

The region's malnutrition rate decreased sluggishly, indicating critical malfunctions in the region's development efforts. The proportion of underweight children under five years of age remained relatively high in 2000 at 12.7 per cent with no noticeable improvement from its 1990 level of 13.2 per cent. This is due to the slow pace of progress in the economic and social determinants of the indicator: modest growth performance of the region as a whole; relatively high female illiteracy rate, particularly in the Arab LDCs; low access of the poor and underprivileged to primary health care services; comprehensive sanctions imposed on Iraq; and conflicts in OPT, Somalia, and Sudan.

The Arab sub-regions and individual countries exhibited wide differences in reducing the proportion of underweight children under-five years of age. In the Mashreq and the Maghreb, the proportion of underweight children declined from 10.8 per cent to 9.1 per cent and from 8.4 per cent to 7.5 per cent between 1990 and 2000, respectively. The Arab LDCs continued to suffer from the highest malnutrition rate in the region, at 27.4 per cent in 2000, down from 37.6 per cent in 1995.

Proportion of population below the minimum level of dietary energy consumption (%)



Source: UN-ESCWA 2007

In 1991, food deprivation was a disconcerting threat to overall social welfare in the region and remained so in 2000. Individuals living on less than the minimum level of dietary energy consumption accounted for 8.8 per cent of the Arab population in 1991 and 8.6 per cent in 2002. According to these rates, the number of food-deprived persons rose from approximately 20 million in 1991 to around 23.3 million in 2002. *This implies that the MDG target is unlikely to be met by 2015.*

The negligible change in the region's proportion of food-deprived persons is the result of stagnant rates in the Mashreq, Maghreb and the Arab LDCs. The relatively high levels of food deprivation in the Arab LDCs pulled the regional average significantly above the three other sub-regional averages. In the Maghreb and Mashreq, the proportion of people living below the food deprivation line remained low in 1991 and 2002. The Arab LDCs also did not make any noticeable progress in this area. The number of food-deprived persons amounted to 26.5 per cent of the population in 1991 and 26.3 per cent in 2002. Only the GCC countries showed good progress on this front, though all of it took place in the first five years. Available information shows that the proportion of the food-deprived in the GCC countries dropped from 5.5 per cent in 1991 to 3.4 per cent in 1996, but remained unchanged after that.

Source: UN-ESCWA 2007a.

Hunger makes pregnancy dangerous:

in women, it increases the rates of complications during pregnancy and increases the risk of complications and even death during delivery. Undernourishment leads to complications during birth such as haemorrhaging or blood poisoning. Children born to women suffering from hunger are underweight at birth and at a higher risk of death during infancy. Further risks include stunted physical or mental development in childhood, and lower than normal rates of activity and productivity during adolescence. Because of the likelihood that low-weight born females will, themselves, if they live so long, give birth to low-weight children, the cycle of hunger and undernourishment is self-perpetuating.

At the collective level

Hunger debilitates society by increasing rates of disease, mortality and disability:

by weakening the human immune system, it weakens the body's ability to fight off communicable diseases such as dysentery, measles, malaria, and acute pulmonary infections. It also increases the likelihood of death from AIDS-related illnesses. Also, by increasing the mortality rate, hunger affects the demographic pyramid, which is reflected in the rise in "Disability-Adjusted Life Years" (DALYs), or the total years lost due to premature death, illness, and incapacitation. In general, of the ten major factors leading to higher DALY rates, six are related to hunger and malnutrition, and include wasting, insufficient protein/energy intake, and lack of iodine, iron, and Vitamin A.

Hunger exacts financial costs and reduces productivity:

states incur direct costs for treating the detrimental effects of hunger, such as complications during pregnancy and delivery among women; contagious and frequent paediatric diseases; and communicable diseases such as AIDS and tuberculosis. In addition, economies sustain the indirect costs of lower worker productivity, premature death or disability, absenteeism from the workplace and poor returns on education.

Hunger undermines stability: if hunger grows into a mass problem, it threatens

the social and political order. Chronically hungry people are more likely to riot, clash with other groups or migrate to urban centres, straining their infrastructure and causing crime. Petty corruption thrives in a climate where people will do anything for food. When countries have to turn to other countries for help in feeding their hungry, they may open themselves to outside pressures on domestic policies.

In developed nations, as might be expected, undernourishment and lack of nutrients do not figure high on the list of causes of mortality and disability. Nevertheless, ailments connected with nutrition still do. Among these is obesity, which has approached epidemic proportions in some advanced countries, including the United States, where it is the second largest cause of preventable death after tobacco.

Hunger and undernourishment in the Arab countries

In 2000, the UN General Assembly adopted the Millennium Development Goals (MDGs), the first of which is that, by 2015, the proportion of people living in poverty and the proportion of people suffering from hunger should be half of that in 1990. How are the Arab countries doing against that target?

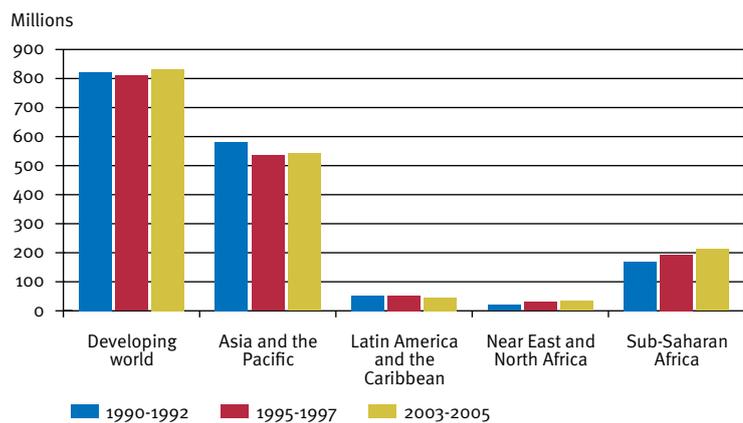
According to World Food Programme figures, among developing country regions, the Arab countries have the lowest ratio of undernourished people to the total population. They are only surpassed in this regard by transition countries in Eastern Europe and the former Soviet Union. Yet the Arab region is one of the two world regions in which the number of undernourished has risen since the beginning of the 1990s—from 19.8 million in 1990-1992 to 25.5 million in 2002-2004.²

The FAO statistics³ on undernourishment used here cover fifteen out of the twenty-two Arab countries. Among those excluded are Iraq and Somalia, which are under occupation or armed conflict, and for which it is difficult to obtain accurate data on food and health conditions going back to 1990-92.

The 25.5 million undernourished people in the region represent 10 cent of its total population. This constitutes only

Figure 6-1

Counting the hungry: world regions compared over three periods



Source: FAO 2008.

Note: The Near East and North Africa region in this figure includes Afghanistan, Iran, Turkey and 13 Arab countries namely: Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen, Algeria, Egypt, Libyan Arab Jamahiriya, Morocco, Tunisia.

3 per cent of the total undernourished population in the world. The relatively low level in comparison with other regions is due to the relatively high income levels of oil countries, food purchasing power sustained by worker remittances and/or to the food supply policies implemented by some governments.

Among Arab countries, Sudan, which is the scene of internal disputes and under international sanctions, is home to the largest population of hungry (more than 8 million). It is followed closely by Yemen (8 million), a Least Developed Country (LDC) which depends heavily on food imports. It may be noted that even in wealthy countries such as Saudi Arabia, Kuwait, and the UAE there are segments of the population that do not obtain sufficient nourishment.

Viewing the hunger count, not in terms of absolute numbers, but relative to a population, indicates that hunger does not constitute a humanitarian problem in three out of the fifteen Arab countries. Over the period 2002-2004, in Libya, Tunisia, and the UAE, the percentage of undernourished people was less than 2.5 per cent of the population. In marked contrast, Comoros, Yemen and Sudan, at 60 per cent, 38 per cent and 26 per cent respectively, are severely afflicted with food insecurity. In the other countries, the prevalence varies between 2.5 and

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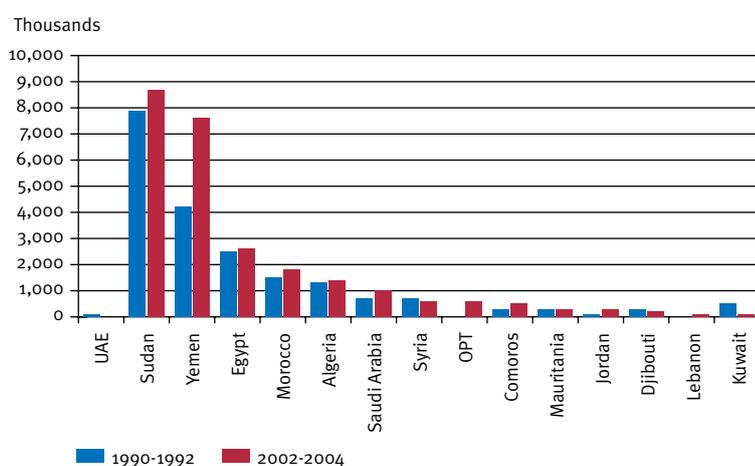
There are considerable disparities among individual Arab countries in fighting hunger

4 per cent, the exceptions being Jordan and Morocco (6 per cent in each), Kuwait (5 per cent) and Mauritania (10 per cent).

National-level figures gloss over the association of hunger with certain groups in these countries. The World Food Programme observes that undernourishment is more prevalent among poverty stricken rural populations, women and children.⁴ Although detailed figures are not available for most Arab countries, a study on poverty in Yemen, the Arab country with the second highest prevalence of undernourishment, identifies with greater

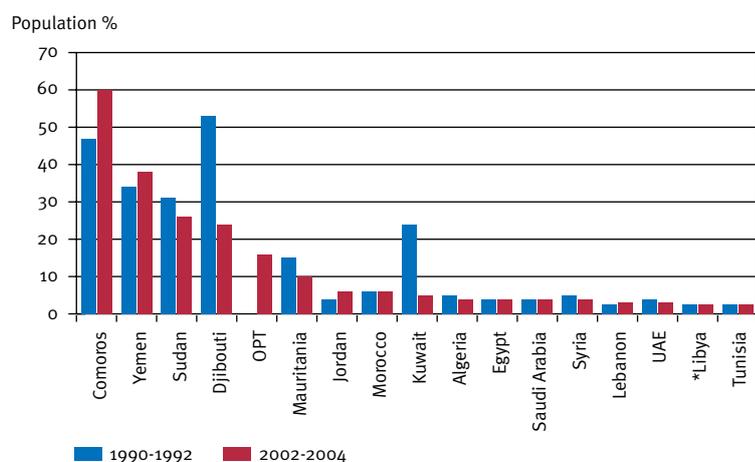
precision the groups that are most vulnerable to undernourishment. They include large families that own or have access to only small areas of land, whose members are poorly educated and who work in agriculture or are supported by a female. The study reveals that the factor most strongly correlated with undernourishment is education. Whereas predominantly illiterate families account for more than a fifth of the families afflicted by hunger, the figure drops to a little more than a tenth for families with members who have received a university education. Perhaps this phenomenon is due, in general, to the correlation between income and education in Yemen.⁵

Figure 6-2 Counting the hungry in 15 Arab countries, 1990-1992 and 2002-2004



Source: FAO 2008.

Figure 6-3 Changes in the prevalence of under-nourishment, 1990-2004



Source: FAO 2008.

*Data for Libya < 2.5

Trends since 1990-1992

Figure 6-3 illustrates the progress of Arab countries towards Goal One of the MDGs to halve, between 1990 and 2015, the proportion of people who suffer from hunger. It indicates that, for the region as a whole, there has been no progress towards Target 2 of the Goal. However, the general trend does not reveal the very different situations in individual countries.

The figure reveals considerable disparities among individual Arab countries in their progress in the fight against hunger. The countries that have made the greatest progress towards lowering the prevalence of undernourishment between the two periods are Djibouti, Kuwait and Mauritania (Kuwait's relatively high hunger prevalence in 1990-1992 largely reflected the impact of the First Gulf War). Sudan has also made progress, but still experiences serious hunger prevalence. Egypt, Jordan, Lebanon, Morocco, Saudi Arabia and Yemen, on the other hand, recorded increases in both the absolute numbers and prevalence of undernourishment, while Syria and Algeria achieved very small reductions in the prevalence of undernourishment but no reductions in the numbers of undernourished.

This overall appraisal throws into relief a painful fact: as indicated earlier, the number of undernourished increased by 5.7 million between 1990-1992 and 2002-2004. In other words, the region, as a whole, is moving away from, rather than approaching, Goal One. The picture grows

bleaker when we reflect on those countries such as Iraq and Somalia for which there is no reliable data: these are countries under occupation or caught in civil strife where deteriorating food supplies, hunger and violence combine to jeopardize human security.

Arab countries, as a whole, must reverse the deteriorating trend they have exhibited since 1990-1992. But to do so they must address the obstacles to the eradication of hunger, which, in turn, entails clearly identifying the fundamental causes and designing and implementing the programmes capable of addressing those causes. In this regard, they need to pay special attention to the more vulnerable sectors of the population such as women, children, and the elderly.

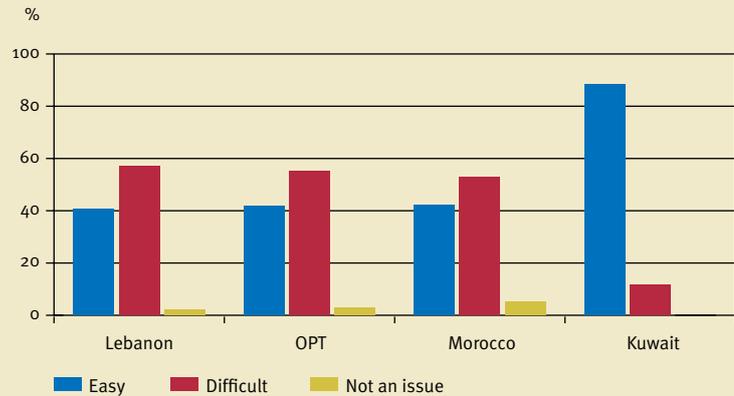
Obesity – a growing problem in Arab countries

Obesity and malnutrition may seem mutually exclusive, but they are commonly linked by their origins in poor diet. As the Director-General of WHO observed in an October 2008 address,⁶ curiously enough, televised reports of malnutrition often show undernourished children being tended by overweight adults. This jarring paradox has a simple explanation: the cheap, low-grade and processed foods that starve children of absolutely crucial nutrients also make adults fat. Thus, obesity is not necessarily connected with overeating and, as illustrated in the figure below, it is not just a 'rich' country problem. It can be as widespread in lower income countries such as Egypt, Jordan, Morocco, and Syria as in high income countries such as the Gulf States. It also exists among the poor and the rich alike.

Instructively, obesity and overweight are more common among women than men in Arab countries, contrary to the situation in the US, for example, where these problems are more prevalent among men. In the region, obesity is generally attributed to over-consumption of high-fat foods and/or high sugar products combined with little physical activity, which may partly explain its prevalence among Arab women who are often prevented by custom from pursuing sports and other physical exercise.

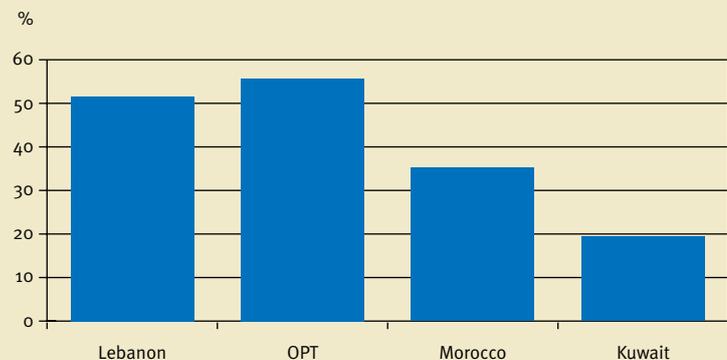
Respondents were asked if they found it easy or difficult to obtain food, or whether food access was not an issue at all. The lowest number of respondents who found it difficult was in Kuwait and the highest number who found food easily accessible was also in that country. In the other countries, responses differed from those in Kuwait but were similar among the three. In those cases, about 40 per cent of the respondents agreed that food was readily accessible as opposed to between 56 and 59 per cent who thought it difficult to obtain. Those to whom it was apparently not an issue constituted a small minority, just around 3 per cent of the sample. Interestingly, none of the respondents in Kuwait said that obtaining food was not an issue, possibly because they considered easy access the same thing.

Is obtaining food easy, difficult or not an issue at all?

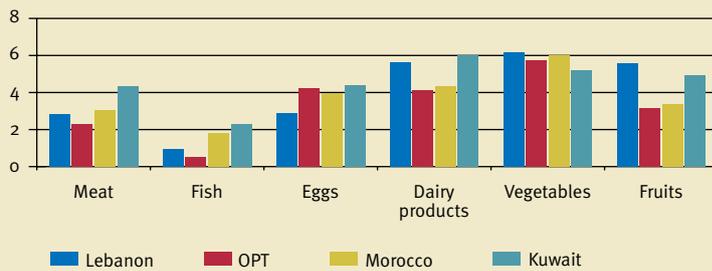


When respondents were asked how easy it had been to obtain food during the six months preceding the survey, a minority of the respondents in Kuwait (20 per cent) and about a third of the respondents in Morocco answered that they had had difficulty obtaining some foodstuffs or that they had been forced to cut down on some kinds during those six months. However, 56 per cent of Palestinians and more than half of the Lebanese polled indicated they had experienced difficulties overall. Their answers undoubtedly reflect the fact that the period in question coincided with the deterioration of conditions in Gaza in the winter of 2008 and the atmosphere of tension in Beirut at that time.

Percentage of respondents who found it difficult to obtain food in the six months preceding the survey



Dietary patterns in Kuwait, Lebanon, Morocco and the Occupied Palestinian Territory are similar, with one noticeable difference among the Palestinians. With the exception of vegetables and eggs, they consume other major food types less frequently. They eat more vegetables than the Kuwaitis and more eggs than the Moroccans and Lebanese, while of the four sets of respondents they consume the least amounts of fish and meat, eating the former less than once a week and the latter no more than twice a week. This may be due to the scarcity of fish and to the high cost of meat in the Occupied Palestinian Territory. In general, fish and meat are the least frequently consumed food items among the respondents in three countries, with the Kuwaitis departing from the general pattern in their consumption of fish twice a week and meat four times a week.



Comparing patterns of food consumption in Gaza and the West Bank reveals salient differences. While in both areas people eat vegetables with about the same frequency—about six times a week—there are significant differences in the consumption of the other types of food. The respondents in Gaza eat less frequently eggs, dairy products, fruits, vegetables, meat and fish, a pattern that reflects levels of nourishment there. Food conditions have deteriorated for most Palestinians, but those in Gaza are particularly affected as a result of Israeli restrictions on the movement of goods and persons and as a result of the blockade.



Undernourishment and hunger are not necessarily natural or inevitable

Obesity contributes to such non-contagious chronic illnesses as diabetes, high blood pressure, coronary arterial diseases, degenerative joint diseases, psychological illnesses, and some types of cancer. Such ailments are steadily increasing in Arab countries. Numerous studies demonstrate that underweight birth and undernourishment in infancy actually increase the risk of obesity at adolescence when food supplies are available. In the workforce, obesity is often associated with lower productivity.

The causes of hunger and malnourishment in Arab countries

Many factors contribute to the problems of undernourishment. Among the direct factors are the lack of means to purchase sufficient food for basic daily requirements and the lack of food supplies. The indirect factors, which are simultaneously causes and consequences, include poverty, ignorance, illness, and gender inequality. Difficult climatic conditions, natural disasters, unsuccessful development policies, political instability, and armed conflict are important factors that contribute indirectly to perpetuating the cycle of poverty, hunger, illness, and suffering. Just as poverty and unemployment are not purely economic phenomena, so too undernourishment and hunger are not necessarily natural or inevitable; indeed, they are most frequently caused by human action, or inaction. The Arab countries most severely affected by undernourishment and hunger are those experiencing conflicts, civil war or foreign occupation while, in other Arab countries, the spread of poverty is associated with high rates of undernourishment. The causes of undernourishment can be summarized in terms of three primary categories: food purchasing power, food availability, and the sustainability of both. The following paragraphs discuss these causes in more detail.

A. Direct causes

Insufficient daily nutritional intake

Every year the FAO appraises each country's per capita food availability using the system of "Food Balance Sheets." These are tabulations of the amounts of foodstuffs produced in a given country within a given year, to which are added the amounts imported or in storage during that period, and from which are subtracted the amounts lost through spoilage during storage or transportation, or fed to livestock, or used for purposes other than human consumption. The result is then divided by the total number of inhabitants in the country. All foodstuffs available for human consumption are also broken down into their caloric value⁷, so as to gauge the per capita supplies of nutrient energy.

In the appraisal of food supply and dietary patterns in the region according to available data, Arab countries were divided into three categories based on the prevalence of hunger and undernourishment in 2002-2004. The first category consists of those countries in which the prevalence is between 2.5 and 4 per cent of the population, and includes Saudi Arabia, Egypt, Syria, Lebanon, and Algeria. The second, mid-range category, where the prevalence falls between 5 and 19 per cent of the population, includes Morocco, Mauritania, Jordan, and Kuwait. Yemen and Sudan fall into the third category, where the prevalence is 20 per cent or more of the population. The appraisal did not cover Libya, Tunisia, and the UAE, in which hunger and undernourishment do not constitute significant problems. However, we might also add a fourth category, made up of those conflict-plagued countries, Sudan, Somalia, Iraq and Occupied Palestinian Territory, to which we return later.

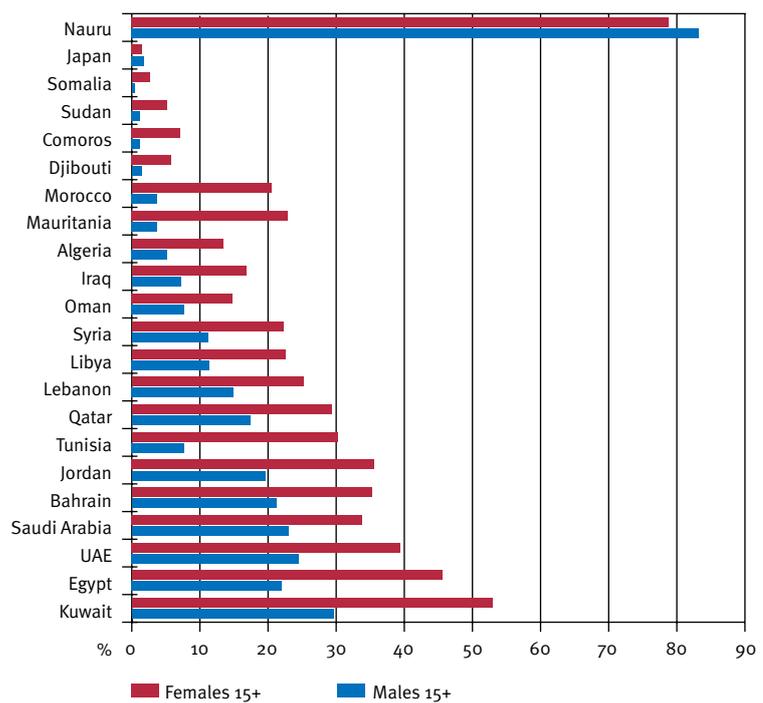
• **Nutrient energy intake falls below daily requirements**

Figure 6-5 illustrates the per capita caloric intake in Arab countries and compares its levels in 1990-1992 and 2002-2004.

There are evident disparities between the three groups of countries in caloric supply, the latter being lowest in Yemen and Sudan (highest prevalence of hunger) and highest in the countries of the first group (lowest prevalence). All recorded levels of daily per capita caloric intake, which vary from 2,000 (Yemen) to 3,100 (Egypt), show totals higher than the minimal caloric intake needed for the average person to sustain body weight and remain moderately active. The figure thus indicates that the explanation for hunger prevalence in the region lies in disparities *within* individual societies in caloric intake and, hence, that the distribution of available foodstuffs is inequitable.

Looking at changes in the rates of caloric intake between the MDG baseline (1990-1992) and 2002-2004, we note virtually no change in Yemen, Morocco, and Lebanon and a slight increase in the other countries. The sole exception is Kuwait, which registered a considerable 700 per capita caloric increase since 1990-1992.

Figure 6-4 Prevalence of obesity in Arab countries, Nauru and Japan*, by gender and age group 15+, 2005

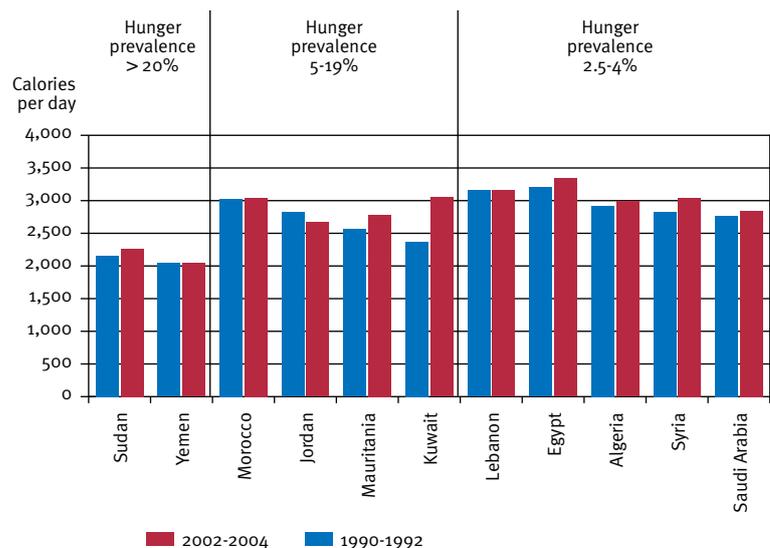


Source: WHO 2005.

Notes: Nauru and Japan are respectively the countries with the highest and lowest prevalence of obesity in the world.

* Measured at BMI $\geq 30\text{kg/m}^2$. BMI (Body Mass Index) is a measure of body fat based on height and weight. BMI >30 means obese and BMI between 25 and 30 means overweight.

Figure 6-5 Average daily caloric intake per capita in 11 Arab countries, 1990-1992 and 2002-2004



Source: FAO 2008.

• **Limited supplies of different foods affect dietary patterns and nutrition**

Figure 6-6 depicts the daily per capita intake (measured in grams/person/day) of different types of nutrient sources available in the Arab countries, comparing their levels in 2004 with those in 1990, and contrasting these levels with those in a developed country, Greece.

Levels of per capita food availability vary considerably between the three groups of Arab countries

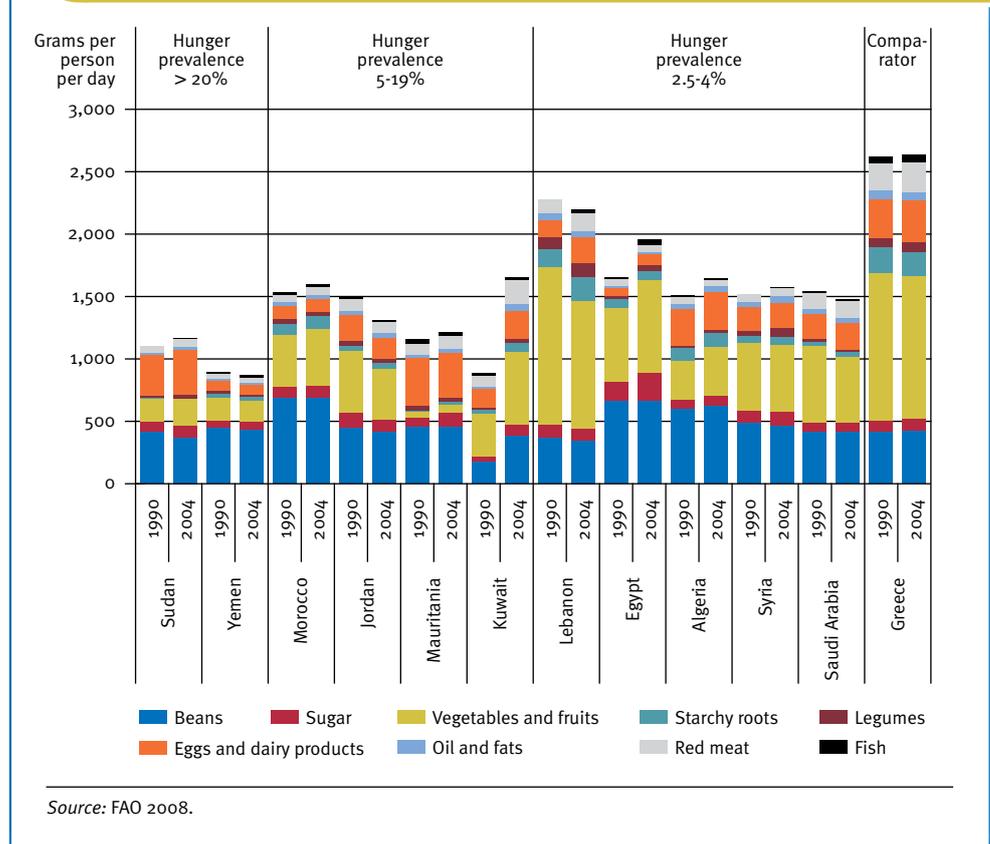
While the 2002-2004 levels of per capita food availability vary considerably between the three groups of Arab countries, they do not differ markedly among the countries in the same group. Clearly, they are inversely proportional to the prevalence of hunger and malnutrition, with the first group ranking the highest in the quantities of food available to the individual. Thus, for example, the overall quantities range from 2,200 grams per day in Lebanon, in which the prevalence of hunger is 3 per cent of the population, to 1,500 grams per day in Saudi Arabia, in which 4 per cent of the population suffers nutrient deprivation. In the third group, the per capita rates vary from 850 grams per day in Yemen, where hunger afflicts

more than a third of the population to 1,150 grams per day in Sudan, where more than a quarter of the population is prey to hunger and undernourishment. The second group recorded levels that fall in between those of the first and third. The recorded rates in all of these countries are considerably lower than the per capita rates in the developed country comparator – Greece.

Examining levels of per capita food availability over the decade between the two assessment periods, we find that they have not changed considerably, with the exception of Kuwait, in which the level nearly doubled from 1990. Lebanon, Jordan, and Yemen, which belong, respectively to the first, second, and third groups, show minor decreases in the per capita food availability levels, which undoubtedly contributed to the relative increase in the prevalence of hunger these countries have experienced since 1990. In contrast, Algeria, Mauritania and Sudan have recorded small increases in per capita food availability, which, by the same token, helped alleviate the prevalence of hunger

Figure 6-6

Daily per capita gram consumption from different nutrient sources, 1990 and 2004, 11 Arab countries and Greece



in these countries, except for Sudan where the deterioration of the situation in Darfur since 2004 aggravated the severity of undernourishment there.

Among types of foodstuffs available in the Arab countries, grains are the most popular form of food; they are an important source of energy, proteins, and vitamin B complex. Wheat is the most widely consumed type of grain in all Arab countries, apart from Sudan in which sorghum prevails. Barley ranks second in the North African countries. In the Mashreq, rice and maize are the second most widely consumed grains, and in the LDCs (Yemen and Sudan), maize and millet. None of these countries has attained self-sufficiency in these grains, which they all import in varying quantities. The highest imports are in wheat, produced in moderate climates and exported primarily by industrial nations, followed by barley and to a lesser extent maize. Grain consumption has declined slightly in all Arab countries over recent years, apart from in Mauritania, Morocco, Egypt, and Saudi Arabia, where the amount of grain consumed has remained stable in terms of quantity but increased in terms of ratio to total caloric intake.

Fruit and vegetables form the second largest dietary component in most Arab countries apart from Mauritania, Sudan, and Yemen, where the per capita intake of these foodstuffs is only between 60 and 200 grams per day. Dairy products and eggs are also major dietary components, especially in the latter three countries. Indeed, in these countries the available quantities of dairy products are equivalent to those in developed nations. The relative abundance of such products in these low income countries is due to the proliferation of dairy farms in recent years.

Meat products form only a small portion of the overall diet in Arab countries, with Lebanon, Kuwait, and Saudi Arabia ranking highest in meat consumption, at between 135 and 190 grams per person per day. Fish and other seafood form only a small fraction of the dietary intake in all the countries.

Dietary patterns in most Arab countries have changed since the 1990-1992 baseline period. While grains still remain the foremost ingredient in the Arab meal, one now finds greater quantities of fruits

and vegetables, dairy products and eggs, vegetable oils, sugar, and, to a modest extent, meat and fish. In spite of this trend towards diversity, which largely reflects the preferences of consumers who can afford greater quantities of more expensive foods with higher nutrient values, dietary patterns on the whole, compared to those in developed countries, are still deficient. Particularly lacking are prophylactic foods that are rich in mineral salts and vitamins, such as fruits and vegetables, dairy products and fish.

• Imbalanced diet

Undernourishment can arise from insufficient or imbalanced intakes of nutrient energy and/or macro or micro nutrients. A diet deficient in macronutrients, elements that furnish the body with energy (proteins, fats and carbohydrates), causes health problems (wasting, stunting, underweight, drop in body mass). This applies even if the overall caloric intake is sufficient. However, healthy ranges of the proportions of macronutrients to the total caloric requirement are fairly broad: 55-75 per cent carbohydrates, 15-35 per cent fats, and 10-15 per cent proteins.⁸

Figure 6-7 summarises the per capita daily intake of macronutrients in relation to total caloric intake and how these ratios changed over the period from 1990-1992 to 2002-2004. It covers the Arab countries for which data is available, inclusive of those in which hunger does not pose a humanitarian problem.

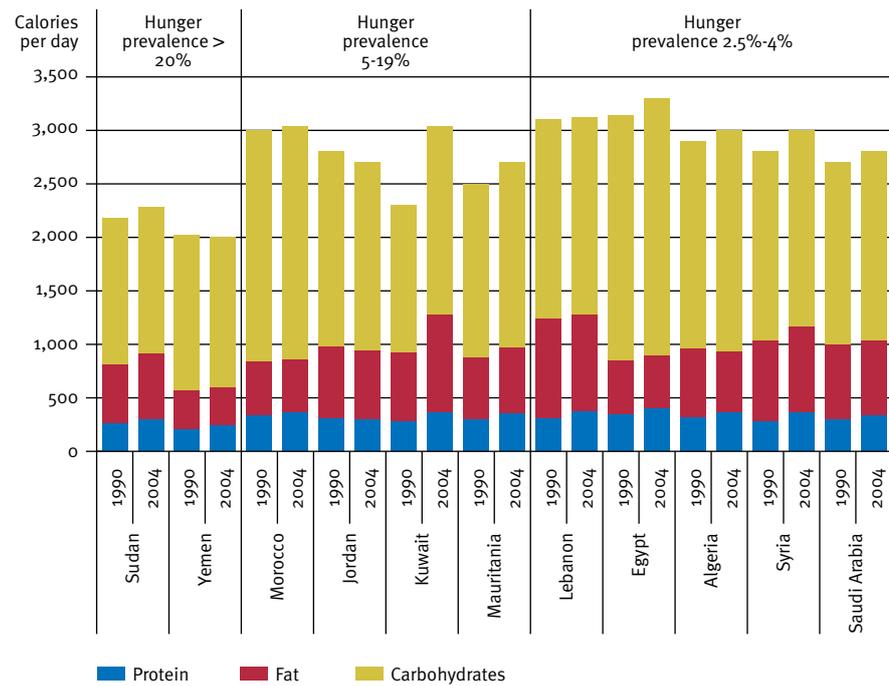
The ratios of macronutrients in the food available in Arab countries are, on the whole, balanced regardless of the volumes of energy available. Nor have these ratios changed significantly since the baseline period. We also observe that animal foods account for between a third and a fourth of the supplies of proteins and fats, and between 7 and 13 per cent of available nutrient energy supplies in all countries, apart from Mauritania, Sudan, Kuwait, and Lebanon. In these countries, animal foods make up nearly half of the available sources of proteins and fats, and a fifth of the energy; these ratios are equivalent to those recorded in developed countries. However, while animal foods offer abundant sources of high-quality animal protein, they are also causes of high levels of harmful saturated

In spite of this trend towards diversity, dietary patterns are still deficient

Undernourishment can arise from insufficient or imbalanced intake of nutrients

Figure 6-7

Daily caloric intake and its division by major nutrient groups, 11 Arab countries, 1990-1992 and 2002-2004



Source: FAO 2008.

Food availability is connected with the forces of supply and demand

Arab countries are more self-sufficient in food commodities that are favoured by the rich

triglycerides. These arise particularly from relatively high quantities of dairy products and eggs, combined with low levels of fruit and vegetables (as is the case in Mauritania and Sudan) and relatively high intakes of meat and dairy products and eggs (as in Lebanon and Kuwait).

Yet, as encouraging as these figures may appear, they should be treated with an element of caution. They do not necessarily reflect equality in the distribution of available food among societal groups or indicate the actual intakes or dietary balances of weak and vulnerable groups. The most they offer is a picture of general trends in food availability and intake within groups of countries.

• **The relative contributions of food imports and exports to per capita food supplies**

How much food is available to a society mirrors developments in its food production sectors and the dynamics of food commodity exchanges with the outside world. In other words, food availability is connected with the forces of supply—which is contingent upon such factors as agricultural production, access to global

markets, the growth of food industries, and the size of foreign aid—and demand, which is connected, in particular, to per capita income levels.

Figure 6-8 shows that some Arab countries have lower cereal yields than the world average and, moreover, that, between 1990 and 2005, production in 7 countries declined.

Figure 6-9 illustrates how far the region moved towards self-sufficiency in major food commodities during the period 1990-2004.

Instructively, as the figure shows, Arab countries are altogether more self-sufficient in food commodities that are favoured by the rich (meats, fish and vegetables) than in those likely to be consumed by the poor (cereals, fats and sugar).

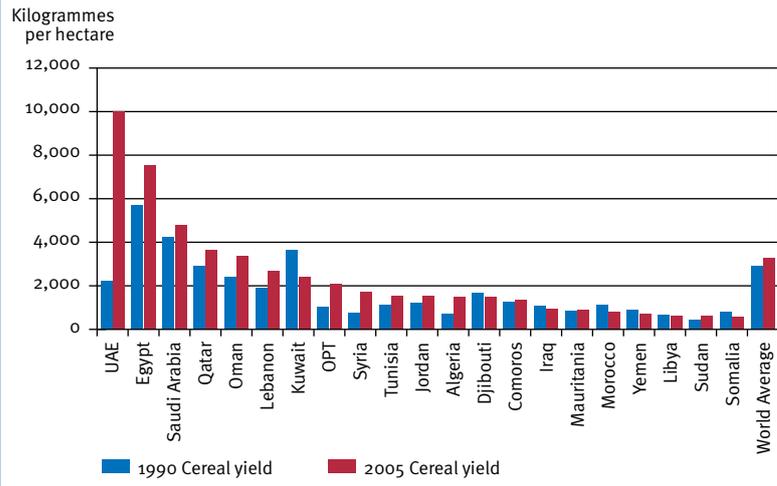
Figure 6-10 illustrates the dependence of Arab countries on aggregate food imports in 2005. In all but one case—Bahrain—this reliance is greater than the world average.

Numerous factors have contributed to the heavy dependence of Arab countries on food imports (Jalila Al-Ati, in Arabic, background paper for the report):

- In Yemen, an LDC, 80 per cent of the population live in rural areas and 50 per cent of the labour force is employed in agriculture. Inadequate water supply and scarce arable land mean agricultural productivity is low, accounting for a small share of GDP (15 per cent), and cannot keep pace with the country's rapid population growth (3.6 per cent annually compared to the 2.6 per cent average in Arab countries as a whole). As a result, the numbers of undernourished people are climbing.
- In Jordan, a middle-income country with a paucity of water and other natural resources, agricultural production accounts for only 2 per cent of GDP and employs only 10 per cent of the labour force. Food imports are, thus, essential to meet its needs. However, the performance of the Jordanian economy is heavily influenced by external factors, especially fluctuations in oil prices and conflicts in the region. Economic decline as a consequence of such factors has contributed to reducing the per capita caloric intake from 2,820 calories per day in 1990-1992 to 2,670 per day in 2002-2004, and thus to increasing the prevalence of undernourishment.
- In Saudi Arabia, a high-income country, agriculture accounts for only 5 per cent of GDP and employs only 7 per cent of the labour force, as a result of which the country is almost entirely dependent on food imports. In spite of the country's economic growth, fuelled by the recent boom in oil prices, no progress has been made towards the elimination of undernourishment. In fact, the number of undernourished in Saudi Arabia has risen since 1990-1992, raising questions about policies of food distribution, social equity and population trends.

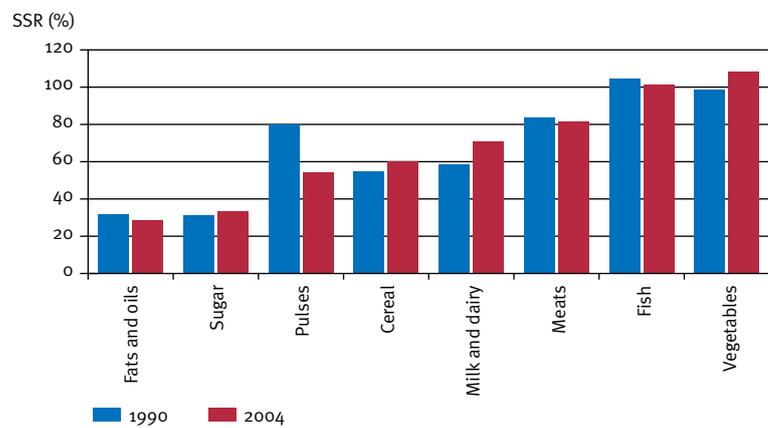
On the other hand, in Syria, another middle-income country, 33 per cent of the active population is engaged in the agrarian sector, which contributes a quarter of GDP and occupies a third of the country's land area. Agricultural investment and development in recent years have enabled Syria not only to secure self-sufficiency in the most important foodstuffs but also to improve the performance of its export trade in fruits, vegetables, pulses, grains,

Figure 6-8 Cereal production, 21 Arab countries, 1990 and 2005



Source: World Bank 2008.

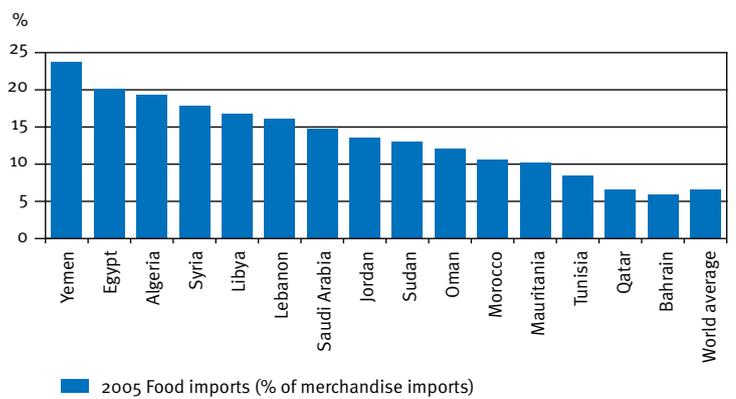
Figure 6-9 Regional self-sufficiency ratios (SSRs) in major food commodities (%), by type, 1990-2004



Source: UNDP/AHDR calculations based on AOAD 2008 (in Arabic).

Note: The self-sufficiency ratios in the AOAD database are calculated by dividing food produced by food available for consumption (both measured in mega tons).

Figure 6-10 Reliance on food imports, 15 Arab countries, 2005*



Source: World Bank 2008.

*Values for Lebanon and Libya are for 2004.

Agricultural development in rural areas has more impact on uprooting hunger than urban industrial development

and olive oil. The growth of the agrarian sector contributed to a 200 calorie per day increase in the average available nutrient energy supply since 1990-1992, an increase sufficient to reduce the prevalence of undernourishment from 5 to 4 per cent, although not sufficient to reduce the number of undernourished arising from rapid population growth (3.1 per cent).

The foregoing confirms the findings of various studies that the effect of economic development on reducing hunger depends as much upon the *nature* of economic growth as it does upon its extent and pace. Agricultural development in rural areas has more impact on uprooting hunger and malnourishment than urban industrial development.

In the Arab countries, the dangers of over-dependence on international markets to ensure food needs came home sharply in the spring of 2008 when global food prices skyrocketed. By mid-2008, these prices were 40 per cent higher than at the same time the previous year. The impact of this was felt in virtually all Arab countries, including wealthy Gulf countries such as Saudi Arabia and the UAE. It seems wise, therefore, for Arab governments to attempt to take advantage of their available water and cultivable land in order to move closer to self-sufficiency in food production. This important subject is discussed in the concluding section of this chapter.

B. Indirect causes

Poverty and hunger

Poverty and hunger constitute a vicious cycle. Hunger prolongs poverty because it lowers productivity and poverty prevents people from producing or obtaining the food they need. The poor are not only vulnerable to hunger and an insufficient intake of micronutrients, but also to chronic illnesses linked to diet, habits and situational pressures. The poor and undereducated tend towards behaviour laden with health risks, such as smoking and consuming cheap, fatty, and high-caloric processed and fried foods. They lack health care and health awareness, and are constantly exposed by deprivation to social, physical and mental stress. One review of 144 studies of obesity in developed countries found an inverse relationship between

Poverty and hunger constitute a vicious cycle

obesity and socioeconomic status, noting that often the urban poor are forced to settle for “junk food” and do not always understand the fundamentals of a healthy diet.⁹ This suggests that obesity and its associated health risks will be higher in countries in which malnourishment increases in tandem with urban development. Confronting this double burden of chronic hunger and the spread of non-contagious diseases demands special food and dietary policies that target vulnerable groups among the urban and rural poor.

Nevertheless, poverty is not necessarily associated with undernourishment when the consumption pattern of the poor tends towards inexpensive but nutrient-rich foods, and when such foods are readily accessible. Where statistics are available for both poverty levels and the levels of undernourishment in a given area, the two indexes do not always overlap. The number of undernourished can exceed the number of poor in certain cases where it is not low income that hampers access to food but other obstacles, such as transport bottlenecks, or political upheavals. The number of undernourished can also fall below the number of poor, as is the case in areas where government policies are in place to provide food for the poor or where the prevalent diets consist of inexpensive foods that meet the body’s energy requirements.

Looking at the prevalence of poverty in Arab countries for which there is available data and its correlation to the prevalence of hunger and undernourishment (Figure 6-11) we find that the severest rates of poverty (people living on less than a dollar a day) and deprivation from one or more fundamental services are concentrated in those countries with a high prevalence of undernourishment, which is to say such low-income countries as Mauritania, Sudan, and Yemen.

More than 60 per cent of the inhabitants in Mauritania, about 45 per cent of the inhabitants of Yemen, and about 40 per cent of the inhabitants of Egypt live on less than two dollars a day. It is interesting in this regard to draw a comparison. In Egypt, GDP per capita (calculated by purchasing power parity) is roughly equivalent to that of Morocco (\$4,337 and \$4,555 respectively in 2005). Yet, the levels of poverty (gauged by the percentage of the population living on less than a dollar

a day) and hunger are noticeably lower in Egypt (20 and 4 per cent respectively) than in Morocco (34 and 6 per cent respectively). The lower figures for Egypt indicate that dietary patterns in Egypt, coupled with the Egyptian government's food subsidy programmes, have contributed to reducing the prevalence of undernourishment.

As figure 6-11 shows, the number of poor in the Arab countries for which data has been provided exceeds the number of undernourished. The prevalence of those living on less than two dollars a day is higher than the prevalence of those suffering hunger in Saudi Arabia, Kuwait, Egypt, Syria, Jordan, Lebanon, Morocco, Algeria, Sudan and Mauritania, whereas the ratios of poverty and hunger are approximately equal in Yemen. World Bank statistics bear out the greater prevalence of poverty over undernourishment in Tunisia as well as elsewhere in the Maghreb and Mashreq, in general. We note, however, that the percentage of sufferers from hunger is higher than the percentage of those who live in extreme poverty, on less than a dollar a day, in Algeria, Jordan and Morocco.

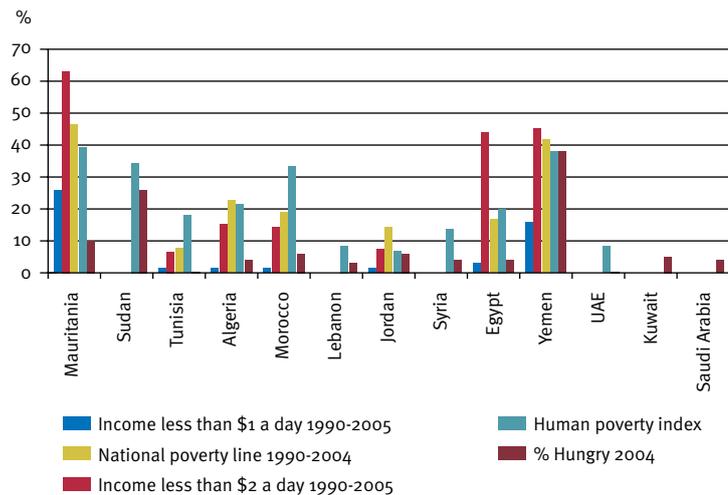
Other useful comparisons may be drawn. Jordan and Lebanon, too, have about the same GDP per capita (\$5,530 and \$5,584 respectively in 2005) and about the same prevalence of poverty and hunger. However, Saudi Arabia, a high-income country fares no better than Syria, a middle-income country in terms of the prevalence of hunger (4 per cent of the population in each country according to WB data).¹⁰ Again, this demonstrates that having resources, alone, is not sufficient to promote the development of a society or to achieve sustainable economic growth. Any country, even one with relatively limited resources, can rise to the challenge of reducing hunger and poverty. The requirement is that it implements well-considered and designed comprehensive development policies, and that it puts into effect economic and financial structural reforms that guarantee equitable development across all sectors of society, with special attention to the more vulnerable.

Foreign occupation, domestic conflict and hunger

Although reliable and up-to-date information on Arab countries facing occupation

Figure 6-11

The association of poverty and hunger



Source: UNDP 2007.

Note: GDP and the poverty rates for the international thresholds presented in this discussion are based on PPPs from the ICP 1993-1996. By comparison, the PPPs on which the poverty rates presented in Chapter 5 are based refer to 2005.

or civil strife is lacking, thus making comparisons with other Arab countries difficult, World Food Programme figures hint at the magnitude of their problems (Table 6-1).

Countries in these special situations experience declining food conditions for many reasons. Foremost among them is the collapse of those daily patterns of life into which people arranged their work, movements and essential purchases. Such upheavals bring a loss of personal security, with all that that signifies to those who live in conflict zones. They can lead to the death of thousands of farmers and others engaged in the production, transport, or distribution of food. These countries also see, in their rural areas, the recruitment into combat activities of thousands of others who would ordinarily be engaged in producing food; or the flight of yet thousands of others former food growers and distributors to safer areas. Moreover, refugees and displaced persons themselves are often forced into the search for food in their new havens, often meeting with little success and finding themselves without means of subsistence. Compounding these severe disturbances, armed conflicts destroy roads, irrigation systems, electricity grids and other infrastructure, impairing food production and transport, and reducing the ability to respond to

Any country can rise to the challenge of reducing hunger and poverty

Food accessibility is strongly influenced by government economic policies and openness to world markets

floods, droughts and other natural disasters. Under such circumstances, not only does food scarcity drive up prices, but simply guaranteeing the safe transport of food from one area to another becomes fraught with the risk of attack or extortion *en route* by militias or criminal gangs.

Unsurprisingly, these countries have become humanitarian disaster zones the effects of which have spilled over into neighbouring countries, prompting international concern and intervention in response to the sheer number of victims of poverty and hunger these crises have claimed. The following table suggests the extent to which these crises have impaired the ability of the inhabitants of affected areas to obtain essential food requirements.

The FAO lists thirty-six nations as those most at risk from the consequences of the rising prices of food in international markets and, hence, requiring external food assistance. Among them are four Arab countries, three of which are victims of foreign occupation or civil strife or both. Somalia and Iraq are categorised as suffering an “exceptional shortfall in aggregate food production/supplies.” Mauritania, facing “a widespread lack of access”, is in the second category of severely food insecure countries, Sudan is described as undergoing “severe localised food insecurity”.¹¹

Economic policies and globalisation

Food accessibility is strongly influenced by government economic policies and openness to world markets. Subsidising food commodities to make them more affordable to the public is one such policy; lifting subsidies is another. Most Arab governments have adopted food supply policies as part of a social contract based on state provision of essential needs in exchange for the people’s loyalty. This type of social contract was a major feature of some Arab regimes of the 1960s and 1970s, which patterned their development programmes on the socialist model. It was also a tactic associated with regimes in some Arab oil exporting countries, which used oil revenues to sustain their rule. This helps explain why the number of undernourished in Arab countries is lower than the number of poor who live on less than two dollars a day. Beginning in the late 1970s, the governments of non-oil exporting countries made their first attempts to implement IMF recommendations and shed what they had come to regard as the subsidy burden. They quickly realised how difficult this task would be when their attempts to lift subsidies triggered widespread riots and civil unrest, in Egypt, Morocco and Tunisia, and even in Algeria, an oil exporting country.

Table 6-1 Food relief to conflict zones in the Arab countries, 2000-2008

Country	Population affected by food shortages	Beneficiaries of WFP food aid	Other effects of the crisis
Somalia	3.5 million people, almost half of the population in Somalia, will require food assistance by December 2008.	Beneficiaries of WFP assistance increased from 700,000 in August 2006 to 1.4 million in May 2008.	In January 2008, rates of acute malnutrition in the Puntland regions of Shabelle, Hiran and Central and Southern Nugal were above the emergency threshold of 15%.
Iraq	In 2005, 39% percent households facing food problems in Iraq	In 2005, over four million people (15.4% of the population) were food insecure in spite of receiving Public Distribution System (PDS) food rations. Without PDS rations, a further 8.3 million people (31.8% of the population) would be food insecure.	In 2005, the prevalence of acute child malnutrition in six governorates (Wassit, Salah Al Din, Najaf, Qadissia, Muthana and ThiQar) was greater than 10% or ‘serious’. In Qadissia, at 17%, it was ‘critical’.
Sudan	In 2005, 53.8% of IDP households in Darfur were food insecure.	In 2005, the number of monthly beneficiaries of food aid in greater Darfur came to 1,936, 554.	In September 2004, 25.7% of children between 6 to 59 months of age were suffering from severe acute malnutrition rates.
OPT	In 2008, 53% of the population of the Gaza Strip and 21% of that in the West Bank were food insecure.	39.33% of OPT households received food assistance between March and May 2008.	In 2004, stunting was found to affect 9.9% of children under 5 years of age, and was on the rise compared to 1996 and 2000 data.

Source: WFP 2008 (See Statistical references).

Nevertheless, since the 1980s most Arab governments have pressed ahead with economic liberalisation and market deregulation policies. Without passing judgment on such policies, it cannot be denied that, as far as food supply is concerned, they have rendered domestic food prices vulnerable to fluctuations in international prices. Since 2006, Arab food-importing countries, that is, the great majority in the region, have had to contend with soaring food prices in the global market. The FAO and the World Bank have attributed spiralling prices to various causes, among which are the climate changes that have affected production in grain exporting countries, the extensive depletion in grain stocks, and the rising consumption of meat and dairy products in emerging economies,

especially in China. Another major cause is the growing demand in the US and Europe for biofuel derived from grain, in response to the rising costs of oil and transportation. This, in conjunction with intensive speculation on grain in international stock markets, has caused the price of wheat to shoot up by 200 per cent and has driven up the prices of food commodities in general by 75 per cent since the beginning of the 21st century.¹² The global food supply crisis this has caused is aggravated in many Arab countries by their governments' mismanagement of food subsidy programmes.

In fact, there is nothing that ordains adherence to the blanket implementation of such policies if they lead to the spread of hunger and undernourishment, as well as to impoverishment and declining

Most Arab countries have had to contend with soaring food prices

Box 6-4

Two initiatives for alleviating poverty – Brazil and Mexico

Brazil's experience of pro-poor development under President Ignacio Lula da Silva

The government of Brazil has succeeded where all its predecessors, democratic and dictatorial alike, have failed. It has reduced acute social and economic disparity in favour of the poor. In January 2003, the "Lula" government unveiled "Programa Fome Zero"—the Zero Hunger Programme intended to accelerate the improvement of food security for 44 million people. The programme set into motion mechanisms intended to ensure the food and nutritional security of the Brazilian people, enhance their income by increasing basic food supplies, improve means of access to food, and provide urgent relief from hunger through targeted interventions.

In October 2003, as part of the initiative, the government initiated the "Bolsa Familia Programme", which seeks to remedy two problems—lack of education and undernourishment—at once. Under this programme, the government intervenes directly through injections of financial aid to poor families, but on the firm condition that their children attend school regularly and that the family attends primary health-care facilities. By 2006, the government had brought these services to needy families whose members combined come to about 11.2 million people. From 1990-1992 to 2002-2004, Brazil succeeded in reducing the prevalence of hunger from 12 to 7 per cent and the number of its hungry from 18.5 million to 12.8 million.

In July 2007, the programme was bolstered by the allocation of 2.6 billion Euros for raising living conditions among the poor by supplying Brazil's urban slums—*favelas*—with drinking water, electricity, and sanitation facilities.

Source: Kenneth 2002.

Mexico's programme for alleviating poverty and malnourishment

The *Oportunidades* programme launched by Mexico in 1997, under the banner "Progresa," grants cash remittances to poor families on the condition that they ascertain that their children attend school regularly and that family members pay periodic visits to health clinics. This government social assistance programme aims, in the short run, to improve the state of health and education of poor families and, in the long run, to help these families climb above the poverty line through education, which will offer better employment and income prospects to the family members.

Oportunidades targets families that are unable to meet their own basic food, health, and educational needs; these are estimated at five million families or a total of 25 million people. The programme undertakes to provide these basic necessities by means of cash remittances that are given directly to the mothers. The purpose of making the mothers the recipients is two-fold. It bolsters their autonomy and it ensures that the money is actually spent on the family to cover such needs as school expenses, school supplies, food, and periodic health checkups for the whole family.

Educational grants for lower and upper secondary school levels (grades seven to nine and ten to twelve, respectively) are higher for girls than for boys, with the target of narrowing the gender gap in secondary school enrolment. Pregnant women who regularly attend monthly maternity guidance lectures, appear for five prenatal checkups, receive two dental checkups, and take proper care of their teeth are entitled to total coverage of all expenses for delivery and three months' post-natal care, as well as to food supplements for themselves and their infants.

Source: Braine 2006.

*Food protests
can spill over
the borders of a
country facing
severe food
shortages*

productivity. The experiences of some countries, notably Brazil and Mexico in Latin America, demonstrate that it is possible to follow liberal economic policies and, simultaneously, ensure a minimum level of food for the poor.

The effects of undernourishment on human security in Arab countries

Hunger undermines human security at the most basic level of existence. It is detrimental to health, productivity and relations with others. It can constitute a threat to life, and not just by shortening life expectancy from birth. The scramble for bread can erupt into violent clashes and riots, as recent incidents in some Arab countries testify.

At the personal level, acute hunger can be a direct cause of death or a cause of fatal illnesses. An estimated 25,000 people (adults and children) a day die from hunger and related causes around the world.¹³ Although no such estimate is available for the Arab countries, the accelerated 200 per cent rise in grain prices since 2001 has made it more and more difficult to obtain bread in most Arab countries, even in oil-rich nations such as Saudi Arabia and the UAE. Since October 2007, Egypt, Morocco and Mauritania have all witnessed public protests over faltering bread supplies and surging prices. Syrians, Lebanese, and Yemenis, too, have found it extremely difficult to obtain bread, a basic component of the Arab diet. In Egypt, in early 2008, brawls in the bread queues in front of bakeries caused a number of deaths and wounded.

Food protests can spill over the borders of a country facing severe food shortages, stirring tensions between neighbouring states or political entities. A salient example was the attempt on the part of Palestinians in Gaza, in January 2008, to storm the Egyptian border in order to overcome the effects of Israel's blockade. Starving Gazans knocked down segments of the barriers at the Egypt-Gaza border, and hundreds of thousands poured into the Sinai in search of food and medicines. The border penetration, which angered the Egyptian authorities, only came to a halt when Egyptian forces succeeded in

repairing the barriers. Since then, Egypt has allowed trucks bearing food and medicine to pass through, although the deteriorating situation in Gaza continues.

In the Arab region, the groups especially vulnerable to nutritional deficiencies are children and their mothers, as seen in the prevalence of underweight and stunting among children under five, which stood at 14.6 per cent and 22.2 per cent respectively in 2000-2005 for the Arab region. The prevalence of low-weight births was 12 per cent in the period 2000-2006.¹⁴

It may be observed that the proportion of underweight children under five, varies sharply among countries: in Yemen it was 45.6 per cent in 2003 and in Lebanon it was 3.3 per cent in 2002.

As Table 6.2 reveals, in spite of the progress most Arab countries have achieved in the fight against undernourishment, children pay a disproportionately greater price for hunger in the past and continue to pay a disproportionately greater price among the poor who live on less than two dollars a day. Many Arab countries continue to show high rates of prevalence of children under five who are underweight or stunted in comparison with the averages in their reference groups. The highest prevalence of these two categories of children is in Arab countries with high concentrations of the poor, namely Yemen, Sudan and Mauritania. At the opposite end of the scale, Jordan has the lowest prevalence of underweight children and Lebanon the lowest prevalence of stunted children. Lebanon and Algeria have the lowest prevalence of low-weight births. Child obesity appears to be a problem of some concern in a few Arab countries, notably Algeria, Egypt and Morocco where the prevalence of overweight children under five is between 13 and 15 per cent. Although malnourishment is not the only cause of these symptoms, it is frequently intertwined with the circumstances of poverty and the consequent increased vulnerability to poor health, dysentery, and contagious diseases.

Distressingly, while the Arab countries have some of the lowest rates in undernourishment among developing countries, some conditions for children in lower middle income countries are worse than in other regions. Compared to children in East Asia and the Pacific, children in

*Groups especially
vulnerable
to nutritional
deficiencies are
children and
their mothers*

the Arab countries suffer from a higher incidence of being underweight, despite the general higher prevalence of undernourishment in East Asia and the Pacific. Moreover, the rate of low-weight births in the Arab countries is double that of East Asia and the Pacific and low income countries.

Ongoing hunger and malnourishment are reflected in children's educational performance. Hungry children enrol in school late, if they enrol at all, and drop out early, and their performance is poorer than that of well-nourished children even if they can attend school regularly. Poor families without food security can seldom afford to educate their children on whom they frequently depend for domestic chores,

supplementary income and family support. Girls are held back most, since their education receives lower priority than that of boys.

Arab food security: some reflections¹⁵

Food security has been a subject of great national concern around the world since 1974, the year of the global food crisis, which led countries to view it as a component of national security. To many, it seemed that the key to food security lay in self-sufficiency, particularly in grain, and Arab countries took up the call. Many food-importing developing nations succeeded in achieving self-sufficiency

Low-weight birth rates in the Arab countries are double that of East Asia and the Pacific

Country	Prevalence of undernourishment (% of population)		Prevalence of children under 5 of less than average weight	Prevalence of children under 5 with stunted growth	Prevalence of low-weight births
	1990-1992	2002-2004	2000-2006	2000-2006	2000-2006
Algeria	5	4	10.2	21.6	6
Egypt	4	4	5.4	23.8	14
Jordan	4	6	3.6	12	12
Kuwait	24	5	..	..	..
Lebanon	2.5	3	3.9*	11*	6
Libya	2.5	2.5	..	..	..
Mauritania	15	10	30.4	39.4	..
Morocco	6	6	9.9	23.1	15
Saudi Arabia	4	4	..	..	..
Somalia	..	..	33*	23.3*	11
Oman	..	..	..	..	8
Sudan	31	26	38.4	47.6	..
Syria	5	4	6.9*	18.8*	9
Tunisia	2.5	2.5	4*	12.3*	7
UAE	4	3	..	..	..
OPT	..	16	4.9*	9.9*	7
Yemen	34	38	45.6*	53.1*	..
North Africa & Middle East	6	7	14.6*	22.2*	12
Lower middle income countries	16	11	10.7	24.8	7
East Asia and the Pacific	17	12	12.9	26.2	6
Developed countries	3	3	..	..	..

Source: World Bank 2007.

*Data refers to the period 2000-2005.(most recent year available)

.. data not available.

Hunger and malnourishment are reflected in children's educational performance

No country can achieve sustainable self-sufficiency in view of environmental changes that influence production

The concept of food security can be summed up in the notion of self-reliance

after implementing “Green Revolution” programmes that introduced the cultivation of hybrids developed by international research centres.

In the Arab countries, all food-importing countries with the necessary resource capacities adopted self-sufficiency policies in grain and particularly in wheat. One of the countries to have met this goal is Syria. Another is Saudi Arabia, which not only achieved wheat self-sufficiency but also realised a surplus over market demands, albeit at the expense of scarce subterranean water resources.

In spite of changing domestic, regional, and international circumstances, food self-sufficiency remains a chief goal of the agricultural policies of most Arab states. Yet as important as the politics of this goal may be as an expression of national independence, it conflicts, in general, with applying the principle of cost-benefit ratios to the exploitation of natural and financial resources and may therefore lower economic efficiency. In the past, policies of self-sufficiency represented a form of insurance against deficits in food supplies resulting from economic boycotts, shortages in global production, or other causes. Such threats may no longer be pertinent in view of global economic and commercial assimilation. Also, practically speaking, no country can achieve sustainable self-sufficiency in view of the environmental changes that now influence production.

However, even supposing a country could realise overall food self-sufficiency, some sectors of its society could still suffer hunger and undernourishment. This realisation led to a shift in the definition of food security, which moved from the notion of self-sufficiency to the notion of sufficiency for all members of society in essential commodities. The concept of food security thus evolved to rest upon four pillars:

- 1) Food availability: ensuring sufficient food supply whether from local production or the international market.
- 2) Food stability: ensuring a stable supply of food throughout the year and from one season to the next.
- 3) Food accessibility: ensuring that the food is available to the public at affordable prices relative to their income.
- 4) Food safety.

The four pillars combined mean that all people in the country should be able to obtain their essential nutritional requirements throughout the year with no risk of deprivation, regardless of whether the food is produced locally or imported. Accordingly, the concept of food security can now be summed up in the notion of self-reliance, which is to say that the government should seek to supply its people’s food needs from local produce supplemented by imports and that the hard currency needed to purchase such imports must derive from autonomous sources, notably exports in goods and services.

Could Arab countries produce all their food if they wanted? Or are there limitations and, if so, what are they? Are they natural, financial, administrative or human? Otherwise put, would it be possible for the Arab countries to achieve total food self-sufficiency?

The Arab region, taken as a whole, is certainly not short of financial resources. The surpluses it has acquired from oil exports especially since 2002 are more than sufficient to meet the region’s development needs and not just in agriculture. What is important, in this regard, is how to move these resources from surplus areas into financial deficit areas that possess the natural potential for development. Clearly a major key here is to improve the investment climate in these areas.

The Arab countries as a whole have no shortage in manpower. Indeed this resource abounds and with high levels of open and masked unemployment there is more than enough available labour to meet the needs of most development projects.

The total area of the Arab countries is 14 million square kilometres, or 10 per cent of the earth’s surface area. In 2004, it was estimated that there were 69.6 million hectares of arable land in this region (of which 18.5 million hectares were left fallow) and that the per capita share of this land was 0.23 hectares. The Arab region is well-known for its small ratio of usable land to total land area. At 35 per cent, this ratio is the lowest in the world. Desertification and the deterioration of agricultural land form two of the most important challenges to agricultural production. In general, the contribution of agriculture to the region’s economic performance is declining.

On the other hand, the Arab countries possess vast amounts of livestock and fish. They have some 373 million heads of livestock, mostly in Sudan, a natural but unexploited storehouse of animal wealth. The region has 22.4 thousand kilometres of coastline and 16.6 thousand kilometres of rivers, plus freshwater and semi-freshwater lakes. It produces some 3.8 million tons of fish, mostly in Morocco, Mauritania, Egypt, Yemen, and Oman.

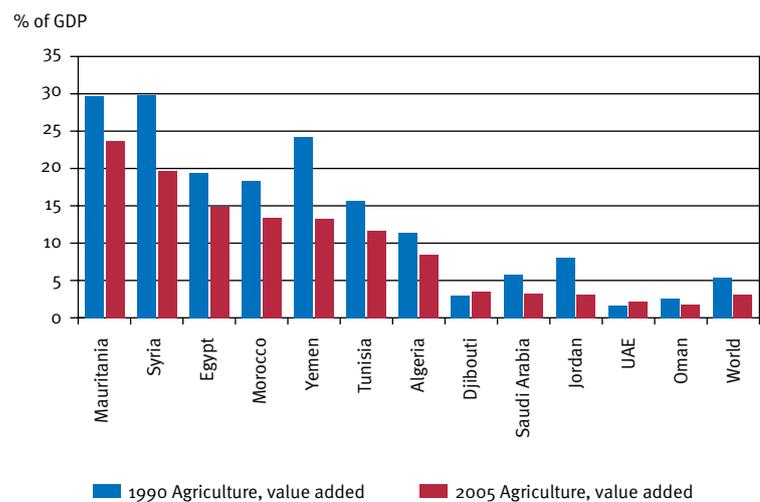
But land resources are not the only limitation on expansion in food production. The first and foremost limitation is water. The region has an estimated 300 billion cubic metres¹⁶ of water, which represents less than 1 per cent of the world's total water resources, noting that the population of the Arab region represents 5% of the world's population. In 2001, the per capita share of water in the Arab countries was 1,000 cubic metres—the worldwide per capita share was seven times that. Between 1996 and 2006, the Arab countries used 71 per cent of their available water compared to a global rate of 6.3 per cent. More than two-thirds of this amount is consumed in agriculture.¹⁷

More and more Arab countries are sinking below the water poverty level.¹⁸ From three countries in 1955 (Bahrain, Jordan, and Kuwait), the number of countries below the water poverty level came to eleven by 1990 (with the addition of Algeria, the Occupied Palestinian Territory, Qatar, Saudi Arabia, Somalia, Tunisia, the UAE and Yemen). Seven more countries of the region are expected to join them by 2025.

Rendering the problem of available water resources for agriculture even more acute is the exponentially growing demand on water resources for non-agricultural purposes. This is due to population growth, urban development and urban population growth, industrial expansion, growth of the tourist industry and other such factors. These same factors, moreover, have contributed to the mounting levels of water pollution and the deterioration of the quality of water needed for all types of uses. In addition, over-exploitation of subterranean water resources has led to numerous problems in the Gulf countries, Gaza and the West Bank, and elsewhere as a result of the consequent higher salinity levels in aquifers.

Figure 6-12

Declining value added of agriculture in economic output, 12 Arab countries, 1990 and 2005



Source: World Bank 2008.

The bottom line here is that, if water resources cannot keep up with the food production needs of the Arab people, Arab countries will necessarily continue to rely on food imports, and this is contingent on their financial resources. In effect, importing food implies importing the water needed to produce it, a fact that has given rise to the concept of “virtual water” (See Box 6-5). The concept is of particular value to the Arab countries. If Arab countries balance their food exports and imports in such a way as to concentrate imports on those goods whose production requires the most water and to concentrate exports on those goods whose production requires the least, they will be able to generate considerable savings in water through trade.

This concept is as applicable to inter-Arab agricultural trade as it is to agricultural trade between Arab and foreign countries. It is estimated that it took 235 billion cubic meters of virtual water—nearly equal to the amount of actual water resources available to the Arab countries—to produce their average volume of food imports from 2001 to 2003. This quantity is almost equal to the amount of water currently allocated to food production, of which 33 per cent was used for plant production while 67 per cent was allocated to the processing of imports of animal, poultry, and fish.

The first and foremost limitation in food production is water

The concept of virtual water is of particular value to the Arab countries

Such studies help point the way forward. Arab countries must raise their water productivity in order to improve their competitiveness. Towards this end, they must study the various economic and commercial aspects involved, with particular attention to international agreements affecting food trade. The importance of this strategy cannot be overstated in view of the Arab countries' increasing dependency on imports for food security.

The subject of virtual water is important to Egypt and other Arab countries and merits much closer study and research. Indeed, if the criterion of greatest economic return is brought to bear in prioritising resource allocations, the Arab countries will be much better equipped to develop and steer a regional policy on Integrated Water Management (IWM).

Beyond this key matter, increasing food security in the region requires higher investments in agriculture. The commercial approach, as implemented so far through the lifting of customs barriers in the Greater Arab Free Trade Zone, will not, in itself, suffice to bring about the desired integration in agriculture. If trade is to be effective, agricultural production must be sufficient in quantity and diversity, within the confines of available water resources, and this requires investment.

It has been proposed that Arab governments take steps to stimulate exchanges in production surpluses, such as between Sudanese meat and Moroccan fish. The next stage would require further investment in processing, marketing, and transport. Then at a subsequent stage, resources would be channelled into those investments judged to be most cost-effective. Such an approach would improve people's access to food commodities (through the increase of supply) and, simultaneously, increase their income levels through development. In parallel, Arab countries must create strategic stores, at the country and, if possible, regional levels, so as to be able to offset deficits in supply, whether of locally produced food or imports. Only through such strategic stocks will it be possible to achieve food security and stability for society in the face of fluctuations in climate conditions.

Recent increases in the production of biofuels from plant products (such as grain and sugar) have saddled Arab countries with the soaring costs of importing these goods. In order to alleviate this burden, Arab governments must offer farmers sufficient incentives to expand production horizontally and vertically. The scope for such expansion, in turn, is intrinsically linked to research on new forms of energy, especially renewable energy such as wind and solar power, aimed at increasing the water supply through more cost-effective desalination processes.

Box 6-5

Virtual water and the food trade

The concept of virtual water is attracting attention in relation to the analysis of trade flows and increasing water scarcity. Producing goods and services generally requires water. The water used in the production process of an agricultural or industrial product is called the virtual water contained in the product. For instance, to produce 1 kg of wheat we need 1 to 2 m³ of water. Livestock products require even more water: producing 1 kg of cheese requires about 5 m³ of water, and it takes about 16 m³ of water to produce 1 kg of beef.

The concept suggests that, in a reasonably safe, interdependent and prosperous world, a country with limited water resources could rely on imports of agricultural products showing high levels of embedded water (e.g. meat) and apply its own water resources to produce other commodities of lower value in terms of water content (see table). Conversely, a country with abundant water resources could benefit from its comparative natural advantage by exporting products that are high in embedded water.

Virtual water content of selected products, 2003

Product	Litres of water per kilo of crop
Wheat	1,150
Rice	2,656
Maize	450
Potatoes	160
Soybeans	2,300
Beef	15,977
Pork	5,906
Poultry	2,828
Eggs	4,657
Milk	865
Cheese	5,288

Source: UNESCO 2006.

Food trade analysis shows that most trade takes place between countries that show substantial endowments in water resources, indicating that factors other than water drive international food trade. Yet an increasing number of arid countries that face water scarcity (Egypt, Tunisia, etc.) are progressively embracing policies aimed at increasing their imports of staple crops and thus releasing water for more financially productive uses. Such policies usually imply long-term trade agreements between importing and exporting countries and therefore tend to facilitate increased stability in international relations.

Source: UNESCO 2006.

Conclusion

As unpropitious as the current trend seems to be in many country cases, it is essential for the Arab states to strive to meet Target 2 of Goal One of the MDGs by uprooting hunger, improving nutrition and developing policies for building food security to the extent feasible.

Beating hunger and malnutrition

Addressing this challenge requires intensifying and accelerating a two-pronged strategy for remedying the causes and consequences of poverty, disease, and ignorance. Two major factors must be taken into consideration when planning such a strategy: the need for interventions to improve productivity and income, and urgent steps to furnish direct and immediate food relief to vulnerable groups and the neediest families.

This two-pronged approach would, thus, be translated into far-reaching, low-cost programmes that would focus simultaneously and comprehensively on the following objectives:

- Facilitating the direct and immediate access of needy families to food by putting in place solid food-provision safety nets and remittance programmes. Such programmes and safety nets, it should be stressed, would target the most vulnerable groups in society. Particular attention must be devoted to covering the essential nutritional needs of mothers, infants, and pre-school and school-age children. The interrelated goals here are to end the transmission of the cycle of poverty from one generation to the next, to improve children's physical and mental growth, to enable their regular attendance and better performance at school, and to enhance their opportunities for employment, greater productivity and higher incomes.
- Ensuring that the marginalised and disadvantaged who in rural areas are, for the most part, girls, receive primary education. Education is a human right and should be free, universalised, and compulsory.
- Promoting gender equality in opportunities to access food. All obstacles to equality between men and women

must be eliminated if we are to move forward in human development, the alleviation of poverty and hunger, saving children's lives, and the fight against diseases.

- Accelerating the pace of economic development and, especially, agricultural development. In this regard, it is important to furnish small farmers with the means and know-how to raise production levels in a manner that promotes the consumption of their own produce in their families and local societies. Such means include introducing simple and inexpensive technologies, facilitating access to seed and organic fertilisers, and providing guidance on sound water management practices, such as the use of drip irrigation.

Rapid urban development, the globalisation of food processing industries and the expansion of these into the major markets have had adverse repercussions on most small farmers and itinerant labour in rural areas. Over recent decades, a handful of companies have gained increasing control over world food trade, processing, and sales. Such control may have given rise in some cases to greater consumer choice, lower prices, and higher quality in foods, but it has also created near-monopolistic supply chains in which a few giant food companies and wholesalers have gained growing control over prices, standards, and delivery. Some farmers have managed to merge into the local central markets and reap high profits. However, many small producers are unable to obtain sufficient information, training, and loans to enable them to assimilate into the "globalized" market. They, therefore, find themselves excluded from the processes of both production and consumption.

However, an even more important objective is to work towards integration in food and, especially, grain production in the Arab countries. Efforts towards this end should focus on taking advantage of the large tracts of arable land that are available in the region, notably in Sudan, which has the potential to become the Arab countries' breadbasket, and in Iraq. Arab countries lack neither the financial resources for this project, some of which could be supplied by the oil-exporting states, nor the expertise and manpower. It is possible to envision two such projects.

Beating hunger requires a two-pronged strategy for remedying the causes and consequences of poverty, disease, and ignorance

An important objective is to work towards integration in food and grain production

There is an intricate nexus between agriculture, rural development, food security and self-sufficiency

Winning the fight against hunger requires intensive and imaginative efforts in all Arab countries

One project, called for by the Secretary-General of the Council for Arab Economic Unity, is very ambitious, as it would aim to achieve regional integration in the production of all categories of food, from grains and fruits and vegetables to meat and dairy products, by harmonising cultivation and production among Arab countries. A second project, smaller in scope, would focus solely on integration in the production of grain. The two projects are not at all incompatible. Indeed, the less ambitious one may constitute a step towards the more ambitious one. More importantly, the success of either of these two projects would, in itself, stimulate the drive to Arab economic integration which has made no significant progress. Attaining such a goal however demands the requisite political resolve and depends on achieving political stability in countries such as Iraq and Sudan. This, in turn, underscores the degree to which the various dimensions of human security in the Arab countries are intertwined, whether they relate to food availability or achieving peace and stability by ending foreign occupation and intervention and resolving identity conflicts in the region.

Achieving food security

Food insecurity in the Arab countries has partly resulted from declining per capita productivity in agriculture and the widening gap within and between agriculture and other sectors of the economy. The responsibility is shared by: (a) Inadequate investment in the often capital-starved agriculture sectors that still contribute a

sizable per cent of national income (particularly in LDCs); and (b) the widespread use of labour-displacing technology that has been facilitated by trade liberalization, combined with the limited labour-absorption capacity of other formal sectors.

There is an intricate nexus between agriculture, rural development, food security and self-sufficiency. It is thus essential to address the linkages between the microeconomics of farm units and the dynamics of household well-being, a relationship which points to broader redistributive (political economy) policy considerations such as: (1) secure access to productive land and credit; (2) targeted price support benefits for the identified rural poor and disadvantaged geographical areas; (3) changing gender roles, which require that women who make up an ever increasing share of agricultural producers are provided with access to land, appropriate tools, extension services, credit, etc; (4) efficient water resource management; (5) incentives to the private sector to invest in agricultural production and marketing and to adopt projects that promote integration between agriculture and industry; and (6) new agricultural research on local plant varieties and on renewable energy, including solar energy.

As this chapter notes, if current trends continue, the Arab countries, despite the varying performances of its constituent countries and sub-regions, will probably not meet Goal One of the MDGs. Winning the fight against hunger, therefore, requires intensive and imaginative efforts in all Arab countries, but most especially in those that are least developed, as well as concerted regional cooperation.

Endnotes

- ¹ This section is largely based on Jalila El-Ati, in Arabic, background paper for the report.
- ² UNDP/AHDR calculations based on World Bank, World Development Indicators, 2007.
- ³ FAO 2006.
- ⁴ WFP 2008b.
- ⁵ Kabbani and Wehelie 2004.
- ⁶ Chan 2008.
- ⁷ Daily caloric intake equals total caloric value obtained from all foodstuff divided by the number of inhabitants and the number of days.
- ⁸ FAO 1999.
- ⁹ Sobal and Stunkard 1989.
- ¹⁰ World Bank 2008b.
- ¹¹ FAO 2009.
- ¹² World Bank 2008 (in Arabic).
- ¹³ FAO 2006.
- ¹⁴ World Bank 2007b.
- ¹⁵ This discussion draws on the contribution of Ahmad Goweily, Secretary-General of the Council for Arab Economic Unity.
- ¹⁶ UNDP/AHDR calculations based on FAO, Food Security Statistics (FAOSTAT) database, 2008.
- ¹⁷ See Chapter 2 for more details.
- ¹⁸ According to UNDP 2006b, the personal water poverty threshold is set at 50 litres a day.

