

SPECIAL REPORT

FAO/WFP CROP, FOOD SUPPLY AND NUTRITION ASSESSMENT MISSION TO IRAQ

23 September 2003

Mission Highlights

- Recent military and political upheavals have had a limited impact on winter cereal crops but have affected sowing of summer cereal crops, industrial crops (cotton, sunflower seeds) and seriously reduced national capacity to produce fertilizer.
- Aggregate 2003 cereal production in Iraq is forecast at 4.12 million tonnes, 22 percent higher than the Mission estimated crop in 2002.
- Favourable rains in the north, sufficient and timely distribution of agricultural inputs in the main irrigated cereal producing areas and a more inclusive reporting of production data accounted for the increased production.
- Planned cereal imports in 2003/2004 (July/June) are estimated at 3.44 million tonnes, of which 3.2 million tonnes are to be purchased with Government of Iraq (oil-for-food) funds and 244 000 tonnes are food-aid pledges.
- To the greatest extent possible, any additional food aid needs should be procured locally to support farmer's incomes and local prices.
- Livestock conditions are generally stable in most parts of the country, having benefited from good pastures in the north and the availability of grain.
- Despite improved cereal production, lifting of economic sanctions and an adequate supply of food, about sixty percent of the population is currently unemployed and are amongst those most dependant on the Public Distribution System (PDS). These food rations have insufficient food diversity (lacking in proteins and micronutrients).
- Substantial assistance is required to rehabilitate agricultural infrastructure, including irrigation and local industrial agriculture, and to revitalize technical support structures and services.

1. OVERVIEW

A FAO/WFP Crop, Food Security Assessment Mission visited Iraq from 5 June to 14 July 2003 to assess the current food security situation - following the recent military and political upheaval – to estimate the 2003 cereal harvest and to forecast the cereal import requirements, including food aid, in the marketing year 2003/2004 (July/June). The Mission was able to visit all 18 governorates during the assessment. The Mission's findings are based on discussions held with advisors to the Office of the Coalition Provisional Authority (OCPA), relevant ministries, United Nations agencies, multilateral and bilateral donors, non-governmental organizations (NGOs), farmers, Ministry of Trade Food Agents, community leaders, combine-harvester contractors, traders and haulers and the Mission's own crop inspections, crop-cut samplings and surveys.



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Mission estimates for cereal area and yield in the three northern governorates are based on data collected by the FAO offices in each governorate and adjusted following field visits and discussions with local specialists. Last year's post-harvest estimates were also obtained from FAO Agricultural Unit in Erbil. For seven central/southern governorates, estimates on cereal and yield were calculated based on data from the Directorates of Agriculture (DOA) adjusted, following discussions with specialists and field visits. The Mission found that favourable rains in northern Iraq, increased levels of water for irrigation, timely distribution of agricultural inputs in the main cereal producing areas and limited occurrence of pests and diseases have resulted in improved cereal production. Direct effects of the war on winter cereal production and perennial crops were far less than might have been expected. Northern agriculture was virtually untouched, and elsewhere, all husbandry practices and field operations except harvesting had already been carried out when hostilities started in mid-March and the war ended by mid-April, before the harvest had begun. The effects on summer crop production, however, may yet prove to be very serious. Industrial crops in the centre/south had not yet been sown in mid-March and areas of maize and rice crops are likely to be reduced due to water supply problems caused by reduced and uncertain power supply to irrigation schemes and insufficient fertilizers and plant protection chemicals.¹

Overall, the Mission estimated the 2003 total cereal production in Iraq at 4.12 million tonnes, comprising 2.55 million tonnes of wheat, 1.32 million tonnes of barley, 125 000 tonnes of maize and 125 000 tonnes of milled rice (the latter two to be harvested in September/October). At this level, production is 22 percent above last year's estimates (derived from the 2002 DOA and FAO data).² Cereal stocks in silos across the country is estimated at about 1.63 million tonnes. Planned cereal imports in the marketing year 2003/2004 (July/June) are estimated at 3.44 million tonnes of which 3.2 million tonnes are based on approved food contracts currently in the WFP pipeline and the earlier outstanding approved, funded and outstanding letter-of-credit issued food contracts between the GOI and international food suppliers to be called forward. Food aid pledges are estimated at 244 000 tonnes.³

Livestock in the north of the country are generally in good condition. However, poor rainfall in the sparse desert pastures and drained marshes in central and southern Iraq resulted in early movement of animals. Grazing over barley fields were also noted in some parts. Nevertheless, the availability of cheap feed grain and low incidence of diseases is expected to result in an overall improvement in livestock performance this year.

This year's good agricultural production and the lifting of economic sanctions contrast with the enormous economic difficulties faced by the bulk of the population. The effects of war and economic sanctions compounded by three years of severe drought (1999-2001) have seriously eroded the asset base of the population and rendered the bulk of the population to rely on food rations for their daily subsistence. The Mission's findings indicate that about 55 percent of the population is poor, and 44 percent are currently food insecure. The Public Distribution System (PDS) operated under the Oil-for-Food programme established by SCR 986 (1995) provides food for the entire population of approximately 26.3 million Iraqis. While starvation has been averted, chronic malnutrition problems persist especially among vulnerable groups including children and mothers due to a lack of nutrition diversity.

A marked improvement in the nutritional well-being of the population will require a substantial flow of resources into rehabilitation of the agriculture sector and the economy as a whole. Although there is potentially enough food and sufficient food diversity from imports and domestic agriculture there is insufficient access to nutritious food and more than half of the population remains without the buying power to obtain a proper diet on a regular basis.

¹ The two Iraqi fertilizer factories are apparently disabled. Next cropping season's fertilizer requirement, estimated about 600 000 tonnes, is a concern.

² The Mission found that, in the last several years, the DOA cereal production estimates in central and southern Iraq were based on quantities of grains sold to state-owned silos and not on actual area and yield data. This year's increase in cereal production is partly explained by the use of area and yield data.

³ The list of outstanding food contracts between the GOI and suppliers, currently being prioritized in the OIP in New York amounts to 5.5 million tonnes of food for an envelope of US\$2.2 billion. Cereal contracts amount to 4.53 million tonnes for a value of US\$942.42 million. In marketing year 2003/2004 (July/June), it is assumed that approximately 70 percent of the amount of cereal contracts are going to be called forward.

The past decade has also seen a general decline in agricultural producer prices. Between June 1995 and June 1996 alone, the price of wheat dropped from US\$172 to US\$77 per tonne and that of barley from US\$128 to US\$66 per tonne. Such a decline may have served as a disincentive for local farmers but stimulated a burgeoning informal export market to Iran and Syria. Recently some measures and agreements have been undertaken by the Iraqi authorities (Ministry of Trade) and WFP which contributed to stabilising prices and controlling declining cereal farm-gate prices. As parties to a first Agreement the CPA, the MOT, and WFP- agreed that MOT should act as the “procurer of last resort” for the wheat harvest of 2003 at a price of US\$105 per tonne for home produced wheat grains received at MOT sites, up to a maximum of 1.25 million tonnes. A second agreement between the CPA, MOT and FAO stipulates that MOT should also act as the “procurer of last resort” for up to 500 000 tonnes of the 2003 barley harvest at a rate of US\$65 per tonne received at MOT sites. However, in spite of specific arrangements made to accept smutty grains, the stringent quality controls and associated penalty clauses and sale acceptance may still penalize small farmers, with have no access to herbicides or grain cleaners.

In conclusion, despite the apparent recovery in this year’s agricultural production, the end of the major military operations, and the lifting of the economic sanctions, millions of Iraqis have no access to food other than through the PDS. The effects of 24 years of war and economic sanctions compounded with three consecutive years of drought have seriously eroded the purchasing power of the population.

Thus, any significant disruption of the PDS would have a severe negative impact on food access. Nevertheless, the highly subsidized food basket policy must be rethought and better targeted; it should eventually be gradually phased out. The food basket needs improvement and diversification to ensure adequate micronutrient and protein supply. The agricultural sector should be encouraged to provide the complement in food diversity, and access to this complement by vulnerable population groups should be ensured. Health and water/sanitation need urgent attention to improve the bioavailability of food.

National scale food safety nets should be promoted. Monitoring and surveillance for programme management and early warning should be set up in the current situation. Particular attention is needed for vulnerable family members and population groups, including returning refugees and internally displaced persons (IDPs). Finally, nutrition rehabilitation programmes need to be revitalized and enhanced so as to end the current sufferings among the Iraqi people.

2. SOCIO-ECONOMIC CONTEXT

2.1 Background

Since the 1950s, oil has been the major source of income for the Iraqi economy. By 1989, oil revenues represented 61 percent of gross domestic product (GDP) – 13 663 million Iraqi dinars (ID) – compared with 5 percent from the agricultural sector. However, United Nations sanctions subsequent to the invasion of Kuwait (1990), as well as the 1991 Gulf War had a devastating effect on the economy. The embargo on oil sales sharply reduced GDP by 75 per cent to ID 3 333 million by the end of 1991, and agriculture represented an all-time high of 13.9 percent of GDP. Presently agriculture provides 29 percent of the GDP⁴.

In order to meet budget deficits, the Government of Iraq (GOI) printed more dinars from 1991–95, raised the prices of state services and supplied fuel, which caused the rate of inflation to rise. At the end of 1995, the government initiated measures to combat inflation and eliminate the budget deficit; however, increased demand for US dollars drove the dinar to an all-time low of ID 2 900 against the dollar.

By 1995, the economic hardship was so severe that a humanitarian crisis was declared, prompting the United Nations to initiate the Oil-for-Food Programme (OFFP). This programme was designed to avert a catastrophe and reverse the economic downward trend by providing food and support to the agricultural sector and allowing strategic imports, with all goods and materials to be purchased from resumed sale of oil, albeit within set limits.

⁴ At market prices according to Ministry of Planning , Central Statistical Organization, Government of Iraq.

With the resumption of oil sales GDP rose in real terms from ID 8 599 million in 1996 (by steps estimated at 28 percent in 1997, 35 percent in 1998, 40 percent in 1999 and 15 percent in 2000) to ID 23 920 million in 2000. Some injection of cash into the economy also revitalized agricultural subsectors insofar as they did not produce in direct competition with OFFP imports. Thus the vegetable and sheep subsectors flourished while dairy products and a burgeoning oil-seed industry virtually disappeared.

Another major outcome of the Gulf War was the creation of an internationally protected autonomous zone comprised of the three northern governorates of Dohuk, Erbil and Suleimaniya to accommodate the needs and wishes of the indigenous Kurdish population. These governorates had a totally separate, independent administration with a separate development agenda and separate policies from the other 15 central and southern governorates of Iraq. The two zones were separated until March 2003 by a patrolled frontier to protect the Kurdish minority. The different arrangement for Oil-for-Food programme delivery in the three northern governorates, as agreed in the MOU between the GOI and the UN under SCR 986, also somewhat protected this area from the most severe effects of the sanctions.

Separate development over the past decade has created a dual financial infrastructure among other things; and two currencies circulate within Iraq under two separate economic environments: a market economy in the north and a centralized economy in the centre and south. The exchange rates of the ID in central and southern Iraq and the Old Iraqi dinar (OID) in the north against the US dollar during the past seven years are shown in Table 1.

Table 1. Parallel exchange rates of Iraqi dinar and Old Iraqi dinar vs. US\$ (June 1997–June 2003)

Location	June 97	June 98	June 99	June 00	June 01	June 02	June 03
Centre/South (ID)	1 610	1 507	2 005	1 983	1 948	1 733	1 350
North (OID)	29.9	16.5	20.2	19.9	17.6	16.4	6.5

The table shows parallel up-and-down shifts throughout the period with major differences in degree of change appearing only at the beginning and end. This similarity suggests linkages between the two zones, with the frontier offering black-market opportunities to the south for selling subsidized inputs, particularly locally manufactured fertilizers, fuel and other goods. The previously deflated value of both currencies made such goods very attractive to buyers from Iran and Syria. By the same token, the arrangements also provided access to inputs for the northern farmers and growers, particularly locally manufactured compound and urea fertilizers.

In the centre and south, the state policy guaranteed prices and organized the procurement of all cereals, sustaining prices for producers. In the northern governorates, since the end of the drought (2001), there have been local surpluses of unsold wheat and barley that have been carried forward from year to year along with low farm-gate prices; however, exports this year are less likely as the OID has hit a new low, and there are movement restrictions.

2.2 Population

The population of Iraq is estimated to be 26.3 million, for the period 1 July 2003⁵. Average population density is estimated at 61/km², ranging from 9/km² in Anbar province in the western desert to more than 1 490/km² in Baghdad province. While average population growth before the sanctions was estimated at 3.6 percent, this rate has been greatly reduced by emigration and severe economic hardship, reaching a low of 2.76 percent⁶ in 2003.

In 1990, the agricultural sector provided employment for about 20 percent of the population, compared with 31 percent in 1975. This decrease is attributed to increased job opportunities in the urban areas and the introduction of agricultural mechanization. However, after sanctions were imposed and with the collapse of industrial production, the drastic reduction in government spending and the scaling back of oil production, the only area of growth was in the agricultural sector.

⁵ Ministry of Planning; Central Statistics Office official figure, based on projected census data.

⁶ Distribution Plan for Phase XIII, ANNEX III.

3. AGRICULTURAL PRODUCTION⁷

3.1 Agricultural sector

About 27 percent of the total land area in Iraq (43.3 million ha) is considered suitable for cultivation. This represents 11.1 million ha of which 4.4 million ha are classified highly suitable, 4.7 million ha moderately suitable and 2 million ha less than suitable. About 50 percent of the land suitable for cultivation is irrigable, and the remaining 50 percent is rainfed, of which around half may be farmed every year depending on rainfall and fallowing patterns. Water resources are abundant in Iraq: the Tigris and Euphrates Rivers supply the major share of irrigation water for agriculture production in the country at 77 billion m³ in good years and 44 billion m³ in drought years.

Livestock production incorporating (both pastoral and settled ruminant systems) and a modern poultry industry are conducted under both rainfed and irrigated conditions. Regarding ruminant systems, an estimated 17 million head are distributed fairly equally between the two administrative zones. The poultry industry is based mostly in the centre and south, having been revitalized under OFFP; it was functioning until March 2003 under heavily subsidized conditions.

3.2 Rainfed crops

Located in the three governorates of the autonomous northern region, Dohuk, Erbil and Suleimaniya (40 percent), and in the governorates of Nineveh, Tameem and Salah al Din in the central region (60 percent), the rainfed subsector consists of a rain-dependent winter growing season extending from September/October to April/May. The season is supported by an average precipitation of from 350 mm to 1 100 mm increasing from south to north and varying from year to year in both quantity and distribution, in a manner typical of semi-arid, continental climates. Consequently, rainfed production also varies from year to year, ranging from 500 000 tonnes – 2.0 million tonnes according to the season. In the northern governorates, the current annual contribution of some 800 000 tonnes, in a reasonably good year, comprises around 50 percent wheat, 30 percent barley and 20 percent chickpeas. Nineveh is noted for producing more than 1 million tonnes of wheat and barley in a good year. Rainfall also contributes directly to cereal production in the northern districts of Tameem and Salah al Din but at a lower level. The 380 mm, 50-year average precipitation recorded in Mosul (Nineveh) decreases rapidly to the south, where it does not support cultivation without supplementary irrigation. Elsewhere in the country, the dry steppe and desert climates with rainfall of less than 200 mm (140 mm in Baghdad) exclude rainfed cultivation of cereals. The rainfed farming systems throughout all zones are essentially similar: continuous wheat with fertilizer applications juxtaposed with a barley/fallow rotation which usually does not include fertilizer use, but may incorporate chickpeas one year in three or four.

With the exception of the very minor use of animal traction in hilly areas, this sector shows a basic level of mechanization. Privately owned tractors (approximately 11 000 units) and combine harvesters (some 600 units) form the bulk of the north's mechanized fleet.⁸ Around 14 percent of the farmers own their own machines and provide contract; they contract services out to non-owners. Despite the relatively advanced age of the fleet (not renewed during sanction years), the machines are presently sufficient in number to provide a minimal level of operations as generally requested by the majority of clients. Seedbed preparation for wheat under continuous cultivation usually consists of one or two passes with a mouldboard plough; seeds and fertilizers are then hand broadcast into on the furrows. In some areas, the seeds are broadcast before cultivation, followed by a single pass of a plough or discs. Fallow land is ploughed in early spring and again in autumn before being sown with barley, or, increasingly, with chickpeas. Harvesting is the only other mechanized operation; Serious weeds are eliminated by hand rouging. Some 70 percent of the area is harvested by combine-harvesters, according to estimates, and the remainder, – located on hillsides or in small isolated fields, – is cut using sickles and threshed using tractors.

⁷ Note: In this report, crop and livestock production are reviewed and analysed separately, and crop production has been subdivided into rainfed and irrigated subsectors

⁸ In the northern governorates, the ratio is 1 tractor/80 ha; 1 combine/1 167 ha. Nineveh and Tameem have 15 500 tractors and 2 500 combines between them; the ratio is 1 tractor/90 ha and 1 combine/600 ha.

Cereals are stored on farms throughout the three northern governorates in bags and in heaps within rooms inside houses or in specially rented accommodation; heaps of grain are stored in the open air, with and without plastic or tarpaulin covers and chemical treatment; grains are also stored underground in custom-built, mud-lined pits. Currently cereals are being stored for one to two years before sale or use because of lack of markets.

3.3 Irrigated crops

Located predominantly in the centre and south, comprising most of the remaining crops, the irrigated subsector accounts for some 70 percent of domestic production. Most irrigated crops are produced on the landmass between the Tigris and the Euphrates Rivers from Baghdad to Basra, which represents some 40 percent of arable land in the country. Projects along each of the two rivers north of Baghdad contribute most of the remaining crops; no more than 4–5 percent is irrigated using groundwater reserves or aquifers.

As in the rainfed subsector, the main crops are wheat and barley, sown in October/November and harvested in May/June. These two crops are planted on roughly 2.5 million of the 3 to 3.4 million ha presently irrigated, with annual cereal grain production estimates for the subsector fluctuating from 700 000 (2000) to 3 million tonnes (1991). Perennial crops, notably dates, alfalfa, citrus, top fruits, stone fruits and nuts account for some 340 000 ha, and summer season maize, rice, vegetables, cotton and sunflowers make up the remaining 20 percent, depending on availability of water in the summer.

Except in the date palm orchards (where traditional multi-canopy cropping patterns are used), the irrigated subsector is mechanized with privately owned tractors (about 50 000 units) and combine-harvesters (about 5 600 units).⁹ Recent imports under OFFP have reduced the average age of the machines; 53 percent are nevertheless more than 15 years old and show concomitant inefficiencies. As in the rainfed sector, farmers who own machines contract out services to the others. Given the higher numbers of owners, the delays generally experienced in the north are not generally a problem in the irrigated central governorates or most of the south, but delays have been noted in Basra.

The most common land-preparation practices consist of a single pass with a mouldboard plough, hand broadcasting seeds and fertilizers and then immediately harrowing-in seeds and fertilizers. Apart from hand broadcast top dressing, no other operations are regularly adopted. However, in the key production governorates in the central region, both herbicides and insecticides are provided at subsidized rates and applied by DOA using aerial and ground-based spraying systems. Crop rotation varies according to location, water availability and market forces. In certain governorates, targets and wheat sale to the state-owned silos – with quotas set at 500 kg/donum (2 t/ha) – influence sowing patterns and fertilizer distribution. Some 70 percent of cereal harvesting is completed using combine harvesters. Areas that are still cut and threshed by hand are in the traditional date palm gardens, where tree spacing prevents machine access.

Until this year's harvest, farmers had been obliged to sell grain to the state silos; on-farm storage, where it occurred, was only for grain retained for use by the family and their livestock or kept as a judicious reserve, by those uncertain of the reliability of the food aid flour supply (and usually not more than 1.5 tonnes per household).

3.4 Cereal production – common features

Both rainfed and irrigated agriculture are carried out within a land-tenure system consisting of small-scale owner/occupiers, large-scale lease-holding farming companies, and individual growers and share-croppers. Thus although the average farm size may be calculated at around 5 ha, enterprises with DOA leases farm up to several hundreds of hectares in the central and southern governorates, and traditional community leaders have similar levels of occupancy in the northern governorates. Such holding sizes justify the individual investment in farm machinery.

Credit for cereal farmers, with the exception of pioneer farmers who received 5-year loans at low interest rates to farm on newly reclaimed lands, is universally absent, resulting in cash-flow problems that are


⁹ Excluding units in Nineveh and Tameem, these figures suggest overall ratios in the centre of 1 tractor to 33 ha and 1 combine to 409 ha cereals: in the south 1 tractor to 53 ha (Basra, 1:83 ha) and 1 combine to 825 ha.

particularly acute in the northern governorates, where inputs have not been subsidized and markets are uncertain.

Key technical characteristics of cereal production in both sub-sectors include rudimentary cultivation practices, predominant use of farmer-saved seed, universal use of seed-dressing for covered smut, acceptance and use of fertilizer¹⁰ on wheat (both basal-dressing when available and urea top-dressing), use of sowing rates invariably higher than recommended levels (reflecting hand-sowing methods), Sunn pest which requires extensive and coordinated pest control and pernicious weeds that are not being effectively controlled. Finally there is the fact that all farmers are producing cereals for sale and are therefore conscious of their gross margins. A cropping calendar for both regions is shown in Table 2.

Table 2. Iraq cropping calendar

	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Wheat					Har ^S	Har ^N				PPI ^S	PPI ^N	
	Urea									NP	NP	
Barley					Har ^S	Har ^N				PPL ^S	PPL ^N	
Maize			PPL ^E			Har	PPL ^L				Har	
Rice					PPL ^N	PPL ^S			Har ^N	Har ^S		
Chickpea			PPL ^N				Har ^N					
Beans					HarPPL						PPL Har	
Cotton			PPL	PPL					Har	Har		
Sunflower			PPL	PPL					Har	Har		

PPL = ploughing and planting; Har = harvesting; N = north; S = south; E = early, L = late, NP = basal dressing, urea = top dressing,
 = crops in field

Past cereal production figures are noted to have been very low, particularly in the irrigated sector. The Mission believes that these low figures resulted in part from the practice of estimating production in the centre and south from recorded sales to the state silos. Such data do not include grain for home use, home food-security storage, seed stocks and livestock feed.

Furthermore, the availability of subsidized fertilizer for wheat allegedly caused farmers in the irrigated sub-sector to inflate the statistics about wheat- production producing areas in order to obtain compound fertilizer at reduced rates for use on other crops; this practice would of course have inflated lowering DAO yield per ha calculations.

3.5 Factors influencing cereal production in 2003

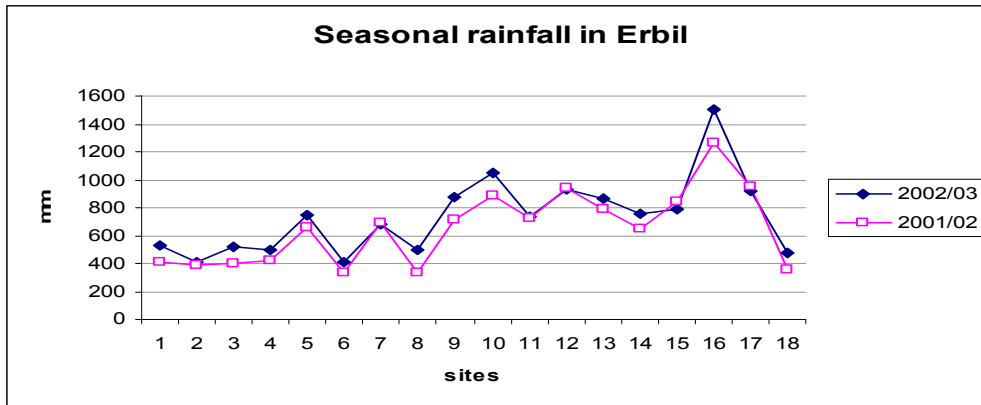
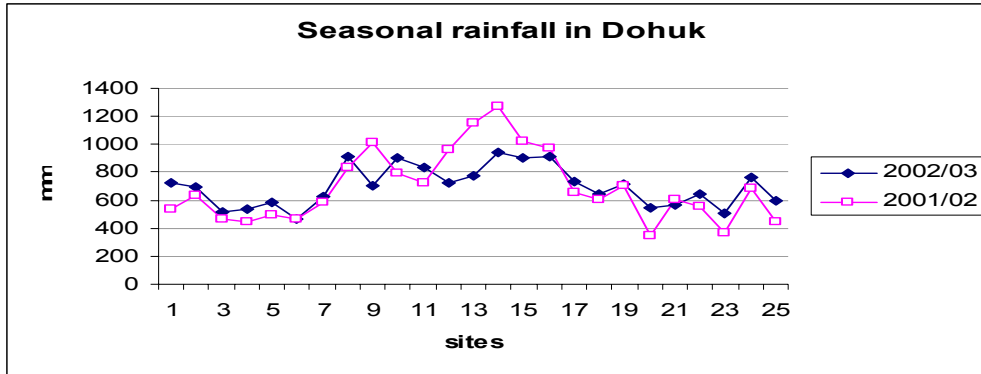
3.5.1 Rainfall

Most of the cereal production in northern Iraq is rainfed and rainfall in Iraq provides some 50 percent of the water supply flowing into the Tigris and contributes 10 percent of the flow into the Euphrates; thus to a very great extent the cereal crop performance depends on the rains in the north of the country and beyond the borders of Iraq. This year, seasonal rains in the north began well although a little late and, with some localized exceptions, continued in much the same manner until the beginning of April. The data in Figure 1,

¹⁰ According to GOI statistics, the country's total annual fertilizer requirement is 1.3 million tonnes of compound phosphate fertilizer and one million tonnes of nitrogenous fertilizer. Prior to the Gulf War, the country's total production capacity was 1.2 million tonnes of compound phosphate fertilizer and more than one million tonnes of nitrogenous fertilizer. At that time and in relation to the area under cultivation, production allowed surplus, which was exported. The current utilization for all cereals at recommended rates is 600 000 tonnes; if rainfed barley is excluded the figure drops to some 400 000 tonnes.

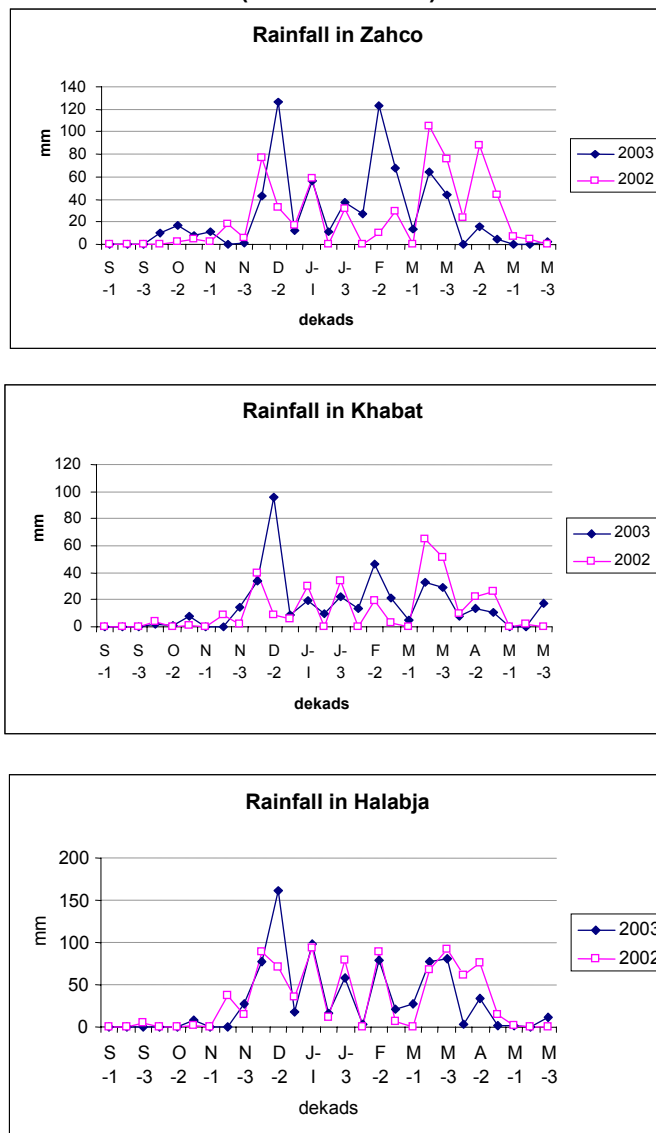
from 77 agro-met stations located in the three governorates in the autonomous northern region indicate that the overall quantity of rainfall was either as good as or greater than the good rains of last year.

Figure 1. Seasonal precipitation for 77 sites in Dohuk, Erbil and Suleimaniya (2002 and 2003)



In Figure 2 data from three strategically located sites in the northwest (Zahco), centre (Khabat), and southeast (Halabja) that were visited by the Mission; show that the rainfall less well distributed to have been less abundant than last year, with a premature finish to the season in early April.

Figure 2. 2003 Rainfall distribution by dekad in three strategic sites in Dohuk, Erbil and Suleimaniya (2002 and 2003)



Rainfall conditions were confirmed in discussions with the local authorities and in the farmer interviews during the rapid case studies conducted by the Mission in all three governorates. The Mission was unable to obtain any similar rainfall data for the seven governorates visited in the centre and south. However, during interviews conducted with key informants from the DOAs in those regions the Mission was able to visit, and during on-farm case studies conducted in the same areas, it was noted that this year's rains have been quite variable. In Baghdad, good rains fell in January and February, but in Babylon and Wassit there were no useful rains until March and April. Similarly, in Basra and Muthanna, two or three days' useful rain fell in November and December, but in Missan no substantial rain fell until March, when two days' useful rains were reported.

Spot-4 Satellite Vegetation Data analysed by FAO at Headquarters in Rome accurately mirror the rainfall patterns described above in all regions. A Mission summary of the analysis is provided in Table 3, which draws comparisons between the vegetation conditions for the whole months of February and March, and between the evenly spaced second dekad of April and the first dekad of May, after which the rains ended. In the northern governorates with the exception of Dohuk, vegetative growth was better than last year, particularly in Nineveh. Growth in the south was worse this year, particularly in Missan and Basra.

Table 3. Vegetation data comparison between 2003 and 2002, selected months

	FEBRUARY	MARCH	APRIL d2	MAY d1
Dohuk	-1	-1	-1	0
Erbil	-1	0	1	1
Suleimaniya	0	1	0	1
Nineveh	1	1	1	1
Tameem	0	1	1	1
Salah al Din	1	1	-1	0
Dyala	0	0	-1	0
Baghdad	1	1	-1	-1
Anbar	0	1	1	0
Najaf	0	0	0	0
Wassit	0	1	-1	0
Qadisia	0	1	-1	0
Thiqar	0	0	0	0
Muthanna	0	-1	0	0
Nasiriya	1	0	0	-1
Missan	-1	-1	-1	0
Basra	-1	-1	-1	0

-1: vegetation poorer in 2003 than in 2002

1: better growth in 2003 than in 2002

0: mixed picture or similar performance between the two years

In conclusion, the rains in the rainfed agricultural sub-sector were heavier than last year's except in April in the most northerly zones. This encouraged planting, assisted crop establishment and obviated the need for any re-sowing. Good mid-season rains supported vegetative growth and enhanced the effect of urea top-dressing on wheat. The premature end to the season in Dohuk, northern parts of Erbil and parts of Suleimaniya coincided with grain-fill for much of the wheat and barley crop, causing the plants to rely on residual moisture for the final few weeks of development. Yields are thus not as high as last year's in these localities.

River flows were at current average levels; key informant interviews confirmed that irrigation water was available in sufficient quantity. Subsequent irrigation frequency rates noted by the Mission ranged from three to eight times higher during the cereal-growing season, depending on distance from the central command area and community or enterprise influence with the officials in charge of irrigation-water distribution.

The southern ranges of saltbush and ephemeral annual grasses, dependent on local rainfall, have been less productive for the migratory herds of camels and goats, whereas the northern ranges which provide the bulk of the grazing were noted to be in good condition.

3.5.2 Area planted in 2002/2003

Data for 2003 for the northern governorates concerning areas planted in wheat and barley were obtained directly from the FAO district offices in Dohuk, Erbil and Suleimaniya; data for 2002 were obtained from the FAO Agricultural Statistics Unit in Erbil. Wheat area in Dohuk and Erbil increased by 10 percent, reflecting the good start to the rains, no seed shortages and sufficient tractor power to meet the requirements of one or two ploughing passes. The area sown to barley also increased by a similar proportion in Dohuk for similar reasons.

In Suleimaniya, the wheat and barley area remained almost steady while the area planted to chickpeas, now estimated to have reached 100 000 ha, has increased annually (up from 26 600 ha in 1997). The increase has been prompted by the good market situation with neighbouring countries. In Erbil and Dohuk, local agriculturalists reported that the area planted to chickpeas, the most important second crop, was essentially similar to last year's (58 750 ha and 22 680 ha, respectively).

Summer crops in the region rely on irrigation or are grown in small swampy sites. Areas this year are expected to be the same as last year's, comprising around 37 000 ha of vegetables and limited areas of paddy rice and sunflowers (10 000 ha and 13 000 ha, respectively).

In the central governorates of Baghdad, Babylon and Wassit, information for this year's planting was provided by DOA, based on data collected earlier in the year when the offices were functioning normally. Areas planted to wheat in Baghdad and Babylon have increased by 48 percent and 59 percent, respectively, apparently due to the improved availability of inputs and the enhanced performance of the reinforced tractor fleet. In Wassit, the wheat area is very similar to last year's. The barley area in Babylon is slightly lower than last year's, but exhibits a very marked increase in Baghdad, presumably because farmers benefited from the improved tractor fleet. However, there is a dramatic reduction in the barley area in Wassit, where it was reported that since March many farmers had grazed their barley fields or sold the grazing to pastoralists, who had fewer places to go for grazing during and after the war.

Regarding other annual crops, the industrial crops of sunflowers (oil), sugar beet and cotton normally sown in March had not yet been sown this year as sowing time coincided with the onset of hostilities. Farmers in Wassit are reported by DOA staff as unlikely to plant the summer crops of maize and rice because of uncertainties over water supply, the provision of inputs and marketing problems, exacerbated by cash flow difficulties relating to the delayed sale of wheat and barley.

The Mission observed that around 166 000 ha of summer vegetables and annual fruits are being planted mostly in Baghdad, Wassit, Salah al Din, Dyala, and Babylon, as the farmers are less linked to heavily subsidized inputs and have few serious marketing issues to resolve. It is expected that around 166 000 ha of these crops will be planted.

For staff security reasons and except for one on-farm case study visit in Nineveh, the Mission was unable to visit any of the other governorates in the central region. However, transects driven in transit from late June to early July from Mosul to Erbil and from Erbil to Dohuk passed through major rainfed cereal areas of Nineveh, confirming the presence of extensive contiguous areas of harvestable/harvested wheat and barley with very few fallow fields. In the absence of DOA data for the central region governorates of Nineveh, Tameem Salah al Din, Dyala, Anbar, Qadisia, Kerbala and Najaf, the missing components in the Mission's assessment of wheat and barley areas in both the rainfed and irrigated sub-sectors were estimated from area averages from the past five years collated by FAO earlier this year, and which were adjusted following discussions with the senior local agriculturalists and other members of the FAO team in Baghdad.

In the four southern governorates, the Mission met and had detailed discussions with all the directors of agriculture and their staff. Visits (including on-farm case studies) were also conducted in Basra, Muthanna and Missan. The latest data regarding cropped areas were collected from the DOA offices in the governorates where the staff were trying to function despite the destruction and looting that had occurred. The data show that wheat and barley areas are essentially the same for 2002 and 2003 in Missan and Muthanna, but that wheat area has decreased in Thiqr by 23 percent with some increase in barley area. In Basra, wheat area has increased by about 2 500 ha, seemingly at the expense of the barley area.

Some 3 000 ha of rice and 5 000 ha of maize are expected to be sown in both Thiqr and Missan. Throughout the region assorted vegetables and fruits, particularly watermelons and melons, are usually planted in summer, and land preparation was observed to be well under way for these crops.

3.5.3 Crop yields, 2002/2003

In addition to rainfall and irrigation patterns, several other factors influence crop performance and the ultimate yield per unit area: soil characteristics, quality of seedbed preparation, seed quality, sowing rates, timing of sowing, fertilizer use, pests/pest control and harvest timing and practices. These factors are, in turn influenced by prevailing government policies, traditions and socio-economic conditions in particular areas; the northern governorates and the central/southern governorates are thus treated separately in this report.

In the north, the Mission undertook detailed discussions with local agriculturalists, conducted 23 strategically placed, on-farm case studies (including crop inspections and participatory crop-cutting estimations of yields) and drove slow-speed transects through the main wheat- and barley-producing areas. Such activities were carried out in all three governorates extending from Zahco in northwest Dohuk to Halabja in southeast Suleimaniya.

This year, in the east and central zones, cultivation began slightly later than usual with the arrival of the rains in November instead of middle to late October. In the west, rain in early October encouraged an early start. Fuel and oil were available at black-market prices; tractor tyres were noted as difficult to find. However, in the east/central zones, the delayed start condensed the demand for tractor services, causing some farmers to miss either the optimum sowing time and/or to reduce the number of ploughing passes before sowing wheat. Ploughing contractors' prices ranged from \$8 to \$40 per operation, depending on family connections and local demand for services at the peak time. The plentiful rains that followed the onset encouraged planting, and operations continued until early January with no re-sowing noted anywhere.

Given that only 2 705 tonnes of wheat seed, enough for 19 500 ha against the 440 000 ha sown, were distributed by FAO in 2002, that there was no barley seed distribution and that there are no private seed importers, it is estimated that 97 percent of the farmers used saved seed, either carried over from their own stocks from last year's good harvest or purchased from local markets. Wheat varieties sown were identified locally as *ACSAD 65* (in all three governorates), *CHAM 3 CHAM 5* and *CHAM 6* (in Dohuk), *ACSAD 99* (in Erbil) and *ITALIAN* (in Suleimaniya). Barley varieties were commonly noted to be two-row types identified locally as black or white.

Although the need to treat seed against covered smut is well understood, farm-based seed-dressing appears to have been erratic due to a shortage of chemicals and a reluctance of some farmers to pay black-market prices for products of dubious quality, especially when markets and grain prices are not guaranteed. This may have some implications later, when the farmers are faced with the stringent quality controls recommended in the new purchasing guidelines issued by the Ministry of Trade (MOT) of the CPA. However, no serious infestations of smut are noted by the Mission for this year.

Seed rates are noted to be generally higher than the recommended levels at 110–170 kg/ha for wheat and 100–170 kg/ha for barley. The rates reflect both the minimal cultivation practices related to low-cost approaches and expediency, which reduce germination levels and cause the farmers to compensate by using more seed, and the universal adoption of hand broadcasting due to an absence of seed drills.

Under the prevailing conditions, among field crops, fertilizer is used only on wheat. At recommended rates of 100 kg compound basal-dressing per ha and 100 kg/ha urea top-dressing, this amounts to an overall fertilizer requirement of 260 000 tonnes. From January to December in 2002, 12 542 tonnes of diammonium phosphate (DAP) were distributed by FAO in the three governorates. As most of this was distributed before the summer vegetable growing season, it is probable that it was all used on vegetable crops. Nevertheless, the Mission notes that most wheat farmers in Erbil and Suleimaniya used compound fertilizer (NP-27:27) and urea, while in Dohuk only urea was available, thus it was also used as basal dressing at sowing time as there were no other alternatives. Whereas FAO supplies are sold at \$100 per tonne, privately purchased fertilizers, smuggled into the autonomous region from the south, retailed in the region at up to \$400 per tonne last year. Consequently application rates noted by the Mission varied considerably, ranging from 10–160 kg/ha (mean = 85 kg) for compound fertilizer, and from 30–280 kg/ha (mean = 110 kg) for urea. Using the recommended application rates and at an estimated median price of \$210/t, fertilizer alone would have cost around \$40/ha.¹¹ With the exception of Dohuk, it would seem that both types of fertilizer were available on time, but farmers must have had the cash to pay for it as credit is totally absent.

Apart from uncontrolled incidents of Sunn pest (*Eurygaster integriceps*) in Suleimaniya that occur regularly in the autonomous region and where there has been no aerial spraying of the breeding sites for the past ten years, the major cereal pest problem was weeds. Wild oats are ubiquitous; broad-leaf weeds were noted in concentrated clusters of fields where cultivation practices were minimal and uncleaned seed stocks were used. This year's draft conditions for MOT purchase place a 3 percent limit on adulterations for both wheat and barley, which many farmers in the northern region will find difficult to achieve.

Harvesting was underway throughout the region, and combine-harvesting operators provided the Mission with a direct source of information regarding yields in all districts visited. These data, plus key informant estimates and the Mission's own crop-cuts, suggest average yields some 3–5 percent lower than last year in

¹¹ The breakeven wheat yield per ha for the rainfed sub-sector, calculated by the Mission for minimal inputs and all machinery hiring costs but not including labour, at a wheat selling price of \$105/t is equal to 0.9 t/ha.

Erbil and Suleimaniya at 1.3 to 1.4 t/ha, respectively; but 27 percent lower at 1.2 t/ha in Dohuk, where rainfall was less than last year and was more poorly distributed, and very little compound fertilizer was available.

In the central region, the Mission was able to visit only three of the major irrigated grain-producing governorates, where full and frank detailed discussions were held with DOA specialists. Five on-farm case studies were completed and four focus-group discussions were held with local farmers in localities where the case studies were undertaken, during which the agricultural year was reviewed. This year the tractor fleet was enhanced with the arrival of new tractors under OFFP, which facilitated the speed and timing of cultivation. The only difficulty reported to the Mission with regard to availability of spare parts, apart from tyres, concerned the latest imported shipment of New Holland tractors, which appear to have been delivered without sufficient spare parts.

In each locality, common seedbed preparation techniques were noted as a single ploughing pass followed by hand-broadcasting of seed and fertilizer and immediate harrowing in. Crop establishment was normal and sowing rates for wheat and barley were essentially similar at around 140 kg/ha. No resowing was noted or reported, suggesting that sufficient water was available for the areas cultivated.

Designated as key production areas, the three localities visited were well supplied with inputs. Wheat seed supplies, this year, included some 50 percent of the total requirement in the form of certified seed from the three national seed agencies, with variety *IBA99* apparently the most popular. The remaining wheat seeds and all the barley seeds came from farmer-saved stocks, either selected and carried over from last year's harvest by the farmer or bought at local markets. Seeds from both sources were treated against covered smut in accordance with regulations that precluded any farmer without documents to prove the purchase of treated seed and/or seed dressing chemicals from (a) access to subsidized fertilizer and (b) access to organized markets.

Under the policies of the previous regime, and in keeping with the important levels of investment in the seeds and water supply in the central region, other input supplies to the key production governorates were assured for both farmers and entrepreneurs (provided that they had conformed to the regulations noted above). Fertilizers from the Tikrit and Basra factories, plant protection chemicals and spraying services were provided to farmers from Wassit to Nineveh at heavily subsidized rates right up to early March 2003.

Fertilizer distribution for 2002/03 cereal production, collected by the Mission from the head offices of three DOAs visited, are given below in Table 4. Assuming that all of the fertilizer was used on the estimated wheat and barley areas, provided to the Mission by the same DOA staff, at the recommended rate of 100 kg/ha, the supply was more than adequate to meet the total requirement with plenty left over for use on vegetables or to be sold.

Table 4. Fertilizer distribution in three central region governorates (2002/2003)

	compound (tonnes)	urea (tonnes)	area under wheat and barley (ha)	compound t/ha	urea t/ha
Baghdad	12 000	10 000	90 000	0.13	0.11
Babylon	11 358	19 575	100 000	0.11	0.20
Wassit	31 819	42 728	200 000	0.16	0.21
Total	55 177	72 303	390 000	0.14	0.19

Other inputs distributed to the same farmers at subsidized rates were herbicides and pesticides for Sunn pest. Aerial spraying of cereal crops by DOAs continued until the first week of March. The senior staff in the directorates visited informed the Mission that, given the key production status of Dyala and Tameem, farmers and entrepreneurs had received similar support under similar conditions. Further, the single case study conducted by the Mission in Nineveh confirmed that the availability of both types of fertilizers and aerial spraying also extended to rainfed farmers in the northern districts of the central region for season 2002/2003.

Harvesting in the three governorates visited is conducted using combines. The harvest had already been completed by the time the Mission arrived in the central region; however, although this unfortunately precluded the crop inspections and the crop-cutting exercises for yield estimates that were conducted in the north, it enabled meaningful discussions to be held with combine drivers, contractors and trader/haulers met

en route during the field visit, the latter group coming from Dyala to deliver wheat to the silos in Wassit. Such discussions added a further dimension to the more formal contacts with the DOAs and confirmed the information received from the farmers that wheat yields of 1 tonne per donum and higher (4 t/ha or more), were the norm rather than the exception in the main command areas of all the irrigation schemes from Wassit to Dyala. Such yields are entirely in keeping with the farming system and inputs used this year. However, it is equally clear that some areas in each scheme are much less productive. Whether such areas are planted as speculative investments or as part of the widespread reclamation initiative is unclear. However, given that some 20 percent of the irrigated areas may fall into this non-productive category and that there is the probably a range of performance between the two extremes, the Mission estimates that the average yields of wheat and barley from the irrigated subsector of the central region to be in the order of 2.0 to 2.6 t/ha.¹² Such yields were recognized by the DOA staff interviewed as being acceptable for this year given the improved conditions and given that these data include factors hitherto not included, where production figures have previously been based on recorded sales to state silos and have not taken into consideration wheat kept for home use for the coming season, sold privately, fed to home-based livestock, and kept for seed.

The fact that these factors had been excluded in data until now had never been explained to visiting Missions. The new era of openness experienced in the discussions at DOA and at farmer level, where unaccompanied interviews were possible, suggests that for the central region, comparisons of production data with previous years may not be particularly meaningful.

In the southern region, the Mission was able to meet DOA staff from all four governorates and hold full and frank discussions with them in Basra, Missan and Muthanna, where four on-farm case studies and farmer focus group sessions were completed. There were also opportunities to discuss the season in depth with the FAO staff *in situ*.

No significant change was noted this year in either the tractor fleet or in cultivation practices, except that the already old tractors are now one year older than last year. Again, tyres are difficult to find. Dependence on rented machines is noted to differ between governorates. Some 90 percent of farmers hire machines from farmer-contractors in Basra and Muthanna, compared to 70 percent in Missan. Charges were around \$10/ha for each of the standard operations, namely, ploughing and harrowing following hand broadcasting of the seeds and basal dressing of fertilizer. Dry sowing was practised frequently, as the timing of the initial irrigation was reported to be unpredictable, apparently depending on the influence of the senior farmers in the command areas over the water bailiffs. No incidents of re-sowing were noted, although in the Basra farm-case studies it was observed that seed rates on the newly drained lands were twice the recommended rate, at 200 kg/ha or more, as farmers attempted both to address salinity-related germination problems and compete with the weeds.

Seed sources also varied: in Basra and Muthanna, 90 percent of the farmers used farmer-saved seed stocks carried over from last year. Mexi-pak was the predominant variety, which was said to suit the prevailing conditions. By contrast, in Missan, 40 percent of the farmers had access to improved seeds from the national seed agencies; *IBA99* is the preferred variety. In accordance with the regulations, most farmers sowing their own seed used seed dressing supplied through the DOAs, and all marketed seed was also treated with the locally manufactured seed-dressing chemicals before sale.

Fertilizers distributed in three of the four governorates are shown in Table 5. The figures indicate poor levels of availability of compound fertilizer throughout the region but adequate levels of urea in Basra and Missan (although not in Muthanna). Such fertilizers were sold by DOA agents at around \$30 per tonne.

¹² Breakeven wheat yield for the irrigated sub-sector with all subsidized inputs (fertilizers, improved seed, sprays) and all contractor costs but no labour or irrigation charges, at selling price \$105/t is about 0.8 t/ha.

Table 5. Fertilizer distribution in three southern region governorates (2003/2004)

	compound (tonnes)	urea (tonnes)	Area under wheat and barley (ha)	compound t/ha	urea t/ha
Basra	900	2 722	16 393	0.05	0.17
Missan	3 500	15 000	95 190	0.04	0.16
Muthanna	502	3 000	56 104	0.01	0.05
Total	4 902	20 722	167 687	0.03	0.12

Note: Data for Thiqar were not available.

Unlike for the central region, herbicides were available only in small quantities, not enough to make any difference to the weed problems on the established farms, let alone the serious weed problems noted in newly reclaimed lands.

Apart from weeds, rodents and birds, no other pest problems were noted this year. Soil salinity is, however, an increasing problem, which is being exacerbated by over-ambitious reclamation schemes with insufficient water and inadequate drainage. Furthermore, claims that the salinity of drainage water returning to the rivers is increasing salinity of irrigation water downstream need to be investigated. This is not, however, a new issue, and the Mission noted that farmers in the established agricultural villages in north Basra were recharging the topsoil of their intensive, year-round cereal, alfalfa and vegetable producing basins and border-strips with clean silt from the neighbouring desert areas in what was apparently a traditional practice.

Harvesting was conducted using combines in the reclaimed areas and schemes, and sickles in the smaller plots in the traditional gardens. As with the crops in the central region, the harvest was virtually over before the arrival of the Mission, thus precluding crop inspections and crop cutting. Yield estimates received from the DOAs were lower than those observed in the case studies and reported by combine drivers and owners met in the villages in Basra and Missan, ranging from 0.7 to 1.0 t/donum (2.8–4.0 t/ha). Again, this appears to be partly the result of the tradition of estimating crop yields as future sales to the state silos. Consequently, Mission estimates are again higher than estimates for 2001/2002, but at 0.9–1.6 t/ha, are much lower than those directly observed, in order to accommodate the non-productive areas that may have been included in the cereal-area data as “window dressing” in the official reports.¹³

3.6 Other crops

Crops contributing significantly to regional agricultural production vary from north to south. In the rainfed sector with the exception of 22 000 ha of irrigated mixed orchards and some alfalfa, crops are mostly annuals. Chickpea is the most important other crop, and this year’s planting in March/April is estimated at 180 000 ha, of which 50 percent is in Suleimaniya governorate, where export contacts with Iran have evolved. Estimating average yield at a conservative 0.58 t/ha, which is the same as last year’s FAO Agricultural Statistic Unit’s (Erbil) post-harvest estimate, production will be 104 000 tonnes.

Regarding the summer season, all of which is irrigated, around 18 000 ha of sunflowers have been planted this year, which at 1.3 t/ha, the same yield as last year, will produce 23 400 tonnes of seed. Some 2 500 ha of minor crops of rice and maize are also noted to have been planted. Summer vegetables and fruits, particularly melons and watermelons, are grown in significant quantities as the most important irrigated crops; these were estimated to cover 47 000 ha in 2002. A similar level of planting is expected this year, and the Mission notes that in all three northern governorates, vegetables have either been planted or the seedbeds are under preparation.

In the centre and south, the situation is more diverse. Perennial crops in the established irrigation schemes and in the traditional villages cover an estimated 340 000 ha. These include 16.3 million date palms each producing up to 60 kg, suggesting an a potential annual harvest of up to 900 000 tonnes of dates; 16 million

¹³ Clearly, area data must be reviewed to distinguish definitively between zones that are not being cultivated at all, zones being cultivated speculatively and the established production zones, where yields similar to those in neighbouring countries are regularly achieved and justify the farmers’ annual investments.

citrus and 10 million assorted other fruit trees present a significant annual harvest of some 400 000 tonnes. Alfalfa, with some 10 cuts per year grown in four-to-five year rotations with annual cereals and vegetables within the permanently irrigated areas, contributes significantly to the settled ruminant production system. This year, the Mission found no reasons to suggest that the normal production patterns of such crops had been disturbed; production is therefore anticipated to be similar to last year's.

Regarding annual summer crops, the findings are different. Crops other than vegetables are conspicuously absent in the centre and south, and it is unclear whence the vegetable growers will obtain fertilizer and pesticides for the coming season. Notwithstanding the fact that the vegetable growers are more independent than the subsidized cereal growers, they still rely heavily on locally manufactured chemicals; the supplies of which to sustain the estimated 180 000 ha of assorted vegetables grown during summer are now uncertain.

None of the industrial crops usually planted in March/April have been sown, as sowing dates coincided with the outbreak of war. The fields by the roadside in the summer arable areas traversed by the Mission from Baghdad to Basra, stand empty and unprepared. Doubts were also expressed in Wassit by farmers and DOA staff regarding the wisdom of planting maize in July, given the dependence on pump-based irrigation and the present levels of availability and security of the sources of power, the absence of the usual supplies of inputs and marketing uncertainties. In Babylon and Baghdad, the farmers seemed more confident, consequently the Mission assumes that only around 50 percent of the summer maize area is likely to be sown. No information is available for rice as it is sown only in areas outside the range of visits undertaken, being banned in the key areas. Therefore a similarly conservative level of activity has been assumed for determining the cereal balance for 2003/2004. Due to uncertainties regarding input availability, especially fertilizers, yields for the two cereal crops have been equally conservatively estimated at 2.5 t/ha.

3.7 Livestock

Livestock production in Iraq, – until about two months before the Mission visit, – comprised the following elements.

- A significant sheep sector, based on cereal by-products, extensive grazing and varying degrees of barley grain supplements, according to proximity to the upland ranges, rainfall and terms of trade between slaughter sheep (5-month-old males) and cereal grains. In the rainfed sub-sector, grazing over young cereals also provides an early bite, before the flocks move to the ranges.
- A significant goat sector, based on cereal by-products and extensive pastures, linked closely to the saltbush browsing with camels in the south, and pastoralist movements of sheep in the north.
- A seasonal, small-holder dairy industry, based on indigenous breeds and crosses, stall-fed irrigated forage, particularly alfalfa and annual clovers grown in rotations with cereals and vegetables, supplemented by rations comprising barley and wheat grains, dates, soaked date-pits and straw.
- A riverine, small-holder buffalo sector based on stall-fed, irrigated forage and cereal by-products.
- A modern poultry sector comprising a well-organized breeding system for broilers and laying hens plus production units capable of supplying the national needs for eggs and poultry meat.

This year the good rains in the north identified in Figure 1 (see section 3.5.1) supported good pasture development throughout the rainfed sub-sector, as evinced in Table 4 (see section 3.5.3) which showed *inter alia* better vegetation development in Nineveh than last year. As most of the contribution from pasture to the ruminant systems is located in the northern governorates, this third reasonable year in a row will have had a cumulative effect on herd and flock rebuilding after the two drought years. By contrast, the sparse desert pastures and drained marshes of the centre and south have had poor rains, eliciting premature movement and grazing over barley fields where such movement was not possible, as noted in Wassit.

Nevertheless, as no outbreaks of viral diseases were noted by the Mission at any of the locations visited and plenty of cheap feed grains are available in all regions, it is expected that this year's production profile from ruminants will be much the same or better than last year. Lambing percentages noted at around 60 percent and calving intervals at 18–24 months characterize the low input–low output nature of the systems that do not rely on imported materials, and which are thus much more resistant to external shocks than the imported-stock based intensive systems that have collapsed over the past 10 years.

Livestock numbers for 2003 are shown in Table 6. They have been derived from statistics compiled by the FAO Agricultural Statistics Unit in the northern governorates and the FAO-TCES specialist's analysis of

livestock numbers in May 2003 for the centre and south, updated by Mission-collected DOA data. Although lower than in 1989, these numbers reflect a reversal of the decline which occurred in the first 5 years of United Nations sanctions, when total numbers of livestock in south and central Iraq fell to 6.8 million head.

Table 6. Livestock numbers, Iraq (2003)

Location	Cattle/Buffalo	Sheep	Goats
North	630 000	4 000 000	2 500 000
Centre/South	1 415 000	6 800 000	1 600 000
Total	2 045 000	10 800 000	4 100 000

Numbers refer to animals more than 2 years old; some 80 percent are breeding females.

As noted above, all livestock systems in Iraq rely on supplementary feeding with cereals and/or cereal by-products to a greater or lesser extent. Mission collected data show that throughout the country, feeding practices are essentially similar, differing only in amounts fed. This year, the barley harvest and the bottom (poorer quality) end of the wheat harvest plus stored grains are highly likely to meet the nutrient requirements of the estimated ruminant population, given the levels of production anticipated.

Sheep are fed supplementary grains (usually barley but often wheat for settled flocks on mixed farms) for three months or so in winter prior to lambing. The daily ration noted ranged from 0.50–2.0 kg/head/day. Slaughter stock, that is, the male lambs sold at around 5 months old, are also fed cereal grains to some 3034 kg/head to meet the killing weights required by the internal and external markets.

Goats are not fed cereal grains, but may be fed wheat bran if it is cheaply available.

Indigenous cattle are also fed cereal grains for four or five months in the winter, again usually barley but often wheat, particularly in a poor marketing year. Rations noted varied from 2–4 kg/head/day. Some farmers with cross-bred or exotic dairy cattle provide cereal grain increments to bran-based rations, which is a practice related to milk production. However, with most large-scale dairy farms no longer functioning, this practice would seem to be rare.

Buffalo are not usually fed cereal grains; their supplementary rations are bran- and straw-based.

The sheep subsector, the most economically important, requires investment. Pastoralists must buy feed grains with cash; settled farmers either buy or use their own grains which they otherwise would have sold to generate income. The system is, therefore, cash based and its survival depends on the terms of trade between sheep and grains. As the main selling season for sheep and goat slaughter stock has yet to begin, it is difficult to predict how sheep prices will hold up. Indications in the northern governorates suggest that a local fall in prices may occur because the internal trade barriers with the centre and south no longer pertain. The local northern buyers now have easier access to the entire country of Iraq at a time when external borders are closed. Whether internal markets will be found to absorb this year's slaughter stock for the whole of Iraq, estimated by the Mission at 2.6 million male lambs and 1.0 million male kids, given the current levels of unemployment, is cause for concern. Dramatic falls in the prices of slaughter stock will cause sheep breeders to sell more animals, including young ewes, to obtain cash for buying grain for the remainder of the flock for next winter. Such events will necessarily detract from the recovery of the livestock sector.

While intervention purchasing support systems are presently being put in place to guarantee incomes for cereal producers, no such plans appear to have been considered as yet for the sheep/goat breeders.

Apart from the disruption to pastoralist grazing routes that exacerbated the effects of the poor rains in the south, prompting the sale and grazing off of barley crops in Wassit (and possibly elsewhere in the south) in April/May, it is unlikely that the ruminant systems have been seriously directly affected by the recent war.

Concerning the state of the poultry sector, there is unfortunately, at this early stage following the cessation of formal hostilities, and the subsequent destruction and looting of state-controlled enterprises and large-scale private sector investments noted by the Mission in the southern region, no clear analysis available. The Mission notes, however, that many units are non-functional. The Mission anticipates a rapid rebuilding of this sector (which was re-established under OFFP) through a mixture of private and supported initiatives. In December 2002, FAO reports indicated that the central/southern regions were producing at least 95.0 97.5million broilers from 2.0 million breeding hens per year, and had an egg industry supported by the hatching and rearing of 4.2 million layer chicks per year, which with an 18-month layer production cycle,

suggests a laying stock of 6.0 million birds. Such an industry requires not only a sophisticated infrastructure but also some 780 000 tonnes of cereals a year, plus protein and mineral/vitamin balancer. These were all previously assured to the industry, at subsidized prices, through state services that are now non-operational.

3.8 Effects of war (March–April 2003)

Direct effects of the war on winter cereal production are far less than might have been anticipated. The agriculture of the autonomous northern region was virtually untouched. Elsewhere, hostilities, which began in mid-March, at a time when all husbandry practices and field operations except harvesting were over, had ended by mid-April, before the harvest was due to start. Certainly access to fields was denied for a while and it has been estimated by DOA in Basra that 5–10 percent of the farmers living in the town centre but farming in projects elsewhere had to postpone or missed crucial irrigations at grain fill, causing the plants to rely on residual moisture in the soil with a concomitant reduction in yield. No retreating force removed the agricultural machinery, although a degree of looting of the large enterprises did take place, so harvesting was accomplished more or less as usual.

Direct effects of the war on the perennial crops also seem to have been minimal, given that such crops are closely interwoven with the communities and are for the most part in areas with secure water supplies.

Direct effects on summer crop production may yet prove to be very serious. Already it has been seen that industrial crops in the centre and south have not been sown, areas of maize and rice crops are likely to be reduced and fertilizers and plant protection chemicals will be in short supply for field crops and fruits and vegetables. Such difficulties will also be carried over into next winter season unless the support programmes currently being planned by FAO and others are rapidly put into action; with associated policies to guarantee the necessary energy supplies for the pump-dependent irrigation schemes.

Direct effects on the livestock industry, as understood at this stage, have been summarized in the previous section. Indirect effects of the war are affecting all sub-sectors in all regions. The whole economic basis of cereal production in the centre/south has been altered within a period of one month. With low margins and no mandatory quotas, farmers may well reduce irrigated wheat area for more profitable crops.

The two fertilizer factories are apparently out of commission, which begs the question concerning when and from where next year's estimated 600 000 tonnes of fertilizers for cereals alone will come. Similarly, other national technical support structures are in such disarray that it will take a long time for them to be re-established to provide the services regarding improved seeds, plant protection and animal health monitoring and control.

Finally, the closure of borders and the restrictions on movement are likely to reduce the returns to arable and livestock farmers in all regions, including the northern governorates, at a time when external markets are already challenged by the strength of the OID.

3.9 Cereal production forecast for 2002/2003

Wheat and barley production estimates made by the Mission for 2002/2003 by governorate are given in Table 7a for both the 2002/2003 and the 2001/2002 harvests. This year's estimates at 2.5 million tonnes of wheat and 1.3 million tonnes of barley are some 34 percent higher than the Mission-collected estimates for last year, derived from DOA data and FAO averages for the past 5 years, at 1.8 million tonnes of wheat and 1.0 million tonnes of barley. They are considerably higher than previous CFSAM reports during the drought and before the onset of OFFP and FAO time-series data for Iraq, which are noted to be based on recorded sales to silos, not gross production. Further analysis shows that this situation holds true only for data from the irrigated sub-sector in the centre and south, where production estimates this year are 60 percent higher for wheat in both regions, and 30–40 percent higher for barley. Wheat production in the northern governorates is 5.5 percent lower than last year and barley production is 1.5 percent higher¹⁴.

¹⁴ It should be noted that the Ministry of Planning (MOP) also keeps a data base that has not been used by previous FAO/WFP assessments or by other agricultural missions. Production estimates for the past five years are approximately double the official figures received by FAO. These data suggest that last year's production, in the centre/south, was 2.5 million tonnes of wheat, 0.9 million tonnes of barley, 0.19 million tonnes of rice and 0.57 million tonnes of maize amounting to 4.16 million tonnes. However, their provenance is unclear and disaggregated statistics were not available to the Mission, therefore they could not be used for comparative purposes this time. Their existence confirms the fragility of official agricultural data and the urgent need for a root and branch review of all agricultural data bases.

Table 7a. Iraq: Wheat and Barley Production by Region and Governorate in 2002 and 2003

	WHEAT						BARLEY					
	2003			2002			2003			2002		
	Area (ha)	Yield (t/ha)	Prod (t)	Area (ha)	Yield (t/ha)	Prod (t)	Area (ha)	Yield (t/ha)	Prod (t)	Area (ha)	Yield (t/ha)	Prod (t)
NORTH	440 750		595 620	417 687		629 868	267 500		343 400	264 068		338 522
Erbil	145 000	1.48	214 600	132 843	1.52	201 921	110 000	1.34	147 400	109 747	1.36	149 256
Dohuk	132 500	1.20	159 000	121 519	1.64	199 291	35 000	1.12	39 200	32 044	1.48	47 425
Suleimaniya	163 250	1.36	222 020	163 325	1.40	228 655	122 500	1.28	156 800	122 277	1.16	141 841
SOUTH	116 730		172 803	120 382		107 805	120 954		108 115	121 709		82 832
Basra	16 386	1.60	26 218	13 913	0.60	8 348	7 085	1.20	8 502	10 025	1.44	14 436
Missan	62 500	1.52	95 000	62 000	1.00	62 000	38 150	0.92	35 098	37 750	0.68	25 670
Thiqr	20 393	1.40	28 550	27 198	0.92	25 022	42 886	0.80	34 309	41 101	0.72	29 593
Muthanna	17 451	1.32	23 035	17 271	0.72	12 435	32 833	0.92	30 206	32 833	0.40	13 133
CENTRE	1 296 401		1 784 685	1 304 610		1 118 791	873 038		864 061	913 867		611 118
Bagdad	55 000	2.20	121 000	36 863	1.24	45 710	32 500	2.00	65 000	13 560	0.80	10 848
Babylon	82 750	2.08	172 120	51 835	1.24	64 275	17 250	2.00	34 500	21 732	0.60	13 039
Wassit	159 246	2.20	350 341	157 500	1.72	270 900	46 913	1.60	75 061	94 268	1.40	131 975
Qadisia	65 000	2.20	143 000	65 116	1.36	88 558	85 000	1.40	119 000	86 016	0.80	68 813
Kerbala	5 000	2.40	12 000	4 964	1.68	8 340	625	1.60	1 000	634	0.80	507
Anbar	32 750	1.60	52 400	32 841	1.08	35 468	2 500	1.40	3 500	2 642	0.60	1 585
Najaf	45 250	2.00	90 500	45 396	1.76	79 897	500	1.60	800	563	1.12	631
Dyala	93 500	2.00	187 000	93 610	0.84	78 632	95 000	1.40	133 000	95 181	0.40	38 072
Salh al Din	125 000	1.20	150 000	126 454	0.80	101 163	30 250	0.80	24 200	30 291	0.40	12 116
Nineveh	450 000	0.80	360 000	507 126	0.48	243 420	525 000	0.72	378 000	529 693	0.60	317 816
Tameem	182 905	0.80	146 324	182 905	0.56	102 427	37 500	0.80	30 000	39 287	0.40	15 715
Country Total	1 853 881		2 553 108	1 842 679		1 856 464	1 261 492		1 315 576	1 299 644		1 032 472

Table 7b. Iraq - Cereal Area and Production in 2002, 2003

	2003		2002	
	Area (ha)	Prod (t)	Area (ha)	Prod (t)
Wheat	1 853 881	2 553 108	1 842 679	1 856 464
Barley	1 261 492	1 315 576	1 299 644	1 032 472
Maize	50 000	125 000	100 000	250 000
Rice	50 000	125 000	100 000	250 000
Total Cereals	3 215 373	4 118 684	3 342 323	3 388 936

Production estimates for rice and maize, which at the time of the Mission had not yet been planted for harvesting in October, are indicated for at national level only (Table 7b), and have been nominally estimated at 125 000 tonnes each. In recent years around 100 000 ha of each summer cereal is noted to have been grown. This year, because of uncertainties regarding water supply and inputs, the Mission expects fewer areas to be sown; therefore areas are forecast to be 50 percent lower and the anticipated yields are pegged at last year's conservative 2.5 t/ha for each crop.

Domestic production of all cereals for 2002/2003 (Table 7b) is therefore estimated at 4.12 million tonnes, which is 22 percent higher than Mission estimates for last year at 3.38 million tonnes.

4. CEREAL SUPPLY AND DEMAND SITUATION, 2003/2004

4.1 SCR 986 and food supply in Iraq

The United Nations Security Council adopted Resolution 986 on 14 April 1995 establishing OFFP. The programme allowed Iraq to export limited quantities of oil and use the proceeds to finance imports of food and other essential humanitarian needs including agricultural inputs. The implementation of the programme started in December 1996 after the Memorandum of Understanding (MOU) between the United Nations and the Government of Iraq (GOI) was signed on 20 May 1996, and the first deliveries of imported food took place in March 1997. In the initial stage Iraq was permitted to sell \$2 billion worth of oil every six months; in December 1999 the ceiling on Iraqi oil export was removed. Out of the oil export proceeds, 72 percent were destined to fund the humanitarian programme, of which 59 percent was earmarked for the 15 central and southern governorates and 13 percent for the 3 northern governorates. In the fifteen central and southern governorates, the MOT was responsible for the distribution of the humanitarian needs, while WFP was given the mandate to observe food distribution in the entire country, as well as to implement distribution on behalf of the GOI in the three northern governorates. Actual distribution of the food ration is undertaken by a countrywide network of 44 000 food and flour agents (FA).

Implementation of the programme has been carried out in phases, each of which has lasted six months. Currently, the programme is at its extended thirteenth phase, under which the first post-war public distribution system (PDS) cycle began on 1st June 2003. For more details concerning the food ration see Section 8.2.

4.2 Cereal procurement and marketing policy

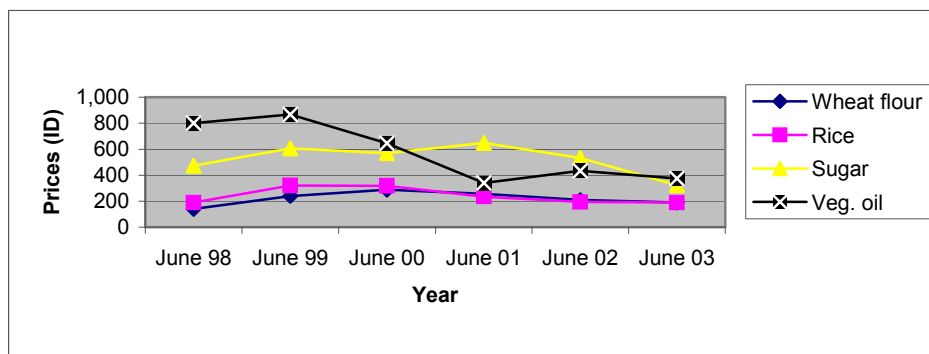
Prior to the war, each year before the planting season the GOI announced wheat and barley producer prices for the centre and south, which took into account estimated production costs plus a profit margin. Farmers then planted areas according to these prices. At harvest time, MOT through the State Company for Trading Grains, made sites and storage spaces for wheat and barley available, monitored grain quality at reception sites and paid the farmers. MOT then engaged its flourmills to mill the grain and ensure provision of flour to distribution agents, in accordance with the requirements of the food-ration allocations. However, while up until 1997 the sale of the harvest to the State Company for Trading Grains was compulsory, in 1998 the government gave permission for private wheat and barley exports despite the prevention under the sanctions/SCR 661 whereby "all States shall prevent the import into their territories of all commodities and products originating in Iraq."¹⁵

¹⁵ In 2002, exports to Syria through Rabia customs gate were estimated at 120 000 tonnes of wheat, 175 000 tonnes of barley, 800 000 tonnes of wheat bran, 15 000 tonnes of lentils and 3 000 tonnes of chickpeas. Informal export of some grain to Syria and Iran was also reported.

4.3 Current market situation

The nominal average price of wheat flour declined by 9 percent (11 percent in the north), rice by 3 percent (26 percent in the north), sugar by 39 percent (55 percent in the north), and vegetable oil by 14 percent (34 percent in the north) in June 2003 compared to the same period last year. In June 2003, market prices of wheat flour and rice averaged at about ID 190 per kg and ID 188 per kg respectively in the central and southern governorates, and OID 2.5 per kg and OID 5.5 per kg in the northern governorates. During the same period, the market prices of sugar and vegetable oil averaged about ID 325 per kg and ID 375 per kg in the centre and south and OID 3.0 per kg and OID 8.0 per kg in the north, as shown in Figure 3.

Figure 3. Food market prices, central and southern Iraq (June 1998–June 2003)



Several factors contributed to the decline in prices, including a) appreciation of the currencies used in Iraq compared to the US dollar (see Table 1) and b) increased food commodity stocks kept by households in anticipation of the war coupled with food assistance programmes that kept the same monthly levels of ration.

Producer prices have also been declining for the past decade. Between June 1995 and June 1996 alone, the price of wheat dropped from US\$172 to US\$77 per tonne and that of barley from US\$128 to US\$66 per tonne. Such a decline may have served as a disincentive for local farmers but stimulated a burgeoning informal export market to Iran and Syria.

Recently, agreements entered into by the CPA, the MOT, FAO and WFP with respect to the procurement of the local harvest and WFP may contribute to stabilising prices and controlling declining cereal farm-gate prices. In the first agreement, the CPA, MOT, and WFP, as parties to the agreement, agreed that MOT should act as the “procurer of last resort” for the wheat harvest of 2003 at a price of US\$105 per tonne for home produced grains received at MOT sites, up to a maximum of 1.25 MT of wheat. The second agreement between the CPA, MOT and FAO stipulates that MOT should also act as the “procurer of last resort” for up to 500 000 tonnes of the 2003 barley harvest at a rate of US\$65 per tonne received at MOT sites. However, in spite of specific arrangements made to accept smutty grains, the stringent quality controls and associated penalty clauses and sale acceptance may still penalize small farmers, with no access to herbicides or grain cleaners.

4.5 Cereal supply and demand balance

The projected cereal supply/demand balance for cereals for the 2003/2004 (July/June) marketing year is summarized in Table 8. It is based on production estimates of 2002/03 winter cereal (wheat and barley) crop, a forecast of 2003 summer crops (rice and maize); a total of 4.12 million tonnes. Further assumptions include:

- Opening stocks for the marketing year 2003/04 are estimated at about 1.63 million tonnes. These include wheat and rice stocks on hand in silos across the country.
- Mid-year 2003/2004 population is estimated at 26.6 million. This figure is based on the Central Statistics Office estimate of 26.3 million, for the period 1 July 2003, and then projected for six months using a natural monthly growth rate of 0.23 percent.
- Per capita cereal consumption is estimated at 178 kg per year. This includes 139 kg of wheat and 36 kg of rice.
- Feed use estimated at 1 685 million tonnes, of which 432 000 tonnes are for cattle (1.4 million cows at 2.5 kg/head/day for 120 days), 515 000 tonnes for sheep (7.56 million ewes at 0.6 kg/head/day for

90 days and 88 000 tonnes for lamb fattening), 786 000 tonnes for poultry (assuming the resumption of the industry to pre-war levels of 6.0 million layers at 0.12 kg/hen/day, 2.0 million broiler breeders at 0.160 kg/head/day and 97.5 million broilers at 4.2 kg/head/day.). Cereals fed to animals include all the home-produced barley, feed-quality wheat, and all the harvested grain maize.

- Seed use is estimated at 445 000 tonnes at an average rate of 140 kg/ha for wheat, 130 kg/ha for barley, 120 kg/ha for rice, and 40 kg/ha for maize.
- Losses at 350 000 tonnes are estimated at 7.5 percent for all grains from the current harvest and at 2.5 percent for the state-run (MOT) stocks.
- Exports of cereals are estimated at about 300 000 tonnes, similar to the recorded figure in 2002 (see section 4.2).
- Total planned cereal imports in 2003/2004 are estimated at about 3.44 million tonnes. Of this about 3.2 million tonnes comprise the outstanding food contracts between the GOI and international suppliers estimated to be called forward and the approved food contracts currently in the pipeline of WFPs Regional Emergency Operation. The food aid component originating from donors and not the escrow account in the current marketing year is estimated at 244 000 tonnes.
- The residual closing stock of about 1.66 million tonnes is roughly equal to the opening stock level.

Table 8. Iraq: Total Cereal Supply/Demand Balance, July 2003–June 2004 (000 tonnes)

	2003/2004
Domestic availability	5 747
Opening Stocks	1 627
Production	4 120
Total Utilization	9 191
Food use	4 746
Feed	1 685
Seed, losses & other uses	795
Exports	300
Closing Stocks	1 665
Imports	3 444
GOI (food-for-oil) imports	3 200
Food aid pledged	244

5. NUTRIENT AVAILABILITY

5.1 General

Under OFFP, virtually all Iraqi citizens receive monthly rations, and have been since April 1997, on payment of ID 250 (\$0.18)/person-ration in the central and southern governorates and OI 2.4 (\$0.36)/person-ration in the northern ones. In March, before hostilities were declared, advance rations were distributed for the period up to July, and MOT, with assistance from WFP, restarted regular distributions in June.

The June ration supplied 1 999.6 kcal, 43.17 g of protein (81 and 71 percent of the United Nations recommendations, respectively), 834.43 IU of vitamin A and 6.3 mg of iron (50 and 28.6 percent of recommended daily allowances (RDA), respectively). Table 9 gives the breakdown of nutrients supplied by commodity.

Table 9a. Nutrients supplied in food ration for Iraq, June 2003 (first month after conflict)

Commodity	g/per person/day	Calories (kcal)	Protein (g)	Fat (g)	Vitamin A IU
Wheat flour	300.00	1 050.00	34.50	4.50	0.00
Rice	100.00	360.00	7.00	0.50	0.00
Sugar	66.67	266.67	0.00	0.00	0.00
Beans	8.33	27.92	1.67	0.10	0.00
Vegetable oil	33.33	295.00	0.00	33.33	833.33
TOTAL		1 999.58	43.17	38.43	834.43

Energy fat – 17.2 percent (RDA 17 percent) protein.

Energy protein – 8.5 percent (RDA 10–12 percent).

Energy carbohydrates – 74 percent of total energy supply (RDA 55–65 percent).

No iodized salt in the food basket.

As observed during pre-war period, vegetable oil in the ration was fortified by vitamin A. Thus micronutrient content of the food ration was calculated as below based on FAO Food Composition Table for the Near East.

Table 9b. Micronutrient supply from food ration, Iraq (June 2003)

Micronutrients	calcium (mg)	phosphorus (mg)	iron (mg)	thiamine (mg)	riboflavin (mg)	niacin (mg)	vitamin A (IU)	ascorbic acid
Contents	85.9	432	6.7	0.48	0.13	5.84	833.25	0.33
Percent of RDA	19	43	30	53	9	49	50	1

In addition to the ration, all commonly consumed food groups, including animal proteins (meat, fish, eggs and milk), energy sources (wheat, rice and potatoes) and micronutrient sources in the form of various vegetables and fruits are all readily available in the market. Table 10 compares the monthly food ration contributions with the domestic production estimated to be available for marketing year 2003/2004.

Assuming that all domestic production is available for consumption, home-grown cereals provide 1 423 kcal per head per day, 126 kcal more than last year, similar to the value in 2001 and twice the value in 2000.

All meats are estimated to provide 11.4 g of protein per day, 2.4 g more than estimates in 2002 and 2001 and about 4.0 g more than in 2000. The analysis shows an encouraging trend of increased nutrient availability from domestic production. However, when other uses and losses are taken into consideration, the country's agricultural sector alone does not supply adequate energy. Enough protein is domestically produced at 107 percent of the RDA, but the proportion of animal protein falls below the recommended 33 percent.

Table 10. Commonly consumed foodstuffs and availability, Iraq (2003/2004)

Food Item ^{a/}	Food ration			Agricultural production		
	kg per month	kcal per person per day	g protein per person per day	tonnes	kcal per person per day	g protein per person per day
Wheat Flour	9	1 050	34.5	2 553 000	880	29
Rice	3	360	7	125 000	44	0.9
Chickpeas	0	0	0	104 000	34	2.3
White beans	0.25	27.92	1.67	5 026	1.7	0.12
Milk	0	0	0	1 451 100	1 103	3.5
Sugar	2	266.67	0	0	0	0
Vegetable oils	1	295	0	146 161 ^{b/}	85	3.6
Tea	0	0	0	0	0	0
Salt	0	0	0	0	0	0
Weaning cereals	0	0	0	0	0	0
Barley ^{c/}	0	0	0	1 317 000	454	15
Potatoes	0	0	0	774 638	53.4	1.3
Other lentil	0	0	0	2 298	0.77	0.04
Dates	0	0	0	900 000	240	2.9
Red meat	0	0	0	180 000	22	37
Poultry	0	0	0	142 000	33	2.5
Eggs (millions)	0	0	0	902	0.12	0.01
Fish	0	0	0	26 804	6.2	0.5

In addition, 7.0 million tonnes (or 614 g per day) of vegetables and fruits other than dates are available.

^{a/} Values of wheat, barley, rice, sunflower, red meat, poultry meat and dates were 2003 Mission estimates. Other values were taken from the 2002 FAO-Baghdad surveys and estimates.

^{b/} The value for vegetable oil from agriculture source was taken as total oil seeds (sesame, sunflower, ground nut and soy bean) produced in 2002. However, in the governorates visited by the Mission, they were not planted this year.

^{c/} Barley used mainly for animal feed.

Table was constructed based on the food basket value distributed in December for February and March 2003.

Due to the ration under OFFP and the improved performance of the agricultural sector, total Dietary Energy Supply (DES) has returned to pre-sanction levels as shown in Table 11.4, with proportions within the range of recommended level: 52 percent from cereals, 54 percent from cereals, tubers and roots.

Table 11.1 Cereals produce in terms of Dietary Energy Supply (Before domestic use, export and other losses) per person per day

Agricultural products	2000 Kcal	2001 Kcal	2002 Kcal	2003 Kcal
Cereals	687	1429	1297	1423

Table 11.2 Animal Meat produces in terms of Dietary protein Supply per person per day

Source	2000	2001	2002	2003
	Protein gram	Protein gram	Protein gram	Protein gram
Animal Meat	7.7	8.7	8.8	11.4

Assuming all domestic production is available for consumption, home-grown cereals provide 1423 kcal per head per day, 126 kcal more than last year and similar to the value in 2001 but two times the value in 2000. All meats are estimated to provide 11.4g protein per day, 2.4 g more than estimates in 2002 and 2001 and about 4.0g more than in 2000.

Table 11.3 Agricultural Products in terms of Dietary Energy and Protein Supply/person/day (before domestic use, export and other losses) - 2000 to 2002 (per person per day)

Agricultural products	2000		2001		2002		2003	
	Kcal	Protein g	Kcal	Protein g	Kcal	Protein g	Kcal	Protein g
Cereals	687	22	1 429	46	1 297	42	1 423	46
Tubers	55	1.7	51	2	61	2	58	1
Other crops	355	7.6	384	9.3	405	12.7	374	10
Animal meat	121	7.7	141	8.7	134	8.3	158	11
Total products	1 218	39	2 005	66	1 897	65	2 013	68
% of recommended Allowances by UN	49	65	81	109	76	107	81	113

Table 11.4 Net Dietary Energy Supply from Cereals after Balancing (After Import-Food Ration & Food Aid and losses from feed, export and others)

	1984/85-88/89	1995/96	1997/98	2000/01	2003/04
Pp cereal food use (Kg/year)	191	121	179 ^a	172 ^a	178 ^a
DES from cereals	1 884	1 193	1 765 ^a	1 696 ^a	1 755 ^a
DES from cereal as % of total DES	55	54	73	63	52
DES from cereals, tubers and roots (Pp/day)	NA	NA	NA	1 751	1 816
DES from cereal and tubers as % of total DES	NA	NA	NA	65	58

From cereal balance sheet

^a includes Food ration (Pp/day)

Table 11.5 Total Dietary Energy Supply

	1984/85-88/89	1995/1996	1997/1998	2000/2001	2003/2004
Total Energy supply from Food ration (Average)	0	0	1 888	2 149	2 112 ^{aa}
Available energy supply from agricultural cereals produce after balancing	1 884	1 193	296	0	566
Available energy supply from other crops and animal meat	NA	NA	235	531	590
Total Dietary Energy Supply	3 396 ^a	2 206 ^b	2 419 ^b	2 680	3 268

^{aa} Average of the rations of Jan, Feb, March and June 2003

^a Average from FAO Food Balance Sheets (2000)

^b FAO Food balance Sheets

At national level, with an estimated per capita cereal consumption of 178 kg per year accommodated by the imports expected and the stock drawdown envisaged, adequate levels of nutrition are anticipated for marketing year 2003/2004.

6. FOOD UTILIZATION AND NUTRITION

6.1 General

The utilization of food and nutrients in Iraq, and its' importance as a factor affecting nutritional outcomes and the nutritional status of the population, are summarized below. Observations and findings for the Centre/South region, and the three Northern governorates are presented separately.

6.2 Food utilization in Centre/South

Due to the time constraint and mounting security-related limitations, the operational objective of the nutritional assessment was to assess the three different locations each having differing chronic poverty rates, as indicated by a recent WFP study¹⁶. In the centre/south Iraq the Shat Al Arab district of the Basara Governorate, Baghdad Governorate and Kerbala Governorate were chosen for assessment since they belonged to the high, medium and low chronic poverty categories respectively. In these areas rapid assessments in the form of key informant interviews, observations, focus group discussions and also the households cluster surveys were conducted. Secondary data were collected from the related UN agencies and NGOs as well as from the Ministries and health and nutrition rehabilitation centres.

6.2.1 Rapid assessments

The mission conducted household surveys to assess nutritional status. The nutrition assessment included an analysis of "food consumption frequency" and food diversity, and also touched on issues related to food access. Food access issues are examined in greater detail in Section 8 of this report. Children (more often the girls than the boys) and women were found as recipients of the smallest share of household food. In all three areas of study, Shat Al Arab, Kebela and Baghdad, the assessment showed disparity in intra-household food distribution.

In Shat Al Arab, more than 50 percent of the households consumed meat less frequently than every two weeks, as meat prices have risen due to the export of live stock to Kuwait. Increases in clinical incidents of water-borne diseases – diarrhoea, typhoid, dysentery and cholera, exacerbated by a shortage of medicine in the health centres – were noted as causes for concern along with a shortage of potable water, increased water costs, lack of security, lack of job opportunities and shortages of electricity. In Baghdad, the findings were similar, with more emphasis on unemployment, higher prices and more personal security issues. In Kerbala, there was lower unemployment, markets were functioning and there were fewer concerns regarding personal security; other concerns, namely water, electricity and fuel costs, were similar to the findings above.

6.2.2 Household cluster surveys

Thirty clusters were selected according to the population proportionate to size (PPS) method in Shatt Al Arab, Baghdad and Kerbala. Some 450 randomly selected households were targeted (15 households in each cluster) for anthropometric measurements for children under five and adults, and for information on infant feeding and illness. Sub-samples for 60 households in each area were studied for meal frequency and food diversity practices. Information on food purchases was also obtained.

Ten survey teams, each comprised of four trained team members and five supervisors from the Ministry of Health's Nutrition Research Institute (NRI) and FAO-Baghdad, conducted the survey between 24 June and 1 July. The anthropometric study was not carried out in Baghdad because recent data (April–May 2003) was already available from UNICEF.

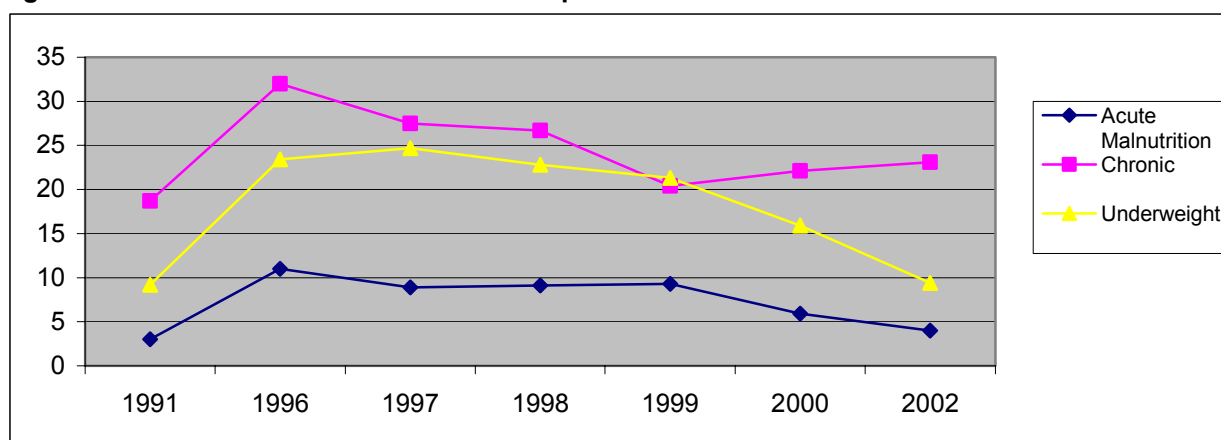
- Mean frequency of the meals taken by the households in the preceding 24 hrs was noted as 4.02, higher than the level in the 2000 assessment (2.8). The households in the most vulnerable area, Shatt Al Arab, consumed fewer meals (3.75) than those in the other two areas.
- Regarding food diversity, all households consumed an average of 3.2 of the five food groups, which was lower than the level in the 2000 assessment (3.8); 11–14 percent consumed food from all five groups, and in Shatt Al Arab, 40 percent were found to consume from among only two groups.
- Among the ration foods, cereals were the most commonly consumed, followed by vegetable oil, milk and legumes.
- The most commonly consumed non-ration foods consumed by households were vegetables, eggs, meat products, cereals, legumes and fat in that order.
- Shatt Al Arab households consumed the least food (both ration and non-ration), which could be explained by the prevalence of chronic poverty in the area.

¹⁶ The extent and geographic distribution of chronic poverty in Iraq's Center/South Region, UN WFP Elguindi, AlMahdy, McHarris (May, 2003).

6.2.3 Nutritional status

Anthropometric data for children under five collected by the Mission, as with similar surveys conducted in 1993, 1995 and 1997, make it possible to assess the current nutritional status of sampled households, thus complementing the interim nationwide surveys carried out by UNICEF and, most recently, the post-war survey in April–May 2003 in Baghdad. The results indicate that the acute malnutrition rates, as indicated by low weight for height, declined from the 2000-level in both Kerbala and Baghdad governorates. Figures 4 and 5 show both the effect of sanctions from 1991 to 1996 (increasing acute malnutrition levels) and the ameliorating effect of food rations and the Targeted Nutrition Programme (supplementary food for undernourished children under-five and pregnant and lactating women) from 1996 to 2002. The returns from the two governorates follow the national trend; however, the recent post-war figures are higher than the 2002 national average in all three governorates, which is cause for concern. It is also apparent that acute malnutrition exists in the governorates studied regardless of the chronic poverty levels.

Figure 4.1 Prevalence of Malnutrition in Iraq - 1991 to 2002



UN sanction started in 1990; Oil for Food Programme started and effective in 1997
MICS 1996 and 2000 represents the whole country, 2002 represents Centre/South

Table for Figure 4.1 Status of Malnutrition (1991-2002)

MALNUTRITION	1991*	1994♦	1996**	1997♦	1998♦	1999♦	2000**	2002 €
Acute (Weight for Height): %	3		11	8.9	9.1	9.3	7.8	4
Under-Weight%	9.2		23.4	24.7	22.8	21.3	15.9	9.4
Chronic: %	18.7		32	27.5	26.7	20.4	22.1	23.1
Under-5 Mortality :('000s)φ	56 (1984-89)	91.5 (1989-94)				131 (1994-99)		

* Household Survey (Harvard Team)

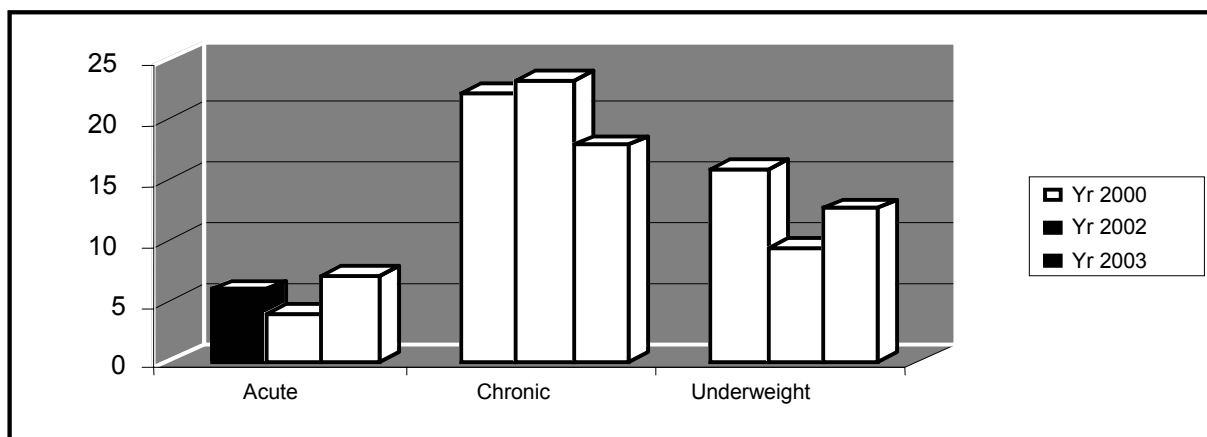
** Household Survey (MICS)

♦ Health Facility Survey

φ Vital Statistics, Ministry of Health

€ Household Survey; UNICEF-NRI

Figure 4.2 Prevalence of Malnutrition in Iraq (2000 to 2003)



- MICS 2000 represents the whole country; 2002 figures represent C/S Iraq
 - 2003 figures are averages of three Governorates under study in Post-war Iraq

Table for Figure 4.2: Status of Malnutrition in Centre/South Iraq (2000 to post-war period 2003)

	National			Shartt Al Arab			Baghdad			Kerbala		
	2000	2002	2003	2000	2002	2003	2000	2002	2003	2000	2002	2003
Acute (Weight for Height): %	5.9	4	6.6				10.5		7.7	13.9		6.7
Under-Weight%	15.9	9.4	14.3						13.2			10.3
Chronic: %	22.1	23.1	16.5				12.1		15.9	18		21

Figure 4.2 shows the increase in acute malnutrition and underweight prevalence in post war period after declining in 2002. Chronic malnutrition, stunting, decreases in 2003 to average 17.8 percent from 23.1 percent of 2002.

Figure 4.3 Trend of Acute Malnutrition among Under 5's in two Governorates

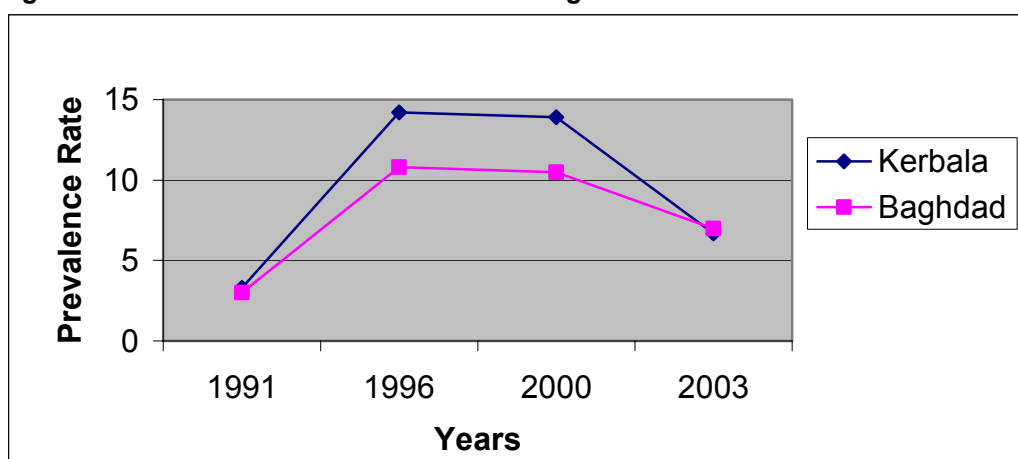


Figure 4.4 Trend of Acute Malnutrition at National Level

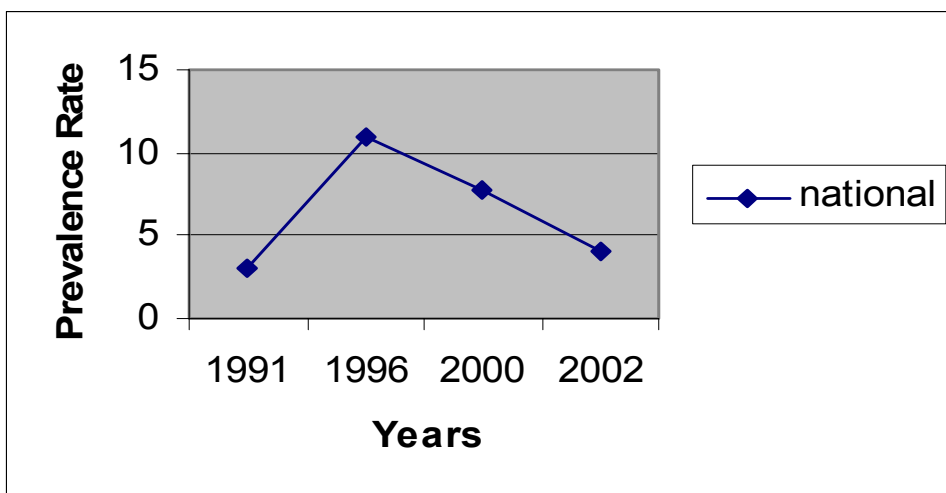
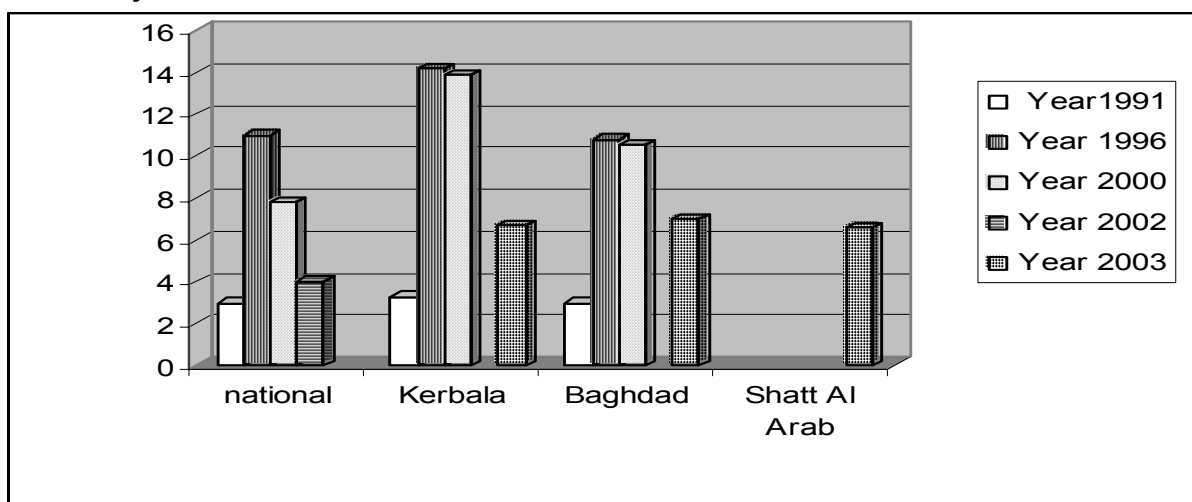


Figure 4.5 Comparison of the trend of Acute Malnutrition Between national and three governorates under study



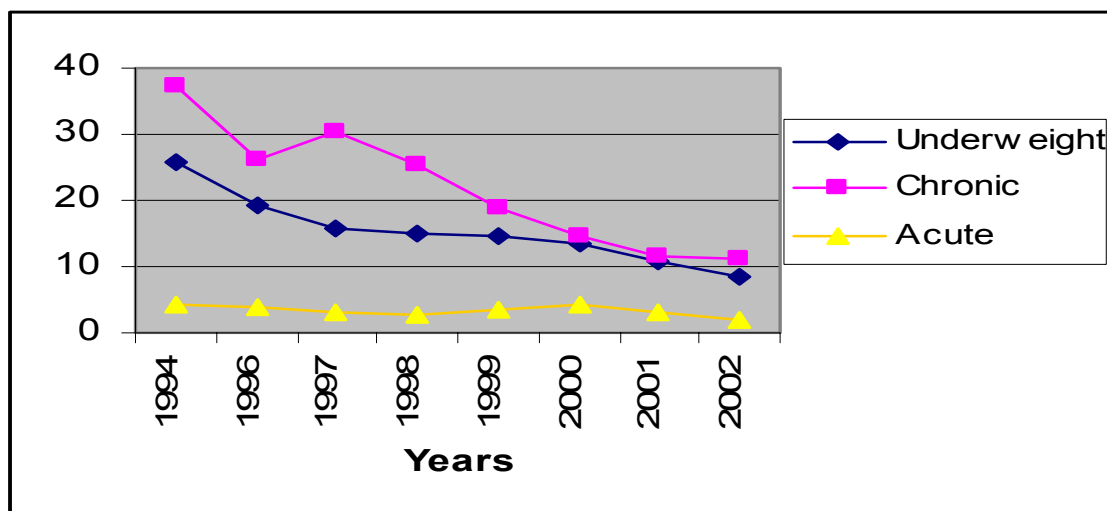
Analysis of the nutritional status of the adult population shows that in Shatt Al Arab, 24.2 percent of adults present chronic energy deficiency (body mass index (BMI) < 18.5), while at the same time 38 percent were found to be overweight (BMI >25). In Kerbala, 16 percent of adults were found to be wasted while 48 percent were overweight. According to the research findings elsewhere in the world,¹⁷ it is not uncommon to find adult obesity in the same households with malnourished children, and for several reasons: the women usually eat last, finishing the remains (mostly cereals) of the other family members; reduced physical activity results from unemployment and security concerns in combination with an inappropriate diet. These same factors led to the development of overweight and obesity observed in Baghdad and Kerbala by the assessment Missions in both 1997 and 2000. Since major causes of death among adults in Iraq are heart disease, hypertension and diabetes, all aggravated by obesity, this phenomenon merits serious attention.

6.3 Food utilization in the north

With a well-developed agricultural sector and benefits from OFFP, the children in the northern governorates enjoyed better nutritional status. A markedly declining trend of malnutrition among children under five years of age was revealed in UNICEF-supported surveys.

¹⁷ WHO, *Multicountry Study on Household Food and Nutrition Security (1996–2000)*.

4.6 Malnutrition trends among children under five in the northern governorates, Iraq (1994–2002)



During the period from 1994 to 2002, chronic malnutrition decreased from 37.3 percent to 11 percent, underweight in children from 25.8 percent to 8.6 percent, and acute malnutrition from 4.2 percent to 2.1 percent. Some 85 percent of households used iodized salt, an increase from 72 percent in 1996. Key factors for this improvement were seen as improved food rations; targeted supplementary rations; improved health, water and sanitation conditions; and education services. The northern governorates of Iraq possess more resources, with 50 percent productive arable land; this area also received a higher level of assistance per person through agency implementation, and it had better access to cash under the sanctions regime.

Currently, rapid community assessments carried out by the Mission revealed that Chamchamal, the most vulnerable community according to WFP VAM¹⁸, suffered from insufficient water, electricity and basic health services and also from unemployment and market instability, all of which created difficulties and especially for rural dwellers. The medium and least vulnerable areas, Erbil and Choman, had fewer problems of water and electricity, but still needed basic medical supplies.

The effect of common childhood diseases on food bioavailability must not be underestimated. The UNICEF-supported survey in 2002 found that diarrhoea incidence among children in the north was 15 percent and acute respiratory infections, 22 percent. Infant feeding practices could also be contributing to malnutrition problems under the current situation. Exclusive breast feeding up to three months stood at only 6–16 percent, while bottle feeding has risen to 64 percent, mainly from the free distribution of infant formula in the food ration. Under-five mortality was 70 and infant mortality 120 per 1 000 live births in 1999.

Although the recent conflict did not directly affect the region, the situation could be jeopardized by the fragile circumstances created by the war.

6.4 Micronutrient Deficiencies in the country

No recent surveys assessing micronutrient deficiencies have been conducted since 1994-1999. According to the available information, prevalence of Vitamin A deficiency as night blindness among under-five children was found to be 1.6 percent according to a 1994 survey, indicating the public health significance. The household surveys conducted by the current mission also found 1.3 percent of night blindness among the children of under five years old in Shatt Al Arab and 0.7 percent in Kerbala. Iodine Deficiency was found among the school children in 1994 as prevalence of goiter being 30-50 percent in the northern parts while it has been 8 to 14 percent elsewhere in the country in 1987. The prevalence of anaemia in pregnancy increased from 51 percent in 1995 to 60 percent in 1999. As the result the incidence of Low Birth Weight increased from 4.5 percent in 1990 to 23.96 in 2002.

¹⁸ WFP Vulnerability Analysis and Mapping, Secondary Data Analysis North Iraq. Ghassan Kaka; 2002.

The level of micronutrients in the food ration (table 9.b) and thru food purchased, if any, continued to be far below requirements especially for vulnerable groups. Households consuming effectively iodized salt (15 ppm and above) were only 40 percent (MICS 2000) and the iodized salt in the one month ration lasted only 15 days. For the month of June 2003, no salt was included in the ration. This indicates that micronutrients deficiency continues to be a serious problem in the country.

7. RELATED SECTORS

7.1 Health

The national drug supply system broke down after the war and inventory management systems were destroyed, complicating the determination of stock levels and distribution planning. The water and sanitation situation exacerbated by the war, continues to negatively affect the already precarious health situation which existed under the sanctions regime.

The most recent survey done in 1999 by UNICEF/MOH identified the Infant Mortality Rate in Centre South as 108 per 1000 live births and Under-five mortality as 131 while in the north the rates were identified by ICMMS survey as 71 and 120 respectively.

There had already been increase of diarrhea episodes from 3.8 per child per year in 1990 to 14.4 in 1999. Deaths due to ARI and dehydration from diarrhoea accounted for 70 percent of child mortality as noted by UNICEF in 2002. Out of ten most leading causes for hospital admission in 2000, diarrhoea was the most common disease followed by chest infection and ARI. Anaemia and Malnutrition were ranked seven and eight respectively. Among ten leading causes of under-five death, diarrhoea was ranked four.

In post war Iraq in 2003, WHO supported sentinel disease surveillance reported Cholera as endemic. About 73 cases had been reported and 64 percent of those were under-fives. Diarrhoea constituted 22 percent of the total consultations with a threefold increase compared to the same period last year. A total 4466 cases of acute watery diarrhoea among under-fives were reported during the week of 14 to 20 June 2003. Typhoid fever has increased, indicating poor water and sanitation systems.

During the second week of June, 43 whooping cough cases were reported in Basrah, 28 in Nassriyah, and 4 in Muthanna. More than three fourths of the cases were either infants or preschool children, indicating either low vaccination coverage or failure of the cold chain¹⁹.

7.2 Water and sanitation

Water availability and sanitation are major problems for post war Iraq. Insufficiency existed even before the recent conflict: - access rates to potable water in cities and rural areas were reported at 92 percent and 46 percent respectively. Water Treatment Plant (WTP) efficiency rates were reportedly 60 percent and water loss rates were 30 percent, and many rural communities were dependent upon unprotected sources. As a result, domestic per capita share of clean water in urban areas (other than Baghdad) was only 110 litres per day in 2000 (a decrease from 250-300 litres in the 1990s), and became only 65 litres per day in rural areas.

Sewerage systems in the cities of the centre/south served just over 25 percent of the population, septic tanks were used by 50 percent, and the remaining 25 percent had no means of safe disposal of sewage²⁰. About 500,000 tons of raw sewerage was discharged directly into fresh water bodies each day 300,000 tons of which discharged directly into rivers in Baghdad. The recent conflict caused damage to much of the already precarious water supply and sanitation system. Lack of electricity and shortage of fuel also compounded the problems. Currently a maximum of 70 litres/person/day of water (50 percent of the pre-war availability) were available to the 5 million Baghdad city inhabitants. The situation was worse in the southern cities.

Since before the recent conflict, OFFP-funded programmes have bolstered water services in the three northern governorates. Urban areas are supplied through WTPs in key locations. As well, the north is well endowed with natural water sources: springs and underground water provide the main source of drinking water for households in rural areas. Nevertheless, the region is vulnerable to droughts, and water quality

¹⁹ "Cold Chain" refers to the need to keep vaccines at specific temperatures.

²⁰ UNICEF/CARE WES Surveys 1999

remains a concern. In the north, only Sulaymaniyah has a sewerage system. Only water drainage is available in Erbil, and in other areas, communities rely on septic tanks and latrines. The current conflict did not have a direct effect on the water and sanitation situation in northern Iraq.

7.3 Electricity

Looting and sabotage impaired the electricity supply in post war Iraq by causing damage to transmission lines. Severe electricity shortages have been reported in the centre region (Babil, Najaf, Kerbala and Wassit) and in Baghdad. Just over half of last year's power supply was available for Baghdad in May 2003 (1200 MW) which requires a minimum of 2200 MW. Power cuts from 12 hours to, in some days 24 hours were experienced. Shortage of electricity, especially in summer, led the households to expend more on fuel and contributed to the spread of diseases.

8. FOOD INSECURITY ANALYSIS AND IMPLICATIONS FOR FOOD ASSISTANCE IN IRAQ

Decades of conflicts, economic sanctions and the recent war have had serious effects on the living conditions of Iraqis. Disruption of economic activities and rising unemployment have swelled the numbers in poverty and increased the proportion experiencing food insecurity in spite of receiving public food assistance. This section discusses the nature and extent of food insecurity, current remedial measures, future options and food assistance requirements.

8.1 Food access, vulnerability, and food insecurity analysis.

WFP's Vulnerability Analysis and Mapping (VAM) unit undertook an assessment of community and household level food insecurity. A rapid appraisal approach was adopted to satisfy the urgent need of generating new information on Iraq's food security situation following the war.²¹ A set of core questions, including *who are the food insecure*, *why are they food insecure* and *where is food insecurity most concentrated*, oriented the assessment process. Other central questions included *how do food insecure households cope*, *how many people are currently food insecure (even with the food ration)*, *how many would be vulnerable to becoming food insecure without the ration*, and *lastly what is needed to reduce food insecurity*.

Data were collected through key informant interviews. Assessment teams were organized and managed through WFP's five Area Offices. Approximately 90 staff participated in the fieldwork. Roughly 930 key informant interviews were conducted with geographic coverage across all of Iraq's 18 governorates. Key informants were Ministry of Trade (MOT) Food Agents or community leaders.²² Women were deliberately sought out as respondents, and provided balance from a gender perspective. The data were collected during a two-week period between late June and early July 2003.

8.1.1 Analysis and findings

Profile of the food insecure. Key informants were asked to identify food insecure groups according to both livelihoods and household characteristics. The four livelihoods most frequently associated with food insecurity were casual labourers, government workers, farmers, and pensioners. In terms of household types or characteristics, women-headed households (WHH) and widows were most frequently mentioned as food insecure, followed by households with disabled individuals, large households²³ and households with elderly members.

Refugee and IDP groups are not surprisingly, amongst the "vulnerables". There were more than 100 000 refugees of various origins in Iraq spread throughout the regions, mostly around Baghdad, Ramadi, Makhmur and the three northern governorates. The responsible agency, UNHCR, has a standard MOU with WFP, UNICEF and ICRC for assistance to those populations. All of them benefited from OFFP under the sanctions regime. The International Agency for Migration (IOM) indicated a total of some 200 000 internally displaced persons (IDPs) in the country, with a large concentration of IDPs found in Diyala governorate. Some long-standing IDPs obtained food rations like other citizens, while others were excluded from the ration system. The one-time food distribution to 17,512 Internally Displaced Persons (IDPs) in Diyala,

²¹ This assessment is one in a series of assessments and analytical exercises with a focus on food security and poverty analysis. It is preceded by WFP's chronic poverty analysis undertaken during the first quarter 2003, just prior to the war. A WFP and Partners Baseline Food Security Assessment (for the period covering late July – October 2003) has recently been launched.

²² Of the 930 key informants interviewed; 731 were MOT food agents and 199 were "community leaders".

²³ Average household size was 6.88 persons; by inference households with 9 or more members are likely to be more food insecure.

carried out by WFP's implementing partner the Danish Refugee Council (DRC), was completed during early August, with post distribution monitoring by WFP Food Aid Monitors planned as follow-up. This will also help to determine whether there are other IDPs who have neither received their PDS rations through MOT nor the one-time food ration distributed by DRC. WFP, MOT, DRC and partners have agreed to place utmost efforts on including IDPs in the regular PDS distributions through registration at MOT Ration Registration Centres. While United Nations agencies planned to restore the basic living needs of IDPs and refugees throughout the country, emergency health and nutrition care still require immediate action.

Causes of food insecurity. Unemployment was most frequently mentioned as the primary reason for food insecurity (34 percent of key informant responses). The size of the jobless population has undoubtedly risen recently, with numerous civil servants and former soldiers now out of work. *Chronic poverty* also ranked high as a cause of food insecurity, accounting for one-fourth of all responses. After years of economic sanctions and a depressed economy, the ranks of the chronically poor have in all likelihood grown. Death of the head of the household ranked third in terms of food insecurity causal factors (18 percent of responses). The recent history of Iraq, and three wars during a relatively short period of time help to put the "death of a household-head" figures into perspective.²⁴

Coping strategies. Key informants were asked to report on the most common coping mechanisms used by food-insecure households living within their respective communities. Reducing food consumption, either in terms of skipping meals or consuming smaller portions, is among the most common coping strategy used (23 percent of responses). Other frequent coping mechanisms include selling assets (22 percent of responses) taking on debt or borrowing (15 percent) and consuming cheaper foods (10 percent). Less common was selling the food ration (9 percent), increasing income through work (7 percent), sending children to work (3 percent), and begging (1 percent). While more dramatic and illegal coping mechanisms such as looting were also mentioned, looting in fact represented less than 1 percent of all responses. It is however noteworthy that when key informants were asked the hypothetical question, "How would food insecure households cope if there were no food ration in the future?" the response of looting rose dramatically to 17 percent.

Table 12 shows the frequency of responses for the top four coping mechanisms identified, for both the current period and a hypothetical future without the food ration.

Table 12. Common coping mechanisms, key informant responses (June–July 2003, Iraq)

Coping mechanism	Key Informant Responses June/July 2003 (percent)	Key Informant Responses Hypothetical future (if no ration available) (percent)
Reduce food-consumption	23	24
Sell assets	22	20
Incur debt/borrow money	15	13
Switch to cheaper foods	10	8
Engage in looting/illegal activity	1	17

Note: Figures do not add to 100 percent because not all the coping mechanisms have been included in the table.

Source: FAO/WFP Crop. Food Supply and Nutrition Assessment (June/July 2003).

Food insecurity with and without rations: Estimating the size of the two focus populations, namely, the *currently food insecure* and *those at risk of becoming food insecure without the ration*, was particularly challenging given the lack of past research and Iraq's unique present circumstances in which nearly the entire population continues to receive the PDS food ration.

There are virtually no studies from the past that have directly addressed the fundamental question of *what percentage of the Iraqi population is food insecure*. The political environment during the sanctions era did not allow research on such questions to be undertaken. The environment was however less restrictive in the three northern governorates of Erbil, Dohuk, and Suleimaniya because the Kurdish-controlled areas fell outside the authority of the central government. One previous study conducted in the Northern governorates²⁵ in 2001 comes perhaps closest in addressing the "how many are food insecure" question.

²⁴ The Iran–Iraq War (1980–88), the Gulf War (1991) and the recent war (2003).

²⁵ Alastair Kirk and Gary Sawdon, "Understanding Kurdish livelihoods in Northern Iraq" (January 2002. Save the Children UK, The North Iraq Country Programme and the Food Security and Livelihoods Unit).

The emphasis of this study was to provide a deeper analysis of populations that may be at risk of economic hardship and food insecurity in the event of any unplanned changes to the UNSCR 986 food ration and its distribution systems.²⁶ The study implied that approximately 72 percent of the study population was vulnerable at that time of the survey. On the assumption that approximately two-thirds of the *vulnerable* population were food insecure, we arrive at an estimate of approximately 48 percent *food insecure* in the population. It is important to note that this estimate is approximate and might represent an overestimate due to the nature of the key informant methodology used. As acknowledged in the study, key informants often tend to overestimate expenditures and underestimate income. This tendency can lead to an overestimate of the size of the vulnerable population and, by extension, of the food insecure as well.

As noted earlier, the present Mission utilized the key informant approach to gather information on food insecurity and vulnerability as well. With regards to vulnerability, key informants were asked to estimate the percentage of their community who *would become food insecure* if the PDS were no longer available. Approximately 84 percent of the population is estimated in this category, a figure not far from the 72 percent figure from the study noted above. It is important to acknowledge that two years have elapsed since the study in northern Iraq was undertaken. It is also important to acknowledge that while the FAO/WFP data associated with the 84 percent estimate pertain to the nation as a whole, the 72 percent derived estimate pertains only to the three northern governorates. Using these two figures as reference points, the Mission estimates that approximately 80 percent of the Iraqi population would become vulnerable to food insecurity if the current food rations were no longer accessible.

Key informants were asked to estimate both the percentage of their community unable to pay the nominal ID 250 (\$0.18) to acquire the food ration, as well as the percentage of those able to pay who later sell all or part of the ration to acquire either basic food or non-food needs. Twenty percent of the population is reportedly unable to pay ID 250, while an additional 24 percent are reported as selling the ration to acquire basic food or non-food needs. The first category may represent the virtually destitute population and the second category may represent the critically poor, including some from the transitory “new poor” (see below, discussion on the transitory poor). Cumulatively, these estimates indicate that approximately 44 percent of the population is currently food insecure.

The finding that 20 percent of the households are unable to pay for the ration does not necessarily mean they go hungry. They receive either a full or partial ration through a variety of arrangements. For example, it is well known that many of those who cannot afford the ID 250 will borrow the money from a family member, friend, or better-off neighbour and subsequently sell part of the ration to pay back the debt. Alternatively, arrangements are made with the Food Agents to receive the ration less a part equivalent to ID 250. It is reportedly also not unusual for the food agents themselves to provide ID 250 using their own income, providing a sort of charity service to those unable to pay. Others without the means to pay undoubtedly receive either a full ration or a partial ration from better-off members of the community.

While almost all food insecure households may be poor, not all poor may be food insecure. Some of the poor may be able to make adequate allocations for food consumption because they have relatively low non-food needs. For example, those who do not pay rents can have substantial savings; for some, transport costs may be minimal and some may not have children to send to school and not incur expenditures on education (school books, stationery, transport costs). This means that the percentage of the population in poverty will be greater than the percentage of food insecure; by how much, in the case of Iraq, is the issue.

The total poverty figure in any country consists of two groups: the chronically poor and the transitory poor. The latter are those who have slipped into poverty because of shocks (loss of main income earner, dislocation of income-earning due to war or natural calamities, consumer price increases). For example, in Shatt Al Arab district of Basrah governorate, apparently poverty has increased after the war. Some 25 percent of families lacked the cash to pay ID 250 for rations for the entire family and thus sold some rations to pay for others, sharing the inadequate balance. The shock of consumer price increases for some essential goods and services were confirmed via focus group discussions and key informant interviews. For example, in Kerbala governorate, communities expressed concerns regarding the costs of basic necessities such as water, fuel, and electricity. Similarly, in Shat al Arab district of Basrah governorate domestic fuel costs have reportedly increased ten-fold since the war. Rising prices for non-food essentials will undoubtedly force some households to make difficult choices on whether to spend limited income on basic food or non-food needs. As mentioned earlier, the PDS ration generally does not meet the total caloric and nutrient needs of

²⁶ Ibid.

recipients. Most households purchase additional food from the market to meet their needs. Although nutrients are available at the national level, adequate food access for households is uncertain, and varies according to household income. Household survey data collected by the Mission shows that average monthly expenditure on additional ration foods varied from \$5.60 in Shatt Al Arab, to US\$7.90 in Kerbala, to US\$30 in Baghdad²⁷.

In Iraq, the size of the transitory poor population has undoubtedly grown during the recent post-war period. This group includes government workers who are still not receiving their salaries²⁸, former members of the Iraqi military, shop owners who have chosen to keep their shops closed because of the insecure environment and numerous others who have lost opportunities because of security problems. To this group should be added those who were in transitory poverty before the war from other economic hardships (some of whom may have moved down to chronic poverty). It is safe to conclude that the bulk of Iraq's poor population is food insecure. If we assume that the food insecure population represents 80 percent of the poor population, and that approximately one in five poor households (20 percent) is able to meet its food consumption needs, we can estimate that approximately 55 percent of the Iraqi population is poor.

In conclusion, the analysis suggests that about 55 percent of the population is poor, and about 44 percent are food insecure in spite of the ongoing PDS food-ration distributions.

8.1.2 Geographic distribution of food insecurity

The geography and spatial distribution of current food insecurity was also examined. An index was used as a proxy indicator for food insecurity and was constructed by combining governorate-level ordinal rank figures representing the *percent unable to pay*, and the *percent selling the ration to obtain other basic food or non-food needs*. Two-thirds of the index value was weighted towards the percent unable to pay indicator, while the remaining one-third of the weight was applied to the percent selling the ration indicator. The resulting food insecurity rank figures are shown in Table 13.

Table 13. Food-insecurity ranking of 18 governorates, Iraq, 2003

Governorate	Food insecurity index rank
Thiqr	1
Missan	2
Basra	3
Wassit	4
Najaf	5
Dohuk	6
Qadisia	7
Muthanna	8
Babylon	9
Erbil	10
Anbar	11
Baghdad	12
Nineveh	13
Kerbala	14
Salah al Din	15
Dyala	16
Suleimaniya	17
Tameem	18

(Note: 1 = high/worst, 18 = low/best)

Source: FAO/WFP Food Supply and Food Aid Needs Assessment (June/July 2003).

²⁷ Calculations based on findings of the household survey conducted in Shatt Al Arab district (Basrah governorate), and Baghdad and Kerbala governorates. WFP market price and exchange rate data used for currency conversions.

²⁸ More data and information is needed to better assess the food insecurity and vulnerability status of government workers, pensioners, and those formerly employed by the Iraqi military. During recent months the CPA has reportedly made wide scale "incentive payments" ranging from \$50 - \$150 to these groups; which could be contributing significantly to their short-term food security.

The findings suggest significant regional disparities exist in terms of concentrations of food insecurity at the governorate level. According to the data in Table 13, the three most food-insecure governorates are Thi qar, Missan and Basra, all of which are located in the south-eastern region of the country. A cluster of relatively less food-insecure governorates is located in the north-east of the country and includes Salah al Din, Dyala, Suleimaniya and Tameem. It should be noted that these results pertain to a first-level examination of the geographic concentration of food insecurity in present-day Iraq. Further work is necessary to obtain higher quality and more robust data to enable a more comprehensive analysis of the question of *where food insecurity is most concentrated*.

8.2 Access issues

PDS is an income transfer programme working through food transfers. Without it, over half the population is likely to face serious food consumption problems due to insufficient purchasing power from their own resources. The allocation of US\$ 1.27 billion for six months in Phase XIII for the purchase of ration commodities implies a monthly per capita allocation of US\$ 8. The value of the planned OFFP ration at current average market prices (July 2003) in the Centre and South regions in Iraq is estimated to be around US\$ 5.19 (ID 7785) per person per month. For a family of six persons the "ration income" will be around US\$ 31 (ID 47 000). However, actual rations were lower than the planned and market prices were lower than the import prices. For example, a lower July ration transferred only US\$ 3.41 per person under market prices. It should be clearly noted that the market prices are highly dependant on the total amount of the commodities provided in the ration system (which depresses demand for market purchases) and the amount of ration goods sold in the market by the beneficiaries. Finally, if the market prices were to reflect the average current *FOB* prices and average transport costs, the value of the July ration would increase to US\$ 6.50, and the value of the *planned OFFP ration* will increase to US\$ 9.

Without income/expenditure/consumption data at the household level it is difficult to estimate the relative importance of the transfer income in household income or in household nutrition. However, for households depending on one person's labour income, the transfer income may be equal to or more than the monthly earnings (given that the wage rate for unskilled labour may be around ID 3 500 per day (in Baghdad)²⁹ and only about 10 to 15 effective wage earning days may be possible under current rates of unemployment). The flip side of this scenario is that without ration income their food consumption would be far lower because recipients cannot allocate all of their own income for food.

Income realization from PDS comes from either sale of a part or whole of the ration and/or reducing expenditure on the same food items that were being bought before the transfers. Additional income typically results in food consumption increases though not to the full extent of the additional income. For example, food expenditure patterns observed in other countries show that when a 10 percent *increase* in income takes place, about 8 percent *increase* in food expenditures occurs in low-income households.³⁰ Such high allocation of additional income entails that the *average* share of total income allocated to food should also be high. It is estimated that poor households on the average allocate 65 to 70 percent of their total income towards food consumption.³¹

The issue of food security, especially as it concerns the poor and vulnerable population, must form a key part of the ongoing process of policy making and resource allocations for the reconstruction of Iraq. In this context, two guiding principles in relation to access and nutritional aspects of food security stand out:

- *An efficient safety net for the poor to assure sufficient access to food is necessary; and*
- *Special safety nets to address the nutritional needs of children and mothers are necessary*

8.3 Food security safety net for the poor

Under the sanctions environment, PDS served a useful purpose as a broad food security safety net. In the present environment sanctions are not an issue but persistence of poverty is a burning issue. The urgent need for moving Iraq on to a path of rapid economic growth and development to bring back the living conditions and prosperity the country once enjoyed demands efficient use of resources. Rationalizing public

²⁹ Based on interviews with several workers

³⁰ Kenney, E.T and Alderman, H, Comparative Analysis of Nutritional Effectiveness of Food Subsidies and Other Food-Related Interventions (International Food Policy Research Institute 1987)

³¹ World Bank, "Poverty Reduction Handbook". (1992)

expenditures that support consumption transfers is a key element in this process, which will have to examine the fundamental issues of targeting and choice of programme type.

Restructuring public transfers: which options to work with?

a) Continuity *versus* elimination of transfers

Clearly, public transfers (presently operating through PDS) should not be completely eliminated.

Expected benefits from economic restructuring and market liberalizations strategies cannot replace the relief that the transfers provide to the poor, who account for over 50 percent of the population.

The post-war tasks of bringing about economic, social and political stability in the country are still in their embryonic stages. These tasks of rebuilding Iraq tread on fragile structures of socio-economic relations. In the eyes of the Iraqi population, the current PDS may be viewed as an indispensable social contract between the state and the people; if this view were to be challenged, it has to be done judiciously through a process that brings issues such as the validity of the non-poor receiving social transfers and the disincentive effects of present PDS on economic development to the forefront. Experiences in other countries have shown that drastic changes to food subsidy systems have led to serious social and political disturbances. Providing a platform for social disturbances that may be widespread because PDS involves the whole population will be detrimental to the tasks of rebuilding Iraq; hence the relevance of maintaining the present PDS for sometime and the importance of strategic timing of changes.

b) Targeted *versus* universal transfers

In the present circumstances in Iraq, a transfer programme with universal eligibility is highly questionable under sustainability, equity and efficiency considerations.

Changing environment and sustainability: Clearly, PDS has provided a substantial safety net for the poor without which their food security would have been jeopardized. For the chronically poor, a food safety net would have been justified even in an environment without sanctions. Sanctions as well as the overall erosion of the economy after the Gulf War and the need to maintain social and political stability provided justification for a universal safety net. For the non-poor PDS served more as a guarantor of food supplies than as an income transfer. The major reasons that justified a universal safety net system are likely to disappear in post-war Iraq requiring re-thinking on its new role. In the first place PDS is very expensive and will be soon unsustainable when other sectors crucial for economic rehabilitation, reconstruction and growth as well as country's financial obligations including foreign debt, war compensation and pending contracts exert demand on the budgetary resources. In the current phase of OFFP, allocation for food sector represents 26 percent of the total revenue of OFFP. The dilapidated condition of the Iraqi oil industry, administrative problems and security concerns are likely to keep oil revenues lower than pre-war levels for a few years to come. In the most optimistic scenario, government oil revenue is estimated to be US\$ 13-15 billion annually during the next three years.³² From these revenues, a food subsidy maintained at current expenditure levels will call for a share of 8-10 percent. Sustaining these levels of expenditures to run an untargeted universal transfer scheme will be a highly untenable task given the opportunity cost it carries relative to urgent development needs.

Equity considerations: Equity concerns will be relevant even if the subsidy expenditure is affordable without cutting into other needs. Any transfer programme results in a redistribution of income. Often, transfer programmes have either the explicit or implicit goal of effecting an improvement in income distribution by transferring income to the poorer segments of the population. If improving equity in income distribution were a goal, clearly an undifferentiated universal transfer programme is a weak instrument. In the absence of economic sanctions that led to a universal subsidy scheme and with the post-war potential to fully open trading and supply channels nationally and internationally it will be difficult to justify the participation of the non-poor in a "food safety net". The expenditures that support those who do not need income transfers from a government budget could have more productive uses in supporting the poor to become more productive (and eventually move out of poverty).

³² Roger Diwan, "Iraqi Oil and the Iraqi State" (PFC Energy: A special presentation to DAC meeting July 21-22, 2003)

Efficiency issues: Evaluating efficiency has to be done in relation to a goal or objective of a given economic programme. Under the sanctions regime, several objectives may have been attached to PDS including ones related to food security and socio-political stability making it necessary to have everyone in the population as intended beneficiaries. In post-war Iraq, the situation has changed where concerns for economic efficiency of public expenditures would move to the centre stage. The efficiency issue can be analyzed on the assumption that the PDS was meant to protect the food security of the poor. According to the food sector allocation in Phase XIII of OFFP, the programme spends about 11 US Cents to transfer 1000 calories. If the objective of the programme were to support food consumption among low income households, say among the lower 55 percent of the population, the current allocation implies that it takes over 19 US Cents to transfer 1000 calories to this population. In other words, an extra 8 US Cents have to be expended for each 1000 calories provided to the low income households, because benefits are available to the whole population. Considered as a cash transfer, it takes US\$ 1.80 to transfer US\$ 1 to a poor person (if the objective of PDS is to assist the poor 55 percent of the population). The additional expenditure of US \$ 0.8 for each US \$ 1 incurred in transferring calories/cash is the cost of "inefficiency". This demonstrates the *general* fact the economic efficiency with which a given objective of a transfer programme is achieved will vary inversely with the amount of leakage of resources to unintended beneficiaries.

The other aspect of the efficiency concern is the opportunity cost of the leakage. The presence of a high degree of leakage means that resources are put to unproductive uses. These resources could be put to more efficient uses for example to help the vulnerable to enhance human capital and be more productive in the society through programmes intended to improve health of the poor. Assistance could be provided to eliminate or reduce malnutrition among children and women and support children to get a proper education. Savings could also be diverted to improve the nutritional content of the food basket (energy, protein, micronutrients).

The income transfer currently received by the non-poor as a proportion of their incomes is likely to be quite small and it will not be a significant determinant of nutrition. These relatively small income transfers are also unlikely to work as incentives that will make them better contributors to national income growth. In addition, the presence of untargeted transfer programmes will have an effect on the donor community, whose assistance will be needed in the reconstruction phase of Iraq's development; donor decisions may be affected by the fact that a sizeable portion of revenues are being given to the Iraqi population as handouts without any discrimination as to needs.

Targeting mechanisms: The most difficult part of targeting is the identification of the needy. Geographic targeting of food rations or cash transfers is likely to be politically difficult despite the fact that there is evidence of geographic concentrations of poverty and food insecurity at sub-national levels. Targeting by way of subsidizing "inferior" foods that may be self-targeted by the poor is not feasible due to lack of such "inferior" foods. Means (income) testing or indicator-based targeting, are potential options. The latter option involves collecting values of proxy indicators of poverty such as type of dwelling, child malnutrition, and ownership of land or other assets (durables, semi-durables) to determine eligibility. Indicator-based targeting requires a relatively large amount of data and determination of a cut-off point for a composite indicator to differentiate between poor and non-poor. Subjective decisions rather than objective criteria determine such poverty lines. The alternative option of means testing also involves determination of a poverty line, which may be more objectively achieved on the basis of recommended energy requirements and food prices and an estimate of basic non-food needs. However, the greatest difficulty will be to obtain accurate income levels from the households to compare with the poverty line. One way to address this problem is to make it clear that the transfers are meant only to help the poor. The issue for public transfers should be opened for public debate and discussion. A highly visible public information campaign will be needed to stimulate an active public dialogue on the future of safety-net systems in Iraq.

At the time of a targeting exercise, households who wish to receive future assistance could be asked to "self-declare" their incomes. Verification of the claims for inclusion in the safety net could be conducted with the assistance of community participation, with the *Mukhtars* and other respected community members providing the leadership. Any targeting exercise can be politically sensitive, and therefore has to be carefully managed especially focussing on the participation of the community, ownership and consensus-based decision-making.

c) In-kind versus cash transfers

In-kind (food commodity) transfers

Advantages: First, there is the commonly perceived psychological advantage that when food is given beneficiaries will have a moral obligation to consume the food. If nutrition is the objective, giving food is treated as the most direct way of achieving it. But getting free or subsidized food is also like getting an income, when it is possible to trade food for cash or other goods. Giving a food transfer assumes that the beneficiary will allocate a higher proportion of an additional unit of food income towards food consumption than in the case of receiving cash income. Studies from India, Philippines and Sri Lanka have observed some increases in food consumption when food is given rather than cash.³³ While there is no rigorous economic explanation of this phenomenon, one strong argument points to greater control of food resources by women leading to a higher allocation of the “food income” towards household nutrition. Whether the same phenomenon will hold if, for example, the woman-head of a household is given a cash transfer is an interesting policy question.

The most important economic advantage of giving food is the protection it gives against inflation. A transfer coming in the form a commodity is self-indexed; cost of any inflation is borne by the state providing the transfer. This augurs well for nutritional welfare in poor households because the poor receive a much larger negative impact of food price increases than the non-poor. And, inflation can be a real issue in the process of economic liberalization.

Disadvantages: The main disadvantage of large-scale transfers of highly subsidized food commodities is the disincentive effects they unleash on domestic production and trade. Earlier sections have highlighted and documented the large drop in wheat and barley prices during the 1995-96 period as PDS implementation went forward.

These interventions typically depress market prices. Price depressions lead to a serious erosion of profitability in domestic production; farmers reduce or move out of production and agricultural labour loose employment opportunities. For example, the PDS injects a larger amount of food into the economy than the quantity that may have been demanded in the absence of a subsidy scheme. The current PDS includes two major commodities that are also locally produced – wheat and rice. Based on the most recent distributions, the annual quantities of these items distributed through the PDS amounts to over 2.8 million tons of wheat flour and nearly one million tons of rice. FAO estimates that reductions in domestic wheat flour prices since 1996/97 have led to the decrease in wheat cropped area by 12.8 percent.³⁴

Other disincentives may have contributed to the decrease in cropped area. For example there were problems of assuring adequate supplies of fertilizer, pesticides and spare parts for pumps and other agricultural machinery. This period also experienced concerted efforts to increase the supply of animal protein (mainly through poultry). While these factors also could have negatively affected crop production, the dominant disincentive may have come from the vastly reduced demand for domestically produced wheat and rice due to the PDS.

The impact of the PDS structure of interventions in the food economy goes beyond the agricultural production sector. Its dominance over external and internal trading of the major food commodities and procurement of domestic produce is likely to have seriously dampened private sector incentives to invest and engage in these activities. Hence, the PDS in its present form may be compromising the potential contribution of a well-functioning private sector to economic growth and employment generation.

³³ Edirisinghe, N. “The Food Factor” in Time For Change: Food Aid And Development (WFP. Rome October 1998): this phenomenon has been observed even though the food transfers were infra-marginal, that is, the transfer is less than what beneficiaries would normally buy, which, according to economic theory should not lead to any differences in marginal allocations.

³⁴ FAO, Towards Sustainable Agricultural Development in Iraq: The Transition from Relief, Rehabilitation and Reconstruction to Development (May 2003)

Cash transfers

Advantages: The main advantage of a cash transfer is that it does not distort consumption or production decisions. It does not come in the way of consumer sovereignty in decision making. With cash in hand, consumers can make their own choices. With regards to assistance given as food consumers can of course convert their food to cash by selling in the market. However, the selling price will not reflect the true value of the commodity, simply because the buyer will later have to sell again (at a higher price) to realise a profit. In addition time, energy, and effort (which may have costs) may also be involved. In short cash transfers tend to be a more efficient means of transferring incomes to the beneficiaries.

A cash transfer programme can also be advantageous for the society as a whole. This is because of the non-distortive character of cash. Where the development strategy of a society is based on well-functioning markets and efficiency gains from competition, providing social transfers through cash will be most compatible with such development objectives. In fact, cash transfers may augment the development process working through additional effective demand for goods and services and having salutary effect on domestic production, trading activities and employment generation. A commodity transfer programme will also demand goods for distribution, but it is unlikely to have positive effects on market development because of negative impacts on agricultural prices and trading activities that typically accompany large-scale public distribution of essential commodities.

Disadvantages: The main disadvantage of cash transfers is that their real value to the beneficiaries is directly dependant on the rate of inflation. Firstly, there is the almost assured prospect of inflation in food and other prices in the immediate aftermath of the initiation of a cash transfer programme. In the case of Iraq even with a targeted programme a huge amount of purchasing power will be transferred to consumers and the immediate increase in effective demand for food in particular will be enormous. The supply structure will be weak given that it had no incentive to grow under long years of PDS. The immediate impact could be sharp increases in prices. Secondly, the process of market liberalization (removal of controls, elimination of subsidies) will also witness inflationary pressures on goods and services. Thirdly, domestic prices, especially of import-dependant goods will be subject to price changes in the global markets. Poor beneficiaries of cash transfers may find inflation decreasing their consumption relative to levels experienced when food rations were given. Cash transfers will buy less food than before and the poor will not have the option to compensate for these reductions by shifting from other household expenditures. Their obvious comparison will be with in-kind transfers, which are automatically protected from inflation. Apart from any social and political implications of such a scenario, it will also challenge the nutritional objectives of the transfers.

A meaningful safety net has to protect its beneficiaries from the impact of inflation. Unlike in the case of commodity transfers (which are self-indexed) a cash programme will have to take special steps to minimize the problem. For example, inflation that may take place at the initial period of the introduction of cash transfers can be minimized by making comprehensive arrangements to ensure that retailers have sufficient food stocks at the time of the change. Assuring supplies from government stocks to retailers until adequate private import and domestic supply trade is in place can be a strategy for arresting initial inflation. The impact of longer-run inflation could be addressed by having periodic adjustments to the total value of cash transfers to account for any inflation-driven erosion of the real value of cash transfers.

Another major disadvantage of cash transfers is their greater proneness to theft, frauds and administrative leakages relative to in-kind transfer programmes. This is because cash can be put to use immediately, whereas commodities involve certain transaction costs prior to realization of their cash values. Assuring security and policing administration will become an enormous task for the implementers, involving high costs. These, however, may not be insurmountable constraints. For example, use of the existing banking system for cash distribution may minimize some of the risks. Another approach is to replace cash with food stamps.

Food stamps could be used by beneficiaries similarly as cash to purchase their food (and other) requirements from food agents/ other private retailers and the latter could be allowed to bank these food stamps/vouchers just as cash. Although this is tantamount to introducing a parallel medium of exchange, food stamps/vouchers may not be as attractive as cash for thefts and fraud. In addition, food stamps/vouchers may facilitate legal proceedings against theft and fraud better than cash. Food stamps, especially when assigned to the female head of the household, may provide a psychological advantage that the transfers are meant to enhance food consumption in the household. Even if food stamps are not assigned to the female head they will lead to a sense of "entitlement" by the female heads of household, who typically hold responsibility over nutritional welfare in their households.

In summary, it appears that the cash versus food transfers debate boils down to the key issue of short-term versus long-term benefits. Food transfers may be marginally better in getting nutritional benefits in the current situation but may be detrimental to rapid development of the economy. Cash transfers may be a marginally inferior facilitator of household nutrition, but can be an effective promoter of rapid economic growth and development that can help eliminate the need for transfers. Can programme design resolve this conflict? Will giving cash transfers to women heads of households or giving food stamps (over which women are likely to exert command) improve the nutritional situation in their households? Could a higher cash transfer compensate for the marginal nutritional losses? Can commodity transfers be limited to those not produced domestically without reducing the intended nutritional transfer? These questions need to be addressed in order to arrive at the most appropriate safety net for the poor.

Process of change: Restructuring also must be guided by the social and political ramifications of change. A transitory rather than an abrupt approach to bring about change is thus warranted. Current circumstances in Iraq dictate that the present PDS should be continued at least until about mid-2004/end of 2004. During this period, an exercise to identify the households who deserve public assistance to meet food consumption needs could be carried out (discussed earlier). This period also could be used to make administrative and other operational preparations required for a change over to a cash transfer programme for the needy, if such a decision is taken. Whichever the programme type, a targeted programme should begin no later than the first quarter of 2005. Refinement of targeting should take place periodically, preferably every six months, to assure only the needy remain in the programme.

8.4 Special safety nets to meet critical needs of children and mothers

Two food-based interventions are proposed:

- 1) Assistance to malnourished children, pregnant and nursing women

These activities would be carried out in collaboration with the Iraqi MoH's Nutrition Research Institute (NRI) and UNICEF, in the context of the NRI Targeted Nutrition Programme (TNP). Implementation would be through the country-wide network of Community Child Care Units (CCCU) and Primary Health Care Centres (PHCs). Screening of children for malnutrition is done at each level and children are referred through the system. The most severely malnourished are directed to Therapeutic Feeding Centres, supported by UNICEF (which will also provide High Protein Biscuits to moderately malnourished children for most of 2004).

PHCs refer two groups of children for supplementary feeding provided by WFP: acutely malnourished children under age 5 and chronically malnourished children under age 2 (NB: there is some overlap between these two groups). All children referred receive a ration designed to constitute an important compliment to their daily nutrient intake. The ration is composed of a soya blended/fortified mix, sugar, vegetable oil, and dry-skimmed milk and provides a total of 650 calories as well as several essential micro-nutrients. In addition to the children's ration, and based on the assumption that these children come from chronically poor households, a family ration of basic food items is provided. These rations are provided for a period of three months, on the condition that the child is brought in monthly for screening (thus it serves also as an incentive). The family ration, providing a total of 300 calories per family member (maximum 6 members) includes rice, vegetable oil and lentils.

An essential component of the supplementary feeding programme is information and education. Since malnutrition is closely associated with poor hygiene, and improper health practices, health and nutrition messages will be designed and delivered to families participating in the programme. This will be done through organised activities at PHCs and CCCUs, through food agents in collaboration with MOT, as well as through distribution of printed material and use of other media such as radio.

- 2) Nutritional support to primary school children

One of the most tragic consequences of the past years of conflict and economic sanctions has been the reversal of progress made in the field of education. Decreases in primary school enrolment are known to have occurred in recent years. According to UNICEF 1998 primary school enrolment rates were

approximately 89 percent. Only two years later these rates have dropped to 76 percent³⁵ The problem of non-enrolment affects girls disproportionately. UNICEF 2000 data shows 31 percent of girls in primary age not enrolled while the corresponding rate for boys is only 18 percent. It is likely that the non-enrolment rates are higher amongst the poorest families. Studies from around the world have shown that under-fed children attending school are prone to difficulty regarding attention spans and concentration.

The above conditions appear to warrant the need for a school feeding programme, both as an incentive to attend school and as crucial nutritional support to vulnerable children. This finding was corroborated by a School Feeding Assessment Mission in August 2003, led by WFP with participation of UNESCO and UNICEF. The mission also found wide support for such an activity, among Iraqi educators, advisers within the CPA (both Education and Health), teachers and parents. The mission members also included a food technologist, and a representative of the Ministry of Health in Chile (where a highly successful, private sector oriented school feeding programme operates nationwide). The mission's recommendations are for a school feeding intervention having the following characteristics:

- An initial small-scale, geographically targeted pilot activity, to provide input for expansion
- Close integration with school health programmes, including addition of a de-worming activity
- Close collaboration with Government to build capacity
- Reliance on locally produced foods and support to small local enterprises to participate
- A targeting approach linked to eventual modifications in the PDS

8.5 Food assistance needs

PDS: Food requirements for the safety net for the poor operated through the PDS will be met by the government of Iraq with supplies coming from the renegotiated contracts under OFFP, carry-over stocks from the WFP's EMOP and new imports. Hence, external assistance through food aid is not envisaged for the PDS.

Supplementary Feeding Programme: WFP, in consultation with Ministry of Health and UNICEF, has estimated the number of beneficiaries to be about 363 223 children and 2 179 338 family members of malnourished children and 1 292 670 pregnant and nursing women. The cost of the programme for the year 2004 is estimated at US\$ 17.3 million for providing nutritious food supplementation to malnourished children and their family members as an incentive to bring about a family focus on the intervention and at US\$ 33.7 million for food supplementation to lactating and pregnant women. The total estimated cost for 2004 is US\$ 51.1 million. Costing for future years will have to be based on the demographic dynamics and the potential for reducing the total number of beneficiaries by some degree due to positive impacts of the programme and general development efforts.

School Feeding Programme: This programme will be targeted to about 3 million out of 5 million children in primary schools for on-site feeding. Geographic targeting will be based on criteria which takes into account both food insecurity and education conditions. In addition, 1.35 million girls (45 percent of the 3 million vulnerable children) will be given take-home rations as an incentive to complete their schooling.

8.6 Current WFP operations

In March of 2003, as the fighting associated with the recent war began to subside, WFP immediately launched its current emergency operation (EMOP 10259.0) with an emphasis on providing assistance to PDS in Iraq. Support to PDS was originally envisaged for a period of three months (May, June and July 2003); it was expected that the system would be running independently by the fourth month (August). However, following the re-entry of United Nations international staff to Iraq in April, it became clear that support would be needed for an additional two months. This is because there was no functioning administrative structure in the country to initiate and sustain the lengthy process of food procurement and transportation. The assistance period has therefore been extended until the end of October 2003.

The level of relief assistance originally planned for potential refugee and internally displaced persons (IDPs) (1.3 and 0.8 million, respectively) was no longer needed, as the caseloads did not materialize. The planned

³⁵ UNICEF, "Situation of Children in Iraq 2202" (February 2002)

food commodities for the vulnerable group feeding programme and supplementary feeding programme targeting the most vulnerable (10 percent of the PDS beneficiaries) remain available for a five-month period. In light of the above elements, operational objectives for the immediate-term intervention were revised as follows in order to:

- ensure the continuity of PDS food supply pipeline until the end of October 2003;
- provide support to the Ministry of Trade (MOT) in PDS operations; and
- carry out a new Baseline Food Insecurity Assessment led by WFP's VAM unit in collaboration with partners, to provide new information contributing to a more targeted system of assistance, thereby facilitating a transition away from the current blanket coverage system.

Since the end of March 2003, WFP has been delivering over 1.6 million tonnes of food commodities into Iraq to assist the MOT in providing food rations to over 26 million Iraqis. While the MOT's distribution of PDS rations in the post-war period has largely gone according to plan, issues such as in-complete rations, due to pipeline shortfalls for specific commodities, still present challenges. Household survey data collected by the Mission in Baghdad, Kerbala, and Shatt Al Arab district of Basrah governorate confirm that most households were not regularly receiving full rations. Seven percent of the households in Shatt Al Arab, 34 percent in Baghdad and 14 percent in Kerbala did not receive wheat in the ration. Eight percent in Shatt Al Arab, 48 percent in Baghdad and 16 percent in Kerbala did not receive rice. About half of the households in all areas did not receive pulses and oil, and 85 percent did not receive milk.

In the three Northern governorates, WFP continued the distribution of food rations under PDS throughout the conflict, although on a limited basis. WFP is currently serving the entire population of the northern governorates, 3.6 million people. In addition to PDS for everyone, WFP-North implemented and continued supplementary feeding programmes for vulnerable household members, school feeding and food security and income-generating projects.

Food assistance is also being provided to vulnerable groups, notably IDPs, pregnant/lactating women, malnourished children, hospitals patients and social cases (through institutional feeding, for example in orphanages, disabled centres, homes for the elderly, etc.).

WFP EMOP 10259.0 will terminate by the end of 2003, by which time it is expected that the situation will have stabilized sufficiently for MOT to re-assume full control of PDS. The intervening period will be used to gradually hand over responsibility for those functions that WFP had been temporarily assuming, including coordination of incoming shipments.

The major constraints in the operation of PDS remain security-related. Warehouses and silos continue to require enhanced security measures to prevent looting and pilfering and routes must be made secure for food convoys. PDS infrastructure, notably silos, warehouses and other MOT facilities also require major repair, particularly in the southern governorates.

9. CONCLUSIONS

1. Iraq's agricultural sector contributes increased nutrient availability from domestic production and could provide adequate nutrients, especially in terms of calories and proteins, if this were combined with PDS food rations (tables 11.1 to 11.5). But the country is at present not self sufficient and still requires food imports.
2. PDS food rationing was started up again in June 2003 and seems to be functioning well in spite of irregularities.
3. Poor households still suffer from inadequate supplies from PDS rations. The situation was made worse especially in the centre and south from unemployment and the insecurity and instability since the formal end to hostilities.
4. Meal frequency in households has increased since 2000, but food diversity remains deficient, as on average only 3.2 out of 5 food groups are being consumed (this is lower than in 2000).
5. Although nutrient availability at national level is adequate, household access to food for the poorest segments of the population remains uncertain.
6. Although the food ration has been improved and the TNP and multi-sectoral efforts under OFFP dramatically reduced malnutrition, the situation observed in June 2003 has compromised the improving trend. Recent post-war figures for acute malnutrition are higher than the 2002 national average.
7. High rates of acute malnutrition exist in the three governorates studied, regardless of chronic poverty. Some 30–40 percent of adults remain overweight alongside malnourished children and wasted adults in the same community, which indicates improper nutrition practices concerning intra-household food sharing, diet, care and life style. There is cause for concern about the double burden of malnutrition within families.
8. The fact that infant formula is being supplied freely along with PDS food rations since 1997 has encouraged artificial feeding practices and discouraged breastfeeding. Exclusive breastfeeding has reached a low, at 17–22 percent, although the shortage of infant formula in the current ration reflected in slight increase above 2000-level. Better infant feeding practices must be addressed in nutrition programmes in Iraq.
9. Damage to health service installations and water/sanitation and electricity infrastructures has compounded the already precarious situation of health and nutrition by increasing water-borne diseases, limiting or denying health services, and increasing household costs for basic needs like health services, water and fuel.
10. The depressed agricultural market created by long-term dependency on food rations has been further damaged by instability in post-war Iraq. Although medium- and long-term development through expected large oil revenues can be planned, emergency relief and aid assistance are nonetheless still critically needed, particularly as the OFFP will terminate by the end of November 2003, and until the country can become stable and secure economically, politically and socially.
11. The northern governorates were spared the direct effects of the war and acute malnutrition has been virtually eliminated (only 2 percent). However, large scale dependency on food rations and aid under OFFP, the lack of a stable free-market system, inappropriate feeding practices and deteriorating health services could cause the situation to deteriorate rapidly if not corrected in time.
12. It has been observed that current data-collection systems in Iraq place different emphasis on data according to the different organizational interests. Although sizeable amounts of information are available among the various agencies and departments, access to information and information sharing needs to be much more systematic. There is no system for regularly disseminating food security related information to users

10. RECOMMENDATIONS

Some actions were taken after the FAO/WFP Mission report and recommendations in 2000. As the result of developments in the agricultural sector and increased nutrients in PDS food rations, total dietary energy supply increased and nutritional status in Iraq improved. Acute malnutrition, an indicator of deficiencies in current food security, and chronic malnutrition, an indicator of chronic poverty, have been declining up until 2002. The damage and deterioration during the recent conflict sustained by the health services, water/sanitation and electricity sectors; the halting of TNP; and instability, insecurity and unemployment in post-war Iraq have put a stop to the trend of improvements.

Very few of the recommendations made by 2000 Missions have been met, but those that have been followed are listed here.

- Fortified vegetable oil has been included in the ration.
- The energy supply from the ration has been increased (caloric intake has increased).
- Efforts made in the agricultural sector have resulted in increase production and nutrient availability.
- Efforts in the other sectors under OFFP improved the availability of humanitarian supplies to a certain level, reflected in declining trends of acute malnutrition.

In view of the lifting of sanctions, it may have seemed unnecessary to continue building on the 2000 recommendations for improving the quality and delivery of humanitarian assistance – especially concerning food rations. In reality, however, this is a continuing concern of the current Mission. Until complete restitution of the country's infrastructure and stability and rehabilitation of the economy and agricultural sector, Iraq still needs continued food and humanitarian assistance.

The following are needed urgently:

- Non PDS food assistance should be targeted, after careful vulnerability assessment and identification, to needy populations, ensuring an adequate supply of essential nutrients (including micronutrients) through a well-balanced and diversified ration.
- Food rations should proscribe the infant formula, when the situation permits.
- Supplementary rationing for vulnerable groups, such as that delivered through the WFP Protracted Relief and Recovery Operation or through WFP's programme under the Nutrition sector in the north, should continue to be implemented throughout Iraq.
- Nutrition rehabilitation for malnourished children, such as the UNICEF TNP programme, should continue and be strengthened. The broader coverage and proper management of severely malnourished children by trained personnel and adequate supplies must be addressed in a revitalized, intensified programme.
- Local Iraqi agricultural production and the food industry should be encouraged to complement the food diversity of the PDS ration.
Gender disparity in nutritional levels must be reduced; and positive behaviour in feeding and caring of vulnerable household members must be promoted. Establishment of safety nets at the community level should be encouraged.
- Locally appropriate technology should be applied immediately to improve the water and sanitation infrastructure, as major rehabilitation of the treatment plants will take much longer.
- The current efforts by the international community to assist in restitution in Iraq, especially concerning food, health and nutrition, must be enhanced and better coordinated.
- The food and nutrition problems of vulnerable groups such as refugees, returnees and especially IDPs need to be tackled in time through a well-organized information network and an interagency coordinating body.

The following recommendations concern medium- and long-term planning:

The Mission recognizes the need to continue PDS and relief food aid activities for the short-medium term especially after taking into account that the agriculture sector and its' contribution to national food supply will need considerable time for rehabilitation. However, the Mission also recommends that, to the greatest extent possible, the bulk of the PDS food basket content be acquired through procurement of grains locally from domestic producers.

Furthermore, once complete rehabilitation of the agricultural sector has been carried out and normal production activities have resumed, an agricultural policy framework should be set up to create, *inter alia*, a conducive agricultural market and a price environment that would give local producers enough incentives to increase food and agricultural production. This framework would imply revisiting the ongoing food subsidies, which should, in the medium- to long-term, be phased out gradually.

Other medium-long term recommendations include:

- Advocacy in the private sector should encourage and support micronutrient food fortification for iron, vitamin A and Iodine.
- Longer-term development policies should ensure food security through sustainable agricultural development strategies leading to self reliance and stability in food supplies.
- Given that the agricultural sector is in complete disarray, the first logical step is to conduct a comprehensive needs assessment analysis, as is currently underway thru the UNDG/World Bank joint Needs Assessment process for Iraq's reconstruction planning. This assessment includes an evaluation of war and sanctions era related damage and associated needs and priorities regarding agricultural sub-sectors. The assessment should include, as a priority for the centre and south, a full revision of the collection and analysis of agricultural statistics leading to the establishment of new baseline data for the irrigated sector.
- Poverty alleviation and the promotion of the health and education sectors should be among the top priorities of development policies.
- A comprehensive information system is needed and current food and nutrition information systems are not coordinated adequately to monitor Iraq's food security situation comprehensively. FAO/WFP Missions assess food security every two to three years, providing information for planners. FAO assesses yearly crop production and livestock statistics. WFP conducts monthly monitoring of the PDS food ration and collects market prices of food items. WFP has also developed and is continuing to strengthen its' Vulnerability Analysis and Mapping (VAM) Unit and its' food security analysis capacity. A recent WFP VAM and Partners Baseline Food Security Assessment has been launched with participation from various Ministries, UN agencies, and NGOs. VAM's recent partnerships with the Ministry of Planning's Central Statistics Office (CSO) and the Ministry of Health's Nutrition Research Institute (NRI) lay the groundwork for further partnership and capacity building initiatives. The Coping Strategies Index tool currently being implemented by CSO as a "once-off" input into a static baseline assessment of food insecurity could easily be implemented periodically, once every quarter for example, for the purpose of future food security monitoring during a PDS "transition" period. FAO, UNDP, SCF-UK and possibly CARE are also likely to be involved in future capacity building initiatives with an emphasis on assessing and monitoring poverty, food insecurity, and malnutrition. UNICEF has supported the Nutrition Research Institute of the Ministry of Health (MOH) through a monthly monitoring of its Targeted Nutrition Programme (TNP), and conducted yearly nation-wide MICS surveys. While many organisations in Iraq are clearly already active in food security and nutrition assessment and monitoring activities, much more needs to be done to establish a more coordinated and systematic approach for the benefit of all parties.
- In the current food and nutrition situation, adequate supplies exist at national level, but complicated interactions at household level result in high child malnutrition and mortality and the prevalence of obesity among adults, with high levels of micronutrient deficiencies. A more comprehensive monitoring system and the ability to provide information for programme management and early warning for the central planners as well as for peripheral managers are urgently needed.

As sanctions are lifted, and noting the absence of a democratically elected government at the moment, the Mission proposes that the returns from oil sales be used for the development of the Iraqi economy as a whole through the recently established Development Fund for Iraq with due consideration given to the agricultural sector.

This report is prepared on the responsibility of the FAO and WFP Secretariats with information from official and unofficial sources. Since conditions may change rapidly, please contact the undersigned for further information if required.

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