

General characteristics of food in developing regions—a situational diagnostic assessment

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Since the founding of the Food and Agriculture Organization of the United Nations in 1946, it has reported on the serious problem of hunger in the world and has undertaken various initiatives for eradicating this problem; however, they have ended in failure. The number of people suffering from hunger has increased from 500 to 800 million in a period of six decades, despite constant growth in world food production, which has been more than sufficient to cover the needs of all of humanity since the 1970s. This paper analyses FAO initiatives in the framework of the evolution of the nutritional situation in developing countries and identifies national and regional contexts in which technical solutions may be successful, as well as those requiring the implementation of economic, political and social measures.

World food situation: Developing countries: Nutrition

Since the founding of the Food and Agriculture Organization of the United Nations in 1946, it has reported on the serious problem of hunger in the world. The First World Food Survey, conducted that same year by the FAO, revealed that two-thirds of the world's population suffered from hunger, and pointed to a net transfer of food from undernourished countries to industrialized countries. One of the FAO's first proposals for resolving this grave situation was the creation of a World Food Council that would be given responsibility for handling the world's food reserves and financing the placement of surplus food in the countries with the greatest need. This Council was never consolidated, however. In 1952, the FAO conducted the Second World Food Survey, which confirmed the serious world situation, and documented the deterioration in this regard in the poorest countries (De Castro, 1974).

During the 1960s, a new juncture in international economic relations prompted the agricultural technification of developing countries. Ironically, this process—far from signifying an improvement in the food and nutrition situation for the poor populations in these countries—frequently led to a deterioration of their situation and to consecutive agricultural crises, with the substitution of staple food crops with highly technified commercial crops destined for use as inputs in transnational food industries (Estevez & Portilla, 1980). However, the growth in agricultural productivity sparked the hope that food sufficiency facilitated by agricultural modernization would, on its own, resolve the problem of hunger on the planet (Pearson, 1969). Taking into consideration the cost of the necessary food for covering the deficit in energy requirements for undernourished children in the world, the then World Bank president, Robert McNamara, said in 1971 that the eradication of child malnutrition in the world would have a cost of only eight dollars a year per child.

In November 1974, at the World Food Conference organized by the UN in Rome, the goal of eradicating hunger on the face of the earth by 1984 was established. The final declaration of the Conference made the commitment that 'within a decade, no child will go to bed hungry, no family will fear for its next day's bread, and no human being's future and capacities will be stunted by malnutrition' (Organización de las Naciones Unidas, 1974). Such optimism was founded on a projected increase in the production of food for human consumption on the planet, from 10.04 to 10.88 MJ (2400 to 2600 kcal) per inhabitant over the course of a decade. This would make it possible to satisfy, with a very reasonable margin of confidence, the energy and nutrient needs for all the planet's inhabitants. The production goals were fully achieved, with 11.09 MJ (2650 kcal) produced per inhabitant. Nevertheless, compliance with the goals for eradicating malnutrition became a more distant possibility, with hunger experienced in vast regions of the planet, and an increase in malnutrition in developing countries.

In 1996, the FAO organized a World Food Summit 'in response to the continued existence of widespread undernutrition and growing concern about the capacity of agriculture to meet future food needs'. In that year, world food availability was already at 11.59 MJ (2770 kcal), although in the 64 countries with the lowest incomes and where two-thirds of the world population is concentrated, food availability was equivalent to only 10.04 MJ (2400 kcal; Food and Agriculture Organization, 1999).

The 1996 World Summit established the goal of reducing the number of undernourished people by half, from 800 to 400 million, over the following 20 years. Five years later, a total reduction of only 19 million had been registered, and, furthermore, not only a decrease in the rate of reducing

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hunger had become apparent, but also an increase in the undernourished population in critical areas such as sub-Saharan Africa and India (Food and Agriculture Organization, 2003). In the most recent FAO report on the status of food insecurity in the world, it is acknowledged that over the last 5 years the number of undernourished persons has increased by nearly four million a year. All this indicates that, once again, it will be impossible to meet the proposed goal unless vigorous measures are taken to radically modify the current tendencies.

The incapacity to eradicate the serious problem of hunger and chronic malnutrition on the planet is contradictory if we consider that, since 1974, a notorious increase has been observed not only in world food production, but also in food availability at the national level even in the poorest countries, with only some extreme exceptions. Developing countries have increased the per capita availability of food energy by 24% and of proteins by 32%, and even the availability of animal proteins has doubled, from 10 to 20 daily grams per capita (Food and Agriculture Organization, 2004). Another notorious paradox can be observed when we analyse recent tendencies in food and nutrition conditions in regions and countries where there is a high prevalence of malnutrition; specifically the emergence of serious problems of obesity in the poor population, with serious health consequences (Peña & Bacallao, 2000).

The UN classifies 50 countries as developed, including European countries, the majority of the former Soviet Union nations, plus Canada, the USA, Australia, New Zealand, South Africa, Japan and Israel. It classifies the rest of the countries as developing, with a common denominator of per capita income that is lower than \$US 17 000. These approximately 180 countries have a total population of 4.5 billion persons, and their food and nutritional problems differ significantly. For the purpose of analysis, it is convenient to operationally subdivide these countries according to their geographic location: Latin America, sub-Saharan Africa, Southeast Asia, the Near East and North Africa, China and India, as well as by economic development achieved, measured by per capita income: low income (less than \$US 750), low medium income (\$US 750–3000), high medium income (from \$US 3000–9200) and high income (above \$US 9200).

Of the undernourished population, 135 million are concentrated in China, 214 million in India, 198 million in sub-Saharan Africa, and 156 million in the other Asian and Pacific countries. There are 53 million in Latin America, and 85 million in other countries of the world, including 10 million who reside in high-income developed countries (Food and Agriculture Organization, 2003). Another pertinent criterion for classifying countries is national food availability, estimated, for example, by per capita energy availability: < 8.37 MJ (< 2000 kcal); 8.37–10.04 MJ (2000–2400 kcal); 10.04–10.88 MJ (2400–2600 kcal); 10.88–12.55 MJ (2600–3000 kcal); and > 12.55 MJ (> 3000 kcal). Finally, another criterion proposed is in relation to the percentage of the population that is undernourished: less than 5%; from 5 to 19%; from 20 to 34%; and more than 35%.

The distribution of developing countries according to this multidimensional classification matrix (Table 1) denotes diverse scenarios manifesting the level of efficiency in the use of

recourses, the unequal distribution of wealth, the effectiveness of programmes for fighting malnutrition, and the prevention of obesity and non-transmissible chronic illnesses:

- Countries in conditions of extreme poverty, with deterioration in food production and political crises, with no possibility of economic development in the short or medium term that will allow them to satisfy the minimal nutritional requirements of their populations, and for which the only immediate alternative for alleviating the situation of hunger is international aid (Sierra Leone, Congo, Somalia, Afghanistan and Burundi, among others).
- Low-income countries that have improved in terms of food availability; however, they have not been able to decrease the prevalence of malnutrition (sub-Saharan Africa). In these countries, malnutrition is frequently associated with serious social inequalities; unhealthy conditions; epidemics such as HIV/AIDS, malaria, respiratory and gastrointestinal infections; minimal health services; and the economic incapacity of broad sectors of the population to access the existing food. These countries require vigorous action to comprehensively fight poverty through rational policies of income transfer, creation of productive, health and educational infrastructure, efficient use of available resources at a local level, and direct food aid.
- Countries that have made efficient use of available health and food resources, and have achieved significant progress in coming closer to the eradication of child malnutrition (Costa Rica, Chile, Cuba and Thailand, for example).
- Countries that have increasing economic and food resources; some with substantial improvements in reducing malnutrition (China, India), and others with minimal progress in reducing the prevalence of malnutrition in broad sectors of the marginalized population, and which are already confronting a serious epidemic of obesity and chronic illnesses associated with relative overnutrition as a consequence of intense changes in eating patterns and life-styles (Mexico, Brazil, Egypt).

The current challenge consists of developing a theoretical–conceptual model for articulating the logic of the different processes observed, and determining their causes and development as the interaction of political, economic, cultural and technological processes in a globalized world, in which the processes of demographic, epidemiological and nutritional transition make up a highly complex system that is impossible to understand through only linear mechanisms of agricultural productivity (Popkin, 2004), the expansion of health services and nutritional education. The understanding of these processes is indispensable for formulating viable actions and programmes that will make it possible to overcome decades of repeated failures to improve or avoid the deterioration in the health and nutritional conditions in developing countries.

An initial element for constructing a theoretical–conceptual model for an objective understanding of the nutritional dynamics of the planet requires moving beyond the naive productivist vision that conceives of hunger and malnutrition as merely problems of insufficient food, due to low agricultural productivity. As of 2002, world food availability already surpassed daily per capita levels of 11.72 MJ (2800 kcal) and 75 g of protein—more than sufficient for satisfying the requirements of all the planet's inhabitants. The lack of a linear relationship

Table 1. Distribution of developing countries according to dietary energy supply, child mortality, malnutrition and gross national income (GNI)

Country	Total population (millions)*	Dietary energy supply per capita (kcal/d)†‡	Under-five mortality rate (per 1000 live births)§	Under-five underweight moderate & severe (%)§	GNI per capita (\$US)	GNI parity purchasing power (international \$)
Countries in conditions of extreme poverty, with deterioration in food production and political crises						
Burundi	7	1610	190	45	100	620
Dem. Rep. of the Congo	52	1570	205	34	100	640
Ethiopia	67	1910	172	47	100	710
Liberia	3	2080	235	27	140	NA
Sierra Leone	5	1930	316	27	150	530
Malawi	11	2170	183	25	170	600
Tajikistan	6	1720	116	NA	190	1040
Eritrea	4	1670	111	44	190	1110
Niger	11	2130	265	40	200	820
Mozambique	18	1950	197	26	210	1070
Rwanda	8	2000	183	24	220	1290
Chad	8	2150	200	28	250	1100
Central African Rep.	4	1960	180	23	260	1080
United Rep. of Tanzania	35	1970	165	29	290	610
Madagascar	16	2070	136	40	290	800
Mali	11	2370	231	33	290	960
Burkina Faso	12	2460	197	34	300	1180
Cambodia	12	1970	138	45	310	2060
Zambia	10	1900	202	24	380	850
Kenya	31	2040	122	22	390	1020
Yemen	19	2050	107	46	520	820
Congo	4	2210	108	14	640	710
Angola	13	1900	260	31	710	1890
Afghanistan	3	1630	257	49	NA	NA
Somalia	9	1600	225	26	NA	NA
Iraq	24	2150	133	16	NA	NA
Low-income countries that have improved in terms of food availability, but not been able to decrease the prevalence of malnutrition						
Nigeria	133	2770	183	31	320	900
Mauritania	3	2730	183	32	430	2010
Côte d'Ivoire	17	2590	175	21	660	1390
Guinea	8	2330	169	33	430	2100
Benin	7	2480	158	23	440	1110
Cameroon	16	2240	155	22	640	1980
Togo	5	2310	141	25	310	1500
Senegal	10	2280	138	23	550	1660
Lesotho	2	2310	132	18	590	3120
Uganda	25	2370	124	23	240	1440
Haiti	8	2040	123	17	380	1630
Zimbabwe	13	2100	123	13	480	2180
Botswana	2	2270	110	13	3430	7960
Pakistan	145	2460	109	38	470	2060
Myanmar	49	2810	109	28	NA	NA
Sudan	33	2290	107	34	460	1880
Lao People's Dem.	6	2280	100	40	320	1730
Ghana	20	2620	100	25	320	2190
Kazakhstan	15	2360	99	4	1780	6170
Azerbaijan	8	2380	96	17	810	3380
Papua New Guinea	5	2180	94	35	510	2240
India	1049	2490	93	47	530	2880
Nepal	24	2440	91	48	240	1420
Turkmenistan	5	2760	87	12	1120	5840
Bangladesh	136	2160	77	52	400	1870
Bolivia	9	2240	77	8	890	2450
Mongolia	2	2070	76	13	480	1800
Uzbekistan	25	2270	68	19	420	1720
Namibia	2	2700	67	24	1870	6620
Kyrgyzstan	5	2860	61	11	330	1660
Guatemala	12	2160	58	24	1910	4060
Dem. People's Rep. Korea	22	2180	55	28	NA	NA
El Salvador	6	2460	39	12	2200	4890
Honduras	7	2400	38	17	970	2580
Viet Nam	80	2500	38	34	480	2490
Philippines	80	2370	38	32	1080	4640

Table 1. Continued

Country	Total population (millions)*	Dietary energy supply per capita (kcal/d)†‡	Under-five mortality rate (per 1000 live births)§	Under-five underweight moderate & severe (%)§	GNI per capita (\$US)	GNI parity purchasing power (international \$)
Countries that have made efficient use of available health and food resources, closer to the eradication of child malnutrition						
Cuba	11	2610	9	4	NA	NA
Thailand	62	2470	23	18	2190	7450
Uruguay	3	2840	16	4	3790	7980
Costa Rica	4	2760	11	5	4280	9040
Chile	16	2850	12	1	4390	9810
Bosnia and Herzegovina	4	2730	18	4	1540	6320
Bulgaria	8	2630	16	NA	2130	7610
Croatia	4	2620	8	1	5350	10 710
Slovakia	5	2910	9	NA	4920	13 420
Kuwait	2	3150	10	2	16 340	17 870
Countries that have increasing economic and food resources with substantial improvements in reducing malnutrition						
Armenia	3	2000	35	3	950	3770
Panama	3	2250	25	8	4250	6310
Nicaragua	5	2250	43	10	730	2400
Georgia	5	2290	29	3	830	2540
Dominican Rep.	9	2320	47	5	2070	6210
Sri Lanka	19	2330	19	33	850	3730
Venezuela	25	2336	21	4	3490	4740
Paraguay	6	2560	30	5	1100	4740
Colombia	44	2570	23	7	1810	6520
Peru	27	2600	39	7	2150	5090
Macedonia	2	2660	26	6	1980	6720
Jamaica	3	2690	20	4	2760	3790
Serbia and Montenegro	8	2720	19	2	1400	NA
Ecuador	13	2740	30	14	1790	3440
Latvia	2	2790	21	NA	4070	10 130
Saudi Arabia	22	2840	28	14	8530	12 850
Iran, Islamic Rep.	66	2930	42	11	2000	7190
China	1280	2970	39	10	1100	4990
Countries that have increasing food resources, malnutrition in broad sectors of the marginalized population, and serious epidemic of obesity and chronic illnesses						
Egypt	66	3370	41	4	1390	3940
Turkey	70	3360	43	8	2790	6690
Argentina	36	3180	19	5	3650	10 920
Lebanon	4	3170	32	3	4040	4840
Mexico	101	3150	29	8	6230	8950
Syrian Arab Rep.	17	3040	28	7	1160	3430
Morocco	30	3000	44	9	1320	3950
Brazil	174	3000	36	6	2710	7480
Algeria	31	2970	49	6	1720	5940
Indonesia	212	2900	45	25	810	3210
Jordan	5	2740	33	5	1850	4290

NA, not available.

*United Nations (2001).

† To convert to from kcal/d to MJ/d, multiply value by 0.004184.

‡ Food and Agriculture Organization (2004).

§ UNICEF (2005).

|| World Bank (2004).

between hunger and food availability has been extensively documented, and indeed, such a relationship has been found between hunger and the capacity to access food on the part of socially marginalized sectors. It is not uncommon for an increase in agricultural production to be accompanied by serious environmental deterioration, the impoverishment of small farmers and, consequently, an increase in the malnourished population and in food insecurity (García & Escudero, 1982; George, 1986).

Nor should we underestimate the geopolitical dimension and economic interests associated with malnutrition and poor eating. In the logic of food production and financing, priority is given to company profits and political interests.

The war in Iraq has cost the USA alone, as of December 2004, more than \$ US150 billion, or in other words, the cost of all the programmes to fight world hunger during a period of 6 years.

There is no doubt that the world has more than the necessary technical, economic and food resources to eradicate malnutrition from the face of the earth. The efficient and rational use of these resources in the context of national programmes has demonstrated a great capacity for decreasing malnutrition in the short term in the countries where there is a minimum of food security and sufficiency, together with the political will of the corresponding governments to confront the problem. Nevertheless, in the world context, the solution to the problem

of hunger demands a firm commitment on the part of all governments and all international entities to technically efficient comprehensive programmes, subsidies and intelligent financing, but also to democracy; equitable distribution of wealth; transparency and honesty in the use of public resources; and the guarantee, respect and protection for the right to food and all economic, social and cultural rights recognized by the UN.

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