

The World of Hunger

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Program of Brown University to Address World Hunger Problems of the Present and Future

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The world of hunger is the everyday world of up to a billion of the world's people. It is a world where there is not enough food; or where there is plenty of food and not enough means to obtain it; or even where there is plenty to eat, but little is absorbed and retained. Thus the world of hunger is famine in Africa, chronic undernutrition in India, homelessness in Providence, cholera and diarrhea among the poor, and anorexia and bulimia among the affluent.

Incidence

Hunger is often defined as "a compelling need or desire for food." As a need it is measured by diverse concepts of nutrition, energy requirements, or both. As a desire it is described or elicited in personal testimony, including the cries of infants. Or it is implied by food shortage, variably defined.

A glossary of hunger would have to begin with a host of definitions of states of hunger, including nutritional descriptors, such as starvation, undernutrition, malnutrition, dietary deficit, energy-deficient deficit, calorie deficit, chronically inadequate diet, and intake below critical. Food-shortage descriptors include famine, subsistence crisis, food crisis, food insecurity, chronic food insecurity and transitory food insecurity.

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The measurement of world hunger generally takes three forms. That closest to the medical profession relies upon estimates of the numbers of persons affected by symptoms of malnutrition or undernutrition. This form includes direct diagnosis of diseases attributable to protein-calorie malnutrition, vitamin deficiency, and hunger itself, as well as deaths from starvation. Related to these observations, but more indirect, are the various measurements of body weight, height, arm circumference, psychomotor development, and the like.

A second measure attempts to estimate the amount of food consumed and to relate this to estimates of food required to avoid nutritional disease, to undertake certain human activities, or both. The most accurate measure of consumption is the amount of food actually consumed, either directly or as reported by individuals, households, or groups. A more common, but less desirable alternative is the amount of money spent for food converted to food consumption based on typical diets.

The third method, and the one most commonly used in estimating world hunger, is the availability of food in some region, usually by country, compared to some required norm for the population.

None of these methods is satisfactory, nor is their coverage universal. For example, even the least ambiguous symptom, death, receives consistent underestimation by the international rules for classification of causes of death. In cases where malnutrition and infection are jointly implicated in death, the cause is attributed to infection. In

Escudero's words, "The causes for the curious bias of the ICD (International Classification of Diseases), which goes against current knowledge of the malnutrition-infection interaction, lie partly in the convenience of simple explanation and partly in the training of medical professionals, who prefer to explain the world in terms of anatomy and microbes than in terms of food or of sociopolitical systems."¹

Still less satisfactory are the measures of food consumption and availability. Even in a "tight little island" such as Britain with its long history of social measurements and surveys, depending on the measure of food consumption or availability used, Britons consumed in 1978-80 either 2,240 calories (household consumption survey), 2,900 calories (foodstuffs moving into consumption), or 3,500 calories (FAO* available food supplies) per person per day.² Nor is the issue of norms required for life sustenance, growth and development, or various levels of activity satisfactory. The current WHO/FAO† standards are under continual debate, particularly in India, where a contrary "small but healthy" hypothesis has been put forth.³

Despite the serious problems with all methods of estimating hunger, estimates are available to bracket the numbers of the hungry world. Grigg² recently drew together a number of these statistics for the period around 1980. By updating older figures, he estimates that, if conditions today were similar to the period of these surveys, 130 million children under five and 480 million children under 14 would be suffering from protein/calorie malnutrition.

In general, food availability data calculations, corrected for the disparity of income within a country, yield, depending on the norm used, estimates that range between half a billion and over a billion hungry persons in the world. The most recent World Bank (1986) survey,⁴ covering 92 per cent of the developing world, excluding China, concludes that in 1980 340 million people did not have enough income to obtain sufficient energy to prevent serious health risks and stunted growth in children while 730 million had insufficient income to allow an active working life. Of these, about two-thirds of the undernourished live in South Asia and a fifth in Sub-Saharan Africa.

These are measures of chronic hunger worldwide. Recent studies address hunger in the United

States. For example, the Physician Task Force on Hunger in America (1985),⁵ sponsored by the Harvard School of Public Health, found as many as 20 million hungry Americans.

In a survey of 25 cities, the United States Conference of Mayors (1983)⁶ reported that

Famine, the massive shortage of food affecting large numbers in a region, while attracting the most attention, is less prevalent than chronic hunger. At the current phase of the continuing Sub-Saharan drought, an estimated 19 million people were directly at risk in 16 countries.⁷

Diagnosis

Hunger is a bundle of complex phenomena. One way to simplify these phenomena of hunger is to devise a classification or taxonomy of hunger situations. One generic way to classify hunger is by cause. As a first approach, a proposed threefold taxonomy distinguishes among:

1. Hunger caused by absolute shortage, the unavailability of food within a bounded region because of crop failures, market or transport breakdowns, blockades, or other catastrophes;

2. Hunger caused by poverty, with food generally available within the bounded region, but with affected households unable to pay for food, or have access to resources needed for self-provisioning or both, and,

3. Hunger caused by being deprived of food, generally available to the household, but either intentionally withheld from individuals by custom, abuse, self-denial, or incidentally malabsorbed because of neglect or disease.

The first type, *food-short* hunger, focuses on a larger region or societal grouping; the second, *food-poor* hunger, on the household, while the third, *food-deprived* hunger, focuses on the individual. Thus the taxonomy delineates three different causal mechanisms of hunger and three levels of organization as well. In the last analysis, only individuals suffer the immediate consequences of hunger, but households (broadly defined) are the central organization for food acquisition and redistribution to its members. They draw upon a wider societal or regional foodshed for their need.

The types are not mutually exclusive — food shortage, poverty, and deprivation occur simultaneously in most famine situations. Societies as well as households can be poor or deprived of food and the bounding of a society or region is difficult in an interdependent world where, at

*FAO — Food and Agricultural Organization

†WHO — World Health Organization

Table 1. Changes in the Prevalence of Energy-Deficient Diets in Eighty-Seven Developing Countries, 1970-80

Country Group or Region	Not Enough Calories for an Active Working Life (Below 90 Per Cent of FAO/WHO Requirement)		Not Enough Calories to Prevent Stunted Growth and Serious Health Risks (Below 80 Per Cent of FAO/WHO Requirement)	
	Percentage Change in Share of Population	Percentage Change in Number of People	Percentage Change in Share of Population	Percentage Change in Number of People
Developing countries (87)*	- 6%	+10%	- 2%	+ 14%
Low-income (30)	+ 4	+41	+ 3	+ 54
Middle-income (57)	-18	-43	- 9	-44
Sub-Saharan Africa (37)	+ 1	+30	+ 4	+ 49
East Asia and Pacific (8)	-27	-57	-14	-57
South Asia (7)	+ 3	+38	+ 2	+ 47
Middle East and North Africa (11)	-25	-62	-14	-68
Latin America and the Caribbean (24)	- 7	-15	- 4	-21

*In parentheses, number of countries.
Source: World Bank (1986, 18)

the largest scale of human organization, there is never any shortage.

Shortage, poverty, abuse and neglect, and disease are immediate causes of hunger. Underlying these are a complex of natural, social, and technological factors that create the paradox of the persistence of hunger in a world of plenty. Advocates and apologists have their pet explanations, but a full sense of the interactions in an interdependent world escapes us. A brief historical perspective, though, may help illuminate the long-term process of coping with hunger.

History

In addition to being a helpful simplification, the concept of food shortage, poverty, and withholding serves as a hypothesis of historical coping with hunger. Over the long span of history, societies seem to grapple first with the prevention of absolute shortage and then more slowly with food poverty. They have barely begun to cope with such problems as intrafamilial access to food, the withholding of food as abuse or torture, the diarrheal diseases in developing countries, and anorexia and bulimia in the industrialized countries.

The struggle to eliminate the extreme food shortages of famine is as old as history. Grain storage, irrigation works, and cycles of plenty and shortage are all described in written records of the earliest civilizations. A recent analysis of climatic disasters in China records 203 events, each of which, mainly through hunger, killed more than 10,000 persons between 180 BC and

1949 AD. By comparison no single disaster in the United States has killed that many people. Only now are the facts emerging about one of the greatest disasters of all time, a famine that may have led to the demise of as many as 34.6 million Chinese.⁸

Absolute shortage of food over large regions seems to have been endemic in the world up to 1800. In a remarkable book, titled *The Last Great Subsistence Crisis of the Western World*,⁹ written by Post in 1977 tells of the "year without summer" — 1816 — following the eruption of Mt. Tambora in Indonesia, when much of North America and Western Europe experienced a food crisis. Unlike the many recurrent crises of the previous centuries, however, cities and nations for the first time successfully undertook extensive measures almost everywhere, including organization of food relief and the importation of grain from Russia and the Baltic States.

By 1850, according to Grigg,² Europe had coped successfully with the Malthusian shortage of food and had enough food everywhere to feed all of its peoples. Yet, it would take 100 years, after World War II, until the available food in Europe was reasonably well distributed. And even today pockets of poverty, various forms of abuse and neglect, and some disease, still maintain a low level of hunger within Europe.

In still another example, India seems to have dealt effectively with famine over the last 100 years, but chronic malnutrition affects as many as forty per cent of the Indian population and may be increasing, according to Sen.¹¹

Worldwide, there is some progress from the time when Lord Boyd-Orr, the first director of the FAO, attributed "a lifetime of malnutrition and actual hunger" to two-thirds of the world's people. Grigg² estimates that in the 30-year period from 1950-1980, the proportion of undernourished in the developing world has decreased from 34 per cent to 17 per cent of the population, despite an enormous increase in world population. The recent World Bank study⁴ of hunger from 1970 to 1980, using other criteria, records a drop in the proportion with energy-deficient diets over the decade from 40 per cent to 34 per cent for activity and 18 per cent to 16 per cent for growth-limiting hunger. At the same time, the absolute numbers of people with energy-deficient diets in the developing world rose by 10 per cent and 14 per cent respectively for the two criteria of deficiency. Regionally, the major declines in hunger were in East Asia and the Middle East, with rises estimated over the decade for South Asia and Africa.

Prognosis

Between now and the middle or end of the next century, barring nuclear war, world population will increase to between 8 and 12 billion people (2-3 times the current population) and then will probably level off. What are the prospects for ending hunger in a world of 10 billion people?

This is the central question that concerns the newly created Alan Shawn Feinstein World Hunger program at Brown University. The Program, which also addresses hunger through information, education, and recognition is studying five major trends that will affect the capacity to end hunger over the next century. These trends reflect changes in demography, resource base, technology, economics, and values as they affect food production, distribution, and consumption worldwide. Special attention will focus on Africa, where the population is expected to increase five-fold over this time period and the population of the continent's country, Nigeria, will exceed the current population of North America or Europe.

The trends are complex. Population increases compound the task of feeding all, but, in some cases, spur peoples and nations toward needed intensification of agriculture. A warmer, somewhat moister world brought about by the increasing levels of carbon dioxide in the atmosphere will be a boon to agriculture in some places and will disrupt it in others. The emerging green gene revolution of biotechnology will surely lead

to increased agricultural production, but not necessarily to less hunger. Indeed, depending on how the technology develops and is used, it could increase the number of rural poor. Use of the market mechanism has led to enormous increases in agricultural production in China and can lead to farm bankruptcies and failures in North America and Europe. Freedom from hunger is a slowly emerging human right, but prescriptions for ending hunger are widely different.

Complexity, however, need not breed complacency. The persistence of hunger in a world of plenty is an affront to human conscience and a challenge to science and society. Its ending is a task that still remains.

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