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FOOD AID AND MALNUTRITION:
COMMENTS

By

Thomas T. Poleman

May 1977

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Someone during this morning's discussion mentioned that he thought there was now general agreement that the world's nutritional problems reflected insufficient caloric (energy) availability. Dr. Scrimshaw's paper is largely an argument that current protein requirements are set too low. Table 1 helps us fit this argument into the evolving perception of the nutritional status of the LDCs. It summarizes the findings of the major postwar world food studies done by the FAO and the USDA. Excluded is the USDA's excellent report 98 (1), since it accepted the findings of the FAO background study for the 1974 World Food Conference (2). Nor do I include the recent World Bank study (3). As I will bring out, the data situation is such that the approach employed in this study cannot be implemented.

The analytical approach followed in the early surveys was simple in the extreme, and may be summarized by the equation:

$$\frac{\text{Food available for human consumption}}{365 \times \text{population}} - 15\% \text{ loss} \begin{matrix} < \\ > \end{matrix} \begin{matrix} \text{average daily} \\ \text{recommended nutri-} \\ \text{ent allowances} \end{matrix}$$

To determine whether or not a country was experiencing a food problem, apparent per capita food availabilities, minus a 15 percent allowance for wastage, were set against estimates of per capita nutrient needs. Where and when availabilities exceeded requirements, all was presumed well; where they did not, the country or region's entire population was considered to be inadequately nourished.

The limitations of this approach are many and, when probed, obvious: in addition to an unrealistic assumption of dietary homogeneity, it presumes a sophisticated ability to quantify. To estimate food availabilities, one must construct a balance sheet, incorporating on the supply side measurements of production, trade, and stocks changes, and on the utilization side such items as seed and feed use and losses in storage. Availabilities for human consumption are derived as a residual and thus

* Presented at the International Food Policy Issues Conference, Washington, D.C., 28 April 1977.

TABLE 1. CONCLUSIONS OF MAJOR EARLY POSTWAR STUDIES OF THE WORLD FOOD SITUATION AND SELECTED RECENT PRONOUNCEMENTS

Year Published	Conclusions	Methodology
1946	FAO - "World Food Survey" ^{a/} "In areas containing over half the world's population [prewar] food supplies . . . were sufficient to furnish an average of less than 2250 calories . . . an average of more than 2750 calories . . . were available in areas [with] less than a third of the world's population . . . the remaining areas . . . had food supplies between these . . . levels" (pp. 6-7).	National food balance sheet availabilities minus 15 percent wastage allowance compared with 2,600 Kcal./caput/day allowance (p. 11).
1952	FAO - "Second World Food Survey" ^{b/} "The average food supply per person over large areas of the world, five years after war was over, was still lower than before the war" (p. 2). "59.5 per cent of population [lives in countries] with under 2200 [Calories]" (p. 11).	National food balance sheet availabilities minus 15 percent wastage allowance compared with regional allowances (p. 22): Far East - 2230-2300 Kcal. Africa - 2400-2430 Kcal. Latin America - 2440-2600 Kcal.
1961	USDA - "World Food Budget, 1962 and 1966" ^{c/} "Diets are . . . adequate in the 30 industrialized nations . . . [where] more than 900 million people live . . . For most of the 70 less-developed countries . . . diets are nutritionally inadequate, with shortages of proteins, fat, and calories. These countries contain over 1.9 billion people. In most of them, population is growing rapidly, malnutrition is widespread and persistent, and there is no likelihood that the food problem soon will be solved" (p. 5).	Almost identical to "Second World Food Survey."
1963	FAO - "Third World Food Survey" ^{d/} [As of 1957-59, national food balance sheets and extrapolation of a limited number of budget surveys imply:] "as a very conservative estimate some 20% of the people in the underdeveloped areas are undernourished and 60% are malnourished. Experience shows that the majority of the undernourished are also malnourished. It is believed therefore . . . some 60% of the people in the underdeveloped areas comprising some two thirds of the world's population suffer from undernourishment or malnourishment or both." [Since some people in developed countries don't eat well,] "up to half of the peoples of the world are hungry or malnourished" (p. 51).	National food balance sheet availabilities with distribution around mean inferred from a few surveys in India and elsewhere compared after allowance for wastage with requirements calculated according to the 1957 FAO ^{e/} system.
1964	USDA - "World Food Budget, 1970" ^{f/} "Two-thirds of the world's people live in countries with nutritionally inadequate national average diets" (p. iii).	Little changed from "World Food Budget, 1962 and 1966"
<p>In 1971 an FAO/WHO Expert Panel reassessed energy and protein "requirements" and dropped the protein figure for adults by about one third.^{g/}</p>		
1973	FAO - "Food Balance Sheets and World Food Supplies" ^{h/} [As of 1964-66, most national balance sheets] "suggest a surplus of protein availability." [However, other evidence] "suggests a very uneven distribution of protein supplies . . . aggravated by seasonal imbalances . . . Furthermore, wherever calories are in short supply, proteins are diverted from their primary function of providing for growth and maintenance of tissues to the supply of energy for other vital functions. This explains the widespread incidence of protein/calorie malnutrition in spite of the apparent excess of protein supplies" (p. 19).	
1974	UN World Food Conference - "Assessment of the World Food Situation, Present and Future" ^{i/} "Taking a conservative view, it would appear that out of 97 developing countries, 61 had a deficit in food energy supplies in 1970 . . . Altogether in the developing world . . . 460 million people are affected; a less conservative definition might give a much higher figure" (p. 5). "The poorer segments of the population, and within these segments, the children in particular, will bear the brunt of an insufficient food supply" (p. 64).	National average availabilities with distribution by income inferred from a limited number of surveys compared with energy cost of maintenance (1.5 x basal metabolic rate) minus 20 percent. "It is the use of this very conservative level that leads to the estimate of over 400 million individuals . . ." (p. 72).

- Sources: a/ FAO, World Food Survey (Washington, 5 July 1946).
b/ FAO, Second World Food Survey (Rome, November 1952).
c/ USDA, ERS, The World Food Budget, 1962 and 1966 (For. Agr. Econ. Report 4, October 1961).
d/ FAO, Third World Food Survey (Freedom from Hunger Basic Study 11, 1963).
e/ FAO, Calorie Requirements (Nutritional Studies 15, 1957).
f/ USDA, ERS, The World Food Budget, 1970 (For. Agr. Econ. Report 19, October 1964).
g/ FAO, Energy and Protein Requirements (Nutrition Meetings Report Series 52, 1973).
h/ "Food Balance Sheets and World Food Supplies," (FAO) Nutrition Newsletter, April-June 1973.
i/ UN, World Food Conference, Assessment of the World Food Situation, Present and Future (Item 8 of the Provisional Agenda, November 1974).

reflect the totality of error. The evidence is that these errors in statistically underdeveloped countries act in the direction of understatement; minor or exotic foods are often ignored and--because the government official is still equated with the tax collector--farmers tend to minimize production. Detailed evaluations of a number of Asian countries by Cornell students suggest underreporting of from 10 to 15 percent, and preliminary work on Africa points to an even greater margin of error (4, 5, 6).

Compounding this tendency to undercount food availabilities have been the difficulties associated with estimating food needs. These have been overstated. Nutrition is still a young science and our ability to establish minimal or desirable levels of intake is not nearly so precise as we would like it to be. What in fact have been used as surrogates for minimal acceptable levels of intake in most food evaluations have been the recommended allowances prepared as guidelines for dieticians and other nutritional workers. To insure that the substantial variations in food needs among individuals will be covered, these allowances consciously err on the side of caution. They are also periodically revised as new knowledge becomes available. The history of the FAO, the U.S. Food and Nutrition Board, and other responsible organizations has been one of continual--and generally downward--modification. The energy allowances for the U.S. "reference man"--in his twenties, moderately active, weighing 70 kgs.--now stand at 2,700 Calories daily, 500 Calories less than the 1953 recommendation (7, following p. 128).

With the cards thus stacked, it is not surprising that the early FAO and USDA global food assessments were able to paint a gloomy picture of world hunger--a picture which has persisted despite appreciable changes in the method of analysis.

The first global study to break away from the assumption of dietary homogeneity and to recognize that the key determinant of an individual's (or country's) eating patterns is his level of income was the Third World Food Survey published in 1963. As such it marked an important milestone. It is obviously the poor that suffer. Less obvious is how many and how.

The Third Survey concluded that the problem was with malnourishment: that whereas their energy intake was generally adequate, at least 60 percent of the population of the developing world was too poor to afford the more costly foods which are the principal sources of protein and the essential vitamins and minerals. This conclusion was widely held during the 1960s; the food problem became a protein problem and in some quarters the technical advances which have come to be called the Green Revolution were decried because they emphasized crops which are principally energy suppliers.

But in 1971 there was a flip-flop. The expert panel to which Dr. Scrimshaw referred was convened by the FAO and the World Health Organization to review the international dietary allowances and it revised the adult protein recommendations downward by about one third.

The effect was to convert the list of "protein deficit" countries to ones of sufficiency. If the protein problem did not vanish overnight, at least its statistical underpinnings had been swept away.

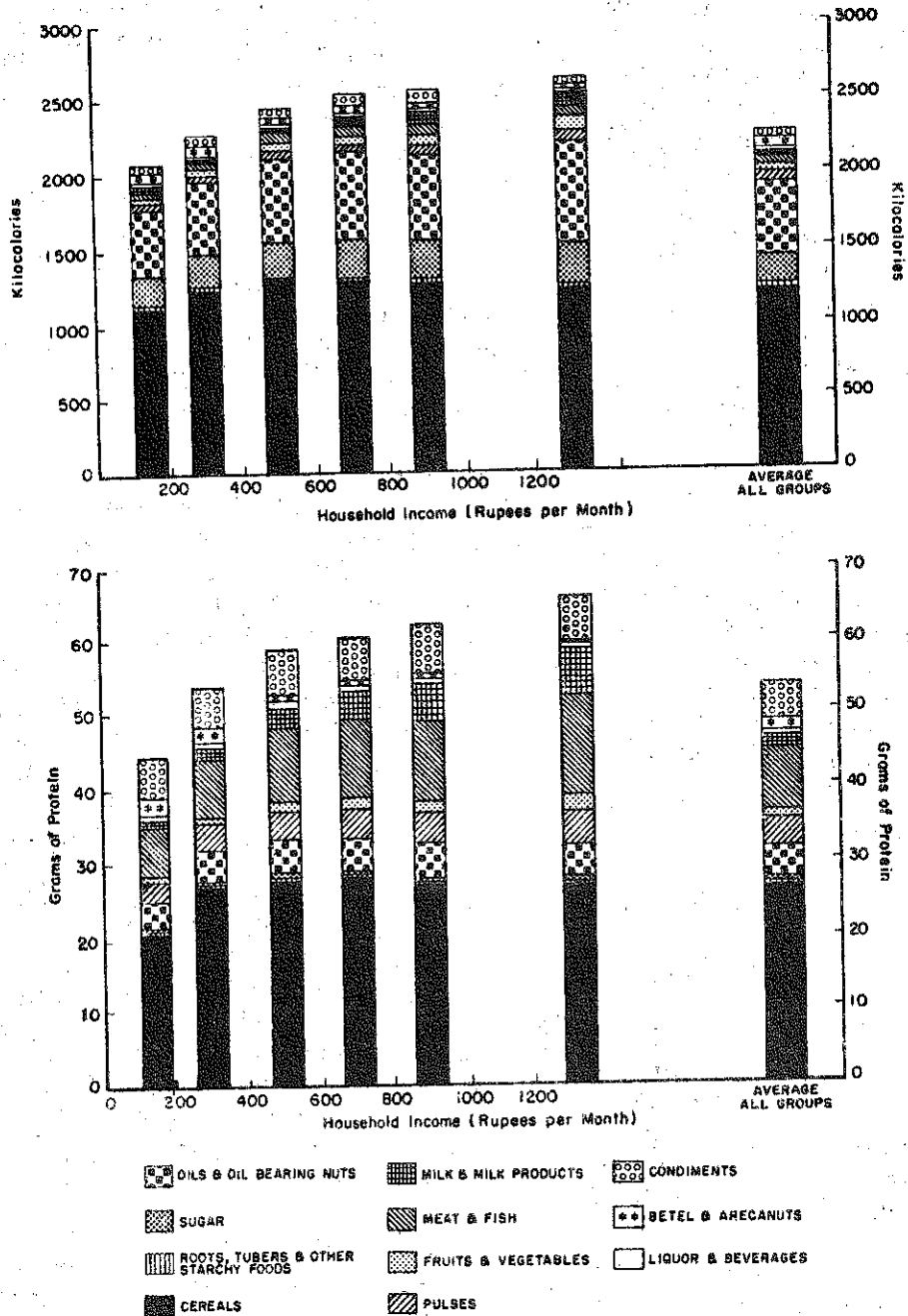
The current concensus seems to be that the old notions of malnutrition (insufficient protein and other "protective" foods) and undernutrition (inadequate energy intake) are no longer valid and nutritionists concerned with the LDCs (less developed countries) now speak of protein-calorie malnutrition. This sees a shortage of calories again as the prime problem and takes into account that an apparent adequacy of protein can be converted into a deficit should a portion of it be metabolized to compensate for insufficient energy intake. The Green Revolution is again acceptable.

The best recent estimate of the extent to which the poor of the Third World suffer from protein-calorie malnutrition was prepared by FAO for the November 1974 World Food Conference. It suggests the problem to be largely an Asian one--certainly true--and indicates that perhaps a quarter of the population of the Third World (ex-China), or in excess of 500 million people today, is inadequately fed. To be sure, this is much less than the two-thirds found by the Third World Food Survey (2, p. 60), but nonetheless it represents an unconscionable segment of mankind.

It is difficult to evaluate this figure. Certainly the nutritional standards used today are far more reasonable than those employed 30 years ago. Food availabilities no doubt continue to be underestimated. But the real problem is knowing how available supplies are divided across the income range. It is a commonplace among serious pronouncements on the food situation that global supplies are sufficient to feed all. Would that our ignorance on matters of distribution were equally publicized. The survey data from which inferences about the effect income has on eating habits simply do not exist for most LDCs, and until there is a (modest) hue and cry for their generation I see no likelihood of the situation being corrected.

Chart 1, a summary of the effect income has on nutrient intake in Sri Lanka, illustrates some of the difficulties. The survey on which it is based is almost unique; to my knowledge only three or four surveys of equal coverage and integrity exist for the entire Third World. Yet, even with this survey, one can infer precious little about the extent of protein-calorie malnutrition. The dietary adjustment most commonly associated with rising income is a decline in the importance of the starchy staple foods--read rice in southern Asia--as sources of energy and a shift to the more expensive, flavorful foods such as meat, fish, and vegetables. In Sri Lanka this tendency is observable among only the four uppermost income classes (20 percent of the population), and then, because of recent egalitarian measures, only weakly so. Between the lowest class (43 percent of the people) and the next lowest (34 percent), the sole change is quantitative. There is a difference in apparent per capita daily availabilities of 200 Calories and 10 grams of protein, but none in diet composition.

CHART 1.
 APPARENT PER CAPITA DAILY ENERGY AND PROTEIN AVAILABILITIES
 IN SRI LANKA (1969-1970) BY INCOME CLASS*



*Source: T. T. Poleman, Income and Food Consumption: Report to the Government of Sri Lanka (FAO/UNDP, No. TA 3198, Rome, 1973), pp. 18-19.

What are we to infer from this? Because FAO now (quite reasonably) reckons energy requirements in South Asia to average about 1900 Calories per day, it could suggest either of two very different things. If the standard factor of 15 percent is applied to account for wastage between purchase and actual ingestion, the 200-Calorie gap could be interpreted as implying enforced reduced activity among the poor or actual physical deterioration. But just as reasonably, one might postulate caloric adequacy among that element of society which is too poor to waste anything and which, given the very high rate of unemployment in Sri Lanka, leads a less active life and therefore has lower energy needs. Thus it is possible to have it either way: depending on your assumptions, you can prove beyond a statistical doubt that 43 percent of Ceylonese suffer protein-calorie malnutrition or none do.

Having been fortunate enough to have spent some time in Sri Lanka over the last decade and a half, my impression is that the optimistic interpretation more nearly approximates reality. Overt signs of inadequate feeding are few in Sri Lanka; and it is illogical for people who are short of calories not to satisfy this need from such cheap sources of energy as rice, sugar, and coconut before spending on what to them are luxury items.

Indeed, an implicit presumption of such illogical behavior underlies the whole notion of massive protein-calorie malnutrition, and I for one am skeptical. The more I study food behavior in the developing world, the more impressed I am with the efficient and rational way in which most people allocate their resources so as to get by on what by the standards of the West is very little. There are exceptions, of course: the so-called vulnerable groups--pregnant and lactating women, the preschool child--are truly vulnerable and need assistance. But the great majority of people neither look nor act malnourished, and quite possibly enjoy more healthful (though less tasty) diets than do many of their overweight and underexercised cousins in the West.

Thus, though I can't prove it, there is no doubt in my mind that the picture of 500 million people struggling at the brink of starvation is an exaggeration; certainly the estimated range of between 1.1 and 1.4 billion reached by the World Bank team is utterly unrealistic (3, p. 30). But why worry? Surely it is not wrong to exaggerate the misery of the few by making it seem the plight of the many, if the result is to hasten remedial steps. In fact, the result has been just the opposite. Instead of galvanizing mankind to useful collective action, the hunger exaggeration has given rise to a whole range of misconceptions, not the least of which is that a key way in which the West can aid the developing world is through food aid.

With the bulk of Dr. Timmer's paper I am in hearty agreement and congratulate him on a tidy summary of the various forms food aid can take and their consequences. That most Title I shipments are counter-productive from the point of view of the recipient countries is increasingly accepted by responsible commentators. The objections center on the dampening effect they have on the price incentives needed over the long pull to bring forth additional production.

But one cannot sell on concessional terms to those who do not want it, and it is well to remember that if the farm sector in developed countries seems possessed of political clout all out of proportion to the number of people involved, it is just the opposite in the LDCs. There it is the urban dweller who has the power to make or break, and though their numbers may be small, the politician is at pains to assure them cheap food. What more painless way to do this than with cut-rate imports from abroad? Thus it was the politically articulate few who objected mightily (and brought down the government in Thailand) when in the early 1970s the run-down of surpluses in the West and signs of local agricultural stagnation caused many governments to reverse their pricing policies and offer greater incentives to farmers. And so it may be that foundations for the next food crisis--of the early 1980s?--may be laid by a clamor, now that things no longer look so bad, that these incentives are no longer necessary.

It does not follow that all food aid need be harmful. Certain forms of targeted assistance can bring help to the nutritionally most vulnerable and at the same time act to bring fertility under control. There is a growing body of evidence that rapid population growth can be contained rather quickly once certain preconditions have been achieved. Among the most important of these preconditions is a reduction in infant mortality, so that parents need no longer plan on two live births in order to feel reasonably assured that one child will reach maturity. To this end there are no more effective means than clinics which provide supplemental food as well as medical services to mother and child. Recent change in Public Law 480, requiring that 75 percent of concessional sales go to countries with per capita GNPs of less than \$300, make support of such programs a greater possibility. But whether the recipient countries can muster the technical expertise and administrative competence to implement them--particularly at a level commensurate to the ten million tons of food aid annually called for by the World Food Council--is open to question. It is a priority matter which should be pursued with extreme care.

One country in which food aid is being successfully channeled through maternity and child-health clinics is Sri Lanka, where a fortified weaning food called "Thripasha" is distributed at fortnightly clinics to some 40 percent of the infant population.

Sri Lanka is also a country in which the possible pitfalls as well as the attractions of nutrition-oriented equity policies may be observed. As Dr. Timmer noted, the Indian state of Kerala is an interesting anomaly: a region which bids fair to bring fertility under control, despite poverty, through education and public health programs and through a policy of making subsidized food available to all. Similar policies have been pursued in Sri Lanka since the war. Today every man, woman, and child on the island receives a grain ration (part of it free, part at appreciably less than the market price) equivalent to at least 700 Calories daily. Such largess has depended heavily on the availability of food aid--in the current year 400,000 tons, or about a fifth of total grain disappearance--and has accounted for between 15 and 20 percent of government outlays (8).

The real cost, however, defies quantification. Sri Lanka at the end of the war was far and away the wealthiest country in South Asia. Today the agricultural potential of its Dry Zone remains unrealized, efforts to develop it having been hamstrung by insufficient price incentives. Unemployment is rife and, though the 1971 insurrection of frustrated youth was put down, resentment over the lack of opportunities smolders. The welfare system has become an unmanageable albatross. Democracy persists, but any politician who has attempted to stem the rot by reducing benefits has found himself out of office.

To my mind, Sri Lanka is not the example some hold it to be for the Third World, but should stand as a warning.

I would like to conclude my remarks with a plea that we stop thinking of the plight of the LDCs in terms of hunger. The extent of hunger has been much exaggerated by those with the purest motivation. Nor should we think of the LDCs as being confronted by a race in which food and population push relentlessly toward some hypothetical saturation point.

The Third World is more hungry for jobs than food. Jobs and rising income are the great equilibrators. With them there is every reason to believe that the LDCs can repeat the Western experience and simultaneously eliminate hunger and bring population growth under control.

Seen in this context, food aid can play but a limited role. That food aid is usually counterproductive from the point of view of the recipient country should be recognized, and to the extent it is pursued as a means of surplus disposal, steps should be taken to minimize the effect on producer price incentives. This is easier said than done, but an ideal means for its achievement--and simultaneously for improving nutritional well-being and the prospects for population control--would be to channel this aid through maternity and child health clinics.

The real aid from the West should take the form of technical assistance to agricultural research institutes and credits to underwrite the capital works needed to complement the new varieties--irrigation systems, fertilizer plants, and the like. To a maximum degree these works should be designed to benefit the smaller farmers. But no matter should they not. Probably the best way the West can improve the lot of the disadvantaged of the LDCs is not--as seems the aim of recent modifications in the U.S. aid legislation--to invest solely in projects oriented toward them. Rather it would be to reduce the incredibly high tariffs on processed and manufactured items which have prevented the LDCs from exploiting their comparative advantage in the international marketplace. In not a few instances, this would be at the expense of jobs in the developed countries. But if a North-South confrontation is to be avoided, and something approaching global equality is to be achieved, the West too must be prepared to sacrifice.

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