SCENARIOS OF HUNGER IN THE CARIBBEAN:
MIGRATION, DECLINE OF SMALLHOLDER AGRICULTURE
AND THE FEMINIZATION OF FARMING

by

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Abstract: Food deficits, malnutrition and associated nutrition-deficiency diseases in the Caribbean are topics full of uncertainties for policymakers. Many studies have been carried out over the years on the nutritional status of specific population groups, based on vital statistics, clinical data, and dietary and anthropometric surveys. This paper suggests alternative ways to advance our knowledge of why people in the region are undernourished and where planners might direct their energies in seeking solutions. Rather than focusing on nutrition surveys, the paper sketches a series of interlocked "scenarios" that analyze the larger systems generating hungry people: in particular, outmigration from rural areas, the decline of smallholder agriculture, and the feminization of farming.

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I. INTRODUCTION

A. Current Food and Nutrition Situation in the Caribbean

This paper will argue that the precarious food situation in the English-speaking Caribbean has come about through the concurrence of several events in the region since World War II: high levels of outmigration from the rural areas to the cities as well as "foreign" migration by thousands of West Indians to England, Canada and, during the past fifteen years, the United States; declining productivity in the small farm sector of the domestic foods that poor people eat; i.e., yam, green bananas, cassava, potatoes and legumes; the "feminization of farming," with women taking on more and more responsibility for both food and cash crops without receiving the supports they need; and overdependency on food purchased from abroad and scarcity of foreign exchange to buy it. While this paper concentrates on the Jamaican situation, many of the "scenarios of hunger" described here are similar to those in other Caribbean and Central American countries.

Those who deal with the consumption aspects of Jamaica's dietary situation believe that there is little severe malnutrition in the country. Nevertheless, estimated nutrient shortfalls and declining domestic food production cause them concern. The most recent nutrition investigations have concentrated on the conventional "at risk" groups—principally children one-to-five years of age and pregnant and lactating women—and thus do not allow us to make confident assumptions about the population in general. Nutrition studies carried out in Jamaica to the present time are summarized in an appendix. The extent and nature of malnutrition in Jamaica thus are topics that create disquiet among many professionals. As Berg (1980: 24) observes:

Nutrition is central to survival and is a critical factor in an individual's growth and capacity to function in society. Even in normal, nonfamine conditions, inadequate food consumption significantly affects the death rate. If adults fail to meet their food requirement, they lose weight. This can lead to diminished ability to cope with infection and other environmental stresses, to work, to enjoy the normal satisfactions of life, and to raise and educate healthy children. Maternal malnutrition in pregnancy results in low birth weight of infants (the most important cause of infant mortality), and malnutrition during lactation affects directly and indirectly the infant's health, as well as the mother's.

Perhaps the most significant statistics relating to food supply revolve around cheap cereals, bought at bargain prices until now through the Caribbean Economic Community (CARICOM) or on the world market. The most important items in the diet of the Jamaican poor, after sugar, are flour and rice—95 percent of which are imported. Lower-income groups—calculated at about 70 percent of the population who spend 80 percent of their income on food (Nutrition Advisory Council 1978: 2)—depend upon sugar, flour and rice as their most important sources of energy, and on flour, rice and bread as...
their principal sources of protein. Flour and rice, along with corn, provide about one-third of both energy and protein supplies in Jamaica (ibid.: 6). All the inputs for commercial pig and chicken feeds are processed from imports. Now imported cereals no longer are so abundant, and their prices are increasing. What some Jamaicans regard as an overdependency on imported cereals and other imported food products, combined with concern over the long-term decline of domestic food production, create at least some degree of anxiety on the current nutrition situation in Jamaica.

B. The Nutrition Situation: What Do We Know?

What, then, do we know about the nutritional status of the Jamaican population? Because of problems in the studies outlined in the appendix, many inherent in the methodologies employed, the results are mixed and even contradictory. In her comprehensive "Analytical Description of the Poor," Harrison (1978: 35-40) summarizes the principal Jamaican dietary and nutrition surveys. She concludes that the only consistent trend may be a correlation between malnutrition and occupation (linked to income) of heads-of-household. This is consistent with the fact that up to one-third of households in Jamaica (and up to one-half in some urban slums) are headed by women; we know that female-based households are the most likely to fall in the lowest strata in relation both to occupation and income (Buvinic and Youssef 1978; Bolles 1981). The studies in Harrison's review arrive at contradictory conclusions even on whether malnutrition is concentrated in rural or urban areas. Nor do comparisons between studies done in the 1960s and 1970s demonstrate whether nutritional status in Jamaica has improved or deteriorated over time; some studies seem to indicate advances in the nutritional health status of the groups studied, while others point to a worsening situation. The 1978 national survey of preschool children mentioned above compared results to a 1970 survey of infants and young children (Gurney, Fox and Neil 1972); this study reveals some measure of improvement in nutritional status, and a marked improvement in the urban environment over the rural (Jamaica Ministry of Health 1978: 3).

Observers interviewed for this report, however, believe the situation worsened again, as foreign exchange became scarce and food shortages developed. Consequently, even the experts tend to fall back on commonsense observations in their assessments. For example, some of those interviewed said that the nutritional status of the urban population is better because when imported flour and rice are in short supply, they are distributed first in the cities for political reasons; sometimes shipments never reach the rural areas at all. Others countered that these high-demand goods are distributed everywhere because enterprising shopkeepers go to the nearest city or town to stock up when they hear of a shipment, knowing that they can charge more than the controlled price "under the counter."

Again, some interviewees asserted that people in the country always will find something to eat, even if they do not have access to land. Avocado pears, breadfruit and mangoes grow along the roadsides and can be had for the taking. Others, however, pointed out that nature's largesse is seasonal and that such "free goods" do not, in any case, provide a balanced diet.
While it is difficult to find agreement among the experts on the nature and extent of malnutrition in Jamaica, nevertheless some consensus on several important consequences of malnutrition/overnutrition for the people and the nation emerge from the discussions and the studies.

$ Among the poorest 70 percent, dietary deficiencies account for some degree of physical and mental retardation in children and for reduced efficiency and lower life expectancy in adults. Although the studies are inconclusive, there is evidence that the damages of malnutrition, especially in early life, are irreversible.

$ Among all ages, the fact that nutritional deficiency/infection (enteritis and other diarrhoeal diseases) in Jamaica still figures as a leading cause of death underscores that malnutrition remains a serious problem.

$ While nutritional status of children in Jamaica is better than in most Asian, African, and Latin American countries, malnutrition/gastroenteritis syndrome diseases still are the main causes of hospital admission and death among one-to-five year olds (Fonaroff 1975: 113). Costs of hospitalization of malnourished children are estimated to be over $4 million per year (Nutrition Advisory Council 1978: 4), more than the annual budget of the Ministry of Health's Nutrition Division.4

$ Although infant mortality rates have declined continuously since 1960 in Jamaica, women still are having large families. They may be related, at least in part, to the belief that one has to have many children for some to reach adulthood. There also are cultural reasons for the continued large families: the belief that a woman has to "have her number out," and the desire of many women in serial mating situations to "have a baby for" their current partner.5

$ Malnutrition in one generation "reverberates" to the next. The high incidence of teen-age pregnancy in Jamaica—with many 15-to-17-year-old, physically underdeveloped, young women bearing weak, underweight first children—is a growing concern among health and social workers and nutritionists.

$ Women who are undernourished often stop breastfeeding because they think their milk is not "good" for the baby; then they may exacerbate the situation by diluting baby formula to make it last longer or by mixing it with polluted water.

$ Overnutrition is related to major public health problems in Jamaica and the region: obesity, diabetes, hypertension, stroke and coronary heart diseases. Premature deaths and disabilities mean a drain on public health services, loss of productivity in the middle years, and many other social and economic problems in the community (Sinha 1980: 1).
The fact that women are particularly prone to obesity and its related diseases has serious consequences in a country where so many are economically responsible for their households.

Misunderstanding of malnutrition—especially of the relation between food and disease—hampers proper treatment. For example, malnutrition in its acute forms, kwashiorkor and marasmus, is thought to be caused by "bad blood" or by the invasion of a "duppy" (ghost) because of the mother's misbehavior (Fonaroff 1975: 116).

The fact that nutritional status is closely tied to food imports—cereals and other key items in the Jamaican diet—locks the country into a high degree of dependency on the uncertainties of the world market.

The traditional dependency on food imports to maintain nutritional status in Jamaica may further contribute to the already low productivity of the small farm sector—and to declining farm income. This further jeopardizes the nutritional status of many farm families who depend on cash income to buy supplementary food.

Overall, the principal dietary problem in Jamaica is insufficient proteins and calories available to the poorest 70 percent of the population.

II. SCENARIOS OF HUNGER

A. An Alternative Strategy for Identifying the Causes of Malnutrition

If studies on specific populations do not give us a very exact picture of the nutritional status of nations as a whole, is there any way that we can obtain this information in an efficient, economical fashion? Short of all-out efforts to identify national samples and carry out extensive national dietary surveys or anthropometric studies, what can we learn that will be useful for policy planners?

It will be argued here that elaborate studies need not be contemplated because they do not generate the kinds of information of greatest use to policy planners and administrators. (Small, pointed studies of specific populations, it should be repeated, are continually necessary for health and nutrition workers engaged in surveillance, remedial and prevention programs at the local level.) As Joy (1979: 978) points out in a recent article, surveys that use anthropometric and biomedical observations generate data on specific populations thought to include malnourished members. Worldwide, for example, children from the age of weaning until five years have been shown to be a vulnerable group, so it makes good sense to begin nutritional status surveys with them—particularly if funds and trained personnel to carry out such investigations are scarce. Such data may not, however, be "efficient or even necessary for understanding the risks to which people are exposed or the design of appropriate action" (ibid.).
In other words, even if a country succeeded, at great cost, in identifying all those at risk, such knowledge would not take policymakers any distance in designing plans to reduce the numbers of the malnourished. The irony is that countries which could afford such elaborate surveys probably would not be those with large malnourished populations. Even if surveys link nutritional status to geographic location, income, family size, health status, level of education, attitudes, religious practices, and the like (few of the nutritional and dietary surveys carried out in Jamaica link nutritional status to any of these variables), we still would lack knowledge of the larger systems and events—the scenarios—in the society that produce the categories of people at nutritional risk. Data on malnourished groups are essential to those who are responsible for treating (and preventing) nutritional disorders in a given locale, but of little use to policy planners because such information does not reveal how people got that way.

Joy suggests an alternative strategy for identifying groups at risk in an underdeveloped society from the perspective of planners and policymakers. What he suggests is the utility of making observations and developing theories about the systems that "generate people nutritionally at risk," then testing these theories against each other. He calls for a kind of "dialectic to improve our understanding of those forces that are most important in generating malnutrition and how we might intervene to modify their workings" (ibid.: 979). He believes that such models should be cross-disciplinary, not confining themselves to the questions and variables of any one discipline, i.e., to see the problem simply in terms of optimal resource allocation runs the risk of overlooking a wide range of relevant action; that such models should involve those whose actions they are intended to influence, i.e., administrators and planners, in order to obtain credibility and to include their concerns; and that such models should not be more complex than decisionmakers can comprehend (ibid.).

Worldwide, Joy suggests, there are a number of "repeated scenarios" around which theorizing can begin:

§ families who have inherited, or will inherit, too little land on which to survive;

§ landless families or sharecroppers displaced from reliable dependency on a landlord;

§ rural or urban migrants, jobless and no longer able to rely on support of their families or patrons in distant villages and unable to follow their families' previous way of life.

Such processes generate what Joy terms "displaced persons," that is, people who cannot find a place in the economy or society. It is among such people that malnutrition—both chronic and episodic—is likely to occur. As Jerome (1977: 276) notes,
it has been well documented that peoples residing in changing subsistence economies who lack the requisite cash and social and political relations necessary for securing food for themselves and their dependents are particularly vulnerable to chronic malnutrition. Small peasants and agricultural laborers (wage earners) in low-income countries fall within this deprived and malnourished group.

In a situation of uncertainty on both the demand and supply sides, Joy's model is particularly useful because (at the first stages of constructing the model at least) no numbers are required. In applying the Joy model to Jamaica, we can first set about identifying several scenarios that appear to be fundamental in generating malnutrition. At this stage, such model-building is intended to provide a framework for analysis, to provoke discussion, and to suggest alternative explanations in order to begin to discern which are the fundamental forces affecting nutritional status--both those sets of events that may be amenable to action by agricultural planners and policymakers, those that perhaps fall under another administrative network (for example, health and education), as well as those that are uncontrol-lable, "independent" variables such as weather, climate zones or soil types.

B. Scenarios of Hunger Related to Agriculture

As Pinstrup-Andersen (1980: 31) observes, the food sector is much broader than the agricultural sector. It follows that not all the causes of malnutrition are related to agriculture. Jelliffe (1968: 98) suggests that there are four causes of malnutrition: dietary, infective, parasitic, and psychosocial. Agriculture is most clearly related to diet and has only peripheral influence on the other three causes of inadequate consumption and malnutrition.

Agriculture most directly affects food availability and food distribution, both necessary if not sufficient conditions for adequate diet. A third set of factors affecting diet are those revolving around food utilization--all the social and cultural beliefs and practices that determine which foods and in what amounts each person finally encounters on his/her plate at mealtimes, buys as snacks outside the school or workplace, or picks up along the road in the countryside. In Jamaica, through a "Programme in Rural Farm Family Development," the Ministry of Agriculture also attempts to influence practices and customs related to foods used in the household.

Turning to the causes of malnutrition most directly related to agriculture, we can identify a series of interrelated events that directly affect the system providing most of the food of the poor. One of the principal scenarios generating "displaced persons" in Joy's sense is outmigration from the rural areas. Migration results in declining productivity in the small farm sector of the foods that poor people eat, directly affecting food availability. The migration scenario in most world areas initially is male dominated, followed in a few years by increasing numbers of female migrants, until sometimes the proportion of women leaving the rural regions outstrips
the proportion of men. In Jamaica, however, it is the younger women who account for the greater ratio of female migrants, while older women take on the agricultural work, leading to another scenario, the feminization of farming.

At the same time, low farmgate prices for domestic food crops—along with theft of agricultural produce and an inadequate marketing system—trigger more and more migration, and less and less food availability. Scarcity of domestic food impels governments to an increasing dependency on food imports. But the displaced rural folk do not find ready employment in the cities and often cannot afford to buy food in sufficient quantities, even when it is cheap.

Each of these interrelated events or scenarios will be discussed briefly here, in reference to Jamaica, but with the notion that many of the processes are similar to those in other Caribbean countries and, indeed, in other world regions as well. The sets of events outlined here appear to be circular; analysis could begin with any of the scenarios enumerated below.

1. Migration

Worldwide, policymakers are giving increasing attention to the effects of outmigration, particularly from the small farm sector, on declining food production. Perhaps the most startling consequence of the migratory process in Jamaica is the fact that about one-third of agricultural land is not presently under cultivation.8 This phenomenon is common today in many world areas where discouraged small farmers have left their own enterprises to seek work on commercial farms or in the cities, as well as overseas.9

Moreover, because historically emphasis has been put on export crops in Jamaica, only about 6 percent of the cultivated land currently produces food for local consumption (U.S. Agency for International Development 1975: 122). Jamaica can ill afford to lose any more land devoted to domestic food crops or any more small farmers to outmigration.

Why do farmers leave the land in such large numbers? First, Jamaicans have a long tradition—going back to the attraction of the $5.00 a day "Panama money" West Indians could earn constructing the Panama Railroad—of "goin' a foreign" as a survival strategy. On a small island, the continued high birth rate and rapidly declining death rate would have meant even more restricted job opportunities if the rate of population growth had not been "masked and tempered" by migration.

Second, as in many former colonial and slave societies, farming is associated with a status that many people prefer to leave behind. Young people in particular do not want to stay on the land, and the median age of farmers has moved constantly upward. In the II Integrated Rural Development Project (II IRDP) at Christiana, Jamaica, for example, more than one-half the farmers are 50 years of age or older (except on the smallest parcels); women farmers, who make up one-quarter of the total, tend to be somewhat older (U.S. Dept. of Agriculture 1978: 94; Chaney and Lewis 1980b).
A third reason for abandoning farming among small farmers is the meagre economic return to farming. A base-line survey carried out before the II IRDP began (Jamaica, Ministry of Agriculture 1981) confirms that income earned from farming is very low; only 30 percent of the farmers in the IRDP grossed more than J$1500 per year, and about one-quarter of all farmers earned less than J$300 per year in gross value of product. Experts argue that if farm income were improved, there would be a greater willingness on the part of young people to remain in the rural areas and farm the family land.

Fourth, many family members are "displaced" from farming by the need or desire to earn cash. As a rural economy moves from a subsistence to a cash basis, many seek off-farm employment to pay taxes and to buy consumer goods that are perceived not only as desirable but as "necessary." Yet there are few income-earning opportunities in the countryside; according to the 1979 survey mentioned above (ibid.: 19), only 13 percent of reporting farmers earned income off their own farms; 5 percent worked on other farms as laborers, and only 8 percent found work that was non-agricultural. People, therefore, migrate to areas where they perceive better job possibilities may exist—to the towns or cities of Jamaica or abroad.

2. Decline of the Small-Farm Sector

Increasing outmigration is by no means the only scenario associated with small farm sector deterioration, but it is an important ingredient in the acceleration of its decline. Indeed, migration is both a cause and an effect of the problems that beset the small farm. In Jamaica, this sector traditionally has provided much of the local food (eaten by the poor in the city and countryside alike), as well as many export crops—such as bananas, spices, citrus and coffee. At one time, about 25 percent of Jamaica's export crops were grown on small farms. About 60 percent of the Jamaican population lives in rural areas, and 30 percent of the total workforce is in agriculture (U.S. Dept. of Agriculture 1978: 74, 89, 94).

Now the agricultural sector's productivity has greatly declined with the grave damage inflicted by Hurricane Allen on citrus and banana, only the latest in a series of difficulties. Soil erosion on the hillsides where most small farms are located is perhaps the most serious problem. The small farmer always has suffered from an uncertain supply of high cost inputs and lack of credit. Agricultural extension services are geared to the kinds of crops grown on the large estate farms, as are research efforts, and small farmers have never competed successfully for the kinds of assistance and supports that might induce people to stay in the countryside.

Another factor in the decline of small holder agriculture—and the consequent decrease in amounts of local food available—is the growing discouragement of farmers because of what Jamaicans call "praedial larceny," that is, theft related to the land and its products. Such thievery is not confined to adventurous boys climbing over the hedges to steal mangoes but includes incidents of midnight rustlers coming in trucks to steal a farmer's entire stand of cabbages or other market crop.
Many farmers own small parcels of land at some distance from their houses, making it difficult to watch over their crops. Not every farmer loses an entire planting, but most must put up with continual petty pilfering. Praedial larceny is one of the major farm-related problems reported in the daily press and commented upon by nearly all the persons interviewed for this study. Growing numbers of small farmers apparently feel that their agricultural efforts are not worthwhile, and many seek off-farm employment instead of putting in crops, setting in motion the circular process in which migration leads to the deterioration or abandonment of agricultural land. This deterioration, in turn, leads to further migration from the rural areas.

3. Feminization of Farming

The deterioration of the small farm sector is intimately linked to a third set of events: the feminization of agriculture. Similar trends have been observed both in developed country agriculture, as recent studies in such widely separated countries as Spain (Margolies 1980), Romania (Cernea 1978) and Japan (Shinpo 1973) attest, as well as in developing countries (Bukh 1979; Colvin, et al. 1981; Gordon 1978; Mueller 1977; Obbo 1980 and Smale 1980, among others).

Women have always played a large role in both commercial and subsistence agriculture in most world regions. This is true particularly for the former British colonies in the Caribbean (as it is in most of Africa today). In keeping with a worldwide trend, women in Jamaica probably are participating more in farming rather than less. The outmigration of men leaves behind one or more adult women who must continue to manage the household and care for the children, as well as cultivate the family food and produce the cash crops.

In Jamaica, 26 percent of the labor force in agriculture, forestry and fishing is female. Many women are actively engaged in farming, and many of them are heads-of-household. Women's holdings are, however, significantly smaller, on the average, than those of male farmers. The 1979 Agricultural Survey of the II IRDP area (Tables 3A and 3B) reports that women's holdings are significantly smaller than men's. About 25 percent of the women farmers work less than one acre of land, and only 20 percent of the women farm operators cultivate more than five acres. In contrast, only 5 percent of male farmers work less than one acre, while 40 percent farm five acres or more. Naturally, with less land, women as a group earn significantly less than men from farming.

In addition to their work in cultivation, women also process, preserve, and prepare the food. They also spend many hours weekly in hauling water and foraging for firewood. And they continue to bear the children and to have the major responsibility for their care. If remittances from the migrant members are slow in coming or cease, the women left behind become economically responsible for young and old. They must find the means to provide food, clothing, school fees and supplies, medical attention, and all
the other things their families need, with few opportunities for off-farm employment to supplement what they can earn (or conserve, by providing food for their families) from the land.

Sometimes women carry on with little or no drop in production when their menfolk migrate. But in other cases, women do not have access to credit, extension assistance, or agricultural inputs, because these are often available only through cooperatives or farmers associations to the person who can show title to the land or has other tangible property for security. Since there are fewer and fewer men to clear and plow the land, traditionally male tasks, women are forced to plant the same land again and again. Burdened with both the cash crops and the family's food crops, women often become discouraged—and may cut back on agricultural activity or abandon it altogether. Indications are that agricultural productivity is decreasing in some areas of large out-migration of men. Land goes out of production, terraces fall, irrigation systems deteriorate, and women fall back into just enough subsistence production to feed themselves and their families. This, in any event, is the pattern in many world areas (ICRW 1979: 116-18; Mueller 1977: 76-77; Birks and Sinclair 1980: 90-91; Myntti 1978: 42). There is good reason to believe that, if documented, the situation would not prove to be all that different in Jamaica—with the index of land being utilized constantly going down as first men, then their discouraged womenfolk, migrate in search of what they perceive as better opportunities in the towns or beyond.

4. Agricultural Marketing

The way in which domestic food crops are marketed also directly affects the availability of food and consequently people's diets. There is universal consensus that the marketing system in Jamaica is inadequate; without entering here into the controversy over the efficiency of higglers—women traders who handle at least 80 percent of the marketing of local fruits, vegetables and staples (Smikle and Taylor 1977: 32)—there is little doubt that internal marketing could be greatly improved.

Sheer lack of transport often prevents the farmer from taking his/her produce even to the local market or nearby boxing plant. The hardworking, shrewd higglers often harvest the produce to be sold that day or the next from their own and their neighbors' fields, paying a better price than the government agricultural marketing corporation. But their lack of transport means that typically they carry relatively small amounts of produce long distances, often on the tops of buses or sitting astride their sacks in the back of open trucks. Post-harvest losses attributable to the marketing system and to the lack of proper storage facilities are estimated at about 30 percent of the crops produced. Further losses in nutrition occur because the produce sometimes is sold in a deteriorated state.

Price is another key factor in the marketing scenario. Cheap food policies for the urban population sometimes discourage small farmers who must pay high prices for planting materials and other inputs, yet may not make sufficient profit to pay their costs, much less realize a return to
their labor. In recent months, for example, low market prices offered for yam resulted in many of the farmers of the central region in Jamaica leaving their unharvested crops in the field. Peeled ginger, commanding only J$1 per pound, also was not worth taking to market.

5. Dependency on Food Imports

This situation leads directly to a fifth scenario associated with malnutrition: what many Jamaicans consider an overdependency on imported food. Adequate diet in Jamaica always has depended upon food imports. From the 17th century when salt fish was brought from the Newfoundland Banks as a cheap protein source for fieldhands, Jamaica has made up the shortfall in nutrients with imports. In times when sugar was king in Jamaica, it was more economical for planters to provide staple foods for their workers than to have them spend time in growing food. (Women, however, often grew some food items and were allowed to sell them in the market even before emancipation—the origin of the higgler system.)

In recent times, Jamaica has been hard put to come up with the foreign exchange necessary to purchase cereals on the world market to make up for domestic shortages. Few Jamaican officials advocate complete self-sufficiency in food; there is, however, a growing uneasiness among them about overdependency on imported food, linked to a high level of awareness that counting on the world food supply is dangerous at a time when the era of cheap food prices (which held for the past two decades except for short periods of world drought) is about to end. The great surge in corn production achieved with the introduction of hybrid seed and short-season varieties has leveled off, and the promise of the Green Revolution has not been fulfilled. For developed-country agriculture, costs of all inputs are increasing, while the supply of good land and mineral fertilizers is decreasing. At the same time, increasing costs (and uncertainties) of transport because of the rise in oil prices and unrest in oil-producing regions already must be factored into the prices of food bought abroad. Most crucial of all, whatever constitutes an "adequate" world food reserve, there now are limits to what can be provided through food and disaster aid, concessional sales, and food-for-work programs.

6. Unemployment and Poverty

Those who leave the countryside are not easily absorbed into the stagnant economies of the urban areas. Most often they join the ranks of casual labor in the informal sector, or the unemployed. Another scenario generating malnourished, displaced persons is revealed: lack of income. Not only must food be available either through local production or through purchase abroad if people are to eat, they must have money to buy food.

A related phenomenon is the high incidence of the female-based household; in Jamaica, about 35 percent of households are headed by women, and there are estimates that in Kingston the number may be over 50 percent (U.S. Agency for International Development 1981: 19). Women either are left behind when their menfolk leave to find work in the cities of their own or another
country, or women themselves go to the city to seek work and establish a household there. Almost one-half (47.1 percent) of the labor force in Jamaica is female (Jamaica, Dept. of Statistics 1982b: Table 6.1, p. 64). Among women 20 to 54 years of age, 86.5 percent were in the workforce in April of 1981 (ibid.: Table 6.2, p. 65).

Men may establish several families over a lifetime, sometimes having more than one simultaneously, while women generally live in a series of mating unions. Couples start out in a consensual or "visiting" union and may marry only late in life, often to other partners entirely. In 1970, as many women (31 percent) were living in consensual as in legal unions (U.S. Bureau of the Census 1977). While there is little or no stigma attached to mating patterns outside marriage, the situation nevertheless means that women often are economically responsible for large families, while men may cease any contribution to some of their children as the number of their dependents increases.

As job opportunities in the formal sector became scarcer in the late 1970s in Jamaica, there were marked increases in informal sector employment where wages are lower (Jamaica, Dept. of Statistics 1980: iv). The greatest increases were registered, however, in the unemployment indices, particularly among women. In Kingston, the real rate of unemployment was thought to approach 50 percent, although official statistics were lower. By April of 1981 (the latest date for which statistics are available), a startling 38.6 percent of women in the labor force were unemployed, compared to 15.1 percent of men (Jamaica, Dept. of Statistics 1982b: Table 6.10, p. 73). Among women heads-of-household, unemployment rates also were higher than those for men: 27.9 percent unemployed among female heads compared to 10.5 percent unemployed among male heads (Jamaica, Dept. of Statistics 1980: Table 4.3, p. 79).

Even for those who are employed, however, incomes may not provide sufficient resources for balanced diets. The lowest 10 percent of employed males earned a weekly wage of only J$10.04 in October of 1979, while the median income for men was J$40.05 and for women, J$33.33 (Jamaica, Dept. of Statistics 1980: Table vi, p. viii). The Nutrition Advisory Council (1978: 11) estimates that Jamaican households spend an average of 70 percent of disposable income on food; but, for the 70 percent of lower-income households, food expenditures reach 80 percent of disposable income. The strategy for survival obviously indicates that most Jamaican households must have more than one wage earner. A recent study by Bolles (1981: Chapter 8) shows how women in 127 households in Kingston stretch their resources through cash generated by various household members, informal exchange of goods and services through networks of relatives and friends, and by tapping into informal labor market activities through "scuffling," i.e., hustling, pilfering, and petty commodity activities.

Income levels and employment statistics do not, of course, actually "measure" the nutrition/consumption situation in a society. There are families with income levels above the minimum to adequately nourish their members but with malnourished members; there are other families that fall below the minimum but with adequately-nourished members. Nevertheless, the high rate of poverty does indicate a high probability of malnutrition.
On the whole, one can conclude that the major cause of malnutrition in Jamaica is poverty—defined in the broad sense to include not only low monetary income, but low levels of education, substandard living conditions, and unscientific cultural and social practices (McLeod, interview, March 1981). Sufficient food has been available in Jamaica in recent times, except for periods of shortages when lack of foreign exchange forced government to limit the volume of food imports, so that families with money were able to purchase the necessary food for an adequate diet. Given the condition of general poverty, what is most surprising is the fact that the levels of malnutrition (that we know about because they have been measured in studies) are not higher in Jamaica. In part this is because food is allocated on an extended family basis; those with claims to family land often are supplied with food from the countryside. In addition, there is a limited amount of "free" food that grows in a semi-wild state. Jamaicans tend to believe that tree fruits, for example, are free for all, irrespective of the ownership of the land on which they are grown. As more and more smallholdings are taken out of cultivation, however, these sources of supplementary food will become less and less available.

C. Food Customs: What Jamaicans Eat

The preceding sections have touched upon the major agricultural factors affecting food availability and distribution—two necessary conditions for adequate diet. But consumption and nutrition also revolve around another set of issues that might be summed up in the term food utilization—what foods people choose to eat if they have alternatives and if they have the economic means to make choices. Food utilization is, in Jamaica, also affected by agricultural policies in both direct and indirect ways. For example, the Rural Farm Family Development Programme in the Ministry of Agriculture promotes nutrition education as well as home production of nutritious foods, attempting to reinforce the positive features of the way Jamaicans eat and to counter the negative aspects.

On the negative side, Jamaicans appear to be overly biased toward imported foods (many of which do, however, affect nutritional status in positive ways). Jamaicans demand some imported foods from the force of long tradition; today's expensive salt fish and mackerel, for example, were at one time cheap food brought in for fieldhands. Some imported foods are convenient and taste good as well. Rice, what consumer affairs director Irena Cousins called "the original convenience food," is easy to prepare and cheap (partly because it is subsidized—one pound costing 79 cents feeds a family of five). A Jamaican homemaker certainly would choose rice over domestically grown yam on the score of convenience; peeling and preparing yam, for example, is time consuming compared to the ease of cooking rice. Moreover, pound for pound, imported rice is a better bargain than the local yam. Two pounds of yam costing around J$2.00 would be needed to feed a family of five and would provide only 410 calories and 9.4 grams of protein per pound. In contrast, 79 cents worth of rice, parboiled, provides 1674 calories and 33.6 grams of protein (Jamaica, Ministry of Industry and Commerce 1980; Caribbean Food and Nutrition Institute 1974).
On the whole, our respondents agree that Jamaican diets do not differ markedly between city and countryside. In Kingston, Bolles' study underscores the fact that packaged convenience foods have not yet become part of the traditional Jamaican diet in poor households:

The available packaged goods are extremely expensive and usually found in "uptown" supermarkets (middle class areas). In addition, imitations of North American convenience foods, such as macaroni and cheese dinners, are not so palatable as their "Kraft" counterparts, and they also are quite bland in comparison to standard Jamaican cuisine (1981: 162-63).

Jamaicans at all income levels still like their own traditional foods and eat them when they can get the ingredients. Many customary food combinations, often based on domestic crops, are nutritionally excellent. Often relatives supply some of these to their city cousins. No one leaves a rural area without taking a piece of pork or mutton, as well as yams, bananas, and whatever else is in season. Nutritionists have suggested that customary mixtures in the average Jamaican diet provide a balanced combination of energy and protein and an optimum complementarity; protein from peas and beans, for example, increases the body's efficient use of proteins in cereals. Such combinations include rice and peas, mackerel and bananas, curried goat and rice, ackee and salt fish with roasted breadfruit, pepper pot soup, egg and bread, and fried pork and roasted breadfruit.

There are some social constraints on eating patterns that influence the choice of foods and thereby nutritional status. Thick cornmeal, one of the most nutritious and economical foods, is considered "food for dogs." Ripe bananas are acceptable, but green bananas are "pig food," only eaten by the poor when they have nothing else.

The most difficult questions revolving around food utilization concern imported versus indigenous foods—and the reluctance of Jamaicans to substitute the latter for the former when they have a choice. Novlet Jones, director of the Rural Farm Family Development Programme, echoed many of the knowledgeable persons interviewed for this study when she stated that "the cultural pattern of eating rice will never be substituted." Over time, however, Jamaicans do make some substitutions. For example, as salt fish and mackerel have become more expensive, Jamaicans have been eating more and more chicken. There is a growing poultry industry (dependent, however, on imported feeds), although chicken necks and backs in frozen form are imported. Nevertheless, when mackerel was selling at J$1.09 per pound, chicken parts were only 47 cents per pound. In nutritional terms, the canned mackerel provided 183 calories and 19.3 grams of protein, while the same expenditure for chicken parts brought 358 calories and 37.28 grams of protein (Caribbean Food and Nutrition Institute Tables, 1974).

Another factor that affects consumption in the countryside is the apparently universal tendency for farm families to base their diets almost entirely on their starchy cash crops—when raising vegetables high in
protein (the leafy greens and the legumes) would provide adequate nutrition with only occasional animal protein. An AID agriculture report (1975: 24) notes:

Long-standing eating habits, wherein diets may consist of almost pure starch, also are strongly influential factors preventing nutritionally valuable foods from being used. It is not uncommon to see Sunday dinner in the homes of even middle-class farm families composed of five to seven different types of yams, with rice and white potatoes and perhaps sweet potatoes, and a very small quantity of salt fish or meat with flour gravy for flavor.

D. Food Beliefs and Taboos

Choice of foods also is influenced by food beliefs, especially those related to misunderstanding of the relation of diet to disease. This is particularly crucial at the time of weaning, when economic and cultural constraints result in "almost every child going through a phase of mild or severe protein malnutrition" (Nutrition Advisory Council 1978: 9).

Jones (interviewed in March 1981) talks of the "grandmother syndrome," a set of child-rearing practices of the older generation. Mothers in Jamaica must often leave their children with their own mothers or an older woman neighbor because they are obliged to work. (Sometimes migrants to Kingston, or those who go abroad, leave their children with their grandmothers in rural Jamaica on a permanent basis.) In the older generation, women still believe that fish rots the teeth, that milk is bad for children, that bush (herbal) teas are good for them, and that if young children eat yams, they get worms. Children also may be left with older sisters who often are negligent in seeing that their younger brothers and sisters get proper food or are ignorant of food requirements. A revival of interest recently in herbs and herb teas poses the problem that little is known about the prolonged effect of herbal and bush remedies, while some may even cause chromosomal damage (Thornburn n.d.: 18).

Nutritionists now advise, in Jamaica as elsewhere, that the weaning child should be given a mixture of pureed foods from the family pot, beginning no later than nine months (and preferably by the sixth month), while continuing to breastfeed to twelve months. But many mothers and grandmothers are reluctant to wean children onto "grownup's food"; they either purchase expensive packaged cereals or milk substitutes, if they can afford them, or give toddlers only a bit of mashed banana and bush tea during the day. If children are not breastfed and are given diluted formula and then weaned onto mashed potato, banana and yam, they are prime candidates for at least the milder forms of nutritional disease.

Fonaroff's research (1975) shows that most rural women do not associate marasmus or lesser manifestations of malnutrition with dietary deficiency, nor do they consider a well-balanced diet as a central part of treatment. She quotes one nana's (midwife) observations as typical:
Proper feed keeps baby strong, but what keeps marasmi away are herbs, purgatives at times, cough syrups, a little tin feed . . . and keep it out of wet (p. 116).

Sometimes indigenous therapies withdraw important nutrients at just the time children, in particular, need them. For example, avoidance of milk will be prescribed if the malnourished child has a cold because it is thought that milk "curdles the cold." The use of harsh purgatives also still is common in the treatment of children's illnesses, according to the interviewees, and is the worst possible procedure for a malnourished child. Often the obeah man (witch doctor) will be consulted, and his treatments may range from the wearing of special amulets, to herb teas and a semi-liquid diet, or to placing a bible at the head of the bed with a pair of crossed scissors over it (Fonaroff 1975: 119). Jerome (1977: 282-83) demonstrates that many of the beliefs about the causes and treatment of kwashiorkor and marasmus are universal.

III. TOWARD SOLUTIONS

A. Strengthen National Nutrition Policy

As a nation, Jamaica has an impressive record of attention to the nutritional status of its population. Because there is a high level of awareness of the causes and consequences of malnutrition, there is a good basis for taking the logical next step: linking food consumption and nutritional issues to agricultural policies.

Several entities are involved with nutrition on a national and regional basis in Jamaica. For many years, the Scientific Research Council (SRC) has carried out work on the cultivation and processing of various food crops, always with attention to the nutritional aspects. The SRC most lately has been involved with experiments to determine what kinds of indigenous cereals and cereal-like products would combine with wheat to reduce the wheat content in commercially produced bread (in order to lower the import-quotient of wheat in the flour). The Ministry of Health's Nutrition Division has carried on both practical work throughout the island, through its professional staff and a corps of nutrition aides, and has been involved in studies (most lately, the "Nutritional Status of Vulnerable Groups in Jamaica" survey, done in collaboration with the Caribbean Food and Nutrition Institute (CFNI), 1979). Nutrition plays a prominent role in the program of the Ministry of Agriculture's Rural Farm Family Development Programme, with emphasis on nutritional education and practical instruction for rural women in food processing and preparation. With a physician at its head, health and nutrition issues will figure prominently in the Ministry of Education priorities, particularly through its school lunch program in the schools as well as through curriculum, extending its influence not only to students but to communities.

At the national level, there has been a carefully orchestrated attempt to coordinate policies relating to nutrition/health/food consumption. A preliminary high-level conference in 1974, planned with the close cooperation
of CFNI, set forth the parameters of nutrition policy—envisioned as a continuing collaboration among all the institutions and agencies, public and private, that had a stake in nutrition—and resulted in the formation of the Nutrition Advisory Council (with a membership of 16 persons and 15 institutions). Although the Council functioned for a time, there has been little activity in the past two and one-half years. The consensus among people interviewed for this study was that the Council, while its members were knowledgeable professionals and its scope of work well defined, could not work effectively because it was too unwieldy and its members were neither in the political mainstream nor high enough in the bureaucracy to enforce many of their ideas.

One great advantage to Jamaica is the fact that the Caribbean Food and Nutrition Institute (CFNI) is located on the island. While its mandate extends to the whole English-speaking Caribbean, the CFNI nevertheless is a prominent presence in Jamaica and collaborates with many entities and institutions in Jamaica itself. Nutritional awareness extends all the way from high-level government officials to the countryside, where women may not fully understand all the fine points of food composition but are at least aware that proper food is important for themselves and their families. Experience in building a women's component in the II Integrated Rural Development Project at Christiana, for example, demonstrated that women were highly aware and interested in nutritional questions and eagerly sought participation in the family food production plan offered by the project (Chaney and Lewis 1980b).

B. Increase Emphasis on Smallholder Agriculture

Because malnutrition in Jamaica (and in the Caribbean in general, except for Haiti and the Dominican Republic) is not the severe phenomenon that it is in many Asian, African, and South American countries, the solutions may well be within the reach of government and private institutions. At the outset, there does not appear to be in Jamaica any basis for what might be termed the "either/or" solution to the problems of malnutrition. Instead, policies should strive to strike a judicious balance between domestic food production and food imports, satisfying the demands of both the large commercial agricultural sector and the smallholder to make each more productive and efficient.

Discussions about agricultural policies and programs in relation to nutritional needs often are couched in misleading terms. The problem is set up as if planners must "choose" between growing crops for export sale (while buying cheap food staples in the world market for domestic consumption), or concentrating efforts on indigenous agriculture to achieve food security and self sufficiency.

It is true that in some world regions, cash crops have competed for lands on which domestic food crops formerly were grown, and increased aggregate income from food and fiber sales on the world market has not necessarily resulted in improved diet for the population. There is no necessary competition, however, between policies that promote the cultivation of cash crops
for export and policies that support the growing of food crops for domestic consumption. If such crops do not compete for the same land and labor force and if sufficient inputs, research, and extension can be provided to both the cash and the domestic agricultural sectors, there is no necessary conflict between them. The question is one of political, not technical, dimensions and is determined by who controls or influences the allocation of sometimes scarce resources.\textsuperscript{11}

In countries like Jamaica, cash crops (except for coffee) destined for export tend to be grown on the flat plains or in the intermountain valleys, using hired labor. It is true that some export crops depend upon casual labor at certain seasons of the year. But farmers with small acreage—the majority in Jamaica—have always depended upon off-farm employment for supplementary income, and they combine it with work on their own plots.

Domestic food crops, in contrast, generally are grown by peasant farmers on the hilly uplands. This is the situation today in many countries of the Caribbean and Central America, where the colonial past put export plantations in the lowlands, while the peasant farmers learned to grow the foods for local consumption—what Alan Berg calls "the foods of the poor," the tropical staples and legumes—on the hillsides. Even if countries were to become virtually self-sufficient in food (not very likely), there still would be need for a strong agricultural export sector. In the absence of oil or mineral wealth (or, as in Jamaica's case, with the diminishing returns to bauxite), developing countries have no other means to earn foreign exchange to buy the capital and manufactured goods and the many other necessities they cannot produce at home.

In the city, too, there are possibilities for raising supplemental vegetables and fruits. The Scientific Research Council has been experimenting with growing food trees in yards and with container gardening where people have no land on which to plant. Food-bearing plants and bushes, in place of hedges, also can yield impressive amounts of produce; one Congo pea bush, interplanted with a hedge, grew to a height of six feet and yielded 25 quarts. Dried, one point of the \textit{cajanus cajan} has 1,529 calories and 87.1 grams of protein, more than commercial-grade beef at 1,021 calories and 62.8 grams of protein (Caribbean Food and Nutrition Institute Tables 1974).

In summary, poor countries could not use the foreign exchange generated from the tropical export crops to buy essential capital goods—not for non-essential food items that can be produced domestically (or regionally, as in the case of CARICOM), using quite distinct land and labor resources.\textsuperscript{12}

The major problems facing policymakers in choosing the proper balance among complementary agricultural policies to increase food consumption can be summarized as follows:

\textit{Food availability:} finding a balance between increasing agricultural production to make up the current nutrient shortfall and decreasing, but not eliminating, the range and amount of food imports;
building up the small farm sector in order to decrease outmigration, increase production of local foods and local incomes, and, at the same time, encouraging increased productivity in the commercial agricultural sector, both in traditional export crops and in new agricultural products;

§ food distribution: restructuring and reinvigorating those intermediate activities that improve food distribution, above all, improvements in the marketing system and in incomes;

§ food utilization: discovering the extent to which food availability and food distribution are amenable to adjustments in agricultural policies and where policies must intersect with other institutions and agencies in order that food is efficiently and properly utilized.

A few nutritionists are beginning to link agricultural development and nutrition; a good essay by Dewey (1979) annotates the studies available. A "state of the art" piece by Fleuret and Fleuret (1980) covers the same territory from an anthropological perspective. Several pioneers advocating consideration of the nutritional effects of agricultural policies and projects already have been cited throughout this paper, e.g., Pinstrup-Andersen, Berg, and there are others. Indeed, there is a great deal of scholarly activity in most of the fields mentioned above. There is less effort to link two or more systems together; for example, the nutritional effects of agricultural production, or migration and the feminization of agriculture. There is no effort, so far as I know, to tie the sets of events together in one scheme, with malnourishment as the dependent variable, and "scenarios" of migration, decline of small farm systems, and the plight of women left behind to carry on production as key explanations.

What I have argued here is schematic and, as Joy himself suggests, at some point numbers become appropriate when one is measuring the effects of each of the scenarios proposed. Much work remains to be done, but the approach proposed here shows promise of making a contribution toward solving the most crucial problem facing Central America and the Caribbean region in the 1980s: hunger and malnutrition. Because the "scenarios of hunger" are so similar in other world areas, the work would have applicability beyond the countries chosen for detailed study.

APPENDIX: RECENT NUTRITION STUDIES IN JAMAICA

There have been numerous studies carried out in Jamaica over the years on the nutritional status of various population groups, based in vital statistics, clinical data, and dietary and anthropometric surveys. The basic document of food consumption and nutrition—and probably the most reliable resource on the overall situation—is the policy paper of the Nutrition Advisory Council (1978). The 1978 "Nutritional Status of Vulnerable Groups in Jamaica" is the latest national survey.
The extent and nature of malnutrition commonly have been measured in three major ways: (1) by calculating the long-term, or lifetime, effects on diet on a population, e.g. life expectancy, worker efficiency; (2) by measuring intermediate effects of diet, for example, through clinical examination of children or anthropometric indices such as birthweight and weight for age, height and length or by studying the effects of diet on children's intellectual development or school achievement; and (3) directly, by estimating the amount of calories and proteins delivered to a population through drawing up food balance sheets or through a dietary survey where the extent of malnutrition is measured by calculating the actual amounts of food people eat—either by recall or by weighing the food and estimating its nutritional value over a stated period. Vital statistics also can yield information on nutritional status, particularly data on infant mortality.

Almost every type of study mentioned above has been utilized in Jamaica, but with mixed results. Aside from the perennial problem of small samples and the dangers of generalizing results obtained in one region to others, there are additional difficulties. Except for birthweight, the first two methods suffer because of time lag. So many other variables besides diet may intervene that it becomes difficult to isolate what part food intake has played and what influence health, sanitation, environment, and other factors have on such household-level dietary surveys which attempt to measure effect on output (amounts of nutrients consumed) by identical inputs—that is, the measurement method assumes that the proteins and calories delivered somehow are utilized uniformly by a population or family. Moreover, dietary surveys are notoriously difficult and expensive to carry out. Perhaps for this reason, none has been done in Jamaica for some time.

An alternative method for calculating the extent and nature of malnutrition is through the use of food balance sheets, introduced as a planning tool by the FAO in the early 1940s. This method does not tell us anything about distribution of the available food, that is, which persons among the population (or in the family) enjoy adequate diets. Nevertheless, food balance sheets can give at least some crude approximations of national nutritional status.

Food balance sheets calculated several times during the 1960s and 1970s for Jamaica show a consistent trend toward improving, at the aggregate level, the national supply of calories and proteins (Ashworth and Waterlow 1972: 19-22). Indeed, by 1978 the "food gap" had been closed, principally through the importation of cheap food staples bought in the world market or through CARICOM. Political pressures, including near food riots when rice and counter flour are not available, have forced governments over the past two decades at least to attempt to put these two staples on the shelves, as well as cooking oil, mackerel and salt fish, chicken parts, and sometimes special shipments of popular Jamaican delicacies such as goat meat and pigstails.

Indeed, largely because of the willingness of successive Jamaican governments to import food, there was to the mid-1970s an oversupply of about 114 calories and about 20 grams of protein per capita above recommended daily requirements (Nutrition Advisory Council 1978: 5). CFNI (1981)
cites some recent studies that suggest people can adapt to different types of diets and different levels of intake of nutrients, depending upon the part of the world in which they live. In other words, dietary requirements may vary among people of different ethnic groups, body sizes, climates, and levels of physical activities. Much research remains to be done, however, before nutritionists will depart from internationally-accepted standards. As Reutlinger observes (1980: 2), the fact that people adjust to lower levels of food intake says "nothing about the cost and the desirability of the adjustment." CFNI (1979) has developed recommended allowances for the region.

Dr. J. M. Gurney (1975: 153), director of the CFNI, estimates the "oversupply" of food energy at about 30 percent for the Caribbean as a whole. To counteract the inevitable maldistribution of nutrients (usually associated, Gurney says, with maldistribution of wealth and dependents), he suggests that a supply of about 120 to 125 percent of food energy requirements is necessary for the region. The Nutrition Advisory Council (1978: 25) uses a 50 percent surplus in its calculations of dietary requirements for energy and protein, but this would appear to be excessive.

Despite the more than adequate food supply, however, because some persons were "overnourished," i.e., upper income and tourist groups, the rest of the population suffered a nutrient shortfall. Even before the shortages experienced in the 1978-80 period, calculations (based mostly on indirect evidence since there is only one national survey that sheds any light on income elasticity or demand for food) show that among the lower income groups--about 70 percent of the Jamaican population--available dietary energy supplies fall short of requirements by about 27 percent and protein requirements by about 14 percent (Nutrition Advisory Council 1978: 6; Fox, et al. 1974: 1). Except for children under age five, there is a consensus among Jamaican nutrition experts that most people could make up the shortfall of protein automatically if their calorie requirements could be filled. This is so because many of the high calorie items in the Jamaican diet also contain significant amounts of protein; adults thus can fill their protein/calorie requirements simultaneously, while children (whose stomach capacity is limited) must get their daily requirements from denser calorie sources and/or supplemental protein. As Fox, et al. (ibid.: 2) observe, "a pure protein deficiency unaccompanied by an associated lack of dietary energy is very rare." It is important to emphasize, once again, that making up this shortfall will not automatically eliminate malnutrition; distribution remains a problem that must be tackled directly. As Pinstrup-Andersen (1980: 8) remarks, "the amount of nutrients made available by a given project of policy usually is a poor indicator of the nutritional effects."

Related to the fact that Jamaica is not calorie short (at least, at present levels of food importation), attention recently has been drawn to the other face of malnutrition: overnutrition and its related diseases in Jamaica and other countries of the English-speaking Caribbean. (The following discussion is based on Sinha (1980) who summarizes the evidence to date on this problem.) Paradoxically, "affluent society" diseases--diabetes, heart and cerebrovascular diseases, and cancer--have become the
four leading causes of death in Jamaica, and all are related to obesity. This is in sharp contrast to such countries as Ecuador and Guatemala, where gastroenteritis and related diseases still are the leading causes of death (Sinha 1980: Table 2, p. 15). Nevertheless, only in Jamaica, Belize, and St. Lucia do enteritis and other diarrhoeal diseases figure among the five leading causes of death in the English-speaking countries.

Among the very young and very old in Jamaica and the region, many people are undernourished; yet large numbers of middle-aged and elderly—particularly women—are obese and suffer the related diseases. In the poorer countries, however, obesity is not necessarily caused by overindulgence in expensive foods; on the contrary, it is the result of not being able to buy enough high quality protein products (meat, fish, milk, eggs) and therefore existing on diets high in cheap starches and sugar. There also may be some relation between the prevalence of female obesity and the fact that men and male children tend to have first claim on meat if it is served.

One final topic should be explored: the several hematological studies carried out in Jamaica that show high incidences of anemia. The 1978 National Nutritional Status survey (p. 5) found 55 percent of pregnant and lactating women were anemic according to WHO standards (or 28.6 percent if the lower Jamaican clinical standards are used), while 47 percent of the children surveyed were below standard. As well as iron deficiency, certain vitamins also are lacking in some diets (Gurney 1978: 219).

Except for iron-deficiency anemia and lack of Vitamin A, however, there is a growing consensus among nutritionists that most other nutrient deficiencies are solved with adequate diet (Berg 1973: 15). Overall, the principal dietary problem is insufficient proteins and calories available to the poorer 70 percent of the population.
NOTES

1. This paper is based on a search of the literature, as well as on interviews with approximately fifty persons in Jamaica involved in consumption issues (nutritionists, home economists, health personnel, consumer agency officials, educators) and in food supply (agriculture officials, rural development workers, marketing personnel and persons in the state entities that oversee food imports). The interviews were carried out in March, 1981 in collaboration with a team contracted by the Nutrition Economics Group, United States Department of Agriculture, as part of its current "Consumption Effects of Agricultural Policies" studies, and the data are used with permission. The analysis, conclusions and opinions are, however, those of the author.

I am indebted in a particular way to Martha W. Lewis for insights and observations on many of the themes explored here. Some sections of Part II/B are based on our joint paper, "Women, Migration and the Decline of Smallholder Agriculture," 1980a.

2. What we do know with some degree of certainty is the situation among preschoolers, where a recent national survey (Jamaica, Ministry of Health 1978) showed that about 31 percent of the sample were mildly malnourished (1st degree malnutrition, according to the Gómez classifications) (Gómez, et al. 1955); another 7 percent were moderately malnourished, while only 0.9 percent could be classified as severely malnourished (2nd and 3rd degree malnutrition). These percentages compare with the average 3 percent of children under five years of age in low-income countries who suffer 3rd degree malnutrition and the 25 percent in the moderately-malnourished categories in these countries (Berg 1973: 5). In the Caribbean, Jamaica ranks toward the bottom of the fourteen territories; the Cayman Islands are best off, and Guyana is significantly worse off (Gueri 1977: 270).

3. Pointing to the contradictory conclusions in the available data is not meant to denigrate the utility of conventional nutrition surveys, which are vitally necessary for health and nutrition workers. Base-line data and periodic measurements of nutrition/health status are essential for successful surveillance and treatment programs at the grass roots level. Such data are, however, ill-suited to guide policy planners, particularly when planners are dealing with aggregate food supply and attempting to balance domestic production and food imports.

4. Berg (1973: 24) estimates that the annual cost to prevent malnutrition is approximately the same as the daily cost to treat it in a number of countries.

5. Total fertility rate (TFR) per woman still is 3.7, the highest in the region except for Haiti's 3.9. Barbados' TFR, for example, is 2.2 (Population Reference Bureau 1980). Infant mortality rates have dropped from 63 per 1,000 live births in 1960 to 25 in 1980 (compared to 139 for Haiti and 27 for Barbados) (ibid.).
6. Marasmus may be on the rise again in Jamaica, according to Nutrition Division nutritionists interviewed for this study. Fonaroff believes the increase in the disease is associated with areas undergoing rapid socioeconomic change and considerable internal migration (1975: 113). Kwashiorkor—in the Ga language of West Africa literally the disease that occurs when a child is displaced from the breast by another child—is associated with a diet very low in protein but with sufficient calories; marasmus, typified by the severely wasted, underweight child, is associated with diets low in both protein and calories (Jelliffe 1968: 75-84).

7. Except for iron-deficiency anemia and lack of Vitamin A, there is a general agreement among nutritionists that most other nutrient deficiencies are solved with adequate diet (Berg 1973: 15).

8. Between 1958 and 1968, total acreage dedicated to agriculture in Jamaica declined by almost one-fifth (Inter-American Development Bank 1979: 53). The Agricultural Census of 1968 (none has been carried out since) records 78 percent of the 185,483 farms as smaller than 5 acres, accounting for about 15 percent of the land, and 28 percent of farms as smaller than 1 acre (U.S. Dept. of Agriculture 1978: 63ff).

9. The corporate area of Kingston/St. Andrew's grew between 1960 and 1970 by almost 25 percent; and between 1970 and 1980 by another 21 percent, to the present 671,000 persons (Jamaica, Dept. of Statistics 1982a: Table 6, p. 4, and 1982b: Table 1.1, p. 2). At the same time, the net overseas migration rate of 1.0 per thousand population for the 1970-80 decade brought down the rate of population increase from 2.6 percent to 1.6 percent for the decade (Jamaica, Dept. of Statistics 1982a: Table vi, p. vii), a continuation of a trend that goes back many decades in Jamaica and other English-speaking Caribbean islands.

10. In two definitive works, Edith Clarke (1953 and 1957) has outlined the classic situation of land tenure in Jamaica, revolving around the concept of "family land" that until recent times rarely was sold but was available for use by family members, a place they could always return during hard times. David Edwards (1961) has written the definitive work on small farmers in Jamaica, and Blustain (1980) outlines recent modifications in land tenure practices in the II Integrated Rural Development Project at Christiana.

11. In sub-Saharan Africa, for example, a recent World Bank report (1981: 50) recommends that the smallholder agricultural sector should be the focus of rural development strategy. Not only does this sector have a great, as yet largely unrealized, productive potential but raising the output and income of small farmers is a direct way of alleviating rural poverty, according to this report.

12. It should not be forgotten that the two sectors are not mutually exclusive; some export crops (at one time, about 25 percent of the total) are produced by small farmers, while commercial agriculture produces food for internal consumption as well as for export.
13. Three publications summarize the studies carried out: Ashworth and Waterlow (1973), which summarizes studies from 1945 to 1970; Gurney (1975) and Ashworth and Picou (1976).

Six dietary surveys were carried out in Jamaica between 1952 and 1970: four of families, one of schoolchildren, and the sixth of preschoolers. Five anthropometric studies were done in the same period: four on children and one on adults. The results of these studies, the populations surveyed, and the methodologies employed are summarized in Ashworth and Waterlow (1973: 86-93 and 95-97). In 1970, Gurney, Fox and Neil (1972) carried out what they called "a rapid survey to assess the nutrition of Jamaican infants and young children." This survey provided baseline data for the 1978 study (see Note 14 below).

14. The 1978 survey included 3,000 preschool children in 200 locations selected randomly throughout Jamaica, as well as a smaller sample of pregnant and lactating women. The study was carried out by the Nutrition Division, Ministry of Health, with the collaboration of the Caribbean Food and Nutrition Institute. The study used both anthropometric and haemoglobinometric measurements.

15. Intra-family food distribution is beyond the scope of this report. See a recent state-of-the-art paper, however, summarizing studies done to date and their conclusions (Horowitz, forthcoming).

16. Ashworth and Waterlow (1973: 19) define the food balance sheet as "an attempt to assess the availability of foodstuffs on a national basis, the sum of imported and locally produced food, less exports, seeds and waste. Division of the total by the number of the population gives the food available per head. The nutrients provided by this amount of food can then be compared with the recommended allowances." No food balance sheets have been calculated for Jamaica since 1973.

17. Ashworth and Waterlow 1973: Table A/1, p. 87. The standards used in Jamaica are the National Research Council's Recommended Daily Dietary Allowances, issued by the Food and Nutrition Board of the National Academy of Sciences (revised 1968). The Academy has defined this measure as "the levels of intake of essential nutrients considered to be adequate to meet the known nutritional needs of practically all healthy persons in the U.S.A."

18. A "National Household Budget Survey," based on the money expended on food through recall of the previous week's shopping list, was carried out in 1971/72. Unfortunately, the results of this survey have never been completely analyzed and currently are not available.
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Jamaica, Ministry of Agriculture

Jamaica, Ministry of Industry and Commerce

Jamaica, Ministry of Health

Jamaica, Department of Statistics


Jelliffe, Derrick B.
Jerome, Norge W.

Jones, Novlet

Joy, Leonard

Margolies, Luise

McLeod, Joan
1981  Interview, March.

Mueller, Martha Burton

Myntti, Cynthia

Nutrition Advisory Council

Obbo, Christine

Population Reference Bureau

Pinstrup-Andersen, Per

Reutlinger, Shlomo
Shinpo, Mitsuru

Sinha, Dinesh P.

Smale, Melinda

Smikle, C. and H. Taylor

Thornburn, Marigold J.

United States Agency for International Development

United States Bureau of the Census

United States Department of Agriculture

World Bank
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