Malnutrition and Mortality During Recent Famines in Ethiopia: Implications for Food Aid and Rehabilitation

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The 1972–73 and 1984–85 famines varied significantly among different populations within famine areas at the regional, community and household levels. Political and social factors were crucial in this pattern. Evidence from both pastoral and farming areas indicates that the development of community-based resources may be less disruptive socially and economically and result in less morbidity and mortality than dependence on relief shelters. Areas needing further study are identified.

Famine conditions are likely to persist for many years in Ethiopia, despite the current peace process and restructuring efforts. Mesfin Wolde Mariam (1984) identified famine conditions in different awrajas each year for the period 1958–1978, and Kloos and Lindtjorn (1993) reported large numbers of Ethiopians affected by famine for all subsequent years up to 1992. There is an urgent need for a better understanding of the ecology of acute malnutrition, particularly the vulnerability to famine of different populations and socioeconomic classes, as well as their coping strategies, morbidity and mortality experience during times of disaster. The purpose of this paper is to contribute to the debate about differential drought and famine occurrence and nutritional impact during the 1973–74 famine, when an estimated 250,000 people died, and during the 1984–85 famine, when about 1,000,000 people died (Asmerom Kidane, 1989). We review selected works on vulnerability and coping strategies because social and economic activities, and psychological and physiological adaptation to poverty and crisis, have always been significant in reducing famine risk in Ethiopia (Rivers, 1990; D'Souza, 1990). Analysis of the occurrence of malnutrition and associated mortality in different ecological settings and relief shelters may contribute to an evaluation of the constraints experienced by communities and relief organizations in providing an adequate food supply and viable preventive measures.

Asmerom Kidane analyzed the results of interviews in Metekel and Gambela resettlement schemes and concluded that the consequences of the 1984–85 famine were general, affecting rural populations in northern Ethiopia regardless of socioeconomic status and place of residence (Asmerom Kidane, 1989). The perception of an indiscriminately severe famine was strengthened by the fact that mostly landowning peasants were resettled during the
government’s resettlement programme. This, it was reasoned, was in sharp contrast to the resettlement programs in the 1970s, when a few vulnerable groups, mostly urban poor, landless peasants, charcoal burners, and destitute pastoral nomads were resettled. Nation-wide malnutrition in 1984—85 was considered to be largely the result of the supposedly equitable distribution of wealth after the 1975 land reform. The persistence of many parameters of socioeconomic differentiation after the revolution, as well as the ecological and cultural diversity of Ethiopia were not, however, considered, (Kloos and Aynalem Adugna, 1989). The news media contributed to the view that starvation was universal, not only during the 1984—85 famine but also during the one in 1973—74, when the press first reported on an Ethiopian famine (McCann, 1987, pp. 245—267; Alemneh Dejen, 1990, 73, 74).

But there is considerable evidence, both from Ethiopia and other developing countries, that vulnerability to famine and malnutrition varies between and within different socioeconomic groups and geographical areas. Some investigators have argued that pastoral nomads are more vulnerable to famine and disease than sedentary farmers due to their full dependence on the natural environment for food production (Meir, 1986; Holt et al., 1975), while others consider them to enjoy a higher health status than farmers, at least during less stressful periods. It is more commonly agreed, however, that there are wide variations in wealth among lineages and households in pastoral societies (Roboff, 1977; O’Leary, 1990). Nutritional advantages have been reported for many pastoralists who settled on commercial farms and characteristically maintained some of their livestock (Bradbury, 1984; Meir and Ben-David, 1991; Kloos, 1982). Subsistence farmers turning to commercial agriculture, by contrast, often suffered nutritionally from unbalanced diets (Dewey, 1981). Other high-risk groups commonly identified by emergency relief programs include children, pregnant women, the old, the sick, the urban poor, and refugees.

The approach used by most emergency programs, namely to focus on the impact of famine rather than on its predisposing factors, has come increasingly under criticism in recent years as being less effective in the control of famine in the long term than community-based and equitable rural development programs. Examination of predisposing factors, or vulnerability, and the coping behavior developed by populations living in famine-prone areas may identify still poorly known constraints and potential opportunities suitable for community-based prevention and rehabilitation programs that may be more effective and less disruptive economically and socially than the hazardous journey to and stay in feeding centers.

FAMINE VULNERABILITY AND SURVIVAL STRATEGIES

The studies of McCann in northern Shewa and Wello administrative regions showed that famine risk varied significantly among households, primarily as a function of production capacity, particularly the number of oxen owned. Other farmers at risk were former tenants and less favored offspring who cultivated more marginal land, and women alienated from land and property (McCann, 1987). While endowment and a higher social status provide a certain degree of insulation from the effects of the drought, there are other factors in famine vulnerability. They include pest infestation, soil exhaustion, the ability of individual peasants to cope with these crises and, after the revolution, the relations of individuals with their peasant associations and producer cooperatives, and the stepped-up civil war. Some
of the survival strategies employed by many peasants included reduced food consumption and dietary changes; the consumption of famine foods, such as wild plant products; the sale of household goods, personal belongings, livestock and land; and temporary migration to towns and commercial farms to seek employment. If all failed, then farmers tended to move to relief shelters, often sending their wives and children first, the men staying behind in the hope of cultivating in the event of rain. Many old and sick persons were abandoned during these migrations (Dessalegn Rahmato, 1991; Adhana Haile Adhana, 1988; Wood, 1976; Mesfin Wolde Mariam, 1985). The strategy of moving spontaneously to better grazing areas in nearby areas and adjacent administrative regions, which involved thousands of peasants from Wello, Tigray and Gondar in the 1960s and early 1970s, was no longer possible after the revolution, when the registration requirements of the peasant associations prevented such movements.

Similar coping behavior was reported for several pastoralist groups, including the Mursi in the Omo Valley (Turton, 1977) and the Afar in the Awash Valley (Kloos, 1982). But whereas the Mursi response to famine has been described as a success story (Turton, 1985), the Afar have increasingly become marginalized economically in the wake of the development of corporate farms (and later state farms) in their best grazing areas, new towns, roads, and Awash National Park, and the encroachment by Isa Somali pastoralists and peasants from the Ethiopian Highlands. Many Afar lost confidence in subsistence pastoralism after they had lost their livestock and many kinsmen to famine in 1973 and 1974 and settled in and around commercial irrigation farms (Flood, 1976; Voelkner, 1974).

Most well-tried survival strategies used by farmers, pastoralists, and the urban poor were not sufficient to avert disaster or could not be implemented, as in the northern war zone. According to the most extensive survey of foods needs carried out in Ethiopia, conducted by cadres of the EPLF in 1987, which covered a quarter of all villages in Eritrea, military activities and insecurity significantly increased famine risk through increased social and economic isolation of both rural and urban communities. Specifically, sharp reductions in food production were associated with lack of access to grazing areas, fields, off-farm employment, and markets (Cliffe, 1989), and many urban populations starved during military sieges and food blockages by the warring factions.

Social relations, marketing structures, and agricultural activities were not uniformly affected in northern Ethiopian communities. Mesfin Wolde Mariam reported that one village in Raya Kobo, one of the most severely affected awrajas in Wello, did not experience food shortages after 1972, despite its refusal to take relief food, reportedly due to its strong social organization and sense of economic self-sufficiency (Mesfin Wolde Mariam, 1984, p. 188). In Ambassel Awraja in 1985, 75 per cent of the peasants had no harvest at all and depended on food relief; but 11 per cent had been able to obtain enough harvest and store food to last them for three months, 10 per cent had enough food for six months; and 3 per cent for the whole year. A similar situation existed in Kallu Awraja, and western Desse Zuria, Wore-Illu, and Borena awrajas, all of which experienced only minor production shortfalls.

This pattern of famine distribution indicates that the woyna dega (middle highlands) zone in the rain shadow of the high Wello Plateau was most severely hit by the famine, similar to the situation in 1973–74. But here, too, exceptions were reported. One lowland peasant association near one of the few remaining perennial
streams fared better than villages in the dega (highlands) above, which lacked streams for irrigation (Dessalegn Rahmato, 1991, pp. 141–142). Interestingly, severe effects of the 1973–74 famine were still felt in 1975 in the marginal areas at intermediate elevations in Shewa, Arsi, Sidamo, Gamo Gofa, and Bale, at a time when the rains and agricultural production elsewhere had normalized (Adhana Haile Adhana, 1988, p. 2). Similarly, nutritional studies in Wello, Hararge and Sidamo reported higher mortality rates in human and livestock populations in lowland agricultural and pastoral areas than at higher elevations (Seaman et al., 1981; Seaman and Holt, 1975; Lindtjorn, 1990). During the famines in the 1980s, relatively few peasants in central, southern, and eastern Ethiopia’s marginal areas, mostly members of producer cooperatives, had access to irrigation water and community labor, resulting in significant variations in food production at the community level (Alemneh Dejene, 1990, pp. 74–76; Kloos, 1991).

The observation by Alemneh Dejene that vulnerability to famine was inversely related to family size in several communities in Wello raises the intriguing question of the survival value of large families in the context of famine aversion strategies (with further implications for family planning programs) (Alemneh Dejene, 1990, pp. 74–76). This raises another unanswered question, namely whether or not household size reflects the accumulated impact of earlier famines through mortality and outmigration (Mesfin Wolde Mariam, 1985, p. 17).

The many people without food and relief shelters, including the old, poor, handicapped and bedridden patients and, during the famines in the post-revolution period, people in Tigray and Eritrea without access to kebele identification cards, experienced particularly great hardships and high mortality rates.

The same market forces that drove up grain prices and lowered livestock prices in 1972–74 prevailed again in 1984–85. Teff prices fluctuated between about 150 and 300 Birr per quintal in most of Wello and Tigray in 1983 and between 150 and 400 Birr during the peak of the famine in 1984, compared to 42 to 85 Birr in the Lake Tana Basin, where grain supplies were more plentiful and less hoarding took place (Kloos and Lindtjorn, 1993). The strong spatial correlation between severity of famine and grain prices ensured that the peasants who were hit hardest were also those who could least afford to purchase food. But the market collapse affected most severely the Afar, Somali and other pastoralist groups who had less access to highland markets but who depended to a greater extent than farmers on the market for food (Cutler, 1984; Kloos and Lindtjorn, 1993).

FAMINE SHELTERS, RESETTLEMENT, AND MORTALITY

Famine victims who were able to reach relief shelters or who were resettled by the government experienced some of the most severe forms of malnutrition and among the highest mortality rates. Studies of shelter populations in Wello revealed the strengths and weaknesses of emergency relief programs reported also elsewhere. Whereas well planned and organized relief shelters can provide for the efficient and effective administration of food and medical assistance, particularly in more remote areas beyond the reach of government health services and food distribution points, they may also aggravate existing health problems and make agriculturalists dependent on food handouts (Mehari Gebre-Medhin and Vahlquist, 1977).

Crowded living conditions, poor sanitation, limited supplies of potable drinking water, and the poor nutritional state of older people reaching feeding centers have facilitated the outbreak of fatal communic-
able diseases (particularly diarrheal diseases, acute upper respiratory infections, and measles) various nutritional disorders in children, and malaria, louse-borne typhus, relapsing fever and malnutrition in adults. Extremely high mortality rates (60–90 per 1,000 population per month) were reported from Korem shelter in Wello in 1985. These rates were 7 to 10 times higher than in nearby famine-stricken communities and 30 to 40 times higher than in the total Ethiopian population (Toole and Waldman, 1990). Mortality rates among the children of Boran pastoralists under five years of age living in relief shelters increased three to four times, largely due to social disruption following drought. In stable Boran communities outside shelters, mortality rates in under-fives increased by only about 50 per cent (Lindtjørn, 1990). Some of the highest mortality rates were reported for Ethiopian refugee children under five years in eastern Sudan (Shears, 1991). Extremely high mortality rates were also reported from shelter populations in the war zone on Tigray and Eritrea (Kloos, 1993).

The resettlement program, undertaken by the Derg regime in 1984–85 ostensibly as a long-term famine prevention measure, resulted in severe malnutrition and mortality, not only in the feeding and collection centers in Tigray, Wello, and Shewa, but also en route and in the resettlement schemes. Bati shelter, one of the few shelters keeping fairly reliable mortality data, registered 2,407 deaths among its population of 28,112 (8.6 per cent) in November 1984. A total of 7,844 deaths but only 765 births were registered in this center between October 1984 and September 1985. In the collection centers in Ambassel Awraja, 1,791 of 42,831 inmates (4.2 per cent) died between November 1984 and April 1985 (Dessalegn Rahmato, 1991, pp. 111, 112). The logistic and operational problems of this controversial resettlement program, including the use of coercion and inadequate food distribution, have been described by different investigators (Colchester and Luling, 1986; Pankhurst, 1992; Porter, 1986). The review by Kloos (1990) identifies environmental and sociopolitical factors impacting on the health of settlers in western Ethiopia. The national villagization program also exacerbated the food crisis by interfering with agricultural production and disturbing social relations (Cohen and Isaksson, 1987; Alemayehu Lirenso, 1989), but its impact on malnutrition has not been studied in the new villages.

Although data on the prevalence and severity of malnutrition in settlers are fragmentary, they indicate that rates were about twice as high (21.5 per cent) in Metekel, the scheme with some of the best mortality data (Sivini, 1986) than in their places of origin in Wello and Tigray (Asmerom Kidane, 1989) and among 52,274 representative households in Yift and Timuga Awraja in Shewa (Otten, 1986). No clinical studies of settler malnutrition have been published, but malnutrition apparently contributed significantly to mortality as indicated by the disappointing harvests, erratic relief food supplies, high settler deflection rates, and the observations of the senior author in three resettlement schemes in Keffa (Abulhamid Bedri Kello et al., 1989). The rise of nationalism in western Ethiopia since the fall of the Derg regime is further jeopardizing the economic and social position of settlers from northern Ethiopia and is said to be a major factor in the return of many settlers to their areas of origin.

CAUSE-SPECIFIC MALNUTRITION

The cause and the incidence of specific nutritional deficiency diseases varied between geographical areas, ecological zones, and population groups. Protein-energy malnutrition, the form of malnutrition most frequently reported during
famines in Ethiopia, was usually accompanied by vitamin deficiencies. Anthropometric measurements of protein-energy malnutrition are still deficient in determining the nutritional needs of affected populations, hampering relief efforts in relief camps.\(^1\) Kwashiorkor has not been reported to occur in the areas of seed/plow agriculture and pastoral nomadism. During the 1984—85 famine, marasmus was the main form of protein-energy malnutrition in the southern regions of Shewa, Bale, Sidamo, and Gamo Gofa. The occurrence of kwashiorkor was limited to Wolayta and Kembata awrajas (Lindtjorn, 1987), both in the major ensete growing areas of Ethiopia, where diets have traditionally been protein-deficient (Selinus, 1971). Marasmus mainly occurred among pastoral nomads and agropastoralists whose predominantly milk diet tends to be deficient in carbohydrates (Lindtjorn, 1990).

The most serious health effects of protein-energy malnutrition are stunted growth, body wasting, retarded mental development, and high mortality in younger children (Rivers, 1988). The prevalence of stunting is generally higher in farmers than pastoralist, as reported not only from Ethiopia but also Sudan and West Africa (Lindtjorn, 1991). Prevalence of wasting reached 73 per cent among Surma pastoralist children in Keffa in 1985, 43.5 per cent among farmers’ children in Ibnat shelter in 1987 (Adugna Getahun, 1988), and between 15 and 46 per cent in four Somali refugee camps in Hararge in mid-1991, when only about one-third of the required food could be supplied due to the war (UNHCR, 1991).

An extensive comparative nutritional study of 14,173 children aged 1—5 years at 24 food distribution centers inside shelters and in their home areas in Boran and Arero awrajas in Sidamo reported the highest levels of wasting and mortality in the shelter populations. Mean monthly prevalence of wasting ranged from 5.7 to 13.7 per cent among children of Boran pastoralists in shelters but only 3.7 to 4.1 per cent among non-shelter Boran pastoralists and from 3.7 to 5.3 per cent in non-shelter agropastoralists. The corresponding mortality rates were influenced by the occurrence of measles, diarrhea, and other communicable diseases, particularly in the shelters. Rates declined after the famine in 1986, but the nutritional recovery rates were higher in pastoralists outside shelters than in shelter populations. This study concluded that famine victims migrating to emergency shelters are at an increased risk of death due to factors before, during, and after migration and that adequate supplies of food in famine-affected communities may reduce the scale of migration, social disruption, and mortality, as well as the need for emergency shelters (Lindtjorn, 1990). The variable success of emergency shelters in reducing wasting in children was also reported in a shelter population in Gondar, among Ethiopian refugee children in Sudan, and in non-shelter Surma pastoralist in Keffa (Godfey, 1986).

Vitamin A deficiency, which is hyperendemic in the monocrop grain-growing areas of Arsi, Bale, and Gamo Gofa (Lindtjorn, 1983), has also been reported from feeding centers and Ethiopian refugee camps in Sudan (Pizzarello, 1986). Vitamin A deficiency aggravates measles, diarrhea, and acute respiratory infections, all major causes of child mortality during famines (Shears et al., 1987). Its role in blindness (xerophthalmia) is also well known.

Scurvy, normally rare in Ethiopia, has been reported from Ethiopian refugee populations in Sudan and Somalia and from Somali refugees in Ethiopia. The prevalence of scurvy increased with duration of stay in long-term relief camps in Sudan (Toole and Waldman, 1990; Desenclos et al., 1989), illustrating the problem of the nutritional deficiency of many relief foods. Cereal grains, protein-
fortified biscuits, and other manufactured foods lack vitamin C and other micronutrients and are often rejected by camp populations unfamiliar with such foods as unfit for eating. These imported foods have been produced to obtain quick results in the battle against protein-energy malnutrition without due consideration to balanced nutrition and cultural acceptability (Desenclos et al., 1989; Centers for Disease Control, 1989; Mason et al., 1974).

Several other health hazards linked with food consumption during famine have been relatively neglected. They include neurolathyrism, ergotism, and the psychological impact of famine. Lathyrism, a disorder of the central nervous system, is induced by the grass-pea (*Lathyrus sativus*) containing neurotoxins. Lathyrism occurs in Ethiopia mainly during famines in the northern highlands (Redda Tekle Haimanot et al., 1990). A study in three *weredas* in Gondar Region identified 1,374 cases of lathyrism, (which is locally known as *sebbere* or breaker or paralyzer) during the 1974 famine (Tesfaye Gebre-ab et al., 1978).

Ergotism, caused by eating grain contaminated with the ergot fungus, commonly results in gangrene of the upper and lower limbs, nausea, insanity, and death. It occurs mostly during times of famine, and most cases have been reported from Wello (Teshoma Demeke et al., 1979). Local peasants, some of whom are said to have consumed ergot-infected grain knowingly, can readily identify the symptoms and call it *libb agilt* (heart melting). In Lasta Awraja 47 of 140 infected adults died. Also, 40 to 50 infants and small children died there because their ergot-infected mothers ceased to produce breast milk (Mesfin Wolde Mariam, 1985).

Roots, leaves, bark, grass seeds, and the fruit of wild plants continue to be widely used famine foods in Ethiopia. Most cases of poisoning from wild plants were reported during the 1973–74 famine from Wello (Mesfin Wolde Mariam, 1984, p. 64). Adugna Getahun (1988) reported on their nutritional benefits during the recovery phase among Surma children in Keffa. The use of the water lily (*Nymphaea caeruleae*), highly valued by the Afar declined during the 1973–74 and 1984–85 famines, when swamps dried up, and as a result of the construction of Koka Dam, irrigation development, and the associated destruction of swamps (Kloos, 1982).

Only one study has been carried out on the psychological damage sustained by famine victims, among settlers in Gambela and Metekel resettlement schemes (Bhalla and Woldetekle, 1988). The study concluded that psychological damage to bereaved relatives and to the members of households with missing or separated members, was widespread in the population. The first study of the psychological impact of hunger itself is in progress in the Department of Psychology at Addis Ababa University.

CONCLUSION

Malnutrition and associated mortality during the 1973–74 and 1984–85 famines varied significantly among different population groups at the regional, community, and household levels. Vulnerability to famine varied similarly in both famines but was exacerbated during the 1984–85 famine by the strangulating economic policy and the war waged by the Derg regime. The health-lowering conditions in emergency camps, as well as the inefficiency of anthropometry in identifying needy individuals, strongly argue for the development of famine prevention programs that enable affected populations to deal with famine and its nutritional effects in their own communities. This approach also promises to break the dependency on handouts from outside institutions and encourage the confidence and self-reliance of famine-prone populations. The advan-
tages of distributing food to famine-affected people in their home areas was reported by Turton among Mursi pastoralists in Gamo Gofa (Turton, 1985). There is, of course, need for additional emergency food relief during the present transition period; but the typical knee-jerk reaction of governments and relief organizations, mounting massive famine relief operations after characteristically delayed and unreliable news broadcasts, must increasingly give way to more progressive long-term development plans.

The present peace initiative in Ethiopia may prove to be conducive to more sustainable rural development. Clearly, more research is needed in different ecological zones and cultural groups to provide information on the changing ecology of food production, vulnerability, and malnutrition during this crucial transition period. Such studies may elucidate the antecedents of recurring famine which were either inadequately recognized or simply ignored by donors and the Ethiopian government. Reconstruction of the sequence of events from the beginning of the crisis may contribute to a better understanding of the complexity of famine and therefore a better basis for action.

Note

1. The lengthy debate over the measurement of protein-energy malnutrition is summarized by Rivers (1988); problems of assessing seasonal energy requirements and energy metabolism were addressed at a recent symposium (Ferro-Luzzi, 1990); and difficulties of measuring Ethiopian pastoralist children were described by Pat Turton (1985).

References


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