

## Health Impacts of War in Ethiopia

HELMUT KLOOS

---

There is an increasing need to study war-related health impacts in Ethiopia and other least developed countries, for at least three reasons. Firstly, the present peace process emerging world-wide, encouraged by the dismantling of communist regimes and reduced military spending in the West is resulting in the reduced military presence of the superpowers in developing countries. These countries, including Ethiopia, thus have greater opportunities to pursue their own development strategies, including a greater emphasis on human development.

Secondly, in the least developed countries health is not only a basic human right but also an urgent prerequisite for broad socioeconomic development. Clearly, health levels in these poor countries are the lowest world-wide but may be significantly raised if resources currently used for the military are relocated for socioeconomic development, including the upgrading of health services and the control of the major killing diseases (Dodge, 1990).

Thirdly, morbidity, mortality, the displacement of populations and economic hardship due to war have increased in the developing world in recent decades, due to the use of more lethal weapons, increased military spending, and a world-wide increase in the number of governments under military control from 26 per cent in 1960 to 57 per cent in 1988/89 (Sivard, 1991, p. 19). In fact, all wars taking place in the 1970s and 1980s have been fought in developing countries. Another disturbing trend has

been the sharp increase in civilian war-related deaths, with nearly 90 per cent of all casualties in the wars fought in 1990 being unarmed civilians, particularly children, women, and the aged. Some of the highest child mortality rates have been reported from Afghanistan, Mozambique, Angola, Somalia, and Ethiopia (UNICEF, 1987; Sivard, 1991, pp. 19–25).

Of the two wars fought in Ethiopia since the 1974 revolution, the protracted civil war in the north has been significantly more costly (Henze, 1984) and destructive than the Ethio-Somalia war of 1977. Little is known about the number of people killed, injured or otherwise harmed, either physiologically or psychologically, during these wars, for four major reasons. Firstly, morbidity and mortality statistics are characteristically poor. Secondly, mortality statistics gathered by the Ethiopian government were not released to the public. Thirdly, it is impossible to quantify the relative contribution of four factors contributing to increased morbidity and mortality since the revolution: war itself, drought, repressive and misdirected government economic policy, and outright government violence against the population. Fourthly, the effects of war have continued to be felt in Ethiopia after the fall of the Mengistu government in 1991.

### WAR CASUALTIES

According to Sivard (1991), 609,000 Ethiopians died in wars between 1974 and

1990, more than 500,000 of them civilians. The defence minister of the transitional government estimated, on the basis of official records, that about 500,000 government soldiers, 150,000 fighters of the Eritrean People's Liberation Front (EPLF), the Tigray People's Liberation Front (TPLF), and other rebel groups, and at least 500,000 civilians died during that period (Eliassen and Eriksson, 1991; EPRDF News, 1991). These casualty figures are conservative and do not include civilians who died from the direct and indirect effects of the war. Recent estimates by the transitional government put the number of Ethiopians who died during the 30-year war in northern Ethiopia at over 1 million not including the Eritrean casualties (EPRDF News, 1991).

The number of persons with war-related injuries and disabilities, orphans and political prisoners held by the former government is not known. According to a recent estimate about one-third of the 300,000 prisoners of war returning home from the war front in late 1991 were injured or disabled (CRDA News, 1991). The 1984 census reported more than 40,000 persons with amputated legs and/or arms (Office of the Population and Housing Census Commission, 1991). Morbidity and mortality figures for the more than 2 million Ethiopian refugees in Somalia and Sudan, further discussed below, are similarly unreliable. Even less is known about the psychological impact of the war. Preliminary reports indicate that the effects of aerial bombings, violence against the civilian population, and the destruction of socioeconomic systems were particularly serious in the war zones of Tigray and Eritrea (Hammond and Druze, 1989; Hendrie, 1991; Cliffe, 1989).

Additional health effects of the war have been identified since it ended in May 1991, including thousands of persons killed in new ethnic clashes and in insecure areas in southern Ethiopia (see several articles in *Horn of Africa Bulletin*, 1991: 3(6) pp. 3-5; 3(7) pp. 4, 28, 30, 31 and 33). Severe

epidemics of malaria, typhus, relapsing fever and AIDS have also been reported in 1991, and famine conditions persist in the war-torn country. There were 8.7 million people in need of emergency assistance in late 1991, as many as during the 1984 famine (SEPHA, 1991).

## HEALTH SERVICES

The military expenditure of the Ethiopian government increased from 106.5 million birr in 1974 to 2.3 billion birr in 1990/91 (a 2075 per cent increase). An estimated 35.7 billion birr were spent on the military between 1974/75 and 1990/91. The defence budget, according to official statistics, increased from 11.2 per cent in 1974/75 to 36.5 per cent in 1990/91 (*Negarit Gazeta*, 1973, 1986, 1990). But according to other estimates it stood at 50 per cent already in 1988 (Eshetu Chole, 1989), with further increases in subsequent years. The proportion of the national budget allocated to health, on the other hand, declined from 6.1 per cent in 1973/74 to 3.5 per cent in 1985/86 and 3.2 per cent in 1990/91 (*Negarit Gazeta*, 1973, 1986, 1990). The annexation of Eritrea by Ethiopia in 1952 led to the rapid deterioration of the health care system in that region. By 1962, the health budget for Eritrea had been cut by two thirds, and bureaucratic restrictions reduced the efficiency of the services further. As the Eritrean liberation movement became more active the government in Addis Ababa not only stepped up the war but also closed and destroyed health facilities.

In keeping with the principle of primary health care and self-reliance, the EPLF developed its own medical system after 1970, focusing on rural, decentralized services dominated by 'barefoot doctors', village health workers and mobile clinics. This constitutes a major departure from the more centralized and urbanized Ethiopian health care system (Sabo and Kibirige, 1989; Kloos, 1991). By 1987, the EPLF operated

40 mobile units, 42 health posts, 22 health centers, and 6 hospitals in the liberated and contested areas. The health staff included 1,600 mobile 'barefoot doctors', nearly 600 village health workers, and 150 nurses trained in 8-week courses. The high turnover of field staff was due to high casualties (50 per cent reduction of 'barefoot doctors' and 23 per cent reduction of village health workers between 1985 and 1987). The 29 physicians and 328 paramedics worked in the hospitals, including the central underground hospital in Orotta. The manufacture of basic drugs and medical equipment by the EPLF health services increased their self-sufficiency (Sabo and Kibirige, 1989; Pateman, 1990, pp. 220–222). These services treated 1.6 million patients, both fighters and civilians, during the Ethiopian military offensive in 1978 (Sabo and Kibirige, 1989).

The TPLF used the EPLF health services as a model to develop its own, although its shorter history curtailed their full development. Thus it was not possible to employ physicians and to produce drugs. By 1984, the TPLF and the Relief Society of Tigray (REST) had established and operated two hospitals and 18 public clinics in the western lowlands. Their primary care workers were, like those of the TPLF health services, also fighters (Peperdy, 1985). Strong community support assured the reconstruction of health units that were destroyed in the war and an efficient referral system (Tadele Tedla, 1991).

In the absence of government statistics, most of the still fragmentary information on war damages inflicted on the health services throughout Ethiopia comes from reports by missionaries and relief workers. The results of site visits by a team of health experts of the Ministry of Health in mid-1991 have not been made public. But it is known that accessibility to health services in the war zone decreased not only because of the scarcity of services and insecurity in the countryside but also because it was the

common practice of government forces to occupy major health facilities, particularly in urban centers (Hammond and Druze, 1989). Utilization studies in various parts of Ethiopia have shown that rural people prefer urban over rural based services (Kloos, 1990; Ministry of Health, 1985). The heavy influx of the wounded during military offences and recurrent epidemics restricted the accessibility of both the rural and urban health facilities further (Sabo and Kibirige, 1989; Peperdy, 1985).

#### MALNUTRITION AND FAMINE

Much has been written about the causes and consequences of famines that occurred in Ethiopia since the early 1970s but little about their relationship to military conflict. Whereas famine was attributed largely to drought in the 1970s, there is growing consensus that human factors, particularly war, are the main culprit (Kaplan, 1988; Africa Watch, 1991). The recent report by Africa Watch (1991) shows that particular strategies which the Ethiopian government adopted to fight the wars created a particularly severe form of famine. This is consistent with the conclusion of Mesfin Wolde Mariam (1984, p. 150) that famines in Ethiopia have increased in frequency and severity since the late 1950s.

The wars directly interfered with food production by, for example, preventing farmers from planting and harvesting on time and by reducing the labor force through coercive conscription. In areas of heavy conscription in central and southern Ethiopia harvests were repeatedly neglected by frightened farmers. Looting by soldiers of peasants' property, particularly livestock and seeds, has been a traditional practice in Ethiopia (Chaulk, 1978; Pankhurst, 1966). According to a survey carried out by EPLF cadres in a quarter of all Eritrean villages during the growing season of 1989, 13,000 men had been conscripted during that season, 40,000 acres of land had been mined

or destroyed, 2,500 homes were destroyed, 35,000 quintals of food confiscated, nearly 44,000 livestock and 5,000 persons killed, and goods worth 1.3 million birr stolen. Thousands of cattle and hundreds of people were killed in Eritrea and Tigray by land mines planted by the army (Anon., 1991a; Hendrie, 1991). The loss of oxen was considered by Eritrean peasants to have been the most important factor in reduced crop production, followed by lack of labor and drought (Cliffe, 1989). This survey further reported that most village populations had been harassed by the army and their movements restricted, causing many villages to become economically more isolated and many people to abandon their villages to live in nearby hills. These various types of disturbances were instrumental in the noncultivation of about 40 per cent of the total agricultural land in Eritrea in 1987. The war has been associated with an estimated production shortfall of 150,000–180,000 tons of grain production in that region in 1986 (Cliffe, 1989).

Food distribution lines along the war front and in famine areas were frequently interrupted. The logistical problems encountered in the transport of food aid from Assab, Massawa, and Djibouti included a lack of trucks and the refusal of the government and rebel forces to permit convoys to pass through their respective territories. Assab was closed from November 1983 to April 1984 to allow military equipment to enter. The railroad from Djibouti to Addis Ababa was repeatedly damaged by Afar and Somali opposition groups. Feeding shelters and supply lines proved to be incapable of supplying the large numbers of destitute peasants during the 1984 famine. Approximately 10,000 died per week in the distribution centers in February and 16,000–17,000 in March of 1984 (Dawid Wolde Giorgis, 1989, p. 133).

The war indirectly affected food production and distribution in numerous

and complex ways. These included the disruption of grazing patterns, the reduction of off-farm income, the restriction of access to markets and enforced changes in farming systems. Thus some villages cut off from farming on lowland plains became more pastoralist while a number of pastoral nomadic groups shifted toward agropastoralism. Lack of access to community grazing areas prompted changes in herd composition, most often from cattle to goats and sheep (Cliffe, 1989). These changes hindered grain and livestock trade between food surplus and deficit areas and between rural and urban areas, resulting in inflated prices in the towns and contributing to food insecurity, malnutrition and famine throughout northern Ethiopia (Pateman, 1990; Hendrie, 1991). Numerous allegations have been made that food aid was misused by the governments of both Haile Selassie and Mengistu, including diversion of food to the military, resettlement schemes, and the villagization program (Pateman, 1990).

These various restrictions and diversions impacted above all on the food resources of Eritrea, which had experienced recurrent famine since the 1950s. Between 1970 and 1991, more than a dozen droughts and 12 famines occurred in different parts of Eritrea, where malnutrition became the most important cause of death (Pateman, 1990; Kloos and Lindtjörn, in press). Nevertheless, Eritrea received less than 5 per cent of the 750,000 tons of grain supplied to Ethiopia by donor agencies during the first half of 1985. In both Eritrea and Tigray food aid was distributed only to peasants with identification papers issued by the government sponsored peasants' associations, and those without these papers were persecuted as TPLF and EPLF sympathizers. The added fear of forced resettlement also kept many destitute Tigrayan peasants away from feeding centers (Hammond and Druze, 1989; Cliffe, 1989). The plight of the populations of Tigray and Eritrea was somewhat alleviated

by their respective relief organizations, REST (established in 1978), and the Eritrean Relief Association (established in 1975) (Pateman, 1990, p. 181; Peperdy, 1985). Their cross-border relief programs represent two of the most effective operations of this type, in a region considered inaccessible by official food aid programs of the international donors (Hendrie, 1989).

## REFUGEES

Refugees and displaced populations are particularly vulnerable to malnutrition and infectious diseases. About 2 million Ethiopians and 700,000 Eritreans became refugees in Sudan and Somalia in the 1980s. There were still 700,000 Ethiopians and Eritreans in Sudan after the peace initiative in 1991 (Life and Peace Institute, 1991; UNHCR, 1987). In Korem shelter in Wello region, the crude mortality rates of 60–90 per 1,000 population per month in 1985 were 7–10 times higher than those in settled villages in similar famine affected highland areas. About 5 per cent of the 220,000 Ethiopian refugees in eastern Sudan in 1985 died within 3 months of their arrival. The crude mortality rates of Ethiopian refugees in Somalia in 1980 and in eastern Sudan in 1985 were 18–45 times higher than the rates in the host countries. Even these rates were considered to be underestimates (Toole and Waldman, 1990; Shears, 1991).

The high morbidity and mortality rates were due above all to deficiencies in food supply and distribution systems, crowding and poor sanitation and water supply and malaria. Recommendations for reducing morbidity and mortality in Ethiopian refugee camps have been detailed by several international medical teams (Shears, 1991; Anon., 1990). The situation of the 135,000 Ethiopian returnees and 600,000 Somali refugees in eastern Ethiopia in mid 1991, exacerbated by insecurity and lack of food, was described as 'desperate'

(UNHCR, 1991). Djibouti, on the brink of civil war and faced with famine conditions, hosted nearly 100,000 newly arrived Ethiopian and Somali refugees in late 1991 (Africa News, 1992). About a third of the 300,000 Sudanese refugees living in camps in western Ethiopia fled back to Sudan in 1991 after having been accused by EPRDF forces of collaborating with the former government (Life and Peace Institute, 1991).

## COMMUNICABLE DISEASES

Diarrheal diseases resulted in high child mortality in war affected areas and refugee camps. The incidence of tetanus, a major killer of neonates and children, could be reduced only after the immunization became available in refugee camps in Somalia after 1982 (Toole and Waldman, 1990). The sharp decline of immunization coverage throughout Ethiopia during the expansion of the war front in 1991 (Shewatatek Lidettu and Gebreselassie Okubagzhi, in press) must be expected to have resulted in significant increases in infant mortality, although statistics are not available. The mortality rate in children under 5 in Eritrea in 1983 was 520 per 1,000 children, twice as high as in Ethiopia as a whole (Sabo and Kibirige, 1989). Similarly, the inability of the Ministry of Health to carry out routine surveillance and control activities in rural areas in the face of insecurity was instrumental in causing malaria epidemics in 1991 (Anon., 1991b).

Epidemics of both louse-borne typhus and relapsing fever have traditionally been associated with crowded army camps, as during the Ethio-Italian war, and crowded prisons and relief camps. The numerous publications by Italian military physicians working in Ethiopia (Kloos and Zein Ahmed Zein, 1991) and accounts by foreign travellers in historic times (Pankhurst, 1976) indicate the widespread occurrence of these two diseases during wars. Reports by relief and health workers indicate that the spread

of typhus and relapsing fever in 1991 was facilitated by the crowded conditions in military camps and by retreating soldiers selling their louse-infested blankets and clothes to local populations. Both diseases also spread among famine victims in relief shelters. During the 1984 famine, the number of relapsing fever cases more than quadrupled, to over 43,000 (Hodes, 1988).

Meningococcal meningitis, another crowding disease, which affected all regions of Ethiopia in 1990, was difficult to control by immunization due to slow and incomplete reporting by and the inaccessibility of rural clinics in the northern war zone (Shewatatek Lidettu and Gebreselassie Okubagzhi, in press). A cholera epidemic broke out during the final stage of the war in early 1991 at all fronts when water supplies and medical services deteriorated (Summary of World Broadcast, 1991).

A rapid increase in sexually transmitted diseases, above all AIDS, may prove to be the most devastating public health outcome of the war in the long term. Prostitution and violence against women were common wherever the army operated. HIV infection and AIDS became epidemic in Ethiopia towards the end of the war. In 1985 only four of 5,565 (0.07 per cent) representative recruits were positive for HIV (Hailu Kefenie et al., 1989); the first AIDS cases in Ethiopia were seen in an Addis Ababa hospital in 1986 (Lester et al., 1988). Another batch of recruits tested in the middle of 1987 revealed a prevalence of 0.9 per cent (Debrework Zewdie, 1988). By 1991, HIV prevalence among recruits had increased to 2.6 per cent (Hailu Kefenie et al., 1992); according to unpublished statistics of the Armed Forces Hospital in Addis Ababa, 9 per cent of soldiers were infected in 1991. Most soldiers became infected in bars in larger towns, where prostitution is characteristically rampant. Serological studies in 26 towns in 1988 by the National AIDS Prevention and Control Unit revealed

HIV prevalence rates up to 39 per cent among local prostitutes.

Epidemiological modelling indicates that approximately 507,000 Ethiopians will be infected with HIV and 25,600 will have developed AIDS in 1992 (Khodakevich and Debrework Zewdie, in press). The return of more than 500,000 former government soldiers to their home areas will assure that HIV is introduced into rural areas where the virus had previously been absent. The greatest increases in prevalence may be expected in highland populations in central, southern, eastern, and western Ethiopia which supplied most of the recruits. A strong association between ethnic patterns of recruitment and AIDS was recently reported from Uganda (Smallman-Raynor, 1991).

Although no reliable information is available on the occurrence of other crisis-related communicable diseases during the last few years of the civil war, the deterioration of living conditions in general and the lack of imported life saving drugs (e.g., T.B. drugs and insulin) and deterioration of the health services in particular must be expected to have contributed to higher mortality from T.B., malaria, diabetes, and other killing diseases. Foreign exchange problems persist in the post-war period and are increasing Ethiopia's dependence on donors for drugs and medical supplies.

## CONCLUSION

The Ethiopian civil war resulted in extremely high morbidity and mortality since the revolution and the occurrence of major famines and epidemics of communicable diseases in recent years. The health impacts reported here are probably underreported due to lack of data on both direct and indirect effects at the micro and macro levels and their interrelationships. Careful examination of these relationships may contribute to the formulation of new policies that consider health development as an essential

and interrelated part of socioeconomic development. There are numerous opportunities for the new Ethiopian government to embark on a more people-oriented course in socioeconomic development.

## References

- Africa News, 6 Jan. (1992) published in *Horn of Africa Bulletin* 4(1), 9.
- Africa Watch (1991) Evil days. *Horn of Africa Bulletin* 3(7), 34–5.
- Anon. (1990) Health and nutritional profile of refugees — Ethiopia 1989–1990. *MMWR (Morbidity and Mortality Weekly Report)* 39, 707–18.
- Anon. (1991a) Landmines planted in Eritrea cleared. *Ethiopian Herald* 8 Oct., p. 3.
- Anon. (1991b) Battle against malaria intensified but more help expected for success. *Ethiopian Herald* 9 Nov., p. 1.
- Chaulk, R.W. (1978) Armies as predators: soldiers and peasants in Ethiopia c. 1850–1935. *International Journal of African Historical Studies* 11, 457–93.
- Cliffe, L. (1989) The impact of war and the response to it in different agrarian systems in Eritrea. *Development and Change* 20, 103–13.
- CRDA News, 9 Aug. (1991) published in *Horn of Africa Bulletin* 3(6), 6.
- Dawid Wolde Giorgis (1989) *Red tears: war, famine and revolution in Ethiopia*. Red Sea Press, Trenton, New Jersey.
- Debrework Zewdie (1988) AIDS programme and research in Ethiopia. *Abstracts of the 24th Annual Medical Conference*. Abstract 75. Addis Ababa: Ethiopian Medical Doctors' Association.
- Dodge, C.P. (1990) Health implications of war in Uganda and Sudan. *Social Science and Medicine* 31, 691–8.
- Eliassen, I. and E. Eriksson (1991) Startvansker for folkestyre. *Stavanger Altenblad* 2 Dec., p. 1.
- Eshetu Chole (1989) The impact of war on the Ethiopian economy. Paper presented at the Fourth Annual Conference on the Horn of Africa. City College of the City University of New York, 26–28 May.
- Hailu Kefenie, S. Butto, Aesta Bekura, P. Verani, F. Titti, L. Sernicola, M. Racipetta, P. Pasquini and G.B. Rossi (1989) Serological survey of human immunodeficiency virus (HIV) in Ethiopia. *Journal of Virology* 28, 21–4.
- Hailu Kefenie, Bekure Desta and Debrework Zewdie (1992) Seroprevalence in Ethiopia — 5 years interval. *Abstracts of the 28th Annual Medical Conference*. Abstract 27. Addis Ababa: Ethiopian Medical Association.
- Hammond, J. and N. Druze (eds.) (1989) *Sweeter than honey: Ethiopian women and revolution. Testimonies of Tigrean women*. Red Sea Press, Trenton, New Jersey.
- Hendrie, B. (1989) Cross-border relief operations in Eritrea and Tigray. *Disasters* 13, 351–7.
- Hendrie, B. (1991) The impact of war in Tigray. Paper prepared for the Inter-Africa Group, London.
- Henze, P. (1984) Arming the Horn 1960–1980: military expenditures, arms imports and military aid in Ethiopia, Kenya, Somalia and Sudan, with statistics of economic growth and government expenditures. In S. Rubenson (ed.) *Proceedings of the Seventh International Conference of Ethiopian Studies*. Institute of Ethiopian Studies, Addis Ababa, 637–56.
- Hodes, R. (1988) Relapsing fever. In Zein Ahmed Zein and H. Kloos (eds.) *The ecology of health and disease in Ethiopia*. Ministry of Health, Addis Ababa, 177–83.
- Kaplan, R.O. (1988) *Surrender or starve: the wars behind the famine*. Westview, Boulder, Colorado.
- Khodakevich, L. and Debrework Zewdie (in press) AIDS. In H. Kloos and Zein Ahmed Zein (eds.) *The ecology of health and disease in Ethiopia*. Westview, Boulder, Colorado.
- Kloos, H. (1990) Utilization of selected hospitals, health centers and health stations in central, southern and western Ethiopia. *Social Science and Medicine* 31: 101–14.
- Kloos, H. (1991) The provision, budgeting and utilization of health services in Ethiopia. In E. Hinz (ed.) *Medizin in Entwicklungsländern*. Peter Lang, Frankfurt and New York, 123–39.
- Kloos, H. and Zein Ahmed Zein (1991) *Health, Disease, Medicine and Famine in Ethiopia: a bibliography*. Greenwood, Westport, Connecticut.
- Kloos, H. and B. Lindtjörn (in press) Famine and malnutrition. In H. Kloos and Zein Ahmed Zein (eds.) *The ecology of health and disease in Ethiopia*. Westview, Boulder, Colorado.
- Lester, F.T., Ayehule Seyoum and Debrework Zewdie (1988) Acquired immunodeficiency

- syndrome: seven cases in an Addis Ababa hospital. *Ethiopian Medical Journal* 26, 139–45.
- Life and Peace Institute (1991) To die in peace. *Horn of Africa Bulletin* 3(6), 2, 28.
- Mesfin Wolde Mariam (1984) *Rural vulnerability to famine in Ethiopia 1958–1977*. Vikas, New Delhi.
- Ministry of Health (1985) *Primary health care review*. Ministry of Health, Addis Ababa.
- Negarit Gazeta* (1973) 32(20), 116–8.
- Negarit Gazeta* (1986) 46(6), 34, 37, 50.
- Negarit Gazeta* (1990) 50(30), 2, 3.
- Office of the Population and Housing Census Commission (1991) *Population and housing census 1984: analytical report at national level*. Central Statistical Authority, Addis Ababa.
- Pankhurst, R. (1966) Some factors depressing the standard of living in traditional Ethiopia. *Journal of Ethiopian Studies* 4(2), 45–98.
- Pankhurst, R. (1976) Some notes on the history of typhus in Ethiopia. *Medical History* 20, 384–93.
- Pateman, R. (1990) *Eritrea: even the stones are burning*. Red Sea Press, Trenton, New Jersey.
- Peperdy, M. (1985) *Tigray: Ethiopia's untold story*. Relief Society of Tigray UK Support Committee, London.
- Sabo, L.E. and J.S. Kibirige (1989) Political violence in Eritrean health care. *Social Science and Medicine* 28, 677–84.
- SEPHA (1991) *Situation report no. 1. Special Emergency Programme for the Horn of Africa*, Paris.
- Shears, P. (1991) Epidemiology and infection in famine and disasters. *Epidemiology and Infection* 107, 241–51.
- Shewatek Lidettu and Gebreselassie Okubagzhi (in press) Immunizable diseases and EPI. In H. Kloos and Zein Ahmed Zein (eds.) *The ecology of health and disease in Ethiopia*. Westview, Boulder, Colorado.
- Sivard, R. (1991) *World military and social expenditures*. World Priorities, Washington, DC.
- Smallman-Raynor, M.R. and A.D. Cliff (1991) Civil war and the spread of AIDS in Central Africa. *Epidemiology and Infection* 107, 69–80.
- Summary of World Broadcast, 15 Jan. (1991) published in *Horn of Africa Bulletin* 3(1), 15.
- Tadele Tedla (1991) Dept. of Epidemiology, Ministry of Health. Personal communication.
- Toole, M.J. and R.J. Waldman (1990) Prevention of excess mortality in refugees and displaced populations in developing countries. *Journal of the American Medical Association* 263, 3296–302.
- UNICEF (1987) *Children on the frontline: the impact of apartheid, destabilization and warfare on children in Southern and South Africa*. UNICEF, New York.
- UNHCR (1987) *UNHCR factsheet no. 13. Somalia*. United Nations High Commissioner for Refugees, Geneva.
- UNHCR (1991) Information bulletin no. 4 on operations on the Horn of Africa. UNHCR, Addis Ababa, 16 August.

**Helmut Kloos**  
 2307 North Backer Avenue  
 Fresno  
 California 93703  
 USA