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Ethiopia's Forced Resettlement Program: More Hunger Ahead

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A Research Paper

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Ethiopia's Forced Resettlement Program: More Hunger Ahead

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A Research Paper

This paper was prepared by
Office of Global Issues, with contributions from
Office of
Scientific and Weapons Research. It was coordinated
with the Department of
State, and the Agency for International Development.

Comments and queries are welcome and may be
directed to the Chief, Strategic Resources Division,
OGI,

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Ethiopia's Forced Resettlement Program: More Hunger Ahead

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Summary

Information available as of 15 February 1987 was used in this report.

The Mengistu regime's resettlement program—designed to remove villagers from the insurgency-plagued northern provinces—is likely to resume by March of this year, according to a variety of sources and Ethiopian Government announcements. Analysis of agronomic factors, public health issues, and population concentrations in Ethiopia indicates that the previous resettlement efforts—halted in 1985 after nearly 600,000 people were relocated—made the plight of the villagers worse on all counts. The resumption of the program—probably involving the resettlement of an additional 500,000 people during the next two to three years—will only add to the current misery, increasing the need for food aid in the already overcrowded camps and risking the lives of those forced to resettle.

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Mengistu believes that collectivization is an important step in the making of a Marxist state, resulting in improved agricultural production and the technical and ideological reeducation of the peasants. While resettlement was clearly part of Mengistu's long-term plan for the Ethiopian economy, we believe he seized on the recent famine and drought in the northern provinces as an opportunity to accelerate these resettlement efforts. In addition, he obviously saw the added advantage of moving people from the northern provinces to deny potential support to the insurgents in those areas

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A comparative study of conditions in the northern provinces, from which people were moved, and the southwestern provinces, where they were resettled, indicates that these premature resettlement efforts are courting disaster for the people involved:

- It is unlikely that Ethiopian farmers can adapt readily to the sophisticated agricultural practices needed for the southwestern soils. Without such efforts, the relative advantage of the greater soil fertility in the southwest will not be translated into increased food production.

- Contrary to Ethiopian claims, lack of rainfall in the north is not a serious, long-term problem. Although the northern region has clearly suffered during the recent drought, historical data show that, on the average, the northern provinces receive sufficient precipitation for agriculture.

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- High death rates, for both humans and livestock, will continue in the camps until the Ethiopian Government provides adequate control measures for the many diseases endemic to the southwest. It is highly unlikely that the government can afford the costly and complex measures in the near future.

- Resettlement camps suffer from extensive overcrowding, 25X1
In contrast, analysis of official Ethiopian 25X1
census statistics indicates acceptable population concentrations in the northern regions, which refutes the Ethiopian claim of overcrowding in the north as one justification for resettlement. 25X1

Our analysis suggests that food production shortfalls will continue in the camps for the foreseeable future and will be even more pronounced with the introduction of new settlers. In Asosa—the most productive resettlement camp we analyzed—the 1985 fall harvest provided enough food to support only 16 percent of the camp's population for a year. The harvests in the other camps provided even less food for the camps' occupants. Given the growing conditions in northern Ethiopia in 1985, per capita production would have been substantially higher had the resettled people been left in their home villages. Some aid might have been necessary, but much of the large deficit would have been avoided. 25X1

The immediate future of those caught in the resettlement program remains bleak. Little internal pressure exists to check the program; domestic political costs of resettlement are essentially nil for Mengistu—especially with continued Soviet military aid ensuring his regime's survival. Although US aid is given through private voluntary organizations and its use in resettlement camps can be prohibited, most Western aid is given directly to the government without any controls imposed on it. Thus, the Ethiopian Government is able to divert aid to the camps to relieve the more pressing current problems. With that capability, Mengistu may well feel confident about starting another round of resettlement in the near future. 25X1

Moscow has played a limited role in the resettlement program. Soviet involvement is likely to continue to be primarily logistic support—helicopters and trucks to move people to the resettlement areas. The Soviets have indicated that they think Mengistu is moving too rapidly in applying Marxist economics to Ethiopia's underdeveloped economy and

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have suggested a number of measures to improve agricultural productivity similar to recommendations previously made by the World Bank and the European Community. Moscow, however, has been unwilling to exert any influence to help curb some of the excesses of the program, viewing resettlement as an internal matter and US interest as an infringement on Ethiopian sovereignty.

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Our analysis suggests that population pressures in the rest of the country may require settlement of the southwestern regions by the end of this century. Movement of additional settlers now, however, would overburden the limited resources available to support the program. A much better strategy would be to focus on improving the public health and agricultural conditions of the existing camps. Not only would these measures help prepare the southwest for its long-term growth but, in the short term, they would also help alleviate the suffering endured by those currently forced to live in the camps.

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Figure 1
Major Resettlement Areas in Ethiopia[a]

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Ethiopia's Forced Resettlement Program: More Hunger Ahead

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Background

In the fall of 1984, the Ethiopian Government announced the beginning of a massive program designed to resettle 1.2 million people from the "agriculturally depleted" northern region in Ethiopia to the "more fertile" southwestern region. The program came under considerable international criticism because of the human rights abuses and widespread deaths that accompanied it. In the face of drought and famine in the north, however, many in the West accepted the need for resettlement and the Ethiopian claims of improved well-being for those resettled. Criticism that the program was totally politically motivated—designed to deny support to the northern insurgencies and to force the independent-minded northern farmers onto collective farms—was weakened by the lack of concrete evidence to counter Ethiopian assertions of a greater food supply and better health conditions for the resettled population.

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This study examines the technical aspects of the resettlement issue and provides a quantitative basis for judging the viability of the program we surveyed the largest and best known resettlement camps—which together account for approximately 45 percent of the total number of people resettled (figure 1)—and assessed the agronomic, health, and demographic conditions existing in each of the sites.

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The Resettlement Program

Resettlement efforts have concentrated on the movement of farmers from the northern to the southwestern provinces. According to Ethiopian Government statistics, approximately 80 percent of the people moved came from Tigray, Welo, and Gonder Provinces. Nearly 98 percent of those resettled were moved to Gojam, Welega, Ilubabor, or Kefa Provinces.[1]

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According to a former official of the Ethiopian Relief and Rehabilitation Commission, the Ethiopian organization responsible for directing resettlement, two approaches were used to implement the current resettlement program—integration into existing villages and establishment of new sites.[2] In the integration approach, resettled people were moved into existing villages, with the residents expected to provide land and to erect housing for the newcomers. Under the new sites approach, entire villages were established in previously unoccupied areas. The goal was for settlers to reach self-sufficiency within one year in the integrated projects and within two years in new sites.

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selection of northern villages for resettlement was done by an interministerial committee, under the direction of the Minister of Agriculture. The agricultural productivity of a village was the major consideration. If a village was deemed unproductive, the

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[1] Although the Ethiopian Government claims that roughly 107,000 people—or about 18 percent of the total—were moved from Shewa Province, we did not include an analysis of that province in this study because the primary focus of the government has been on the northern provinces. The government also reports that about 6,400 people were resettled within Gonder Province, but other reports on resettlement in Gonder claim it was a source of resettlers for the southwestern provinces. For the purposes of this study, all of Gonder Province was evaluated as a source of resettlers and the internal resettlement, if any, was viewed as insignificant. Only those portions of Tigray and Welo Provinces that were thought to be a source of resettlers were examined.

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[2] Resettlement had previously been tried on a smaller scale. On the basis of plans established by the United Nations—following the late 1960s/early 1970s drought—17 villages had resettlers integrated into them in the Asosa area from 1979 to 1982. In addition, an estimated 20,000 peasants were moved from the northern provinces to Bale, Sidamo, and Harerge during 1978 and 1979.

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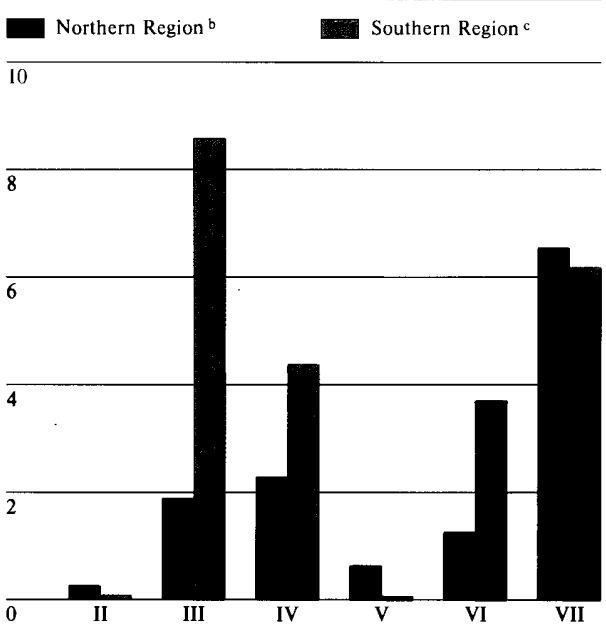
villagers were called together under the guise of food distribution or census and were taken by force to the resettlement area.

To facilitate resettlement, the Ethiopian Workers Party organized six committees at all levels of the party—national, regional, district, and local. The committees oversee the various tasks associated with resettlement, including site selection, motivation of villagers to provide food and erect housing for new settlers, physical security, and seed distribution to resettlers.

Near the end of 1985 the Ethiopian Government halted the movement of resettlers, having moved approximately 600,000 people. This study shows that no particular gains have been accomplished by the movement of these people. On the contrary, the agricultural productivity of those resettled has been greatly reduced, and considerable health risks have been raised as a result of the relocation to the southwest. The government remains committed to the plan, however, and according to Ethiopian Government announcements—is likely to resume resettlement by March of this year.

Figure 2
Ethiopia: Distribution of Soil Classes[a]



[a] Based on USDA Land Capability Classification System. Classes I-IV are most suitable for agriculture. No Class I or VIII soils were found in the area surveyed.
[b] Northern Region. Includes the province of Gonder and portions of Tigray and Welo.
[c] Southern Region. Includes Gojam, Welega, Ilubabor and Kefa Provinces.

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Agricultural Conditions Show Little Improvement

An assessment of the resettlement areas based solely on agronomic considerations—soils, rainfall, potential crops, and length of growing period—indicates that no significant agricultural advantages have been achieved by the program. In fact, our analysis suggests that in the northern areas from which people have been moved, improvement of local conditions—introduction of soil and water conservation programs, fertilizers, pesticides, and improved plant varieties—would have provided more immediate and greater gains in food production than can realistically be expected from resettlement.

Southwestern Soils Fertile, but Preparation Costly

The claim by the Ethiopian Government that soils in the southwestern region of the country are more fertile than those in the northern region is generally substantiated by a soil survey of both regions (figure 2 and appendix A). The southwestern soils, however, are not without their shortcomings; the majority are rated as having severe to very severe limitations for agriculture. Although each of the resettlement areas has its own particular soil problem, all of the soils are classified as deep and clayey and all have problems with water drainage. The drainage problems could be solved by planting in ridges 15 to 25 centimeters high, or by creating ditches and providing for a gravity

runoff. A more sophisticated and permanent solution would be the installation of drainage tiles beneath the surface of each field—a procedure that costs approximately $1,000 per hectare by US standards. 25X1

Nearly 81 million hectares of US farmland are similarly classified, but American farmers are able to provide the sophisticated conservation practices needed to ensure the soil's long-term stability and maximum productivity. Because of the lack of training and resources, the Ethiopian farmer is unable to provide such care. Without proper land use techniques in the southwest, the resettlement program, in our view, is unjustified solely on the basis of soil fertility. Although the number of hectares of potentially useful farmland is greater in the southwest, the resources needed to settle and claim it could be spent more effectively in the reclamation of the northern lands. 25X1

Vacated Northern Areas Receive Sufficient Rainfall

Another argument used by the Ethiopian Government to justify resettlement is that the northern region is traditionally too dry. During periods of drought the argument may seem valid; the northern region has been much harder hit than the southwestern region during the two major droughts of the last 20 years. A generalized conclusion, however, that the north is too dry for agriculture is not warranted on the basis of historical precipitation data. 25X1

On the average, Gonder Province and the western portion of Welo—areas from which people have been resettled—receive rainfall in amounts comparable to that of the resettlement areas (figure 3). In fact, the Asosa, Jarso, and Gambela camps are located along a 1,000-millimeter average annual rainfall line.[3] Portions of Gonder and Welo receive more than that amount. The argument does have some validity for Tigray, but even there the average annual rainfall is marginally sufficient for the more drought-tolerant crops. 25X1

Temporary Yield Reductions Likely

Resettlement will require some changes in traditional cropping practices. Most of the resettled were moved from regions well suited to growing teff and barley to areas more favorable to growing teff and maize.[4] (The change in crop is primarily because of the differnce in elevation between the north and southwest.) Although the switch in crops does not present a major problem for satisfying dietary needs of the resettlers, it does present a potential problem for farmers having to learn new agricultural practices associated with a different crop. In addition to all the other constraints on production, the need to learn new techniques could result in a sizable reduction in yields for at least two years. 25X1

Length of Growing Season Unchanged

The crop production problem will not be offset by gains in the length of the growing season. A lengthened growing season usually permits the growing of two crops in one year. The length of the growing period in the resettlement areas—roughly 200 days—is, however, approximately the same as that in much of Gonder and Welo. Most of Tigray has a shorter growing period (figure 4). Even in the case of Tigray, however, no significant advantage was gained by the relocation; the number of growing days gained by the move to the southwestern area is not sufficiently increased to permit farmers to grow more than one crop a year. 25X1

The high-altitude areas of Ethiopia experience an early rainy season—the Belg (small) rains—from February to May that does permit the growing of an additional crop during the year. On a national scale, the Belg crops account for only about 5 to 10 percent of total production, but in regions where these crops are grown they can account for up to 50 percent of the food supply. The Belg crop is not a potential contributor to the harvest in any of the resettlement areas, except for possibly Jarso. In fact, Welo—one of

[3] Average annual rainfall of at least 350 to 400 millimeters is considered sufficient for agriculture.

[4] Teff is a cereal unique to Ethiopia. It is usually handsown in July or August and resembles one of the grass varieties grown in the United States as forage. The Ethiopians grow teff for its small seed, which they grind into flour for a bread called *injera*. Although teff requires considerable labor and the yields are low, it is preferred by the Ethiopians for bread making. *Injera* made from teff stays supple for two to three days, whereas bread made from other grains hardens within a day. For those who eat it, teff provides two-thirds of their protein intake. 25X1

Figure 3
Precipitation in Ethiopia

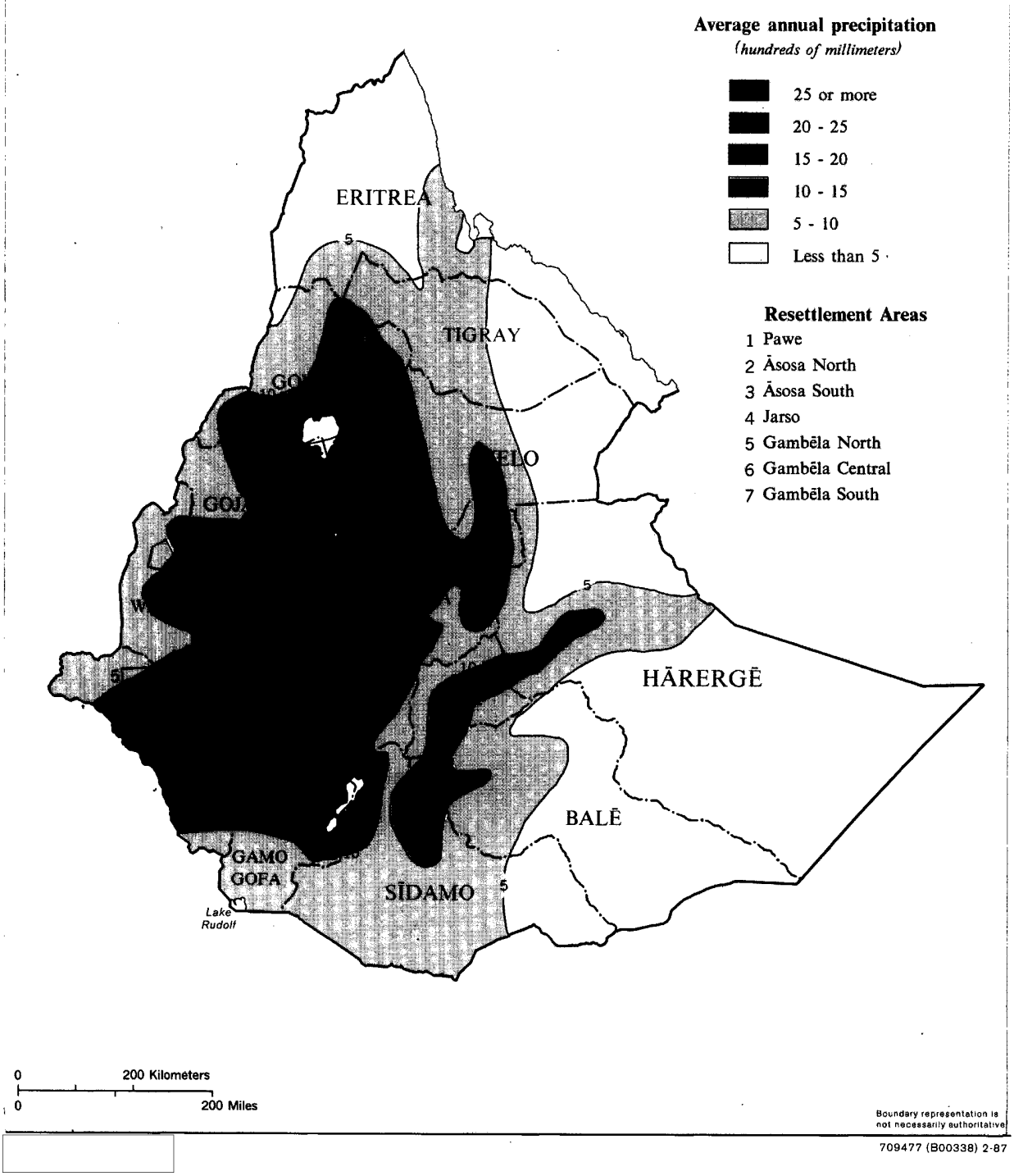

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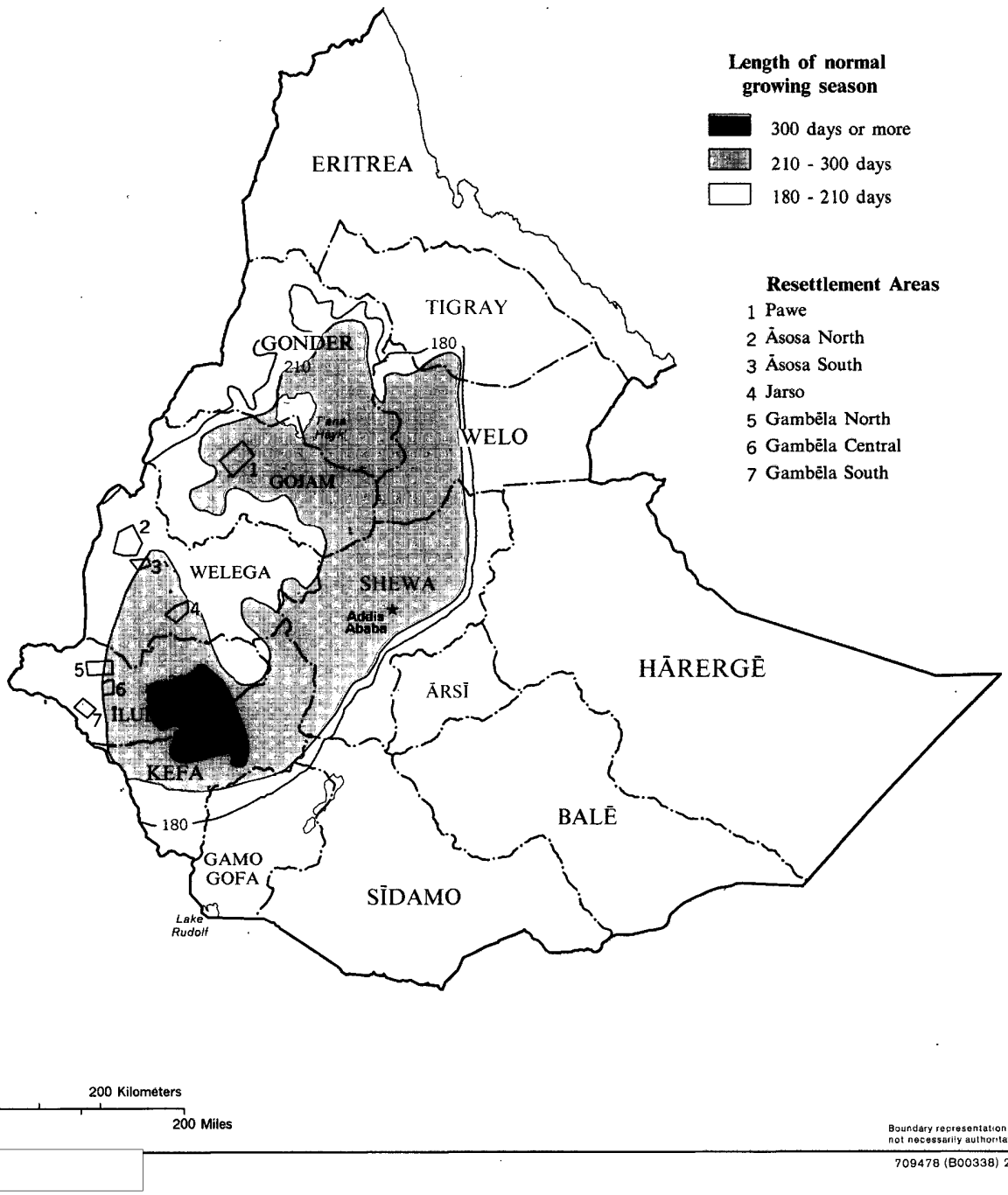
Figure 4
Growing Seasons in Western Ethiopia



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the provinces from which people were moved—is the country's most important Belg-producing area and accounts for 35 percent of the nation's Belg total

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Resettlement Raises Serious Health Risks

The medical consequences of resettlement are significant for both humans and animals. The lower elevations of the southwest provide an environment for a variety of diseases, mostly mosquito- and fly-borne, that are not as common in the northern provinces. On the basis of public health considerations, we therefore believe that further resettlement in the southwestern lowlands is ill advised until extensive mosquito- and fly-control measures are instituted (appendix B).

Human Health Risks High

A variety of diseases are endemic to the southwestern region, including malaria, yellow fever, schistosomiasis, African trypanosomiasis (sleeping sickness), viral hemorrhagic fevers, tuberculosis, epidemic typhus, and cholera and other diarrheal diseases. All of these disorders present a significant threat to the resettled human populations. Overcrowding, inadequate sanitation, lack of control of mosquito and fly populations, and malnutrition all combine to increase the incidence and severity of the diseases. Resettlers are most susceptible when they are crowded into transit camps during the move to their new locations. Those sent to establish new villages continue to face a higher risk than those integrated into existing villages because of the relatively poorer living conditions.[5]

Even with improvement in living conditions, the incidence of disease among the resettled populations will continue to be higher than the norm. Populations can develop partial immunity to certain disorders, such as some forms of malaria, but only after generations of exposure to the disease.

[5] According to US Embassy reporting, death rates in the Pawe resettlement camp during December 1985 were between 25 and 50 percent on an annualized basis. In February 1986, during their visit to Pawe, two Italian sociologists observed that the death rate had declined but estimated that it was still between 15 and 20 percent on an annualized basis. Although the actuarial data are at best incomplete, World Bank data indicate a normal annualized death rate of approximately 2.5 percent for Ethiopia.

Health of Livestock Herds Seriously Jeopardized

Given the heavy clay soils in the resettlement areas, agriculture is dependent upon some form of traction power, with oxen being the most common choice. As with the human populations, animals moved to the southwest from the north are exposed to a variety of diseases to which they are not immune. Rinderpest, anthrax, and foot-and-mouth disease can be controlled by vaccination, and anemia and emaciation resulting from parasites and malnutrition can be controlled with proper herd management techniques.

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Although Ethiopia has a well-developed production and distribution system for veterinary vaccines, the country has a critical shortage of trained livestock managers. In 1985, for example, 1,000 oxen were moved into Pawe as draft animals. Almost the entire herd was lost within a short period of time. Many scientists argued that the deaths were caused by the tsetse fly, but at least one agronomist working in the area said that the deaths were the result of poor herd management practices. Whatever the reason, the high death rate underscores the difficulty of maintaining animals in the region.

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The greatest threat to animals, however, is from African trypanosomiasis—sleeping sickness—transmitted by the tsetse fly. The primary reason the southwestern region was previously uninhabitated, and thus available for the resettlers, is the presence of the tsetse fly. Drugs can suppress the clinical symptoms of sleeping sickness, but they do not prevent relapses—which inevitably come within weeks, or, at best, within months. The drugs would possibly have to be provided four to six times a year for each animal, at a cost of $1.00 to $1.50 per injection. Within limits, control of the fly populations is also possible but would require considerable technical assistance and money, neither of which is likely to be available.[6]

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[6] A 10-year UN Food and Agriculture Organization (FAO) program in West and Central Africa has spent $1 billion and used 175,000 tons of insecticides to control the tsetse fly. Many experts believe the effort has been a complete failure, with more tsetse infestation present now than before the campaign.

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Consequently, we believe it is highly unlikely that Ethiopia can establish livestock in the tsetse-infested areas of the country within the near future.

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Population Pressures Still High

The Ethiopian Government claimed overcrowding in the north as another major reason for the resettlement. population densities in the resettlement camps—as measured by the number of persons per hectare of arable farmland—greatly exceed those that probably existed in the original villages in the northern provinces. Moreover, our calculations suggest that the number of persons able to be supported by a hectare of land in the resettlement camps is considerably less than the average for the rest of Ethiopia, including the northern region. Consequently, overcrowding in the new settlements is more likely to strain the carrying capacity—the number of people who can be sustained per hectare—of the settled lands.

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Resettlement Camps More Crowded Than Northern Provinces

On the basis of two separate Ethiopian reports, the government has implied that there are 2.89 persons per hectare in the northern provinces.[7] Using official Ethiopian census statistics (figure 5) and estimates of the available land suitable for agriculture—as determined from Landsat imagery—we estimated the population density for all of the provinces involved in the resettlement program (figure 6). In all cases, our estimates are well below the Ethiopian figure of 2.89 persons and serve to refute the claim of overcrowding in the north. In fact, our estimates of population density indicate that the present number of persons per hectare in the north is within the range that the current agricultural system can support (see following section on carrying capacity).

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The argument of overcrowding in the north seems particularly unwarranted when considering the case of Kefa Province, where large numbers were resettled.

[7] One report cited the available land in the north as 1 hectare per family, and another reported the average size of resettled families as 2.89 persons

Figure 5
Ethiopia: Estimated Population in Selected Provinces, 1986[a]

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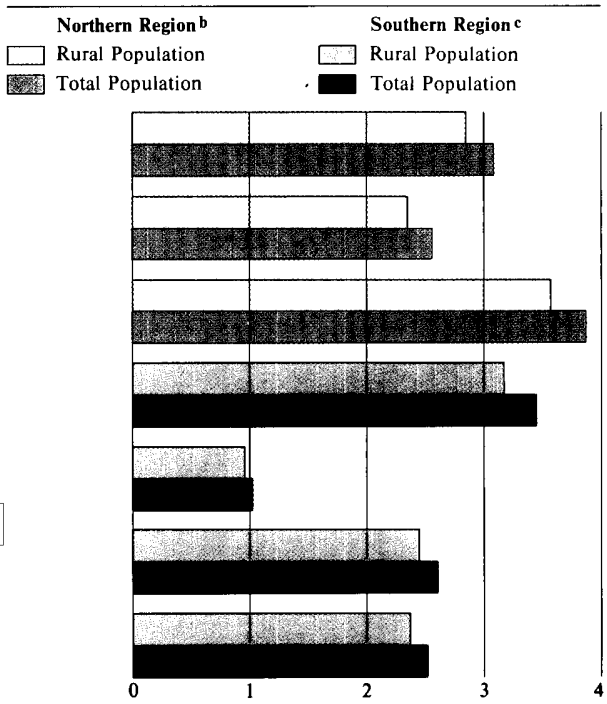
Million persons



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[a] Population figures are based on the World Bank estimate of 3.1 percent national annual growth rate, applied against 1984 official Ethiopian Government census statistics. No adjustments were made for resettled populations or persons who died during the famine.
[b] Northern Region. Includes Gonder, Tigray and Welo Provinces.
[c] Southern Region. Includes Gojam, Welega, Ilubabor and Kefa Provinces.

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Kefa has a rural population density higher than either Gonder or Tigray, yet Kefa received resettlers from the north—as many as 90,000 people, according to some press reports.

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The population densities of the resettlement camps—

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-indicates extensive overcrowding (table 1 and figure 6). Ground photography from one of the camps

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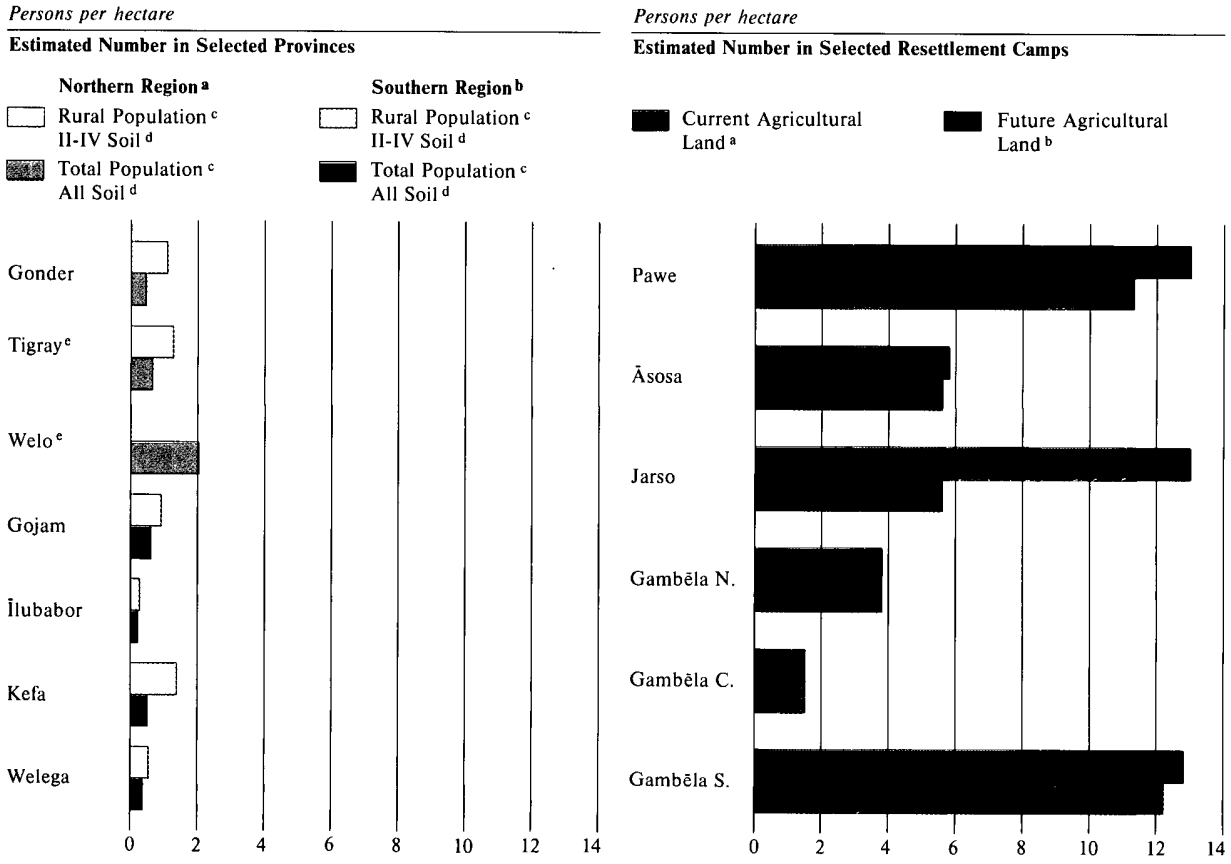
Figure 6
Ethiopia: Ratio of Number of People to Land Area, 1986



[a] Northern Region. Includes the province of Gonder and portions of Tigray and Welo.
[b] Southern Region. Includes Gojam, Welega, Ilubabor and Kefa Provinces.
[c] The 1986 population figures are based on official 1984 Ethiopian census statistics with World Bank annual growth rate estimate of 3.1 percent applied.
[d] Based on USDA soil classification system (figure 12).
[e] Does not include total land area in province (figure 12).

[a] Includes all land presently under cultivation.
[b] Includes both land presently under cultivation and land being prepared for future cultivation.

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Table 1
Population and Arable Hectarage in Selected Resettlement Camps

Camp	Total Huts [a]	Estimated Population [b]	Available Agricultural Land [a] (*hectare*)	Additional Land Being Cleared [a c] (*hectare*)
Pawe	16,160	80,800	6,225	880
Asosa (north and south)	20,310	101,550	17,520	530
Jarso	6,045	30,225	2,300	3,125
Gambela (north)	2,900	14,500	3,825	0
Gambela (central)	1,950	9,750	6,690	0
Gambela (south)	5,450	27,250	2,115	120

[b] Using an estimated count of five persons per hut (various estimates range from 2.89 to seven individuals per hut). The number 5 not only provided a convenient midpoint but also resulted in essentially the same total estimated populations for Pawe and Gambela as those published by the Ethiopian Government.

[c] In most areas there is also evidence of personal plots being tended by resettlers; the plots are probably used to grow vegetables. Because the size of the plots varies from village to village, it was difficult to quantify the amount of additional land being devoted to agriculture. the original government plan to provide each resettled family with a personal plot of 2.5 to 5.0 hectares was modified at the end of 1985. Home gardens are now limited to 1,000 square meters, and cultivation of them is restricted to hours outside the normal workweek.

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further underscores the overcrowding (figure 7). Even under the best case scenario—all cleared land is readily available for agricultural production, and the populations experience no growth—the densities are much higher than those recorded for the northern provinces (figure 6). Even using the inflated Ethiopian figure of 2.89 persons per hectare for the northern provinces, the population densities in most of the camps—some exceeding 12 persons per hectare—are far in excess of the situation in the north.

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Carrying Capacity of Land in Camps Is Less Than in North

A more telling measure of overcrowding than population densities is the number of people that can be sustained by each hectare of land—its carrying capacity compared with the existing population densities. According to an FAO study, when low levels of agricultural inputs—basically traditional practices without any improvement in technology—are used, the majority of the land in both the northern and southwestern regions can support between 0.1 and 0.5 persons per hectare (figure 8).[8] Using intermediate levels of agricultural inputs, including some use of fertilizers and pesticides, the land can support between one and two persons per hectare (figure 9).[9] In general, Ethiopians probably farm at the low-to-middle range of the intermediate levels of inputs, meaning that the farmland supports about 1.0 to 1.5 persons per hectare. Because of disease problems with draft animals and difficulties with deliveries of other inputs, farmers in the resettlement areas are probably able to support only about 0.5 persons per hectare, which places them at the upper end of productivity for a low-input regime.[10]

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[8] Low levels of inputs assume only hand labor, no fertilizer or pesticide applications, no soil conservation measures, and cultivation of only the presently grown mixture of crops.

[9] Intermediate levels of inputs assume the use of improved hand tools and/or draft implements, some fertilizer and pesticide applications, some simple soil conservation measures, and cultivation of a combination of the currently grown mixture of crops and the most calorie- (protein-) productive crops.

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[10] less than 50 percent of the needed agricultural products were expected to reach the resettlement areas during 1986. Despite the soil fertility of the resettlement areas, the lack of inputs greatly reduces the productivity potential.

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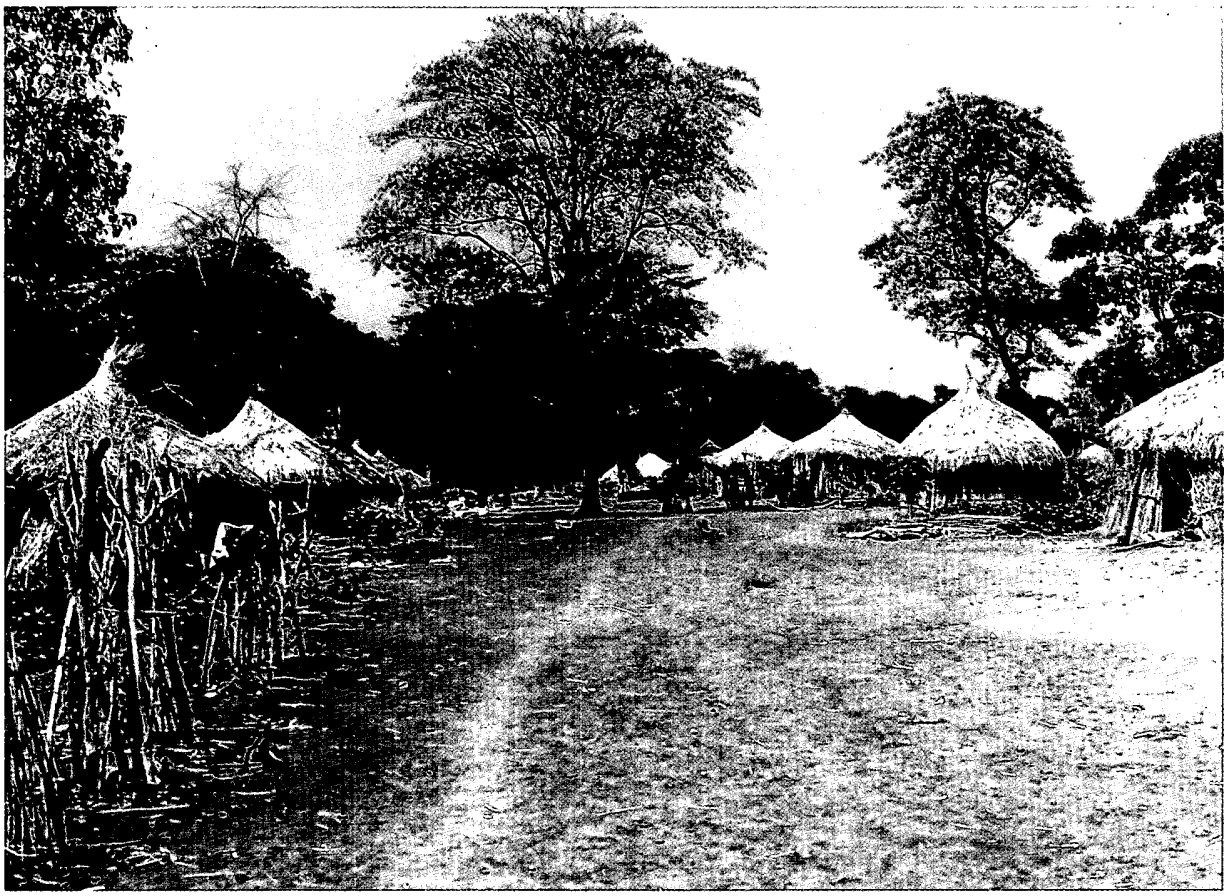

Figure 7. A Gambela Camp
Note closeness of huts and gardens next to each dwelling.

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Carrying capacity estimates also provide a basis for evaluating the potential for food balance problems. The comparison of the rural segment of the population with the amount of suitable agricultural land (figure 6) shows that all of the provinces losing farmers have rural densities of less than 1.5 persons per hectare.[11] This density can easily be supported with intermediate levels of agricultural inputs, or levels that are somewhat above the present average levels for Ethiopia. In areas in the northern region that were suffering from agricultural deficiencies, therefore, the government could have helped resolve production problems simply by encouraging improved agricultural practices and by providing additional inputs. Nevertheless, even with the maximum level of intermediate agricultural inputs, the population densities of the resettlement sites far exceed the agricultural capacity of the land, making chronic food shortages likely.

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Settlement of Southwest May Be Necessary by the Year 2000

Although the present resettlement program was clearly ill advised, resettlement in the long term may be necessary. By the year 2000, the population densities for the rural populations in the northern provinces

[11] Welo was not included in the comparison because the portion of the province surveyed does not have soils suitable for agriculture. The Ethiopian Government claims that more than 60 percent of those resettled have come from Welo Province, but we cannot verify these figures

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Figure 8
Potential Population Densities, Given Low Levels of Agricultural Input, in Western Ethiopia

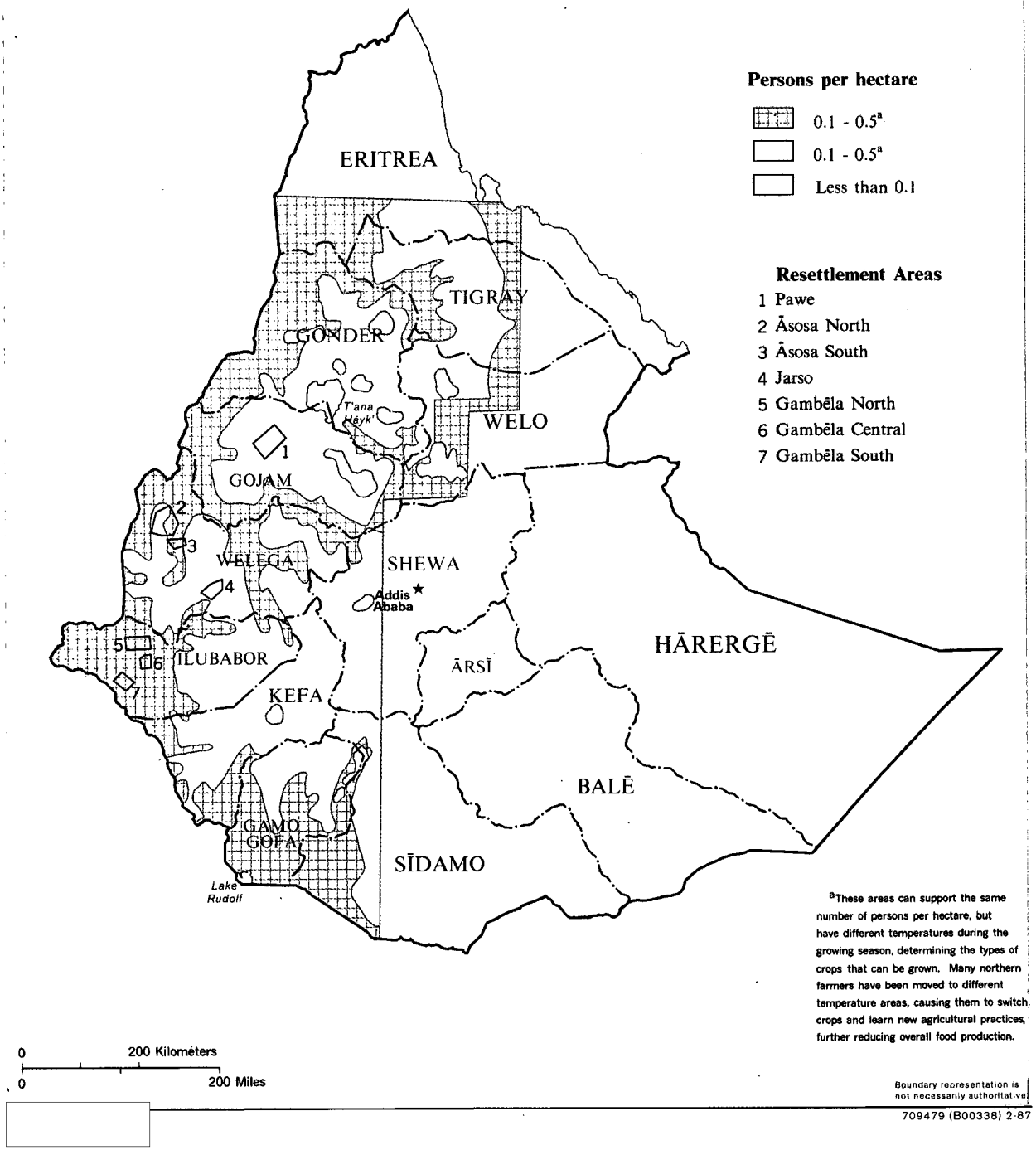

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Figure 9
Potential Population Densities, Given Intermediate Levels of Agricultural Input, in Western Ethiopia

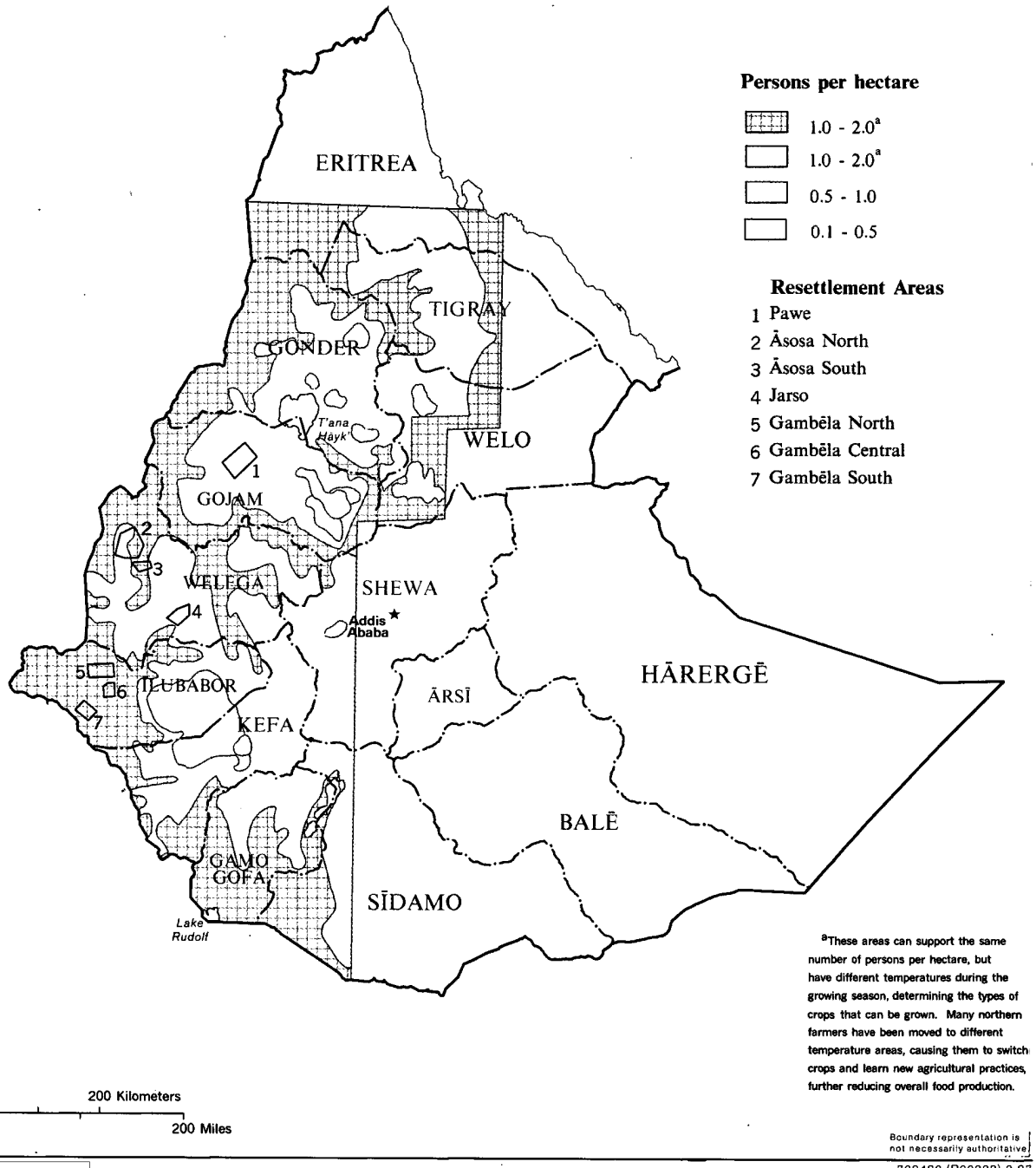

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Table 2
Harvest Figures for Selected Resettlement Areas, September 1985–March 1986

Camp	Total Grain Harvest [a] (*metric tons*)	Approximate Number of People Sustainable for One Year (*198 kilograms/year/person*)	Estimated Camp Population
Gambela	800	4,040	51,500
Asosa	3,320	16,770	101,550
Pawe	130	655	80,800

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may approach the maximum number of people that can be maintained on the available land without dramatic increases in agricultural inputs. Because the intensification of farming is likely to increase little over the next decade, the redistribution of portions of the population, as a program to accommodate future growth, does have some longer term merit. However, there does not appear to be an immediate need for resettlement to relieve population pressures in most of the regions.

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Resettlement: Second Phase Coming

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Following the intense international criticism of the resettlement program, the government ceased the movement of people in late 1985 and entered a "consolidation" phase.

25X1 we believe the resettlement that is likely to start in March will involve the relocation of an additional 500,000 people during the

25X1 next two to three years.[12]

25X1 the harvests in the resettlement areas have been woefully short of the required levels to sustain the populations in the camps (table 2). These shortages will continue for the foreseeable future, and the

25X1 introduction of new settlers will only exacerbate the situation.

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We believe that the Ethiopian Government will pursue the second phase of relocation, despite the increased food shortages and the potential for further international criticism. Within Ethiopia, the movement of additional people will provide Mengistu with an opportunity to demonstrate his control of the situation in the north and deny the seccessionists the potential support of another 500,000 people. Also, resettling the farmers in the southwestern camps fits Mengistu's plans for the eventual collectivization of all agriculture in Ethiopia.

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Mengistu will continue to defend himself against international criticism of the resettlement program, no doubt arguing that the program is designed primarily for humanitarian purposes. Mengistu has already taken steps to improve conditions in some of the camps, probably in response to previous criticism of resettlement. During early 1986, for example, 8,000 families were reportedly moved within the Gambela resettlement area because of poor drainage in their first site.

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similar internal relocation is taking place there

25X1 (figure 10) and that a considerable number of tractors have been shipped to the area (figure 11).[13] Another indication of Mengistu's efforts to improve the settlement camps is the substantial increase in the percent

[13] The lack of other inputs, however, keeps the overall estimate of productivity in Pawe at 0.5 persons per hectare.

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of the country's budget earmarked for resettlement—up from 0.7 percent to 6.2 percent—in the current fiscal year's budget. Lastly, Mengistu has avoided widespread starvation within the resettlement camps by diverting aid from some of the Western nations to the camps. 25X1

Looking Ahead

We believe the Mengistu regime will proceed as planned with the second phase of resettlement. Although the extent of the resettlement in the second phase is likely to be on a smaller scale than that witnessed during 1985—500,000 people during a two-to-three-year period versus 600,000 people resettled in 1985—it nevertheless represents a major effort. In our view, undertaking the second phase of resettlement will result in a considerable loss of life in the transit camps. In addition, a sharp and rapid increase in the size of the populations within the resettlement camps themselves would create serious shortfalls in available food supplies, increasing the level of hunger and misery already present in the camps. 25X1

The Mengistu regime may press for more Western agricultural assistance to ease the problems inherent in attempting another phase of resettlement. Considerable agricultural assistance is already being provided to Ethiopia by the West and more than $250 million is pledged for the next few years. None of the aid has been linked to resettlement, but even if the aid is not shifted to this effort, it provides the Mengistu regime with some flexibility to pursue the resettlement program. Although the United States makes its aid available through private voluntary organizations and can stipulate that it may not be used in the resettlement areas, most other Western aid is given directly to and is controlled by the Ethiopian Government. 25X1

Although the establishment of settled areas in the southwestern provinces will serve to strengthen Mengistu's political control over the population and will aid his plans for collective agriculture, our analysis suggests that, within the next 10 to 15 years, population pressures in the rest of the country may make the settlement of the southwest inevitable. Given that considerable development is needed before the region can support the numbers of people that may eventually have to live there, we believe the consolidation phase should be continued. Rather than increasing the population of the existing camps and/or establishing new camps, an upgrading of the existing resettlement camps—at their present population levels—would not only help prepare the southwest for its long-term growth but, in the short term, may help alleviate the suffering endured by those now forced to live in the camps. 25X1

Moscow's Limited Role in Resettlement

Ethiopia receives more Soviet economic aid than any other Sub-Saharan African country. Some $600 million has already been given to Ethiopia, with pledges made for another $700 million. The Soviets have also played a major part in helping the Ethiopians develop a 10-year economic plan. 25X1

Despite these efforts, the Soviets have been somewhat critical of Mengistu's overall efforts to collectivize agriculture, of which resettlement is one part. Believing the Ethiopians are moving too rapidly in applying Marxist economic measures to their underdeveloped economy, the Soviets have recommended a number of reform measures similar to those suggested by the World Bank and the European Community. Emphasizing the need to increase the productivity of Ethiopian peasant agriculture, the Soviets have also suggested improving credit for the farmer and increasing access to consumer and industrial goods, as well as establishing flexible pricing for farm produce. 25X1

The Soviets have not ignored the resettlement program, however, and have provided substantial logistic assistance—mostly helicopter and truck support to move people to resettlement areas—and some medical aid in the camps. Perhaps the Soviets' largest contribution to resettlement has been their unwillingness to exert any influence on Ethiopia to help curb some of the excesses of the program. According to US Embassy reporting, the Soviets view resettlement as an internal matter for the Ethiopians and US interest in the program as an infringement on Ethiopian sovereignty. 25X1

Appendix A

Assessment of Soils in Ethiopian Resettlement Areas

On the basis of our analysis of maps prepared by the US Department of Agriculture Soil Conservation Service (USDA SCS), we assessed the soils in each of the Ethiopian resettlement camps as follows [14] (figure 12):

Pawe

The soils in the Pawe camp (Gojam Province) are rated as severely limited, susceptible to erosion, and only moderately fertile. Their internal drainage is rated as slow to very slow, meaning that added water flows away so slowly that free water lies on the surface for long periods. (

Asosa

The soils in the Asosa camp (Welega Province) are severely limited, with a moderate to moderately high level of fertility. The area is rolling, with slopes of 8 to 15 percent. Internal drainage is slow to very slow. Because of the slope, excess water can run off and cause erosion. In addition, some of the area may require supplemental irrigation.

Jarso

The soils of Jarso (Welega Province) are generally rated as severely limited, but with approximately one-fourth of the land rated as very severely limited. The severely limited land has a high degree of fertility but cracks when dry and swells when wet. Not only can such shrinking and swelling damage roads and building foundations, but it also can cause serious injury to plant roots. In addition, the permeability of the soil (rate at which water enters the soil) is slow, as is the internal drainage. These factors could lead to standing water at times. 25X1

The portion of Jarso rated as very severely limited is considered moderate to moderately high in fertility. The land is rolling, however, with slopes of 3 to 15 percent. The internal drainage is slow to very slow, 25X1 which increases the susceptibility to erosion. Supplemental irrigation may also be required in some areas. (25X1

Gambela

The soils of all three camps in Gambela (Ilubabor Province) are classified the same as the soils in the larger portion of Jarso. Although the soils have a high degree of fertility, they are severely limited by shrinking and swelling actions, as well as by slow rates of permeability and internal drainage. 25X1 25X1

[14] The areas selected for mapping were those areas considered most likely to be the source of resettlers. Consequently, only a portion of Tigray and a portion of Welo were mapped. The maps were prepared on 1:1,000,000 base maps, with slope determinations derived from interpretations of 1:500,000 topographic maps, SCS 1:1,000,000 soil maps, and Landsat imagery. 25X1

A detailed USDA map that rates the soil at the major taxon level is available on request. The USDA SCS Land Capability Classification System map is included with this study because it is a highly generalized scheme and provides the user with a quick evaluation of the soils. It is most convenient for a study such as this, which compares large areas of land. The system is principally associated with machine agriculture in the United States but is nevertheless applicable to most parts of the world. In areas where hand labor is readily available—as it may be in parts of Ethiopia—it is possible that intensive use of erosion-control measures may make some soils usable for cropland that would normally be suitable only for hayland or pasture. Nevertheless, the user should not fail to consider the basic features that lead to the initial poor classification. 25X1

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Appendix B

Health Factors in the Ethiopian Resettlement Areas

Numerous human and animal diseases are endemic in the southwestern resettlement areas of Ethiopia. The following is a brief description of the major diseases that new settlers and their livestock are likely to encounter:

Human Diseases

Malaria is a mosquito-borne parasitic infection that destroys the red blood cells and other components of the blood-forming system. Of the various types of malaria, falciparum is the greatest potential threat to the Ethiopian resettlement populations. Drug-resistant falciparum strains have been reported in countries bordering Ethiopia, and it would not be surprising for these strains to appear in the resettlement areas. Control of malaria is achieved by suppressing the transmitting mosquito populations by drainage and insecticides; by installing physical barriers to the mosquitoes, such as bed nets and window and door screens; and by identifying and treating infectious cases.

Yellow fever is a mosquito-borne viral infection that causes acute illness, with severe liver damage and hemorrhaging in fatal cases; mortality rates vary from 5 to 50 percent. Control is achieved by a combination of mosquito suppression and immunization. The human vaccines are highly effective and provide at least 10 years of protection.

Schistosomiasis is a parasitic infection communicated to humans from water inhabited by the parasite's snail host and containing the microscopie free-swimming form of the organism. In Ethiopia, surface waters that drain into the Nile and Omo Rivers are known to be widely infected. The resulting disease can be either acute or chronic. The schisto species of the Nile basin typically cause urinary bladder problems, often complicated by secondary infection from other organisms. Kidney damage may occur with long-standing infection. Acute responses to heavy infection can be severe, including spinal cord injury and/or fatality. Control of schistosomiasis can be attained by avoiding exposure to infected water, by eradicating snail hosts with molluscocidal chemicals, and by identifying and treating cases. Extensive effort is required for adequate control and has rarely been achieved in heavily infected regions. 25X1

African tyrpanosomiasis is a parasitic infection transmitted by the tsetse fly and is a danger to both humans and livestock. Untreated humans succumb after months to years, depending on the infecting species of parasite, to a wasting illness often accompanied by progressive brain injury signaled by mental deterioration—colloquially termed sleeping sickness. Control of trypanosomiasis is by eradication of the tsetse fly through brush clearing, spraying, or trapping. Treatment may be successful if begun early. 25X1

Viral hemorrhagic fevers of various types could affect populations in southwestern Ethiopia. Rift Valley fever is mosquito borne. A mild and self-limiting flu-like illness results from most infections with this virus, and about 1 percent of the cases is fatal. Crimean-Congo is a much more dangerous virus; fatality rates of up to 50 percent have been reported. Lassa fever is passed directly to man by wild rodents and results in fatalities in 20 percent of the cases. Lethality rates of about 60 percent have been caused by Ebola fever. For each of the viruses, the only strategy for control is to avoid exposure to the known animal reservoirs, to insect vectors, or to infected cases. There is no effective specific treatment for any of these illnesses, and support care may be ineffective in severe cases. 25X1 25X1

Tuberculosis is believed to have been present in many unrecognized cases in Ethiopia, even before the famine and resettlement crises began. This infection often produces relatively stable debilitating chronic illness

in well-nourished adults, but is frequently fatal in children, pregnant women, and those who are malnourished or stressed by other illnesses. Because of both man-to-man and animal-to-man infection chains, control depends on finding and treating human cases simultaneous with eradicating the infection from milk-producing animals.

Epidemic typhus is a rickettsial disease transmitted by the human body louse. The disease produces a rash and fever, with death seen in 10 to 40 percent of untreated cases. Early treatment with tetracycline-type antibiotics is quite effective, and a single tablet of a long-acting form (doxycycline) is curative. These drugs can also be used as a prophylaxis to control an outbreak. Vaccines have been developed but are not currently in production, nor is their safety or efficacy fully established. Louse eradication with insecticides is an effective alternate form of control, although louse resistance to some common insecticides has been observed. Cultural practices of dressing hair with animal dung may make louse eradication difficult.

Diarrheal diseases, including cholera, could pose a constant threat to resettled populations in areas that do not have sufficient fly control, access to clean water, and adequate waste disposal. Under such conditions, diarrheal diseases, such as bacterial and amoebic dysentery, toxigenic *E. coli* infection, cholera, and rota virus infection of infants and children can take a terrible toll. Although not always fatal, these diseases can contribute to general loss of resistance to the other diseases described, and all interact with malnutrition to give increased lethality.

Animal Diseases

African trypanosomiasis is a systemic parasite of all domestic animals that can be transmitted to man. It is transmitted between hosts by the tsetse fly. The common acute form usually results in death, but some animals survive and develop a lifelong chronic form that causes weight loss and reproductive failure. Control of the transmitting fly is the only protection for livestock; there is no vaccine or treatment.

Rinderpest is a viral disease that affects cattle, buffaloes, game animals, sheep, and goats; the mortality rate is between 50 and 100 percent. It can be controlled through vaccination. 25X1

Anthrax is a bacterial disease, that can infect cattle, buffaloes, sheep, goats, pigs, horses, and elephants. It results in high fever and sudden death in 100 percent of the cases. It can be controlled by annual vaccination. 25X1 25X1

Foot-and-mouth disease can be caused by several different strains of viruses that affect cattle, sheep, goats, and pigs. The rate of mortality is usually low, except in young animals. The diseases can be controlled through vaccination every four to six months. 25X1

25X1

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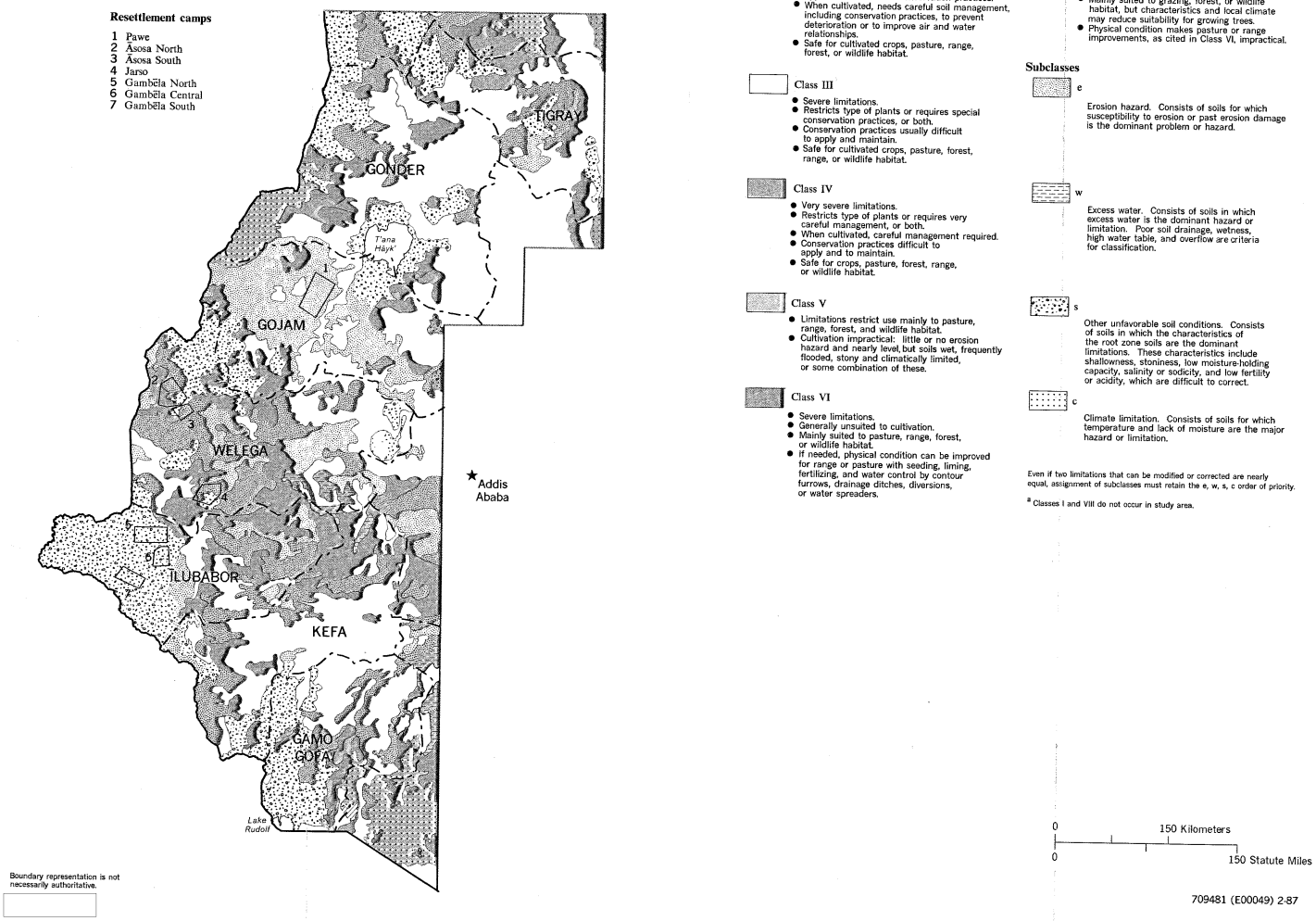
Figure 12
Soils in Western Ethiopia



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