1986 EMERGENCY FOOD NEED ASSESSMENT FOR ETHIOPIA

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EXECUTIVE SUMMARY

The CY 1986 emergency food aid requirement for Ethiopia will be 775,000 MT if current weather patterns continue until harvest. The FY 86 emergency requirement, which is based on the CY 86 estimate plus the critical, large preharvest food requirement for October through December 1985, is 911,000 MT.

How is it that in a year of reasonably good weather, the 1986 food aid requirement is still greater than 50% of the 1985 need, estimated at 1.3 million MT? The explanation lies in that 1985 figure. That figure, used by all food donors for 1985, included only the food needs of the most seriously drought-affected areas. It did not consider the substantially reduced production of normally surplus areas, nor the food needs of people at risk of starvation who were not in areas designated as "drought-affected" by the Ethiopian government.

When these factors are included, Ethiopia's overall food aid need for 1985 would be 2.4 million MT, of which at least 2.1 million would be an emergency food requirement. The CY 86 requirement of 775,000 MT thus represents a significant reduction, of about two thirds, below the CY 85 requirement. Provision of 775,000 MT of food to Ethiopia in CY 1986 would ensure consumption at the normal 1979-83 levels. This level of consumption is below consumption in the early-to-mid 1970's, but well above the 1985 consumption level permitted by the 1985 food aid target of 1.3 million MT. This low level of food aid in 1985 has been accompanied by severe undernutrition and starvation in needy areas which are, however, hot so badly affected as to have been designated "drought-affected."

The continued food aid need in 1986 is due to the following factors: reduction in area planted resulting from hunger-induced weakness, population displacement, and availability of seed and oxen; yield reduction due to drought-related poor field maintenance and pest problems; continued pockets of very poor rainfall in lowland areas; reduced milk production as a result of the drought's effect on herd structure and numbers; and continued bacterial blight in root crops.

People needing continued food assistance in CY 1986 are located mainly in the lowland farming areas of Wello, Tigray, Eritrea, northern Shoa, northern Sidamo and Hararghe regions, and in the pastoral herding areas. There will be local pockets of continued need in other regions and in areas outside of the lowlands, as well. A careful structuring of food aid is required in 1986 to insure that all needy people, but only needy people, receive help. Either nutritional monitoring or food for work would serve this purpose.

The calculation of the CY 1986 emergency food need is shown below in metric tons:

Food crop production	7,386,000
Less 15% storage losses	1,108,000
Less seed requirements	325,000
Subtotal: available crop production	5,953,000
Milk production	207,000
Total available food production	6,160,000
Carryover cereal stocks	218,000
Total food available from domestic sources	6,378,000
Consumption requirements	7,232,000
1986 Food Deficit	854,000
Less 1986 Commericial Imports	79,000
1986 Emergency Food Requirements	775,000

Exceptionally good weather until the November-December harvest would reduce the CY 86 food aid requirement to 483,000 MT. Bad weather until the harvest and substantial rebuilding of on-farm stores would raise it to 1,358,000 MT.

The calculation of the FY 1986 emergency food need combines the CY 1985 and CY 1986 calculatons. For the October-December 1985 period, the most reasonable estimate of emergency need is adjusted downward to reflect projected port and transportation capacity. The actual CY 85 emergency requirement is 2,100,000 MT, far in excess of the 1,300,000 MT settled on by donors. For the three-month October-December 1985 period, one-fourth of that toal CY 1985 emergency requirement would be needed. This amounts to 525,000 MT. However, port and transport capacity are unlikely to exceed 110,000 MT per month during that three-month period. This means adjusting the October-December 1985 food requirement to 330,000 MT. The complete FY 86 emergency food requirement is shown in the table below in metric tons:

October-December 1985		330,000
January-September 1986		
3/4 (9 months) x 775,000	=	581,000
Total FY 86 Emergency Food Need		911,000

The structural food deficit, which has been large and growing for the past 15 years, will be very small in 1986; and it will be covered entirely by commercial imports. The 1986 structural deficit is this small due to an extraordinary expansion of area under cultivation in surplus-producing regions. Improved pricing and agricultural investment policies could have the same stimulative effect on production if they were adopted by the government. Without policy changes, and without a coherent food security strategy, Ethiopia's structural food deficits will recur, persist, and grow in 1987 and succeeding years, even with good weather.

ACRONYMS

AMC	Agricultural Marketing Corporation
ASG	Assistant Secretary General (of the U.N., for Office of Emergency Operations)
CRS	Catholic Relief Services
CSO	Central Statistics Office
ERCS	Ethiopian Red Cross Society
FAO	Food and Agriculture Organization
FFH	Food for the Hungry
FFW	Food for Work
ICRC	International Committee of the Red Cross
LICROSS	League of Red Cross Societies
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
RRC	Relief and Rehabilitation Commission
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFP	World Food Program
WVRO	World Vision Relief Organization

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SUMMARY AND CONCLUSION

If existing weather patterns continue to the November-December harvest, Ethiopia's Calendar Year 1986 (January-December) emergency food requirement will be 775,000 MT. The Fiscal Year 1986 emergency requirement (October to September) will be 911,000 MT.

Bad weather until November and greater than anticipated rebuilding of on-farm stores would increase the CY86 requirement to 1,358,000 MT. Exceptionally good weather would lower the emergency food aid requirement to 483,000 MT.

With the exception of the sections discussing the food deficit, this report makes its calculations on a calendar year basis (January to December). Unless otherwise specified, all references are to CY 1986.

This food need assessment has been based on three weeks of preparation and interviews in Washington and seven weeks of field work in Ethiopia. Information in Ethiopia has come from written reports and from interviews with agricultural officials and experts, farmers, donor representatives, and relief workers. There is a reasonably good statistical basis on which to figure consumption and production in the pre-drought 1979/80 to 1983/84 period. The method employed in this assessment is to use those 1979/80-1983/84 statistics, adjusting them for population growth and for this year's particular cropping conditions, as the basis for this year's food need estimate.

The approach taken in assessing the CY 1986 emergency food need adheres to guidance recently provided by AID's Bureau for Food for Peace and Voluntary Assistance. The approach is to construct a "national food balance sheet," which subtracts production, carryover stocks, and commercial imports from total consumption requirements. The difference is the overall food need. This approach has several disadvantages, and it needs to be combined with the approach of the RRC and NGOs in order to make sound decisions on how much food aid is needed in specific localities and among specific populations. RRC and the NGOs base their food need assessments on the food requirements of people in need. The advantage of the food balance sheet approach used here is that it gives a more complete picture of overall emergency food requirements.

Per capita consumption in Ethiopia has been declining for 10 years. The national consumption requirement calculated here is based on 1979/80 to 1983/84 consumption of cereals, pulses, the major root crop (enset, or false banana) and milk. Average per capita consumption of these foods provides 1,561 calories. (An additional 207 calories is provided by minor foods.) Per capita consumption of the four foods mentioned above is 446 grams per day, or 163 kilograms per year, in cereal-equivalent terms based on caloric value. The national consumption requirement is adjusted for 2.6% population growth since the 1979/80-1983/84 base period. 1986 population will be 44.2 million.

Production in 1985/86 is expected to vary widely by region, as shown in Table i-1 below.

Table i-1. 1985/86 Production by Region and Percentage of Normal Production (000 MT)

Region	1985/86 Production	Percentage of Normal Production
Arssi	582	105%
Bale	152	100%
Eritrea	160	80%
Gamo Gofa	124	100%
Gojam	976	115%
Gonder	719	115%
Hararghe	372	81%
Illubabor	203	105%
Kefa	348	100%
Shoa	1,778	94%
Sidamo	170	89%
Tigray	171	70%
Wollega	619	106%
Wello	461	60%

Production of cereals and pulses in the important surplus-producing areas with adequate land (Gojam and Gonder) will be well above normal, as the result of an exceptional expansion of area in response to the 1984 drought. On the other hand, Wello, Tigray, Eritrea, northern Shoa, northern Sidamo, and Hararghe will have production well below normal. This is due to a reduction in area planted (except in Hararghe) as a result of drought-induced weakness, seed and oxen scarcity, and population displacement. These areas will also have yields per hectare which are well below normal. These low yields are the result of poor field preparation and maintenance (due to weakness, lack of oxen, and population displacement), drought-induced pest infestation, and pockets of continued drought in some lowland areas. Fertilizer use is somewhat below normal, and production in the new resettlement areas will provide half or less of self-sufficient requirements.

Harvest of the major root crop staple in southwestern Ethiopia will continue at below-normal levels due to continued bacterial blight. The milk production on which millions of herders depend for most of their consumption will be improved over 1985, but will still be well below normal production due to drought-induced changes in herd structure and numbers.

Two factors not included in the production calculation are increased vegetable production and rebuilding of on-farm stores. There has been a substantial expansion in vegetable production, but in the absence of statistics or measurement, even an order-of-magnitude estimate is impossible. On the other hand, it is likely that this expanded vegetable production will be counterbalanced by a rebuilding of on-farm cereal stocks, as farmers try to make up for the reserves they drew down during the drought. This rebuilding of stocks would reduce 1985 surplus production available for 1986 consumption. Again, it is impossible to estimate the magnitude of this reduction. An arbitrary assumption is made that it more or less balances increased vegetable production, and neither factor is included in the 1985/86 production estimate.

Other sources of supply are carryover stocks and commercial imports. Officially recorded carryover stocks as of December 31, 1985, are projected at 218,000 MT (180,000 MT food aid, 38,000 MT commercial). The extent of on-farm storage is unknown. Given the substantial drawdown of stocks in 1984 and 1985 in response to the drought, and the likely withdrawal of current production to rebuild those on-farm stocks (mentioned above), the net effect of on-farm stocks on food available for 1986 consumption is negative or neutral.

Based on current foreign exchange constraints commercial imports are projected to be 79,000 MT. There is no evidence of unofficial commercial imports via cross-border trade, and neither the World Bank (which has done extensive grain marketing studies) nor the IMF believes such unofficial imports to exist. If there is any cross-border trade in food, it is likely to be in the opposite direction.

The overall CY86 food deficit is calculated in Table i-2 below. There is some confusion inherent in FVA Bureau's use of the terms "food deficit" and "food need." The terms are used here in the following way: "Food deficit" refers to the gap between consumption requirements and all food available from domestic sources (including domestic production and carryover stocks). The terms "food need" or "food requirement" refer to the food deficit adjusted for expected commercial imports.

Table i-2: CY 1986 Food Deficit and Emergency Food Aid Requirement
(MT)

Food crop production	7,386,000
Less 15% storage losses	1,108,000
Less seed requirements	325,000
Subtotal: available crop production	5,953,000
Milk production	207,000
Carryover stocks	218,000
Total food available from domestic sources	6,378,000
Consumption requirements	7,232,000
Overall food deficit	854,000
Less commercial imports	79,000
Food aid requirement	775,000

The structural portion of a food deficit is that portion which is likely to recur every year, regardless of weather. Structural deficits in general are due to policy, investment, and land capacity factors which do not change from year to year, and which tend to ensure food deficits even in years of good weather. The structural portion of the deficit appears to have almost disappeared for 1986. Based on past and expected future trends, one would expect a structural food deficit of 352,000 MT in 1986. However, the exceptional above-normal production in surplus areas will almost eliminate the structural deficit in 1986. What is left of the structural deficit will be made up by the expected 79,000 MT of commercial imports. After commercial imports are netted out of the 1986 food deficit, the remaining food aid requirement is entirely an emergency requirement.

The FY86 emergency food need is calculated from CY85 and CY86 data. There are three different FY86 calculations, depending on which CY85 emergency food estimate is used. The consensus donor estimate of CY85 needs if 1.3 million MT, but it appears far too low. A more reasonable estimate of CY85 emergency food need (not including the structural deficit) is 2.1 million MT for the current year. However, port and transportation capacity will not permit the monthly distribution rates from October to November 1985 which are implied by the CY85 figure of 2.1 million MT. So a third FY85 emergency food need estimate is made adjusting the high October-December figure downward to reflect expected port and transportation capacity. This capacity is 110,000 MT per month, or 330,000 MT for the October-December 1985 period. All three estimates of FY 86 emergency food requirements are shown on Table 1-3 below:

Table 1-3: Alternative Estimates of FY86 Emergency Food Requirements (000 MT)

	I	II	III
	Using UN/Donor CY85 Food Need	Using 2.1 million CY85 Food Need	Using II, Adjusted for Port Capacity
October-December 85	1.3 million x 1/4(3 mo)=325	2.1 million x 1/4(3 mo)=525	330
January-September86	775,000 x 3/4(9 mo)=581	775,000 x 3/4(9 mo)=581	581
Total	906	1,106	911

Food aid will be needed among four different groups of people in CY 1986: destitute people who have planted nothing, farmers who will get very little harvest, farmers whose harvests are much improved over last year but still not good enough to carry them through the year, and pastoral herders. The pastoral people are in the lowland areas of several regions. The destitute people are scattered in feeding camps, small towns, their own villages, and better-off villages throughout the country. The needy farmers will be located mainly in the lowland cropping areas of Wello, Tigray, Eritrea, northern Shoa, and Hararghe. A few local pockets of needy farmers are located in the higher elevation areas of these regions, as well as in other regions.

The harvest a year from now (November-December 1986) should be a normal one if weather is normal and if needy farmers receive food aid, seed, and in some cases oxen, to help them plant their normal area and take good care of their fields. The structural part of the food deficit, which will all but disappear for 1986, will recur in a year, however. It will disappear in 1986, but only temporarily, as a result of an exceptional response to the drought in the surplus areas. This demonstrates that surplus production well above normal is possible in Ethiopia. But in the absence of this year's exceptional circumstances, such a level of surplus production will only be achieved in the presence of pricing, marketing and investment policies substantially different from current policies. Until policies and investment in agriculture are changed, the chronic structural food deficit, which has expanded 6% per year in non-emergency years, will return, persist, and grow worse.

I. INTRODUCTION

This report estimates Ethiopia's food deficit for 1986. Unless otherwise stated, all discussion and estimates are for calendar year 1986 (January to December). Section V on the food deficit discusses emergency food requirements for both CY86 and FY86.

Some explanation of the timing of the report, which is being written two months before the main season harvest, is required. The report will assist USAID/Addis to make early food programming decisions. Estimating the food deficit this soon before the harvest has an inherent risk of imprecision, since the effects of possible frost, hot winds, and pest outbreaks in October and November, as well as early cessation of the rain, cannot be known.

However, having an estimate of the food deficit as early as September gives AID/Addis a firm basis on which to request AID/Washington approval of food programming levels for 1986. Such approval is needed in order for commodities to be ordered. The loss in precision resulting from an early estimate is therefore more than compensated for by the two to three month lead-time gained in the ordering of commodities. This report's estimate of the 1986 food deficit can and will be revised by AID/Addis in the light of new information as it becomes available from RRC, FAO, and the Central Statistics Office. The timing and nature of other sources of information on the food deficit are described in Annex A.

This report estimates the 1986 food deficit by constructing a national food balance sheet. The national food balance sheet compares aggregate consumption requirements to aggregate food availability (carryover stocks and production). The difference between these two aggregates constitutes the food deficit. That portion of the 1986 food deficit resulting from the continuing drought emergency is also calculated. The national food balance sheet is useful in estimating overall national food aid requirements, but it has several weaknesses which need to be recognized and which are discussed later.

The national food balance sheet approach differs from the approaches taken by the RRC, NGOs, and other organizations in estimating food needs. The RRC and NGOs base their estimates on an enumeration of people in various need categories. They build up from numbers of people in need to tons of food required to meet their needs. The NGOs do this for specific localities, while the RRC (based on peasant association and woreda estimates) comes up with an estimate of total needy people in the entire country. The metric tonnage of food required to meet these people's needs then becomes the RRC's food need estimate. With some adjustments, this is the source of the UN and FAO estimates of 1.3 million MT of food aid requirements for 1985.

Other organizations have calculated a crop production shortfall, which has subsequently been confused with the food deficit. The FAO crop assessment mission in November 1984, as well as the ILCA forecast of several months ago, both assessed shortfalls in crop production. The benchmark in these cases is neither food need nor numbers of affected people, but rather aggregate food production in a normal year. It should be noted that both ILCA and FAO intended their estimates only as crop production estimates, not as estimates of food need.

Sound planning and distribution of emergency food requires a combination of all three approaches. Any one of them alone is inadequate for reasons discussed below. The crop production shortfall estimate is a critical component in building a national food balance sheet. However, by itself it should not be used as an estimate of food need because it leaves out two important sources of food, commercial food imports and the milk production of herders. Using crop production shortfall estimates as if they were food need estimates will either overstate or understate the emergency food need, depending on whether commercial imports or a milk production shortfall are greater.

The national food balance sheet approach, which is used in this report, has several weaknesses. It implicitly assumes that surplus production will automatically flow to deficit areas. In fact, this will not take place if on-farm stocks in surplus areas are rebuilt following a bad year, if the purchasing power of deficit areas is limited, or if surplus production is diverted to relatively favored populations. All three situations are likely to occur in Ethiopia in 1986. It is reasonable to assume that a production surplus will flow to deficit areas only if those areas have adequate purchasing power or, in its absence, if efforts are made to purchase the surplus and provide it free or at subsidized prices in the deficit areas.

The second problem with the national food balance sheet is that it cannot, by itself, distinguish between the persistent structural portion of the food deficit and the part of the deficit resulting from an emergency. For both 1985 and 1986, it is critically important to be able to distinguish between these two parts of the deficit, since the United States will use its Title II emergency food aid to assist in meeting emergency, but not structural, food requirements.

The third problem with the national food balance sheet approach is that it does not include the supplementary feeding required to restore seriously undernourished people to their previous nutritional status.

The final problem with the food balance sheet approach is that it provides no guidance as to where food aid is to be distributed once it gets to the port or the regional warehouse. Decisions on where and to whom emergency food relief is to be distributed need to be based on the kind of enumeration of needy people which RRC and NGOs undertake. How well food is targetted on those who need it of course depends critically on the quality of the enumeration system.

The "enumeration approach" by itself, however, is inadequate in estimating the aggregate food deficit and is likely to overstate or understate that deficit. This is because it may ignore surplus production available in country, normal commercial imports of food, and the normal food needs of food deficit areas which are not starving, and of the cities. Ethiopia is fortunate in having a reasonably sound information base upon which to make estimates of food need and distributional requirements using all three approaches in combination.

The method employed in this analysis is to use the 1979-83 period as a baseline period representing normal consumption and production. This period is chosen because it predates the serious 1984 drought and because good data is available for those years. Consumption and production estimates for 1985/86 are based on the 1979-83 baseline data. Adjustments to the 1979-83 consumption data are made to reflect increased population. The 1979-83 production data are adjusted to reflect increased population, change in area planted as a response to the 1984 drought, and yield changes resulting from rainfall and drought-related pest situations. The food production and consumption data used here are limited to cereals, pulses, false banana and milk.

The remainder of this report estimates the national consumption requirement (Section II), 1985/86 food production (Section III), other sources of supply in 1986 (Section IV), the national food deficit (Section V), and the specific regions and populations most likely to need help (Section VI). Sections II through V adhere quite closely to the most recent guidance, provided by AID's Bureau for Food for Peace and Voluntary Assistance, on calculating food aid requirements. An attempt has been made to keep the text clear of technical and analytical details, which are however explained in the tables, table footnotes, and annexes.

Information has come from written reports from donor, NGO, and government agencies, and from interviews with representatives of those agencies as well as interviews with farmers. The USDA, NOAA, and ILCA have also provided useful information. It should be pointed out that most information from the government and NGOs has come not from relief workers but from agriculture workers. Agricultural professionals are likely to have a broader view of production prospects than are relief workers. They are much less likely to see only the needy areas and the negative production prospects than are relief workers, who must remain sensitive to possible future need. The information gathered for this report is therefore unlikely to have the cautious, somewhat pessimistic tendency which it might have were it based only on information from relief workers and agencies.

II. CONSUMPTION REQUIREMENTS

National consumption is here estimated in milled cereal-equivalent terms, using energy (calories) as the basis for the estimate. Two alternative approaches are used and compared before arriving at a final determination of normal consumption. The first approach is to take estimates of per capita grain consumption and multiply by the national population. The second approach is to estimate aggregate national consumption based on total food production, imports, exports, and losses.

There are two national consumption estimates using the first approach (the "per capita" approach). One comes from a recent FAO semi-annual report which estimates per capita consumption of 425 grams a day (155 kg/year) in 1975. This is equivalent to a national requirement of 6,851,000 MT in 1986, as set out under Column 2 in Table II-1. The other "per capita" consumption estimate is the minimum figure recommended by RRC and WFP of 400 grams a day (146 kg/year). Column 1 of Table II-1 shows this amount to be 6,453,200 MT of food consumption for 1986.

The second approach used in calculating food consumption requirements is the "status quo" approach. This approach calculates food consumption as the sum of normal food production and imports, less losses from milling and storage, seed requirements, and food exports. This "status quo" consumption figure is then adjusted upward to reflect additional requirements due to population growth. This is the approach recommended and set out in detail by AID's Bureau for Food for Peace and Voluntary Assistance (FVA).

The status quo calculation done here includes more than cereal consumption. It also includes normal consumption of pulses, enset or false banana (the major root crop), and milk products, in cereal-equivalent terms. All of these foods are important in Ethiopia. Millions of people rely on them. Production of all these food items has been affected during the current drought. Normal Ethiopian consumption of any one of these foods would dwarf the total consumption requirements of some of the Sahel countries. Tables II-3 through II-6 bring these foods into the "status quo" consumption calculation. Meat, eggs, vegetables, oilseeds, and wild produce have not been included here for two reasons. They are relatively minor components of consumption, and, except for oilseeds, statistics on their consumption and production are hard to obtain or nonexistent.

The "status quo" consumption estimate, 7,232,000 MT on Table II-1, is likely to be the most accurate of the three because it is based on a) a disaggregated enumeration of all major foods available for consumption and b) the most recent period for which data is available (1979/80 to 1983/84). Since this estimate is likely to be more accurate, and since it is calculated according to the method recommended by AID (FVA), the 7,232,000 MT figure will form the basis of the emergency food need assessment undertaken here. The estimate is based on data from the Central Statistics Office (CSO) which is more fully discussed in Annex A, as well as on information from FAO, the World Bank, and other sources.

The FAO (1982) suggests that there has been a serious decline in consumption between 1975 and 1982, from 425 to 325 grams per capita per day. Given growing population, stagnant food crop technology, and a severe land constraint, such a decline is not unexpected. Then how is it that Table I shows an increase in per capita consumption between 1975 and the 1979/83 period? Several factors, both real and statistical, may account for this. First, as seen on Table II-3, 1980/81 was not a very good year relative to the five-year period 1979/80 to 1983/84. Second, FAO's 1982 calculation of food availability may well have excluded milk, enset, and/or pulse production, as well as cereal imports. Since our "status quo" consumption calculation includes all of these components of consumption, it would of course be greater on a per capita basis than an estimate that omitted these. Finally, cereal production estimates from 1974/75 through 1978/79 were carried out using a different method, and were located in a different government ministry, from those carried out from 1979/80 to the present. The production data before 1979 seem to be consistently lower than those since then, and this likely reflects different data collection and analysis techniques. (It should be noted that the 1979/80-1983/84 crop production data series is based on a consistent, rigorous, and extensive sampling methodology and analytical model, and is probably reasonably accurate, as discussed in Annex A.) Column 2 on Table II-1 therefore most likely leaves out some important components of production included in Column 3. The FAO's contention of a decline in per capita consumption since 1975 is therefore quite likely.

One final concern may be that the "status quo" figure of 163 kg per capita is a high annual consumption figure and therefore not entirely credible. However, among the 35 low income economies, Ethiopia is in the top 50% as regards per capita calorie availability in a "normal" year (see IBRD, 1985, Table 24). Ethiopia's normal consumption of cereal, pulses, root crops, and milk is equivalent to approximately 1,561 calories per person per day. According to WFP/FAO (1984), an additional average 207 calories come from honey, nuts, oilseeds, eggs, fish, oil and fat, meat, sugar, fruits, and vegetables, although the latter four items are likely consumed primarily by high income groups. The cold climate in Ethiopia does in any case require a higher caloric intake than is required in most other African environments.

Based on all these considerations, the figure of 7,232,000 MT of food (in cereal-equivalent terms) is the best estimate of the national consumption requirement for 1986.

TABLE II-1: Alternative Estimates of Aggregate National Consumption Requirements, 1986[1]

	1. WFP/RRC Minimum	2. FAO 1975 Estimate	3. 1979/80-1983/84 Estimate
Grams per capita per day	400	425[2]	446
Kilograms per capita per year	146	155	163
1986 National Requirement (MT)	6,453,200	6,851,000	7,232,000[3]

Notes:

[1] Calculations are based on 1986 population estimate of 44.2 million, based on CSO estimate of 42 million, May 1984, adjusted upward by 2.6% population growth rate (IBRD, World Development Report, 1985, Table 19).

[2] From Office of the FAO Representative, Ethiopia, Semi-Annual Report, 1 July 1982 - 31 December 1982, p. 7.

[3] 1979/80-1983/84 average aggregate national consumption, from Table II-2, adjusted upward by 2.6 annual population growth from middle of time series (1982) to 1986.

TABLE II-2: Normal National Food Consumption
(000 MT)

A.	Gross Crop Production[1]	7,374
	less 15% post harvest losses[2]	1,106
	less seed requirements[3]	325
	less pulse exports[4]	32
B.	Net crop production available for consumption	5,911
C.	Cereal Imports[4]	312
D.	Milk Offtake[5]	304
E.	1979-1983 average consumption (B plus C plus D)	6,527
F.	1985 consumption requirements (E adjusted to 1985 population)[6]	7,050
G.	1986 consumption (E adjusted to 1986 population)[6]	7,232

Notes:

[1] In cereal-equivalent terms, from Table II-3; includes cereals, pulses, and enset.

[2] IBRD, FAO, and WFP assume 20% of production is not available due to post-harvest losses and seed requirements. Our more precise estimate of seed requirements, together with 15% post-harvest losses, is consistent with IBRD 20% figure. Milling losses and livestock grain feeding are negligible.

[3] From Table II-5.

[4] From Table II-4, 5-year average 1979-83. The more complete of the two alternative estimates on Table II-4 is taken.

[5] From Table II-6, item E total.

[6] Adjusted upward by 2.6% annual population growth rate (World Bank, World Development Report, 1985, Table 19) from middle year of time series in Table II-3 (1982) to 1985 and 1986.

TABLE II-3: Normal Crop Production (1979/80-1983/84)
(000 MT)

	1979/ 1980	1980/ 1981	1981/ 1982	1982/ 1983	1983/ 1984	Total	5-Year Average 1979-80 1983-84
Production							
Cereals[1]	6,397	5,605	5,388	6,711	5,527	29,628	5,926
Pulses[1]	1,010	848	820	965	712	4,355	871
Enset[2]	590[3]	579	594	609	512	2,884	577
Subtotal	7,997	7,032	6,802	8,285	6,751	36,867	7,374

Notes:

1 CSO Time Series Data 1979/80-1983/84.

2 FAO Crop Assessment Estimate, 1984, in cereal-equivalent.

3 FAO Crop Assessment, average 1980/81 to 1982/83 figure.

TABLE II-4: Normal Food Imports and Exports
(1979 - 1983)
(000 MT)

	1978/ 1979	1979/ 1980	1980/ 1981	1981/ 1982	1982/ 1983	1983/ 1984	Average
Cereal Imports							
IBRD Estimate[1]							
Commercial		189	51	39	25	532	67
Food Aid		134	152	182	2985	4582	
Total		323	203	221	3005	5112	312
FAO Estimate[3]	248	397	210	280	325		292
Pulse Exports[4]		34	25	35	36	28	32

Notes:

1 IBRD, Recent Economic Developments, 1984, p. 24.

2 FAO Situation Report #8, Table I, p. 9.

3 FAO Trade Yearbooks

4 IMF Recent Economic Developments, June 1985, p. 98.

5 From USDA/ERS data.

TABLE II-5: Normal Area Sown in Food Crops[1] and Normal Seed Requirement
(000 ha)

	1979/80	1980/81	1981/82	1982/83	1983/84	Average 1979/80-1983/84	Total Seed Requirement[2] (000 MT)
Cereals	5,023	4,712	4,629	5,029	4,716		
Pulses	847	743	793	799	761		
Total	5,870	5,455	5,422	5,828	5,477	5,610	325

Notes:

1 CSO Time Series Data 1979/80 - 1983/84.

2 CRS Seed Proposal estimated 58 kg seed per ha cereal production, based on weighted average of barley, wheat, corn, sorghum, and teff seeding rates and assuming some multiple plantings would be required. Pulse seeding rates are close to 58 kg/ha as well.

TABLE II-6: Milk Production in a Normal Year and in CY 1986

		Cattle (Pastoral Areas)	Cattle (Highland Areas)	Goats/Sheep	Camels	Total
A.	Total Numbers	9.00 million	21.00 million	40 million	1 million	71 mil
B.	Lactating Females	1.88 million[1]	1.88 million[1]	---	112,500[2]	---
C.	Kg Milk/Female/ Year[3]	320	320	---	1,500	---
D.	Normal milk offtake (MT)[3] (BxC)	600,000	600,000	152,000[4]	168,750	1,521,000
E.	Normal Milk Offtake in Cereal-Equiv. (MT)[5]	120,000	120,000	30,400	33,750	304,000
F.	1986 milk production as % of normal	50%	80%	80%	80%	68%
G.	Expected 1986 milk offtake (MT)[3] (DxF)	300,000	480,000	121,600	134,400	1,036,000
H.	1986 Offtake in Cereal-Equiv. (MT)[5]	60,000	96,000	24,320	26,800	207,000
I.	1986 milk production deficit in cereal equivalent terms (E-H)					97,000

Notes:

[1] Calving interval 2 years, assume 50% of 7.5 million cows are in pastoral areas, and only 50% in highlands due to larger proportion of males (as draft animals) in the highlands.

[2] Assume 3/4 of herd in areas where camels are milked; 15% lactating females.

[3] Includes milk products (cheese, butter, cottage cheese).

[4] From FAO/Ministry of Agriculture Data Book on Land Use and Agriculture, p. 121.

[5] D divided by 5, since cereals/pulses have approximately 5 times the calories of the same weight of milk.

III. EXPECTED 1985-86 FOOD PRODUCTION

1985/86 production is here estimated on the basis of expected divergence from "normal" area, yield, and production figures. The "normal" figures come from Central Statistics Office (CSO) data for cropping years 1979/80 through 1983/84. The five-year average of this period is used to represent normal production. The cropping year includes the main season harvest and the subsequent belg harvest.

Estimates of 1985/86 divergence from normal area, yield, and production figures are based on information from a number of sources. RRC Early Warning reports and National Meteorological Services Agency weather reports have been quite useful. Field visits in Shoa, Hararghe, and Wello have provided very useful information, as have reports from a number of travellers in most of the regions. Discussions with agricultural authorities and experts and data from farm level surveys have also been used.

The estimates here are made on a region by region basis, with supplementary estimates for new resettlement areas, milk production, and root crops. Different methods are used for production estimates in different regions, depending on the quality of information and the nature of production in the region. Some of the regional estimates are based on expected area and yield on a crop by crop basis. Estimates for other regions lump crops together, do not estimate yield or area, and calculate a simple "guesstimate" percentage divergence from normal total production of all crops in the region, based on the meager information available.

In the worst-affected regions there have been significant changes this year in the relative importance of many crops. These changes, which may have an effect on total production, are not captured in this analysis. The specific changes are a shift out of teff and end-of-season pulses and into other crops, and a shift out of sorghum and into maize in some areas. These shifts in relative importance of various crops have occurred most notably in the most seriously affected areas which have had two or more consecutive drought years. The cause of the changes is relative lack of teff and pulse seed, and in some areas sorghum seed, and relatively greater availability of maize seed among seed given out by NGOs and the government. The net effect of these changes on the 1986 market price of teff and teff seed may be substantial in Wello and northern Shoa. The effect on overall production is much harder to estimate, and no attempt is made here to estimate it. The crops whose relative planted areas have increased have both a higher yield potential and a higher yield risk than teff. It is hard to say which of these two attributes will dominate this year.

The tentative nature of the estimates. A number of factors should counsel caution in considering the production estimates made here. First, the timing of the report does not permit full knowledge of the quality of September rainfall or the effects of October frost or dessicating winds in various areas. While the additional "high" and "low" estimates try to capture some of the possible effects of alternative scenarios in September and October, there is no substitute for seeing what really

happens then. Second, the report is being written with no prior knowledge of Ethiopian agriculture. The intuitions and assumptions on which it is based may therefore not always be accurate. Third, information on area and yield potential comes from a series of very short field visits where a small and non-random sample of farmers was interviewed. The extent to which their own cropping patterns is characteristic cannot be known.

Finally, this report's regional estimates of production lump together state farms, producer coops, and peasant farms. This assumes that whatever differences in input use existed among these three types of farms between 1979/80 and 1983/84 continue this year, which is a reasonable assumption. However, it also assumes that weather will have the same impact on all three types of farms, which may not in fact be the case.

Also, in the regions where belg production accounts for less than 20% of total regional production, the belg crop is simply lumped together with main season production on state farms, producer coops, and peasant farms. This assumes that the belg harvest will be subject to the same pest and yield problems as the main season crop, a singularly unlikely assumption. The effects of making this unlikely assumption are negligible, however, since the belg crop in those regions accounts for such a small proportion of total production. Only in Shoa and Wello are separate calculations of 1986 belg production made.

Despite all these caveats, this report's estimate is likely to be reasonably accurate and not too far off from CSO, Ministry of Agriculture, and FAO crop production estimates, as long as the September rains continue and no abnormally destructive October frosts and winds occur. Both CSO and Ministry of Agriculture forecasts are likely to be somewhat more accurate, but they are publicly unavailable and therefore cannot be used in making the initial food import decisions that need to be made now.

Effect of population growth on crop production. As discussed in Chapter II, population growth is a factor in determining overall national consumption requirements. At the same time, population growth will also have a positive effect on production by increasing the area under cultivation. The national consumption estimate set out in Chapter II is based on normal consumption in the 1979/80-1983/84 period, adjusted for the additional population since that period. The same approach is taken here in estimating population's effect on production.

Estimates of increased production due to increased population and the changed age structure of the population are somewhat complex. The estimates made here differ from region to region because of regional differences in population pressure on the land. It is safe to assume that production has expanded at a slower rate than population. There are several reasons for this.

First, Ethiopian agriculture has been technically stagnant for a number of years. The World Bank's plans for agricultural development in Ethiopia are premised on intensification (and therefore increased yields) due to

increased input use in the absence of yield-increasing technology. But use of inputs (fertilizer in particular) has remained stagnant for the past few years, as well, as is shown on Table III-1. Therefore the additional population is not going to increase production via increased yield per hectare.

Second, the age structure of the population is changing; a greater and greater proportion of the population is made up of children and youth, whose food consumption requirements equal and in some cases exceed those of adults, but whose labor productivity is substantially below adult productivity.

Third, there is no evidence that growth in area under cultivation has matched population growth. Due to the lower productivity of the growing population, mentioned above, as well as a severe land constraint in many areas, it is reasonable to expect expansion of cultivated area to lag well behind population growth.

Finally, even in those regions where there has been substantial expansion of area under cultivation, the new land put under crops tends to be lower potential land, often in drought-prone lower elevation areas. The result is that even in good years yields on the areas recently put under cultivation will be below normal. And in bad years an ever-increasing percentage of the population will be vulnerable to drought-induced famine.

For all of the above reasons, it appears that neither yield nor area has expanded as fast as population in recent years. The result is that overall production has lagged well behind population growth. The effects of this vary by region. In some regions, a severe land constraint has led to almost no expansion of area. In others, area expansion likely has been substantial, but lower yields have still led to slow growth in production. Specific regional differences are spelled out in a subsequent section; the region-by-region calculations of the effect of population growth on production are spelled out in the regional tables (III-4 through III-17).

For both the production and consumption analyses, it is reasonable to expect that the abnormally high death rate due to famine would temper the effects of population growth. There are no official estimates of 1984-85 famine deaths. Knowledgeable unofficial estimates put the number of famine deaths in the tens of thousands rather than the hundreds of thousands. While this death rate is tragic, and staggering in its human proportions, its effect on consumption and production may be negligible when compared to the average annual net increment in population of one million people and the continuing change in age structure.

Production Estimates: Each of the regional estimates below is done in two stages. First, a divergence from the 1979/80-1983/84 baseline production period is calculated. In some regions, continuing lowland drought and lack of seed make this first stage estimate lower than the baseline production. In other regions, expansion of area in response to the drought or higher yield due to excellent rain make the first stage estimate higher than baseline production.

The second stage of the production calculation makes an adjustment for population growth. In most regions population growth has led to area expansion, and this area expansion is not counted if we use only the 1979/80-1983/84 production statistics. Therefore the second stage calculation for each region adjusts the production estimate upward to account for normal area expansion due to population growth since the 1982 mid-point of the 1979/80-1983/84 baseline period. Since area expansion generally takes place onto lower quality land, a lower yield is also assumed for the new land brought into production due to population pressure.

Out of the assumptions concerning area expansion and yield reduction on the newly cultivated lands is constructed a "composite population factor." This is used to adjust both the 5-year average of "normal" production in the 1979/80-1983/84 period and to adjust the estimate of the 1985 harvest. It is applied for a period of four years, from the 1981/82 mid-point of the baseline series to the present. The assumptions on which area expansion and yield reduction estimates are made are arbitrary, but they do try to account for regional differences. It is assumed in all cases that due to the social and economic costs of bringing new land into production, as well as to the changing age structure of the population, cultivated area expands at a somewhat slower rate than population.

All of these arbitrary assumptions about expansion of area planted as a result of population growth in the past few years would be wholly unnecessary were CSO's estimates of cultivated area available. Unfortunately, they will not be available for several months. The rate at which new land has been brought into production, and the yields on the new land, are estimated from Table III-3, on the basis of crop land available per rural worker. Regions with more than .4 hectares of cultivated land per worker are assumed to have rapidly expanded the area under cultivation, with good yields on the newly cultivated land; with between .2 and .4 hectares, similar expansion is assumed, but with lower yields. Below .2 hectares no expansion at all is assumed.

In addition to the regional estimates of cereal and pulse production, separate estimates are done for enset and milk production, for production in the resettlement areas, and for overall reduced cereal/pulse production due to fertilizer scarcity. Expected 1985-86 production is broken down into its various components in the sections below and in the accompanying tables. Since the seriousness of last year's drought has had a major impact on this year's production in some regions, the 1984 drought is briefly discussed in each section. The RRC designation of "drought-affected," as applied to portions of regions, is used only for the most seriously affected areas suffering acute problems. Major problems due to the 1984 drought also persist in areas not so designated. In some of those 1984 drought-affected regions where "normal" production is forecast this year, it is likely that modest area expansion in response to the drought and modest yield reduction as a result of the drought's after-effects cancel each other out.

Arssi. The rift valley was affected by the 1984 drought, with an estimated 25% reduction in the crop, although only 4% of the region was determined to be drought-affected in 1984. This year the normal area has been planted and exceptionally good rains (as confirmed by NOAA) are likely

to increase average yields by approximately 5%, for a total of 582,000 MT.

Bale. Last year's drought was felt in Bale. Fourteen percent of the region was deemed drought-affected, and reduced crop production last year was estimated at 30%. While there was inadequate rainfall this June, rainfall since then has been good and reports of crop condition are favorable. Normal production is expected, at a level of 152,000 MT.

Eritrea. Last year's drought and the continuing security situation led to major crop failure and population displacement. Thirty-two percent of the region was designated drought-affected and production was half of normal. Much of Eritrea has received adequate rain this year. There has been some reduction in area planted due to after-effects of the 1984 drought. Overall production is estimated at 160,000 MT, which is 20% below normal.

Gamo-Gofa. Nine percent of the region was determined to be drought-affected in 1984, and output was reduced by 30%. This year, inadequate rainfall in June was followed by good July rain. Infestations of army worm early in the season were expeditiously controlled. Crop production is expected to be normal, at 124,000 MT.

Gojam. While only 2% of the region was designated as drought-affected, production declined by 20% in 1984. This year, rainfall has been good except in a few lower elevation areas. Crops were plant' d early, and input availability has been satisfactor/. There has been a significant expansion of area due to the drought, with normal fallow and grazing areas being plowed up and planted. In addition, a modest increase in yields due to early onset of the rains and intensive cultural practices is expected. Total production will be 15% above normal, or 976,000 MT.

Gonder. In 1984, 13% of the region was designated as drought-affected, and production was reduced by 25%. This year crops were planted early, input delivery has been satisfactory, and rainfall has been good, except in some southeastern areas. As in Gojam, area expansion and modest yield increases are expected to raise production by 15%, to 719,000 MT.

Hararghe. Many lower elevation areas of Hararghe have suffered several consecutive years of drought. In 1984, 21% of the region was designated as drought-affected and production was reduced by 35%. This year inadequate rains have harmed corn and sorghum yields. The dryness has also aggravated and encouraged borer problems in both crops. Sixty percent of the corn and sorghum crop will be affected by drought, borer, or both. These effects will be somewhat compensated for by an estimated 10% area expansion in response to last year's drought and government exhortation. Some lower elevation areas will suffer complete crop failure. Overall, production is expected to be 372,000 MT, a 19% reduction from normal.

Illubabor. Illubabor was almost unaffected by the drought in 1984, with no area designated as drought-affected, and

with only a 5% decline in production. Rain has been good this year, and NOAA suggests higher than average yields. Production will be 5% above normal at about 203,000 MT.

Kefa. Kefa was almost unaffected by the drought, with no area designated as drought-affected and production reduced only 10%. This year, despite some initial local rainfall problems, rain has been good, crops were planted early, and production is expected to be normal, at 348,000 MT.

Shoa. Last year, the drought had a devastating effect in the northern awrajas bordering Wello, as well as in the southern corn and sorghum areas. While only 11% of the region was designated as drought-affected, production last year was reduced by 31%. This year area planted and yields are normal throughout the region, except in the three most northerly awrajas, where both planted area and yields will remain significantly below normal. The area reduction in these areas is an after-effect of the 1984 drought. Although there has been an expansion of meher season production onto fields where the belg crop failed, this expansion is dwarfed by the drought-induced reduction in planted area. The yield reduction is due to moisture stress on lowland crops plus drought-related cricket infestation (as in Wello and Tigray) on lowland teff causing very late replanting. 1986 belg is assumed to be 70% of normal. Production is expected to be 1,778,000 MT, or 6% below normal.

Sidamo. Last year the drought reduced production by about 30%, with 14% of the region designated as drought-affected. This year, early army worm infestations were brought under control. Inadequate rainfall in many cropping areas is likely to reduce corn yields by 40% on 40% of cropped area in Wollaita and Sidamo awrajas. Moisture stress in parts of Sidamo is confirmed by NOAA satellite imagery; for Wollaita, there are several reports of pockets of moisture stress, unconfirmed by NOAA. Production will be 170,000 MT, 11% below normal.

Tigray. The 1984 drought reduced production by 60%, with 60% of the region designated as drought-affected. This year there has been a reduction in area planted; rain has been very good in some areas, but inadequate in others. Pest problems related to the drought (including the drought-induced problem of crickets eating teff, which has also occurred in Wello) have reduced yields in southern Tigray. Production is expected to be 171,000 MT, 30% below normal.

Wollega. While none of the region was designated as drought-affected as a result of the 1984 drought, production last year was down 16%, and the effects of the drought continue to be felt among some people. This year, rainfall has been good, and area under cultivation has expanded approximately 14%. Yields are expected to be normal, except for maize and sorghum where borer and other pest problems will reduce regionwide yields by 10%. Total production is expected to be 619,000 MT, 6% above normal.

Wello. Last year Wello was one of the worst-affected drought areas, with 72% of the region designated drought-affected, and production reduced by 70%. The 1984 drought only compounded the effects of one or more previous drought years in many parts of the region. The drought of 1984/85 and preceding years has led to a

substantial reduction in the area planted this year. This is due in part to scarcity of seed, although this appears to be less of a constraint than previously believed: Farmers appear to have done whatever was necessary, including selling animals or even donated food, in order to buy grain for seed. More important determinants of reduced area are population displacement, hunger-induced weakness, and lack of oxen. The reduction in planted area is not so evident from the main Dese-Alamata road, but is reported to be quite serious away from the road, where population displacement and weakness due to the long trek to dry distribution sites are likely to have been more serious than in the areas along the road. We assume a 20% reduction from normal area in the dega areas (highlands), and a 30% reduction in the waina-dega (intermediate elevation) and kola (lowland) areas. An across the board yield reduction of 5% is the result of poor cultural practices (due to population displacement, hunger, and early harvest of the green crop). In addition, the lowland corn/sorghum crop is suffering serious moisture stress (as confirmed by NOAA) and the lowland teff crop, planted only in early September due in some places to replanting after pest infestation, and in others to delayed rain, is unlikely to yield much unless the rains continue two to three weeks beyond their normal date of cessation. The 1986 belg crop is assumed to be 60% of normal. Overall, the 1985/86 prospect for all cereal and pulse crops is expected to be 461,000 MT, 60% of normal production.

New Settlement Areas. Ethiopia has had resettlement projects for a number of years. Most of these pre-date or took place during the 1979/80-1983/84 baseline period. Their effects on production are captured in the baseline production data and there is therefore no reason to consider them separately. However, the hasty resettlement of half a million people during 1984 and 1985, because it occurred after the 1979/80-1983/84 period, is not included in the baseline production data. It is therefore considered separately on Table III-18. Optimistic forecasts of production in these new resettlement areas see them as attaining only 50% of food self-sufficiency in 1985/86.

Effect of Fertilizer. It is impossible to say with certainty whether fertilizer availability is higher or lower than the 1979/80-1983/84 baseline period. There are two widely contradictory estimates, shown on Table III-19. Assuming a 100 kg. application would increase yields by half a ton, one estimate would reduce production this year by 75,000 MT of cereal, the other would increase it by 50,000 MT of cereal. Since the high estimate is based on imports and not distribution, since the low estimate is confirmed by reports of unusual fertilizer shortages in several regions, and since much fertilizer distributed to the regions has not actually been used by farmers, the low estimate is probably the closer one. However, without being able to verify these estimates, we will "split the difference" and assume a reduction of 25,000 MT cereal production from normal due to reduced fertilizer availability.

Enset or False Banana Production. This root crop has suffered severe losses due to bacterial blight for the past two seasons. It takes approximately three years to produce adequately, so any new plantings to compensate for

the blight will not come to maturity for another twelve months. Our estimate simply reiterates last year's FAO estimate of a harvest of 525,000 MT (in cereal equivalent). This is a reduction of 13% below normal.

Milk Production. Modest reductions from normal milk production are expected for camels, goats, and highland cattle as a result of the 1984 drought. The devastating effect of the drought on lowland pastoral cattle herds will be felt well beyond the next year. Milk production is expected to recover somewhat in 1985/86, with 1,036,000 MT (or 207,000 MT in cereal equivalent) being produced. This is still a 32% reduction below normal.

Vegetable Production. Government encouragement, NGO seed, and high prices have resulted in a major expansion in vegetable gardening in both urban and rural areas. It is impossible to make even an order of magnitude estimate of the contribution of expanded vegetable gardening; it could be as high as 2%-3% of normal production.

Storage. In those productive areas which will produce a surplus this year, storage is a factor in determining the amount of production available for consumption. Many of those areas suffered from last year's drought, and drew down on their on-farm stores in order to survive the year. Even with continued high food prices in 1986, many farmers will build their on-farm stores back up in order to have a security stock against future shortfalls. This rebuilding of on-farm stores will reduce the amount of 1985/86 production available for consumption in 1985/86. It is impossible to know the extent of rebuilding of stocks; it is assumed here that the negative effect of stocks rebuilding in some areas on overall 1985/86 food availability will be more or less compensated for by the positive effect of expanded vegetable production, mentioned above. Neither of these factors is calculated into the overall food production estimate.

Optimistic and Pessimistic Scenarios. The preceding analysis, and the Tables on which it is based, are premised on a number of assumptions about the weather. These assumptions are that existing rainfall patterns will continue (as they would in a normal year) through mid-September; that October frost and dessicating winds will exert their normal damage, but not more, on standing crops; and that the 1986 belg rains will be much improved over the past two years in important belg areas, but still below the 1979/80-1983/84 average. Two alternative scenarios are constructed below.

The pessimistic scenario, which could reduce production nationwide by 10%, is that the rains stop in early September, exacerbating moisture stress problems in lowland areas of Sidamo, Shoa, Wello, Tigray, Eritrea, and Hararghe. The early cessation of the rains would also lead to extremely low teff yields in the lowlands of Wello, Tigray, and Eritrea. The pessimistic scenario also involves dessicating winds hurting corn and sorghum yields in the rift valley of Arsi and Shoa, and severe frost damaging highland crops throughout the country. None of these weather impacts would harm milk or enset production.

The optimistic scenario could increase cereal and pulse production by 5%. (At this late date there is much

greater potential for yield reduction due to unfavorable weather than for yield increase due to favorable weather.) This scenario would see below-normal frost and hot winds, thus increasing average yields in the highlands and the rift valley. This scenario would also see a prolongation of the rain into late September, thus saving substantial portions of lowland corn and sorghum threatened by crop failure, and raising yields on substantial portions of the remaining lowland corn and sorghum crop. Prolongation of the rains would also increase yields on late-planted lowland teff in Wello, Tigray, and Eritrea. Finally, in this optimistic scenario, 1986 belg rain would be perfectly timed, permitting higher than usual belg production.

TABLE III-1: Total Expected Food Production Available for Consumption in 1986
(000 MT)

A.	Cereal/Pulse Production[1]	6,861
B.	Enset[2]	525
C.	Subtotal (A+B)	7,386
D.	Less Storage Losses (15%)[3]	1,108
E.	Less Seed Requirements[3]	325
F.	Subtotal (C-D-E)	5,953
G.	Milk Production[4]	207
H.	Total (F+G)	6,160

Notes:

1 From Table III-2
2 FAO, in cereal equivalent
3 See notes, Table II-2
4 From Table II-6, in cereal equivalent

TABLE III-2: Expected 1985/86 Cereal/Pulse Production, by Region[1]
(000 MT)

	Expected 1986 Production
Arssi	582
Bale	152
Eritrea	160
Gamo Gofa	124
Gojam	976
Gonder	719
Hararghe	372
Illubabor	203
Kefa	348
Shoa	1,778
Sidamo	170
Tigrai	171
Wollega	619
Wollo	461
Resettlement	51
Fertilizer Reduction	(25)
TOTAL	6,861

Notes:

1 From Tables III-4 to III-19

TABLE III-3: Available Farmland per Rural Worker[1] (HA)

Arssi	.54
Bale	.45
Eritrea	--
Gamo Gofa	.28
Gojam	.53
Gondor	.57
Hararghe	.26
Illubabor	.32
Kefa	.29
Shoa	.36
Sidamo	.16
Tigray	--
Wollega	.45
Wollo	.12

Notes:

1 From Ethiopia, Ministry of Agriculture, FAO, UNDP Assistance to Land Use Planning: Data Book on Land Use and Agriculture, Vol. 1, p. 181. Includes land in annual crops and permanent crops. Excludes grazing land.

TABLE III-4: Expected 1985/86 Production, Arssi

Crop		Production (000 MT)
Total Cereal/Pulse[1]	A. 5-yr average	514
	B. 1985 (Ax5%)	540
Adjusted for Population[2]		
	C. 5-yr average	554
	D. 1985	582

Notes:

1 Excellent rainfall in timing and quantity. Assume 5% average increase in yields.

2 Area expansion at 2% p.a. on good quality land, so 95% of normal yield. Composite population factor = .95 x .02 = 1.9% per year from 1981/82 (mid-point of the 1979/80-1983/84 baseline data series) through 1985/86.

TABLE III-5: Expected 1985/86 Production, Bale

Crop		Production (000 MT)
Total cereal/pulse	A. 5-yr average	141
	B. 1985	141
Adjusted for population[1]	C. 5-yr average	152
	D. 1985	152

Notes:

1 Area expansion at 2% p.a. Also assume available land is relatively fertile, so yields on new land 95% of normal. Composite population factor = .95 x .02 = 1.9%.

TABLE III-6: Expected 1985/86 Production, Eritrea

Crop		Production (000 MT)
Total cereal/pulse	A. 5-yr average	188
	B. 1985 (-20%)	150
Adjusted for population[1]	C. 5-yr average	200
	D. 1985	160

Notes:

1 2% p.a. increase in area at 80% of normal yield = 1.6 p.a. since 1982 mid-year of 1979/80-1983/84 period.

TABLE III-7: Expected 1985/86 Production, Gamo Gofa

Crop		Production (000 MT)
Total cereal/pulse	A. 5-yr average	116
	B. 1985	116
Adjusted for population[1]	C. 5-yr average	124
	D. 1985	124

Notes:

1 Area expansion at 2% p.a., but new land of lower quality, so 80% of normal yield. Composite population factor = .02 x .8 = 1.6%.

TABLE III-8: Expected 1985/86 Production, Gojam

Crop		Production (000 MT)
Total Cereal/Pulse	A. 5-yr average	787
	B. 1985 (15%xA)	905
Adjusted for Population[2]		
	C. 5-yr average	848
	D. 1985	976

[1] Assume 10% increase in area due to planting on normal fallow and range land. Also assume 5% increase in yields due to early onset of rain and intensive cultural practices. Total increase over normal production = 15%.

[2] Assume no land constraint, so land expansion at 2% p.a. Also assume new land is still fertile, so yields are .95 of normal. Composite population factor = .02 x .95 = 1.9.

TABLE III-9: Expected 1985/86 Production, Gonder

Crop		Production (000 MT)
Total Cereal/Pulse	A. 5-yr average	580
	B. 1985 (15%xA)[1]	667
Adjusted for Population[2]		
	C. 5-yr average	625
	D. 1985	719

Notes:

[1] Assume 10% increase in area due to planting on normal fallow and range land; also assume 5% increase in yields due early onset of rains and intensive cultural practices. Total production increase = 15%.

[2] Area expansion at 2% on land yielding 95% of normal. Composite population factor = .2 x .95 = 1.9%.

TABLE III-10: Expected 1985/86 Production, Hararghe

Crop			Area (000 Ha)	Yield (Kg/Ha)	Producti (000 MT
Maize	A.	5-yr average	49	1,851	91
	B.	1985 (+10%)	54(1.1xA)	-	--
	BB.	Normal	22(40%xB)	1,851	41
	C.	Corn borer	16(30%xB)	1,296(70%xA)[1]	21
	D.	Drought	16(30%xB)	1,111(60%xA)[2]	18
	E.	Subtotal(C+D)			80
Sorghum	F.	5-yr average	161	1,741	280
	G.	1985(+10%)	177(1.1xF)	--	--
	H.	No problems	71(40%xG)	1,741(F)	124
	I.	Stalk borer	53(30%xG)	1,567(90%xF)[3]	83
	J.	Drought	53(30%xG)	0(0%xF)[3]	0
	K.	Subtotal(H+I+J)			207
Other Cereals					
	L.	5-yr average			44
	M.	1985[4]			44
Pulses	N.	5-yr average			18
	O.	1985[4]			18
Total Cereal/Pulses					
	P.	5-yr avg.(A+F+L+N)			433
	Q.	1985 (E+K+M+O)			349
Adjusted for Population[5]					
	R.	5-yr average			461
	S.	1985			372

Notes:

[1] Maize yield reduction due to borer = 24-36%, FAO, Improvement and Production of Maize, Sorghum, and Millet.

[2] Maize yield reduction due to moisture stress during critical June-July period = 30-50%, FAO Improvement and Production of Maize, Sorghum, and Millet.

[3] Large expanses of lower elevation sorghum fields will suffer complete crop failure due to inadequate rainfall. Assume borer reduces sorghum yields 10%.

[4] Assume modest area expansion and yield reduction due to moisture stress cancel each other out.

[5] 2% p.a. increase in area at 80% of normal yield; composite population factor = 1.6% p.a. since 1982, mid-year of 1979/80-1983/84 period.

TABLE III-11: Expected 1985/86 Production, Illubabor[1]

Crop		Production (000 MT)
Total cereal/pulse	A. 5-yr average	181
	B. 1985 (Ax1.05)	190
Adjusted for Population[2]	I. 5-yr average	193
	J. 1985	203

Notes:

[1] 5% average increase in yields.

[2] Area expansion at 2% p.a., but onto lower fertility land, so yields are 80% of normal. Composite population factor = .02 x 8 = 1.6%.

TABLE III-12: Expected 1985/86 Production, Kefa

Crop		Production (000 MT)
Total cereal/pulse	A. 5-yr average	327
	B. 1985	327
Adjusted for Population[1]	C. 5-yr average	348
	D. 1985	348

Notes:

[1] Area expansion at 2% p.a., but onto lower fertility land, so yields at 80% of normal. Composite population factor = .02 x .80 = 1.6%.

TABLE III-13: Expected 1985/86 Production, Shoa

Crop		Production (000 MT)
Main Season Cereal/Pulse	A. 5-yr average	1,720
	B. 1985 (.95xA)[1]	1,634
Belg Season Cereal/Pulse[2]	C. 5-yr average	50
	D. 1985 (.7xC)	35
Total Cereal/Pulse	E. 5-yr average(A+C)	1,770
	F. 1985 (B+D)	1,669
Adjusted for Population[3]	G. 5-yr average	1,886
	H. 1985	1,778

Notes:

[1] Assume normal yields and normal area except in three most northerly awrajas, where area planted is down 33% and average across the board yield reduction may be 20%. Yield reduction is due to late planting, poor cultural practices due to farmers' drought-induced weakness, moisture stress on lowland corn and sorghum, and widespread pest attacks on lowland teff, resulting in very late replanting. Reduced production in the north = 33% + (20% x remaining 66% of area = 46% reduction. Since these three awrajas represent 11% of total rural population (and therefore roughly 11% of normal production), assume regionwide yield reduction = .11 x .46 = 5%.

[2] Assume 70% of normal production, which is well in excess of last two years' belg harvest.

[3] Area expansion at 2% onto lower quality land at 80% of normal yield. Composite population factor = .2 x .8 = 1.6%.

TABLE III-14: Expected 1985/86 Production, Sidamo

Crop		Area (000 Ha)	Yield (Kg/Ha)	Production (000 MT)
Maize	A. 5-yr average	75	1,719	129
	B. 1985[1]	75	--	--
	C. Drought-affected[1]	30(40%xB)	1,031(Cx60%)	31
	D. Normal	45(60%xB)	1,719	77
	E. Subtotal(C+D)			108
Other Cereals				
	F. 5-yr average			54
	G. 1985			54
Pulses	H. 5-yr average			8
	I. 1985			8
Total Cereal/Pulse				
	J. 5-yr average			191
	K. 1985			170
Adjusted for Population[2]				
	L. 5-yr average			191
	M. 1985			170

Notes:

[1] Severe moisture stress in many areas during critical June-July period will reduce maize yields 30-50% (FAO, Improvement and Production of Maize, Sorghum, and Millet).

[2] Severe land constraint; no land expansion under population pressure.

TABLE III-15: Expected 1985/86 Production, Tigrai

Crop		Production (000 MT)
Total Cereal/Pulse	A. 5-yr average	228
	B. 1985	160
Adjusted for Population[2]	C. 5-yr average	243
	D. 1985	171

Notes:

[1] Reduced area and yields will make for a decline from normal production of approximately 30%.

[2] Area expansion 2% p.a. on new land at 80% of normal yield. Composite population factor = .2 x .8 = 1.6%.

TABLE III-16: Expected 1985/86 Production, Wollega

Crop	Area (000 Ha)	Yield (Kg/Ha)	Production (000 MT)
Maize/Sorghum			
A. 5-yr average	195	1,720	335
B. 1985	220(Ax13%)[1]	1,548(A-10%)[2]	340
Other Cereals			
C. 5-yr average			185
D. 1985(Cx13%)[1]			209
Pulses			
E. 5-yr average			23
F. 1985(Cx13%)[1]			26
Total Cereal/Pulse			
G. 5-yr average			543
H. 1985			575
Adjusted for Population[3]			
I. 5-yr average			586
J. 1985			619

Notes:

[1] Area expansion 14% this year, onto fertile land yielding 95% of normal. Composite yield/area expansion factor = .14 x .95 = 13%.

[2] Assume across the board average yield reduction of borer is 10%.

[3] Area expansion at 2% p.a. Also assume available land is relatively fertile, so yields are 95% of normal. Composite population factor = .95 x .02 = 1.9%.

TABLE III-17: Expected 1985/86 Production, Wello

Crop		Area (000 ha)	Yield (kg/ha)	Production (000 MT)
Barley/Wheat[1]				
	A. 5-yr average	100	1,250	125
	B. 1985	80(80%xA)	1,188(95%xA)	95
Corn/Sorghum[2]				
	C. 5-yr average	176	1,640	289
	D. 1985	123(70%xC)	1,558(95%xC)	--
	E. Normal	62(50%xD)	1,558	97
	F. Moisture Stress	61(50%xD)	935(60%xD)	57
	G. Subtotal (E+F)	--	--	154
Teff[3]	H. 5-yr average	114	1,080	123
	I. 1985	80(70%xH)	1,026(95% of H)	--
	J. Normal	40(50% of I)	1,026	41
	K. Late plant/pest	40(50% of I)	513(50% of I)	21
	L. Subtotal	--	--	62
Other cereals/pulses[4]				
	M. 5-yr average	--	--	164
	N. 1985 (.66 x M)	--	--	108
Belg[5]	O. 5-yr average	--	--	70
	P. 1986 (.6 x O)	--	--	42
Total	Q. 5-yr average (A+C+H+M+O)			771
	R. 1985/86 (B+G+L+N+P)			461
Adjusted for Population				
	S. 5-yr average (Q)			771
	T. 1985/86 (R)			461

Notes:

[1] Both wheat and barley are highland (dega) crops where area is estimated to have declined 20% below normal, and yields 5% due to poorer land preparation, weeding, and other cultural practices as a result of population displacement, oxen scarcity and famine-induced weakness. Area reduction is also due in part to land of resettlers not yet being granted to (or cultivated by) people who remain behind.

[2] Corn and sorghum are intermediate (waina-dega) and lowland (kola) crops. Reduction from area planted is approximately 30% in these areas. Also yield reduction of 5% due to bad cultural practices (as for wheat and barley) as well as to very early harvest while still green. Assume corn/sorghum in waina-dega (50%) has no other yield problems, while the 50% in kola areas averages 40% reduction in yield due to moisture stress. (See note 2, Table III-10.)

[3] Teff is grown in both waina-dega and kola areas, so as with corn/sorghum, assume 30% area reduction, and 5% yield loss due to poor cultural practices. Assume the 50% of teff in waina-dega otherwise yields well, but the 50% in kola suffers 50% yield loss due to drought-induced pest infestation and to very late replanting.

[4] For other cereals and pulses assume 30% reduction in area due to both population displacement and seed scarcity, and 5% yield reduction due to poor cultural practices. Composite area - yield reduction = .7 x .95 = .66.

[5] Calculated for wheat/barley/teff. Other, less important belg crops are included in the 1985 meher season estimates. Assume 1986 belg is similar to 1985 disappointing belg harvest, at 60% of normal.

[6] Assume severe land constraint; no expansion of area planted since 1979/80 - 1983/84 period.

TABLE III-18: Expected 1985/86 Production from New Resettlement Areas[1]

A. Settlers: 500,000

B. Per capita production required for self-sufficiency = 204 kg.[2]

C. Total self-sufficient production = 102,000 (AXB)

D. 1985/86 Production = 51,000 MT (Cx.5)

Notes:

[1] Production from older resettlement areas is captured in the 1979-83 baseline data on which this report's 1985 regional estimates rely. The government's current resettlement of 500,000 people, however, is not captured in that baseline period, and therefore its effect on production needs to be analyzed separately in this table.

[2] Allowing for 20% seed/losses to get to 163 kg. per capita consumption requirement.

TABLE III-19: Fertilizer Use on Peasant Farms[1] (000 MT)

1979/80	49
1980/81	42
1981/82	31
1982/83	32
1983/84	46
Average 1979/80 - 1983/84	40
1985/86 Estimate #1	25
1985/86 Estimate #2	50

Notes:

[1] Estimates come from various government and donor sources.

IV. SOURCES OF FOOD SUPPLY IN ADDITION TO DOMESTIC PRODUCTION

Two significant sources of food supply for 1986 will come from carryover stocks and commercial imports.

WFP estimates carryover food aid stocks as of December 31, 1986, as likely to be between 180,000 MT and 211,000 MT. This assumes arrival of all 1985 food aid pledges and assumes port offtake approximating July offtake. If offtake increases (due to greater truck availability), carryover stocks will be reduced and 1986 food needs correspondingly increased. The lower figure of 180,000 MT is therefore used here. The WFP food security stock is currently depleted. If it is replenished before December 31, its replenishment will come from either AMC November-December purchases (already counted in Section 3 under 1985/86 production) or from food aid carryover stocks (already counted here).

Additional stocks will be available in AMC. However, most of these stocks are likely to come from the November-December 1985 harvest in the surplus-producing areas. Since the total November-December 1985 harvest is included in the "production" estimate in Chapter IV, no portion of it should be counted again here.

The other relevant carryover stock estimates would therefore be from commercial imports and AMC stocks from the 1984-85 harvest. It is reasonable to assume that by December 31, 1985, AMC's carryover stocks will include no grain from the 1984-85 harvest, given the disastrous amount of that harvest and AMC's reduced purchases compared to previous years (see Table IV-1). It may also be reasonable to assume that the percentage of 1985 official commercial imports carried over into 1986 matches the percentage of food aid imports carried over into 1986. This makes sense since both commercial and food aid imports face similar port congestion problems. 1985 food aid pledged to date is approximately 1.1 million tons. Expected carryover food aid stocks of 180,000 tons constitute 16% of total food aid. Using the same percentage for 1985 commercial imports (projected at 240,000 tons) gives a figure of 38,000 tons. The 38,000 ton figure will therefore be used as a rough approximation of carryover stocks of commercial imports. Total carryover stocks (excluding 1985 production which is enumerated in Chapter IV) thus amount to 218,000 tons (38,000 commercial and 180,000 food aid).

One other source of carryover stocks is represented by privately held on-farm stores. There is absolutely no data on the magnitude or location of such stores. It is possible only to make educated guesses about on-farm stores. First, as with AMC stores, we should estimate only stores from the main season 1984 harvest and the 1985 belg harvest. 1985/86 production, which is estimated in its entirety in Section III, should not be counted again here. Second, given the poor 1984/85 harvest (even in the surplus-producing regions of Gojam, Arssi, and parts of Shoa) it is likely that on-farm stores are well below normal. If there are areas which still have substantial on-farm stores from the 1984/85 harvest, or previous years (which is unlikely), they are likely to sell them now (to fill an as-yet large unmet 1985 consumption need) rather

than trying to hold them beyond the November-December period. This is because the November-December harvest in those surplus regions is expected to be a good one possibly leading to reduced parallel market prices. Finally, because of the poor 1984/85 harvest the most probable overall net effect of on-farm storage is to increase rather than reduce the 1986 food deficit. This is because during 1985 on-farm stores were probably substantially depleted both for home consumption in badly-affected areas and for sale at high parallel market prices in other areas. Some of these stores, which provide farmers with insurance against future bad harvests, are likely to be built back up in 1986 and will not be consumed during the year in areas of the country which produce a surplus this year. This effect has been alluded to in Section III.

The other source of food for consumption comes from commercial imports. It is impossible to predict what commercial imports will be, but there are some indicators which can be used. The AID (FVA) recommended method is to project commercial food imports on the basis of their historic share in total imports, and then relate that to anticipated foreign exchange availability. Using this method the USDA has projected 1986 commercial cereal imports at 79,000 MT. An alternative method is simply to use past commercial import levels, which from 1979/80 to 1983/84 average 67,000 MT, as shown on Table II-4. The USDA estimate of 79,000 MT is used here.

An additional source of commercial imports in many African situations are those coming into the country through parallel market channels and which are not recorded in official trade figures. The World Bank has done extensive studies of the Ethiopian grain market in the past two years, has found no evidence of a parallel cross-border import market, and believes such a market not to exist. The IMF has found no such evidence, either. Intuitively, it is hard to imagine such a market in Ethiopia for several reasons. First, Ethiopia has a more tightly controlled grain market than any of its neighbors; traders and transporters know they may get caught and sanctioned for trading on the parallel market. Second, transport costs from producing regions of any of Ethiopia's neighbors to locations of effective demand within Ethiopia are quite high. If there is any evidence of cross-border trade, it is in the other direction. There have been occasional reports of minor leakages of food aid out of Ethiopia and into southern Sudan. Therefore, the estimate of official commercial imports of 79,000 tons quite likely represents all commercial imports.

TABLE IV-1: AMC Purchases of Domestic Food Production[1]
(000 MT)

1976/ 1977	1977/ 1978	1978/ 1979	1979/ 1980	1980/ 1981	1981/ 1982	1982/ 1983	1983/ 1984	1984/ 1985
103	124	136	260	405	555	309[2]	220[2]	237

Notes:

[1] World Bank data, except 1982/83-1983/84, from FAO.

[2] Excludes purchases from state farms. If included, 1982/83-1983/84 figures would approach or exceed 555,000 level from 1981/82.

V. FOOD DEFICIT: STRUCTURAL DEFICIT AND EMERGENCY FOOD NEED

The preceding sections provide the basis for estimating the 1986 food deficit and food need in Ethiopia. The overall food deficit is simply total available food from domestic sources (including carryover stocks), subtracted from consumption requirements. Line E of Table V-1 shows the overall food deficit for 1986 as being 854,000 MT. When commercial imports are netted out of this, the 1986 food need requirement is 775,000 MT.

It is generally important to distinguish between that part of a food deficit which is chronic and long-term (the structural deficit) and that part which is the result of the current drought and famine emergency. A structural food deficit is the portion of a food deficit resulting from long-term policy, investment, or land capacity factors which have a negative effect on production even in years of good weather. Because of the exceptional response of surplus-producing areas to the drought, it appears that there will be only a small structural deficit in 1986 filled by a limited quantity of commercial imports. The entire food aid requirement will represent continuing emergency need. This is explained below.

Ethiopia's chronic structural deficit has resulted in past years from disincentive pricing and marketing policies, inadequate investment in the small farm sector, and population growth in excess of the growth of cultivated area. U.S. Title II food aid can be used only to assist in meeting the emergency portion of the deficit, not the structural portion. The structural deficit (which will shrink in 1986) will persist in future years and, because of growing population, expand long after the current drought and famine emergency has ended unless major changes in agriculture, rural investment, and population policies are undertaken.

Dividing the overall deficit into structural and emergency portions is not an easy task. Weather is the major factor affecting production. Because weather is random and unpredictable, there is no clearly identifiable trend in the size of the food deficit which would allow easy identification of the structural deficit in years of no emergency. Line F of Table V-2 compares the overall deficit from 1979/80 through 1984/85, and demonstrates the elusiveness of any trend.

So tracing the evolution of the overall deficit does not help in isolating the structural deficit because the unpredictable effects of rainfall prevent any clear trend from emerging. There is, however, a good indicator of the chronic structural deficit. This is the level of overall food imports (both commercial and food aid) in years past, normal years with no drought emergency. The level of past food imports, and their evolution over years when there was no emergency, may be a very good indicator of the size of the structural deficit. However, food imports, like production, are closely related to the weather. But the weather-induced peaks and valleys in food imports can be smoothed out by using a five-year moving average, as on Table V-3. This provides a good indication of the non-emergency portion of the deficit, since the data series ends before the current drought and begins after the drought and political turmoil of 1974-75. Projecting the trend of growth in total imports from this non-emergency period to 1986 would lead to an expected structural deficit of 352,000 MT in 1986.

However, it appears that for 1986 there will be a major but temporary reduction of the structured deficit. The expected 352,000 MT structural deficit will not materialize. Excellent weather in the surplus-producing regions has combined with an exceptional expansion of area planted in Gojam and Gonder in response to the 1984 drought. The result is that the increment over normal surplus production in these areas (Table V-4), when combined with expected commercial imports, slightly exceeds the trend projection for the chronic long-term structural deficit. Table V-5 shows this. The lessons to be drawn from this for government policy are discussed in the summary and conclusion.

All of the 775,000 MT of food aid requirement is therefore to meet emergency needs. The food aid will be used in its entirety to feed hungry people at risk as a result of the emergency situation, who have no alternative sources of supply. Neither commercial imports, nor the above-normal surplus supply mentioned above will go to the areas suffering continued effects of the drought and famine. People in these areas are not among the favored populations receiving commercial imports. And after prolonged drought, disinvestment, and (for many) another poor harvest two months from now, hungry people in these areas will have no income in 1986 to use in purchasing the surplus production of other areas.

How is it that in a year of reasonably good weather, the CY 1986 emergency food requirement is still greater than 50% of the 1985 estimated need of 1.3 million MT? The explanation lies in that 1985 figure. First, the 1.3 million MT was based on the higher 1.5-1.7 million MT of need estimate of the RRC, reduced to a reasonable assessment of the maximum import capacity of the ports. Second, even that 1.5-1.7 million MT figure substantially underestimated the drought-related emergency food requirement for 1985. The reason is that it was based only on enumeration of the food needs of people at risk. It did not also include the substantially reduced production of normally surplus areas which also suffered from the drought. The 1984/85 column of Table V-2 estimates a much greater food need than 1.5-1.7 million MT. The structural part of the 1985 food deficit would have been approximately 331,000 MT to judge from the trend on Table V-3. When this 331,000 MT structural requirement is removed from the 1984/85 food deficit figure on Table V-2, the 1984/85 emergency requirement remains quite high, approximately 2,100,000 MT. So the reason that the expected 1986 food deficit is still high compared to 1985 is not that the 1986 estimate is overly pessimistic, but rather than the 1985 figures used by the RRC, UNASG, and donors substantially underestimated emergency needs in 1985.

Two alternative scenarios of CY 1986 food need have been constructed, as shown in Table V-6, based on the optimistic and pessimistic crop production scenarios set out in Section III. The optimistic food need estimate is 483,000 MT. The pessimistic one, which includes assumptions of lower production as well as greater than anticipated rebuilding of on-farm stores, is 1,358,000 MT.

An emergency food requirement for the 1986 fiscal year has also been calculated. The FY86 emergency food need is calculated from CY85 and CY86 data. There are three different FY86 calculations, depending on which CY85 emergency food estimate is used. The consensus donor estimate of CY85 needs is 1.3 million MT, but it appears far too low. A more reasonable estimate of CY85 emergency food need (not including the structural deficit) is 2.1 million MT for the current year. However, port and transportation capacity will not permit the monthly distribution rates from October to November 1985 which are implied by the CY85 figure of 2.1 million MT. So a third FY85 emergency food need estimate is made adjusting the high October-December figure downward to reflect expected port and transportation capacity. This capacity is 110,000 MT per month, or 330,000 MT for the October-December 1985 period. All three estimates of FY86 emergency food requirements are shown on Table V-7.

TABLE V-1: CY 1986 Food Deficit
(000 MT)

A.	Production available for 1986 consumption[1]	6,160
B.	Carryover stocks[2]	218
C.	Total food available from domestic sources	6,378
D.	Consumption requirements[3]	7,232
E.	CY 1986 food deficit	854
F.	Less commercial imports[2]	79
G.	CY 1986 food need requirement	775

Notes:

1 From Table III-1
2 From Section IV
3 From Table II-2

TABLE V-2: Food Deficit as Calculated from National Food Balance Sheet, 1979/80-1985/86
(000 MT)

	1979/1980	1980/1981	1981/1982	1982/1983	1983/1984	1984/1985
A. Gross Crop Production[1]	7,997	7,032	6,802	8,285	6,751	5,078[4]
less post-harvest losses[2]	1,200	1,055	1,020	1,243	1,013	381
less seed requirements[3]	325	325	325	325	325	215
B. Net Crop Production Available for Consumption	6,472	5,652	5,457	6,717	5,413	4,482
C. Milk Offtake[5]	304	304	304	304	304	152
D. Total Food Available for Consumption without Imports (B+C)[6]	6,776	5,956	5,761	7,021	5,717	4,634
E. Normal Consumption Requirement[7]	6,200	6,361	6,527	6,697	6,871	7,050
F. Total Food Deficit	(576)[8]	405	766	(324)[8]	1,154	2,416
G. Total cereal imports[9]	397	210	280	325	511	1,100
H. Food Aid Provided[9]	134	152	182	298	458	1,100

Notes:

1 From Table II-3

2 15%, as explained Table II-2, note 2. For 1984/85, assume half of normal storage losses (i.e., 7.5%) due to shorter storage period (as food ran out) and dryness. In the opinion of the author, post-harvest storage losses are often over-estimated in African countries. However, in Ethiopia the bimodal rainfall pattern and high humidity in normal years likely make storage losses significantly greater than in drier countries. Even if storage losses are in fact less than 15%, the effect on the food deficit calculation would be very minor, since 15% has also been taken out of the consumption estimates; see item A, Table II-2.

3 From Table II-5; assume seed available reduced by one-third in 1984/85.

4 From FAO estimate of 4,115, reduced by 33, since FAO forecast March/May 1985 belg at 200, and actual production was approximately 163. (Calculated from RRC Belg Report).

5 From Table II-6, milk production tonnage reduced to caloric equivalent in terms of cereal tonnage.

6 Carryover stocks, for which information is not available, are not included.

7 From Table II-2, adjusted for 2.6% population growth p.a.

8 Surplus.

9 From Table II-4.

TABLE V-3: Growth of Total Cereal Imports, 1971-1983
(000 MT)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Imports	69	128	121	10	0.13	92	192	213	248	397	210	280	325
5-Year Moving Average					66	70	83	101	149	228	252	279	292

Growth rate per year, 1976-1983 = 6.4% p.a.
Projected in 1986 = 352

Notes:

1971 through 1973 figures come from CSO Statistical Abstract.

1974 through 1983 figures come from FAO Trade Yearbooks. Includes both commercial and food aid sources.

TABLE V-4: Above-Normal Production in Surplus Regions, 1985/86
(000 MT)

	Normal	1985	Increment
Arsi	554	582	28
Gojam	848	976	128
Gonder	625	719	94
Illubabor	193	203	10
Wollega	586	619	33
TOTAL			293

TABLE V-5: Sources of Food to Eliminate Expected CY 1986 Structural Deficit
(000 MT)

A.	Above-normal surplus production[1]	293
B.	Expected 1986 commercial imports[2]	79
C.	Total (A + B)	372
D.	Expected 1986 structural deficit[3]	352

Notes:

1 From Table V-4
2 From Section IV
3 From the trend in Table V-3

TABLE V-6: Optimistic and Pessimistic CY 1986 Food Need Scenarios

		Optimistic	Pessimistic
A.	Cereal/Pulse Production[1]	7,204	6,175
B.	Enset Production[2]	525	525
C.	Subtotal (A + B)	7,729	6,700
D.	Less Storage Losses (15%)	1,159	1,005
E.	Less Seed Requirements	325	325
F.	Total Available Crop Production(C-D-E)	6,245	5,370
G.	Milk Production	207	207
H.	Total Available Food Production	6,452	5,577
I.	Carryover Stocks	218	218
J.	Total Available from Domestic Sources	6,670	5,795
K.	Consumption Requirements	7,232	7,232
L.	1986 Food Deficit	562	1,437
M.	Less Commercial Imports[3]	79	79
N.	1986 Food Aid Requirement	483	1,358

Notes:

1 From Table III-2, adjust upward 5% and downward 10%.
2 Table III-1
3 Section IV

TABLE V-7: Alternative Estimates of FY86 Emergency Food Requirements (000 MT)

	I	II	III
	Using UN/Donor CY 85 Food Need	Using 2.1 Million CY85 Food Need	Using II, Adjusted for Port Capacity
October-December 85	1.3 million x 1/4(3 mo)=325	2.1 million x 1/4(3 mo)=525	330
January-September 86	775,000 x 3/4(9 mo)=581	775,000 x 3/4(9 mo)=581	581
Total	906	1,106	911

VI. SPECIFIC DEFICIT AREAS AND POPULATIONS NEEDING CONTINUED HELP

The emergency food requirement of 775,000 MT will feed hungry people suffering the continued effects of the 1984 drought. Who are these people? There are four groups of people who will benefit from 1986 food aid.

The first group, the worst-off but smallest of the three, is comprised of destitute people. The remaining camp population is included in this group. Also included are people who may have drifted to small towns or villages in better-off areas, as well as people who have returned to their homes but due to weakness, loss of assets, lack of seed, or time of arrival were unable to plant a crop, and therefore will be as reliant on food aid at harvest as they are now. They will need food aid throughout FY86, as well as assistance in getting a crop in next year. There may be a substantial portion of those destitute people who are away from home who are not getting food aid because they have no ongoing kebele affiliation.

The second group of people who will need food aid in 1986 is comprised of farmers who will get a very poor crop. These are farmers who did plant some area but who are located in pockets of continued moisture stress or other problems (like cricket infestation) related to the 1984 drought. Their harvest prospects are extremely poor, and they, too, will need food aid for the next 14 months, until the harvest in November-December 1986. They will also need assistance in getting a crop in next year.

The third group of people are those who have planted much of their land. However, due either to inability to plant all their land this year or to modest yield reduction resulting from continued effects of the 1984 drought, their harvest will be inadequate. Their harvest will provide sufficient food to carry them several months into 1986, but will not be adequate to carry them through the time of planting and field maintenance next year. These people will need either modest rations throughout 1986, or full rations for the last few months of the year.

The fourth group is pastoral herders. They have lost stock this year. Lactation in the cows that remain has been substantially reduced due to loss of calves. These herders will have a reduced supply of milk to consume and sell for grain in 1986, and some will need continued food assistance for part or all of 1986.

The second and third group of people, i.e., farmers who will get an inadequate harvest two months from now, find themselves in exceptional circumstances. Inadequate harvests, even very bad ones, are not uncommon. Ethiopian farmers generally survive bad harvests with no help from the outside world nor their government. They generally survive in such circumstances by drawing upon their grain stores from preceding years. When their grain stores are gone they sell assets to buy food. When they've sold their disposable assets there may be local informal social systems of distribution and mutual assistance where people on the edge of survival are helped by their better-off neighbors.

However, in 1986 none of these back-up systems are likely to operate in the most vulnerable areas. People consumed their grain reserves in 1984 and 1985. Those people who will continue to need help in 1986 are precisely the people who have been so hard hit that they have already sold off their ass ts in order to buy food or seed to plant last June. Most non-destitute farmers who will need help in 1986 are in areas where most or all of their neighbors have needed help as well, and the traditional social redistribution mechanisms can therefore not work.

The reason that none of the traditional mechanisms for avoiding famine in 1986 will work is that several consecutive drought years have exhausted their potential. It will take a few good production years for these traditional famine-protection mechanisms to build back up. As in Wello in 1974, consecutive drought years have eliminated these traditional mechanisms, so that the only two alternatives are food aid or famine. In 1974, famine was the result. In 1986, in those pockets of continued need, famine will not be the result.

Farmers who will need food aid in 1986 are located in several well-defined locations. Some destitute people, by contrast, have scattered to towns and better-off rural areas and are therefore not in as easily defined locations. Non-destitute farmers needing help are located in some parts of the lowland areas in several regions. They are located in those lowland areas which were the worst affected by the 1984 drought as well as in the lowland areas which have experienced severe rainfall problems or drought-induced pest problems this year. Some of these areas are extensive while others are small pockets bordering better-off areas. These areas and pockets of continuing food need in 1986 are overwhelmingly located in the lowland areas of Wello, Tigray, Eritrea, northern Sidamo, Hararghe and northern Shoa, and the pastoral areas of several regions. There are some highland pockets of continued need as well, and pockets of need in scattered lowland pockets of other regions.

In many of the areas of continued need, some farmers who have been receiving food aid will no longer need it. At the same time, there will be a few desperately needy people in kebeles who have not been receiving food assistance, or with no kebele affiliation at all. It is therefore critical in 1986 to get food aid only to those who need it, but to all of those who need it, even if they do not have the proper kebele affiliation.

Some kind of system is required to weed out those who no longer need help and at the same time to permit anyone who does need help to get it. Nutritional monitoring is one alternative. The other is food for work which is structured (either on the basis of low ration or social stigma) in such a way that participation is open to anyone but is unattractive to those who do not need food aid. Weeding out people who no longer need help is important for two reasons. It will discourage the erosion of local self-reliance which some NGOs already fear. And, by preventing free food distribution to people who would otherwise purchase some food, it will avoid disincentive pricing effects.

ANNEX A: Information on Food Need and Production

The major sources of information on crop production and food needs are described here. Table A-1 presents them in summary form. Table A-2 shows the time of year at which information from each source becomes available.

A) Central Statistics Office:

The CSO makes an annual crop production forecast and an annual crop production estimate. Both are based on extensive data collection from what appears to be a very well-designed sample of thousands of farmers throughout the country. CSO has staff stationed in the regions that undertake the data collection. CSO uses a mathematical model of crop production, with the key independent variables being area planted and various cropping conditions. The CSO methodology, developed under an FAO project which took place from 1979 to 1984, follows an earlier FAO project assessing crop production in the Ministry of Agriculture from 1974 through 1978. The sampling and survey techniques, as well as the analytical model, appear to be rigorous, reasonably sound, and consistent from year to year, and relatively free of the bias (intentional or unintentional) which plagues similar efforts in some other African countries.

From 1979 through 1984, CSO forecasts were based on mid-August data collection on area planted and cropping conditions. In 1984-85 the CSO forecast seriously overestimated crop production, because rainfall stopped in late August/early September (after CSO data collection on cropping conditions), thereby having a devastating effect on yields. As a result of this inaccurate forecast last year, CSO's forecasts will be based on a two-stage survey beginning in this cropping season. There was still a mid-August survey, but only of area planted. This will be followed by a mid-September survey of cropping conditions. This year's forecast is therefore likely to be much more accurate than past forecasts.

Shortly before harvest, CSO does, and will continue to do this year, another survey. This is a survey of actual yields based on crop cutting. The results of this survey, combined with the August survey of planted area, are used to calculate the estimate of production. It is the crop production estimate which is CSO's definitive figure, and which has been used in CSO's publication Time Series Data of Area, Production, and Yield of Principal Crops by Regions, 1979/80 - 1983/84.

It is important not to confuse CSO's tentative forecast (based on August - now September - sampling) and its definitive estimate based on the pre-harvest crop cutting. The forecast is generally entitled Crop Production Forecast for Ethiopia, while the estimate is entitled Agricultural Sample Survey: Preliminary Results on Area, Production, and Yield of the Major Crops for Ethiopia. There are two sources of confusion concerning the two figures. First, the definitive estimate contains the word "preliminary," while the tentative forecast does not. Second, the forecast is generally released only around November or December, often after CSO's crop cutting (which, however, does not enter into the forecast)

and after the harvest. It is therefore easy to take the forecast as much more definitive than it is intended to be. The definitive estimate, based on pre-harvest crop-cutting, is only released the following summer or fall!

B) Relief and Rehabilitation Commission: Early Warning System:

The RRC undertakes two related but separate tasks on crop forecasting and food need estimates. This section describes the RRC crop forecasting activity, the following one, RRC food need estimate.

The RRC Early Warning System (EWS) makes no quantitative estimates of area planted, yield, or production. Based on reporting from RRC staff in the field, CSO field staff paid by UNICEF to assist RRC, and weather data from the National Meteorological Services Agency, RRC issues monthly early warning reports during the cropping season, as well as occasional special reports. The monthly reports are up-to-the-minute and quite useful. They provide a region-by-region description of growing conditions. Often descriptions down to awraja and even woreda level are given where major problems seem to be developing.

Unfortunately, because of the lack of quantitative estimates, the early warning reports do not assist in getting even the most general impression of the likely magnitude of food shortfall or surplus, either by region or for the entire country. Nor are the exact qualitative agronomic effects of various problems on yield always explained.

C) Relief and Rehabilitation Commission: Food Need Estimate:

The RRC's annual food need estimate is based on an enumeration of people in need. A calculation of total food need is then made, based on the food needs of enumerated individuals in different age categories. Crop condition and production do not figure directly in RRC's food need estimate. RRC's impressionistic early warning system (EWS) on crop condition does figure indirectly, since areas designated by the EWS as being likely to have problems are those where the RRC does further investigations to see if there are drought-affected people needing food, and--if so--to see who and how many there are.

According to Cutler, there is not a single consistent set of criteria by which people are designated as "drought-affected." Each of the criteria used (e.g., loss of plow oxen) does give a reasonable indication of drought-induced distress. However, some of the criteria lead people to dispose of productive assets (animals, tools) in order to be counted as "drought-affected" and thereby be eligible for food aid. The result is that some people who are truly needy and threatened with starvation lose the means by which to get back on their feet the next growing season.

A second apparent problem with the RRC enumeration is that it's done on a peasant association (PA) basis. This means

that even better-off people who do not need food aid are counted in the "drought-affected persons" calculation if they belong to a PA which has been designated as drought-affected. It also means that poor people threatened with starvation during a drought are not counted by RRC if they belong to a PA which has not been designated as drought affected. In terms of calculating food needs of drought affected areas, using the PAs is probably the most efficient method despite these problems. For actual decisions on who gets food aid and who does not, however, decisions based on PA rather than individual need are likely to be highly inefficient and inequitable. It is unclear the extent to which RRC and NGOs base their decisions on who actually receives food upon the RRC's nationwide enumeration of people in drought-affected PAs.

A final problem with the RRC's estimate of food need is that it does not distinguish between people who are on the edge of starvation and need food aid immediately to stay alive, as opposed to people who will need food a few months hence when their inadequate stores are consumed.

D) Ministry of Agriculture:

The Ministry's Programming and Planning Department has this year resumed its forecasts of nationwide area, yield, and production of major crops. It is unclear what the basis of these forecasts is, although it is likely to be reporting by extension agents of the Ministry of Agriculture. Until more is known about this system, the CSO estimate should be considered more reliable.

E) International Livestock Center for Africa (ILCA):

ILCA makes an annual forecast of general crop prospects and production. The forecast is based on NOAA satellite imagery, which permits estimates of available moisture on the basis of vegetative cover. The imagery cannot distinguish among different kinds of crops or between crops and other vegetation. ILCA has found a very strong correlation over the years between length of growing season and production. A key variable affecting length of growing season is the starting date of the growing season; ILCA bases its forecast on the starting date of the growing season. It then estimates the divergence from normal production which is likely to occur. (The satellite imagery does not permit a direct estimate of area planted.) Using this approach, ILCA made a very early and accurate forecast of last year's drought. This year ILCA made an early forecast of fairly good production, conditional on the rains continuing. There is some sensitivity about forecasts made so early in the growing season.

F) U.S. National Oceanic and Atmospheric Administration (NOAA):

NOAA is under contract to AID's Office of Foreign Disaster Assistance to prepare monthly "climate impact assessments" for the Sahel countries, Sudan, Somalia, and Ethiopia. NOAA and ILCA use similar satellite imagery. NOAA, like ILCA, uses it to assess moisture conditions as indicated by overall vegetative cover, and cannot estimate area under crops from the satellite imagery. The technical

details of NOAA's approach concern not the length of the growing season (as in ILCA's approach), but the timing and amount of rainfall as they affect each major crop in different ways. NOAA's model assumes the same area planted to various crops each year, and then forecasts yield of each crop. Its production estimate is derived from tne "normal area" assumption and the yield forecasts for the various crops.

G) Ethiopia National Meteorological Services Agency (NMSA):

NMSA has a network of rainfall reporting stations throughout the country. It provides timely data on rainfall and temperature from these stations in 10-day rainfall reports, and in 3-month summaries. The 10-day reports also provide summaries of conditions in the three major climatic zones which are quite useful. However, because local climatic conditions in Ethiopia vary widely, even among nearby locations, NMSA's limited number of rainfall reporting stations may not be able to adequately indicate the overall rainfall pattern in a region. Also, probably as a result of error in transcribing, the rainfall recorded at some stations sometimes differs from the rainfall reported in NMSA reports; also, the rainfall data in NMSA reports sometimes differs from NOAA rainfall data received from a worldwide network of rainfall information, to which NMSA reports.

H) FAO Crop Assessment Mission:

The FAO was asked by the Ethiopian government to send a crop assessment team to Ethiopia last November and December. The team surveyed cropping conditions throughout the country and interviewed knowledgeable people. On the basis of its estimate, it estimated a 30% reduction in the crop, which is almost identical to CSO's recent estimate (not the CSO discredited forecast of 1984) of the same crop which was arrived at entirely independently. The government may request a similar FAO crop assessment mission this coming October and November.

Recommendation: The RRC Early Warning System can be relied on for timely impressions of cropping conditions and likely trouble spots. The CSO forecast, and the subsequent CSO estimate, can be relied on for accuracy and consistency, but come out far too late to be of use in early food need planning. The CSO data, for now anyway, is probably the most reliable quantitative estimate of production. RRC's enumeration of people in need provides as good an indication as anyone has of the nationwide location of needy people. By itself, it cannot be relied on to point out the neediest people, who will die if they do not receive food. The FAO mission, if it is repeated this year, will provide a good, timely estimate of production. ILCA, NOAA, and Ministry of Agriculture forecasts and estimates can provide order of magnitude checkpoints against which to evaluate other estimates.

TABLE A-1: Alternative Information Sources on Food Need, Rainfall, and Production

	Central Statistics Office	RRC Early Warning System	RRC Food Need Estimate	Ministry of Agric.	Int'l Livestock Center for Africa	U.S. Nat'l Oceanic and Atmospheric Admin.	Ethiopia National Meteorological Services Agency (NMSA)	FAO Crop Assessment Mission
Time Available	Forecast: November Estimate: Following summer	Monthly	Sept.-Dec.	Unknown	Early planting season (June)	Monthly during growing season	Every 10 days	Nov.-Dec.
What is Estimated	Cereal, Pulse, Oilseed Production	Food crop conditions	Food needs of rural drought-stricken people	Cereal, Pulse, Oilseed Production	Cereal Pulse Prod.	Prod. of annual foodcrops	Rainfall	Cereal, pulse, onset prod.
Method	Extensive, quantitative survey crop cutting, crop prod. model.	Qualitative survey of crop conditions	Enumeration of people in need	Reporting from agricultural zones	NOAA satellite imagery, with some ground truthing. Key variable; starting date and length of rains.	NOAA satellite imagery, rainfall data. Key variable: yield-moisture index.	Rainfall recording at reporting stations throughout	Informal site visits and interviews
Advantages	Quantitative, rigorous, consistent from year to year	Timely, info. often provided for specific awrajas and woredas.	Reasonably timely, indicates where the needy are, quantitative.	Unknown	Very timely, quantitative	Timely, reports in latter part of season are quantitative	Quantitative, timely.	Quantitative timely.
Disadvantages	Very late.	Not quantitative	Not an accurate estimate of import needs, since neither urban food requirements nor available surplus is considered	Unknown	Forecast is conditional on rainfall continuing normally.	Assumes same area planted ea. year. No ground truthing other than USAID reporting	Often conflicting data; too few reporting stations.	Based on impressions

ANNEX B: 1986 Seed Requirements

There are two key points which need to be kept in mind when discussing the Ethiopian seed situation. The first is that food and seed are the same commodity. In normal years, farmers either save part of their own grain harvest for seed, or buy part of someone else's harvest being sold at the market. The second point is that Ethiopia contains a great diversity of agroecological zones and varieties suited to them. A productive variety grown at 5,000 feet elevation will not produce very well just a few miles away at 2,000 feet.

Seed will be a problem in many of the areas of continued food need in 1986. Seed assistance will be required to help farmers with inadequate harvests this November regain self-sufficiency in 1986. Assistance will also be required to help destitute people who planted no crop this year return to farming. Four kinds of assistance are required. They are listed below in order of the numbers of people they are likely to affect.

Food Aid. Providing food aid to needy farmers is the most important way to insure adequate seed and good production in 1986. Provision of food aid will make it possible for needy farmers with inadequate harvests to save adequate quantities of productive local varieties from the grain they harvest this November and December.

Pulses. In many areas the early cessation of the rains in 1984 led to very limited production of those pulse crops (like chickpeas and lentils) planted late in the season. The result is that in many areas it has been very costly or impossible for farmers to get pulse seeds to plant this September. A vicious cycle is being created whereby, due to the limited planting going on now, again next year pulse seed will be unavailable in many areas. Provision of pulse seed next year (and even within the next 10 days for this year's planting) would make a very big difference in pulse production.

Local Cereal Varieties. In many areas farmers have planted seed this year which is not the best suited to their areas. They have either purchased it on the market or received it from NGOs or the government (which in turn got the seed from the market or the Ethiopian Seed Corporation). Much of the seed given to farmers this year (both improved and traditional) is productive and well-suited in some agroecological zones. But it has been distributed in zones to which it is not well suited, as well. To a large extent, farmers can make up for this by selecting seed from those plants which appear to be the healthiest and best-yielding at harvest time. However, in some areas where great reliance was placed on donated or purchased seed from other agroecological zones, assistance through the provision of productive locally-suited traditional varieties would help speed up the reestablishment of these varieties in some areas, a process which would otherwise take two to three years.

Assistance to the Destitute. People who have been unable to plant a crop this year will need to be provided with both seed and food aid (to prevent them from eating the

seed) if they are to reestablish themselves as farmers. Some of them will also need to have access to the use or ownership of plow oxen. In terms of numbers of people to be helped, this is probably the least important of the four kinds of seed assistance. But in terms of helping the absolutely worst-off who can't make it back into farming on their own, it is the most important.

It is critical to determine now which areas (and which destitute people) will need seed assistance in 1986. There are several reasons for doing this now. First, the appropriate varieties cannot be known before the specific areas needing assistance are determined, since there is so much variation in conditions (and therefore in appropriate varieties) between areas. An early determination of areas needing help is therefore required, before the November-December harvest. Second, the seed of varieties suited to the areas requiring assistance needs to be purchased right at harvest time. Prolonging the purchase into CY86 would make it much more difficult to identify bulk quantities of seed of the right varieties unadulterated by seed of other varieties. The farther away from harvest one gets, the more will grain from different varieties get mixed together as it is sold on local markets. Many of the local seed purchases this year encountered this problem, and as a result many farmers planted seed not suited to their areas. An additional reason to purchase at harvest is that prices will be at their lowest. Third, the first belg plantings are in February, and many people will need seed assistance to be able to plant a normal belg crop. If action is not started now to identify areas requiring seed assistance, and if seed is not purchased at harvest, before the end of CY85, that belg planting date will be missed.

ANNEX C: How to Account for NGO 1986 Food Requests Exceeding 1985 Requests

NGO requests to AID for FY86 as of July 30, 1985, totalled 634,000 MT of food, which is 41% higher than the FY85 level of 450,000. This has been a source of some confusion and dismay in both AID/Addis and AID/W. How is it that, with the drought largely over and good rain falling in much of the country, NGOs anticipate an increase rather than a reduction in tonnage requirements?

Some of the increase is accounted for by program expansion. Some of the expansion consists of new rehabilitation projects using FFW, as well as expansion of CRS's regular feeding program. Opening up new programs in unserved and seriously affected areas of Eritrea Tigray, and Sidamo also account for some of the increase.

There is also in some of the proposals a temporary expansion of existing feeding activities, into first quarter of FY86 until the harvest. It was widely anticipated in early 1985 that during the course of 1985 food needs and numbers of people needing help would increase as more and more people finished whatever food they had available. The UNASG predicted this in his Assessment of Emergency Needs Caused by the Drought in Ethiopia, of December 13, 1984. The ASG in that report stated, "The quantities to be distributed will rise from January-February on, when the population has consumed whatever food and seed they may have been able to save. The peak need will be in August-November before the new main crop becomes available." (p. 2). This is precisely what has happened.

Some NGOs (FFH, LICROSS/ERCS, WVRO) anticipate further expansion through December to meet these needs. Each of these three NGOs, however, anticipate significant reduction in beneficiaries after the harvest. For WVRO and FFH, the reduction would be well below not only the anticipated December 1985 level, but the actual June or July 1985 level. Other NGOs anticipate maintaining, but not expanding, their June-July levels through December, and then reducing them significantly after the harvest. Only CARE plans a reduction (in Hararghe) now; only CRS and Save(USA) anticipate no reduction after harvest. With the exception of Save(USA) and CRS, Table 1 and the NGO proposals seem to indicate significant reductions below June-July levels after the harvest.

Then why are the 1986 proposals so much greater than the 1985 proposals? There are two reasons that are far more important than the temporary September-December expansion plans of some of the NGOs. The first one is that the levels of tonnage distributed and beneficiaries reached in June-July 1985 substantially exceeded NGO or AID expectations of need. Straightlining those levels (or even reducing them 20%-30%) still leaves higher monthly levels than anticipated in early 1985.

Many of the NGOs saw an emergency relief need well beyond their initial expectations in each of the areas they worked. The result, as seen on Table C-1, is that most of the NGOs in June and July were feeding many more people than the NGO or AID had expected. Discussions with NGOs

and with farmers confirm that there remain pockets of starvation not receiving food aid. It is not surprising that there are areas of unmet needs, since of the 1.3 to 1.5 million MT 1985 emergency food requirement estimated by donors about 990,000 MT will have been distributed by the end of the year.

Second, the 1985 year for most of the NGOs began only after January and goes through September; it is therefore nine months or less. The 1986 year is equivalent to FY86 and, therefore, 12 months. Since the current NGO requests are for three months longer than their 1985 activities, looking at total tonnages rather than monthly rates gives a very inaccurate picture of how the NGOs see their programs evolving. Most or all of the areas where NGOs are working will need some food assistance through the November 1986 harvest, and therefore programming for all 12 months of FY86 makes good sense. At the same time, all of the NGOs, except Save and CRS, anticipate substantial program reduction after this year's harvest, beginning in the second quarter of FY86. Their proposals, when looked at in terms of monthly levels or beneficiaries (as on Table C-1), bear this out.

TABLE C-1: Planned Evolution in Number of NGO Beneficiaries, 1985-86

	Planned or Initial 1985 Beneficiaries	Beneficiaries June or July 1985	Beneficiaries Oct-Dec 1985	Beneficiaries Jan-Sept 1985
FFH	?	167,617	202,000	101,000
CARE	250,000	428,000	250,000	less than 250,000[1]
ICRC	370,000	669,000	same monthly level of food as July 1985	reduced from Oct-De by a yet-to-be determined amount
Save(USA)	?	142,000	approx. same as June/July	approx, same as as June/July[2]
CRS	?	2 million	2 million	2 million[3]
WVRO	?	235,000	265,000	150,000[4]
LICROSS/ ERCS	200,000	297,989	400,000	reduced from Oct-Dec level by an amount to be determined in Oct.

Notes:

[1] Reduced by the number of people screened out as adequately nourished by nutritional monitoring. Does not include additional 120,000 herders in a different region (Sidamo) where CARE is expanding and who will need help throughout 1986.

[2] No reduction in standard dry distribution throughout 1986. Some reduction in supplementary feeding according to nutritional monitoring.

[3] It is unclear to what extent this 2 million represents an expansion in some areas (e.g., Tigray and regular feeding) which is compensated by a reduction in other programs.

[4] Reduced after ag-pak dry distribution and Ansokia nursery FFW are completed in 3 months.

This table is based on NGO proposals, not AID approvals.

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ANNEX E

SCOPE OF WORK: ETHIOPIA FOOD PRODUCTION ASSESSMENT

Purpose: The objective of this assessment is to produce a preliminary quantitative estimate of emergency food needs for calender year 1986.

Tasks: The assessment will examine and make quantitative estimates for the following:

1. Production of major food crops for the 1985/86 "meher" growing season. Estimates should be by at least "cereal" and "other food crops," if not by specific crop. Production estimates should be made "Administrative Region."

2. Present food stocks, both commercial and emergency, and projected carry-over stocks as of 1/1/86.

3. Projected commercial food imports for remaining CY 1985 and for CY 1986.

4. Projected food requirements for CY 1986. Projection should be made on normal consumption patterns, not theoretical "minimum" requirements. Past harvest losses and seed requirements should also be calculated.

5. Structural Food deficit for CY 1985.

6. Emergency Food deficit for CY 1985.

Because of the uncertainty in estimating Meher production and inability to estimate 1986 Belg production, production estimates should set out in "most likely," "best case," and "worst case" scenarios.
Also assessment should indentify "deficit food areas" where production will not meet subsistence requirements.

The assessment should identify and evaluate other food requirements projections that will be made (e.g. FAO or RRC Early Warning Reports).

Resources: The following offices and personnel should be consulted in preparing the Food Assessment:

Early Warning System of the RRC
Agricultural Marketing Corporation
Ethiopian Seed Corporation
International Livestock Center for Africa
FAO/Addis Ababa
UN/AGS'S office
UNICEF/Addis Ababa
Agricultural College, University of Addis Ababa

Product:
The assessment's findings should be submitted in the form of a written report.

ANNEX F: REGIONAL MAP WITH DIVERGENCE FROM NORMAL PRODUCTION, 1984/85 AND 1985/86