

Assessing the extra-commercial food needs of low-income countries

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The principal US government report on the food needs of low-income countries which cannot be met through commercial trade, is *World Food Needs and Availabilities*, prepared by the Economic Research Service, USDA.¹ This article presents the genesis of the report, the methodology (through a case study), the 1985 findings and some implications of food needs analysis for food aid programming.

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This article is based on *Food Aid Needs, Methods and the Interagency Process* by Charles Hanrahan, Ray Nightingale and David Stallings – a paper prepared for the Second International Food Aid Conference, International Development Institute, University of Sussex, December 1983. It draws on the work of the 25 ERS analysts who contributed to the enhancement of analytical methods and to the substance of *World Food Needs and Availabilities*, 1985, Economic Research Service, USDA, July 1985 and the 'update' published in October 1985.

¹Prior to 1985, the report was titled *World Food Aid Needs and Availabilities*.

²'Additional' food is that required to fill the gap between needs and food that is available from local sources and normal commercial imports (defined in the Zambia country example). This gap might be filled by extraordinary food purchases – at the expense of other imports – or by concessional food imports (food aid).

World Food Needs and Availabilities (FNA) now serves both the requirement of amended Public Law 480, that 'global assessments of food production and needs' to be submitted to the US Congress, and the food needs analysis function of the recently established US Interagency Food Aid Analysis Working Group. The current report provides the Executive Branch and the Congress with information to support tentative food aid budget allocations for the fiscal years 1986 and 1987. Quarterly supplements introduced in the autumn of 1985 provide detailed updates on food supplies and additional food needs on both a country by country and a world basis.² The assembly and maintenance of data for the analysis of food needs is a joint effort of the US Agency for International Development (AID) and USDA.

The *FNA* presents two alternative measures of the overall (commercial plus concessional) food import requirements and the additional food needs of 69 countries. The 1985 report also provides, for the first time, an assessment of maximum quantities of food imports a country can physically absorb. This information can be critical in countries with food crises or countries trying to advance the nutritional status of their population. For some of these countries, provision of full nutrition-based needs cannot be attempted because of inadequate port, transportation or storage facilities.

The status quo and nutrition-based food needs assessments are based on two different sets of normative judgments and assumptions regarding the role of additional food, and the considerations that might govern its use. The basic assumption underlying the status quo assessment is that additional food would be needed to prevent food supplies, and hence consumption, from falling below recently available levels. Meeting status quo food needs would stabilize per capita consumption by filling shortfalls in domestic production and import capacity. In these assessments, an allowance is also calculated for adjustments to commodity stocks. The method employed in each of these calculations is shown in the Zambia country example presented later in this article.

For many countries, assessments of additional status quo food needs have closely approximated recent actual concessional food imports. This happens when projected levels of domestic food production and commercial import capacity are consistent with recent experience. In countries where current weather patterns make crop forecasts difficult

or impossible, normal weather is assumed for the 1985/86 crop year. This is the only reasonable crop estimate that can be made for many countries in May, the time when assessments for the July edition of the report are calculated. For the quarterly supplements, the most current weather, crop production and financial data are used in updating estimated food needs. Estimates of commercial imports assume the continuation of recent experience in debt payment, and thus the availability of foreign exchange for commercial food purchases.

The nutrition-based assessment addresses the continuing problem of undernutrition in many of the developing countries. The assumption made here is that additional food would be needed to close the gap between food availabilities and an internationally accepted minimum nutritional standard. The nutrition-based needs estimates thus provide a measure of the nutritional gap, net of recipient countries' capacity to import food commercially.

Neither of the food needs measures deals specifically with the ability of a country's infrastructure to absorb food aid without overloading port and transportation capacity, and storage and distribution systems. The maximum absorbable food imports assessment measures the capacity of a country to utilize additional food imports to increase per capita consumption and food stocks. This measure frequently limits the quantity of nutrition-based needs that can be physically provided. The 'gap' between maximum absorbable and nutrition-based food needs is one measure of the seriousness of a country's food problem. In a real sense, the magnitude of a country's development assistance needs – to develop both the financial and the physical capacity to import food, or to increase domestic food production to cope with national food demand – is captured by this measure.

The import requirements and additional food need estimates in World Food Needs and Availabilities reports are based on national agricultural and economic data. These estimates can provide a basis for financial and logistics planning by both donor and food aid recipient countries. It should be apparent, however, that additional food need levels are only a part of the calculus, and that delivering imported food to the communities that are deprived by national food production shortfalls or civil disturbances is a major undertaking. Indeed, the inability of countries to move food from surplus to deficit areas is frequently an impediment to successful use of international food aid. The quarterly assessments of additional food needs are intended to decrease the frequency of underestimation of food disasters, or the continuance of food aid after the need has past. Beyond increasing the intensity of analysis of food needs, the proper utilization of US agricultural commodities to give assistance in towns and villages requires a broad commitment of both commodities and the complementary technical and capital assistance.

Estimation of additional food needs: an overview

Over the past ten years, the *FNA* analysis has been extended to cover international financial and trade considerations, nutrition requirements and the food assistance absorptive capacity of nations more completely. To provide a clearer understanding of the basis and scope of the *FNA* assessments, it is shown how the most recent estimates are made, starting from an assessment at the country level. The assessment for

Table 1. Zambia FNA commodities.

Commodity coverage	Share of diet (%)
Wheat	9.0
Rice	0.5
Corn	58.5
Total	68.0

Source: FNA, 1985.

Zambia is used to illustrate this, and is followed through to a regional summary for southern Africa and to the aggregate results at a world level.

Calculating food needs

The status quo and nutrition-based food needs assessments are based on two measures of total consumption of major food staples and security stocks for food grains. The framework used for calculating the portion of such consumption which may not be met by domestic production or commercial imports (additional food needs) is outlined below and illustrated by the most recent calculations for Zambia.

The first step in the process of calculating additional food needs is to estimate import requirements to support consumption, defined as the difference between total domestic requirements and forecast total domestic production (from USDA). Import requirements should not be confused with forecasts of imports for two important reasons. First, the factors that determine actual total use may be different than those used to derive the status quo and nutrition-based estimates of total requirements used in this report. The only demand factor that governs import requirements in the FNA is population growth. For the FNA, total and import requirements are purposely derived in such a way as to be directly comparable across a wide range of countries. Second, production is implicitly assumed to be independent of import requirements as defined above, whereas actual imports and production are related.

The second step in the procedure separates the import requirement into the portions which may be purchased commercially and that which cannot be met. Estimates of additional food needs are the differences between total import requirements and imports that a country can afford to purchase commercially in world commodity markets, herein referred to as the commercial import capacity.

Stocks, until this point, have been held constant. The last step in estimating additional food needs involves adding (or subtracting) a food security stock adjustment to the previously calculated additional food needs to support consumption.

Commodity coverage

The commodities included in the food needs assessment for each country were selected to cover the important food staples in the diet of each country. An attempt was made to represent at least two-thirds of the average daily calorific intake, to assure that assumptions regarding domestic food availability and requirements are consistent with a likely total food supply situation. For a few countries, less than two-thirds of the diet is covered. This is due to great diversity in the average diet, to limited availability of current, reliable data, or to both. Coverage is more complete in Asian and African countries where relatively few food staples account for the bulk of the average diet, and less complete in Latin American countries where diets are more diverse.

The FNA diet for Zambia assumes the total diet is split among three major grains in the proportions shown in Table 1. More than two-thirds of Zambia's diet is covered by these three grains.³

Estimating import requirements

Two different estimates of total requirements are used in the FNA. The

³Assumptions regarding the substitutability of foods in the diet are necessary in assessing food needs of countries with more varied diets. Shortages in some food items can be compensated for by surpluses or imports of others. Also, some food items which figure prominently in diets of low-income countries, particularly roots and tubers, are not commonly traded and, therefore, are not available to fill import and additional food requirements. The FNA report considers all cereals (including wheat, milled rice, and coarse grains) as substitutable on a one-for-one basis. Roots and tubers (cassava, potatoes, bananas and plantains are also included) are assumed substitutable for cereals on a calorific equivalent basis. The treatment of pulses depends on their importance and role in the diet.

first, status quo, defines the level of total use in which per capita consumption remains the same as the most recent four-year average. The second method, nutrition-based, calculates a level of consumption which will meet minimum nutritional calorific standards as set by the World Health Organization and the Food and Agricultural Organization of the United Nations. The difference between total status quo requirements and domestic production is the status quo import requirement. The gap between the nutrition-based total requirement and the nutrition-based domestic production forecast is the nutrition-based import requirement.

Status quo total requirements for Zambia are based on information in the basic food table (Table 2).

Total use for the historic period is the sum of nonfeed and feed use. Status quo estimates of total requirements for 1985/86 are based on the four-year average per capita total use in marketing years 1981/82 through 1984/85 (201.9 kg), multiplied by the forecast midyear population in 1985/86 (6.789 million). The 1141 thousand tonne production forecast is then subtracted to obtain an import requirement of 226 thousand tonnes.⁴

The nutrition-based estimates of import requirements rely on a more extensive and elaborate set of information than that for the status quo method. Data on per capita calorific consumption for each commodity are obtained from the '1979-81 FAO Food Balance Sheets', then modified, if necessary, to reflect feed use estimates produced by ERS. However, the key to the calculation of human consumption in the forecast years rests on applying consistent conversion factors that convert raw commodities to food.

The nutrition-based estimate of total use depends on the latest available estimates of calorific consumption (either '1979-81 FAO Food Balance Sheets' or ERS estimates) compared with the minimum standard described above, then roughly adjusted for the proportion of milled to coarse total availability. This latter difference is derived, by commodity, from the Food Balance Sheets and adjusted, where necessary, to correspond with the supply and use series maintained by USDA. The basic premise of the nutrition-based method is then to determine import requirements, assuming dietary shares do not change between commodities, with consumption brought up to its proportional minimum.

Corn in Zambia is used as an example. Base per capita consumption of milled corn in the FBS was 152.8 kg, corresponding to 1226 calories. The FAO minimum, 2310 calories for the complete diet, would raise the number for corn to 1351 (58.5% of 2310 according to ERS). The

⁴201.9 kg/person/year multiplied by 6.789 million persons equals 1367 thousand tonnes (after rounding up). Then, 1367 minus 1141 equals 226

Table 2. Zambia basic food data.

Commodity/year	Actual or forecast production (tonnes × 10 ³)	Beginning stocks (tonnes × 10 ³)	Net imports (tonnes × 10 ³)	Nonfeed use (tonnes × 10 ³)	Feed use (tonnes × 10 ³)	Per capita total use (kg)	Population (thousands)
Major cereals							
1980/81	746	56	381	1131	30	201	5771
1981/82	1201	22	220	1377	30	236	5955
1982/83	926	36	250	1145	40	193	6147
1983/84	937	27	242	1153	35	187	6346
1984/85	894	21	359	1218	35	191	6554
1985/86	1141	21					6769
1986/87	1196	21					6991

standard consumption of milled corn per capita would then rise to 168 kg a year. Multiplication of that minimum by the forecast population, adding waste, seed use, milling loss, feed use⁵ and alcohol use (all of which are consistent with estimates in the FAO Food Balance Sheets), yields a total nutrition-based requirement of 1415 thousand tonnes. Corn production of 1120 thousand tonnes leaves a nutrition-based import requirement of 295 thousand tonnes. The total for all grains, following a similar method for each, results in 460 thousand tonnes of total cereal needs not met by domestic production.

In the case of many countries, including Zambia, the nutrition-based method has two advantages over the status quo in measuring increased dependence on food imports. First, for those countries which experience declining per capita consumption, the base period estimates of status quo nonfeed use applied to forecast populations will be lower. This would tend to maintain (or extend) trends of lower food intake per capita. Second, the application of a dietary standard more accurately measures improvement, or lack of improvement, in each country's domestic situation.

The calculation of a level of maximum absorbable imports and additional food needs is an attempt to estimate the level of imports which could be handled if the highest historical levels of per capita total use and absolute carryover stocks could be attained. The implicit assumption is that the food delivery system has been fully 'loaded' by the highest past level of per capita consumption. In addition, the highest level of stocks maintained over the previous eight years is assumed, in the absence of better information, to be the largest level which can currently be maintained. The estimate is intended to provide a crude measure of the amount of food that can be physically absorbed. This level may then be used to scale back nutrition-based additional food need estimates that may be beyond the physical limits of a country's transportation, distribution and storage capabilities. No attempt is made to assess the impact of such maximum levels on domestic prices or production incentives.

These estimates are for individual countries only. No account is taken of the impact of 'loaded' ports in other countries on their ability to make shipments to landlocked countries. This can be an especially acute problem in southern and eastern Africa.

The maximum absorbable level of imports for Zambia is computed by taking the largest per capita consumption in the base period (236 kg), multiplying it by the population forecast of 6.789 million persons, and adding the largest ending stocks (338 thousand tonnes in 1977/78, not shown). Then, subtracting domestic production (1141 thousand tonnes) and beginning stocks gives the largest amount that could be imported (776 thousand tonnes) without the food delivery system handling an amount greater than it has in the past.

Since the maximum absorbable level of imports is greater than the nutrition-based import requirement, there is no constraint imposed on the physical ability of Zambia to meet minimum nutritional standards. A summary of total use and import requirements for Zambia is shown in Table 3.

The key contribution of the *FNA* studies at ERS is in the notion that countries need not depend solely upon domestic production for dietary maintenance or improvement. If sufficient money is available to purchase food and feed from external sources, then shortfalls in national

⁵The same levels of estimated feed use are included in the calculation of both the status quo and nutrition-based estimates of total and import requirements. Feed use grows from the base period average at the same rate as population. The implication, which is intended for the purpose of additional food need estimates, is that no growth in per capita feed use is possible. The representativeness of the base period average must, however, be scrutinized when interpreting the calculated levels of feed use. Import requirement estimates for countries experiencing rapid growth in feed use (and livestock production) are constrained by this procedure.

Table 3. Import requirements for Zambia.

Commodity/year	Total use			Import requirements		
	Production	Status quo	Nutrition-based	Status quo	Nutrition-based	Maximum absorption
Grains						
1985 86	1141	1366	1601	226	460	776
1986 87	1196	1411	1657	215	461	773

supply may not be as serious as the level implied by calculated import requirements. On the other hand, if the ability to use foreign exchange for purchasing agricultural products is severely proscribed, then additional food needs must fill the gap.

Calculating commercial import capacity

The measure of a country's ability to purchase food and other goods on international markets is derived from its demonstrated willingness to do so in the past. Briefly, the process includes the determination of gross foreign exchange availability, the proportion to be allocated to commercial food imports and application of price (import unit value) forecasts to determine quantities which may be purchased. Data used in calculating the commercial import capacity for Zambia is shown in Table 4.

The available foreign exchange is defined as all export earnings (for most countries this is merchandise sales only) less the portion not used to purchase goods and services. Reserve accumulation and debt service payments are placed in this category, with reserves remaining a constant proportion of expenditure on all imports.

For Zambia, then, the money to purchase imports equals merchandise exports (\$835 million) plus international reserve accretion (\$3.5 million), less debt service payments (\$179 million). Some \$669 million is left to purchase merchandise from abroad. Historically, Zambia spent 4.3% of its available foreign exchange to buy grain in world markets. Applying that same percentage to the \$669 million estimate for 1985 implies that Zambia would spend \$28.7 million on all cereals, in keeping with its recent record.

The key to quantities which may be imported lies with estimates of future import unit values. This estimate is also somewhat simple: take the ratio of the historic country import unit values to the corresponding US values, then apply this to the forecast US export unit value for wheat and products. The forecast import unit value for Zambia is 148.5, allowing for the importation of 200.6 thousand tonnes of grains in 1985.

A few shortcomings of this method should be noted. Countries that historically have spent a greater share of export earnings on food imports will be expected, for the purpose of this assessment, to spend

Table 4. Financial indicators for Zambia, actual and projected (\$ million).

Year	Exports and other credits	Imports and other debits	Debt service	International reserves	Foreign exchange available	Commercial agricultural imports*
1980	1461	1114	292	78	1169	8
1981	994	1013	282	56	712	4
1982	923	989	177	58	746	8
1983	913	713	126	55	787	4
1984	875	610	419	44	456	
1985	835	625	170	44	669	5
1986	900	875	183	44	704	5

*Percent of foreign exchange available.

the same share in forecast years. In contrast, countries that spend relatively little on food will be expected to continue spending that lower ratio. Furthermore, countries whose base period reserves-to-imports ratio is high may be permitted to accumulate reserves at a faster rate than countries with a lower ratio. Finally, because in many cases, debt service projections are based on historical levels of actual payment in relation to export earnings, and not on actual debt service obligations, forecasts of debt service may be understated.

Calculation of additional food needs

Thus, data are available for the estimation of additional food needs to support consumption. In the case of Zambia, the process is quite straightforward - commercial import capacity, quantity and value are subtracted from the respective import requirements. Calculations of the commercial import capacities are independent of the estimation of import requirements. Thus, subtraction of the import capacities from estimates of status quo import requirements gives the status quo additional needs. Nutrition-based food needs are computed in a similar manner. Table 5 shows the results for Zambia.

The food security stock adjustment

The last step in estimating additional food needs allows for stock changes for the purposes of food security. In essence, the procedure is one which encourages stocks to build if production is above trend, and only permits stocks to fall if production is below trend and stocks are at historically high levels. These security stocks could be used to prevent future emergencies and to avoid abrupt swings in domestic availabilities from year to year.

Estimation depends on the availability of reliable data on historical stock levels. For this reason, the food security stock adjustment only occurs for cereals in countries for which stock data is available.

Zambian cereal production is above trend in 1985/86 and so the stock-building case is dealt with here. Stock building will be based on the historic and most recent ratio of stocks to total use. In one year, carryover may rise to one-third of the difference between the maximum historic ratio and the current ratio, based on the status quo estimate of total requirements. Stocks achieved a level of 2.6% of total use in 1981/82 compared with the current level of 1.7%. One-third the distance between the two ratios would place the security stock level at 2.0% of the 1366 thousand tonnes needed to maintain status quo levels of consumption. Carryover should be 27 thousand tonnes, adding a 6000 tonne stocks requirement to the food needs to support consumption. The total additional food needs are summarized in Table 6.

Table 5. Additional food needs to support consumption for Zambia.

Commodity and year	Commercial import capacity		Status quo		Nutrition-based	
	Quantity	Value	Quantity	Value	Quantity	Value
Cereal equivalent consumption						
1985/86	201	29	25	4	260	37
1986/87	219	30	0	0	243	33

Table 6. Additional food needs to support consumption for Zambia, with food security stock adjustment.

Commodity and year	Commercial import capacity		Status quo		Nutrition-based	
	Quantity	Value	Quantity	Value	Quantity	Value
Cereal equivalent consumption						
1985/86	201	29	25	4	260	37
1986/87	219	30	0	0	243	33
Stock adjustment						
1985/86	-	-	6	1	6	1
1986/87	-	-	4	1	4	1
Total						
1985/86	-	-	31	4	266	38
1986/87	-	-	0	0	246	34

Summation into regional totals

After each country's additional food needs are assessed, a regional summary is prepared. The most important assumption is that no intercountry substitution is allowed. All food requirement calculations are strictly on a country by country scheme. Straight addition across categories could lead to misleading conclusions regarding the best use of surplus commodities.⁹ This is most apparent in cases where, as in southern Africa, there are negative import requirements for one country, in this case Zimbabwe. If the region's total status quo cereal import requirement in 1985/86 is simply summed across countries, it would be 722 thousand tonnes. However, this assumes that the 'surplus' of 889 thousand tonnes from Zimbabwe would be used to alleviate the deficit in the rest of the region. To remove any hint of 'forced' exports (from Zimbabwe), the negative import requirements are treated as zero and the total for the region, then becomes 1611 thousand tonnes. On the payments side, any within region movement of surplus Zimbabwean commodities requires transactions in local exchange or barter arrangements because assessed additional food needs are, by definition, in excess of commercial import capacity for the remainder of the region.

Additional food needs are treated similarly, and also on a country by country basis. By definition, additional food needs cannot be negative; this implies that the country is forced to export. Only positive food needs are shown by country, and hence, by region. The autumn 1985 FVA regional results for southern Africa are shown in Tables 7 and 8.

Overall food production has increased in southern Africa in 1985 following better rainfall. Major increases in grain output have been achieved in Zimbabwe, and Zambia has recorded substantial gains. In

⁹A surplus is defined here by using the status quo or nutrition-based criterion for total consumption, and implies nothing about the means of food distribution or the potential or actual uses of food above the levels implied by the estimated values.

Table 7. Southern Africa basic food data.

	Actual or forecast production	Beginning stocks	Net imports	Population	Per capita total use
Major cereals					
1980/81	6307	302	1655	44 069	180
1981/82	8043	317	1261	45 331	182
1982/83	6828	1369	959	46 637	170
1983/84	5693	1221	1262	48 018	165
1984/85	6316	264	1918	49 456	161
1985/86	8298	549	-	50 938	-
1986/87	7858	-	-	52 465	-

Table 8. Southern Africa cereal use, additional food needs to support consumption, and stock adjustment.

Commodity and year	Total use		Additional needs			
	Status quo	Nutrition-based	Status quo Quantity	Status quo Value	Nutrition-based Quantity	Nutrition-based Value
Grain equivalent consumption						
1985/86	8298	8997	538	102	1679	283
1986/87	7858	8914	408	79	1609	264
Stock adjustment						
1985/86			6	1	6	0
1986/87			0	0	12	4
Total						
1985/86			544	103	1685	283
1986/87			408	79	1621	268

most other countries in the region, grain production increased slightly or stayed close to last year's levels. Only Swaziland and Madagascar apparently had decreases. Harvests of the main season crops are completed by August or September in most countries. These crops were planted at the onset of the rainy season, November or December of 1984. Corn is the dominant crop and main staple, except in Madagascar where rice predominates. With the exception of Zimbabwe, most wheat consumed in southern Africa is imported. Zimbabwe's wheat crop is grown under irrigation with a different calendar: it is harvested in October.

Additional food needs will generally decrease across southern Africa relative to last year. The region's total 1985/86 import requirements of 1.61 million tonnes are down slightly from 1984/85 and additional status quo food needs are less than half last year's level. Commercial import capacity remains very low relative to requirements in Mozambique, the country with the largest additional needs. Both Zimbabwe and Malawi will be net food exporters, the latter for the fourth straight year. These two countries have surplus corn. Exports to neighbouring countries could be limited by foreign exchange shortages and, in some cases, by logistics problems. Donors are expected to finance some of these corn sales.

Mozambique will continue to have serious food shortages despite some improvements in weather and domestic production. Guerilla fighting continues to interfere with agriculture and disrupt the fragile economy. Distribution of relief supplies will continue to be difficult.

Summation to FNA world total

The regional totals for additional food needs are summed to arrive at the report total. Neither the regional nor the total needs are 'global', as individual countries with relatively high per capita incomes and with no history of US food assistance are excluded. Some additional countries are receiving food assistance from other agricultural producers and international agencies such as the World Food Programme. However, the countries and programmes not covered are primarily structural 'programmes' rather than emergency assistance food aid, and thus not contributing to short-term changes in extra-commercial food needs. The autumn 1985 summary results are shown in Table 9.

During 1985/86, 69 developing countries will require an estimated 9 million tonnes of cereals in excess of estimated commercial imports, to

Table 9. Additional food needs to support consumption, stocks adjustment, and maximum food imports, 1985/86 (cereal equivalent, tonnes · 10³).^a

Region	Consumption		Consumption plus stocks		
	Status quo	Nutr ^b n-based	Status quo	Nutrition-based	Maximum ^b
Total Africa	4450	8832	4981	9285	8289
North Africa	1885	0	1967	0	1967
Sub-Saharan Africa	2565	8832	3014	9285	6322
West Africa	869	2514	957	2605	1892
Central Africa	178	265	189	277	282
East Africa	980	4374	1324	4718	3071
Southern Africa	538	1679	544	1685	1077
Middle East	714	551	775	607	788
Total Asia	3506	8147	3649	8677	5245
South Asia	2513	6616	2450	6940	3513
Southeast Asia	993	1531	1199	1737	1732
Total Latin America	347	1070	475	1199	996
Caribbean	172	415	205	447	333
Central America	175	305	196	360	341
South America	0	350	74	392	322
Total All Regions	9017	18 600	9880	19 768	15 318

^a Major cereals, and the cereal equivalent of shortfalls in roots and tubers

^b Imports consistent with maximum recent levels of consumption and food stocks

maintain consumption at existing (status quo) levels. This is down 2.4 million tonnes from the previous estimate in July and 2.7 million below assessed needs in 1984/85. To meet minimum nutritional standards, the countries would need 18.6 million tonnes, a 730 decline from the July projection and 7 million tonnes less than estimated 1984/85 needs.

Stock rebuilding by the 69 countries would require an additional 860 thousand tonnes of cereals in addition to consumption needs. However, physical restraints will allow the countries to absorb only about 15.3 million tonnes, 3.6 million less than the July estimate. Maximum absorbable food needs are currently 6.3 million tonnes for sub-Saharan Africa, 5.2 million in Asia, and 1 million for Latin America.

In Africa, additional status quo import needs are projected at 4.5 million tonnes, down about 1.6 million from the July forecast, based on a lowered assessment for sub-Saharan Africa and an upward revision for North Africa. Most of the decline in sub-Saharan Africa needs, a decrease of 1.7 million tonnes to around 2.6 million, occurred in East Africa where cereal crops have recovered more than was anticipated in July. The relatively small 80 thousand-tonne increase in assessed North African needs masks a large production-based decline in Tunisia and a finance-based increase in Egypt.

Compared with a year earlier, status quo needs for the entire sub-Saharan region are down 46%. East African requirements are down 40%, although crop failures and civil disturbances have generated needs of 980 000 tonnes. Needs are down 770 000 tonnes in southern Africa, 690 000 in West Africa and 1.1 million in North Africa. In contrast, Central African requirements have decreased only 90 000 tonnes. Stock rebuilding would add another 600 000 tonnes to Africa's total status quo needs, with East Africa alone requiring a further 450 000. In some countries, stockbuilding needs may be met by carryover supplies of cereal aid delivered in 1984/85.

Status quo needs for all of Asia, projected at 3.5 million tonnes, are 1.2 million tonnes above estimated 1984/85 needs. Since July, South Asian needs have been revised downward by 900 000 tonnes reflecting improved production in Pakistan and revised estimates of Bangladesh's 1984/85 rice production, cereal imports and stocks. However, Pakistan's

status quo needs remain large. In Southeast Asia, needs are higher than was indicated in July due to a smaller expected 1985/86 corn crop and a deteriorating financial outlook in the Philippines. While Philippine requirements have been revised upward, they are still below those of 1984/85. Overall, Asian stock adjustment needs are low in relation to additional food needs.

Latin America's status quo needs for 1985/86 have been reduced 536 000 tonnes from the July forecast, due mainly to improved conditions in Peru where increased foreign reserves and exports have raised commercial import capacity. At an estimated 347 000 tonnes, total Latin American needs are 1.1 million tonnes below the 1984/85 figure, reflecting large financial reserves that permit increased commercial imports. However, the large reserves result mainly from smaller payments on outstanding debt rather than reduced indebtedness. Debt-service payments will be high even if countries reschedule their debt to the same extent as in previous years. South American stock adjustment requirements are high relative to food needs.

On a nutritional basis, much of the overall decline in the 69 countries is due to the greatly improved food situation in Asia. But, as in the status quo assessments, India's gains are offset by increased needs in Pakistan. Total nutritional needs in South Asia are estimated at 6.6 million tonnes, down from 10.4 million in 1984/85 and 720 000 below the July projection. Southeast Asian nutrition-based needs are down 1 million tonnes from a year ago, but are 355 000 tonnes greater than the July forecast. In Africa, however, nutrition-based needs have risen in some countries. Sub-Saharan requirements, projected at 8.8 million tonnes, are up 170 000 from the July estimate, but below the 13.4 million of 1984/85. Since July, Latin America's nutrition-based needs have been revised downward to 1 million tonnes, about half the 1984/85 level.

During the fiscal year of 1985, donor countries shipped nearly 12 million tonnes of food aid, surpassing for the first time the 10 million tonne target set by the World Food Conference in 1974. Of this, the USA supplied 60%, followed by the EC (20%), Canada (less than 10%), and Australia (less than 5%). Almost 90% of this aid – more than 10.5 million tonnes – was distributed to low-income, food-deficit countries, more than half of which were in Africa.

The PL 480 budget for the fiscal year of 1985 was \$2.2 billion, with \$1 billion targeted for Title I/III, Title II shipments included, for the first time, stocks from the Food Security Wheat Reserve. The PL 480 programme level for the fiscal year 1986 has yet to be finalized. The Administration's proposal calls for \$1.7 billion (\$1.03 billion for Title I/III and about \$750 million for Title II). However, additional foreign food donations are authorized for humanitarian purposes under Section 416 of the amended Agricultural Act. Also, a proposed 'Food for Progress' programme would allow a maximum of 500 000 tonnes of commodities to be shipped in response to domestic agricultural policy reforms.

The outlook for food aid contributions

Cereal food aid from all donors reached the highest level since 1971/72 in the 1984/85 July–June year. Close to 12 million tonnes were shipped. FAO estimates that cereal aid shipments will fall almost 10% in the

1985/86 July-June year to less than 11 million tonnes. Most of this decline is due to a drop in estimated EC cereal aid to levels similar to those before the African famine.

Several changes in USA food aid programmes have been enacted or are under consideration by Congress. The minimum volume of food donations under PL 480 Title II was increased from 1.7 million tonnes a year to 1.8 million tonnes in fiscal year 1986 and 1.9 million tonnes in fiscal year 1987. The minimum amount of Title II commodities distributed through private voluntary organizations and the World Food Programme, (WFP) was increased from 1.2 million tonnes to 1.3 million in the fiscal year 1986 and 1.425 million in the fiscal year 1987. The PL 480 programme level for 1986 has yet to be finalized. The Administration's proposed programme level is \$1.8 billion (1.03 billion for Title I/III and \$750 million for Title II), compared to \$2.2 billion in 1985.

In addition to PL 480, foreign donations are authorized for humanitarian purposes under Section 416 of the amended Agricultural Act of 1949. Also, a 'Food for Progress' programme has been proposed, under which the USA would grant 500 000 tonnes of commodities a year, on a multiyear basis, to developing countries as a reward for adopting market-oriented agricultural policies. The programme would last through the fiscal year 1989 and involve a maximum of 500 000 tonnes of commodities a year.

Food aid programmes of other donors are generally expected to be less than in the past year. While the Australian programme will increase by about \$6.3 million, it will hardly offset the \$54 million decline in Canadian food aid. The Australian food aid budget for the July 1985/June 1986 fiscal year is estimated to increase 8% over 1984/85 levels to A\$121.2 million (about \$85 million). Almost all of this is due to increased cash and commodity donations through the WFP. Canada reports a drop in its food aid budget of 20% to C\$310.5 million (about \$230 million at current exchange rates) in the April 1985/March 1986 budget.

Administering USA food assistance

The PL 480 legislation specifies several distinct objectives to be served by concessional sales and food grants. Consequently, 'Food for Peace' programmes come under the jurisdiction of several US government agencies. The principal agencies concerned with PL 480 Title I and Title III food aid are the US Department of Agriculture, the State Department, the Agency for International Development (AID), the Treasury Department, the Commerce Department, and the Office of Management and Budget (OMB). The USDA is principally concerned with agriculture market development and surplus commodity disposal. The State Department views food aid from a broad foreign policy perspective, while the Agency for International Development looks more specifically at economic development aspects of foreign policy. The Treasury Department, the Commerce Department, and the Office of Management and Budget are concerned with the budgetary and financial effects of food aid. Title II programmed and emergency food aid is administered by AID with USDA cooperation.

USA food assistance programmes are managed by a number of interagency committees and councils and a consensus method of decision making. Representatives of concerned agencies sit on these

management committees presenting particular proposals. There is a hierarchy of committees through which the evolving food aid programme moves.

The Development Coordination Committee (DCC), an interagency body chaired by the AID Administrator, has the principal responsibility for annually developing a widely acceptable food aid programme. The actual task of constructing the programme falls to the Food Aid Subcommittee of the DCC. In response to Presidential Initiative proposed by the National Security Council in 1984, an Interagency Food Aid Analysis Working Group was established to provide the Food Aid Subcommittee and individual agencies with consistent estimates of food shortfalls in low income countries. This Working Group is chaired by the Director of the International Economics Division, ERS. There is a similar agency representation on the Food Aid Analysis Working Group, the Food Aid Subcommittee and the DCC.

Because of the large international trade and finance implications of the food aid programmes, the Food Aid Subcommittee proposals are reviewed by the National Advisory Council on International Monetary and Financial Policies (NAC) which has representatives of the Special Trade Representative, the Export-Import Bank and the Federal Reserve Bank, as well as most of the DCC member agencies.

The range of food aid recommendations which the DCC addresses is suggested by the difference between regional additional food needs based on maintaining the status quo *versus* those based on nutritional requirements (see above). Where economic assistance, geopolitical or national security interests have prevailed, the status quo estimates tend to be large and to exceed nutritional needs estimates. Where these concerns are not pressing, nutritional needs tend to exceed status quo estimates. Because around 50% of actual food aid is supplied by nations other than the USA, assessed regional food needs depart sharply from actual US food aid allocations. This is partly because of the regional emphasis of donor countries, and partly due to diverse individual donor domestic and foreign policy objectives.

The great variance in the population and agricultural resources of the 69 FNA countries tends to obscure the programme implications of assessed needs. Per capita ranking of the dollar value of needs provides a measure of the relative severity of additional food needs across countries (Table 10). Several countries with the same absolute level of additional food needs have quite different per capita needs. The wide margin between per capita measures reflects differences in the severity of the food problems these countries face and the manner in which the problem has been addressed.⁷

The pronounced disparity between the status quo and nutrition-based results also points to the differences inherent in the two assessments. Countries like Lebanon, Cape Verde, Swaziland and Mauritania rank high in both status quo and nutrition-based per capita food needs. Generally, this means that food availability has recently been sustained near the level needed to achieve the FAO recommended minimum diet, either by commercial imports that are no longer affordable or by food aid. Cape Verde, Swaziland and Mauritania have been large recipients of food aid provided to fill sustained shortfalls. The capacity of Lebanon to sustain food availability has been eroded by civil/military conflict that disrupted agricultural production and reduced the capacity to commercially import food.

⁷ Adjustments were made in both the status quo and nutrition-based indicators to compensate for the different proportion of the diet made up by the staples analysed in the report. The percentage of the diet covered – derived from the 1979–81 FAO Food Balance Sheets – must be factored into the estimates, to prevent biasing per capita aid needs upward or downward for countries with a large or small proportion of their diets made up of the staples analysed. Other things being equal, a country with 75% of its staple diet covered would have a greater per capita additional food need than a country with 50%. To incorporate this adjustment, per capita food needs are calculated as follows: estimated additional food need (\$)/(Percent of diet comprised by commodities analysed in this report/group mean percent of diet covered)/population.

19

Table 10. Per capita US\$ value of additional food needs, 1985/86 - ranked.

Country	Per capita status quo		Per capita nutrition-based		Country	Per capita status quo		Per capita nutrition-based	
	\$	Rank	\$	Rank		\$	Rank	\$	Rank
Angola	7.28	23	7.28	31	Somalia	10.32	16	17.98	15
Benin	0.00	N/A	6.32	34	Sudan	3.73	38	9.32	26
Botswana	37.76	3	13.91	19	Swaziland	27.01	6	23.16	9
Burkina Faso	5.76	30	9.88	25	Tanzania	3.50	39	3.61	40
Burundi	3.00	41	8.33	28	Togo	4.27	37	14.05	18
Cameroon	1.34	45	0.00	N/A	Tunisia	0.00	N/A	0.00	N/A
Cape Verde	61.74	2	41.16	3	Uganda	0.12	53	6.27	35
Central Africa Republic	1.53	43	6.88	33	North Yemen	8.94	20	2.37	44
Chad	6.57	26	17.09	16	South Yemen	23.39	7	26.58	5
Comoros	21.38	8	51.32	2	Zaire	0.61	47	1.46	48
Congo	0.00	N/A	0.00	N/A	Zambia	1.19	46	11.31	23
Djibouti	13.57	14	0.00	N/A	Zimbabwe	0.00	N/A	0.00	N/A
Egypt	17.71	10	0.00	N/A	Afghanistan	10.17	17	1.93	47
Equatorial Guinea	7.28	24	0.00	N/A	Bangladesh	5.88	29	7.58	30
Ethiopia	5.00	31	12.13	21	India	0.00	N/A	0.00	N/A
Gambia	21.10	9	18.09	14	Indonesia	0.00	N/A	0.00	N/A
Ghana	0.41	49	4.80	39	Kampuchea	8.60	21	18.54	13
Guinea	2.23	42	10.26	24	Laos	0.00	N/A	0.00	N/A
Guinea-Bissau	28.72	5	26.33	6	Nepal	0.20	52	2.72	43
Kenya	4.61	33	8.89	27	Pakistan	6.84	25	5.55	38
Lebanon	106.86	1	95.54	1	Philippines	6.05	28	8.29	29
Lesotho	0.00	N/A	1.18	50	Sri Lanka	0.53	48	1.20	49
Liberia	11.76	15	21.70	12	Vietnam	0.09	N/A	0.00	N/A
Madagascar	3.13	40	0.00	N/A	Bolivia	0.00	N/A	0.88	51
Malawi	0.00	N/A	2.08	46	Colombia	1.43	44	0.00	N/A
Mali	15.09	11	25.91	7	Costa Rica	0.00	N/A	0.00	N/A
Mauritania	37.76	4	30.89	4	Dominican Republic	4.58	34	7.25	32
Mauritius	0.00	N/A	0.00	N/A	Ecuador	0.00	N/A	0.00	N/A
Morocco	0.26	51	0.00	N/A	El Salvador	13.99	13	15.39	17
Mozambique	7.36	22	12.67	20	Guatemala	0.28	50	6.11	36
Niger	4.63	32	22.83	10	Haiti	14.87	12	21.84	11
Rwanda	6.46	27	24.33	8	Honduras	4.45	36	5.72	37
Senegal	9.31	19	11.55	22	Jamaica	9.91	18	2.83	42
Sierra Leone	4.46	35	3.35	41	Nicaragua	0.00	N/A	0.00	N/A
					Peru	0.00	N/A	2.36	45

Countries like the Comoros, Niger, Rwanda and Chad have much higher per capita nutrition-based needs than status quo needs. This wide margin indicates a serious gap between recent per capita food intake levels and the supplies needed to meet FAO recommended minimum calorific levels. This gap has not been filled recently by commercial imports or by food aid.

Countries like Egypt, Djibouti, North Yemen and Botswana have higher per capita status quo needs than nutrition-based needs. In these countries, domestic production, commercial imports or food aid donations have pushed per capita intake levels close to or above the FAO minimum. Food assistance to these countries using the status quo estimates would support consumption above the FAO recommended minimum.

Eighteen of the FNA countries have no nutrition-based needs. Of these, Morocco, Cameroon, Colombia, Madagascar, Equatorial Guinea, Tunisia, Egypt and Djibouti have status quo needs. Sixteen countries have no status quo needs. Of these, Benin, Lesotho, Malawi, Bolivia and Peru do have nutrition-based needs. The countries in which per capita nutrition-based needs most greatly exceed status quo needs are Comoros, Chad, Mali, Niger, Rwanda and Zambia. On the other end of the scale, countries with the greatest excess of per capita status quo needs over nutrition-based needs are Djibouti, Botswana, Cape Verde and Egypt.

To accomplish the involved task of allocating food aid it is essential to

anticipate what the food aid needs of individual countries will be, and then to monitor the agricultural and economic factors that alter needs. The *FNA* reports are prepared for this purpose. The findings are used by the Food Aid Subcommittee and by the Congressional Committees in programme review. When circumstances direct it, the Food Aid Analysis Working Group prepares special reports on individual countries to facilitate immediate programme needs.

The PL 480 legislation incorporates various provisions to insure that food assistance will contribute to economic development and that it will not prove injurious to agricultural export countries. The Foreign Agricultural Service has the responsibility for formulating specific Title I sales agreements which specify the level of commodity assistance and the particular commodities to be provided. These contracts include conditions for repayment, limitations on recipient country exports, usual marketing requirements to be maintained and, particularly in the case of Title III sales, self-help measures to be implemented in support of the country's agricultural and economic development.⁸ The ERS staff employed in world food needs analysis provide support to programme management as they strive to meet these legislative conditions.

⁸Title III of Public Law 480 provides for forgiving of loans for food purchases, if the recipient country is demonstrating progress in advancing domestic agriculture through investment in areas such as research institutions, agricultural infrastructure and agricultural extension.