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7/1/90

TANZANIA: FOOD NEEDS ASSESSMENT (1990/91)

October 3, 1990

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TANZANIA

FOOD NEEDS ASSESSMENT: 1990/91

I. SUMMARY:

Six commodities were included in the 1990/91 food needs assessment for Mainland Tanzania: maize, paddy (rice), wheat, sorghum/millet, cassava, and beans. Although production of staple crops is 14% lower than the previous year, the food supply situation is adequate in 1990/91. Supply exceeds demand for all commodities with the exception of wheat and sorghum/millet: at a national level, deficits emerge for these two commodities of 28,640 MT (unmilled) and 285,280 MT (unmilled) respectively. The food balance situation is one of surplus for maize, paddy, cassava, and beans, indicating that production is adequate to support consumption requirements. Surplus production of maize allows not only for stock build-up in 1990/91, but possible exports as well.

The consumption requirement used in the assessment for Mainland Tanzania is estimated at .7 kilos of maize equivalent per person per day. This figure represents a daily per capita calorie availability level of 2,500 calories, and is used by the Food Security Unit of the Ministry of Agriculture and Livestock Development to estimate food needs. It should be noted that the per capita consumption requirement is somewhat above the FAO/WHO recommended minimum intake level of 2,300 calories per person per day.

An assessment of the food supply and utilization situation was likewise conducted for Zanzibar and Pemba. Given data limitations the analysis covers only two commodities, paddy and wheat. The data show that production and estimated imports are inadequate to support status quo consumption: deficits emerge in 1990/91 of 7,012 MT (rice) and 1,780 MT (wheat flour).

Tables 1 and 2 show the 1990/91 food deficit/surplus situation for Mainland Tanzania and Zanzibar - Pemba respectively. It should be noted that deficits/surpluses are calculated prior to food aid. Food aid commitments to date include 5,000 MT of Thai rice donated by the Japanese.

TABLE 1:

Food Needs Assessment

CURRENT YEAR FOOD BALANCE		TANZANIA								
Current Year: 1990/91										
Commodity	MAIZE	PADDY	WHEAT	SORGH/MILLET	CEREALS ALL	CASSAVA	BEANS	TOTAL	TOTAL ECR	
Per capita consumption (UNMILLED kg/yr)	89.7	26.3	5.6	33.0	153.6	141.6	12.5	307.7	222.0	
x Population (thousands)	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	24,400	
= Total consumption requirement	2,171,376	643,824	137,000	807,040	3,760,120	3,466,368	306,000	7,532,496	5,456,050	
Gross domestic food production	2,445,000	740,000	105,000	560,000	3,050,000	4,973,000	300,000	8,219,000	6,271,000	
- Total non-food use	244,500	103,600	17,952	45,440	411,492	437,300	77,600	886,392	689,443	
= Net domestic food production	2,200,500	636,400	87,048	514,560	2,638,508	4,535,700	222,400	7,332,608	5,581,557	
- Net change in stocks	(73,700)	(9,530)	4,200	0	(70,030)	91,300	(5,300)	6,962	(46,197)	
- Total food exports	0	0	0	0	0	0	0	0	0	
= Domestic food supply	2,274,200	645,930	83,440	522,560	3,526,146	4,384,400	315,700	8,226,246	5,627,830	
Total consumption requirement (from above)	2,171,376	643,824	137,000	807,040	3,760,120	3,466,368	306,000	7,532,496	5,456,050	
- Domestic food supply (from above)	2,274,200	645,930	83,440	522,560	3,526,146	4,384,400	315,700	8,226,246	5,627,830	
= Import requirement	(102,824)	(2,114)	53,640	285,280	233,982	(918,032)	(8,700)	(693,750)	(171,700)	
- Total commercial food imports	0	0	25,000	0	25,000	0	0	25,000	23,240	
= FOOD DEFICIT (UNMILLED)	(102,824)	(2,114)	28,640	285,280	208,982	(918,032)	(8,700)	(710,750)	(195,030)	
x Milling extraction rate (m.e.r.)	90%	65%	75%	70%		35%	100%			
= FOOD DEFICIT (MILLED)	(92,542)	(1,374)	21,480	199,696	127,260	(322,311)	(8,700)	(203,751)	(24,330)	

NOTES:

- A) ALL QUANTITIES IN METRIC TONS.
 B) ALL QUANTITIES IN UNMILLED TERMS UNLESS NOTED.
 C) A NEGATIVE (-) DEFICIT IS A SURPLUS.
 D) PER CAPITA CONSUMPTION: BASED ON .7 KILOS MAIZE EQUIVALENT PER PERSON PER DAY.
 CONSUMPTION REQUIREMENTS FOR COMMODITIES NOT INCLUDED IN THE ASSESSMENT:
 SWEET POTATOES (19.2 KILOS/PERSON/YEAR) AND BANANAS (20.4 KILOS/PERSON/YEAR).
 E) BASE PERIOD: 1985/86 - 1989/90; YEAR OF ANALYSIS: JUNE/MAY.

TABLE 2:

Food Needs Assessment

CURRENT YEAR FOOD BALANCE		ZANZIBAR			
Current Year: 1989/91					
Commodity	PADRY	WHEAT	CEREALS ALL	TOTAL	TOTAL BCF
Per capita consumption (UNMILLED kg/yr)	100.2	20.0	120.0	120.0	127.2
x Population (thousands)	700	700	700	700	700
= Total consumption requirement	70,110	20,120	90,230	90,230	89,041
Gross domestic food production	13,046	0	13,046	13,046	13,046
- Total non-food use	1,930	0	1,930	1,930	1,930
= Net domestic food production	11,900	0	11,900	11,900	11,900
- Net change in stocks	0	0	0	0	0
- Total food exports	0	0	0	0	0
= Domestic food supply	11,900	0	11,900	11,900	11,900
Total consumption requirement (from above)	70,110	20,120	90,230	90,230	89,041
- Domestic food supply (from above)	11,900	0	11,900	11,900	11,900
= Import requirement	58,202	20,120	78,330	78,330	77,133
- Total commercial food imports	47,415	17,755	65,170	65,170	64,114
= FOOD DEFICIT (UNMILLED)	10,797	2,373	13,160	13,160	13,019
x Milling extraction rate (m.e.r.)	65%	75%			
= FOOD DEFICIT (MILLED)	7,812	1,700	9,512	9,512	9,686

NOTES:

- A) ALL QUANTITIES IN METRIC TONS.
 B) ALL QUANTITIES IN UNMILLED TERMS UNLESS NOTED.
 C) A NEGATIVE (-) DEFICIT IS A SURPLUS.
 D) PER CAPITA CONSUMPTION:
 AVERAGE PER CAPITA AVAILABILITY OVER THE BASE PERIOD.
 E) BASE PERIOD: 1985/86 - 1989/90

YEAR OF ANALYSIS: JUNE/MAY

II. METHODOLOGY:

1) Commodities

The six commodities included in the Mainland Tanzania assessment contribute approximately 70% to daily calorie intake.¹ A breakdown of calorie contribution by commodity highlights the principal role of maize in the diet at 31%. In terms of share of total calorie intake, maize is followed by cassava (21%), rice (7%), beans (5%) and sorghum/millet (4%). Wheat is consumed almost exclusively in urban areas and represents only 1% of total calorie consumption. It should be noted that the above calorie share estimates are national level aggregates, and do not account for regional or rural-urban differences in consumption. Commodity coverage and share of the diet are presented in Figure 1.

2) Period of Analysis

Five years of historical data on food crop production, consumption (availability), imports/exports and stocks were collected to serve as a base period reference and to highlight trends over time. For the Tanzania assessment the base period includes the years 1985/86 - 1989/90. The marketing year -- the year of analysis -- runs from June 1st to May 31st. Note that agricultural production in crop year 1989/90 is available for consumption during the marketing year June 1990 - May 1991.

The historic and current year data used in the 1990/91 food needs assessment are stored on the USAID Mission computer, and should be updated as additional data becomes available.

3) Non-food uses

Gross domestic production of food crops was adjusted to account for seed requirements, animal feed, and post harvest losses. Although post-harvest losses for cereals are cited as being high in Tanzania, estimates used by the Food Strategy Unit of the Ministry of Agriculture and Livestock Development appear to be on the low side. Milling extraction rates (MER) were also applied to all commodities to reflect processing losses. The milling extraction rate represents the percentage of the whole grain (raw food) left after milling/processing into the form in which the food will be consumed.

¹Food Strategy Unit. Mainland Tanzania Food Situation. Occasional Paper. Planning and Marketing Division, Ministry of Agriculture and Livestock Development. Dar Es Salaam, Tanzania: May 1988.

Technical coefficients for Tanzania are shown in Table 3.

4) Population

For Mainland Tanzania, the population estimates used in calculating per capita availability (consumption) are based on the 1988 census factoring in a growth rate of 2.8%. Population estimates for Zanzibar and Pemba are likewise based on the 1988 census; the population growth rate is somewhat higher than Mainland Tanzania at 3% per annum.

5) Per Capita Consumption Requirement

In assessing food needs the aggregate consumption requirement is calculated by multiplying per capita consumption by population. For Mainland Tanzania, per capita food consumption is estimated at .7 kilos maize equivalent or 2,500 calories per day. When converted to quantity terms, annual per capita consumption by commodity in unmilled terms is estimated as follows: maize (88.7 kilos), rice (26.3 kilos), wheat (5.6 kilos), sorghum/millet (33 kilos), cassava (141.6 kilos), beans (12.5 kilos), sweet potatoes, (19.2 kilos), and bananas (20.4 kilos).²

6) Base Commodity Equivalent (BCE).

Maize is the dietary staple in Mainland Tanzania, and for the purposes of analysis is considered the base commodity. In the current year food balance, quantities of other foods are converted into the equivalence, in caloric terms, of the base commodity. Thus, the final column in Table 1 shows the key variables -- production, consumption, imports/exports, stocks -- and the deficit/surplus situation expressed in BCE or maize equivalent terms.

7) Training in the Food Needs Assessment Methodology and Software/Template.

Five training sessions in the food needs assessment (FNA) methodology and software/template were held for USAID Mission and host government staff. An understanding of the methodology combined with a working knowledge of the software package provides participants with the tools necessary to conduct assessments in future years.

²Food Security Unit, Ministry of Agriculture and Livestock Development, Dar Es Salaam, Tanzania: 1990.

TANZANIA: FOOD NEEDS ASSESSMENT

TABLE: 3

TECHNICAL COEFFICIENTS:

COMMODITY	CALORIES/ UNMILLED KILO	MILLING EXTRACTION RATE, (MER) (%)	SEED USE (%)	FEED USE (%)	LOSSES (%)	SHARE IN TOTAL CALORIE INTAKE (%)
MAIZE	3570	90	3	2	5	31.1
PADDY	3530	65	6	4	4	7.1
WHEAT	3320	75	7	6	4	1.4
SORGHUM/MILLET	3450	70	2	1	5	4.1
CASSAVA	1490	35	--	--	10	21.0
BEANS	3420	100	9	6	5	5.1*

DATA SOURCES:

30.2 : Other Foods:
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Coefficients: MER:

MDB: Ministry of Agriculture and Livestock Development; and
FAO. Technical Conversion Factors. Agricultural
Commodity Projections for 1975 and 1985. Vol. 1.
Methodological Notes/Statistical Annex, (Rome, Italy).

Seed

Requirements:

FAO. Tanzania: Food Balance Sheet. (Rome, Italy: May 1983).

Other:

MALD, Ministry of Agriculture and Livestock Development.
Mainland Tanzania Food Situation. Occasional Paper, Food Strategy
Unit: Planning and Marketing Division. May, 1988.

Share of Calorie Intake:

MALD. Mainland Tanzania Food Situation. Occasional Paper,
Food Strategy Unit: Planning and Marketing Division. May, 1988.
Note: * = Beans and Peas

The training sessions focused on three areas: (i) methodology, (variables, equations, and parameters); (ii) data requirements, and (iii) FNA template/software package. Government of Tanzania participants included representatives from the following offices: Food Security Unit (MALD), Food Strategy Unit (MALD), Marketing Development Bureau, (MALD), and the National Milling Corporation, (NMC).

Please see Annex 1 for a list of training sessions and participants.

8) Data Sources:

The main sources of data on agricultural production were the Food Security Unit (FSU) and the Marketing Development Bureau (MDB) of the Ministry of Agriculture and Livestock development, (MALD). Commercial import and export data were provided by MDB and the National Milling Corporation (NMC). MDB and NMC also provided data on concessional food imports for the period 1985/86 - 1987/88; more recent food aid data are those of WFP/Tanzania. Data on opening and closing food stock balances were provided by NMC.

Although unregistered food exports to neighboring countries are widely acknowledged, no official statistics exist on quantities traded. For maize and beans, estimates of unofficial exports range from 10 - 20 percent of gross domestic production.

A complete list of data sources and individuals contacted is presented in Annex 1. Annex 2 presents the data used in the assessment with source citations.

III. AGRICULTURE:

1) General

Agriculture represents the mainstay of the Tanzanian economy, with approximately 90% of the population engaged in agricultural activities. Agriculture contributes more than 50% to GDP, and accounts for over three quarters of export earnings. The rural sector is characterized by smallholder production with farm households producing staple food crops primarily to meet subsistence needs. MDB estimates for 1987/88 show that the marketed share of gross production is 25% for maize and 50% for paddy; non-cereal food crops for the most part are cultivated for home consumption. In mainland Tanzania the size of landholdings is quite small, with 83% of farms citing holdings of less than 2 hectares. Principal food crops include maize, rice, millet/sorghum, cassava, beans, bananas, and various fruits and

vegetables. The most important export crop is coffee; other export crops include cotton, sisal, tobacco, cashew nuts, tea, cloves, and pyrethrum.

Drought conditions and resulting food shortfalls have been experienced in Tanzania on a recurring basis: 1961/62, 1974/75, and 1983/84. Although on a national level staple food crop production has been adequate in recent years to support consumption, certain areas are generally considered drought prone/food deficit. These include areas in the following regions: Mara, Mwanza Shinyanga, Kigoma, Tabora, Singida, Arusha, Kilimanjaro, Tanga, Dodoma, and Mtwara.³ The weak transport infrastructure in Tanzania coupled with the vast size of the country, make it extremely difficult to move food from surplus to deficit regions.

In the 1980's the government of Tanzania launched a series of reform programs to address the deterioration of the economy. Agricultural reform has been a central part of both the Economic Recovery Program (ERP: 1986/87 - 1988/89) and the follow-on Economic and Social Action Programme (ESAP: 1989/90 - 1991/92). Specific policy measures include: (i) exchange rate adjustment, (ii) real increases in producer prices for export and food crops, (iii) removal of price controls, and (iv) agricultural market reforms. Agricultural production is estimated to have increased by 5% per year since 1985/86, attributable both to liberalization of food crop marketing and to favorable weather conditions.

2) Agricultural Production: Crop Year 1989/90

Aggregate production of food crops included in the assessment is estimated to be 14% lower than the previous year's record harvests. The decline in production is due in part to a reduction in area planted, and in part to unfavorable weather conditions in the planting and growing seasons. Inadequate rainfall in January/February was experienced in Central and Southern Tanzania. In April 1990 excessive rainfall resulted in severe flooding in the regions of Lindi and Mtwara. Pest infestation -- army worms, rats, and cassava mealy bugs -- was also cited as contributing to the below average June harvest. Despite the fall in production, the aggregate supply of staple food crops exceeds demand in marketing year 1990/91: surpluses are evident for all food crops with the exception of wheat and millet/sorghum. Although production estimates show a national level surplus, food deficits emerge for the following regions: Dar Es Salaam/Coast, Dodoma, Kigoma, Kilimanjaro, Lindi, Mara, and Tanga. Given storage,

³Bryson, Judy et. al, A Review of the State of Food and Nutrition in Tanzania and its Programming Implications. USAID/Tanzania: April 1986, p. 26.

transport, and marketing constraints, the transfer of food crops from surplus to deficit regions remains an intractable problem in 1990/91. Recent reports from the Rukwa region note that 37,000 MT of surplus maize is at risk of rotting due to inadequate storage and transport.

A breakdown of food deficits by region is shown in Table 4.

IV. MAINLAND TANZANIA: SITUATION BY CROP

1) Maize

In Mainland Tanzania maize is cultivated primarily by smallholders under rainfed conditions. The four Southern regions of Iringa, Mbeya, Rukwa, and Ruvuma are the principal producing areas, accounting for nearly 50% of national maize output. Production has increased over the past five years from 2,093,000 MT in crop year 1984/85 to 3,125,000 MT in 1988/89. In 1987/88, following three successive years of good harvests, Tanzania moved from a position of importing to that of exporting maize. Maize production in crop year 1989/90 is estimated to be 22% lower than the previous year's record harvest. Despite the decline in output, production plus large carry-over stocks result in a satisfactory supply position for the period June 1990 - May 1991.

Food Balance: Maize is the preferred dietary staple in Tanzania contributing nearly a third to daily caloric intake on a national basis. National per capita availability of maize increased significantly over the base period reflecting the improvement in production levels. Given a production level of 2,445,000 MT and annual per capita consumption of 88.7 kilos (unmilled), a substantial maize surplus emerges in marketing year 1990/91 of 102,824 MT. Local maize supplies more than cover the national consumption requirement, allowing for stock build-up as well as possible export.

2) Paddy (Rice)

The principal paddy producing regions in Tanzania are Morogoro, Mwanza, Mbeya, and Shinyanga. Trends in paddy production show a steady improvement over the base period, with output rising from 427,000 MT in crop year 1984/85 to 718,000 MT in 1988/89. Estimated production of 740,000 MT for the current year surpasses the previous year's bumper harvest. National per capita availability of rice averaged 15.7 kilos (milled)/year over the base period. Per capita availability, however, is substantially higher in urban areas where the bulk of rice is consumed. Given

MAINLAND TANZANIA:

TABLE: 4
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FOOD NEEDS ASSESSMENT:

FOOD DEFICIT REGIONS: JUNE 1990 - MAY 1991

	METRIC TONS
	MAIZE EQUIVALENT
DAR ES SALAAM/ COAST	322000
DODOMA	109000
KIGOMA	66000
KILIMANJARO	72000
LINDI	57000
MARA	90000
TANGA	135000

NOTES:

- A) A NEGATIVE DEFICIT (-) IS A SURPLUS.
- B) DEFICITS CONVERTED INTO MAIZE EQUIVALENT TERMS INCLUDE THE FOLLOWING COMMODITIES:
MAIZE, RICE, WHEAT, MILLET/SORGHUM, CASSAVA, PULSES, SWEET POTATOES, AND BANANAS.

DATA SOURCE:

Food Security Unit, (FSU/MALD): June 1990.

the improvement in production, rice imports have been declining in recent years. No rice was imported commercially in marketing year 1989/90, while concessional imports declined to 14,400 MT.

Food Balance: With an estimate of paddy production of 740,000 MT, a small surplus of 1,374 MT (milled) emerges for rice in 1990/91. Food aid commitments to date include 5,000 MT of Thai rice donated by Japan.

3) Wheat:

In contrast to other cereals, wheat is a fairly minor crop in Tanzania with production reaching 97,000 MT in crop year 1988/89.

Total wheat imports averaged 39,200 MT (unmilled) per year over the base period. Commercial wheat imports have increased in recent years rising from 5,500 MT in 1985/86 to 20,500 MT (unmilled) in 1989/90. On an annual basis food aid represents approximately 55% of total wheat imports.

Food Balance: Given a production level of 105,600 MT, the import requirement for wheat in 1990/91 is 53,640 MT (unmilled). Subtracting projected commercial imports of 25,000 MT yields an uncovered deficit of 28,640 MT (unmilled).

4) Sorghum/Millet:

Sorghum and bullrush millet are cultivated in areas of low or marginal rainfall, most notably the regions of Dodoma, Singida, Tabora, and Shinyanga.⁴ Estimated production of these drought resistant cereals fell sharply in crop year 1989/90; the 30% decline in production over the previous year is largely attributable to a reduction in area planted. Although sorghum/millet can be made into ugali, (a thick porridge eaten with various sauces), it is used primarily in the manufacture of local beer. The low level of sorghum/millet production results in a sizeable deficit of 285,280 MT (unmilled) in 1990/91.

5) Cassava:

As a drought resistant staple, cassava is cultivated by smallholders primarily for home consumption. Cassava is produced throughout the country, with the major production areas in Coastal, South - West, and North-West Tanzania. Similar to millet/sorghum, cassava has shown a decline in production in crop year 1989/90.

⁴MALD, Annual Review of Sorghum, Millet, Cassava and Beans. Marketing Development Bureau, Ministry of Agriculture and Livestock Development, Dar Es Salaam, Tanzania: 1988, p. 5.

Despite the 11% decline in output over the previous year, the local supply of cassava is more than adequate to cover consumption requirements: a surplus of 321,311 MT (milled) is evident for marketing year 1990/91. Cassava flour is used in the preparation of ugali, and apparently consumers prefer this dish to the sorghum/millet based variety. Given the deficit situation for sorghum/millet, cassava ugali may increasingly substitute for coarse grain ugali in the Tanzanian diet in 1990/91.

6) Beans

Bean production shows a small increase over the previous year reaching 388,000 MT in 1989/90. Beans are cultivated throughout Mainland Tanzania, with smallholder farming being the predominant production mode. As a relatively cheap source of calories and protein, beans are increasingly substituting for meat in the Tanzanian diet. Given a per capita consumption requirement of 12.5 kilos/year, a small surplus emerges in 1990/91 of 9,700 MT.

V) ZANZIBAR AND PEMBA

An assessment of the food supply and utilization situation was also conducted for the islands of Zanzibar and Pemba. Given data constraints, the analysis was limited to rice and wheat. In recent years production of paddy in Zanzibar has averaged 16,651 MT on an annual basis. Estimates for crop year 1989/90, however, show a sharp decline in production over the previous year. Rice per capita availability has been augmented by imports, both commercial and concessional. The data show that paddy production and projected commercial rice imports in marketing year 1990/91 are inadequate to support status quo consumption -- average per capita availability over the base period. A deficit of 7,012 MT emerges for rice prior to food aid. The food balance situation for wheat is likewise one of deficit. No wheat is produced in Zanzibar and Pemba, and demand is met solely by wheat flour imports. Assuming commercial imports of 13,316 MT (milled) in 1990/91 -- average commercial imports over the past 5 years -- a food deficit emerges of 1,780 MT for wheat flour.

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- Royer, Jack, Gary Robbins, and Joel Strauss. Review of the Tanzania Food Aid Program. USAID/Tanzania, July 1987.

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I. CONTACTS:

- 1) USAID/TANZANIA:
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Mr. Joel Schlesinger, (Deputy Director)
Mr. Joel Strauss, (Rural Economy Advisor)
Mr. William Baynit, (Food and Agricultural Officer)
Mr. Fred Guymont, (Project Design Officer)
- 2) FOOD SECURITY UNIT: MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT, (FSU/MALD).
Mr. J.R.L. Kisanga, (Agricultural Officer, Agronomy)
- 3) FOOD STRATEGY UNIT: MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT.
Mr. Gerald T. Runyon, (Agricultural Economist)
Mr. Charles Tulahi, (Agricultural Economist)
- 4) MARKETING DEVELOPMENT BUREAU: MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT, (MDB/MALD).
Mr. H. Mwaipyana, (Senior Agricultural Economist)
Mr. N.S. Mbonde, (Agricultural Economist)
- 5) TANZANIA FOOD AND NUTRITION CENTRE, (TFNC):
Mr. Wilbald S. Lorri, (Director of Food Science and Technology)
- 6) BUREAU OF STATISTICS:
Mr. Ado V. Nnembuka, (Assistant Government Statistician: Trade and Transport Statistics).

- 7) WORLD FOOD PROGRAMME, (WFP):
Mr. Techeste Zergaber, (Director of Operations)
Ms. Patricia Kennedy, (Assistant Program Officer)

- 8) EXPORT TRADING COMPANY, LTD.

Mr. Mahesh R. Patel

Main Office Address:

P.O. Box 57661
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Telephone: 72-18-89 or 72-26-26

II. ADDITIONAL DATA SOURCES:

NATIONAL MILLING CORPORATION, (NMC):

MINISTRY OF AGRICULTURE, LIVESTOCK AND NATURAL RESOURCES,
REVOLUTIONARY GOVERNMENT OF ZANZIBAR.

III. TRAINING IN FNA METHODOLOGY AND TEMPLATE/SOFTWARE:

DATES: September 10 - 11, 1990

PARTICIPANTS: Mr. Bernard M. Ulaya, (Marketing Development
Board, MALD: Computer Analyst).

Mr. Juvenal Kisanga, (Food Security Unit,
MALD: Agronomist).

Mr. Charles R. Tulahi, (Food Strategy Unit,
MALD: Agricultural Economist).

Ms. Paulina Nyambele, (National Milling
Corporation: Depot Manager).

Mr. William Baynit, (USAID/Tanzania: Food
and Agricultural Officer).

Mr. Ernesto Villemin, (USAID/Tanzania:
System Administrator).

FNA TRAINING: CONTINUED.

DATES: September 14, 17 and 18, 1990

PARTICIPANTS: Mr. William Baynit, (USAID/Tanzania: Food
and Agricultural Officer).

Mr. Ernesto Villemin, (USAID/Tanzania: System
Administrator).

Ms. Mwanasera Mwinyi, (USAID/Tanzania).

ANNEX 2:

STATISTICS:

AGRICULTURAL PRODUCTION, IMPORTS/EXPORTS, STOCKS

GENERAL DATA REPORT

Food Needs Assessment: MAINLAND TANZANIA

Consumption Year: JUNE/MAY

Current Year (Year of Analysis):	1990.91	Current Year Population:	24.489
Historical Years T-1:	1989.90	Historical Year T-1 Population (000):	23.813
T-2:	1988.89	T-2 Population (000):	23.165
T-3:	1987.88	T-3 Population (000):	22.534
T-4:	1986.87	T-4 Population (000):	21.929
T-5:	1985.86	T-5 Population (000):	21.323

Commodities Included in Assessment:	Base ==	MAIZE	PADDOY	WHEAT	SORGH/MIL	CASSAVA	BEANS				
Caloric equivalent (calories/ UNMILLED kilogram)	3.570	3.530	3.320	3.450	0	1.490	3.420	0	0	0	0
/ Caloric equivalent of base commodity	3.570	3.570	3.570	3.570	3.570	3.570	3.570	3.570	3.570	3.570	3.570
= Base Commodity Equivalent Coefficient (1.00)	1.00	0.99	0.93	0.97	0.00	0.42	0.96	0.00	0.00	0.00	0.00
Milling extraction rate (1.00)		99%	93%	75%	70%	0%	35%	100%	0%	0%	0%

MAINLAND TANZANIA

POPULATION AND GROWTH RATE

.....
Growth Rate 2.5 %
.....

1984	21,772,111
1985	21,741,174
1986	21,699,936
1987	21,649,836
1988	21,590,736
1989	21,524,736
1990	21,452,836
1991	21,375,836
1992	21,293,836

DATA SOURCE: 1988 Census

TANZANIA:

TABLE:

FOOD NEEDS ASSESSMENT:

MAINLAND PRODUCTION (METRIC TONS): 1984/85 - 1989/90

	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
MAIZE	2093000	2211000	2339000	2339000	3123000	2448000
PADDY	427000	547000	544000	613000	713000	740000
WHEAT	83000	72000	72000	86000	97000	105000
SORGHUM/MILLET	760000	1081000	322000	353000	504000	567900
CASSAVA:						
Processed	1900000	1921000	1975000	1709000	1948000	1724100
Unprocessed	5436571	5466571	5357143	4992357	5565714	4973000
BEANS	540000	438000	347000	424000	366000	367300

DATA SOURCES:

1) Maize, Rice, and Wheat:

1984/85 - 1987/88:

Crop Monitoring and Early Warning Bureau, KILIMBO.
Annual Review of Maize, Rice and Wheat. (MJB: Dar Es Salaam, 1989).

1988/89 - 1989/90:

Food Security Unit, Ministry of Agriculture and Livestock Development.

and

2) Sorghum/Millet, Cassava,
and Beans:

1984/85 - 1987/88:

Crop Monitoring and Early Warning Bureau, KILIMBO.
Annual Review of Sorghum, Millet, Cassava and Beans.
(MJB: Dar Es Salaam, 1988).

1988/89 - 1989/90:

Food Security Unit, Ministry of Agriculture and Livestock Development.

KENYA

FOOD NEEDS ASSESSMENT:

MAIZE IMPORTS, (METRIC TONS): 1964/65 - 1969/70

YEAR	CONVENTIONAL	CONVENTIONAL	TOTAL IMPORTS
1964/65		3000	3000
1965/66	10000	3000	13000
1966/67	0	0	0
1967/68	0	0	0
1968/69	0	0	0

DATA SOURCE:

1964/65 - 1967/68:

Crop Monitoring and Early Warning Bureau, KILIMBO.
Annual Review of Maize, Rice and Wheat, (1965: War as a Lesson, 1969).

1968/69 - 1969/70

Food Security Unit, Ministry of Agriculture and Livestock Development,
and World Food Program, (A/C/S/Kenya, September 1970).

TANZANIA:

FOOD NEEDS ASSESSMENT:

MAIZE EXPORTS, (METRIC TONS): 1984/85 - 1990/91

YEAR	EXPORTS
1985/86	0
1986/87	0
1987/88	34604
1988/89	31533
1989/90	32339

DATA SOURCE:

1984/85 - 1986/87:

Crop Monitoring and Early Warning Bureau, MIIIDU.
Annual Review of Maize, Rice and Wheat, (MJE: Dar Es Salaam, 1988).

1987/88 - 1989/90:

National Milling Corporation, (MJC): September 1990.

TANZANIA:

FOOD NEEDS ASSESSMENT:

RICE IMPORTS, (METRIC TONS): 1984/85 - 1990/91

YEAR	COMMERCIAL	CONCESSIONAL	TOTAL IMPORTS
1985/86	8500	24400	32900
1986/87	56000	27500	83500
1987/88	31000	21300	52300
1988/89	2354	17219	19613
1989/90	0	14399	14399
1990/91 *	0	5000	5000

*: 5,000 MT of rice donated by Japan.

DATA SOURCE:

1985/86 - 1987/88: Crop Monitoring and Early Warning Bureau, KILIMO.
Annual Review of Maize, Rice and Wheat, (ADB: Dar Es Salaam, 1988).

1988/89 - 1989/90: Commercial Imports: National Milling Corporation, (NMC), September 1990.
Concessional Imports: World Food Programme, (WFP)/Tanzania,
September 1990.

1990/91: USAID/Tanzania, September 1990.

TABLE 1

WHEAT NEED MANAGEMENT

WHEAT IMPORTS METRIC TONS 1964-65 - 1968-69

YEAR	COMMERCIAL	NONCOMMERCIAL	TOTAL IMPORTS
1965-66	101,000	1,000	102,000
1966-67	100,000	1,000	101,000
1967-68	100,000	1,000	101,000
1968-69	100,000	1,000	101,000
1969-70	100,000	1,000	101,000

1. All quantities in wheat grain equivalents. Terms: 100% cash, flour converted to wheat grain.
 2. The Food Security Team (FST) estimates that 10,000 MT of wheat will be imported commercially in 1970-71. This amount arrived approximately on 12 July 1970.
 3. Estimate

DATA SOURCE

- 1965-66 - 1967-68: U.S. Flouring and Baking Branch, WDC; Annual Report of Trade, Finance and Wheat, WFE, New York, 1966.
- 1968-69 - 1969-70: Commercial Imports: National Milling Industry, WDC, September 1968; and Food Security Bulletin 1969, FST/WDC; Commercial Imports: World Food Programme, WFP, Geneva, September 1969.

KENYA: FOOD NEEDS ASSESSMENT

NATIONAL MILLING CORPORATION (NMC) STOCK BALANCES: OPENING AND CLOSING LEVELS, METRIC TONS

	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
MAIZE:						
Opening	1900	1910	2200	2100	2000	--
Closing	1910	2200	2100	2000	--	--
SEMSE. (MAIZE FLOUR)						
Opening	300	300	424	60	479	--
Closing	307	424	60	479	--	--
PADDY:						
Opening	1100	3074	11432	37140	46710	--
Closing	3074	11432	37140	46710	--	--
BARLEY:						
Opening	3304	2770	2720	3304	13310	--
Closing	2770	2720	3304	13310	--	--
WHEAT:						
Opening	43650	11914	33916	22649	3491	--
Closing	11914	33916	22649	3491	--	--
WHEAT FLOUR:						
Opening	336	315	4244	4414	3400	--
Closing	315	4244	4414	3400	--	--
SORGHUM/MILLET:						
Opening	12460	19621	18448	4640	77	--
Closing	19621	18448	4640	77	--	--
SORGHUM/MILLET FLOUR:						
Opening	0	0	0	0	0	--
Closing	0	0	0	0	--	--
CASSAVA ROOT:						
Opening	17635	3684	3693	3312	1731	--
Closing	3684	3693	3312	1731	--	--
CASSAVA FLOUR:						
Opening	1034	491	0	0	0	--
Closing	491	0	0	0	--	--
BEANS:						
Opening	6720	6302	21842	6242	1425	--
Closing	6302	21842	6242	1425	--	--

NOTE: Opening Level Balances: August 1st
 Closing Level Balances: July 31st

*: Includes Strategic Grain Reserve, (SGR)

DATA SOURCE: NATIONAL MILLING CORPORATION, (NMC): September, 1990.

Best Available Document

TANZANIA:

TABLE:

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FOOD NEEDS ASSESSMENT:

CONSUMPTION REQUIREMENT:

PRODUCT	KILOS/PERSON/YEAR	
MAIZE	88.7	Unmilled
RICE	17.1	Milled
	26.3	Unmilled
WHEAT	5.6	Unmilled
SORGHUM/MILLET	33.0	Unmilled
CASSAVA	59.0	Milled
	141.6	Unmilled
BEANS	12.5	Unmilled

NOTE:

Consumption requirement based on .7 kilos cereal equivalent, (maize equivalent), per person per day. Consumption requirements for commodities not included in the 1990/91 assessment:

- Sweet Potatoes, (19.2 Kilos/Person/Year).
- Bananas, (20.4 Kilos/Person/Year).

DATA SOURCE:

FOOD SECURITY UNIT: MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT,
JUNE, 1990.

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COMMODITY: MAIZE (Base)

TANZANIA

	1980.00	1980.01	1987.86	1988.09	1989.90	Average
= Gross domestic food production	2,093,700	2,211,000	2,959,000	2,339,000	3,125,000	2,438,400
- Total non-food uses	209,300	209,100	236,300	236,300	312,300	242,340
= Net domestic food production	1,884,400	1,999,900	2,722,700	2,102,700	2,812,700	2,192,360
- Net change in stocks	-42,123	-61,757	(106,039)	5,266	52,703	30,766
- Total food exports	0	0	34,009	31,538	32,339	29,779
= Domestic food supply	1,741,577	1,923,143	2,146,530	2,067,326	2,727,398	2,122,315
+ Total commercial food imports	3,100	35,000	0	0	0	17,620
+ food Aid	3,300	3,300	0	0	0	2,360
= total food supply	1,747,977	2,021,943	2,146,530	2,067,326	2,727,398	2,142,295
/ population (thousands)	21,323	21,920	22,534	23,165	23,613	22,561
= PER CAPITA CONSUMPTION (UNMILLED kg/year)	82.0	92.2	95.3	89.3	114.5	94.7
= PER CAPITA CONSUMPTION (MILLED kg/year)	73.3	83.0	86.7	80.3	103.1	85.2

COMMODITY: PADDI

TANZANIA

	1960.00	1966.01	1967.59	1968.59	1969.90	Average
= Gross domestic food production	427,000	347,000	344,000	319,000	718,000	390,200
- Total non-food uses	39,760	76,380	36,150	36,100	100,320	62,628
= Net domestic food production	387,240	270,620	307,850	282,900	617,680	327,572
- Net change in stocks	(4,079)	3,355	21,033	29,312	38,442	23,212
- Total food exports	0	0	0	0	0	0
= Domestic food supply	379,299	273,975	328,883	312,912	656,122	304,360
+ Total commercial food imports	13,077	16,194	47,592	3,583	0	30,221
+ food aid	17,838	42,308	32,769	16,491	22,152	32,252
= Total food supply	408,214	332,477	409,244	332,986	680,274	366,833
/ Population (thousands)	21,320	21,920	22,534	23,166	23,813	22,531
= PER CAPITA CONSUMPTION (UNMILLED) kg/year	19.6	15.2	18.1	14.4	28.6	16.3
= PER CAPITA CONSUMPTION (MILLED) kg/year	16.9	17.0	17.0	15.0	15.9	16.7

COMMODITY: WHEAT

TANZANIA

	1985.86	1986.87	1987.88	1988.89	1989.90	average
Gross domestic food production	63,000	72,000	72,000	66,000	37,000	76,000
- Total non-food uses	14,110	12,240	12,240	11,220	16,430	13,260
= Net domestic food production	66,690	59,760	59,760	54,780	50,510	64,740
- Net change in stocks	(32,090)	16,914	(3,040)	(6,461)	6,909	(3,227)
- Total food exports	0	0	0	0	0	0
Domestic food supply	100,936	41,166	62,900	61,261	73,501	67,967
- Total commercial food exports	0,000	1,000	20,000	26,640	20,439	14,928
+ Food Aid	16,300	53,500	13,700	33,832	0	24,666
= Total food supply	127,236	98,666	96,600	126,733	94,100	107,701
/ Population (thousands)	21,320	21,320	22,534	23,100	23,813	22,701
= PER CAPITA CONSUMPTION (UNMILLED) kg/year	5.9	4.6	4.3	5.5	4.0	4.7
= PER CAPITA CONSUMPTION (MILLED) kg/year	4.3	3.3	3.2	4.1	3.0	3.9

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COMMODITY: SORGH/MILL

TANZANIA

	1985.86	1986.87	1987.88	1988.89	1989.90	Average
Gross domestic food production	760,000	1,081,000	922,000	953,000	804,000	904,000
- Total non-food uses	60,800	88,480	73,760	76,240	64,320	72,320
= Net domestic food production	699,200	994,520	848,240	876,760	739,680	831,680
- Net change in stocks	7,168	(4,179)	(10,809)	(4,563)	(77)	(2,492)
- Total food exports	0	0	0	0	0	0
= Domestic food supply	692,032	998,699	859,049	881,323	739,757	834,172
+ Total commercial food imports	0	0	0	0	0	0
+ Food Aid	0	0	0	0	0	0
= Total food supply	692,032	998,699	859,049	881,323	739,757	834,172
/ Population (thousands)	21,323	21,920	22,534	23,165	23,813	22,551
= PER CAPITA CONSUMPTION (UNMILLED kg/year)	32.5	45.6	38.1	38.0	31.1	37.0
= PER CAPITA CONSUMPTION (MILLED kg/year)	22.7	31.9	26.7	26.6	21.7	25.9

COMMODITY: CASSAVA

TANZANIA

	1988.00	1989.01	1990.01	1991.09	1992.00	Average
Gross domestic food production	3,429,000	3,439,000	3,337,000	4,003,000	3,365,000	3,344,000
- Total non-food uses	342,900	346,900	335,700	408,300	300,000	334,400
= Net domestic food production	4,000,100	4,040,200	4,021,300	4,394,700	3,009,400	4,010,320
- Net change in stocks	(11,305)	4,004	(341)	(1,051)	(1,731)	(4,123)
- Total food exports	0	0	0	0	0	0
= Domestic food supply	4,000,402	4,044,204	4,021,041	4,396,201	3,017,131	4,014,400
- Total commercial food imports	0	0	0	0	0	0
- Food aid	0	0	0	0	0	0
= Total food supply	4,000,402	4,044,204	4,021,041	4,396,201	3,017,131	4,014,400
/ population (thousands)	21,323	21,320	22,004	22,200	23,613	22,001
= PER CAPITA CONSUMPTION (MILLIGRAMS/yr)	187.7	189.6	182.7	196.2	127.8	183.6
= PER CAPITA CONSUMPTION (KILOGRAMS/yr)	10.4	10.7	9.6	10.9	7.0	9.6

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COMMODITY: GRAIN

TANZANIA

	1955.86	1956.87	1957.88	1958.89	1959.90	Average
= Gross domestic food production	340.000	408.000	347.000	424.000	366.000	427.000
- Total non-food uses	103.000	37.500	69.400	64.500	77.200	66.400
= Net domestic food production	433.000	350.400	277.600	339.200	308.800	341.600
- Net change in stocks	(413)	15,540	(13,600)	(6,817)	3,375	(234)
- Total food exports	0	0	0	0	0	0
= Domestic food supply	432.416	334.860	291.200	346.017	304.925	341.684
+ Total commercial food imports	0	0	0	0	0	0
+ food Aid	0	0	0	0	0	0
= Total food supply	432.416	334.860	291.200	346.017	304.925	341.684
/ Population (thousands)	21,353	21,920	22,534	23,165	23,813	22,551
= PER CAPITA CONSUMPTION (UNMILLED kg/year)	20.3	15.3	12.9	14.9	12.8	15.2
= PER CAPITA CONSUMPTION (MILLED kg/year)	20.3	15.3	12.9	14.9	12.8	15.2

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GENERAL DATA REPORT

Food Needs Assessment: ZANZIBAR AND PENBE

Consumption Year:

Current Year (year of analysis):	1990.91	Current Year Population:	700
Historical Years T-1:	1989.90	Historical Year T-1 Population (000)	680
T-2:	1988.89	T-2 Population (000)	660
T-3:	1987.88	T-3 Population (000)	641
T-4:	1986.87	T-4 Population (000)	622
T-5:	1985.86	T-5 Population (000)	604

Commodities Included in Assessment:	Base ==>	PADDY	WHEAT							
Caloric equivalent (calories/ UNMILLED kilogram)	3,530	3,320	0	0	0	0	0	0	0	0
/ Caloric equivalent of base commodity	3,530	3,530	3,530	3,530	3,530	3,530	3,530	3,530	3,530	3,530
= Base Commodity Equivalent Coefficient (.00)	1.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milling extraction rate (.00)		65%	75%	0%	0%	0%	0%	0%	0%	0%

ZANZIBAR AND PEMBA.

POPULATION AND GROWTH RATE

.....
Growth Rate = 0.0 %
.....

1964	563146
1965	566220
1966	569606
1967	572900
1968	576576
1969	580786
1970	585089
1981	698977
1992	700976

DATA SOURCE: 1986 Census.

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TANZANIA:

FOOD NEEDS ASSESSMENT:

ZANZIBAR AND PEMBE PADDY (RICE) PRODUCTION (METRIC TONS): 1984/85 - 1989/90

	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
PADDY	20118	13795	8112	21985	19246	13846

DATA SOURCE:

1984/85 - 1988/89: Ministry of Agriculture, Livestock and Natural Resources.
Agricultural Statistical Bulletin. Issue No. 1.
Revolutionary Government of Zanzibar, Department of Planning
and Administration, January 1990.

1989/90: Ministry of Agriculture, Livestock and Natural Resources,
Revolutionary Government of Zanzibar, Department of Planning
and Administration, September 1990.

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TANZANIA:

FOOD NEEDS ASSESSMENT:

ZANZIBAR AND PEMBE RICE IMPORTS, (METRIC TONS): 1984/85 - 1989/90

YEAR	COMMERCIAL	CONCESSIONAL	TOTAL IMPORTS
1984/85	33300	0	33300
1985/86	36700	0	36700
1986/87	40000	0	40000
1987/88	27400	3000	30400
1988/89	21700	3000	25000
1989/90	23000	0	23000

DATA SOURCE:

1984/85 - 1988/89:

Ministry of Agriculture, Livestock and Natural Resources.
Agricultural Statistical Bulletin, Issue No. 1.
Revolutionary Government of Zanzibar, Department of Planning
and Administration, January 1990.

1989/90:

Ministry of Agriculture, Livestock and Natural Resources.
Revolutionary Government of Zanzibar, Department of Planning
and Administration, September 1990.

TANZANIA:

FOOD NEEDS ASSESSMENT:

ZANZIBAR AND PEMBA WHEAT FLOUR IMPORTS, (METRIC TONS): 1984/85 - 1990/91

YEAR	COMMERCIAL	CONCESSIONAL	TOTAL IMPORTS
1984/85	6000	0	6000
1985/86	12000	0	12000
1986/87	12000	700	12700
1987/88	12300	1000	13300
1988/89	15000	1022	16022
1989/90 *	16200	0	16200

*: Estimate

DATA SOURCE:

Ministry of Agriculture, Livestock and Natural Resources.
 Agricultural Statistical Bulletin, Issue No. 1.
 Revolutionary Government of Zanzibar, Department of Planning
 and Administration, January 1990.

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