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Consumption Effects of Food Aid
Household Utilization of Title II Foods in Rural Kenya

By: Anne Fleuret, PhD
Department of Anthropology
The American University

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1. Introduction

Little is currently known about intra-household allocation of food, inequitable or disproportionate division of the foodstuffs available at the household level, or the effects of an individual's age, sex or life condition on his or her access to the total food supply or particular components of it. With reference to programs of food aid, knowledge of any aspect of recipient utilization of foodstuffs received through distribution programs is quite limited. This knowledge gap leaves planners and policy-makers with little data upon which to base important decisions about the composition and size of ration packages provided through food aid. The report which follows is a detailed analytic field study of actual household-level utilization of commodities received through a PL 480 Title II feeding program operated by Catholic Relief Services at Bura Mission, Taita/Taveta District, Kenya, to benefit maternal and child health. The objectives of the study are two-fold; first, to provide the sort of household-based data that show patterns of food utilization and allocation but which are not readily available; and second, to discuss relevance of the findings for hypotheses about program impact and commodity utilization for future research.

The focus of the study is on actual utilization of the commodities provided by this program on a day-by-day basis over a four-to-five week period. Issues directly addressed in the

project include determination of the net income value of the ration and its significance vis-a-vis total household income and investment capacity; the supplementary or substitutive effects of the food provided; methods of preparation of the commodities; the effectiveness of both geographical and intra-household targeting; sales or exchanges of Title II foods, and inter-household patterns of sharing; sources and quantities of non-Title II foods ordinarily consumed; and differential utilization of the ration, if observable, in different types of recipient households. In order to make some judgement of the effects of Title II foods on the usual consumption patterns of households in this part of Kenya, comparisons are made with similar households in the same area which do not have access to the feeding program.

2. The study area

Taita/Taveta District is a rural area located in the inland portion of Coast Province. In the 1979 census the population of the district was 147,597 people, in a total area of 16,975 sq. km. However, 10,500 sq km of the district's area consists of National Park and Game Reserve, and only 194 sq km is classified as high potential agricultural land. According to the 1984-1988 District Development Plan only 1930 sq km are under agricultural production, and much of this is devoted to the estate cultivation of sisal on semi-arid low potential lands. Apart from the National Parks and the very small amount of agricultural land, the

The rural population is concentrated in those areas that are suitable for smallholder food and cash crop production. 57% of the population lives in Wundanyi Division, which comprises only 15% of the total area of the district but which includes most of the fertile and well-watered Taita Hills. These hills rise abruptly from the surrounding arid plain and reach maximum altitudes of 2200 m above sea level. As the altitude rises so does the annual rainfall average, the potential for intensive agricultural production, and the population density. Most of the people live in the hills at elevations of 1000 m or above, and support themselves through a combination of food production, cash crop production, temporary and permanent wage labor, and sales of craft items, forest products, and livestock. The principal crops include maize, beans, other legumes, sweet potatoes, bananas, taro, vegetables, and coffee. Many households raise cattle, sheep or goats and keep poultry as well. All of the hills residents belong to the Taita ethnic group and speak Taita (Kidawida) as their first language. Traditional Taita agriculture was based on the exploitation by individual households of multiple fields in different soil, rainfall and temperature zones. At least until the 1920's this strategy permitted self-sufficiency in food production and the development of a substantial export trade in vegetables. By the 1930's, however, food deficit years began to exceed years in which food production within the district satisfied internal demand.

Although wage labor opportunities had been available primarily to adult males since before the turn of the century, the 1930's saw labor migration develop as an income-generating activity felt by some to equal or surpass food production in terms of its significance to Taita household income.

Until 1981 very little research had been done in the Taita Hills and knowledge of Taita food production patterns, income-generating strategies, and health and nutrition circumstances was quite limited. Since then a number of anthropometric assessments and health surveys have been carried out in Taita communities, and simultaneously data collected on a wide range of social and economic questions. These studies (listed at the end of the report) have established that there is a great deal of diversity even within particular Taita communities in terms of income, investment capacity, education, and nutritional well-being; and that in some communities more than half of the children studied are stunted, wasted, or both. This certainly suggests that integrated MCH programs containing primary care, nutrition education, and food distribution programs could be beneficial in the area, particularly since most of the health services in the Hills are provided by the single hospital, leading to overcrowding of the facility and severely limiting the amount of time staff have available for health education and other outreach activities.

The present study of Title II food utilization was carried out

entirely within Bura Location, one of the seven administrative subdivisions of Wundanyi Division. Bura Location has a total population of 8,192 people. The altitude varies from 900 to almost 2000 m, and annual rainfall from 600 mm or less in the low, dry zones to 1500 mm in the upper elevations.

Bura is somewhat anomalous in that the people adhere predominantly to the Roman Catholic religion; the majority of the Taita are Anglicans. With the permission of the colonial authorities, German and French Catholic missionaries began working in Bura in 1892. They located their mission in a fertile and well-watered valley at about 1200 m altitude, 6 km by road from the dry and dusty plains. Today, Bura Mission still occupies the same site and in addition to the Title II feeding program also operates a girl's secondary boarding school, a dispensary, a children's home and orphanage, and technical courses in tailoring, poultry management, and the like.

3. The Title II program

According to Sister Hildegarde Mbandu, the current Director, the Title II MCH feeding program at Bura Mission began in 1971 but lapsed in 1979 due to difficulties with supplies. The Program was revived for the first three months of 1981, but again lapsed because the Mission did not have adequate and pest-proof storage facilities for the commodities. Sister Mbandu administered a Title II program at Taveta, also in Taita/Taveta District, from 1976 to 1981, and was transferred to Bura to reorganize the

program. Under her direction the program began yet again in 1983, and a contribution of shs 20 per food aid recipient was collected in order to provide funds for the construction of a new storehouse and distribution point. The MCH Title II program at Bura Mission is not connected in any way with the dispensary that is maintained by the mission. A total of shs 16,000 (a substantial sum: nearly \$1,000 at current exchange rates) was collected from food aid recipients and the new storehouse was built at a total cost of shs 35,000, the shortfall being made up by the Catholic Secretariat of Mombasa. Currently, any new entrants to the program pay a one-time contribution of shs 10 to a fund for maintenance, repairs, remodeling, and furniture.

The program currently serves 1200 recipients, of whom 520 are mothers and 680 are children. Mothers may enroll themselves plus one child under the age of five years, or two under-five children. Most of the current recipients originally enrolled when the program was re-initiated in 1983. At that time the sole criterion for admission to the program was first-come, first-served. Neither a nutritional nor an income criterion was applied to determine eligibility. Presently, because some children are "graduating" from the program as they reach the age of five years, some newcomers are being admitted to the program; these children are eligible only if aged between 6 and 36 months and if their weight is less than 80% of the standard weight for their age. In order to achieve a more even ratio of mothers to children served, recipients are being enrolled as mother-child

rather than child-child pairs, with the eventual goal of a recipient population of 580 mothers and 620 children.

The recipients are provided with food once every four weeks, a total of 12 times per year. Villages in the program's effective catchment area are divided into a dozen groups and recipients in each group of communities are assigned a particular day of the week and week of the month for collection. Women from Ilole, Tungulu and Kwawenimwangi, for example, know that they are to arrive at the mission and collect their rations on the first Wednesday of each month. The clinic is closed on Mondays and Tuesdays and distributes food on Wednesdays, Thursdays and Fridays. In any month there are twelve distribution days and twelve localities or groups of communities served. Distribution on any of these days operates on a first-come, first-served basis. Women arrive as early as they choose and place their baskets, tins, sacks or other containers in line in the order that they came. When the Director arrives numbered chips are distributed to the women according to this order. After the food has been brought from the storeroom and announcements pertaining to the program have been made, the recipients enter in order according to their numbered chips. The index child is first weighed on a beam balance scale, in pounds, and the weight entered on the child's clinic card and that day's master chart. Any weight loss, absence from distributions, or other anomalies are the subject of inquiries from Sister Mbando. If a mother has missed a scheduled distribution and does not provide the

director, either by proxy or in person, with an acceptable excuse, she is subject to a fine of shs 4. Acceptable excuses include illness of the mother and/or child, or travel outside the immediate area. Relatives, friends or neighbors may collect rations on behalf of ill or absent mothers so long as they present the index child for weighing, and the clinic cards of both mother and child. If a child is reported ill, or if a weight loss in the child is claimed to have been occasioned by illness, proof of the child's attendance at a health facility may be demanded and if it is not provided, a fine imposed. Sister Mbando personally does not seem to approve of absences due to travel as reason for failing to collect food, but so long as she is properly notified a fine is not imposed. The alternative to payment of the fine is to cultivate ground on the Mission, but reportedly all those liable opt for the fine and have the money to pay it. Any woman who is ill and misses her usual distribution can, if Sister Mbando is notified as above, come anytime before the end of the month to collect her ration.

After the child has been weighed and any questions dealt with, the mother proceeds to collect her ration. After that she is free to return to her home. The clinic opens at 9 am, but distribution does not usually commence until after 10 am because of announcements, lectures and demonstrations, and the like.

Although some of the women live quite near to the Mission, most live some distance away. All travel by foot and, especially when returning burdened with children and food, may require two or

more hours to reach their destination. There is no public transportation available even to those who live near the road. A woman may leave her home at first light, receive her rations at 11 am, and not reach home again until the afternoon. Ration collection thus effectively consumes a working day for each adult recipient. If the index child is not a woman's youngest child she may require the assistance of an older child or adult companion to help with carrying children and other burdens. If half of the 520 recipient mothers require the assistance of another adult for ration collection, 720 person-days of adult labor are utilized each month for this aspect of program participation.

There are other components of the Mission's program besides the distribution of food aid, principally nutrition education and fostering local participation in income-generating activities. Some efforts are made to instruct the recipients in the proper preparation of the foodstuffs and to impart some nutrition education knowledge, but the groups of women and children assembled at any one time are quite large and much of the teaching minimally effective. Attempts are also made to reinforce the nutrition education messages and create permanent bonds of cooperation by the formation of cooperative income-generating projects. Every food aid recipient is required to belong to one of these groups ("chama") of which there are five: rabbit, chicken, goat and pig production, and handicrafts. Unfortunately these groups have not made a great deal of

progress, nor do they appear to have fostered any cooperation or community building spirit. They have instead fostered numerous complaints. The intention to form these groups was announced in February 1984, and initial, compulsory membership payments collected beginning in September 1984. Participants in the chicken, pig and goat groups paid shs 50 each, while rabbit and handicraft group members paid shs 30 each. Each group is impossibly large, containing in excess of 100 members from a number of widely-scattered communities, lacking any of the traditional ties that bind Taita into participatory cooperative enterprises. No further progress has been made in forming the groups, organizing their activities, or providing breeding stock or manufacturing materials. Also, there is apparently no plan for the group members to become involved in the building of the facilities (goat shed, chicken coops, handicraft kiosk) for which the funds were collected, so that a tailor-made forum for promoting cooperative spirit--group participation in building a joint enterprise--is being bypassed. Although the food aid recipients contributed cash to the building of the storage facility, they were not asked to contribute labor to this project either. Such a move would have reduced costs as well as fostered community spirit; the failure to capitalize on this opportunity is very perplexing. Recipient women complain that they have received no tangible benefits for their cash contributions; time-consuming meetings which have thus far not resulted in further progress in co-operative formation are a further cost of participation.

4. Ration size and composition

The size and composition of the ration has varied somewhat in recent months. When the program first began in the 1970's the commodities provided included maize flour and nonfat dry milk. In 1983, when the program re-opened under Sister Mbanda, bulgur and soybean salad oil were available. Nonfat dry milk was later added to this, so that by mid-1983 the package consisted of 4 kg bulgur, 4 kg NFDM, and 2 litres soybean salad oil per mother-child pair. This package remained essentially the same through most of 1984, although on a month to month basis alterations were sometimes made because particular items in the package might be in short supply. Although Taita is served by a railway line, travel on the line is irregularly scheduled and arrangements must be made to have the food trucked the 6 km from the railway station to the Mission. Such transport is not always available or reliable, and on several occasions the quantity of one or the other of the food items has been adjusted in order to make supplies last through the month. In November and December of 1984 whole yellow maize was provided instead of bulgur, in the amount of 1 debe (20-litre tin) per pair of recipients. In June and July of this year a special "drought ration" of a full bag of bulgur (22.68 kg or 50 lb), 6 kg CSM, and 2 litres soybean salad oil was provided. June 1985 was the first time that CSM had been used in the ration package, to replace NFDM. In August 1985, CRS and the Kenya Government agreeing that the drought emergency in

Kenya has been alleviated, the ration was reduced to bulgur 6 kg, CSM 3 kg, and oil one litre per mother-child pair per month.

5. Income transfer value of the ration

Not only is the size and composition of the ration variable; attendance on the part of the recipients also varies. Absence on travel often prevents women from collecting the food at the appointed time. Taita face many important social obligations, particularly at weddings and funerals, and may also travel to urban places to seek medical treatment or visit relatives, including husbands and children, who are employed there. Travel, illness and schedule conflicts result in absence rates of 10 to 15%.

CRS also imposes a collection charge on all food aid recipients, ostensibly to defray inland freight costs borne by the organization, and also to enhance the value of the ration in the eyes of the recipients. Since 1982 this charge has been shs 8 per recipient per month, or shs 16 per mother-child or child-child pair, but effective September 1, 1985, the charge became shs 11 per person, shs 22 per pair.

All of these considerations enter into calculations of the net income value of the ration. For the research period, the value was arrived at in the following way:

bulgur:	22.68 kg at shs 4.15/kg:	shs 94.12
CSM:	6.0 kg at shs 4.15/kg:	shs 24.90
Oil:	2.0 lt at shs 27.43/lt:	shs 54.85
Total gross value		shs 173.87

Bulgur serves the same role in the diet as maize and is accordingly calculated in terms of the retail price of maize meal, shs 4.15 per kg, which people might otherwise be buying. The value of CSM is also calculated using the price of maize meal as an equivalent. CRS staff in Nairobi raised the point that CSM is a blend and its value should be determined with reference to the components of the blend, but the Taita do not see it this way. To them the CSM is "unga" (Swahili) or "mufu" (Kidawida), the same words used to refer to maize meal, and it is prepared in precisely the same way as maize meal dishes; since it is perceived in that way, and serves that role, maize meal is its equivalent. The value of the oil was calculated on the basis of the retail price of an equivalent quantity of corn oil, which is available on the local market. With the exception of clarified butter, corn oil is the most expensive form of fat or oil on the market, and even though it is available in shops it is never purchased by the local people; cheaper alternatives in the form of vegetable shortenings, ghees and margarine are available and are used. Nonetheless, even though it serves the same culinary function as the lower-priced cooking fat, its value in the package has been calculated at the higher rate, since

hypothetically it could be sold for the higher price.

Against this gross value must be calculated costs to the recipients of obtaining the ration package. As already noted, the collection charge during the time of the investigation was shs 16 for the pair of recipients. The cost of lost female labor time must also be added in. During June and July each mother received commodities weighing more than 30 kg. In addition to carrying the commodities home these women also usually have to carry a child. Those children aged less than three years do not have the physical capacity to walk up steep and uneven trails unassisted, and those older than three years usually have a younger sibling. The majority of the women whom I observed collecting their rations at this time were accompanied to the distribution by another woman, often an adult, sometimes an older child, to assist them in carrying their burdens. On only one occasion did I see a woman assisted by a man; this was the case of a woman with twins whose husband carried one of the children and some of the food. Therefore, net value to the consumer of the ration package is calculated as follows:

gross value	173.87
less service charge	16.00
less labor costs	26.25 (1.5 days @ 17.50 per day)
net value	131.62 (\$7.74)

The cost, or value, of one day of labor is based on the current cash remuneration paid for one day of unspecialized agricultural or domestic labor, shs 15 to 20.

The net value of the package dropped sharply in August when the drought ration was discontinued. Its gross and net value can be arrived at as below:

6 kg bulgur @ 4.15/kg	24.90
3 kg CSM @ 4.15/kg	12.45
1 lt oil @ 27.43/lt	27.43
gross value	64.78
less service charge	22.00
less labor costs	17.50
net value	25.28 (\$1.49)

Labor costs are calculated on the basis of one day @ shs 17.50; due to the decrease in package size, adult assistance probably is not required. These new values apply to the period after the introduction of the increased service charge of shs 22 per mother-child pair. Annual value of the ration, after correction for absence at a rate of 10%, is shs 273.02.

6. Sample and sample selection

In order to examine at close range the impact and utilization of this commodity package at the household level, intensive examination of particular households on a day to day basis was necessary. Accordingly, 20 households were randomly selected from among the recipients, 5 each on four preselected distribution days, and local research assistants were recruited to assist in data collection. A pool of candidates for research assistants was located with the indispensable help of the local administrative authorities; all candidates were interviewed, the nature of the work explained, and each was given a series of sample assignments to carry out. Those who successfully completed the assignments were further interviewed by the investigator and the local authorities and four were hired. Each of the four successful assistants underwent three days of further training with me. Each was assigned the responsibility for data collection from the five households recruited on one of the four preselected distribution days. The schedule worked out as follows:

Begin date	Community	Assistant	End date
6-27-85	Mrugua	Deborah Mjomba	7-24-85
7-3-85	Ilole/Tungulu	Donart Mwakio	8-6-85
7-4-85	Mnamu/Mlambenyi	Fergus Mnyanya	8-7-85
7-5-85	Mkororo	Elizabeth Righa	8-8-85

The scheduling of the research during June and July inadvertently created a situation wherein the first community, Mrugua, was observed over a four-week period, but the latter three over a five-week period due to a one week delay in distribution of the August ration. It should be noted that no significant differences were observed in the utilization of the foods between four-week and five-week users.

The selection procedure ensured that a sample reflecting the geographical, economic and social organizational variability of Taita would be selected. The same procedure for choosing the sample of households was employed on each of the four distribution days. The previously trained research assistant and I arrived at the clinic early in the morning and we were introduced by Sister Mbandu to the group of women and children waiting there for the food distribution to commence. This gave me a chance to explain, using the local languages of Swahili and Kidawida, the nature and purpose of the research to the group. Those households to be studied in detail were randomly chosen on the basis of the numbered chips which marked the order in which the women were to receive their food. After each of the selected households received its ration, the research assistant and I drove the household members as close to their house as our vehicle could reach and accompanied them the rest of the way to their home on foot. At that point census data on all household

members were collected (including age, sex, religious affiliation, level of education, marital status and employment), the work explained in greater detail, and questions and comments dealt with. Thereafter the research assistant visited each of the five houses for which he or she was responsible on a daily basis, varying the timing and duration of the visits, to collect information on the types, quantities and sources of the foodstuffs eaten within the household since the previous day's visit. The amount of each of the Title II foods remaining was measured in litres each day. These volume measures were, in the case of the CSM and bulgur, converted to kg. I met with each of the research assistants once or twice each week to monitor their work and to arrange for collection of additional data sets on farming practices, income and expenditure, health, housing and personal possessions, and income-generating activity. The same data were simultaneously collected from 100 households in an otherwise similar community none of whose members receives any Title II foods. The comparison community is about one and a half hours by foot from Bura Mission, in Chawia Location which borders Bura Location. The ecological situation and economic opportunities and constraints are similar in these two areas. I also paid two or more return visits to each of the households in the Bura sample in order to familiarize myself with the households, and oversee the work of the research assistants. I also weighed each index child in his or her home, using a Salter PBW to the nearest 0.1 kg. Weights at the mission clinic are taken on a beam balance scale in pounds and ounces; weights in

kg are more useful as the international reference standards are published in metric units.

7. The comparison community: sample and procedures

I have been investigating the socio-economic determinants of malnutrition in the comparison community of Mwawache since 1981. The Mwawache sample of one hundred households is a stratified random sample selected equally from among those households of labor migrants, never-married women with children, and jointly-managed (both spouses present) units containing one or more children under the age of six years. For purposes of the comparison with Bura, twenty households evenly distributed among these three categories were randomly selected. The same data collection instruments were used and the data collected by two exceptionally capable research assistants who have been working with me on the project since its inception. Mwawache is a large community (263 households) occupying a several-km-long ridge transecting the 1000 m contour. As in Bura, rainfall increases in the higher parts of Mwawache; the same crops are grown, using the same agricultural methods, and off- and non-farm income similarly derived. The only significant difference between the two areas is that Mwawache residents are overwhelmingly Anglican rather than Roman Catholic.

8. Social and economic characteristics of sample households

a. Household demography, Bura

As anticipated, the households studied in Bura varied considerably in a number of social, economic and demographic respects, as well as productive activity and investment capacity. The table below summarizes household demographic data from Bura.

mean household size	6.05 persons
range, household size	4-11 members
female-headed households	12
male-headed households	8
resident adult males	11
2-generation households	13
3-generation households	7
mean maternal parity	3.5
mean maternal age	28
mean years maternal education	4.5
mothers without education	8
mothers with 7 or more years education	10
primary-age children in school, %	82

The largest of the Bura households contains 11 permanently-resident members, the three smallest four such members each. The mean household size--counting only permanent residents--is 6.05 persons. Two of the recipient mothers are widows; two are unmarried women, each with one child and each continuing to reside with her own parent(s) and siblings. Half

of the households consist of nuclear families, that is, are composed of parent(s) and children only. Three more are nuclear families extended by the addition of a niece, who serves as domestic help. The remaining seven are extended households of three generations' depth. In six cases the recipient mother and her child(ren) live jointly with her own or her husband's parents and sibling(s). In the seventh, a grandmother-grandchild pair receives the rations, both the parents of the index child being absent as salaried workers outside Taita.

Maternal parity in the sample households ranges from one to nine, with a mean of 3.5. Mean maternal age is approximately 28 years. Eight of the mothers have received no formal education, while seven have completed primary school and three have some secondary education. 82% of primary school age children (7-18 years) who live in these households are currently attending school; all those over the age of ten, male and female, have received some schooling. Just over half of the children eligible for secondary school have received or are receiving this expensive advanced education; the extent to which households can afford this expensive investment is an indication of the extent of surplus cash.

Only eleven adult males are found as permanent residents of these 20 households: five husbands, three fathers, one father in law and one brother in law. Eleven husbands are absent as labor migrants, principally in the coastal city of Mombasa, 100 miles

away. Twelve of the 20 households have no permanently resident adult male members and production, consumption and investment decisions are made by women. In Taita society married individuals, men and women, are independent of parental authority; for the most part they live separately, cultivate their own farmplots, earn and spend their own income, and make their own decisions.

b. Household demography, Mwawache

Mwawache households also differ considerably from one another in structure and composition, as the following table shows.

mean household size	6.45
range, household size	4-10
female headed households	10
male headed households	10
resident adult males	13
two-generation households	13
three-generation households	7
mean maternal parity	4.4
mean maternal age	31
mean years maternal education	3.8
mothers without education	8
mothers with 7 or more years education	8
primary age children in school, %	90

Household size ranges from 4 to 10 members, with a mean of 6.45 permanent residents. None of the 20 mothers of young children is a widow; seven have never married but have borne from one to seven children. Thirteen of these households contain as residents parent(s) and children only. The remainder are three generation households created by the incorporation of daughters or daughters-in-law into a parental unit. Maternal parity ranges from 1 to 10 with a mean of 4.4, and mean maternal age is about 31 years. Access of mothers to formal education also varies, 8 having no education at all but 8 having primary education or beyond. 90% of all school-age children attend school, including two incapacitated by residual polio, but only 1/3 of those eligible have received or are receiving secondary education. There are 13 resident adult males in the 20 households, including seven husbands, one father-in-law, 2 fathers and 2 brothers. Six husbands are absent as labor migrants; 10 households are female-managed.

The Bura group has more female-managed households than might ordinarily be expected, and a higher proportion of migrant husbands. 35% of all married adult men and 41% of those with young children from the entire community of Mwawache are labor migrants, a smaller proportion than in the Bura sample. In other demographic particulars the households are closely comparable.

c. Household income and investment, Bura

Although all of these twenty households are farming households, owning land and producing food and cash crops, non-farm employment provides the bulk of cash income in all but two cases. Men--and one woman--absent as labor migrants pursue varied occupations, including skilled (tailoring, clerical, carpentry) and unskilled work. Only two of these workers do not have regular and permanent salaried jobs. Even for those who can only obtain casual work on a day to day basis income exceeds expenditure and money can be sent to rural kinsfolk. For those adult men who are fulltime household residents, farming is a secondary economic activity for most. Locally-resident males engage in such diverse occupations as tailor, butcher, photographer, and shopkeeper. Only two of the households are primarily dependent on farming for both cash and kind income. These are both households where there is a resident husband; one is a large coffee and vegetable producer and the other has a small herd of dairy cows whose milk is sold to regular customers. Three of the mothers in this group are also employed, two as teachers and one as an unskilled worker at Bura Mission, but the bulk of cash income is produced by men. The following table summarizes male and female employment.

	res M	mig M	res F	mig F
skilled wage	-	6	1	1
unskilled wage	-	5	1	-
self-employment	7	-	-	-
casual labor	-	2	-	-
unknown	-	1	-	-

This group of 20 households is also highly stratified as regards income and investment. Actual weekly cash income ranges from a low of about shs 50 to a high of over shs 500. Cash was received from sales of agricultural commodities, from regular salaried employment, in the form of remittances from family or household members working elsewhere, and from illegal activity such as beer brewing, charcoal burning and illicit prospecting for gemstones. Several households received intermittent lump sum payments for coffee, vegetables and gemstones.

The variability in access to cash is reflected by diversity in the extent of investment. Taita have five principal modes of investment open to them: housing, consumer durables, livestock, education, and polygyny. As most of the people in the area became converts to Roman Catholicism 50 or more years ago, plural marriage has declined as a preferred mode of investment; none of the households in the study is polygynous. And, as most of the families are young, extent of investment in secondary education cannot be used as a measure of differential investment capacity, since only 1/4 of the households contain children of secondary school age. Thus type of housing, ownership of consumer goods and extent of livestock holdings are used to gauge relative wealth and investment capacity. All of the data from these measures is presented in the following table.

Name (1)	House	Wealth	Stock	Cash income/week (2)
A. Poor				
Chao	0	55	0.65	50
Wakio	100	57	0.15	90
Wakesho	35	137	6.80	55
Kezia	35	232	2.35	145

B. Middle

Ndela	180	162	3.55	75
Manga	265	77	2.00	65
Wanjala	265	105	7.10	105
Majala	280	102	0.50	55
Kighenda	190	199	0.80	? (3)
Nyambura	220	200	2.25	50
Wandoe	315	144	0.15	200
Mkanyika	240	274	2.30	? (4)
Mkamburi	205	345	1.05	50
Mrunde	385	172	1.70	500
Wawuda	440	151	6.40	400 (5)
Maghuwa	580	17	6.05	50

C. Upper

Wakina	430	207	3.35	152
Wali	460	272	0.05	220
Machocho	190	627	1.50	50
Zighe	280	572	4.65	221

Notes:

1. All names are pseudonymous, to protect the identity of informants.
2. Income data are a combination of actual, reported cash earnings over one week's time, and pro-ration of monthly salaries and remittances.
3. The husband is an illegal prospector. Family income is received in large lump sums when gemstones are sold, and is irregular and unpredictable in amount and timing.
4. The mother and her firstborn child were temporarily staying at her parental home; no income figure is available for her marital home, but index figures refer to the marital home.
5. Estimated net turnover from retail business.

Although there is no one-to-one correspondence along all three dimensions of the scale, the variability is sufficiently large to permit sorting of the households into poor, middle income, and well-to-do groups, especially when investment data and income data are considered together.

Traditional Taita houses were single-roomed, round, mudwalled, thatched structures with dirt floors and no windows. Adults generally have the knowledge and skills necessary to construct such a dwelling, and the materials are obtained at no cash expense from the forest. Under Western influence more and more dwellings have become rectangular and have utilized purchased components such as corrugated iron roofing, glass windows, brick and stone walls and cement floors. The traditional round

structure can be built using co-operative labor but in addition to purchased materials construction of the new style house requires skilled, cash-remunerated labor. By assigning point values to these various purchased improvements, based on their cost, an index showing investment patterns in housing was created. House index values range from 0 points to 580 points.

A similar procedure was used to derive a scale of investment in consumer durables, none of them used traditionally but all of them now available for cash purchase. The items recorded include flashlight, hurricane lamp (kerosene wick lamp), pressure lamp, iron bedstead, radio, kerosene wick or pressure stove, bicycle, wristwatch, wooden cupboard for clothes or dishes, sewing machine, manual maize grinding machine. Points assigned to each item are 10% of its current retail price. Point totals obtained for these material possessions range from 17 to 627.

In the case of livestock, cattle are by far the most valuable as well as the preferred animal, and their value far exceeds that of other beasts. Stock holdings are therefore calculated in cattle equivalents, derived from the relative purchase price of a healthy animal. One cow or bull is equivalent to five sheep or goats, or twenty poultry or rabbits.

d. Household income and investment, Mwawache

The economic picture in the comparison community is equally diverse. Male and female employment are as follows:

	res M	mig M	res F	mig F
skilled wage	-	6	2	-
unskilled wage	-	-	1	-
self-employment	4	-	-	-
retired	2	-	-	-
agriculture	6	-	24	-

The same procedures discussed earlier were used to collect data on investment capacity in Mwawache. Again, no instances of polygyny were noted among the comparison group households, thanks largely to the influence of the Anglican church in this case, and only four of the 20 contain secondary school-age children, so again this measure cannot be used. Compilation of house, wealth, stock, and cash income measures yields the following results; summary Bura values are also presented for comparison.

Mwawache	house	wealth	stock	cash income/week
range	0-415	0-317	0-7.45	shs 57-400
mean	140.5	84.5	n/a	n/a
Bura				
range	0-580	17-627	.05-7.1	shs 50-500
mean	255	214	n/a	n/a

The comparison of the means and ranges in wealth and house indices shows a greater range of variation and a higher mean

value in Bura than in Mwavache. Thus, there is a more diverse and generally higher level of investment among the food aid recipients; people in the comparison community, although their cash incomes are comparable, have less capacity--or desire--to invest in a more comfortable dwelling or expensive consumer goods. It is likely that this disparity would not be found if the Mwavache sample had been selected to conform in terms of household structure and composition with the Bura group. On the whole, labor migrants have the greatest capacity to invest and never-married women the least; given this, since the Bura group has many more labor migrant households in it, and many fewer never-married women, one can reasonably expect to find a higher level of investment among them.

e. Agricultural production, Bura

Income and investment figures do not provide the whole picture, because all of these households are farming households and food produced for own consumption also constitutes income; some of the households also sell farm produce, especially coffee, vegetables and milk. Although traditional Taita agriculture was based on a strategy of utilization of dispersed farm plots in different agro-ecological zones, most Bura households are no longer able fully to employ this strategy. Kenya government land reform policy has the specific goal of creating, for each household, one single consolidated farm which will constitute an economically viable holding. Owners are to be issued with title deeds and the

parcel many not thereafter be legally subdivided nor portions of it sold. In Bura this program is virtually complete. All but one of the households has but one farm plot available to it; these plots have been measured by and registered with the Lands Department but the plotowners (in every case an adult male, regardless of where he is living and what work he is doing) have not yet been issued with title deeds. In most cases plot size is unknown; size estimates range from 1/2 acre to 14 acres. But income from farming is not in any case well-correlated with farm size; the most important variable here is household access to labor, either from the household itself or hired from without.

Since only eight of the households contain resident adult males, and since males tend to specialize in the cultivation of cash crops, most of the food consumed is produced by women farmers. All of the cultivation is manual, the short handled hoe being the principal tool; even the consolidated plots are too small and/or too steep to permit plow cultivation. Every household cultivates the two principal staple food crops of maize and beans. Other crops cultivated on one or more of the farms include bananas, Irish potatoes, sweet potatoes, taro, cassava, tannias, green vegetables (principally kale and cabbage), commercial vegetables (tomatoes, onions, carrots, peas), coffee, pumpkins, pigeonpeas, cowpeas, sugar cane, millet, oranges, guavas, lemons, avocados, papayas, tangerines, mangoes, pineapples and passionfruits. The maize grown is of both improved (hybrid and composite) and traditional varieties. Hybrid maize, commercial vegetables and

coffee are the crops which receive the bulk of inputs; in the cropping season beginning with the long rains of March through May, 1985, five farmers used manure and eight used commercial pesticides on these crops. Six farmers had access to traditional irrigation canals to water their fields; seven used hired labor to assist them in cultivating, and six called together cooperative work parties for assistance with labor intensive farming tasks.

f. Agricultural production, Mwavache

Mwavache farmers are more able than those in Bura to maintain the traditional farming strategy of dispersed small plots in distinct agro-ecological zones. Although most of these plots have been surveyed by the Land Adjudication Department, no further steps towards consolidation of individually-held "fragments" into single plots have yet been taken. All land is effectively in the hands of men, who own from six to 20 or more of these farm plots (mashamba). In the current cropping season each household cultivated an average of 2.6 mashamba. The principal limiting factor on greater utilization of available land is shortage of labor, a deficiency which 11 households attempted to remedy with hired labor and four with co-operative labor. Uses of other inputs such as manure, commercial fertilizer and pesticides was much more frequent in Mwavache than in Bura, all but two households employing one or more of them. This is explained by the proximity of Mwavache both to a sales agent for inputs and to

a farmer's training centre, and to the fact that an agricultural extension agent lives in the community. Actual crops grown do not vary at all from the pattern observed in Bura; every farmer produces maize and beans, plus various other crops including tubers, vegetables, fruit and coffee, the bulk of the production being devoted to the satisfaction of the household's food needs.

g. Income value of home produced foods

Data on yields are difficult to obtain. Some crops are planted two or three times in an annual cycle, different portions of the same field are planted in particular crops at different times, and all crops, even maize, tend to be harvested as needed rather than harvested all at once and stored in a granary. All of the households satisfied at least part of their staple food requirements from their own production, and 14 of the households at Bura consumed maize from their own production exclusively through the period of the investigation; but none of them had quantities of maize stored in the house, as the crop was only just ready and in many cases was still standing in the field. Bananas, tubers and greens are also taken from the farm plots on an as-needed basis. Most houses had some quantity of beans stored, from crops planted in March and harvested in June and July. Planting of maize and beans was taking place in early August; the beans would be harvested in November and the maize next January. Further crops of staple foods will be planted in October-November; waterlogged plots in December. Every month in

Taita requires the performance of some agricultural activity and sees the harvest or utilization of one or more home-produced foodstuffs.

A more manageable way to determine the income value of foods produced for own consumption is to determine the quantity of a particular food item consumed at a typical meal, and use the number of meals containing that item over a given period of time as a basis for calculating the quantity of the foodstuff consumed. Its income value can then be determined on the basis of the retail price (replacement price) of the commodity. In order to find out how much of the important foods is generally consumed at mealtime, the raw components of meals being prepared in homes in the comparison community were weighed. The weighing instrument used was an Ohaus D1001-CA digital electronic balance accurate to the nearest gm. Over 150 observations were made in homes of various sizes and relative wealth and income, and the results of the observations were averaged to generate a figure for the "typical" meal. Items weighed include maize flour, whole grain maize, beans, greens, tubers, milk, cooking fats, other vegetables, sugar, and condiments. The table below summarizes the results of the weighing exercise.

	maize	tubers	beans	greens
amount eaten/meal, gm	1280	1897	530	553
meals per week	9.0	1.5	4.8	6.4
total weekly quantity, kg	11.5	2.9	2.5	3.5
retail price, shs/kg	4.15	3.00	12.00	6.00

replacement price/wk	47.73	8.70	30.00	21.00
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Fourteen of the Bura households produced all of their own maize and thus benefitted from the full income value of home production shs 107.43 per week. Even those who were not self-sufficient in maize during this time produced all of their own beans, greens and tubers with a mean value of shs 59.70 per week. Needless to point out these are considerable sums, and although the contribution of home-produced foods to household intake will vary seasonally, it is clearly very significant and for most households the value of home production far exceeds the amount of income earned in cash, and the amount of money spent on food. Taking home production of food into account, total monthly household income ranges from a low of around shs 650 in the poorest households to over shs 2,500 in the most affluent. Title II foods in the quantities provided during the months of June and July 1985 augment total income by 5% in the highest income households, ranging up to 20% in the poorest.

8. Food consumption patterns, Bura

Detailed food consumption records were maintained for all twenty households over the four to five week period of observation. In addition to recall data on the composition of all meals and other foods and beverages consumed in the household each day, data were obtained on the provenience of each ingredient of dishes and beverages prepared and snacks eaten. Information was also obtained on the preparation of special foods for young children and sick household members, and on any food items stored in the home, including their sources.

Taita generally consume two substantial meals each day, one at midday and one in the evening. Morning intake is often limited to heavily sweetened tea, and occasionally thin maize gruel (especially for children). If foods are consumed they are generally cold leftovers of maize porridge or other carbohydrate staples from the previous evening's meal, or sometimes ripe bananas. Very rarely special foods may be prepared or purchased for morning consumption, particularly potatoes, bread or fried sweetened wheat cakes. Almost half of all morning intake consisted solely of tea; on only 16% of the breakfast occasions was a special food item purchased or prepared. The tea contains an average of 98 ml milk, 69 gm sugar and approximately 320 calories per litre.

Composition of Bura breakfasts in % is as follows:

tea only	44.5
leftovers	39.5
special dish prepared	16.0

Midday and evening meals are larger and more elaborate affairs. The most important element in such a meal is a dish high both in bulk and in carbohydrates. Foods from which the principal dish may be prepared include maize, wheat, rice, cassava, potatoes, bananas, taro, tannias, millet, or pumpkin. Such a dish is usually, though not always, garnished with a sauce or relish ("mboga") prepared from vegetables (usually leafy greens), beans or other legumes, or animal protein. Tubers such as potatoes or taro are often served without a garnish. Whole maize/bean or tuber/legume combination dishes in which the two principal ingredients are cooked together in one vessel are also eaten; the maize dishes, called pure, boboro, or kitere, are especially favored when the maize is ripe but not yet dry, for utilization of soft maize reduces both processing and cooking time. The relative frequency with which different staples and relishes were eaten by the sample households during the period of observation is presented in the following table. All figures are percentages.

Staples	Garnishes				total
	vegetables	beans	meat/fish	nothing	
maize	42.3	15.3	6.5	1.7	65.8

bulgur	3.5	10.6	0.8	1.8	16.7
wheat flour					
and rice (1)	-	3.5	1.3	0.8	5.6
tubers	-	4.3	-	5.4	9.7
other (2)	-	-	-	2.3	2.3
total	45.8	33.7	8.6	12.0	100.00

1. grouped together because both are costly purchased foods
2. pumpkins, legumes and bananas

The table shows that maize occupies the central place in the diet, being consumed in approximately 2/3 of all midday and evening meals. It is the principal source of both calories and protein in the Taita diet. The average pot of porridge (mswara) prepared for a family meal contains about 1280 gm of maize flour, equivalent to approximately 4500 calories, and is shared among all household members and guests. Leftover mswara is known as kiporo and may be served at a later meal or on the following day, or may be dissolved in boiling water and used as the base for preparing another pot. The relishes are eaten in much smaller amounts and provide additional calories in varying amounts: greens provide about 240 additional calories to the meal, beans nearly 1800, and meat about 1000, when used. Only rarely will more than one relish ingredient be served per meal.

During the period of observation householders ate relatively few

meals away from home and entertained few guests. One mother was absent for several days at a funeral, another made a 10-day visit to her husband in Mombasa, and in a third case the index child made a 3-day visit to his grandparents. In one household the husband's brother came to stay for over two weeks. Other than in these cases, household members were rarely absent from home during more than one or two meals per week. On these occasions they usually ate at the place they were visiting; this could involve the purchase of food, or accepting the hospitality of a relative or friend. The majority of household members did no visiting and ate all their meals at home. Children over the age of seven years were in school on weekdays up until the last few days of observation, so that their opportunities for snacking on wild foods were limited; in only half a dozen cases did schoolchildren not come home for their midday meal, and on such occasions they generally ate with a friend. Only 1.1% of all midday and evening meal opportunities were marked by the failure to prepare some sort of meal. Such episodes are most frequent at midday on market days and on days when community labor is required for public projects, as both of these activities mean the day-long absence from home of the adult women who do virtually all of the cooking.

10. Food consumption patterns, Mwawache

The patterns of meals and the sources of their components in Mwawache are similar to those found in Bura. Breakfast again

consists usually of tea, always with sugar and whenever possible with milk as well. The previous night's leftovers come second in frequency, with special breakfast foods or dishes being prepared on 13.5% of all breakfast occasions. The table below gives the relative frequency of consumption of staple foods and relishes at midday and evening meals.

	greens	beans	meat/fish	nil	total
maize	49.3	16.3	5.6	0.3	71.5
wheat/rice	-	4.2	1.0	0.3	5.6
tuber	1.0	9.4	0.3	8.7	19.4
other	-	-	-	3.5	3.5
total	50.3	29.9	6.9	12.8	100.00

The role of maize is even more prominent for Mwachache householders than for those in Bura. Since 16.7% of Bura meals are prepared from bulgur, to which Mwachache people do not have access, they eat more meals of maize and especially of tubers instead. Otherwise, the meal pattern, frequency of absences and entertainment of guests, and frequency of failure to prepare a meal (1.3%) were closely similar in both communities.

11. Utilization of Title II foods in Bura households

a. substitution vs. supplementation

The foods provided in the ration package are, with the partial exception of CSM, utilized by all household members and serve a

principally substitutive rather than supplementary role in the diet. In a few households special breakfasts of bulgur were prepared, but for the most part bulgur was used to prepare major meals and was served with a garnish of beans or vegetables. Bulgur was the principal ingredient of about 1/6 of all major meals consumed in the sample households during the period of observation. CSM was used in some households to replace the maize flour with which childrens' uji, or thin porridge, is ordinarily prepared. CSM was sometimes used to prepare gruel for older children and mothers as well as children under five, and in several cases was mixed with regular maize flour in the proportion one measure of CSM to two measures of maize for the preparation of mswara for the entire household. Soybean salad oil took the place of various packaged and tinned vegetable fats including shortening, vegetable ghee and margarine in all cooking tasks. It was used principally to make the bulgur palatable but also in the preparation of relishes, green leafy vegetables in particular.

b. palatability

Recipients regard the bulgur as palatable, although maize is much preferred, but felt that it could not be eaten too frequently, particularly by children, because the daily consumption of maize is considered absolutely essential for health. Only rarely was maize not prepared daily in every household. Because other dishes are preferred, even if their consumption requires cash

outlays by the household, and also because the quantity of bulgur provided during June and July was so large, only six of the 20 households completely consumed the total quantity of bulgur with which they were provided before the next ration collection date. The best-liked commodity in the package is the soybean salad oil. There was universal complaint that the amount provided--2 litres--is insufficient and that more should be given. A major use to which the oil is put is improvement of the palatability of the bulgur, and the comment was frequently made that the bulgur "drinks" oil. One household had a balance of 200 ml of oil remaining at the end of the study period, but all the rest had completely consumed the 2-litre allocation, generally two to three weeks after receiving it. After it is gone, the oil is usually replaced with Kimbo, a Kenya-manufactured vegetable shortening widely available in local shops.

Reaction to and utilization of CSM was quite different. Until May or June of this year recipients were given NFDM. The switch to CSM caused many complaints. Its yellow color leads many women to believe it is merely yellow maize flour, popularly regarded to be animal food or to be actually harmful to people. Every mother in the sample complained that the CSM causes diarrhea in her children (this same complaint was apparently also made about NFDM, however). These concerns led the women to be quite suspicious of the CSM and the commodity was not fully utilized. In only 8 of the households was the entire quantity of CSM (6 kg) used to prepare special foods for young children. In most of the

rest a portion of the CSM went to young children, but the 6 kg provided was not completely utilized; in one case a balance of 1 kg remained at the end of the month, and in several others the blend became bug-infested after part of it was used and it had to be thrown away. Several households used it to prepare gruel for the entire membership, for mothers as well as children, or for sick members, children and adults. In two cases CSM gruel was prepared only once; when the children did not like it, or became ill as a consequence of eating it, the remainder was disposed of by giving it away or by preparing it as stiff porridge for the entire household. In 3 cases the entire 6 kg of CSM was given away to friends, neighbors or relatives and not used at all by the intended recipients.

c. intra-household allocation

The bulgur and oil, at least, are used in the preparation of dishes which are consumed by all members of the household except children under the age of one year. The only item in the ration package reserved for young children is the CSM, but this occurs in very few of the households because of mother's concerns about the effects of the blend on their children. Traditionally Taita meals were partaken of by all household members from a common pot or dish. Nowadays it is more common for each household member to have his or her own plate and to be served by the cook. Hence women have some control over the quantities and types of foods that are allocated to various household members. The quantity,

or bulk, of food prepared is often greater than can be consumed by the family at one sitting, as demonstrated by the fact that more than 1/3 of the breakfasts consisted of leftovers from the night before. There is nothing to suggest preferential allocation of desirable, prestigious, expensive or calorific foods to particular household members. Only eight of the households contain adult males as permanent residents; during the period covered by the survey only one absent husband came for a visit. It thus seems unlikely that males are receiving disproportionate shares of the Title II or indeed of any other available foods. In two cases resident husbands disliked bulgur sufficiently to refuse to eat it and had special dishes of maize prepared for them. It is reasonable to conclude, then, that the bulgur and oil are freely available to all who eat in the household, in whatever quantity they care to consume them. As already noted only 40% of the sample households allocated the CSM exclusively to their own young children. However, the fact that the CSM was not entirely or exclusively used as an infant food is not because of competition from other family members, but rather because of its supposed negative effects on children in the view of the recipients.

d. methods of preparation

The relative ease of preparation of bulgur is one of the qualities that makes it acceptable to the Taita. The amount used to prepare any given meal--usually between 1 and 1.5 kg--is

soaked in twice its volume of water until the water has been absorbed, then cooked in an aluminum or clay pot over an open wood fire with more water salt, and salad oil in the amount of 150-200 ml. Most often it is served with a sauce of beans which have also been cooked with water and salt, though usually not with fat. The thick, sticky consistency of the bulgur reminds the cooks most closely of rice, but the taste is less preferred than that of rice, maize or wheat flour (which is made into an unleavened bread called chapati). The oil is used as a cooking medium for vegetable dishes, most commonly kale, cabbage or cowpea leaves that are cooked together with onion, tomato and salt to make a sauce served with the starchy main dish. CSM, when it is used, is simply simmered in water to make a thin gruel which is spoonfed to infants and drunk from cups by other children. Sometimes this gruel (uji) contains additional ingredients, most commonly sugar; but other items, including salt, lemon juice, margarine, milk or eggs may be added.

e. timing of utilization

There is some variation in the frequency with which bulgur is consumed over the course of the month. As already noted, few households were able to use all of the more than 22 kg of bulgur with which they were provided. But whether they finished it or not, consistently more meals of bulgur were consumed immediately after the distribution than in the week to ten days immediately prior to the next distribution. During the first week of use an

average of 3 major meals of bulgur was consumed per household. By the fourth week this was reduced to two and by the fifth and last week to one. Bulgur was also used to prepare special breakfasts in some households early in the distribution, but this practice too became less frequent as the month wore on. The salad oil was used steadily throughout the period until it was completely used up, which occurred in every household but one. When it was gone it was replaced with vegetable shortening. In those households where the CSM was fully utilized the same pattern can be seen; no attempt is made to eke out the quantity so that it lasts over the entire period, but rather it is consumed at a steady rate (1/4 to 1/2 kg for each uji preparation) until it is gone.

12. Sources and uses of other foods consumed, Bura

The daily dietary recalls and diet surveys show that the overwhelming favorite in the Taita diet is maize, usually in the form of porridge (mswara). Fourteen of the Bura households used maize from their own fields exclusively during the period of observation. In only six of the households was it necessary for maize to be purchased; most of these were located at slightly higher elevations where cooler temperatures delayed the maturation of the maize crop. Several were using purchased maize when the observations began, but in mid to late July were able to make the transition to eating maize from their own production as it matured. Only one household was totally

dependent on purchased maize; the household head is a widow who has a salaried job and has limited time for cultivation. Even this woman, however, produced all of the legumes and tubers that were consumed by herself and her children, and for the entire sample only one household purchased any legumes at all, 1 kg of beans for shs 12. Green vegetables are home grown, purchased in local markets, or gathered wild. Wild greens, or weeds whose growth is fostered by cultivation, are still quite important in the Taita diet. As already noted the cash value of this home production is substantial. The cash income earned by most of the villagers is inadequate to permit replacement of food produced on the farm with purchased food items.

While most of these staple food items are home grown, many other items have entered the Taita diet which can be purchased only with cash; in shops and in markets both, barter, or the trade of one food commodity for another, has completely disappeared. Most of the items ordinarily sold in the local shops have standard, government-controlled prices. Every household purchases sugar, salt, tea leaves, wheat flour, cooking fat and meat. Other items purchased include fruit, milk, rice, potatoes, vegetables, bread, eggs, fish, coffee, cookies, soft drinks and cakes. Relatively little of a given household's food needs are satisfied by non-cash mediated inter-household exchanges. The following exchanges were noted: bulgur for milk; bulgur for taro and taro leaves (which are used as a relish); milk for fish; bulgur, CSM and oil for beans. maize and maize flour: bulgur for bread and

potatoes; pumpkins for sweet potatoes; milk for rice. In addition, many of the food aid recipients gave a portion of their rations to close kinsfolk, particularly their own parents. Eleven of the households gave amounts of bulgur ranging from 3.5 to 11 kg to relatives including mothers, grandmothers, husbands, siblings and fellow kinship group members. Two women also gave part of their ration of oil to these close relatives. And as already noted, in three cases the CSM was given away to neighbors or relatives untouched. Interestingly, one of the sample mothers received a gift of CSM from a friend, and used it to prepare uji for all the members of her household.

13. Calorie and protein values of Title II foods

Analysis of household records shows that of the total quantity of 453.6 kg of bulgur received by the 20 Bura sample households for one month, 128 kg or 28% was either given away, traded for another commodity, or left over at the end of the distribution cycle. On average, each household actually consumed 16.3 kg of the bulgur, which works out to 2.7 kg per household member, or 3.4 kg per household per week. Since a mean of 2.4 meals per week consists of bulgur in Bura, each meal on average contains 1.4 kg (1400 g) of bulgur; thus the household-level calorie value of bulgur per meal is 4650 kcal. The usual addition of 100 ml of salad oil increases this to 5650 kcal. The commonest garnish for bulgur is beans, which, when prepared with 20 g fat or oil, add 1900 kcal to the family pot. A garnish of green leafy vegetables with added

fat increases the calorie value of the bulgur by 400 kcal. The customary portion of 1/2 kg meat--beef or mutton--adds about 1000 kcal when bone and gristle are accounted for. Thus the mean calorie value of a bulgur meal is 6985 kcal. On a weekly basis, per household, the calorie value of bulgur meals is 16,765 kcal.

Analysis of the comparative data from Mwavache has already shown that bulgur replaces tubers and to a lesser extent maize in the local diet, and that such a pattern of utilization yields minimal economic benefits from program participation because of the low price and low saleability of tubers. But does the bulgur give a calorie advantage? The calorie values of the 0.9 maize meals and the 1.5 tuber meals that bulgur replaces provide an aggregate total of 9615 kcal per week, so that bulgur consumption provides a calorie increment of 7150 kcal per household per week. Even without the addition of oil for palatability, bulgur meals, especially since they are so often garnished with legumes, are a superior source of calories. The increment provides 169 additional calories per person per household per day. Consumption of bulgur meals also contributes to protein intake, supplying 1000 g of protein per household per week as opposed to 284 g provided by the maize and tuber meals it replaces. Bulgur, and the eating patterns associated with it, supplement protein consumption by 17 g of protein per person per day in recipient households.

It has already been noted that consumption of CSM was problematic among Bura recipients because they feared harmful effects on their

children. Of the total amount of 120 kg provided to the households in question during the fieldwork period, 37.75 kg were given away or thrown away, and 16.25 kg were used to prepare meals of gruel or porridge for the entire household membership or for adult consumption. Hence only 66 kg with an aggregate calorie value of 233,640 kcal were targeted to young children. Since on average there are two young children who receive infant foods in each household, daily calorie availability per child from CSM totals 176 kcal.

CSM is directly substituted for porridge prepared with maize meal, and in similar quantities (up to 1/2 kg per preparation, making an amount which often lasts through the day and which is reheated when needed). Since maize meal and CSM have the same calorie values (353 vs 354 kcal per 100 g edible portion) there is no discernable calorie advantage to CSM consumption. Even if CSM were targeted in its entirety to young children, the calorie result would be the same, because of the total substitution effect. CSM does, however, provide a protein advantage. An equivalent quantity of maize gruel would provide fewer than 5 g of protein per child per day, while CSM provides over 10. Since the properties of CSM as a blend are not appreciated by the Taita they are equally as likely to use additional ingredients including milk, egg and sugar in the preparation of CSM gruel as in the preparation of maize gruel, so that the protein content of maize gruel is not comparatively increased by the use of such additives.

An alternative to CSM in the ration basket is NFDM. The potential comparative calorie and protein contribution of these commodities can be examined by looking at current utilization of cow's milk. Demand for fresh milk greatly exceeds supply; virtually all available milk is used in the preparation of tea. Sugar also is essential for tea, such that tea without sugar is "tupu" (empty). Tea prepared with sugar and milk contains about 320 kcal per liter; it is generally prepared twice per day, about 2500 ml being per preparation, so that each household member may consume about 400 ml per serving and obtain about 125 kcal. Most of the calories are provided by sugar; the milk gives only about 70 kcal per liter, or 28 kcal per person per serving.

A six kg ration of NFDM would make available 125 kcal and 10 gm protein per person per day over the distribution period; since the tea does not replace the maize gruel fed to children, delivery of NFDM rather than CSM has the potential to act as a true supplement rather than displacing another foodstuff. NFDM would certainly not be targeted to young children exclusively, but would benefit the entire household membership, as bulgur and oil do currently.

14. Food expenditure patterns, Bura and Mwawache

Data on cash expenditures for food and non-food items were collected on a 24-hour recall basis for one week in each of the Bura households. Analysis of these data reveals that over 70% of all available cash is spent on food, and that food expenditures average about shs 50 per household per week. In the comparison community of Mwawache a similar survey found that over 90% of money spent went for food purchases. The table belows shows the comparative proportions of cash spent on different categories of foodstuffs per week:

	Bura	Mwawache
Total spent	1397.35	1109.05
% spent on food (1)	71.5	93.6
% of food budget spent for:		
sugar	28.8	28.8
maize flour	10.0	38.0
wheat flour	7.8	9.5
cooking fat	11.2	6.6
condiments (2)	6.8	4.5
meat/fish/eggs	18.5	8.6
milk	6.5	0.5
fruit/vegetables	6.6	-
bread	2.8	3.5
other foods	1.2	-

mean food expenditure/

household/week

49.97

51.93

1. Non-food purchases include soap, kerosene, clothing, infant needs, cigarettes, alcoholic beverages and the like.

2. includes tea leaves, salt, spices and flavorings, coffee, etc.

Because the altitude in the vicinity of the Mission is somewhat lower and the temperatures somewhat warmer, maize matures a bit earlier at Bura than at Mwawache. Hence Bura households are much more self-sufficient in maize at this time of year than are the Mwawache households, and need to spend much less of their food money on maize flour. Mwawache households make up for their excessive reliance on purchased maize meal by buying less cooking fat, meat, milk, and fruits and vegetables. As has already been seen, Mwawache villagers consume approximately the same proportion of maize meals as do those in the Bura sample, and more meals consisting of wheat flour or rice, and of tubers. The Bura residents have been able to reduce their reliance on the less palatable tubers and the costly wheat flour and rice by consuming bulgur. There may be an element of truth to the complaint by Bura residents that the bulgur drinks oil and that the amount provided is insufficient for bulgur preparation, much less for use in other dishes; thus they are compelled to buy Kimbo to complement the bulgur at a rate greater than such purchases might otherwise occur.

Sugar costs almost 30% of the food budget in each community. It is used mainly in the preparation of tea, but sugar is also added to the thin gruel made for young children more frequently than any of the other additives (e.g. salt, lemon juice, eggs, etc). Soft drinks and sweets also are popular, although only two instances of the consumption of soft drinks were reported. Every household reported the consumption of heavily-sweetened tea once or twice per day. The social and dietary importance of the beverage cannot be overstated. The large quantities of sugar consumed, (over 2 kg per household per week), in addition to taking cash away from more nutritionally-positive food purchases, undoubtedly contribute to the rising incidence of rampant dental caries in both children and adults.

15. Health and nutritional status in the two communities

The anthropometric data available are weight-for-age (W/A) figures for the 21 children in the Bura sample, 37 children from 18 of the 20 Mwachache subsample households, and 169 children from the larger 100-household Mwachache sample. Comparison of percent of NCHS median W/A figures for these three groups follow.

	%	N
Bura	81.6	21
Mwachache subsample	76.5	37
Mwachache sample	78.2	169

As can be seen, as a group the children in the feeding program

have a better mean W/A achievement than do those in either group in the comparison community. Another contrast is in the percent of children in each group with a W/A greater than 80% NCHS median:

	%	N
Bura	57	12
Mwawache subsample	41	14
Mwawache sample	46	77

One interpretation of the above findings is to take them as evidence that the supplementary feeding program at Bura Mission has had a positive impact on the nutritional health of participating children. Examination of the childrens' clinic charts, however, suggests little program influence on their growth. Recipient children have either maintained the same pattern of growth consistently since the time of entry into the program, or have experienced a decline in their W/A as a percent of NCHS median. The three Bura children whose W/A is over 90% of NCHS median had achieved that rate of growth prior to program entry. Seven of the children have experienced substantial declines in W/A as a percent of NCHS median since program entry. The rest have not experienced any alteration in their pattern of growth since joining the program. Although duration of program membership varies from two months to 31 months there is no relationship between the length of participation and the nutritional status of the child as measured by W/A as a percent of NCHS median. It is therefore difficult to credit the program

with any improvement in nutritional status. The data rather suggest, as has been suggested elsewhere, that self-selection among program participants yields recipients who are more receptive and more affluent and whose children are better nourished than others in the community even prior to the intervention. The poorest and most needy in the community do not participate.

It is also of interest to note that all but one of the children who have entered the program in the past six months were (and still are) over 80% of median W/A, despite the assertion that a nutritional criterion is now being applied to the selection of new participants.

Patterns of self-reported illness episodes in the two communities also do nothing to explain the differences in observed anthropometric results. More illness episodes were reported in the 20 Bura households than in the 20 Mwawache households, as the figures below demonstrate.

	Bura	Mwawache
reported ill: children	32	13
adults	12	5
treatment: none	3	8
purchased from shop	17	8
gov't health facility	26	8
private fee-for-service	3	5
treatment cost/illness episode, shs	8.70	4.33

Malaria accounted for two-thirds of all cases of illness reported. Only one episode of gastroenteritis was reported, and the victim was an adult. Even though there have been recent reports that febrile illness is closely associated with short term weight loss in children (Black et al. 1985), the distribution of such illness between the two samples does not explain the poorer W/A picture among Mwavache children.

16. Differential consumption patterns

a. among recipient households

It has been hypothesized that recipients of food aid are likely to vary considerably with respect to income, household structure, access to resources, investment capacity, and the like, and that these variables will lead to differential patterns of utilization of the commodities received through the food distribution program. Household structure and composition has been identified as a particularly significant variable, and to this must be added relative income and investment capacity of the household. Although the sample from Bura is much too small to permit any meaningful test of hypotheses, the data on diet and food utilization may be analyzed using the two factors of household structure and household income/wealth to see if any gross differences emerge between different groups.

We have already divided the Bura sample into groups of poor, middle income and well to do on the basis of house index, wealth index, livestock holdings and weekly cash income. The groups labelled poor and well to do may be compared with one another in terms of aspects of food utilization to see if there are any meaningful differences.

	poor	well to do
maize meals	65.4	68.6
bulgur meals	14.4	15.7
wheat/rice meals	4.1	5.4
tuber meals	16.0	10.4
meals with meat	7.0	8.9
mean weekly food expenditure, shs	22.40	78.26

The differences in the proportions of meals with particular staples are not very large. The well-to-do eat slightly more maize, bulgur and wheat/rice meals than do the poor, and more meat, but eat fewer meals containing the less palatable tubers, popularly labelled "poor peoples' food". They thus have a somewhat higher potential calorie and protein intake than do the poor group. They spend considerably more money on food each week, in particular making almost daily purchases of milk and also purchasing meat much more frequently. The patterns of utilization of the Title II commodities are similar in the two groups, with the exception that the women in the well-to-do group

were among those who utilized all of the CSM in the preparation of special gruels for young children. As we have seen there is no discernable calorie advantage to this, but a somewhat enhanced protein intake may result. None of the households in the poor group consumed all of the Title II foods allocated to it. Items were left over at the end of the month, thrown away (CSM), or given or traded to relatives or friends. None of the well to do exchanged Title II foods for other items, but two households shared their rations with their kinsfolk, and one had a balance of 4 kg of bulgur left over at the end of the month. In both groups the bulgur was eaten more frequently right after it was received, but by the fourth and fifth weeks of the cycle it was being consumed once per week or less.

Analysis was also done of woman-headed households and those with permanently-resident adult male members. Both well to do and poor households are to be found in each group; there is no direct relationship in the Bura sample between wealth and income on the one hand and the household's structure and composition on the other. The following comparisons can be made:

	female headed	male headed
maize meals	67.6	62.9
bulgur meals	15.7	19.5
wheat/rice meals	5.9	5.8
tuber meals	10.7	11.8
meals with meat	9.2	7.4

weekly food expense

48.64

54.92

The differences between the two groups are insignificant. Woman-headed households have slightly more maize meals, slightly fewer bulgur and tuber meals, eat a bit more meat, and spend a bit less money on food. The same pattern of eating heavily of the bulgur early in the cycle and tapering off at the end of the cycle is apparent. Women heads of household did more gift-giving and trading with the Title II commodities than did women living in households with resident adult males. The extent to which the CSM was used to feed young children was the same in both groups. No significant differences in calorie and protein intakes can be discerned. If there are indeed differences in utilization between different types of households, both larger samples and longer periods of research will be needed to detect them. The evidence is not sufficient either to lend support to any of the hypotheses, or to suggest refinements to the hypotheses.

b. between recipients and non-recipients

It has also been hypothesized that there are important differences between food aid recipients and non-recipients and that this will manifest itself in program participation and patterns of food consumption. Since the samples were deliberately recruited from different communities, however, one

with access to the distribution and one without, our comparison can only show us how receiving the commodities alters the usual pattern of food consumption among participants. The analysis of food consumption, meal pattern and food expenditures shows the following contrasts.

1. Non-recipients consume twice as many tuber meals and 8% more maize meals than do the recipients. The finding with respect to tubers is especially significant. Every household grows one or more varieties of these food crops, but they are not well-liked. They are regarded as the food of poor people. They are cultivated for two main reasons: to add a little variety to the diet, and to act as a famine reserve. Cassava in particular is very drought resistant and may be left in the ground two or three years without being harvested and without spoiling. The production of such crops requires less labor than cultivating maize, and the work is spread out more evenly over the annual cycle. We have already seen that poor households in Bura eat more tuber meals than the well-to-do. It is thus not surprising to find that bulgur is used in the place of cassava, taro and potatoes, especially considering that bulgur is simpler to prepare and more fuel efficient. Bulgur then more frequently substitutes for a low priced staple grown by all households, rather than the more costly maize meal which must be purchased at least part of the year by many households. Such a substitution also has implications for calorie and protein intakes, because the tubers and maize and their typical garnishes are replaced by food

combinations with higher protein and calorie values.

2. Recipients consume much larger quantities of fats and oils than do non-recipients. Not only do Bura residents spend a greater percentage of their food money--and almost twice the actual amount of money--on fats and oils do Mwawache villagers, on top of this differential they also received two litres of oil in their ration. Mwawache villagers averaged ten meals per week in which fats and oils were used, Bura residents over 12.

Possible reasons for this higher rate of consumption are that the preparation of bulgur requires large quantities of oil (an average of over 150 ml per meal) to make it palatable; and that Bura residents eat fewer meals of tubers, which are generally prepared without the addition of fats or oils. Since in large part a food for which oil is essential (bulgur) substitutes in Bura diets for one whose preparation does not include oil, the higher rate of consumption of fats and oils in Bura is understandable. It is also worth noting that over the course of the period of observation the frequency of fat and oil consumption did not change in Bura households, even though the frequency of bulgur meals declined in later weeks. Just as many meals utilized cooking fat in the last week of the cycle in Bura as in the first week.

3. Bura program participants spend more cash on sources of animal protein, and consume them more frequently, than do Mwawache people. It is unclear, however, whether this is a

function of deliberate selection of these products for nutritional reasons, greater availability and ease of access in Bura, or the greater expenditure in Mwavache on maize flour, cutting into the amount of money available for meat and milk purchases. I suspect that a combination of these factors is at work. The four Bura communities are served by five butchers and by regular, well-established itinerant milk sellers. Mwavache residents must walk about two hours to reach a butcher and are not as effectively reached by milk vendors. They drink their tea "rangi" (black) not by choice but by necessity; demand for milk exceeds supply. It seems unlikely that these consumption differences can be attributed to effects of the ration package.

17. Summary and conclusions

I have attempted to address the problem of incomplete knowledge and understanding of the dynamics of household-level commodity utilization by PL480 Title II food aid recipients by collecting and analyzing a body of detailed data from both recipient and non-recipient households in the Taita Hills of Kenya. These data reveal that rural Taita households are quite diverse in demographic and socio-economic particulars, varying with respect to size, composition, income generating strategies utilized, cash income, investment capacity and the like.

With respect to the issue of food consumption generally, and the utilization of Title II foods particularly, the following points can be made.

a. Income value of the ration, shs 131.62, augments total household income (cash plus food production) by between 5 and 20%. This figure is misleadingly high, however, since the ration during the study period was atypically large. When adjusted to account for unused quantities remaining and those given or thrown away, the income effect declines to shs 97.04, or an increment to household income of 4 to 15%. More meaningful is the 1 to 5% increment of shs 25.28 now received since ration quantity has been reduced to its former level. Despite what seems to be a minor income effect, the demand for entry exceeds available places and attendance is regular and high. This seeming paradox may

possibly be explained by positive evaluation of income value, however small, by the Taita themselves, combined with the very real interest and knowledge Taita women have in their children's growth and development; MCH clinics which do not provide rations also experience very high attendance rates.

b. In all recipient households the ration serves a primarily substitutive rather than supplementary role. The bulgur is used in lieu of less-expensive, home-produced tubers rather than maize meal, even when maize must be purchased. Hence taste preference seems to be a more important determinant of use than reallocation or reduction effects on food expenditures. An artificial demand for cooking fat may inadvertently have been created during the study period when the amount of bulgur provided was quadrupled but the oil allocation remained unchanged. CSM, to the extent that it is used, also acts as a substitute, usually for the maize meal used to prepare gruels for young children. In terms of calorie and protein values, the diet is enhanced by the consumption of bulgur and oil; CSM provides a small protein increment.

c. Methods of preparation of the Title II foods seem appropriate for the commodities in question and are totally in keeping with the usual Taita culinary practices. The commodities are familiar to the people (except for CSM) and/or may be prepared so that the finished product fits into a recognized Taita food category. Thus, so far as recognizing the Title II foods qua foods or cooking them in appropriate ways is concerned, the ration is

culturally acceptable.

d. The effectiveness of targeting can be treated on two levels. So far as geographical targeting is concerned, Bura Mission may not be the ideal site. The food aid recipients are more affluent and their children better-nourished than non-recipients in a neighboring community. Whether this is an artifact of the sampling procedure or a valid finding cannot be established on the basis of the data at hand, but Bura Mission and environs certainly are not the most deprived area of Taita. I suspect that the program was set up at the Mission not because of special needs of the area, but because the Mission was already there and willing to provide the necessary facilities and personnel. The siting of the program on the grounds of the Roman Catholic Mission also has the unfortunate effect of leading the Anglican majority to believe that the rations are reserved for Catholics.

So far as targeting of items in the ration is concerned, only the CSM is to some extent reserved for consumption by nutritionally vulnerable household members. Bulgur and oil are freely available to all householders over about one year of age. There is nothing to suggest that such intra-household allocation is an artifact of the very large amount of bulgur received during the study period. Much of the oil is utilized to improve the taste and texture appeal of the bulgur, and the bulgur is used primarily to prepare midday and evening meals shared by all household members and their guests. CSM is regarded with some suspicion. Only a minority of

households made full use of the quantity provided and prepared it exclusively or primarily for consumption by young children.

Alleged emetic effects and susceptibility to insect infestation occasioned the throwing out or giving away of all or part of the CSM in more than half of the households studied.

e. So far as could be determined, even though an unusually large quantity of bulgur was provided during the period of observation, none of the Title II foods entered the cash market. However, over half of recipient households felt constrained by the traditional values governing inter-household allocation of food in Taita society to give substantial amounts of bulgur to close kinsfolk. Inter-household exchanges also took place, usually between neighbors and usually involving the exchange of bulgur for some other staple food item or for milk. However, it is much more common to find transactions between neighbors to be based on purchase rather than exchange, so that Title II foods were not an important component of these transactions. In addition, not all households participate to the same extent in networks of purchase or exchange with their neighbors or relatives. Items not produced by the households were most often acquired in impersonal shops and markets rather than through personal networks.

f. Non-program foods consumed in recipient households have two principal sources: purchases from shops and markets, which account for just under 1/3 of the cash value of non-Title II foods; and household production of staple foods on its own farm

plots. The bulk of the staple foodstuffs (grains and tubers) and relishes are home-produced. Most cash purchases are of condiments, relishes and sugar, which in Bura claimed by far the largest proportion of household food money. Little of the food eaten in these households came through traditional kin- or community-based exchange networks. Home production is worth twice as much, in cash-equivalent terms, as purchased food items, and more than three times as much as the drought ration.

g. No conclusions can be reached about the differential utilization of Title II foods in different sorts of recipient households. Comparisons between rich and poor and between male- and female-headed households revealed no profound differences between the categories in their meal patterns, consumption practices, or sources of foods consumed in the home. The following observations may be made: targeting of CSM to young children is more effective in well-to-do households than in poor; the well-to-do spend substantially more money on food than do the poor, principally for non-staple food items such as milk and meat. A significant difference in food consumption between recipient and non-recipient households is the fact that bulgur provided by the Title II program substitutes principally for cheaper, low-status tuberous foods in the meal pattern. This finding confirms the significance of culturally conditioned food preferences in commodity selection, and further dilutes the income effect of the Title II foods. Replacement of tubers with bulgur does provide a substantial increment in calories and protein to

food aid recipients. Both recipient and non-recipient households spend the same amount of money per week on food, differentially allocated; the income effect of the ration package may permit the purchase of more meat, dairy products and vegetables but apparently also creates an artificially high demand for fats and oils, which cannot be viewed as a healthy development.

18. Program and research implications

Although the study discussed in this report explored Title II ration utilization for one month only, the findings have some implications for program and policy decisions and for the direction of further research.

I. Program implications

a. Commodity selection. The study has shown the importance of culturally-conditioned food preferences and classifications of choice of commodities in a ration package. Since wheat already plays a role in the diet not only in Taita but throughout Kenya, and since rice and coarsely-ground maize products also are utilized, bulgur is recognizable and acceptable from the perspectives both of taste and preparation. Although the role of bulgur is substitutive rather than supplementary, the fact that tubers of low calorie value are the principal dietary item replaced by the bulgur results in calorie and protein supplementation of the diet among food aid recipients. CSM, on the other hand, seems to be an

inappropriate choice because it is taken for yellow maize, which is not regarded as an acceptable food for humans. Much CSM was simply wasted and on the basis of the quantity consumed NFDM would probably deliver more nutritional benefits. These benefits would not be confined to at-risk children, but the probable utilization of NFDM would be in a supplementary rather than substitutive capacity. Oil is an eminently suitable commodity choice, being enthusiastically received and fully utilized in conjunction with the bulgur.

b. Ration size. The period under investigation was atypical in that an unusually large quantity of bulgur was provided to the households. The bulgur was not fully utilized, even though most households were simultaneously purchasing basic food items or luxury foods which the bulgur could have replaced. This finding suggests that there is an upper limit to the size of the ration package in areas with decided food preferences, food production capacity, and sufficient cash income to exercise food consumption choices. Households do not have an infinite capacity to absorb food aid, either for its consumption or its income effects.

c. Targeting. The findings also suggest that targeting and timing are program elements that could use some refinement. It seems likely that the Taita program is located at Bura Mission simply as a matter of convenience. The willingness of the Mission to provide facilities and personnel (although it should be noted that ultimately it is the food aid recipients themselves who are

responsible for underwriting these administrative costs) was undoubtedly very attractive to CRS. However, Bura Location is by no means a deprived area. Examination of publically-available records shows that Bura rarely suffers from the drought and food production shortfalls that routinely afflict other parts of the district, because its relatively high altitude, widespread use of traditional irrigation, and large number of well-employed labor migrants ensures both food production capacity and cash income to purchase food during times of stress. If poverty, need, and failures of food production capacity are taken as the principal criteria of geographic targeting, Bura Mission is a poor choice. This is not to say that Bura entirely lacks needy and deserving individuals to whom food aid makes a real difference. It is to say, however, that if an objective of the program is to serve the greatest number of needy individuals, there are many other localities in Taita where that objective could be better served.

The findings also suggest that the drought ration delivered during June and July came after the worst effects of drought-induced food shortage had already been ameliorated. Seventy per cent of the recipient households studied were satisfying all of their staple food needs from home production at the same time that they were receiving the emergency ration. The months of greatest food stress are usually during October and November; during 1984 these months were particularly stressful because of a failure of the rains necessary for adequate harvests in August/September and in December. By June of this year, however, two successive adequate

rainfall seasons had resulted in acceptable harvests and, for most households, adequate food supplies. Thus the majority of households were unable to absorb the quantity of grain provided. This finding reiterates the importance of perfecting some kind of drought early warning system permitting advance preparation for times of severe food stress.

d. Decision-making. The study points up some of the sorts of data that are needed for effective decision-making about ration sizes and compositions and program siting. For some countries these data, as needed for more effective country program design, are available in public documents and published reports. For Kenya, for example, information on food consumption practices, dietary patterns, and food preferences are widely available in published reports by anthropologists and nutritionists. District-level information on the occurrence of food shortage, drought and famine are contained in district annual reports. For other countries such data might not be so easily accessible, in which case special efforts might be necessary to provide the data needed for more effective commodity decisions. Assessments of data availability could be undertaken by the PVOs responsible for commodity delivery in particular countries, and perhaps included in the AER. Although the kind of study described in this report has a significant role in making decisions about future research directions, it does not seem cost-effective to enter into this amount of detail and complexity for all commodity-choice decisions.

II. Research implications

Short-term studies of Title II food utilization at the household level were one of several options offered for research to determine actual consumption effects of food aid. This is the first of these "micro-studies" to be completed, and the results yield some indicators as to how any further studies might be conducted.

a. Methodology. I think it is critical that a fairly uniform research design be employed for all of these studies, in order to maximize comparability of results. It is essential that an investigator well-acquainted with the appropriate procedures for household-level data collection be on-site throughout the duration of such data collection. Samples should be of a sufficient size to permit meaningful analysis of the data, and the orientation should be towards the collection of quantitative and qualitative information simultaneously. The presence of a consultant who understands the data collection procedures and who will also write the finished report permits qualitative data collection and quality control of the quantitative data. For each locality the sample should be drawn from recipients served by one delivery point. In a rural area the population sampled should be ethnically homogeneous. Comparison with an equivalent sample of non-recipients from the same area should be an integral part of the study.

b. Types of studies. The Bura study deals with a rural, agricultural population also employing off- and non-farm income-generating strategies who receive food aid through an MCH take-home program. I think it advisable, before any long-term studies are done, to carry out several more of the short-term studies and evaluate the significance of the outcome to hypotheses which would inform and underlie future efforts. Ideally, the other microstudies would concern themselves with the following kinds of populations:

- rural dwellers who do not produce all or most of their own food

- urban-dwellers without food production capacity

- a food for work program with mainly female recipients

- a food for work program with mainly male recipients.

If possible the food-for-work programs should be located in rural areas.

I emphasize the need for more microstudies before any larger research effort is undertaken because the results of just one small study, even if showing greater differentiation than the Bura study, are insufficient for refinement of hypotheses and methods.

A similar research design is essential for the microstudies in order to ensure comparability, reliability and validity of results.

c. Mitigating factors. There is some concern that the situation

of Bura is sufficiently unique that the same utilization, consumption and income effects might not be found elsewhere. Upon reflection I believe that any uniqueness discernable in the Bura situation lies with the program and in particular the drought ration, rather than with the Bura recipients. The Taita area generally is not in any way atypical of rural farming areas throughout Kenya, and the patterns of income generation and food purchases are perfectly consistent with what is known about smallholder farmers throughout Africa. Taita are more affluent and well-educated than many other groups in Coast Province, but are disadvantaged and isolated in comparison with the majority of the people living in the central and western parts of the country. They are not disproportionately well-to-do to the extent that this would necessarily have significant effects on food consumption practices. Rather, the factors that can be identified as having the greatest impact on the patterns of actual commodity utilization are taste preference, food ideology, and the threshold effect, rather than economic or structural variables. Whether this is a generalizable finding must, however, await the results of further carefully designed microstudies for elucidation.

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