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Farming
Systems
Research
Along the
Senegal
River
Valley

Food Consumption Survey in
Guidimaka, Gorgol, Brakna, and Trarza Regions

Mauritania Agricultural
Research Project II
College of Agriculture
The University of Arizona
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DRAFT FOR REVIEW

FARMING SYSTEMS RESEARCH ALONG THE SENEGAL RIVER VALLEY

FOOD CONSUMPTION SURVEY IN

GUIDIMAKA, GORGOL, BRAKNA AND TRARZA REGIONS

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Executive Summary

This preliminary report presents the findings of a dry season consumption survey that was conducted in Mauritania in Guidimaka, Gorgol, Brakna and Traza regions. This survey was carried out in conjunction with a farming systems reconnaissance survey that was being done in the same regions. Twenty-seven villages were surveyed over a three week period in February 1986. Two female researchers conducted group interviews with several hundred women on consumption patterns. Information was collected on food preferences, seasonality of foods consumed, food habits, food purchases, gathered foods, food storage and preservation, food distribution programs, infant feeding and health and vegetable gardens. Some of the major findings of this survey are listed below.

Food Preferences

- Millet, sorghum and rice are equally preferred.
- Women may prefer rice over sorghum and millet because it takes less time and is easier to prepare.
- Meat and fish are equally desirable.
- The major food items women would buy if they had more money include meat, fresh fish, millet, rice and sorghum.

Seasonality of Foods Consumed

- The rainy season is the most frequently mentioned time of food deficits.
- A second hungry season occurs in several villages in the month of February.
- Fish, meat and vegetables are in short supply during the dry season.
- Villages which are isolated during the rainy season have trouble gaining access to salt water fish, which is a major protein source.
- Major sources of funds to purchase food during food deficit periods are remittances, credit from merchants, seasonal migration, charcoal production, selling animals, selling cloth, credit from friends and relatives, selling grains, selling fish and selling personal jewelry.

Food Habits

- Men are usually served first and eat separately.
- Children are often served second while women and small girls eat last.
- Food sharing is not common but does exist in some villages.
- Barter is very common, especially transactions which involve dairy products for grain.
- Few food taboos exist except for pork and eggs.

- Pregnant women do not usually eat special foods.
- A number of specialty foods are prescribed for women who have just given birth such as millet porridges and meat dishes.
- Lactating women do not usually receive special foods.

Food Purchases

- Most common foods purchased daily include fish, vegetables, rice, sugar, oil, coffee, tea, milk, maggie cubes, bread and sorghum.
- Major items purchased periodically include sugar, oil, coffee, tea and soap.

Gathered Foods

- Wild fruit such as jujube and balanitessie are frequently consumed during the rainy season during the time when food is in short supply.
- Women and children usually gather the fruit.
- Paguiri (fonio) is a wild grain gathered in the dry season to supplement grain supplies.

Food Storage and Preservation

- Millet and sorghum are usually stored on the panicle while rice is stored in sacks.
- Grain supplies in storage may only last 1 to 2 months.
- Termites, crickets and rats cause storage losses.
- Some farmers will preserve onions, hibiscus, okra, carrots, cowpeas and even sweet potatoes.

Free Food Distribution

- Free food is infrequently delivered in many of the villages surveyed.

Infant Feeding Practices and Health

- Children are breast fed 1 to 2 years.
- Few villages have special weaning foods, and weaning begins anywhere from 6 months to 1 year.
- Diarrhea is quite common in many of the villages surveyed. It commonly occurs when the river begins to rise (July-August). It is the most common killer of infants.
- Common treatments for diarrhea include rice water, baobab fruit, lemonade, curdled milk and charcoal.

— **Vegetable Gardens**

- Vegetable gardens exist in a variety of forms in the villages surveyed. These include falo plots, cooperative gardens, individual gardens near the compound, and large private commercial vegetable gardens.
- Major crops grown include cabbage, lettuce, tomatoes, eggplant, onions, pepper, carrots, potatoes, sweet potatoes, cassava, peanuts, parsley, mint, beans, turnips, cucumbers, beets, hibiscus, okra and maize.
- Crops grown in gardens are usually cultivated in the cool dry season.

Food Consumption Constraints and Recommendations

— **Consumption Constraints**

- a. **Sesonal food shortages**
 - i. Improve the infrastructure so that villages are less isolated during the rainy season (i.e., all-weather roads).
 - ii. Identify and introduce short maturing varieties of food crops to make food available during critical periods (i.e., rainy season).
 - iii. Collect germ plasms along the river of short cycle crop varieties.
 - iv. Develop cropping systems which combine crops in such a way that food gaps are eliminated (i.e., combining short and long cycle crops).
 - v. Search for other alternative food sources such as new crops, or wild plants.
 - vi. Conduct research on fonio to determine its potential as a food crop.
 - vii. Promote cooperative boutiques as food banks to store grain to be used during food deficit periods.
- b. **Access to drinking water**
 - i. Develop more wells and introduce simple filter systems to clean water from the river.
- c. **Access to fresh water fish**
 - i. Increase the quantity of fish available by stocking the river and marigots with fingerlings.
 - ii. Introduce fish nets which regulate the size of the fish caught. Establish laws to enforce the use of these nets.
 - iii. Introduce fish ponds to improve access and management.
 - iv. Introduce an aquaculture research program at CNRADA which focuses on improving fish production in the river basin (i.e., breeding program for fingerlings).
- d. **Access to firewood for cooking**
 - i. Promote agroforestry practices to improve access to firewood.
 - ii. Encourage farmers to plant stands of fast growing trees that can be systematically harvested for fuel use.
 - iii. Introduce fuel efficient wood burning stoves.
 - iv. Encourage farmers to use manure as a substitute for wood or charcoal.
- v. Explore other alternative energy sources such as solar energy and wind

power.

— **Constraints for Vegetable Crops**

- a. **Access to water**
 - i. Improve access to water for vegetable gardens by making available pumps, wells, and storage tanks.
 - ii. Conduct research on the feasibility of using animal traction, hand pumps or small diesel pumps to lift water into storage tanks.
 - iii. Promote better water management and more efficient irrigation techniques such as improvements in canal construction and maintenance, leveling parcels and appropriate irrigation schedules.
 - iv. Identify vegetable varieties with minimal water requirements.
- b. **Access to appropriate vegetable seeds**
 - i. Identify or develop vegetable varieties which are adapted to different seasons and which have different maturation periods.
 - ii. Consider bringing in more vegetable specialists to CNRADA to conduct research on vegetables.
- c. **Access to transport**
 - i. Continue to support transport infrastructural improvements.
 - ii. Encourage villages to regionally coordinate the transport of vegetables to larger markets through cooperatives.
- d. **Packaging and conservation of vegetables**
 - i. Instruct farmers how to pack, transport and conserve vegetables.
 - ii. Introduce appropriate storage and preservation techniques.
 - iii. Identify or develop vegetable varieties that transport better.
 - iv. Encourage small businesses to develop that deal with the transport, packaging and processing of vegetables.
- e. **Access to extension**
 - i. Improve extension services provided to vegetable growers in the areas of seed access, instruction on improved cultural practices, and information on packaging, transport and conservation.
 - ii. Continue to rely on Peace Corps Volunteers to provide extension advice.
- f. **Competition with foreign vegetables**
 - i. Explore the positive and negative effects of establishing a trade barrier on vegetable imports.
 - ii. Improve the infrastructure to facilitate vegetable marketing.

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I. Introduction

This preliminary report presents the findings of a dry season consumption survey that was conducted in Mauritania in the Guidimaka, Gorgol, Brakna and Trarza regions (See Map 1). This survey was carried out in conjunction with a farming systems (FSR) reconnaissance survey that was being done in the same region. Twenty-seven villages were surveyed over a three-week period in February 1986 (See Table 1). Inquiries were directed to several hundred women regarding consumption patterns. Women were interviewed in groups rather than individually, so it was difficult to determine the actual number contacted. This study was carried out under the auspices of the Mauritanian Agricultural Research Project II. This project is supported by USAID/Nouakchott and USAID/Office of Nutrition, Bureau of Science and Technology with cooperation from the Centre National de Recherche Agronomique et de Developpement Agricole (CNRADA). The University of Arizona's College of Agriculture and CNRADA have joint responsibility for directing the project. The primary objective of the reconnaissance survey was to provide information on the farming systems found in the Senegal River Valley to help CNRADA establish research priorities for the research station at Kaedi. In addition to consumption information, dry season data were collected on cropping patterns (irrigated, recession, and rainfed), animal husbandry, off-farm economic activities and marketing. This study also focused on some of the key constraints facing farmers in these regions of the river basin. All of the information is presented in Report No. 1, "Farming Systems Research Along the Senegal River Valley." Although this information will be augmented and refined in upcoming surveys in the rainy season as well as by on-farm testing, it provides a basis for orienting research to the needs of farmers.

A. Methodology

The FSR reconnaissance survey included a food consumption component because it was felt that the linkages between production and consumption were very important to understand. This is especially true given the marginal conditions farmers are faced with in this arid region. Meeting family consumption needs is one of the primary goals of farmers in this region and must be taken into account in any proposed intervention.

To collect the consumption data, two female researchers were employed. It was felt that women would be able to obtain information on consumption patterns much easier than men since food preparation is done by the women of the village. One female researcher was a Dutch anthropologist from the University of Leiden, and the other was a Mauritanian researcher trained in health sciences from the Direction de la Sante, Services S.M.I., Nouakchott.

Prior to conducting the survey, the researchers reviewed the secondary data obtained from USAID, other government agencies and other projects. Prior to this survey only two food consumption surveys had been conducted in the country. These included the 1958 survey conducted by J. L. Boutillier in the Middle Senegal River Valley (MISOES 1958) and the Rural Assessment and Manpower Survey conducted in 1980 (RAMS 1980). Two documents generated by the RAM's study which were useful included the volumes entitled "Rural Sector Consumption Patterns in Mauritania" and "Food and Nutrition Situation in Mauritania." In addition, a nutritional survey was conducted in 1983 by the Ministry of Health and USAID in the Trarza, Tagant and Adrar regions. This information was summarized in a document entitled

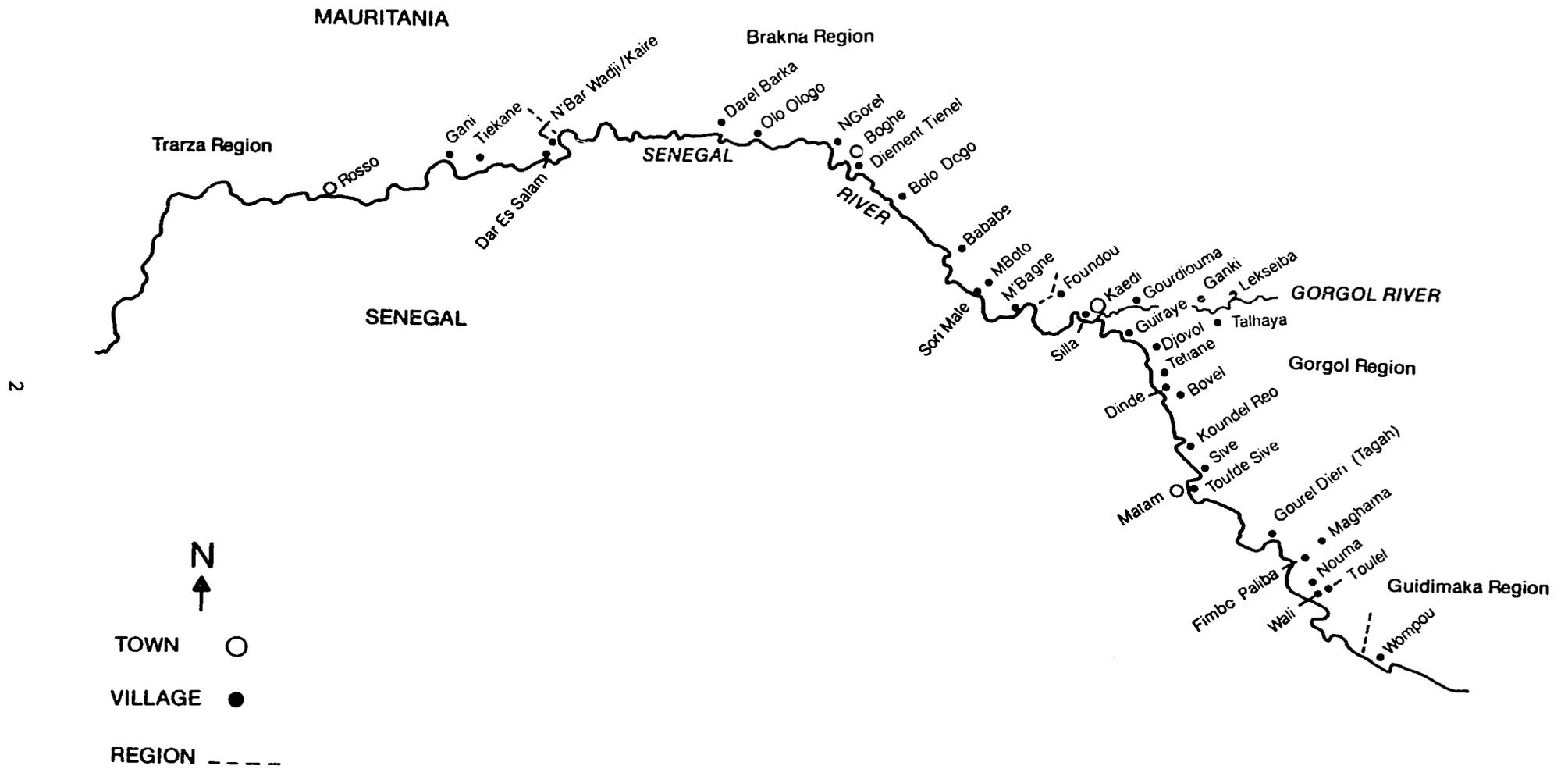


TABLE 1

Villages Surveyed

Silla	M'Bagne
Djoval	M'Boto
Talhaya	Sori Male
Lekseiba	Bolo Dogo
Wompou	Bababe
Wali	N'Gorel
Touel	Tienel
Darel Barka	Gourel Dieri (Tagah)
Olo Ologo	Paliba
N'Bar Wadji/Kaire	Sive
Dar es Salam	Koundel Reo
Gani	Tetiane
Teikane	Bovel
	Fondou

"Report on the Nutritional State of Mauritanian Children during the 1983 Drought Emergency: Assessment and Recommendations." Other useful sources included the "USAID Mauritania Vegetable Production Project Paper" (1979), the "Vegetable Production Project Evaluation Summary" (1981), and a document entitled "Vegetable Production Potential in Mauritania", by Frederickson, Kamine and Associates, Inc. (1982).

The secondary information helped familiarize the researchers with the area and topics to be studied. In addition, background information was collected from knowledgeable personnel such as USAID officials, government officials, CNRADA researchers, project personnel, Peace Corps volunteers and other resource persons. This information was used to construct a detailed topical outline prior to going to the field (See Appendix A). The topical list was open-ended so that women could express themselves freely on a variety of issues. This outline was refined in the early stages of the survey after it became apparent that it was too lengthy to complete in the time allotted. Villages nearby Kaedi were surveyed first to test the topical list. This allowed the team to refine the list and to determine the appropriate manner in which to ask some of the questions. Tables were constructed from the refined list which facilitated the transfer of data from field notes to a comparative format (See Appendix B). These tables allowed for continual comparisons among villages which helped focus discussions among the researchers.

Interviews were usually conducted with a group of women from the village rather than with individual women. Thus, much of the consumption data is generalizable at the village level rather than at the household level. This information provides insights into inter-regional differences in consumption patterns rather than intra-village differences. This preliminary survey will help target future thematic surveys which can collect data at the household level.

The interviews were conducted at the same time as the indepth FSR farmer interviews. Each of the female researchers conducted the interviews alone rather than in pairs in order to expand the data coverage.

As with the other types of farming systems information, the major attributes and constraints associated with consumption patterns were identified. Recommendations were also proposed to deal with the consumption constraints.

A rainy season consumption survey is also planned for September 1986 to determine seasonal differences in consumption patterns. This survey will be conducted in conjunction with an FSR reconnaissance survey to be carried out in 20 villages along the Senegal River. Many of the same villages surveyed previously will be included in this rainfed survey to obtain comparative data. This information will help verify and supplement the data collected in the dry season survey.

B. Content of the Report

The information summarized in this report will be presented in several sections. Information is provided on food preferences, seasonality of foods consumed, food habits, food purchases, gathered foods, food storage and preservation, food distribution programs, infant feeding and health and vegetable gardens. This is followed by a section which focuses on food consumption constraints and proposed solutions. The final section of the report contains the appendices. The types of information provided in the appendices include: the topics of inquiry for the consumption survey; the data summaries of the results of the

consumption survey; lists of gathered foods; lists of traditional remedies for ailments; recipes; food inventory; and food prices by village.

II. Food Consumption Patterns

A. Food Preferences

The survey results concerning the preferred grain staples indicate that, on the whole, millet, sorghum and rice are equally preferred. However, differences do exist among villages. In villages where millet and sorghum are preferred over rice (i.e., N'Bar Wadji, Gani), taste is usually cited as the main reason. Other reasons given for millet and sorghum preferences include: 1) texture; 2) knowledge of cultivation; 3) more nutritious; 4) quantity seems to increase when pounded; and 5) sorghum does not need as many ingredients as rice. In those villages where rice is preferred, the major reasons cited include: 1) availability; 2) takes less time to prepare; 3) rice is easier to pound; 4) rice goes well with fish, and 5) millet takes more work to prepare than rice. An interesting pattern which needs further investigation is the notion that women prefer rice over sorghum and millet, while men prefer the contrary (i.e., Gourel Dieri, Tekane). This may be due to the fact that rice takes less preparation time and is easier to prepare, so it demands less of the women's time.

Inquiries regarding meat preferences indicate that as a whole, meat and fish are equally desirable. However, fish is preferred in villages which are economically oriented toward fishing (i.e., N'Gorel, Tienel, Sori Male). Although meat is desired, many farm families cannot afford it except for special occasions, so fish is more frequently consumed.

The most preferred dishes are couscous (made from millet and sorghum), rice and fish, and rice and meat. Millet based meals are also considered desirable. Again, a pattern worth investigating is whether women prefer rice and fish dishes while men prefer couscous.

The major food items women would buy if they had more money include meat, fresh fish, millet, rice and sorghum. These results are similar to the findings of the 1980 RAMS study except that millet and sorghum are mentioned. In fact, millet was the third most frequently mentioned item. Other items people mentioned they would purchase include milk, chicken, potatoes, oil and tomatoes. One village indicated they would try to vary the food stuffs more if they had more money (i.e., Djoval).

B. Seasonality of Foods Consumed

In all the villages surveyed, there is a marked difference in seasonal access to food. The rainy season is the most frequently mentioned time when food stuffs are low. These food shortages are compounded by the fact that many villages are isolated during the rainy season due to poor transportation facilities. In addition, in many villages, the recent drought conditions have caused this hungry period to begin earlier during the dry season. The survey also indicated that a second hungry period occurs in many villages in the month of February. Seven of the villages surveyed indicated that food was in short supply during this period (i.e., Darel Barka, Olo Ologo, N'Bar Wadju, N'Borel, Gourel Dieri, Sive, Tetiane). This is the period just prior to the walo harvests.

The types of foods that were in short supply during the different seasons were also investigated. During the dry season, the most frequently mentioned foods in short supply included fish, meat and vegetables. Villages also indicated that a number of animals die during this period. During the rainy season, it appears that all items are in short supply due to transport problems. In particular, villages have trouble gaining access to dried salt water fish from the ocean because of the lack of transport. This is a major source of protein for many villagers. During the cold season, some villages have trouble getting access to fish, meat, millet and corn. Money is also short at this time.

The primary sources of money to purchase food during food deficit periods were also investigated. The major sources of funds mentioned include remittances, credit from merchants, seasonal migration, charcoal production, selling animals, selling cloth, credit from friends and neighbors, selling grains, selling fish and selling personal jewelry (i.e., Bolo Dogo, Fondou). Other sources of cash for food purchases include seasonal labor, selling wild fruits (jujube), making mats and cushions, and selling your own boubous (i.e., Bolo Dogo).

C. Food Habits

A commonly mentioned eating pattern found in the majority of the villages surveyed was the tendency for men to be served first and to eat separately. Sometimes boys would join their fathers, but more often they would not. Children were often served second while women and small girls ate last. In only two villages did women eat second (i.e., Bolo Dogo, N'Bar Wadji). Only in one village did everyone eat together (i.e., Tienel). It was indicated that poor people are more likely to eat together than those families with more resources. Only in one village was it indicated that women and girls eat first (i.e., Fondou). The most important meal is lunch.

Food sharing was not commonly acknowledged, although people in six villages indicated that it occurs. For instance, in Woumpou, it is common to share the meal surplus with other family members. In Toulel, excess food production will be shared with the rest of the village. In M'Boto and N'Bari Wadji, food or money will be shared with the family or neighbors. In Gani and Tetiane, food may be shared during food deficit periods.

Contrary to the RAMS 1980 study, a number of examples of barter transactions were found in the villages surveyed. The most commonly mentioned transaction was milk and dairy products being traded for grain (rice, millet, sorghum) or other food products. These transactions usually occurred between nomadic herders and sedentary farmers or between livestock oriented villages and farming villages (i.e., Bovel, Koundel Reo). Grain crops such as rice were also being traded for sorghum, salt, fish and wild food (i.e., Tekane). Nomadic herders were also trading wild fruit (jujube) for millet (i.e., Tienel, Fondou). In Gourel Dieri, okra was traded for millet. In Silla, tomatoes were traded for rice.

Similar to the information reported in the RAMS 1980 survey, few food taboos are found along the river except for pork and eggs. Eggs are not given to children among the Poulaar, Puelh or Wolof because it is believed that it will cause delayed speech.

Inquiries were also made regarding specialty foods. Pregnant women do not normally receive special foods although in one village women said that they reduced

their consumption just prior to birth to make the delivery easier (i.e., Djoval). In M'Bagne, pregnant women are advised to cut down on salt, sugar and grease. As for women who have just given birth, a number of special foods are prescribed, especially within the first several weeks after birth. The most common food prescribed is porridge (millet, milk), often with meat. Soups with meat and bouille (rice soup) are also recommended. Rice with cowpeas and butter was also mentioned (Wompou). For women who have lost a lot of blood in delivery, roasted meat, bouillie, and a soup with meat and cowpeas is prescribed (i.e., Sive). Foods for lactating women are only mentioned in a couple of villages. In Talhaya, lactating women are served couscous with boiled cowpea leaves and peanuts or sorghum, rice and steamed fish. In Wompou, lactating women are served rice with cowpeas and butter. Milk, bouillie, and cowpea leaves are also prescribed to lactating women in Tetiane. One belief mentioned in Toulel about lactating women was the notion that evening meals were better for milk production than lunches.

D. Food Purchases

The most commonly mentioned foods being purchased daily include fish, vegetables (especially tomatoes and onions), rice, sugar, oil, coffee, tea, milk, maggie cubes, bread and sorghum. This list compared favorably to the results of the RAM's (1980) study. Other less frequently mentioned items purchased daily include meat, millet, wheat, cowpeas, peanuts, salt, peppers, sweet potatoes, potatoes, corn, and tobacco.

Major items identified which are purchased periodically include sugar, oil, coffee, tea and soap. Other less frequently mentioned items include salt, peanuts, bananas, henna, snuff, tomatoes, onions, bread, rice, fish and white wash.

E. Gathered Foods

Inquiries also focused on wild foods which are gathered to supplement the diet. Wild fruits are frequently consumed during the rainy season during the time when food is in short supply (RAM's 1980). Sixteen villages indicated that they consume such fruit although supplies have dwindled considerably due to the drought. Women and children are usually responsible for gathering the wild fruit. The most frequently mentioned wild fruits are jujube and balanitesse (mourtorde) (See Appendix C). The waterlily (guigile) also provides a food source during the rainy season. Other wild foods gathered during this time period include diaabe, potte guidjile, mourisianka, tamarin, baobab (pain de saigne) and eri. Baobab trees have died off in the past several years because of the drought. Other tree leaves that are used as food are the niaco oulo and tjapato.

In the dry season, people along the river may gather wild seed grains to supplement their food supplies. Paguirri (fonio) is gathered in Talhaya, Dar es Salam and Darel Barka. N'dayri is a water plant that is also gathered. In addition, farm families may gather a root called tabbe from the marigot. This root resembles a potato.

F. Food Storage and Preservation

Food storage practices were also investigated. In the majority of the cases, millet and sorghum are stored on the panicle while rice is stored in sacks. Cowpeas are also dried and stored. In the past, farmers stored grain up to the next rainy season in storage bins or in their house. Recent drought conditions have seriously

limited the amount of surplus grain put in storage. In many cases, the grain supplies in storage only last 1 to 2 months after harvest (i.e., Lekseiba, Tetiane, Foundou, M'Boto, Sori Male, Bababe). A few villages indicated that their stores may last anywhere from 3 to 5 months.

Grains that are stored are susceptible to a number of pests. Storage losses due to insects were reported in N'Bar/Wadji, Tetiane and Gani. In particular, termites and crickets can cause some damage (i.e., Foundou, Titione). In addition, rats are responsible for storage losses (i.e., Tiekane).

To a limited extent, some villages along the river also practice some vegetable conservation techniques to preserve their vegetables. For instance, onions are either dried or kept in the sand in a dark room for 5 to 7 months (i.e., Djoval, M'Baigne, Sive, Sori Male, Maghama, Bo'lo Dogo, Tienel). Sweet potatoes were also stored in the sand in one village (i.e., Sive). Other vegetables that are preserved through drying include hibiscus, okra, carrots (Djoval), and cowpeas (both the beans and the leaves).

G. Free Food Distribution

Because of the recent drought conditions, the rural sector of Mauritania has not been able to produce sufficient quantities of food to feed the population. Food aid provided by foreign donors and the Mauritanian Government has prevented a number of people from starving along the river basin and throughout the country. Two Mauritanian Government agencies are responsible for overseeing this effort. These include the Commissariat a la Security Alimentaire (CSA) and the Centre d'Alievention Communoutaire (CAC). A number of donor groups are providing food aid, including the United States, France, Germany, Canada, UNDP, Saudia Arabia, Libya, Spain, and EEC. CARE supervises the transport of this food from the major urban centers to the villages. Other groups which have on-going nutrition programs in the country include the Catholic Relief Service, Cresent Rouge, and World Vision. USAID, in cooperation with CSA and the World Food Program (EEC), is also trying to initiate a food for work program in the country to replace the food giveaways.

Presently, there are two types of food aid. One type is a grain crop market stabilization program aimed at keeping the market price of grains stable. The second form of aid is free food distribution. The program is set up so that a family of 5 receives 50 kg of grain (wheat, rice, sorghum), 5 kg of milk and 5 liters of oil every 55 days. This quantity is theoretically enough food to provide 2000 calories per day for 25 days. There was some concern that this free food might act as a disincentive to agricultural production.

In the area surveyed, villages claimed that free food was not regularly received. Respondents in 10 villages said that they had only received free food once in the last year (i.e., Tetiane, Fondou, Lekseiba, Woumpou, Toulel, Olo Ologo, Gani, M'Baigne and Tienel). One village had never received free food (i.e., Koundel Reo). The rest of the villages indicated that food was distributed two to three times a year. Women in one village (Bababe) indicated that a number of different organizations were operating under different time schedules that were delivering the food. For instance, CSA delivered food three times a year, CAC delivered two times a year, and Cresent Rouge delivered once a month.

Because the food was delivered so infrequently in most of the villages, it did not act as a disincentive to agricultural production. In fact, several of the villages

were presently experiencing severe food shortages and could benefit greatly if food were distributed to them as soon as possible (i.e., Darel Barka, Olo Ologo).

H. Infant Feeding Practices and Health

The survey also focused on infant feeding practices. In the majority of the villages surveyed, children were breast fed 1 to 2 years. (If the mother got pregnant again, she would immediately stop breast feeding.) These figures correspond nicely to the findings of the RAM's 1980 study.

Weaning foods were also identified in this survey. Many villages had no weaning foods. In Toulel, Sive, and Paliba, babies are weaned with little portions of normal food. In Gani, a porridge made from cowpeas is used. In M'Bagne bouilli and canned milk are used. Milk, couscous, salt and sugar are used in Tetiane. Weaning begins anywhere from 6 months to one year.

Diarrhea is quite common among young children in many of the villages surveyed. It occurs often in Wompou, Olo Ologo, N'Bar Wadji, M'Boto, Sori Male, Bababe, N'Gorel, Paliba, Bovel, Fondou, Djovol and Talhaya. A common time for diarrhea episodes appears to be when the river rises (July-August). The most common treatments for diarrhea mentioned include rice water, baobab fruit, lemonade, curdled milk, and charcoal (See Appendix D). Diarrhea is the most common killer of infants. Other diseases mentioned which have caused infant mortality include measles, hepatitis, chicken pox, malaria, whooping cough, and eye illness. Hunger was also cited as a cause of an infant's death.

III. Market Gardens (Vegetables)

A. General Characteristics

Vegetable gardens exist in a variety of forms in the villages surveyed. First, there are vegetable plots located along the river in the falo areas (see below). Both men and women cultivate these plots. Second, there are cooperative gardens. These may vary in size from 150 square meters to several hectares (e.g., the garden in Dar es Salam is 20 hectares). Most of the cooperative gardens are for the women in the village, although some are mixed like those found in Koundel Reo and Toufde Sive. Toulel had a separate garden for men and women. Some villages have three or more cooperative gardens (e.g., Djovol). Such gardens tend to be in close proximity to the village. Third, several villages have individual vegetable gardens. These may vary from small individual plots located near the household compound (e.g., Talhaya) for home consumption to large private commercial vegetable gardens (e.g., Gani). Most of the large commercial gardens are located in the Trarza region. In some villages, all of these types of vegetable gardens can be found together.

B. Water Source and Application

All of the gardens had access to water either from the river, marigot or a well. Villages close to the river or marigot, such as Guiraye, Wali, Toulel, Silla or Tetiane, watered their vegetables by pump irrigation or hand carried water. In villages where river water is pumped to the gardens, a cooperative owned water pump (e.g., Guiraye) or a pump used in the small perimeter (e.g., Sori Male) are used for this purpose. This water is usually applied using the basin irrigation technique. In villages located some distance from the river (e.g., Ganki, Fondou, M'Boto and

Lekseiba), well water is used to water the gardens. The well water is all hand drawn and applied to each vegetable plot either with watering cans or by using any available container. Some villages have, or are in the process of building holding tanks for the gardens (e.g., M'Baigne and Djovol).

C. Vegetable and Other Crops Grown

A variety of crops are grown in the gardens. These include cabbages, lettuce, tomatoes, eggplant, onions, pepper, carrots, potatoes, sweet potatoes, cassava, peanuts, parsley, mint, beans, tunips, cucumbers, beets, hibiscus, okra and maize. In some cases, fruit trees and bananas are grown as well. The crops grown in the gardens are usually cultivated during the cool dry season. Very little is grown during the hot dry season, or the rainy season due to the proliferation of fungus diseases. Because most of the vegetables are grown during the cool, dry season, they tend to be harvested at about the same time. This seasonal surplus of vegetables results in lower market prices, reducing the economic returns to the farmers.

D. Cultivation Practices

Most of the vegetables are grown in basins. This is especially true on sandy soils and where watering cans are not available. A few villages made raised beds and/or hills to plant crops such as potatoes and cabbage. In Gani in the Trarza region, commercial vegetable producers were planting tomatoes on the sides of hills. The gardens appeared to be well tended and clean, but in many cases villagers were not receiving enough technical advice or help. In the villages where SONADER cadres or Peace Corps volunteers were present, the market gardens were doing well (e.g., Wali).

Vegetable yields were hard to determine, but some gardens of approximately one hectare grossed about 10,000 um per year. The majority of the income came from onion sales. The major constraint to marketing the more perishable vegetables is the lack of adequate transport.

E. Inputs Used

The major inputs used were organic fertilizer, humus and some urea. Some insecticides such as orthene or sevin are used if available to control worms and crickets. If pumps are being used in the garden, the major input costs are the diesel and pump maintenance.

F. Women's Cooperative Gardens

As stated earlier, most of the cooperative vegetable gardens are managed by women. The size of a cooperative will vary considerably, but the average is between 1 and 5 hectares. Anywhere from 19 to 700 women may be members of a cooperative. Labor arrangements within these gardens will also vary. In some villages such as Koundel Reo, Silla, Bababe, Fondou, Tienel, and Olo Ologo, the women have individual plots which they manage and reap the benefits for themselves. In Toulel, Tetiane and Darel Barka, the gardens are managed cooperatively with the members sharing in the labor tasks and output. A mixture of these two types of labor arrangements are found in Dar es Salam, M'Boto, Sori Male, M'Baigne, Wali, N'Gorel and Talhaya. In such villages, women perform cooperative tasks on given parcels as well as manage their own parcels. The produce obtained from individual parcels is often for home consumption, although some may be sold to

purchase other commodities such as tea, sugar, or bread. The vegetables produced on the cooperative parcels may be distributed among the women or sold. If the produce is sold, the money may be used to buy capital intensive items such as a mill (e.g., M'Boto and Dar es Salam). In the village of N'Gorel, the production from the communal parcels is divided three ways. One-third is sold to purchase seed and tools; one-third is shared among the members for consumption; and one-third is stored (e.g., onions) to be sold later when times become more difficult.

The majority of the women's cooperative gardens obtain water through the use of a motorpump. However, water is still being transported by hand from the river or marigot to the garden in many villages (e.g., N'Bar Wadji/Kaire, M'Baigne, Silla, etc). In villages far from the river, well water is used to water the gardens (e.g., M'Boto, Fondou, Tetiane, Lekseiba). Water access is considered a critical constraint for many of the gardens in the villages surveyed.

Other constraints cited by the women included: 1) the lack of inputs such as diesel, seed, fertilizer, spare parts for the motorpump, tools and watering cans; 2) the lack of markets for vegetable products; 3) the lack of adequate transport to distant markets; 4) crop losses due to pests such as camels, goats, wild pigs and grasshoppers.

IV. Food Consumption Constraints and Recommendations

The major constraints and proposed solutions pertinent to the consumption patterns followed by farm families found along the Senegal River are summarized below. Each constraint will be addressed individually and preliminary recommendations and/or areas of investigation will be proposed. Whenever possible, the compensating strategies which farmers pursue to deal with each constraint will be presented.

A. Seasonal food shortages

Many villages experience seasonal food shortages, especially during times of drought. The most critical food deficit period occurs during the rainy season (July through September). This is the same period when labor requirements are at a peak. Some villages also experience a second "hungry season" just prior to the harvest of the walo crops (February). The severity of food deficits is compounded by the fact that many villages are seasonally and regionally isolated. Several villages are cut off during the rainy season or they may be great distances from the nearest markets. The lack of reliable transport also poses problems. In addition, many of these villages lack community food reserves or sources of credit to overcome food shortages.

Compensating Strategies

1. Some farmers will plant short maturing varieties of crops to provide a source of food while waiting for the main harvest. For instance, farmers in Fondou are growing a short maturing corn variety that matures in 60 days. They consume this while they are waiting to harvest their sorghum.
2. Some farmers will plant neibe before they plant their sorghum in the walo fields to gain access to the crop prior to the sorghum harvest (e.g. Ganki).

3. Some villages have started cooperative boutiques as a way to provide inexpensive access to food and credit during food deficit periods (e.g. Bolol Dogo and N'Gorel). In addition to purchasing agricultural products from farmers to facilitate marketing, these boutiques also purchase grain from other market centers and sell it to farmers at stable prices.
4. Some farm families will supplement their diet with wild foods that are gathered locally. Wild fonio is one type of grain which is gathered for this purpose.
5. Many farmers will sell animals or their material possessions to purchase food. Women in one village acknowledged that they sold their jewelry and cloth to buy food (e.g. Fondou).
6. Some farm families will deal with food deficits by cutting down on the number of meals they consume in a day.
7. Some farmers will plant two or three successive crops in their irrigated holdings to increase their access to food supplies.
8. Most farmers will intercrop a number of crops in their walo, falo, dieri and irrigated fields to diversify their production of food crops. This strategy may insure that some food crop output will be retrieved from a given cultivated area.
9. As stated earlier, farmers will pursue a number of activities to obtain income for purchasing food. These include the sale of fodder, charcoal and wood, animal husbandry, working as wage laborers, and fishing. In addition, farmers may migrate on a seasonal basis for wage employment or rely on remittances from relatives who have migrated to help supplement their food production.
10. Many farm families rely on food distribution programs sponsored by the Government or other donors to supplement their food supplies. Unfortunately, these supplies do not appear to be enough to meet their food needs during deficit periods.

Recommendations

1. To make villages less isolated during the rainy season, the infrastructure will have to be improved. All-weather roads would help overcome this problem. The Government should continue its efforts along these lines.
2. To effectively deal with seasonal food shortages, short-maturing varieties of food crops should be identified and extended to farmers. Such food crops would make food available during critical periods, especially during the rainy season. Examples would be short maturing varieties of millet, sorghum, corn, and cowpeas. For instance, the corn variety grown by farmers in Fondou should be made available to other villages. This research might begin by collecting germ plasms along the river of short cycle crop varieties.

3. Researchers should develop cropping systems which combine crops in such a way that food gaps are eliminated. This will require combining both long and short cycle crops in the cropping cycle.
4. Other alternative food sources might be sought, such as the introduction of new crops, or increasing the utilization of food producing wild plants, bushes and trees. For instance, research on fonio might be pursued to develop a food crop which supplements the other domestic grains.
5. Taking the lead from farmers, seasonal food shortages could be overcome by promoting cooperative boutiques in other villages. These boutiques could act as food banks to store grain and food to be used during food deficit periods.

B. Access to drinking water

Many villages do not have access to good drinking water. This is especially true for villages located close to the Senegal River. Mud and salt accumulate in the water obtained from wells in such villages.

Recommendation

Drinking water can be improved in some villages farther away from the river by digging more wells. Well diggers should be trained not to dig wells near toilets or corals. In the villages close to the river where sand and mud are accumulating in the well water, filter systems may have to be introduced.

C. Access to fresh water fish

In the villages surveyed, many farm families indicated that they were experiencing difficulty in obtaining adequate quantities of fresh water fish. The fish that were being caught were extremely small. As a result, farm families were forced to rely on dried salt water fish.

Recommendation

1. To improve village access to fresh water fish, a number of steps can be taken. First, the marigots and river need to be stocked to increase the quantity of fish available. Second, fishing equipment such as nets can be introduced which allow farmers to catch only the large fish due to the size of the mesh. Third, laws must be established to regulate the exploitation of fish by requiring net sizes to meet certain specifications. Fourth, fish ponds can be introduced to improve access and management. In conjunction with this, temporary lakes such as marigots might be stocked and managed like a fish pond.
2. Aquaculture research programs might be set up at CNRADA to help develop fresh water fishing along the river. Fish ponds could be established at the station to set up breeding programs for fish fingerlings. Farmers could then be provided with fingerlings for stocking marigots and ponds.

D. Access to firewood for cooking

Many villages along the river have limited access to firewood due to inappropriate exploitation patterns. Farm families (especially the women) are spending a considerable amount of time searching for wood supplies. This reliance on the natural vegetation for fuel is promoting further environmental degradation.

Compensating Strategies

1. Some farmers will purchase firewood and charcoal from other farmers to cut down on the time spent on gathering wood.
2. Some farm families are using manure as a fuel source to substitute for charcoal and wood.

Recommendations

1. Access to firewood can be improved in two ways. First, villages can plant stands of fast growing trees that can be systematically harvested for fuel use. Proper management will ensure continuous access and natural vegetation will not have to be used. Second, agro-forestry practices would also improve access to firewood. By planting trees in conjunction with crops, trees could be harvested for fuel use.
2. Farm families should be encouraged to use fuel efficient wood burning stoves. This would help cut down on the use of firewood. As stated previously, alternative designs could be tested to determine the most appropriate type for a given region.
3. Farmers should be encouraged to continue to use manure as a substitute for wood or charcoal. In addition, other alternative energy sources might be explored such as solar energy and wind power.

E. Constraints for Vegetable Gardens

1. Access to water

Access to water is a serious constraint for many of the vegetable gardens found along the river basin. This is especially true for women's cooperative gardens. Water is often in short supply, and many farmers lack the appropriate means to obtain sufficient water. For instance, pumps may not be available if the garden is adjacent to the river. If the gardens are located a considerable distance from the river, wells may not be available. Thus, water may have to be transported by hand over great distances. Limited access to water seriously inhibits the expansion of vegetable gardens, thereby limiting the potential for commercialization.

Compensating Strategies

1. In some villages where a separate water pump is not available exclusively for the vegetable gardens, farmers will use their small

perimeter pump for this purpose. (e.g. Sori Male). Unfortunately, this practice can overtax the pump leading to more breakdowns.

2. A few villages are building water holding tanks for their gardens. Other villages are building wells within or adjacent to their gardens.
3. In several villages with limited access to water, women are carrying water in organized work parties (e.g. Silla). In such cases, water transport takes up a considerable amount of the women's time.

Recommendations

1. Efforts should be made to improve water access for vegetable gardens by making pumps available for gardens close to the river and improving access to wells for gardens away from the river. Storage tanks might also be appropriate, especially for some gardens where access to water is more limited. Research might be conducted on the feasibility of using animal traction, hand pumps or small diesel pumps to lift water into storage tanks. All of these measures require capital outlays or credit for equipment which may be in short supply. Thus, any intervention prescribed should take into consideration the resources available to farmers and their ability to pay for equipment received.
2. To conserve water, efforts could be made to promote better water management and more efficient irrigation techniques. As stated earlier, improvements in canal construction and maintenance, leveling of parcels and appropriate irrigation schedules will result in more efficient water use.
3. Research could identify or develop vegetable varieties which have minimal water requirements. This will help cut down on the frequency of watering.

2. Access to appropriate vegetable seed

Farmers in the villages surveyed tended to plant vegetable varieties that only grow well during the cool, dry season. Because most of the farmers are planting their vegetables at the same time, the vegetables are harvested during the same period as well. This tendency adversely affects the marketing of vegetables since excessive supplies drive the prices down. Thus, the income which farmers receive for their marketed vegetables is significantly less than it would be if the market were not saturated.

Recommendations

1. Research should identify or develop vegetable varieties which are adapted to different seasons and which have different maturation periods. Such varieties would enable farmers to have access to vegetables for home consumption through most of the year, as well as help spread marketing out. By avoiding market bottlenecks, farmers could receive higher returns for their products. Such varieties might be obtained from Senegal, IITA or the Asian Vegetable Research and Development Center in Taiwan.

2. To effectively deal with the research needs which will bring about improvements in vegetable production, the Government may want to bring in more vegetable specialists to CNRADA. Considering the fact that vegetables are one of the best cash crops available to farmers, improvements in vegetable production are likely to bring about improvements in the rural economy. Thus, investment in this type of research could have a high payoff for the Government.

3. Access to transport

Many families lack effective transport to larger markets, thereby limiting their ability to sell their products where the demand is greater. Transport is difficult due to the isolation of villages and poor conditions of the roads. When transport is available, the costs of hauling vegetables to large markets may be relatively high.

Compensating Strategies

1. Some farmers will join together and rent a horse-drawn cart or taxi-bus to haul their vegetables to market.
2. In one area near the Dirol Plain, several village vegetable cooperatives are trying to organize themselves so that they can share in the cost of transport. Cost sharing lessens the burden on any one cooperative. A Peace Corps volunteer is helping the villages coordinate this effort.

Recommendations

1. Vegetable marketing will improve as access to transport improves. The Government, USAID and other donor groups should continue to support infrastructural improvements along these lines.
2. Transport of vegetables to larger markets should be regionally coordinated. Taking the lead from farmers, several villages with vegetable gardens in the same area could join together to share the transport costs. This would provide the appropriate economy of scale to lessen the problems of transport, making it more efficient and reliable. Vegetable marketing within villages might be organized through cooperative boutiques. These boutiques could bring together the village vegetables so that the marketing is coordinated with other collaborating villages. These regional marketing efforts might be organized by the extension service, SONADER, Peace Corps or some other organizations.

4. Packaging and conservation of vegetables

The vegetable products which are transported to larger markets are often of inferior quality due to poor packaging and conservation measures. For this reason foreign vegetables coming from Senegal may be preferred over Mauritanian vegetables in the larger markets. In addition, due to the lack of appropriate conservation measures, vegetables are not readily available for consumption on a year-round basis.

Recommendations

1. Efforts should be made to teach farmers how to pack, transport and preserve or conserve vegetables. Aside from improving the marketability of vegetables, such practices could give farmers access to vegetables during other seasons and food deficit periods. Forms of storage and preservation techniques which are appropriate to the resource base of farm families should be emphasized.
2. Research could focus on identifying or developing vegetable varieties that transport better. For example, certain types of tomatoes have harder skins and can be transported with minimum losses. Such varieties may already exist in Senegal.
3. Small businesses could be encouraged to develop that deal with the transport, packaging and processing of vegetables. For instance, small cottage industries could be started which specialized in producing vegetable concentrates, canning supplies or drying of vegetables. Other businesses might specialize in packing materials such as crates for vegetable transport. Some businesses could just specialize in transport. All of these enterprises could help stimulate employment in the rural economy. The viability of such businesses will depend upon the growth of vegetable production along the river. This will vary from one region to another.

5. Access to Extension

Effective extension is lacking for many of the vegetable gardens. The reasons for this include insufficient number of agents, limited agent mobility, lack of training, and improper approach. As a result, farmers may not be adopting improved techniques or using inputs properly,

Recommendations

To improve vegetable production, effective extension will be a necessary ingredient. Some of the service which extension agents could provide include: 1) the dissemination of new vegetable varieties; 2) instruction on improve cultural practices (i.e., input use, irrigation schedules adjusted to crop water requirements, etc), and 3) providing information on packing, transport and conservation of vegetables (including forms of storage and methods of preservation). Unfortunately, there are limited numbers of extension personnel available to provide these services and even these agents have limited mobility due to lack of transport. Therefore, it may be necessary to rely on other organizations like Peace Corps to provide these services.

6. Competition with foreign vegetable products

Foreign vegetables are coming in from Senegal and competing with Mauritanian vegetables in the larger markets (i.e., Nouakchott, Kaedi, Boghe, etc). Senegalese vegetables seem to have a slight competitive advantage over Mauritanian vegetables because of their higher quality. This

competition adversely affects the potential income earnings of Mauritanian farmers.

Recommendations

1. One way to deal with the problem of vegetables being imported from outside is to establish trade barriers. Unfortunately, this is a complicated solution since many of the Mauritanian farmers have land on both sides of the Senegal River. In addition, should Mauritania substantially increase its output of vegetables, such trade barriers could restrict potential expansion into outside markets.
2. An alternative to the trade barrier option is open competition. To do this effectively, the Government should attempt to facilitate vegetable marketing. This would include: 1) providing better support to research on vegetable varieties and improved cultivation practices; 2) improving access to water in the gardens; 3) supporting interventions which improve transport; 4) promoting extension activities which transfer improved technologies and information on packaging, transport and conservation; and 5) supporting small businesses which specialize in services associated with vegetable marketing.

APPENDICES

APPENDIX A

TOPICS OF INQUIRY FOR CONSUMPTION SURVEY

I. SOCIOECONOMIC INFORMATION FOR THE VILLAGE

A. Resources

1. Land
2. Well(s)
3. Community buildings
4. Education
5. Health care
6. Communications
7. Transportation available
8. Agricultural extension available how often?

B. Markets

1. Location
2. Facilities
3. Food prices

II. SOCIOECONOMIC INFORMATION ON THE HOUSEHOLD

A. Members of the Household

1. Age
2. Sex
3. Migration patterns in and out of the household

B. Occupations of the Household Members

1. On-farm
2. Off-farm

C. Education

1. Head of household

D. Resources

1. Size of farm
2. Livestock

III. HOUSEHOLD FOOD SUPPLY

A. Food list (see attached)

B. Food purchases

1. Which items do you usually buy?
2. How often do you have to purchase them?
3. Are these acquired by barter or money?

C. Home Production

1. Field Crops
2. Livestock
3. Garden
 - a. what is produced?
 - b. What garden produce is sold, shared, or exchanged and with whom?
4. Gathered food
 - a. what kinds?
5. Water and fuelwood?
 - a. where located?
 - b. how often?
6. Hunting and fishing
 - a. what?
 - b. where?

D. Food Sharing/Exchange

1. To or from local relatives
 - a. what?
 - b. how often?

E. Food Donations

1. From whom (government or non-government agencies)?
2. What?
3. How often?

F. Storage and Preservation Techniques

1. What is stored?
2. Where is it stored?
3. What is the usual amount in storage?
4. Do (or when do) stores run out?
5. What are the major causes of losses during storage?

IV. TYPES OF FOOD

A. What are the staples?

1. What is (are) the main cereal grains?
 - a. What are the desirable qualities for cereals, e.g. glutinous, mealy, etc.?
2. What staple would they eat more of, if they could afford it? How much of it do they eat now?

B. What are the complements to the staples?

C. Food Preferences: Which food items are?

V. FOOD PREPARATION

A. List of major dishes

B. Preparation techniques

1. When is the food prepared?
2. Time spent
 - a. gathering fuel wood?
 - b. getting water?
3. Are cereals milled at home?

C. Recipes of major dishes

VI. FOOD HABITS

A. Eating patterns

1. Household members which participate in each meal
2. Who eats with whom?

B. Special Foods

1. Foods only eaten by certain groups, e.g. children
2. Food taboos, e.g. religious, or for pregnant women, etc.

VII. GROUPS NUTRITIONALLY AT RISK

A. Children

1. Are they breastfed?
 - a. for how long?
 - b. if not, what are they given?
2. What are weaning foods? When are they started?
3. Who feeds the child?
4. How often does the child have diarrhea?

5. Are the episodes seasonal?
6. What is the treatment for diarrhea?
7. What food (if any) is given during diarrheal episodes?

B. Mothers

1. How many children has the mother had?
2. How many are living?

VIII. SEASONALITY OF CONSUMPTION

A. What foods are in short supply and in what seasons?

**B. What are the coping strategies of the household?
(i.e., are there substitute foods, additional work?)**

1. Water supply source, plus variations by seasons

C. Disease: Incidence by family member

APPENDIX B

**Summary of the Results of the
Consumption Survey**

SUMMARY OF CONSUMPTION SURVEY RESULTS.

Variables

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
I. Access to Markets	Small center 8 women	Large center 100 women	Periodic market	----	Market functions as a regional center	2 markets	1 market
Type of Market	Permanent	Permanent	Only when something for sale	Permanent	Permanent	Permanent	Permanent
Products Sold	Fish (dry, fresh) Little Tomatoes Melon Diahadyé Eggplant Cowpea Cowpea leaves Milk Onions Rice Rice (unpeeled) Salt Dried onions Sorghum Okra	All vegetables Fish Meat Cereals (NOTE: Fish important source of revenue in village)	Some vegetables Dry fish	----	Meat (cow, sheep) Onions Sorghum Corn Millet Okra (dry) Okra (fresh) Eggplant Cowpea (fresh) Cowpea (dry) Flat cake	Oil Rice Tomatoes Maggi cubes Pepper	----
II. Items Purchased Daily	Rice Bread Milk Fish Sorghum Coffee Tea Vegetables (only when own garden doesn't produce i.e, lack of water)	Vegetables Bread Coffee Tea Maggi cubes	Rice Sorghum Bread	Meat (1/2 to 1 kilo- 7 persons) Rice Millet Fish (mostly dry) Sorghum	If women don't have gardens-they buy vegetables	----	----
Items Purchased Every 2-3 Days	Sugar Oil	Sugar Salt Oil	Peanuts (from Senegal) Sugar Coffee Tea Oil	----	----	----	----

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
III. Food Items Shared	----	No	No	No	Yes Surplus of meals are given to other family members	No	Yes food production
With Whom	----	----	----	----	----	----	village
When	----	----	----	----	----	Always	----
IV. Food Items Exchanged	----	Different products	Exchange or credit for goods	No	----	Yes	----
What	Tomatoes	----	Money	----	Millet Sorghum	Millet Sorghum	----
Items Exchanged For	Rice	Milk	Milk	----	Milk Fish Jujube	Milk	----
With Whom	Other women	Village	Herders	----	Herders/ Senegalese	Other villages	----
When	Daily	----	After harvest	----	----	----	----
V. Gardens Characteristics	1 ha 100 women 300 meters from the river. First year of garden along the river (falo).	1 ha maize 4 ha vegetables 80 women (10-40 years) Old women (volunteers) water the garden. They get vegetables for it. Men gave land to the women. When there are large tasks (seeding, weeding, harvesting, making canals etc. all women come to help.)	1 coop 1 garden for each 1/3 village 1 garden each family.	First year for garden	Some women have gardens near the marigot.	Women work on two parcels	First year for this area. Land did not belong to anyone. To start, each women paid 20 um for seeds.
Organization of Labor	Each woman responsible for a parcel	Cooperative	----	Each woman cultivates own parcel	No	----	Cooperative

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Individually Managed Plots	No	No	Yes	No	Yes	1 for family 1 for coop.	No
Vegetables Grown	Cabbages Onions Carrots Turnip Sweet Potatoe Tomatoes Lettuce Milo Eggplant Hibiscus Mint Beet	Maize Tomatoes Hibiscus Cabbages Cowpea Salad Onions Eggplants Carrots Parsley Sorghum (Fellah, Samé) Maize	Carrots (white & orange) Turnip Lettuce Cabbage Onions Potatoes Mint Millet Maize	Lettuce Carrots Beets Tomatoes Cabbages Peppers Onions	Potatoes Lettuce Tomatoes Cabbages Carrots Turnip Eggplant Onions Parsley Cowpea	----	Salads Okra Peanuts Carrots Tomatoes Cabbages, Vegetables in cold season, Peanuts & Okra in wet season
Season	Cold season	cold and rainy	cold	cold	cold	cold	cold and wet
Yield	10,000 um/yr.	'82-83: 80,000 um '83-84: 90,000 um '84-85: lost crop.	-----	till now: 1000 um	-----	-----	-----
Amount Consumed	Half	Half (or private selling)	Consumed	Half	Consumed	Consumed	Part for consumption
Amount Sold	Half	Half: money in in coop fund	No	Half: money in coop fund	Small part	Products sold are from coop parcel	Part for selling
Where	Local market	Local market	----	Local market	Local market	----	Local market
Items Exchanged	Among women	No	No	No	No	----	----
Source of Water	Hand carried from river 300 meters away	River American motor pump (Peace Corps) 1 cyl.	Gorgol Noir or marigot	Wells	Marigot	River	Marigot
Special Remarks	Water transported on head	'83-84 yield sorghum & maize: 100 kilo	Began growing vegetables in last 2-3 yrs.	Water shortage in well	----	Shortage of water, Shortage of seeds	formerly they bought vegetables from Senegal

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Garden Constraints	Water transportation. Not all available land is cultivated. Lack of tools	Birds Insects Weeds Repair pump Crop loss	----	Shortage of water Shortage of money	----	Water source far away from garden Insects Lack of tools	----
VI. Women and Agriculture	Yes	----	On family fields	On family fields	Own field. Garden	----	----
Access to Land (owned or borrowed)	Land for garden inherited by women	----	----	----	Yes, part on family field. Harvest for women.	----	----
Crops Grown	Millet Rice Maize Sorghum	----	----	Rainfed sorghum Cowpea Tomatoes Melon	1) Peanuts local rice indigo okra 2) Millet	----	----
Consumption/Marketed	----	----	----	----	If yield is high, they sell surplus	----	----
Constraints	First crop in garden dried out. Animals	----	Birds	----	Camels Birds	----	----
VII. Gathered Food Kinds	----	No vegetables There are: Jujubes Balamites Guigilé "Pintades", kind of chicken, sold in town	Fruits: Mourtorde Guigilé gigélé Potté gougoulé Jujube Tree leaves: Oulo Tiatatc Small grains: paguiri, n'dairi. Tabbé Previously, they exploited gum arabic, now it is restricted.	Previously: Jujube Gum arabic Nothing now	There used to be many baobabs, now dead. There are some jujubes, mourisianka but most of it is eaten by camels	----	----

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Quantity	---	Very little	Small quantities but important during hunger periods	None	Small	---	---
Where	---	bushes	tabbé in marigots	---	Only when they find food on the way to the fields.	---	---
Season	---	Fruits during rainy season	Fruits in rainy season Grains in dry season	Rainy	Rainy	---	---
Fishing	Yes	Yes	Only when water	No	No	Only when water in river	No
Where	River	River	Gorgol Noir Marigot	Fish imported	---	Not at this time	---
VIII. Free Food Frequency	---	Once every 2-3 months	1-2 times a year	Once a year	Once a year distributed to small family units (3 persons)	---	once a year
Most Recent Access	---	---	---	---	Oct/Nov '85	---	Nov '85
Quantities	---	6-8 kilo red sorghum	50 k sorghum 5 k. milkpowder 5 lb. butter	50 k sorghum 5 k milkpowder 5 lb. butter	1 sack corn 2 buckets oil/ butter 1 sack cereals 1.5 sack milkpowder	---	5 k butter 50 k cereals 5 k. milk for family with 10-11 children
Organization	---	---	C.S.A. (Comm. Sécurité Aliment.)	Government	---	---	Government
Where	---	2 large storage bins in village	---	yes, original storage bin	original storage bin	yes	---
Products Stored	---	cereals cowpeas	---	Sorghum Millet	Millet Sorghum	---	---
Method	---	---	---	on the panicle	on the panicle	---	---

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Quantity	----	----	----	----	Depends on size of harvest and rainfall. If harvest is significant, storage ends when next season starts.	----	----
Duration of Supplies	----	----	----	2 months after harvest	----	in May or June	----
Losses	----	----	----	no	no	----	----
How	----	----	----	----	----	----	----
X. Meals (Composition)							
Breakfast	Coffee Bread White rice	8:00, coffee and bread	7:00, coffee and sugar 10:00 couscous (rice or millet) and cowpea leaves. Then goat or sheep milk if available	Coffee or tea Bread	Sometimes coffee Quinkéliba Millet + milk + sugar	Coffee and bread with butter, if there is money	7:30 bouillie coffee if there is money
Lunch	Rice with fish (Thiébonndjen)	1:00, rice with fish Millet with fish Cowpeas, Tomatoes, Carrots	12:00-2:00 rice with fish	Rice with meat Rice with fish (rarely)	Rice and meat (cow/sheep/goat, rarely camel) They seldom eat fish	Gniri: sorghum or millet or rice (pounded) with fish or or meat	12:00 rice with fish or meat Days without fish or meat; then they eat bouillie
Dinner	Couscous (millet) and fish couscous (millet) and cowpea couscous (rice) couscous (sorghum)	9:00, Couscous (millet, corn, sorghum) + fish + Cowpea leaves couscous + Milk	8:00-9:00, Couscous millet or sorghum + fish + cowpeas leaves + dry fish + peanuts	Couscous with meat Couscous with cowpea leaves Couscous with milk (and sugar if it is powder or canned milk)	Couscous with meat, and cowpea leaves milk afterwards	Couscous + cowpea leaves + fish couscous + meat couscous + milk	8:00, millet + flour cowpea leaves + dry fish + peanuts, Millet and cowpea grains.
Other Meals	No	No	No	No	5:00-6:00, bouillie (millet) or white rice	No	5:00, bouillie (millet or rice)

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Snacks	Mango stems Tea	Mango stems Maize stems Cake with tomato sauce if hungry and money available	Mango stems	No	Mongo stems Don't drink tea or coffee. Cakes if you have money and you are hungry.	Mango stems drinks fritters, tea peanuts	fritters with sugar + oil fritters + sauce of toma- toes, onions couscous & butter + dry fish
Frequency	----	Not often	----	----	----	----	----
Major Dishes and Ingredients	Rice with fish Rice, oil, tomato sauce, Cabbage, Fresh fish, Salt, pepper, Carrots, Turnips	Rice with fish Sorghum or millet with fish Couscous (millet, sorghum or corn) + cowpea leaves + fish + oil N'demiri	Rice with fish Couscous with cowpea and dry fish. Rarely fresh fish available	Rice with meat Rice + tomatoes onions + oil + meat + salt	Rice with meat	Rice and fish Batter of millet with milk Couscous (samé) with cowpeas leaves + fish couscous with meat	Cowpea grains in sauce for couscous millet + cowpea leaves + oil + batter of peanuts and dry fish
XI. Food Preferences Meat/Fish	----	Meat	1) meat (small animals) 2) fresh fish	fish	Grains are more important than vegetables or fish	Samé with fish	----
Staple Preferred	Millet	Millet	1) millet 2) sorghum	Rice	All types	Samé They don't like rice	Millet Rice
Reasons	They like couscous they even pound rice to get couscous	Taste	Taste	Taste and availability	-----	Sorghum Millet Rice	----
Dominate Staple	Sorghum Millet Maize	Sorghum Maize Rice Millet	Millet Maize Rice Sorghum	Sorghum Millet Samé	Millet Maize Sorghum	Samé	Rice Millet
Food Preferred if More Money	Millet	Meat	Fresh fish Meat	Rice with fish (fresh)	Fish	----	Fresh fish and millet
Preferred Dish	Couscous (millet)	Couscous (millet) Fish Cake, cowpea Tomatoes, fish and carrots	Couscous and meat Couscous and milk	Rice with meat	Mafé, millet Rice Thiébondjen	----	Couscous

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
XII. Seasonal Aspects of Food	---	----	They rarely eat meat, goat or sheep, (once/year). They sometimes eat chicken	----	----	----	----
Hungry Periods	---	Summer till rainy season	----	Rainy season	Rainy season	April	----
Foods in Short Supply During Each Season	---	Dry: No vegetables. Hungry from last dry season to rainy season All sorts of food shortages during dry season	Many animals die in dry season No milk	Rainy season shortages of fish or meat	Rainy season shortage of fish (bad access to roads)	All sorts of food in short supply in dry season	Cold season fish and meat shortages
Source of Money to Purchase Food During Hungry Periods	----	Emigrants Merchants: little credit, (money or goods) Some women sell: soap, olives, sugar	Emigrants (not much) Seasonal labor or migration	----	----	----	----
Foods by Season Dry/Cold	Vegetables, (In the past, harvest was enough) Maize	From March on: sweet potatoe mellon	Vegetables Millet Rice + dry fish, maize (nearly finished)	----	Vegetables	----	vegetables
Dry Hot	----	----	rice + dry fish	----	----	they plant cowpea grains to obtain leaves	----
Wet	rice	cereals	jujube; small grains	meals based on milk	sometimes fish in the marigot	----	rice, peanuts okra, millet (small portions)
Main Staples by Season Dry Cold	maize	----	----	----	millet, corn, sorghum	----	millet rice
Dry Hot	----	----	----	----	----	----	----
Wet	rice	cereals	----	----	rice	----	----

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
XV. Fuelwood							
Who Collects	----	men	men, women and children	----	women, men and children	----	----
When	----	----	when you need it or you buy it	----	if no money to buy	----	----
Where	----	----	bushes buy wood or charcoal	far away	----	far away	----
Price	----	women buy it, or send out their husbands to gather it. Same for charcoal	fuelwood: 200 um/ donkey cart	3 pieces of wood/10 um	400 um/ donkey cart	300 um/ donkey cart	----
XVI. Mills							
Access to Mills	none	2 mills for sorghum 1 mill for rice	None	3 mills	2 mills	3, only 1 functions	4, 2 are working
Costs	-----	----	-----	-----	4 kilo 15 um	----	----
Hand Pounded	processed into grains in fields, to flour at home	----	at home or in fields	women at home Some women pound themselves some go to mill	home	----	----
XVII. Time Schedule/Day Milling							
Milling	----	----	----	----	to make flour all women go to mill	----	----
Meals	----	----	1 1/2 hours big meal	----	breakfast 1 hour lunch 2 hours dinner 2 hours	1 1/2-2 hours	----
Gardens	each day 6 hours	during big tasks: all day. Other days: 1 hr.	----	waiting hours by well	women who have gardens: afternoon	afternoon	----
Fields	morning or afternoon	2 hours	all day chasing birds	----	afternoon	----	----
Marketing Activities	morning	morning	none	----	----	----	----
Water	----	----	----	1-2 hours each time	3 hours	----	----

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Fuelwood	----	----	Sometimes when you don't buy it	----	----	----	----
XVIII Health of Children and Mothers	no PMI no Dispensary	PMI Dispensary	Dispensary	Dispensary Traditional midwives	No PMI Dispensary without equipment. If medical problems they go to Selibaby or Senegal	Dispensary Traditional midwife	PMI for 1 year
Care of Children	mothers and older girls	----	mothers, or other adults	----	----	----	----
Duration of Breast Feeding	----	2 years, unless pregnant	1-2 years	1 1/2 years	1 year	1 year	1-1.5 years
Weaning Foods	----	no	no	no	no	none	normal food little proportions
Begin Weaning	----	from 2 years old, normal food	1-2 years normal food	----	after 1 year	----	from six months
Food for Child When Mother Has No Breast Milk	----	normal food, in little quantities and bouilli and milk	normal food + bouillie, milk, sugar, rice when very young	----	mothers nearly always have milk	milk bouilli	child will die unless you have money to buy tinned milk to make bouilli. Only when mother is dead another woman will give milk to the child
Food for Non-lactating Women	----	no special food	no special food	no special foods	batter of cowpeas (grains) + butter	----	no special food
Food for Lactating Women	----	no special food	cousous with leaves of cowpeas (boiled) + peanuts. Sorghum + rice powder (steamed) fish	no special foods because of lack of means	rice with cowpeas (batter) + butter	----	no special food. Evening meals are good for milk production. Lunches are not.

	SILLA	DJOVOL	TALHAYA	LEKSEIBA	WOMPOU	WALI	TOULEL
Food for Pregnant Women	----	right before birth, eating less help deliver baby easier	----	----	only when diet is prescribed	none	----
Food for Women Just Giving Birth	----	little meat, milk, bouillie rice soup with milk and sugar	if money: soup and meat; millet flour, milk	no	bouillie with meat, rice with batter of cowpeas (grains) + butter	none	if money, soup with meat
Occurrence of Diarrhea	----	regular	frequent, 2 or 3 times a month	not often	often	----	----
Season	----	----	Sept-Nov	----	always	----	----
Food Used To Treat Diarrhea Episodes	----	Rice water usual food	----	Rice water Sour milk Bread	----	----	----
Infant Mortality	----	44%	----	----	not high	----	not high
Seasonality	----	----	Sept-Nov most of children die	----	----	----	no
Cause of Death	----	----	diarrhea	----	Hepatitis	----	----
Ratio of Children Who Are Alive to Children Who Are Dead	----	6:4 9:2 5:6 4:2 2:3 1:2 5:2 3:6	----	2:2	8:1 1:00 1:0 2:1	----	9:1 6:0 9:0 10:0 4:7 mother had no milk
Most Important Illness	----	----	----	----	Measles, Hepatitis	----	----
Constraints and Areas of Research	Animals in fields (not in garden, women built a fence) Tools Motor pump Canals Seeds Extension service Help with insects	No third yield in garden because of lack of material. Extension service. Tools Help preparing the soil. Weeds Want a tractor and motorpump.	Pump for gardens Fencing Vegetable seeds Soil fertilizers	Lack of means to cultivate a perimeter. Water shortage Lack of technical assistance. Tools for watering.	Women want assistance with new gardens and fences. Lack of water a problem. Camels a problem.	Maintenance of pumps. Shortage of water. Insects	----

SUMMARY OF RESULTS OF THE CONSUMPTION SURVEY

Variables	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
I. Access to Markets						
Location	yes	yes	no	no Women go to Senegal (especially in hungry period)	yes along the river	eastern part of village
Type of Market	permanent	permanent	----	----	permanent 20 women	permanent
Products Sold	Cabbage Carrots Hot Peppers Eggplant Cowpea leaves Hibiscus leaves Baobab leaves Salt Maggi cubes Milk Fish Potatoes Peanuts Cowpeas Corn Sorghum	Dry and fresh fish Tomatoes Onions Corn Cowpea Melons Little Tomatoes Sweet Potatoes	Sometimes people from elsewhere come to sell produce Bananas Dry Fish	----	Sweet Potatoes Cabbages Tomatoes Rice Onions Melon Cowpea Peanuts Dry Fish Fresh Fish Tomato (Puree)	Meat etc. they sell everything, a very large market
II. Items Purchased Daily						
	Bread Flour Corn Millet Sorghum Potatoes Sweet Potatoes Cowpea Peanuts Watermelon Fresh or dry fish Milk	Oil Fish Cowpeas Vegetables etc.	Tea Tobacco (1 woman smokes pipe) Oil Milk powder Sugar Salt Hot Peppers	Oil Tea Sugar Coffee Fish In Senegal: Canned tomatoes Peanuts Onions	----	Normal purchases
Items Purchased Every 2-3 Days	Sugar Tea Coffee Oil	----	Soap Bananas Henna Snuff	----	----	----
Money spent daily	----	----	----	----	----	----
III. Food Items Shared						
	----	no	yes, sometimes	----	yes food	no

	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
			food or money (borrowing)			
With Whom	----	----	family or neighbors	----	----	----
When	----	----	if you have nothing to eat	----	in times of food shortage	----
IV. Food Items Exchanged	----	no	----	----	----	----
What	----	----	----	Rice	money	rice
Items Exchanged For	----	----	----	Other products e.g. milk	milk	Milk Sorghum Salt Fish Gathered food
With Whom	----	----	----	shop or other people	Peuls	outsiders
When	----	----	----	----	2-3 times/ week	----
V. Gardens Characteristics	Almost all village women work in garden. 120 women started it in 1976. In April 1985 women paid 100 um to coop fund for another vegetable field started in Oct. 85 2 ha. Before 84 carried water on head	130 women 1.5 ha.	For 3 years they have a garden at the side of the river This year not yet sowed they are waiting for seeds (aid from outside) But they already asked the men to irrigate their field with motorpump They had to pay them 7500 um	275 women	Gardens got a lot of foreign aid 2 vegetable gardens each 3 ha. 67 women work in both gardens	2 coop gardens: 1) 126 women 2) 19 women 1 ha. vegetable 3 ha. vegetable and rice 3 ha. Rice divided in 3: 1/3 sold money in coop fund (to buy seeds and tools) 1/3 is consumed 1/3 is stored (onions) for selling later when times are difficult

	ALL WORK TOGETHER	INDIVIDUALLY MANAGED PLOTS	INDIVIDUALLY MANAGED PLOTS	INDIVIDUALLY MANAGED PLOTS	INDIVIDUALLY MANAGED PLOTS	INDIVIDUALLY MANAGED PLOTS
Organization of Labor	All work is done together 1 big parcel	Each woman has own parcel	----	Each woman has 2 parcels: 1 for coop 1 for herself	they work all together	----
Individually Managed Plots	no	----	----	----	----	----
Vegetables Grown	Cabbages Tomatoes Lettuce Okra Sweet Potatoes Cowpea Onions Potatoes	Tomatoes Cabbages Carrots Turnips Potatoes Cowpea Salad	Not harvested this year	Cabbages Onions Turnips Carrots Tomatoes Beets Eggplant Salad Potatoes Sweet Potatoes Peanuts Cowpeas Mint Watermelon	Cabbages Tomatoes Onions Turnips Sweet Potatoes Lettuce Corn (formerly tomatoes but soil is bad)	Cabbages Carrots Turnips Onions Tomatoes Beets Eggplant Okra Lettuce Sweet Potatoes Melon Corn
Season	cold season	----	----	----	dry/cold/wet	dry/cold/wet
Yield	Coop fund used for purchases and garden costs	----	First year mostly consumed	----	last 2- 3 years no high output, high costs	126 women: 72,000 um
Amount Consumed	partly consumed	mainly consumed	mainly consumed	partly consumed	partly consumed	----
Amount Sold	Partly sold This year 3 sacks potatoes money for coop fund	Small amount for sale-too much went bad	Small amount is sold	Partly sold Surplus money in coop fund	Partly sold	All for sale (large vegetable garden)
Selling Where	Sometimes in village, sometimes women go to Nouakchott	Local market	Lack of transport to sell	Rosso (80 km)	Rosso, Nouakchott or local market Women go by themselves	----
Items Exchanged	----	----	----	----	----	----
Source of Water	Marigot Motorpump (Lister 1 cyl) from French Embassy in '84	River Motorpump (Lister 2 cyl)	River, carried on head	River, motorpump from men, women pay for diesel	River	Marigot (garden) river (rice fields) 3 motorpumps
Special						

	DAREL BARKA	OLO GLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
Irrigated Perimeters	not planted	not planted	----	----	yes	yes
VII. Gathered Food Kinds	Paguri Jujube Balanites Guigié Before they had bananas, citrus and mango, but died lack of water in '84 Drinking water was more important Gum arabic died or didn't give gum	Jujube Balanites (Small amounts)	Jujube Balanites Children and women collect them 3-4 years ago they tried fruit trees but didn't work because of termites	Jujube Baobab Pain de signe Balanitesse Waterlilly Fonio Paguiri (Small amounts)	Jujube Balanites	Jujube Balanites Mango Daabé
Quantity	----	----	----	----	----	----
Where	Dieri	Balanites/ nearby Jujube/far away	----	----	----	Often other people bring in small quantities
Season	wet season	wet season	wet season	wet season	----	wet season but because of drought not much
Fishing	Few villagers fish	Little fishing in wet season	no fishing	traditional	little fishing	traditional fishing
Where	----	River During dry season fish from Senegal or Boghé	Fishermen come to sell dry fish	River (at the moment insufficient) In wet season surplus	river	river and marigot
VIII. Free Food Frequency	3 times/year	once/year	sometimes every 4-6 months	To all women of the coop	once/year	no
Most Recent Access	Sept 85	----	Dec. 85	Feb. 86	Nov. 85	----

	DAREL BARKA	OLO OLOGO	M'BAR/WADJJI/KAIRE	DAR ES SALAM	GANI	TEKANE
Quantities	----	----	50 kgs. Red Sorghum 5 kgs. milk 5 lb. butter	46 sacks (50 kgs.) of rice 34 boxes of oil 34 sacks of milk (25 kgs/each) 3 sacks dry fish Blankets Clothes	1 sack Sorghum (50 kgs) 5 liters oil 5 k. milk	----
Organization	----	Government	Government	Red Cross	Government	----
IX. Storage	yes	no yield to store	yes	yes	----	----
Where	----	----	in houses	----	in house	----
Products Stored	Corn seeds for next season, no other storage	----	Rice (unpolished) not much, SONADER took most plus rice yield has failed	Unpolished rice	Sorghum, on the panicle Rice in sacks Corn in sacks	Rice Potatoes Cowpea
Method	----	----	in sacks	in sacks	----	----
Quantity	----	----	for 4.5 months (another person)	----	----	3 storehouses in the village Only little quantities of cowpeas in family houses
Duration of Supplies	----	----	----	----	4-5 months	December
Losses	----	----	only if they keep it too long	----	yes	yes
How	----	----	insects	----	Insects Caterpillars (they use powder against them)	Water Rats
X. Meals (Composition) Breakfast	Coffee Tea, or Quinquiliba	Tea and bread Coffee and bread Tea with peanuts	8:00 Bassi (very find couscous) with or without milk	Coffee and bread Coffee and couscous Coffee and milk	7:30 Couscous (no coffee, no money for it) rarely bread	Tea or Coffee Bread Couscous and milk Rice porridge

	OLD OLOGO	M BAR/WADJI/KATRE	DAR ES SALAM	GANI	TEKANE	
Lunch	Rice with dry or fresh fish and some vegetables	Rice or sorghum (Samé) or millet with dry or fresh fish white rice and milk Cake and milk	2:00-3:00 Rice with cowpea and watermelon and oil (or sorghum, wheat or fonio) Not always ingredients	Rice and fish (dry, fresh) White rice and milk Rice and cowpea	1:30 Rice with fish (dry or fresh) Batter (of corn) with milk Sweet Potatoes with fish or meat	Rice and Fish Batter of Sorghum Rice and Mafe-Sauce
Dinner	Couscous with cowpea leaves Couscous with milk Couscous with meat	Couscous (Samé) and fish or milk or cowpea grains White rice	7:00-8:00 Couscous and squash and cowpea (rarely fish or meat) Batter of sorghum or millet Porridge of sorghum or rice	Couscous and milk Couscous and fish White rice and milk	Couscous with fish (plus cowpea if no fresh fish) If there's no couscous they eat sweet potatoes Batter of sorghum , cowpea plus oil	Couscous (Rice) and cowpea leaves Mafe Couscous and meat or fish Salad and Fish
Other Meals	----	----	----	----	----	
Snacks	Fritters (made of wheat) Fresh milk	no Corn if available	Biscuit Peanuts Watermelon Corn If they can, they eat everything there is	Drinks Milk	no	Tea and peanuts Tea and Fritters Bread Milk (if available)
Frequency	----	----	----	----	----	
Major Dishes and Ingredients	Milk based products	Rice with fish Rice with cowpea leaves Couscous and cowpea leaves Couscous and fish Cake and milk	Zrizz: churned milk with water and sugar Is always offered to guest before drinking tea They like to drink it all day At the moment they eat more sorghum than rice	Couscous and fish Rice and fish	Sweet Potatoes and fish or meat Also Turnips Carrots Cabbages Lettuce Batter of pounded corn plus cow-milk	Couscous and cowpea leaves Sometimes they use cabbages instead of cowpea leaves Salad and fish Lettuce Tomatoes Sweet Potatoes Eggs Peppers Oil Vinegar Grilled fresh fish in oil with pepper, Maggi cubes, salt

XI. Food Preferences

Meat/Fish

DAREL BARKA

OLO OLOGO

M'BAR/WADJI/KAIRE

DAR ES SALAM

GANI

TEKANE

meat above
fish

fishermen
prefer fish
Meat (goat
and sheep)
is preferred
above fish

They like
vegetables
meat above
fish (goat
and sheep
above cow)

Big fish
above little
fish

Fish above meat

Staple Preferred

Samé
Fellah

Sorghum
Rice

Millet/Sorghum
above rice.
Sorghum above
millet.
Rice above corn

Samé (men)
Rice (women)

Reasons

taste

Sorghum
because of
taste, habit,
knowledge of
cultivating.
Rice is
harder
to cultivate
and
eating sorghum
is healthier
than eating rice.
Rice also needs
fish, tomatoes
and vegetables.
Sorghum needs
only sugar, is
easier to prepare.
Rice preparation
is not easy.

Millet: taste
plus increasing
quantity plus
vitamins
Rice is easier
to pound
Corn is
difficult
to pound

Now they pound
rice to prepare
couscous

44

Dominant Staple

Millet

White and Red
sorghum
Rice

Rice
Sorghum

Quantities Consumed

They rarely
eat meat
Rice once/day
61 persons:
for lunch
10 kgs. Millet
or sorghum
for dinner:
10 kgs.
couscous

Once/month
meat
once/week
dry fish
7 persons
3 kgs.
couscous

Rice twice
a day
Rare eat meat

3 kgs. lunch/
3 kgs. dinner/
10-15 persons
meat (goat or
chicken) once/
2 months

They don't eat
much meat
Rice twice/day

			GALE	TEKANE
Food Preferred if More Money	----	----	Meat Milk Millet Sorghum Fish Chicken Tomatoes	Meat Meat They have enough money, they prefer rice with fish
Preferred Dish	----	Rice with fish	For lunch: sorghum with meat For dinner: Batter (sorghum) with milk Couscous with meat	---- ---- Cowpea grains
XII. Seasonal Aspects of Food				
Hungry Periods	Dec-Feb March July-Sept (transport problem)	Feb-Sept.	Wet season After they planted rice July-Sept. Feb is also difficult	June-Oct. wet season May-Oct. ----
Foods in Short Supply During Each Season	Before harvest is difficult period, but this time, they have nothing so the year is difficult.	Feb-Sept. Fish, meat and other products	July-Sept. Milk Sorghum Oil Watermelon Corn Feb: No Sorghum because of weeds, no corn No milk No tomatoes	June-Oct. all products in shortage In wet season food shortages and village is isolated Transport via river is expensive Hot/dry season: Fish Rice Vegetables Meat
45				
Source of Money to Purchase Food During Hungry Season	Wet season to Senegal help yield wild food Family sends money. Borrow food from merchants. Sell charcoal. Men will sell animals.	----	Emigrants send money Making mats Making cushions Sell them in NKH, Rosso, buy raw materials in Ghana They buy food on credit from	---- Storage Jujube Selling clothes to purchase what available (rice and cowpea are more expensive then)

	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
	(Feb.) 2000 um/ goat so family can buy 50 kg rice and some oil					
Foods by Season Dry/Cold	Cowpea Watermelon Paguiri Vegetables Milk	Vegetables	----	----	----	----
Dry/Hot	-----	-----	----	----	----	----
Wet	Products from marigot Watermelon	October: milk and fish	milk	----	----	Rice Dry Fish Couscous and milk
Season Dry Cold	Corn Rice	----	Rice Millet Red Sorghum	Rice	At the moment they eat more rice. Sorghum will be harvested in March-April	----
Dry Hot	----	----	----	----	----	----
Wet	----	----	----	----	----	----
46 Number of Meals Eaten by Season Dry Cold	they don't always have 3 meals	3	normally 3, but sometime they don't eat in the evening	3	----	3
Dry Hot	----	----	----	----	----	----
Wet	----	----	----	----	----	----
XIII. Food Habits Who Eats With Whom and Order of Eating	Men and women apart	1st men 2nd children 3rd women	1st men 2nd women	1st men 2nd children 3rd women	Men Women (with children til 6 years) children (6 10 years) same time	1) men and young men 2) children 3) women and young women
Most Important Meal	----	lunch	----	----	lunch	lunch

	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
XIV. Water						
Source	6 wells	3 wells	Use to be 3	River	3 wells	6 wells
Uses	sometimes dry	1 works	traditional	for all uses,	River	Marigot
Location	River last year not enough. Water supply is better this year. When well dry, they go outside village, dig wells (2m) water	River water is used more often, takes less time River only wait 10 min. At well they wait up to 2 hours	wells, now dirty Since dam is ready they drink river water	5-10 minutes	all uses village is along the river	all uses Wash clothes in marigot Wells: 2-50 meters Marigot: 5 minutes
Seasonal Access	dry season difficult	all seasons	----	----	all seasons	all seasons
How Often	----	twice/day	----	----	12 times/day	----
XV. Fuelwood						
Who Collects	----	women	women	women	women	women
When	Some people make charcoal.	They prefer to use charcoal when they can pay it. Otherwise they search fuelwood.	Once in two days Sometimes on back, sometimes donkey.	Takes a lot of time: 2 hours, so most of the time they buy it.	----	It takes all day so often they buy wood
47						
Where	----	----	----	----	Mauritania	----
Price	----	1 sack charcoal costs 140 um	----	5 pieces/ 10 um	-----	200 um/wagon
XVI. Access to Mills	No mills	No mills	No mill. Sometimes they go elsewhere to grind, but transport is needed to go elsewhere.	Women had bought mill; broke down, then repaired. 75% paid by Peace Corps 25% women	Yes, private: 3 for sorghoum 2-3 for rice	Maybe, but women interviewed didn't use them
Costs	-----	-----	3 um/kilo plus 50 um transport	-----	2-6 um/kilo	-----

	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
Hand Pounding	----	----	Most of the time they pound by hand at home	While mill is broken they pound at home	All interviewed women pound themselves, at home or in the field while bird watching Mill is too expensive	----
XVII. Time Schedule	----	----	There are days they work There are days they don't do anything (in contrast with women from other villages)	----	----	6:00 they wake up
Milling	----	----	----	----	2 hours/day	a lot of time
Meals	----	2 hours	----	2 hours big meal	----	2-2.5 hours one big meal
Gardens	morning	----	morning/ afternoon	----	morning	morning and afternoon
Fields	morning or afternoon	----	----	----	sometimes all day sometimes morning only	----
48 Marketing Activities	----	----	----	----	----	----
Water	----	----	3 times/day 1.5 hours	2 times/day	morning 6 times from river afternoon 6 times	----
Fuelwood	----	if can't buy charcoal then 2-3 hours to collect	every 2 days: 4 hours	----	2-3 hours	----
XVIII. Access to Health Facilities	dispensary PMI	----	no dispensary no PMI no midwife	----	1 dispensary 2 midwives (traditional) 2 male nurses	CAC
Who Takes Care of Children	----	----	Sisters or Grandmothers Mother takes children with her Older brothers and sisters	-----	Children below 6 years stay home with adult girl Others go with mother in field to help and to	----

Duration of Breast Feeding	----	1.5 years and 2 years if mother not pregnant	2 years unless pregnant	1.5 years	learn how the work has to be done both boys and girls 1.5-2.5 years	2 years
Weaning Foods	----	----	----	----	Mothermilk plus some porridge of cowpea for the rest of the children no special food	----
Begin Weaning	----	----	From 1 year on they start eating normal food	From 6 mos they begin giving porridge	----	----
Food for Child When Mother Has No Breast Milk	----	Fresh milk Porridge	Goat milk powder milk (No breast of other women, although Moors)	Fresh milk	Cow milk plus sugar Milk powder	Fresh milk Porridge Milk powder
49 Food for Non-lactating Women	----	----	Batter of sorghum Milk Butter	----	Peanuts and cowpea leaves	----
Food for Lactating Women	----	----	no special or extra food	----	no special food	----
Food for Pregnant Women	----	----	----	----	no special food	----
Food for Women Just Giving Birth	----	First week: hot milk porridge white rice If mother looses too much blood she gets roasted meat	----	----	Porridge	During one month: Porridge of millet, meat and soup Potatoes Rice with fish Normal dishes
Occurrence of Diarrhea How Often	----	yes often	yes very often	exists not often	yes	exists not often
Seasons	----	when river	----	----	wet season	----

	DAREL BARKA	OLO OLOGO	M'BAR/WADJI/KAIRE	DAR ES SALAM	GANI	TEKANE
		rises				
Food Used to Treat Diarrheal Episodes Practices	----	Rice water Baobab Fruit lemonade	Tamarin Baobab fruits tree leaves	Rice Water Baobab fruit	Water with sugar and salt Doctors forbade use of traditional tree leaves If worse go to dispensary	Guigilé: pounded tree leaves in sour milk Baobab fruits Rice water
Infant Mortality	-----	not very high	high	not very high	Low, only during wet season worse	----
Seasonality	----	----	----	----	wet season	----
Cause of Death	----	----	Eye illness Hunger Not able to stand Measles Whooping Cough	----	Diarrhea	----
Ratio of Children Who Are Alive to Children Who Are Dead	----	----	6:2 (young women) 5:6 (old women)	----	----	----
Most Important Illness	----	Malaria especially during wet season	Adults: Rheumatism fever Eye illnesses Stomachaches Over worked people	Malaria Jaundice	Whooping Cough Measles	----
Constraints and Areas of Research	In dry season they use to have water shortage. The 3 wells fell dry and also the river didn't have water. This year the river is better. Also, they built 3 new wells this year. In the past	Water problem for garden since pump broke down. Want seeds. They want varieties (Sorghum, Corn, Cowpea) which will increase output. Fence Tools	Food shortages. They want a dispensary. At this moment (Feb.) they are thrifty and buy rice, millet and red sorghum which is aid-food that is sold for cheaper prices.	With an irrigated perimeter they think they can better overcome the hungry period from June-Oct.	Sale of vegetables is difficult, they go to Rosso and Nouakchott. They didn't make much money because they have to pay the pumpist (last 2-3 years).	Difficult to find market for their products (surplus). Women don't have real debts, women are rich. Lack of a mill. They want to expand perimeters. Problem of keeping the crops. Market for crops is difficult to find. Animals eating the crops. They want on the sides of their perimeters: Sugarcane Bananas Mango

they went
outside the
village (if
water shortage)
to dig holes
(2 meters)
for water.
Women here also
milk the animals
(a man would
never do this).
Lack of transport
for the vegetables.
In town they are
too cheap (over
production).
Women have
paid 5000 um
to construct
garden.
6000 um for
diesel.
2000 for
hiring use
of motorpump.
In corn field,
dirty well.
Well in
vegetable
garden has
to be
constructed,
already
started.

TEKANE

Research is necessary
to look at the possibilities.
There is a shortage of
milk, meat and fish.
In normal times they
drink a lot of milk

SUMMARY OF RESULTS OF THE CONSUMPTION SURVEY

Variables

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
I. ACCESS TO MARKETS							
Location	Yes	2 markets	1 market	1 market	1 market	No. Market is 2 km away.	No. Market in Boghé, 2-3 kms. Women go each day.
Type of Market	Permanent	Permanent	Temporary Only when women have time.	Temproary	Permanent	----	----
Products Sold	Rice Tomatoes Carrots Cabbages Sweet peppers Hot peppers Fish Meat	Vegetables Sometimes meat Dry fish	Oil Tomatoes Onions Fish Hot peppers Maggi cubes	Fish (dry & fresh)	Meat Fish (fresh in ice from nouekchott) Tomatoes Oil Salt Onions Hot peppers Sweet peppers Maggi cubes	Fish Tomates Cabbages Onions Lettuce Eggplant Carrots Peppers Oil Rice	Meat (rarely) Fish Rice Tomatoes Oil Pepper Maggi cubes
II. ITEMS PURCHASED DAILY							
Items Purchased Daily	Rice Oil Fish/Meat Sweet peppers Tomatoes Carrotss Cabbages Hot peppers	Oil Tomatoes Dry fish Onions Black pepper Hot peppers Sugar Rice Maggi cubess Coffee Milk	Tea Coffee Sugar Usually, they don't buy vegetables or rice	---	Usual purchases. CSA sells wheat for less money.	Rice Fish (dry & fresh) Tomatoes Sugar Tea Coffee Maggi cubess Cabbages Lettuce Carrotss Eggplante Onions	---
Articles Purchased Every 2-3 days	Sugar Tea Coffee	Soap Whitewash	----	----	----	----	

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Money spent daily	Husband gives her money or millet to buy ingredients.	300-1000 um/day for 20 people	50-200 um	----	----	----	40-100 um each day

III. FOOD ITEMS SHARED

	No	Yes Millet, sometimes money	No	---	No	---	No
With Whom	----	Family	----	----	----	----	----
When	----	If there is enough	----	----	----	----	----

IV. FOOD ITEMS EXCHANGED

	No	----	No	Yes, but they pay	No	Yes	No
What	----	----	----	Millet Rice	----	Tea	Millet
Items Exchanged For	----	----	----	Butter Milk Meat	----	Milk	Jujube
With Whom	----	----	----	Nomads	----	Nomads	Nomads
When	----	----	----	----	----	----	dans le

V. GARDEN CHARACTERISTICS

	340 women	Men and women in one garden. Womens garden has 200 women (all village women). In addition to 1 large common parcel, each has her own for family needs.	100 women. In addition to large common parcel, each has own parcel for family needs.	The garden is far from the village and is 3 years old. Peace Corps looks after the garden each week.	3 coops for the gardens: A) 100 women B) 100 women C) 700 women (first year)	Garden started in 1973. Individual and common parcels. Common parcel harvest is divided in 3: 1/3 sold, money in coop fund (to buy seeds and tools); 1/3 is consumed; 1/3 is stored (onions) to sell later when times are difficult.	181 women

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Source of Water	River, 120 meters from garden Transport on head	Well. Each day 24 women water the garden twice a day	River	River	River motor pump	River 1-2/week They can use mens pump, but most of the time, carry on their head.	River, with motorpump
Special Remarks	----	Fund is used to buy seeds and a mill.	They have a motor pump but they don't have money to repair it.	----	----	----	----
Garden Constraints	They have a motorpump, but no tube for water transport. Seed shortages.	----	----	Problem with carrying water	----	Water carrying is too heavy Animals damage crops. Grasshoppers	Old motorpump repair cost: 40,000 um
VI. WOMEN AND AGRICULTURE							
Access To Land (Owned/Borrowed)	There are women who inherited land	yes There are few women owning land	yes Inheritance	yes Borrow when husband is away, or husband gives wife a part.	yes Inheritance	yes Inheritance from husband or father Women get part of husbands land to cultivate.	yes Inherited land (rare)
Crops Grown	----	Dieri in wet season	Dieri: Hibiscus Millet Fonde + Walo: Samé Cowpea Citrouille Tomatoes Falo: Corn Citrouille Cowpea Tomatoes Calabash	From June: Walo: Sorghum Dieri: Millet On her own parcel woman does all the work herself. She also works on husbands. At the edge of the irrigated perimeter, women gro tomatoes and okra.	Walo Falo Fonde Dieri	(Walo is family field) Falo: Corn Cowpea Sweet Potatoes Melon Tomatoes Hibiscus	Women don't have "own" fields that's why they want another garden to grow corn, millet and rice.
Consumed/Marketed	-----	----	Both	-----	----	Consumed	----
Constraints	----	----	----	----	----	Grasshoppers	----
Irrigated Perimeters	No	No	Yes	Yes	Yes	Yes	Yes

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
VII. Gathered Food Kinds	No, because of drought.	They have a nursery-garden in village with gum arabic trees Jujube Guigilé Balanites	None	Jujube Balanites	Jujube (small quantities)	Balanites Jujube	Jujube (rare) They planted trees: Mango Acacia Gum Arabic First year they have flowers
Quantity	---	---	Small quantities but important during hungry period.	---	---	---	---
Where	---	---	---	Dieri	Around village	Senegal	---
Season	---	July-Sept. wet season	---	wet season	Nov.-Dec.	wet season	---
Fishing	Very little traditional	Traditional during wet season for consumption	Village for consumption and selling In dry season less fish, so not much for sale	Village	no	---	no
Where	River	---	River	River. Women sell the fish or dry them to sell later.	River is far away	---	---
VIII. Free Food Frequency	Once a year	Not yet this year	Every 1 or 2 months.	---	Different organizations A) 3 times/year B) each month C) 2 times/year	formerly several times a year, now less	once a year
Most Recent Access	---	July 85	---	---	2 weeks ago	Sept. 85	---

	M' BAGNE	M' BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Quantities	----	50 kgs. cereals 5 kgs. milk 5 lb. butter/ oil	for village: 6 sacks (50 kgs) cereals 12 boxes butter 4 sacks (25 kgs) milk 3 blankets	----	A) 1 sack cereals 5 kgs. milk powder 5 lb. butter/ oil B) 2 kgs. milk 1 lb. oil 4 kg. Sorghum C) 3-4 sacks cereals 1-2 sacks milk	50 kgs. wheat 5 lb. butter/ oil 5 kgs. milk	50 kgs. cereal 5 k. milk 5 lb. butter
Organization	Government	Government	Each month Red Cross Each 2 months Government	----	A) CSA (government) B) CAC C) Red Cross	Government	Government
IX. Storage Where	In granary at home.	Traditional storage bins	Traditional storage bins	----	At home	----	none
Products Stored	Sorghum Millet Corn Cowpea- leaves dried	Millet Sorghum (on the panicle) Cowpeas Beets (in sacks)	Sorghum Millet	----	Samé Cowpea-grains Millet	Onions in sand apart in airy room	none
Method	----	----	----	----	----	----	----
Quantity	----	Not much. When millet, cowpea and watermelon seeds ended, bins are empty til wet season.	----	----	----	----	----
Duration of Supplies	3 or 4 months	Beets for 10 days; other things only a month.	2 months	----	1.5 - 2 months	----	----
Losses	----	yes	little	----	----	----	----

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
How	----	Mice They use poison against them	Ants, but quantity stored is so little that it isn't a problem	----	Rate and Mice	Rats and Termites	----
X. Meals (Composition)							
Breakfast	Tea or coffee with bread	8:00 coffee tea or lipton (western tea) bread if money couscous & milk	Coffee and bread Coffee and couscous and cowpea leaves	----	Coffee and Bread Coffee and Porridge Couscous and milk	Coffee and bread Couscous Tea afterwards	Coffee or tea and bread or quinkeliba (tea)
Lunch	Rice with meat/fish	1:00, Millet and dry fish. Rice and dry fish (sometimes fresh fish). Pounded Rice and milk. (& sugar if money).	Rice with dry or fresh fish Rice with meat (rare)	Rice and dry fish and cowpea-grains, tomatoes, and hibiscus leaves. Batter of powdered sorghum, cowpea and oil.	Cake and fish (rare) Rice and fish (rare) Rice and meat	If have money buy fish. Porridge (of corn, wheat, or rice). Rice and dry fish or millet and dry fish with vegetables.	Rice with dry or fresh fish
Dinner	Couscous with cowpea leaves or meat or milk	9:00 Couscous (of Millet if available otherwise rice) and cowpea leaves and milk or crushed rice with milk (and sugar if money) or batter of sorghum with oil and tomatoes	Couscous with fish and cowpea leaves Couscous with meat (rare)	----	Couscous with Cowpea leaves Couscous and milk	Couscous with cowpea leaves Porridge (Corn or Wheat) Couscous with cowpea grains	Couscous with cowpea White rice with milk
Other Meals	Fritters between breakfast and lunch Peanuts & tea between lunch and dinner	None	Sometimes children eat earlier in the evening (8:00) The adults eat afterwards	None	None	----	----

	M' BAGNE	M' BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Snacks		No fritters at this time because lack of flour No other snacks	None	----	None	None, even the children don't eat snacks because they don't have money for it	None
Frequency	----	----	----	----	----	----	----
Major Dishes and Ingredients	Rice with fish/meat Batter of Sorghum or millet + sauce Millet with cowpeas	Millet with dry fish: Millet, oil, dry fish and vegetables (beets, cabbages) if money. Other times with tomatoes	Rice with fish and vegetables	Batter of pounded Sorghum and Cowpea (very fine) They put oil and pulverized hot peppers in the middle	Rice with fish cake of Sorghum or wheat or millet with meat or milk Cake most of the time made of wheat	Couscous with Cowpea grains Couscous from Corn, Sorghum, Rice, Wheat Cooked Cowpea in Water-salt Just mixing the grains with Couscous	Rice with fish (mostly dry fish) Rice with milk Couscous with Cowpea leaves Meat is too expensive
XI. Food Preferences Meat/Fish	Meat above fish (sheep, goat) Fresh fish from river	They eat more fish although meat (sheep, goats) is preferred over fish and cattle	Fish above meat	Fish above meat	Meat above fish (goat)	Fish above meat Fresh fish above dry	Fishermen prefer fish; others prefer meat Fresh river fish above dry or sea fish Meat above fish (goat and sheep above cow)
Staple Preferred	Rice	1) Millet (Souna) 2) White Sorghum (sewil) 3) Red Sorghum (samé) 4) Corn	Rice	----	Millet Fellah	Samé and Corn	Samé over rice
Reasons	Taste	Taste	----	----	Taste	Taste and quantity of samé increases while pounding	Taste and habits (rice introduced, less tasty but takes less time)
Dominate Staple	Sorghum Millet Corn Rice	Rice	Millet + Sorghum (White) Rice	----	Millet	Samé Rice	Black Sorghum White Sorghum Fellah Rice

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Quantities Consumed	Millet Sorghum once/day Rice once/day.	Millet or Rice 5 kgs./ day (20 persons) Millet: twice/ day Rice: once/ day	Rice once a day Millet or Sorghum once/day	----	Millet once or twice/day 4 kgs. grains/ day for 16 persons	No meat	once/day Sorghum, Rice 7 kgs. Rice 7 kgs. Sorghum for 20 persons
Food Preferred if More Money	1) Rice 2) White sorghum 3) Millet 4) Samé 5) Corn	Millet or Fellah (taste) Rice Fish and Meat	Meat (now only when festivals)	----	Meat Potatoes Oil Rice Fish	----	Fresh fish for lunch meat for dinner
Preferred Dish	----	Millet-based meals	Rice with fish	Fresh fish	----	Couscous with Cowpea grains	Rice with fish
XII. Seasonal Aspects of Food							
Hungry Periods	dry/hot season	March-July	from June	May-July	April-July	Oct-Dec Feb-March June-July	wet season
Foods in Short Supply During Each Season	No fish and meat in dry season	To obtain food during the wet season is difficult, but they can manage better than between March-July	From June on all food is in short supply.	Feb-April is less difficult than May- July because of small harvest from fields and Walo.	April-July fish and meat shortage	Oct-Dec is most difficult because of hunger and cold	During wet season no access, so shortages of all products
Source of Money to Purchase Food During Hungry Season	----	Emigrants	Emigrants send money so they can buy food in Senegal	Selling dry fish. Women making pagnes. Sometimes son sends money, but not often. Selling fish to buy rice and tomatoes. Women can get credit from coop fund if husband is away. Selling nicest boubou or earrings.	----	----	----

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Foods by Season Dry /Cold	Vegetables, til April	----	----	Feb: Guigilé Small yellow fruits Vegetables	Meat	Vegetables	Dry fish
Dry/Hot	----	-----	----	They buy millet and rice in Boghé and Senegal Pound corn and dry fish	----	Melons Cowpeas	----
Wet	----	Millet Sorghum Milk Fresh Fish	----	Grains from dieri and roots from marigots are given to children. Fish	----	Jujube Balanites	White rice or porridge from wheat
Main Staples by Season Dry/Cold	----	A very small quantity of millet, only for dinner.		Feb: Corn Rice	Millet Wheat	Feb: Rice Corn Samé	Rice Sorghum
Dry/Hot	----	Rice	----	Sorghum Corn	----	Samé Corn	----
Wet	----	----	----	----	----	End of wet season: Rice Sorghum	Rice
Number of Meals Eaten by Season Dry Cold	----	3-Now and then they don't prepare evening meal; too tired of getting water and pounding.	3	----	3	3	3
Dry Hot	----	----	----	----	----	----	----
Wet	----	----	----	----	----	----	----
XIII. Food Habits Who Eats With Whom and Order of Eating	1) men 2) big children (8-10) 3) little children 4) women	Men Women and little children boys (6-10 years) girls (6-10 years) boys (10-15 years) girls (10-15 years) all eat at same time	1) men 2) children 3) women	1) men 2) women	1) fathers with sons 2) mothers with daughters	1) men apart strangers apart children (boys & girls apart) 2) women	everybody together

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Most Important Meal	Lunch is major meal	----	All meals important	----	All meals important	----	Lunch
XIV. Water Source Uses Location	21 wells 19 work for all uses 30 minutes walking	2 wells, 1 works marigot, washing clothes during rainy season	river, (they are creating a well) 15 minutes away	river Villagers prefer to drink river water above well (taste) 2 wells 1 works	5 wells 2 work 20-600 meters	River is near the village. River water for all uses. Sometimes go well 1.5-2 km away.	8 wells 5 work for drinking and household river for washing clothes
Seasonal Access	All seasons	Well: all seasons	All seasons	All seasons	Dry season no access	Not in June-July	All seasons
How Often	----	5-7 times/day	twice/day	4 times/day	waiting hours (1.5 hours)	8 times/day	2 times/day
XV. Fuelwood Who Collects	don't gather	----	women	----	men and women	women	men women children
When	----	----	Every day women go for her own needs.	----	It takes 8 hours, they sell it because its so far (people pay a good price for it).	Every day	People go out to find wood for 8 hours and sell it in the village
Where	----	----	----	----	----	In Senegal 4 km.	Far
Price	3 pieces of wood/ 7 um	----	----	----	450-500 um/wagon	----	10 um/4 pieces
XVI. Access to Mills	3 private	none	none	none	3 private	none 2 kms. away	none
Costs	----	----	----	----	5 um/kg.	If you have money, you use the mill.	----

	M'BAGNE	M'BOTO	SORJ MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Hand Pounding	----	Sometimes pounded in field while watching for birds. Also prepare meals in field. At home when there's no millet they pound rice. Daughters help.	Both	----	----	Both, in the field if working there	At home
XVII. Time Schedule	----	Too much work to do each day	----	5:00-6:00 they wake up work all day go to bed at 11:00	----	busy from early morning til evening	----
Milling	----	2.5 hours/day	----	----	----	----	----
Meals	1-2 hours a big meal	----	2 hours/a big meal	----	2.5 hours a big meal	----	2 hours big meal
Gardens	----	afternoon to carry water costs hours of time	twice a day	in the morning and in the afternoon	----	morning to carry water takes lot of time	----
Fields	----	----	Women who are in the fields all day don't cook, they pound while in the fields	----	----	----	----
Marketing Activities	----	----	----	----	----	each morning selling and buying things in market 2 km. away	each day women go to market in Boghé 2-3 kms away
Water	----	5-7 times/day	twice/day	4 times/day	2 times/day takes a lot of time because of waiting hours	8 times/day	1 hour
Fuelwood	----	1-2 hours/day	1 hour/day	----	----	2 hours/day	usually they buy it

XVIII. Access to Health Facilities

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
XVIII. Access to Health Facilities	---	1 dispensary PMI, since 10 days no pharmacy	----	No dispensary Girl in village trained by Red Cross gives advice, medicines and a place for sick children. Each sick or malnourished child goes there every day to eat in the morning and to get vitamins. All village women contribute to the place.	CAC (food aid for children under 3 years) Dispensary PMI	PMI with 3 women each w/3 months education.	No health clinics, they go to Boghé
Who Takes Care of Children	---	If there are older children (16+) they take care of little children. Otherwise, mother takes children (until 10) with her. She always takes baby (until 2) with her	----	-----	-----	Other women or older children	----
Duration of Breast Feeding	2 years unless pregnant	1.5 years	2 years	----	1.5 years	1.5 years	1-1.5 years
Weaning Foods	bouillie and canned milk	No real weaning foods	----	----	----	none	----
Begin Weaning	----	From 8 months start eating couscous or rice	----	----	----	After 1.5 years they start eatng normal food	----
Food for Child When Mother Has No Breast Milk	----	Cow or goat milk. Porridge	Porridge Milk from animals	----	Milk from animals Porridge	No special food only breastmilk. No money for other food There was a baby who's	Fresh milk Porridge

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL mother died during birth they gave it powdered milk.	TIENEL
Food for Non-lactating Women	----	no special food	----	----	----	----	----
Food for Lactating Women	----	No special food	----	----	----	No special food	----
Food for Pregnant Women	No special food unless pregnant woman is prescribed to eat special food. No salt, sugar & grease.	No money for special food	No special food only when a diet is prescribed	----	----	No special food	----
Food for Women Just Giving Birth	----	porridge (millet flour is the best) Rice	no special food	----	porridge and meat in the first week after that period normal food	porridge	soup porridge meat
Occurrence of Diarrhea How Often	yes not often	yes often	yes often	yes not always	yes often	yes often	exists not often
Seasons	----	----	----	----	----	June-July when river fills	----
Food Used to Treat Diarrheal Episodes Practices	rice sour milk	Ganidan (strong medicine) Charcoal Tree leaves and flour and water: boiled child drinks it	Baobab fruits Lemonade Rice water Porridge of tree leaves and millet and water child drinks it	Breast feeding women eat tree leaves For older children she chews the leaves and gives the fluid to the child (Mourtodie)	Rice water Baobab fruit lemonade	Go to the dispensary in Boghé: Ganidan charcoal (at this time, a lot of adults also with diarrhea) Or they give fresh butter or tree leaves (boiled) to children.	Rice water PMI

	M'BAGNE	M'BOTO	SORI MALE	BOLO DOGO	BABABE	N'GOREL	TIENEL
Infant Mortality	----	----	----	----	----	not high at the moment	----
Seasonality	----	----	----	----	----	----	----
Cause of Death	----	----	----	Heat (children on mothers back in the field) Diarrhea	50% diarrhea Measles Chicken Pox	"natural"	----
Ratio of Children Who Are Alive to Children Who Are Dead	----	5:2 7:2 6:2	----	3:2	----	3:0 4:4 4:0 4:0 7:2	----
Most Important Illness	----	Tuberculose Measles (1 month ago vaccination team in village 3 times)	Malaria	malnutrition	Diarrhea Measles Chicken Pox These illnesses cause 50% of death	they can cure the illnesses by now	children have been vaccinated and are fairly healthy.
Constraints and Areas of Research	They need tools for the garden. Lack of transport. Fences. Insect problem. They want improve seeds.	Water problems. Not enough food for self-consumption. Women are saving money obtained from selling vegetables from the garden to buy a mill but they still don't have enough (now have 10,000 um) They only drink water from the well not from the marigot. For the garden they use the well. That takes hours because there's only one well (waiting your turn).	Costs of motorpump are higher than production output. Lack of fence. Lack of mill. Pounding is time consuming activity. They can't do other work in the meantime. Garden is too small. Shortage of tools. Problem of insects and termites.	They want a motorpump in the garden. Carrying water from the river is too much work. Also, in the village they have too much work to do. They want a mill.	Water shortage in wells. Costs of motor pumps are too high in comparison with harvest. Tools. Irrigation tools.	Although the village cultivates the small and large irrigated perimeters, the work is futile; villagers are short of food (they had to pay 15.000 um to SONADER). Constraints in garden: Grasshoppers Donkeys Goats Cows damaging the crops Their fence needs to be repaired. Carrying the water is too heavy. They want their own motorpump. Now they have to use the men's	New motorpump (current one 6 years old) Seeds Insecticides They also want another garden for corn, millet and rice (with motorpump).

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M' BACNE

M' BOTO

SORI MALE BOLO DOGO

BABABE

N' GOREL

TIENEL

pum 1-2 times/week.
Women pay for the
diesel.
Rest of the week
water is carried on
their heds.
Need tools for
the garden.

SUMMARY OF RESULTS OF THE CONSUMPTION SURVEY

Variables

	TAGAH	PALIBA	SIVE	KOUNDEL REO	TETIANE	BOVEL	FONDOU
I. Access to Markets							
Location	no market (market in Maghama 7 kilo away)	no market	1 market	yes	no market Women go to Djovol or Guidilon Women sell and buy among themselves.	no	yes
Type of Market	----	----	Periodically, not during rainy season	Permanent	----	----	not each day, but often
Products Sold	----	----	----	Fish Tomatoes Cabbages Onions	----	----	----
II. Items Purchased Daily							
Items Purchased Daily	Vegetables fish rice (with money sent by parents	Sometimes they go to the market in Maghama once/week or once a month. They buy oil and tomatoes.	----	normal purchase	Sugar Coffee Salt Milk Oil/1/2 liter/day Tomatoes Onions Maggi cubes Rice 2/kgs/day	----	Coffee Sugar Tea Rice Oil Fish (or meat) Vegetables
Items Purchased Every 2-3 Days	----	Onions, Bread, Tea, Sugar, Coffee, Rice. No products sold in village.	Fish (dry + fresh) from Senegal or Nouakchott.	----	----	Items are bought once a week or once a month in Djovol	They go to Roufiouat (village) to buy fish
Money spent daily	----	----	----	----	Women can't tell; sugar 100 um/week When they use millet they use less oil than with rice.	----	200 um/day
III. Food Items Shared							
Food Items Shared	no	no	----	no sharing	Sometimes Expect to get it back later (rice, money or meals).	no sharing	----
With Whom	----	----	----	----	Neighbors	----	----

	PERIASE	BOVEL	FONDOU
When	----	----	----
IV. Food Items Exchanged	yes	no	----
What	Rice, Orka, Millet	----	Milk
Items Exchanged For	Milk and butter	----	Cereals
With whom	within village	----	people in Djovol
When	February Sometimes rest of the year	----	----
V. Gardens Characteristics	100 women, 1 garden. This year no seeding. The pump does not work, and there is no fence. Last year, camels ate the crop. Before this it was a productive garden. Each family has own garden.	No garden. No cooperative. CARITAS stopped irrigated perimeters because of jebts.	40 women in cooperative garden. Also, each has a small garden for herself.
Organization of Labor	----	----	All the work is done together.
Individually Managed Plots	Family	----	Some women have individual garden.
			63 men and women
			This is the first year for the garden.
			They had a coop garden with neighbor village, but they had quarrel, it was never settled.
			Well in the garden. Women started the garden. Learned from neighbors (village). New well was paid by the women (partly by credit from emigrant fund)
			Each has his/her own parcel
			All women work in the garden.
			Costs: 100,000 um 50,000 is paid back. They asked for help. Each woman has own parcel
			No
			No

	TAGANI	PALIBA	SIVE	KOUNDEI. REO	TETIANE	BOVEL	FONDOU
Vegetables Grown	Cabbages Carrots Cassava Hot pepper Lettuce Tomatoes	----	Tomatoes Cabbages Turnips Onions Lettuce Carrots	Cabbages Onions Lettuce Tomatoes Carrots Hot peppers Turnips	Lettuce Cabbage Turnip Tomatoes Carrots Onions	----	Cabbages Onions Tomatoes Carrots Turnips Eggplant Lettuce Potatoes
Season	cold	----	----	dry/cold	dry/cold	----	----
Yield	----	----	'84: 8000 um (2-3 ha)	----	1st year.	----	----
Amount Consumed	Consumed	----	----	Consumed	Only tomatoes and onions	----	Part is consumed
Amount Sold	No	Formerly harvest, was consumed and sold.	Products are sold. Net profits: 30% fund, 70% women.	Sometimes small amounts sold to buy other food.	Garden is starting to produce enough to sell.	----	Part is sold
Where	----	----	Market	----	----	----	Village
Items Exchanged	No	----	No	----	----	----	----
Source of Water	----	----	River. They share pump and costs (diesel) with men.	River, with motorpump	2 times a day by hand, water from well	----	----
Special Remarks	They want to start the garden again.	----	This is first year with pump. Last year carried water on head.	----	They received seeds from CNRADA.	----	Women made wooden fence themselves.
Garden Constraints	Fence Motorpump	Shotage of water, materials, seeds.	----	Lack of material; want expan- sion	No tools (to sprinkle) they use cans with holes. Everything is done by hand.	----	----

VI. Women and Agriculture	THOAN	PALIBA	SIVE	KOUNDEL REO	TETIANE	BOVEL	FONDOU
	On family fields	On family fields	Yes	Women work in family fields	Own, borrowed or family fields.	Women work in family fields	Women only cultivate land when she is alone.
Access to Land (owned or borrowed)	----	----	Inheritance	----	Women have inherited fields. Women without men have own fields. If husband away, woman cultivates. When husband returns he can take it back or they divide the land	----	Inheritance When man is away
Crops Grown	----	----	Falo: cowpeas, potatoes, corn, tomatoes, okra, hibiscus, cotton. Irr. Perim: rice, sorghum Dieri: water-melon millet	----	Sorghum Millet samé	----	Vegetables Cowpea Millet Sorghum
Consumed/Marketed	----	Sometimes they sell small amount of sorghum have some money.	Consumed and some sold each day in Kaedi or Senegal (potatoes & cotton).	-----	The yield of men's field is shared. Nothing is sold.	Yield is for consumption, not enough to sell	----
Constraints	----	----	Motorpump broken, harvest was lost.	----	----	----	----
Irrigated Perimeters	----	----	----	----	----	----	----
VII. Gathered Food Kinds	Jujube Balanites Eri Diabbé	Jujube (seldom)	Jujube Baobab White blackberry Haco Oulct	Gum arabic Gonniker	Jujube Balanites Guigilé (roots) Gum arabic (Nearby gum trees are dead) Planted "neem"	No	Balanites (small amounts).

	TAGAH	PALIBA	SIVE	KOUNDEI. REO	TETIANE	BOVEL	FONDOU
Quantity	----	----	----	----	tree (bought in Kaedi) which gives grains but they don't eat it.	----	----
Where	bushes	bushes	----	Dieri, and bushes	Guigilé (in marigot, others in bushes, close and far away.	----	----
Season	Rainy season (only when there is a lot of rain)	Rainy season	Rainy season	Rainy season	One month a year (end of rainy season)	----	----
Fishing	No	Traditional with line	Some traditional fishing with nets.	Important activity for village	No fishing	No fishing	Rainy season
Where	----	Marigot	River There used to be more fish in the river.	----	----	River, 2-5 km away	----
VIII. Free Food Frequency	Twice a year in 1985	3 times a year	----	none	once	Every three months	----
Most Recent Access	1985	----	----	----	----	----	last year
Quantities	50 k sorghum 5 k powdered milk, 5 lb oil/ butter	50 k sorghum 5 k powdered milk 5 lb. butter/ oil	----	----	6 sacks of corn, each 45 kgs.	1/2 kg wheat or sorghum each person. 1 1/2 lb butter & 1 kg milk each family.	1 sack red sorghum, 5 kgs powder milk; biscuits 5 lb oil/ butter.
Organization	Government	Government	----	----	----	----	Government
IX. Storage	Yes	No cereals to store	----	No	Yes, in traditional storage bins	No	Yes, in traditional storage bins
Where	Traditional storage bins	----	----	----	Millet and sorghum on the panicle, corn on the head.	----	Sorghum, millet (on the panicle) maize on the

Products Stored	Sorghum & millet, on the panicle. Grains (seeds for next year).	Dry "fish-balls"	Rice in sacks, sorghum on the panicle	----	----	----	head (dried) cowpea (dried) ----
Method	loose, in sacks	----	in house	----	rice in sacks	----	----
Quantity	----	Enough for when there are no fish in the marigot.	250 kgs. rice 150 kgs. sorghum	----	All yield consumed. Before drought, filled bins	----	1/2 storage bin
Duration of Supplies	----	----	----	----	After 1 or 2 months storage ended. At the moment, bins are empty.	----	After 1 or 2 months. Bin is empty for 3-4 months.
Losses	Yes	No	Yes	----	Yes	----	Yes
How	Small animals. Food doesn't hold longer than 6 months.	----	Termites	----	Insects, mice, crickets	----	Mice Crickets
X. Meals (Composition)							
Breakfast	7:30 coffee + bread (if they haven't had dinner), otherwise only coffee Bouillie for the children.	Coffee with bouillie or white rice.	7:00 coffee, couscous + cowpea leaves, couscous + milk, bouillie.	Coffee and bread	8:00-9:00 (schoolgoing children earlier) couscous & milk	Coffee or bouillie or couscous + milk	8:00-8:30 coffee & bread, or remainders from evening; couscous, etc.
Lunch	1:00-2:00 rice with fish or meat millet + fish. If no meat or fish, then bouillie + milk.	Rice with dry fish, rice with fresh fish	2:00-3:00 rice + fish	Rice with fish Millet with fish	12:00-1:30 crushed rice with fish or meat	Batter of millet and butter. Rice with fish (rarely).	2:30-3:00 batter with tomatoes + oil + hibiscus. Rice, with dry or fresh fish. Batter with fish and vegetables or watermelon.

	TAGAH	PALIBA	SIVE	KOUNDEL REO	TETIANE	BOVEL	FONDOU
Dinner	8:00, couscous + cowpea leaves couscous + fish or meat couscous + cowpea couscous + beans and peanuts.	Couscous (fellh) + fish, couscous (fellah) + milk.	5:00, couscous + cowpea leaves.	Couscous with cowpea leaves.	8:00-9:00 couscous with milk (made from milkpowder or tinned milk since cows and goats died).	Couscous with cowpea leaves, couscous with milk (meat only when festivals).	9:00 couscous with cowpea leaves and milk and meat (seldom).
Other Meals	No	----	----	10:00 couscous with cowpea leaves.	----	----	----
Snacks	Mango stems	Boiled cowpeas. Beans (seldom)	No, don't have money for it.	Milk	No snacks	Milk	No snacks but tea. Children chew sorghum stems.
Frequency	----	Especially during rainy season	----	----	----	3 times a day	----
Major Dishes and Ingredients	Rice with fish. Couscous with cowpea + peanuts.	Batter of millet + dry or fresh fish. Rice + dry/fresh fish, millet + fish + cowpea leaves.	----	Milk everyday from goats, couscous (sorghum) + cowpea leaves, millet with fish. Millet + fish and oil.	Nieri (crushed milk + sorghum + meat + fish) Rice + fish (without vegetables, only tomatoes and onions). Couscous + milk, couscous + cowpea leaves + milk or cowpea water or flour or water, melon seeds when meat then oil used	Millet and milk-based products	Kodde Millet + milk + sugar Batter with fish or fish, Couscous with cowpea leaves.
XI. Food Preferences Meat/Fish	Fish, dry or fresh Lettuce Fish over meat	Fish over meat	----	Meat over fish, No meat preference (no camel). Meat only when a festival	Meat above fish	----	meat above fish

	Sorghum, Millet over rice Women prefer rice	Rice	-----	Millet Rice	1st millet 2nd rice	Rice	Rice for lunch, Millet for dinner, Samé
Staple Preferred							
Reasons	since the drought, no millet available and rice takes less time to prepare.	Because it is a nice combination with fish. They only have fish.	-----	-----	Taste and habit (although it is more work, rice if it is available).	-----	Rice: less time to prepare. Millet for the taste. samé: increase quantity when pounded
Dominant Staple	-----	Sorghum Millet	-----	Sorghum Rice	Rice Millet	Millet Rice Cowpea	1) samé 2) corn
Quantities Consumed	12 kilo sorghum a day for 22 people	-----	-----	-----	They seldom eat fish and meat . 2 kgs rice/day	They eat more millet than rice because its cheaper.	They seldom eat meat (cow goat or sheep). Samé twice/ day.
Food Preferred if More Money	Rice and fresh fish.	-----	-----	Rice , meat Millet	Millet, rice Fish and meat	-----	Samé, Rice Fish, meat, oil (deperis on price)..
Preferred Dish	Men: couscous Women: rice and fish.	-----	-----	Rice or millet with fish	Lunch: rice with fish, Dinner: couscous from millet (otherwise they pound the rice).	-----	Kodde
XII. Seasonal Aspects of Food							
Hungry Periods	Feb-April	June rainy season	February rainy season	-----	wet season, February	dry/hot season	-----
Foods in Short Supply During Each Season	Cold season: no millet and corn. No money to buy food.	-----	-----	No fish in dry season	-----	During dry/hot season nearly everything	-----

	TAGAH	PALIBA	SIVE	KOUNDEL REO	TETIANE	BOVEL	FONDOU
Source of Money to Purchase Food During Hungry Season	They sell rice and sorghum to get money for oil, etc. Parents sent money or food.	----	Sometimes credit between parents or neighbors. Fish Sometime sell a goat -- 600-700 little one - 1000 big one.	----	Selling wild fruits during rainy season.	----	Sometimes emigrants send money. Sell cloth. Borrow from family, women selling gold.
Foods by Season Dry Cold	Millet, rice vegetables	----	Vegetables, corn. March-June biggest yield of falo.	Bouillie from millet. Rice with milk. Batter of millet & hibiscus leaves.	Couscous with milk. Rice with fish or meat. Cowpea leaves	----	Vegetables with rice and fish or meat.
Dry Hot	-----	Cowpea leaves	Cowpea, corn, okra, potatoes	----	Couscous + green leaves (oulo) Cowpea + dry fish	----	----
Wet	Some gathered food.	----	Jujube, baobab, white blackberry, oulot, haco	----	Cowpea, wild fruits, green leaves, guigilé, watermelon, squash	----	Batter of millet + melon + cowpea. Batter of flour + milk.
Season Dry Cold	Corn (this year no corn). Sorghum	----	Rice Sorghum (after October)	----	Millet, rice, sorghum	----	----
Dry Hot	----	----	----	----	Millet	----	Rice, millet (if available)
Wet	Rice	----	----	----	----	----	----
Number of Meals Eaten by Season Dry Cold	3, but sometimes no dinner. No money, or too tired of hand pounding.	3	3, always	4	3	3	----
Dry Hot	----	----	----	----	----	----	----
Wet	-----	----	Fewer meals, but eat what is found in bushes.	----	----	----	----

XIII. Food Habits	TAGAH	PALIBA	SIVE	KOUNDEL REO	TETIANE	BOVEL	FONDOU
Order of Eating	1) men strangers 2) children women (women serve the men dishes water, etc.)	1) men 2) children 3) women	men and women apart (same time)	1) men 2) children 3) women	women, men and children (4-10 years old) eat apart but at same time	1) men 2) children 3) women	1) women and girls (1-5 yr) 2) men and boys (1-5 yr) 3) children (5-10 years)
Most Important Meal	Dinner	Lunch	----	All meals (breakfast, lunch, dinner) are important	----	All meals are important	Lunch and dinner most important. Missing breakfast is possible
XIV. Water Source Uses Location	2 wells	1 permanent well marigot	No wells, all water from river	2 wells (not cemented) River, for all use.	2 wells; one works. Government constructed them.	No wells, river water for all use.	7 wells, but only 2 working. One in garden, other for all uses.
Seasonal Access	All seasons	10-15 meter (well) 200-300 meter marigot	----	Wells are far away. River: 50m-1km	----	----	----
How Often	----	----	----	----	----	2 times/day 2-5 kilometers	8-10 times a day well is in village
XV. Fuelwood Who Collects	children	Women	Women	Women	Women & girls and (rarely) boys	Women	Sometimes children sometimes men, some- times women
When	Every day	Every day	Every day	Every day	Every day	Every day for own necessities	everybody for own necessities once in 2 or 3 days. Some have cows, use dried manure
Where	Far	----	Not far	Not far	----	----	----
Price	----	----	----	100 um/wagon	-----	-----	only sold sometimes

	TAGAH	PALIBA	DIYE	KOUNDEI REO	TETIANE	BOVEL	FONDOU
XVI. Access to Mills							
	There is a mill in Maghama	No	No. Mill in Senegal	No mills	No mills In Djovol (10 km) to far.	No mills	No mills
Costs	20 um/4 kilo	----	----	----	----	----	----
Hand Pounding	Home	Home	----	----	Every day pound millet and other grains, at home. Pound what is needed for meal.	----	Every day for meals, at home.
XVII. Time Schedule							
	takes a lot of time	----	Pounding sorghum: 4 kilo/2 hours Peeling rice: 4 kilo/3 hours	----	Every day they pound.	----	----
Milling	----	----	----	----	----	----	----
Meals	----	----	Daughters prepare meals while mother in fields. All meals 4 hours to prepare. Morning/afternoon	----	3 hours/day	1 1/2 hour for a big meal	3 1/2 hrs each day
Gardens	----	----	----	----	----	----	----
Fields	----	----	----	----	----	----	----
Marketing Activities	----	Takes a lot of time to go Maghama.	----	----	----	Go to Djovol to sell the milk from their animals 2 times a day.	----
milked from Water	----	----	8 times/day to river=1/2-1 km. away, at least 3 hours	----	9 times/day	2 times/day 3 hours	"all day" busy with carrying water
Fuelwood	----	----	Not far: 1.5 hr/day	1/2 hr/day	Each day takes at least 1 hr.	1/2 hour/day	----
XVIII. Access to Health Facilities							
	PMI Pharmacy Dispensary (CARITAS)	----	Dispensary CAC	----	No dispensary no PMI (they asked for it twice, refused till now) no pharmacy	no health clinics or pharmacy	dispensary. They buy medicines themselves in Boghé No PMI

	TAGAH	PALIBA	SIVE	KOUNDEL KEO	TETIANE	BOVEL	FONDOU
Who Takes Care of Children	----	----	----	----	Grandmothers, older daughters, herself while older daughters go out. Children often at home alone. Littlest child always on back.	-----	Older children look after little children.
Duration of Breast Feeding	1 1/4 - 2 years	2 years	1-2 years	2 years, unless woman pregnant, then she stops immediately	2 years unless pregnant	1 year	2 years, unless pregnant
Weaning Foods	from 1 year old they start eating millet	normal food	normal food	no special food	milk, couscous + salt + sugar between 1-4 years old	1-2 years; milk from animals	----
Begin Weaning	----	----	----	From 2 years normal food	From 1 year small amounts of normal food.	From 2 years, normal food	----
Food for Child When Mother Has No Breast Milk	milk from goats or cows	----	----	Bouillie Goat milk	Milk (powder, tinned) distributed Goat milk	----	Everything child eats. Starts with fresh cow- or goat milk (till 1 1/2 mo.) + always breast. After that, creamed milk.
Food for Non-lactating Women	no special food	no special food	no special food	----	----	----	cowpea batter of millet rice bouillie, but it doesn't always help
Food for Lactating Women	no special food	no special food	no special food	no special food	Some of the women drink milk, or eat bouillie, or cowpea leaves	no special food	----
Food for Pregnant Women	no special foods	no special foods	----	----	----	no special food	----

	TACAH	PALIBA	SIVE	KOUNDEL RED	TETIANE	BOVEL	FCNDU
Food for Women Just Giving Birth	They don't have money to prepare special meals.	----	Only if money. Bouillie Soup with meat cowpeas	Meat Soup Bouilli This during one week. After that period normal food.	Millet Bouillie Boiled milk + sugar, rarely meat	no special food	bouilli (made of flour) gossi (of millet)
Occurrence of Diarrhea How Often	----	often, and dehydration	children get diarrhea because animals drink from river	yes often	yes from time to time	yes often	yes always
Seasons	----	----	----	----	----	----	
Food Used to Treat Diarrheal Episodes Practices	Charcoal No tra- ditional remedies	Fresh milk monkey bread	Bouillie Boabab fruits, no oil, they go to dis- pensary. Traditional cures: falladje, tamar laoniande, djiloki, noko	Rice water	"Sisters of health" bring in medicines. Don't use traditional remedies, although they know them	Biscuits & fresh milk, curdled milk, cream of milk for the small children	Mother has to eat leave of each certain tree . Younger women prefer modern medicines.
Infant Mortality	not high	no "statistics" available	----	----	----	----	----
Seasonality	----	----	----	----	----	----	----
Cause of Death	----	----	----	----	----	----	----
Ratio of Children Who Are Alive to Children Who Are Dead	1:0 5:2 7:2 10:2 5:0 2:12 (miscarriage)	----	----	----	4:0, 5:2, 5:0	----	----

Most Important
Illness

FROM	FALIBA	SIVE	ROUNDEL REO	TEFIANE	BOVEL	FONDOU
	diarrhea and dehy- dration		when breast feeding is stopped suddenly that causes illnesses, vomiting, diarrhea	malaria (treat- ment: biscuits + milk (carton) baobab-leaves guava-leaves	diarrhea, vomiting (treatment: doki leaves + salt & water	houses are dirty.

Constraints and
Areas of Research

There's not enough food malnutrition. Women want to start garden again. They need: fence, motor pump for themselves. (Formerly they could use the motorpump of the men, but only when the men used it themselves) Women want a mill, it's too much work and takes too much time to pound by hand.	no storage (except fish balls) because there is no- thing to stock Each day the women take some sorghum heads or millet from the field to prepare meal of that day. During hot dry season they plant cowpeas grain to obtain leaves only to eat. (vegetable nutrition). Transport problem: no car, no donkey. They have to find means to find water to start a garden: well or motor- pump, fence. There's a camel problem. CARITAS closed pumps because they didn't pay debts.	lack of time from 5:00 till 10:00 they are busy on fields and in household and market In evening they want to work extra to improve health facilities. Teacher said that women have a hard time.	expansion of perimeters for more output. Improved fishing tools Material, tools for agriculture	Food shortages They want health facili- ties. Gorgel is seen as a privileged region so people get less food aid. They forget the poor villages. Women really want a mill, they like pounded grains to make cous- cous. They want to open a CAC, but demand has not yet been answered. Hygiene is necessary. They also want a PHI, demand is refused twice, Djowol had priority. They want to produce enough food for own consumption	with regards to the garden: they need a motorpump, seeds, material to work with, tools	they want to explore gum arabic. Well in women's garden has to be repaid Women want mills, wells, and PHI and CAC
--	--	--	--	--	---	---

APPENDIX C

GATHERED FOOD

Guigilé (Pulaar); Waterlily

The fruits of the guigilé are dried and then pounded. They are soaked in the river for five days, and cooked for 2 to 3 hours in boiling water.

Quinquelibá (Pulaar)

Tree leaves used to make tea. They are boiled in water until it is a red color.

Potte Guidjilé (Pulaar)

Small fruits from a tree (*Boscia senegalensis*).

Mourisianka (Soninke)

Small fruit.

Eri (Pulaar)

Small fruits on trees (*Sclerocarya birrea*).

Mourtode (Pulaar: Gonakier; French: Balanites)

Yellow fruits on a tree (*Balanites aegyptiaca*) somewhat bigger than the jujube.

Diaabe (Pulaar); Jujuge (French) (*Zizphus mauritania*).

Small orange fruits with seeds and semi-hard skin.

N'Boki (Pulaar); Baobab or Pain de signe (French) (*Adansonia digitata*)

Fruit that is eaten or dried, pounded, and thinned with water to make lemonade.

Diabbe (Pulaar) Tamarin (French) (*Tamarindus indica*)

Small sour fruit.

Tabbe (Pulaar)

A root that looks like a potato. Found in flooded areas (marigots). Usually prepared on charcoal.

Paguri (Pulaar); Fonio

Small wild grains found in the dieri similar to millet grain. It requires a lot of work to separate out the good grains. Although the quantities are usually small, paguri is an important gathered food. When found in the walo, it is considered a weed.

N'dayri (Pulaar)

Similar to millet grain and is found under water. The grains are dried and pounded.

Tjapato and Oulo (Pulaar)

These are green leaves from various trees that are used as vegetables.

Nearly all the foods described above are found during the wet season. Others growing in or under water are found months later.

APPENDIX D

TRADITIONAL REMEDIES AND TREATMENTS

Guigilé (Pulaar); Waterlily

Leaves are dried and pounded, and milk is added. It is used for gripes and constipation. The roots are used for rheumatism.

Hot knife

People will make small cuts with a hot knife on areas where the rheumatism hurts.

Sasante (Soninke)

The leaves are dried and pounded, and used to wash the body when there is a fever.

Maka Kesse (Soninke)

Also used for fever like Sasante.

Dogui (Pulaar)

Used for vomiting, it is mixed with curdled milk, salt and water.

Paguirri (Pulaar)

Small grains that help cure diabetes.

N'Boki (Pulaar); Baobab or Pain de signe (French)

Fruit, often in powdered form, is mixed with water as a remedy against diarrhea.

Gombo Dielokhone (Soninke)

The milky leaves are boiled in water and eaten for diarrhea.

Gossi (Pulaar)

Millet or rice is boiled in water for diarrhea.

Diabbe (Pulaar)

Small sour fruit for diarrhea.

Mourtode (Pulaar); Gonakier (French); (*Balanites aegyptiaca*)

When a child has diarrhea, the mother chews the leaves and gives the sap directly to the child.

Other tree leaves which are used similar to Mourtode:

Falladje (Pulaar)
Lroniande (Pulaar)
Djeloki (Pulaar)
Dokɔ (Pulaar)
Teidouma

The following tree leaves are prepared in the way described below:

Ngiagotté (Pulaar)
Toultou (Pulaar)
Fatera (Pulaar)
Djarkoti (Pulaar)
Dene Redi (Pulaar)

All these leaves are boiled with flour (millet) and water.

APPENDIX E

RECIPES

Couscous

Couscous can be made from millet, sorghum, rice or corn. The grains are first pounded, then a small amount of water is added and rubbed until a grainy form is obtained. The couscous is then steamed in water. The size of the couscous is determined by how much work (rubbing) is done.

Couscous with Cowpea Leaves (Lathiry é haco)

Prepare couscous using millet or sorghum. Add a small amount of powder made from baobab leaves. To make the sauce, boil meat or fish together with cowpea leaves and some salt and stir until cooked. Add a batter made of pounded peanuts. Cook 10-15 minutes and serve over the couscous.

Couscous with Cowpea Grains

Prepare a fine couscous using millet or sorghum. Boil cowpea grains with salt until they are cooked. Serve over couscous.

Cowpeas Boiled in Water (Ñiré)

Boil cowpeas in water with salt until cooked. During the wet season this is an important snack.

Cowpeas Roasted in Sand

Make a fire until it has become charcoal. Remove the charcoal and put the cowpeas in the sand and cover with hot sand. Roast until cooked.

Red Beets

Boil in water. Beets are often eaten with lettuce and potatoes.

Bassi

Bassi is a very fine couscous eaten with milk and, sometimes, sugar.

Kodde

Kodde is pounded millet, milk and sugar cooked together until it resembles porridge. Kodde is regarded as a delicacy.

Millet and Milk

Pound millet and cook in water until it is a batter. Pour milk over it and serve.

Oil-Tomato Sauce

Prepare sauce of fried tomatoes in oil. Serve over a batter of pounded sorghum and cowpeas.

Mafe (Traditional)

Mafe is a sauce made of pounded dried baobab leaves, cooked in water until it is a sauce. Bits of dried fish or meat are sometimes added. It is served with a batter of pounded sorghum, boiled in water with salt until it becomes a batter.

Mafe (Modern)

Cook together in water okra, tomatoes, dried fish or meat, hot peppers, pepper, garlic, bay, salt and maggi cubes. Serve as above.

Mafe with Rice

Boil rice. Make a sauce of meat or fish, tomatoes, onions, hot peppers and okra in oil. Add peanuts pounded until they are greasy. The sauce will be semi-liquid. Serve with the rice.

Rice with Meat

Boil tomatoes, onions, meat and salt in oil and water for 30-45 minutes. Wash the rice and steam it on top of the other ingredients until water is absorbed. Mix together and serve.

Couscous with Meat

Prepare millet or sorghum couscous. Boil meat, tomatoes, onions and salt in oil. Serve on top of couscous.

Couscous with Fish

Prepare couscous. Boil dried fish and vegetables in water. Serve over couscous.

Millet with Fish (M'djameri)

Pound millet and steam. Fry fish in oil for a few minutes. Boil available vegetables and add the fish. Serve over millet.

Rice with Fish (Thiebou djen)

Steam rice slowly for several hours. Add some oil and tomato paste. Fry some fish (fresh) in oil. Boil vegetables such as cabbage, carrots, turnip, sweet potatoes, eggplant, hot peppers, garlic in water. If using dried fish, boil it with the vegetables. Put the vegetables on top of the rice and the fish on top of the vegetables.

Porridge

Boil pounded millet in water. Pour off the water and serve with milk and sugar.

Fritters

Make a batter of flour and yeast. Fry small quantities in hot oil. Fritters can be eaten with sugar or salt, or a sauce made of tomatoes and hot peppers that has been cooked in oil.

Pancakes

Pancakes are made with flour, yeast and water and baked. Served with sugar or salt.

Rice/Millet/Sorghum with Meat or Fish (Gniri)

Grind rice, millet or sorghum and steam. Serve with boiled meat or fish.

APPENDIX F

MAURITANIA FOOD INVENTORY

Food Item	How Acquired?					Form of Storage		Seasonal Variability	How Prepared	Food Frequency		Special Foods			Consumed by				
	P	H	B	E	D	T	P			Day	Week	T	R	I	C	P	F	M	All
<u>Cereals</u>																			
Bread (wheat)		X						permanent	flour, salt, water in the oven. Old dry bread pounded + hot water + sugar										
Commercial Child's Cereal	NONE																		
Maize	X	X	X				sacks	cold season	couscous batter + cowpeas + dry fish	1							X		
Milled Rice		X					sacks	cold season	rice + fish	1-2							X		
Millet (grain)									couscous batter	1-2							X		
Millet (flour)																			
Semolina																			
Sorghum (grain)									fresh, on the fire										
Sorghum (flour)																			
Wheat (flour)									fritters	to sell							C		
Other																			
<u>Root Staples</u>																			
Potatoes		X					sacks	hot/dry season	with meat	1							X		
Sweet Potatoes		X					sacks	hot/dry season	with meat	1							X		
Other																			

P=Purchase, H=Home, B=Both, E=Exchange/Share, D=Donations, T=Type, P=Preservation/Processing, T=Taboo, R=Ritual, I-Introduced, C=Children, P=Pregnant/Lactating, F=Female non-P, M=Male, All=No Distinction Made.

MAURITANIA FOOD INVENTORY

Food Item	How Acquired?					Form of Storage		Seasonal Variability	How Prepared	Food Frequency		Special Foods			Consumed by				
	P	H	B	E	D	T	P			Day	Week	T	R	I	C	F	F	M	All
<u>Pulses</u>																			
Cowpeas		X					sacks	wet season	instead of meat	1-2							X		
Peanuts																			
Watermelon Seeds																			
Other																			
<u>Fish</u>																			
<u>Canned Fish</u>																			
Dried Fish		X	(Nouakchott/ Kaedi)						batter couscous	1-2							v		
Fresh Fish		X	(Senegal)						on rice with boiled fish	depends on money available							X		
<u>Meat</u>																			
Beef		X								rare							X		
Camel																			
Game																			
Goat		X	(They associate to buy a Goat together)							rare							X		
Mutton		X	(Milk & Butter)							rare							X		
"Tichtar" (Dried Meat)																			
Other																			
<u>Poultry</u>																			
Chicken		X																	
Eggs (Not Likely)		X								not often to sell							X		

MAURITANIA FOOD INVENTORY

Food Item	How Acquired?					Form of Storage		Seasonal Variability	How Prepared	Food Frequency		Special Foods	Consumed by				
	P	H	B	E	D	T	P			Day	Week		T	R	I	C	P
<u>Milk</u>																	
Fresh Milk		X															
Powdered Milk	X								mixed with water	depends on money available							
Sour Milk		X															
Tinned Milk/Creamed	X								put on hair	sometimes							
Other																	
<u>Oils and Fats</u>																	
Animal Fat																	
Ghee	X																
Palm Oil	X						bottles			sometimes							
Peanut Oil	X									1 (1/4-1/2 liter)							
Other										1 (100 um/liter)							
<u>Fruits</u>																	
Baranas-Apples-Oranges	X																
Dates		X															
"Jujube"										sometimes							
<u>Melons</u>																	
"Pain de singe" (Baobab Fruit)																	
"Touc"																	
Mandarin, Pineapple	X																

MAURITANIA FOOD INVENTORY

Food Item	How Acquired?					Form of Storage		Seasonal Variability	How Prepared	Food Frequency		Special Foods			Consumed by				
	P	H	B	E	D	T	P			Day	Week	T	R	I	C	P	F	M	All
<u>Vegetables</u>																			
Beets																			
Cabbage		X						cold season	boiled for rice and fish	1-2									
Carrot:		X						cold season	boiled for rice and fish	1-2									
Eggplant		X						cold season		1-2									
Greens, Introduced																			
Greens, Local																			
"Hacco" (Cowpea Leaves)		X							sauce, with fish										
"Laalo" (Baobab Leaves)																			
Lettuce		X								1, if available									
Okra																			
Onion		X	X				in sand: dried apart	cold season		2									
Squash			X																
Sweet Peppers																			
Tomato		X	X					cold season		1-2									
Turnips				X				cold season											
Water Lily Seeds and Bulbs ("Ninuphan")																			
Watermelon			X					wet season	boiled; with meal										
Pepper		X																	

MAURITANIA FOOD INVENTORY

Food Item	How Acquired?					Form of Storage		Seasonal Variability	How Prepared	Food Frequency		Special Foods			Consumed by				
	P	H	B	E	D	T	P			Day	Week	T	R	I	C	P	F	M	A
<u>Other</u>																			
"Bissap" tea		X						dried											
Sugar		X																	
Tea		X																	
Coffee		X																	

APPENDIX G

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	PALIBA	SIVE	KOUNDEL REO	GANI	TEKANE
CEREALS					
Bread (Wheat)			10/piece		10-15/piece
Maize					10/3 heads
Milled Rice				20/can	
Millet (grain)			20/kg.		40/2 kg.
Millet (flour)					
Semolina					
Sorghum (grain)			20/kg.		40/2kg.
Sorghum (flour)					
Wheat (flour)					30/kg.
Other					
ROOT STAPLES					
Potatoes					50/kg.
Sweet Potatoes			10-20/pile	30/pile/ kg.	20/pile
Other					
PULSES					
Cowpeas			4/pile	5/teaglass 20/tin	50/kg.
Peanuts				10/tin	60/kg.
Watermelon seeds					25/2kg.
Other					
FISH					
Canned fish					
Dried fish			15/2 piece	little: 10/handfull 20/3 piece big: 20/piece 100/3 piece	70/kg.
Fresh fish			15/5 little	20/handfull	35-70/kg.
MEAT					
Beef					120/kg.
Camel					
Game					
Goat					140/kg.
Mutton					140/kg.
"Titchtar" (dried meat)					

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	PALIBA	SIVE	KOUNDEL REO	GANI	TEKANE
POULTRY					
Chicken					200-350/ piece
Eggs					5/piece
Duck					400/2 piece
MILK					
Fresh milk					45/liter
Powdered milk					150/kg.
Sour milk					10/glass
Canned milk					350/big can
Other					75/little
OIL & FATS					
Animal fat					
Ghee					
Oil					
Peanut oil					
Other					
FRUITS					
Bananas					5-10/piece
Dates					120/kg.
Melons					20/2kg.
Pain de signe					40/2kg.
Other					
Oranges					5/piece
Melons					10-40/piece
VEGETABLES					
Beets					
Cabbage			1-10/piece	20/piece	40/kg.
Carrots			10/pile		5/pile
Eggplant					5-10/piece
Greens, introduced					parsley 2/ pile
Greens, local					
"Hacco" (cowpea leaves)			5/pile		10/pile
"Laalo" (baobab leaves)					5/pile
Lettuce					5/pile
Okra			4-5/piece		5/pile
Onion				60/kg.	60/kg.
Squash					5/slice
Sweet peppers					
Tomato				5/.25kg.	10/pile
Turnips					5/pile

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	PALIBA	SIVE	KOUNDEL REO	GANI	TEKANE
Waterlilly seeds & bulbs					
Other					
Melon					5/slide
Tomato-puree					10/little portion
Pepper					5/spoon
OTHER					
Maggi cubes					
Sugar					170/bread
Tea (special)					90/box
Tea (normal)					75/box
Coffee					
Soap					

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	WOMPOU	WALI	BOLO DOGO	TOULEL	TAGAH
CEREALS					
Bread (Wheat)		10/piece			
Maize	50/4 kg.				24/kg.
Milled Rice					35/kg.
Millet (grain)	50/4 kg.	15/kg.			24/kg.
Millet (flour)					
Semolina					
Sorghum (grain)	50/4 kg.	20/kg.			24/kg.
Sorghum (flour)					
Wheat (flour)					
Other					
ROOT STAPLES					
Potatoes					
Sweet Potatoes		10/pile			
Other					
PULSES					
Cowpeas		20/kg.			
Peanuts		100/kg.			
Watermelon seeds					
Other					
FISH					
Canned fish					
Dried fish		200/kg.			50-100/kg.
Fresh fish		100-500/kg.		40/kg.	20/10 little
MEAT					
	80/kg.	100/kg.	exchanged with rice and millet	100/kg.	
Beef					100/kg.
Camel					
Game					
Goat		150/pile			120-130/kg.
Mutton		150/pile			120-130/kg.
"Titchtar" (dried meat)					
Other					

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	WOMPOU	WALI	BOLO DOGO	TOULEL	TAGAH
POULTRY					
Chicken					100-150 piece
Eggs					
MILK					
Fresh milk			exchanged with rice and millet		
Powdered milk		100/kg.			
Sour milk					
Canned milk		100/tin			
Other					
OIL & FATS					
Animal fat					
Ghee					
Oil					
Peanut oil					
Other					
FRUITS					
Bananas					
Dates					
Melons					
Pain de signe					
Other					
VEGETABLES					
Beets					
Cabbage					
Carrots					
Eggplant					
Greens, introduced					
Greens, local					
"Hacco" (cowpea leaves)					
"Laalo" (baobab leaves)		5/pile			
Lettuce				5/piece	
Okra					
Onion					
Squash					
Sweet peppers					
Tomato		10/pile			
Turnips					
Waterlilly seeds & bulbs					
Other					
Pepper					

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

WOMPOU WALI BOLO DOGO TOULEL TAGAH

OTHER

Maggi cubes
Sugar
Tea
Coffee

Soap

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	TETIANE	BOVEL	FONDOU	M'BAGNE	M'BOTO
CEREALS					
Bread (Wheat)				5-10/ piece	
Maize					
Milled Rice	40/kg.				35/kg.
Millet (grain)				20/kg.	80/4 kg.
Millet (flour)					April 50 Wet season 70
Semolina					
Sorghum (grain)				20/kg.	
Sorghum (flour)					
Wheat (flour)					
Other					
ROOT STAPLES					
Potatoes					
Sweet Potatoes				10/pile	
Other					
PULSES					
Cowpeas				10/pile 100/kg.	
Peanuts					
Watermelon seeds					
Other					
FISH					
Canned fish					
Dried fish				10/pile	70/kg.
Fresh fish				80/kg.	
MEAT					
Beef				100/kg.	
Camel					
Game					
Goat					
Mutton					
"Titchtar" (dried meat)					
Other					

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

TETIANE BOVEL FONDOU M' BAGNE M' BOTO

POULTRY

Chicken				100-150/ piece	
Eggs				10/piece	

MILK

Fresh milk					
Powdered milk	100/kg.				
Sour milk				10/glass	
Canned milk	120/kg.			85/box	
Other					

OIL & FATS

Animal fat					
Ghee					
Oil					100/liter
Peanut oil					
Other					

FRUITS

Bananas
Dates
Jujube
Melons
Pain de signe
Other

VEGETABLES

Beets					
Cabbage					
Carrots				10/piece	
Eggplant					
Greens, introduced					
Greens, local					
"Hacco" (cowpea leaves)				5/pile	
"Laalo" (baobab leaves)				10/pile	
Lettuce					
Okra				5/pile	
Onion					5-10/piece
Squash					
Sweet peppers					
Tomato				10/pile	150/kg.
Turnips					
Waterlilly seeds & bulbs					
Other					
Pepper					5/spoon

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	TETIANE	BOVEL	FONDOU	M'BAGNE	M'BOTO
OTHER					
Maggi cubes					5
Sugar					
Tea					
Coffee					280/big tin
					75/little tin
Soap					40

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	SORI MALE	DOJOVOL	TALHAYA	LEKSEIBA
CEREALS				
Bread (Wheat)	5-10/piece			
Maize	20/3 heads		40/kg.	20/kg.
Milled Rice		30/kg.	35/kg.	33/kg.
Millet (grain)	20/kg.		100/4 kg.	80/4 kg.
Millet (flour)				
Semolina				
Sorghum (grain)	20/kg.	25/kg.	80/4 kg.	20/kg.
Sorghum (flour)				
Wheat (flour)				
Other		paddy 15/kg.		
ROOT STAPLES				
Potatoes				
Sweet Potatoes	10/pile			
Other				
PULSES				
Cowpeas	10/.5 kg.			
Peanuts	60 kg.			
Watermelon seeds	10/.5 kg.			
Other				
FISH				
Canned fish				
Dried fish	10-20/pile	20/little fish	80/kg.	
Fresh fish	20-40/pile	15/little fish	30/kg.	80/kg.
MEAT				
Beef			120/kg.	90/kg.
Camel				
Game				
Goat				
Mutton				
"Titchtar" (dried meat)				
Other				

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	SORI MALE	DOJOVOL	TALHAYA	LEKSEIBA
POULTRY				
Chicken				
Eggs				
MILK				
Fresh milk				
Powdered milk				
Sour milk		1/.5 glass		
Canned milk				
Other				
OIL & FATS				
Animal fat				
Ghee				
Oil				
Peanut oil				
Other				
FRUITS				
Bananas	Exchange with Senegal			
Dates				
Melons				
Pain de signe				
Other				
VEGETABLES				
Beets				
Cabbage				
Carrots	5/pile			10/handfull
Eggplant		5/piece		
Greens, introduced				
Greens, local				
"Hacco" (cowpea leaves)				
"Laalo" (baobab leaves)	5/pile			
Lettuce				
Okra	5/pile	2/5 pieces		
Onion		green:2		
Squash	.5/kg.	1/piece		
Tomatoes	exchanged with .5/kg. Millet			
Sweet peppers				
Tomato		2/30 little		
Turnips	10/pile	2/3 big		

FOOD PRICES BY VILLAGE
ALL PRICES IN UM

	SORI MALE	DOJOVOL	TALHAYA	LEKSEIBA
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Waterlilly seeds &
bulbs

Other

Melon

Cowpeas-beans

Pepper

5/slice

2/5 pieces

OTHER

Maggi cubes

Tea

Sugar

Tea

Coffee

Soap

Salt

170/pain

30/teaglass

1/spoon