

**OPPORTUNITIES FOR PRIVATE SECTOR INITIATIVES IN
LIVESTOCK-MEAT PRODUCTION, PROCESSING AND MARKETING IN THE GAMBIA**

by

Raul Hinojosa
Livestock Production Specialist

and

Gregory M. Sullivan
Livestock Marketing Specialist

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1. MARKET OVERVIEW AND DEMAND ANALYSIS

The markets for Gambian livestock and meat products are divided into two broad categories: domestic and export markets. The domestic market has its impetus in the Greater Banjul Area where population and income become the major factors affecting demand. It will be this market in the short term and the export market in the long term that will be the driving force behind the commercialization of the livestock sub-sector and the offer the greatest opportunities for private sector development. The domestic and export markets are evaluated as to their level of activity, opportunities for entry, and profitability.

THE GAMBIAN MARKET FOR MEAT, MILK AND HIDES

Human population continues to outpace the growth in the national cattle herd which is believed to have stabilized around 300,000 head. The national herd is constrained by limited land resources and the rise in alternative high value agricultural opportunities. For this reason the national livestock herd needs to be recognized as an asset in the supply of animal protein for the local population, as import substitution for meat imports and finally the long term development of niche markets for livestock and their by-products.

The Greater Banjul Market

Banjul and its environs constitute the major magnetic pull for livestock from the production zone in the eastern part of the country to the coastal market. According to 1993 Population Census, the Greater Banjul Market has 350,618 people which represents 34 percent of The Gambian population.

Consumption of meat products in this major market is estimated from the 1992/93 Household Economic Survey (table one).

Table One. Consumption of Meat Items by Kilogram per Year

	Banjul	KSM	Western District
	(kg)		
Beef	10	7	4
Mutton/Goat	1	1	1
Chicken & Other	3	2	1

The total annual consumption for the Greater Banjul Area is estimated at 2,343 MT of beef, 350 MT of mutton and goat meat, and 664 MT of chicken and other poultry per year.

This level of consumption becomes the force behind the marketing and distribution system for both domestic and imported meat products. The major end-points for the delivery of products can be classified into the following: butchers at local open-air markets, butcher shops, supermarkets, and the hotel and restaurant (meat roasters) industry. These market outlets have different clientele groups, but they each hold importance for the improved commercialization of the livestock industry by the private sector.

Butchers in the Local Market. The butchers sell the major quantity of beef, sheep and goat meat in the Greater Banjul Area. The meat is for a "hot meat trade". Only the higher value cuts are sold at a premium price compared to the rest of the carcass. Meat is sold by weight and is generally a mixture of meat with bones and some offal. The amount of offal is highly variable per kilo. The middle meats will be sold as steak as well as part of the hindquarter.

There are no perceivable barriers to entry by private sector investors in this channel of the market. Prices are competitive with many individual butchers competing having their own network of stall sellers. Butchers pay an annual fee of D 500 for a license and then each day they pay D 5 for rental of a market stall. Fees seem reasonable. A limiting factor which may affect entry of butchers is the amount of capital to purchase livestock for slaughter and sale.

Butcher Shops. There are several types of individual butcher shops that have opened in the last year to cater to different segments of the population. The distinguishing factor among these shops is the amount of investment in refrigeration and shop design. All fresh meat comes from the abattoir at Abuko.

The opportunity for increasing the number of small private butcher shops will be limited to the middle and high income areas of the Greater Banjul Area. Several excellent examples of meat shops of this nature were visited. Opportunities will exist for these shops where service and quality are given high priority. High income consumers are less price conscious than the buyers in the local markets.

Supermarkets. Several visits were made to supermarkets which sell a wide assortment of canned goods and meat products. Supermarkets are common in the Greater Banjul Area. These establishments are a major user of imported meat products, especially frozen and canned products. Supermarkets are also a major supplier of products to hotel industry. Entry of new supermarkets affecting the Gambian livestock industry seems minimal since products do not fit the Gambian meat trade. Some selected opportunities do exist, example, Paul Marouns, where a significant meat trade is conducted and meat processing is being considered as an additional product line.

Gambian sheep and goat meat are not commodities that currently have a market opportunity in the supermarket trade. Goat meat is served mainly through other channels, and the Gambian mutton is not a quality product for the supermarket trade as it currently is produced.

Hotels. The hotel trade is an important one for Gambian beef. There is less opportunities for sheep and goat meat except on specialized basis. The hotel trade is primarily focused on tourist, mainly from Europe, who have certain preferences for meat.

In interviews with chefs and food managers, hotels have shifted to a greater amount of Gambian meat but imports still constitute a primary source of their products. A major constraint is the inability of butchers to supply set quantities and qualities through out the year. Food managers reported that local butchers are interested in selling volume and place less emphasis on quality. During the dry season, hotels may have to advance funds to butchers to purchase animals and have them slaughtered. Butchers require training in processing techniques and handling procedures to better service the hotel business.

Table. Estimated Imports of Meat for Selected Hotels

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Hotel 1. capacity 315 rooms, 630 people capacity

chicken 4000 kg
 beef 250 kg
 pork 250 kg
 lamb 250 kg

Item	CIF Price	Source
beef tenderloin	D 134/kg CIF	South America
beef entrecote	D 112/kg CIF	"
beef rump	D 44/kg CIF	"
lamb chop b/i	D 37/kg CIF	
lamb leg b/i	D 45/kg CIF	
Chicken breast	D 61/kg CIF	Germany
Chicken - Whole O.V.	D 20/kg CIF	"
Pork Fillet	D 60/kg CIF	"
Pork Spare ribs	D 19/kg CIF	"
Ham (whole)	D 32/kg CIF	"
Whole ham	D 143/kg CIF	"
Local Beef - entrecote	D 65/kg	Gambia
beef fillet	D 95/kg	Gambia
whole beef carcass	D 24/kg	Gambia

Location of importing agent: Sangar, Germany; Kopje, Holland; and Gebr. Schoemaker, Germany.

Table -- (cont.)

Hotel 2

beef fillet 600 kg per year at D 170/kg (air catering)

beef strip loin - 1,200 kg per year at D 80/kg

beef rump - 600 kg per year at D 60 per kg

beef flank - 8,000 kg per year at D 10/kg

poultry - 3 containers of 36,000 kg at D 22/kg

bacon - 2 MT per year at D 60/kg

ham - 3 MT per year

lamb legs - 2,000 kg per year at D 50/kg

lamb chops - 2,000 kg per year at D 75/kg

lamb racks - 120 kg/yr at D 110/kg

local beef - fillets at D 60/kg

local beef - hindquarters at D 31/kg

local suckling pig - D 14/kg

Food manager orders most of the meat from U.K. exporters.

Hotel 3.

Hotel 4

It is estimated that approximately 300,000 kilos of selected cuts are imported yearly. This represents an equivalent of 2400 head of live animals. Therefore, the opportunity to capture a share of this market exists and business establishments have expressed an interest in buying locally produced, fattened, quality meats. The major obstacle in this regard is whether the finished carcass (not yet processed into cuts) can be produced for no more than the present selling price of 25 Dalasis per kilo for the entire carcass.

There are private butchers and meat shops that are trying to penetrate the hotel market especially for poultry and the high quality middle meats. The difficulty is in the toughness of the Gambian meat and the ability to maintain a regular supply of products, especially in the dry season. Domestic beef is purchased by some hotels for staff consumption on the premises. (One hotel imports very inexpensive boxed frozen meat (D 10/kg) as it is easier to distribute and less wastage.)

A major limiting factor for increased marketings is the shortage of cold storage capacity at the hotels. The opportunity for a private firm to provide cold storage for meat products and other produce is possible. Hotels would be able to order carcass meat that has been properly hung in cold storage to improve the tenderness of the meat.

According to personal interviews and observations, the number of of tourists is increasing as more promotion is directed at to support the industry in The Gambia. The outlook is good.

Restaurants. Restaurants for the general population require meat through the traditional system of local butchers or butcher shops. The upscale restaurants are certainly an outlet for higher quality Gambian meat.

A popular way to merchandise mutton and goat meat is through meat grillers who purchase their meat in the afternoon from butchers and grill their meat for sale in mobile cookers and at kiosks.

The opportunity for private sector initiatives for restaurants is probalby good if the population of the Greater Banjul Area continues to grow.

Outlook for Beef, Mutton and Goat Meat. The Greater Banjul Area will continue to be the major driving force in attracting private sector investors interested in the meat marketing. Up-country urban areas have not developed the level of sophistication in meat retailing and merchandising that is seen in the Banjul market.

Price competition will be keen between the red meats and poultry and fish as consumers look for variety in their diet and price savings. The domestic poultry industry has seen new entries by private sector individuals who are producing meat and eggs.

Table --. Price Relationships between Selected Food Items for the Period of 1989 to 1993 *

	1989	1990	1991	1992	1993
Beef	10.00	11.04	10.73	11.70	13.84
Mutton	15.00	16.83	17.94	19.20	26.88
Pork	4.00	7.21	7.50	9.17	8.75
Fowl	26.02	26.24	26.61	27.63	28.77
Ladyfish	5.54	8.17	8.74	11.97	14.11

Source: Consumer Price Index for the Low Income Population in Banjul and Kombo St. Mary, selected years.

* All prices listed are for 500 gram portions except poultry which is for 1000 grams.

The rate of increase in poultry prices have been flat indicating that on a per kilo basis, cost efficiencies have been evident while beef, mutton and fish have

Table --. Selected Meat Prices for Fresh Meat at Supermarkets in the Greater Banjul Area, February, 1994.

Site and Item	Dalaise/kg
Site One	
Minced beef	50
Local Entrecote	65
local fillet	85
Site Two	
fillet with head	60
fillet without head	70
rump with bone	35

Throughout West Africa, mutton and goat meat generally sells for a higher price than beef. This is because of the small size of the carcass and the availability and preference for these meats. (see table --).

The general price index for meat, poultry, egg and fish are listed in Table --. The importance is that with inflation real per capita food expenditure is declining placing pressure on the demand for meat products may be evident in the future.

Table --. Index of Meat, Poultry, Egg and Fish for the Calendar Years of 1989 to 1993 (base year 1974 = 100)

Year	1989	1990	1991	1992	1993
Index	1597.5	1866.5	1949.6	2212.0	2465.2

Import Statistics for Meat.

The following meat import data was supplied by the Central Bureau of Statistics (Table). The total amount of meat imports was 1,325 MT for the period of 1992/93 of which 481 MT was fresh, chilled or frozen meat. The total value of imports was D 13,300,000. The value of fresh, chilled and frozen was D 5.3 million or 40 percent of the total value of imports with an average price per kilo of D 11.12/kg.

Table --. Quantity and Value of Meat Imports

Product Category	Quantity	Value	D/KG
Meat: fresh, chilled frozen	481,254	5,351,000	11.12
Bacon and Ham	24,780	380,000	15.49
Salted and smoked pig meat	97,485	656,000	6.72
Other Meat, dried, salted or smoked	74,548	523,000	7.02
Meat: extracts and meat juice	1,828	28,000	15.32
Sausages whether or not in airtight containers	26,295	207,000	7.89
Canned meat in airtight containers	553,436	5,679,000	10.26
Other meat and meat prep. whether or not in airtight containers	65,580	459,000	6.99
Total	1,325,206	13,287,000	

Import Prices versus domestic price relationships

Site visits were made to supermarkets, private butcher shops and local markets to collect prices for meat and other competitive products (Tables --, --, --). The price margins among meat products are large reflecting the variability in income areas and imported versus domestic products.

Table --. Supermarket prices at Selected Establishments for Imported Items in the Greater Banjul Area, February, 1994.

	Dalaise	U.K. Pound
Frozen Chicken Whole (1400 grams)	38.00	
Frozen Chicken Whole 1.1 kg (France)	33.00	
Frozen Chicken Whole 1.2 kg (France)	35.00	
Frozen Chicken Whole 1.3 kg (France)	37.00	
Pork (chopped) (300 gr.)	22.50	
Corn beef 15.5 oz.	19.00	
Corn beef 240 gr. (France)	26.50	
Corn beef 340 gr. (Argentina)	29.00	
Corn beef 340 gr. (Swiss)	28.50	
Corn beef 340 gr. Halal slaughter	32.50	
Oven ready Turkey (kg)	42.00	
Oven Ready Duckling (kg)	49.00	
English Beef (kg)	65.00	
Smoked Sliced Bacon	70.00	
Chicken 1.1 kg.	33.00	
Chicken 1.3 kg.	37.00	
Blondy ham	260.00	
Ham	145.00	
Garlic salami	253.00	
pepper salami	255.00	
cheese salami	255.00	
parma ham	370.00	
Beef mortdella	140.00	
Smoked bacon	110.00	
Strip Loin		1.60
Tenderloin		4.60
New Zealand Lamb		1.90

Table --. Meat Prices in Local Markets in The Gambia, February, 1994.

Location	Meat Item	Price (D/kg)
Brikamaba	Meat with bones	17
Banjul Area	Meat with bones	24
Banjul Area	Steak w/o bones	30

Comparison of prices between the local open markets and two butcher shops indicated the margins from meat processing and provision of quality in hygiene and improved cutting of meat (Tables -- and --).

Table --. Meat Prices at Private Butcher Shops in the Serekunda/St. Mary's Areas

Product	Price Dalais per kg
<u>Shop No. 1</u>	
T-bone	70
fore ribs	60- 65
topside/silver side	55
round	55
rump	60
thick flank	60
ground (reg)	50
ground (lean)	55
Pork	40 - 42.50
sausage (50/50)	65
leg	15
liver	15
Mutton leg	40
ribs	40
Goat leg	40
ribs	40
<u>Shop No. 2</u>	
fillet w/ head	55
fillet w/o head	45
mince	40
round steak	35
liver/kidney	35
mutton leg	40
ribs	40
Goat leg	40
ribs	40

Domestic and Import Supplies of Livestock and Meat

The estimated current cattle inventory is approximately 320,000 head. According to recent studies, the herd offtake of cattle is around 7.9 percent with approximately 14,000 head of cattle being sold. A large portion of these animals would be for the Greater Banjul Area. The offtake rate of small ruminants is much higher at 23.6 percent with approximately 7,500 sheep and 13,179 goats marketed (Livestock Sector Study, UNDP).

The offtake rate is unlikely to change noticeably in the near term unless weather conditions or a major outbreak of disease cause a major sell off of animals.

The close proximity to Senegal and the major livestock countries presents some problems in estimating supply of live animals for the Greater Banjul Market. Large frame Senegalese (Zebu) cattle and sheep are present in the Abuko market. The border separating the two countries is very fluid with livestock movement between countries affected by the time of the year. The Cassamance was mentioned as a place where Gambian cattle are moved during the dry season.

EXPORT MARKETS FOR LIVESTOCK, MEAT AND BY-PRODUCTS

The export potential of Gambian livestock, meat and their by-products have not been exploited. Opportunities will exist in the future as other constraints are removed and private sector companies are able to get on a firm footing.

Live Animal Exports

The previous organization, Livestock Marketing Board LMB, exported prime breeding stock to Gabon. Unfortunately, this transaction depleted an important genetic pool of N'dhama breed. Opportunities will exist in the future but for the present the genetic pool will have to be replenished. In the future, an asset such as the one exported should not be allowed to happen again. Selected West African markets hold the greatest potential for the shipment of breeding livestock.

Hides and Skins

Market opportunities exist for the export of hides and skins. Currently, the world price for cattle hides are USD ---- per piece which represents a potential revenue of USD ----. In a recent contract with Greece, unprocessed hides were sold for D 20/piece. The loss in revenue from not processing properly is great for the national economy of The Gambia. GAMTAN, the parastatal involved in tanning, was part of the LMB. It has been split off from LMB and now is 40 percent private ownership and 60 percent government.

Private sector initiatives are needed for upgrading the tanning of hides. At a slaughter slab in Basse, very crude methods of preservation were being used. With an improved collection and processing system, opportunities exist for capturing the value of this important resource.

Meat Exports

Export markets for Gambian livestock and meat are likely to be regional because there are fewer barriers from health and hygiene standards compared to the EC. Two primary regions are considered. The penetration of these regional markets will require major structural and facility changes in the marketing and processing of livestock. (See Chapter II.)

West Africa. Key Western African markets for Gambian meat are the coastal countries. These markets have been disrupted until very recently from the overvaluation of the CFA making imports cheap with respect to domestic production and the subsidization of European meat (Agri Link). Both of these factors are now being minimized and bode good news for countries with surplus livestock.

Table --. Imports of Fresh Beef, Sheepmeat and Canned Meats in Selected West African States, 1992.

Country	Fresh Beef		Sheepmeat		Canned Meat	
	MT	\$('000)	MT	\$('000)	MT	\$('000)
Benin	5,800	7,300	-	--	250	660
Cape Verde	40	250	4	--	880	2,230
Cote d'Ivoire	12,971	13,000	150	450	1,066	3,780
Gambia	300	380	-	--	390	1,170
Ghana	22,000	26,200	100	400	650	1,750
Guinea	1,400	1,600	--	--	630	1,400
Guinea Bissau	--	--	--	--	520	1,380
Liberia	2,300	2,300	10	60	535	1,210
Mauritania	210	630	-	--	1	6,000
Nigeria	10	35	-	--	400	1,300
Senegal	900	1,000	30	200	221	820
Sierre Leone	50	50	-	--	369	970
Togo	460	700	-	--	280	960
Total						

Source: FAO Trade Statistics, 1992.

The countries with major imports of fresh beef are Benin, Cote d'Ivoire, Ghana, and Liberia. All of these countries except Liberia are in the Central Corridor of West Africa trade route from Burkino Faso and Mali to these coastal countries. These surplus livestock countries of The Sahel will pose stiff competition within

the coastal states of West Africa. The Gambia will have to look for specialized market niches rather than the generic trade of live animals for slaughter from The Sahel. The opportunity for frozen or air flown chilled meat from The Gambia would be a long term marketing strategy not currently appropriate until facilities at the Abuko abattoir are up-graded.

Sheepmeat imports are not major meat item in the target countries. Canned meat is an important commodity in all the countries.

North Africa. Selected countries in North Africa are possible markets for Gambian meat. It will require further investigations once the impediments in the processing and distribution stages are resolved. Countries of potential interest are: Morocco, Tunisia, Libya and Algeria. Available modes of transportation may be a limiting factor as well as the cost. Ocean freight would be the least expensive.

Table --. Production, Slaughter, and Imports of Livestock and Meat Products in Selected North African States, 1992.

Country	Fresh Beef		Sheepmeat		Canned Meat	
	MT	\$('000)	MT	\$('000)	MT	\$('000)
Algeria	19,000	24,000	--	--	--	---
Libya	2,400	5,400	30	120	30	180
Morocco	4,821	6,716	2,217	2,996	115	428
Tunisia	12,968	21,707	475	1,038	4	51
Total						

Source: FAO Trade Statistics, 1992.

European Economic Community

The European Economic Community (EEC) represents a major regional market for beef and lamb products. The EEC has effectively instituted a set of non-tariff trade barriers which will virtually make it impossible for The Gambia to access this market. For example, only three beef slaughter plants in the United States have been able to obtain EC approval for slaughter and shipment to the EC. The EC standards are based on having a large meat slaughter facilities which does not encourage mass production. Procedural requirements such as separation of clean and dirty areas, floor to wall requirements and other structural requirements preclude many existing plants from compliance. The abattoir at Abuko would certainly not begin to meet EC standards.

Besides the structural approval, the EC must approve a country before a plant can be approved. A line authority must be evident from the national level down to the plant which is in place. The current administration does not clearly reveal this line of authority. Testing of meat products for residues and compounds must be conducted on a scheduled basis with testing set based on a percent of animals slaughtered.

Finally, the EC is deficit in high quality beef. It is a net exporter in low grade beef with a large amount of manufacture grade beef primarily from the dairy herd. The positive aspects about the EC meat situation, is that intervention stocks are very low with large amounts of exports to the Former Soviet Union and Eastern Europe. With the impending implementation of GATT, the terms of trade for EC beef will shift in favor of West African countries for supply to deficit coastal countries. GATT will reduce the level of subsidies and production by the year 2000. (Personal Communications, Mark Gustafason, U.S. Meat Export Federation).

STRATEGIC MARKET INTERVENTIONS

Intervention at the retail levels for the merchandising of meat and livestock products focuses on market development for Gambian products. With the prospects for increased population growth in The Greater Banjul Area and the need for animal protein, it will be necessary to ensure quality and affordable meat for the different segments of the population.

Private Butchers

The delivery mechanism for the vast majority of the population is through butchers to local open markets. This system has been established over a long period and is cost efficient in getting meat products to the end-user. This segment is occupied by private meat butchers who work on a fine margin with a network of sellers. Competition is keen among sellers.

There is an expanding niche for specialized private butchers to serve a clientele who have special needs and will pay for these services. It is this segment that can benefit from investment loans that would enhance the distribution and retailing of meat. These entrepreneurs need assistance in retailing, merchandising and marketing skills of meat products. This group of butchers could be encouraged to expand into greater degrees of wholesaling of meat for domestic and export markets. In particular, meat cutting and handling would improve the overall quality of the product, especially to the hotel trade.

Export of Hides and Skins

With approximately 40,000 hides and over 70,000 skins, the opportunity for value-added processing of an important by-product is evident. The value at the current production level is D 2 million. The closure of GAMTAN affords the opportunity for small-

scale businessmen to enter the market. A market research and feasibility study of regional and world markets would be useful to prospective companies or individuals interested in entering the market. (See Chapter II).

Export Marketing Strategies

Private sector assistance is required for developing the capability of Gambians to undertake export promotion and marketing of livestock, meat and their by-products. Development of markets for livestock for breeding purposes has been tried in the past and should be reinstated by commercial livestock operations.

Efforts are needed to gather and disseminate information on key West African markets. This would inform private individuals and companies where opportunities exist for export. The Gambian consulate in target countries could be instrumental in facilitating opening markets for livestock and meat products.

II. SLAUGHTER AND MANUFACTURING OF LIVESTOCK AND MEAT PRODUCTS

QUALITY AND CHARACTERISTICS OF RED MEAT PRODUCTS

To accurately understand the prospects for market opportunities for red meat, it is important to know the characteristics of The Gambian meat. The production conditions for the indigenous breeds of cattle, N'Dama, place the animal under annual stress due to the long dry season and the requirement to move animals to and from water and grazing. Consequently, cattle have lower birth and weaning weights, lower reproduction rates and higher retention levels in the herd. The carcass yields are low compared to temperate climate ruminants and the meat is less tender because of the management and the age at slaughter.

Any effort to improve the tenderness of the carcass will require increasing the growth rate of the animal to reach its genetic potential at a much younger age. This can only be done through improved management and care for the animal and the need for additional feed inputs.

In an effort to gain first hand information on the carcass yields, eight head of cattle were weighed before slaughter, slaughtered and then the carcass was weighed. The data is provided in Table --. The yields on these carcasses are on a hot weight basis and all except one were cross-bred or zebu cattle.

Table --. Carcass Characteristics for a Group of Cattle Slaughtered at Abuko, February, 1994.

Animal Number	Breed	Live Wt.	Carcass Weight	Foreqtr.	Hindqtr.	Yield
		(KG.)			%	
# 1	zebu bull	460	241.0	118.50	122.50	52.4
#2	zebu bull	490	260.5	129.50	131.0	53.3
#3	zebu bull	495	251.00	113.50	137.50	50.7
#4	zebu steer	550	273.50	120.00	153.50	49.7
#5	N'dama steer	500	250.5	112.00	138.50	50.0
#6	zebu bull	550	283.50	145.50	138.00	51.5
#7	zebu bull	515	239.00	117.00	122.00	48.3
#8	zebu bull	445	222.50	114.00	108.5	50.0
AVERAGE						

Field data from the Abuko abattoir, February, 1994.

SLAUGHTER AND PROCESSING INDUSTRIES

The slaughter and processing industry in the marketing system is where value is added through the disassembly of the live animal into a variety of products. This is also where values obtain in production of the animal can also be lost. The livestock are slaughtered for consumption at the Abuko abattoir or at local slaughter slabs. These facilities are basic with few facilities to serve a hot meat trade.

According to data provided by Drammin, the number of butchers using the slaughter facilities are listed in Table --. In separate interviews with the Gambian Butchers Association, they placed the number of butchers at 100 in the area. Compared to meat operations in other countries, valuable by-products are lost in the processing facility. These by-products are what provides the profit margins for a meat plant with killing and selling of the meat near break-even points.

Table --. The Number of Butchers and Animals Slaughtered in The Gambia, 1992.

Location	Butchers	No. of hides	No. of Skins	Value	
				Hides	Skins
National	404	37,795	70,723	967,425	375,058
Kombo St. Mary's Div.	65	10,950	9,125	273,750	5,470

Source: Drammeh.

Urban Slaughter Facilities - Abuko, Basse and Sololo

Abuko. The slaughter building at Abuko was built by a grant from the United Kingdom sometime in the 1970s. The plant is of typical construction with overhead rails and holding rooms for the hot carcass meat. The plant and equipment have been fully depreciated and needs major refurbishing.

The storage capacity of the hot carcass room is for 70 cattle and a combination of sheep and goats. Slaughter figures for the month of January are presented in Table --. Average daily slaughter is currently 40 cattle, 7 sheep and 27 goats.

Table --. Slaughter Numbers for Abuko Slaughter Facility, January 1994.

Animals	Classification	Head Slaughtered
Cattle		
	Butchers	1,133
	Private	42
	YAMS	68
	Total	1,243
	Average Daily Kill	39
Sheep		
	Butchers	204
	Private	8
	Total	212
	Average Daily Kill	7
Goats		
	Butchers	871
	Private	4
	Total	875
	Average Daily Kill	27

The plant operates on a schedule of night slaughter with dispersement of carcass in the early morning. Sheep and goats are slaughtered in the late afternoon for supply to small meat grillers who sell cooked meat on the street.

Estimated operating costs for the slaughter facility is D 300 per night shift for thirteen laborers. Other costs were not determined. Based on an average of 39 head of cattle and 34 head of small ruminants per night, the daily revenue is estimated at D 3,385. Net cash revenue after payment of labor is approximately D 3,000 per night. This does not include energy, water, management, interest on capital.

The plant has two cold rooms for chilling or freezing of meat. The room are for the hanging of quarters. Size of the two room are 480 cu.m. for the chill room and 360 cu.m. for the cold room. The chill room has a temperature of 0 degrees c. and the cold room to -30 degrees C. The refrigeration units are currently not operational and will require a major investment to replace the freezing equipment. This will have to be done if regional exports are to happen. The estimated slaughter rate for cattle is 10 minutes per head. This rate will need to improve if more cattle are to be processed through the plant.

The conditions currently in the plant are not satisfactory and require an investment by the new owners, YAMS, to bring the plant into compliance with local sanitation and environmental health standards. There is no hot water available for cleaning during and after the slaughter process. Effluent from the plant, which should be captured and processed, are allowed to be discharged and flow off the site. Valuable by-products such as blood and inedible products are not processed. Racks for air drying of hides is near the plant yet these hides could be further processed into a more valuable state than they currently are.

It is believed that with the privatization of the plant in the late 1993 that YAMS will make improvements in the facility. The cost for minimal improvements is likely be in the range of USD 150,000 to USD 250,000. Improvements will be needed in waste management, equipment, water, lighting and flooring in the facility, and overhaul of the refrigeration system. Processing of blood and other by-products needs to be encouraged. For example a splitting saw for dividing the carcass is need to reduce meat damage and the presence of chips in the meat. Better processing of the offal would also be encouraged.

The present techniques used to kill and dress the carcass are not appropriate for ensuring quality and tenderness. For example, the current killing process allows for too much stress which does not enhance the quality of the meat. Evidence of axe cuts on the carcass to allow for better handling can be replaced with hand hooks. Simple training techniques for slaughterhouse staff will improve the safety, increase throughput and enhance the overall quality of the finished product.

Basse and Sololo Slaughter Slabs. Site visits were made to up-country slaughter slabs to assess the condition of these facilities. The Basse slaughter slab is old and the roof has begun to fall down. A new slaughter facility is under construction with assistance from the European Development Fund (EDF) through the Village Incentive Support Activity. The average daily slaughter at the Basse slab is 10 head of cattle and some number of sheep and goats. These hides

For the slaughter slab at Sololo the location of the slab adjacent to the river presents serious environmental and health risks for the community. The river is used for bathing and clothes washing down stream from the discharge of animal wastes. A new site is necessary which should be away from human activities and the river.

At both slaughter slabs animal parts were strewn around the site. These products, blood, offal and animal waste, could be collected and processed for utilization. The preparation of hides and skins is not in good order and there is lost value in the processing system.

Hides and Skins Processing - GAMTAN

With the closure of the GAMTAN facility near Abuko, the processing of hides and skins has reverted back to very basic processing standards. Hides that were inspected were in poor quality with knife scars from improper skinning. Hides are removed with a knife unlike larger plants that have hide pullers. The grade of the piece declines during this important stage of hide removal.

Hides and skins were seen strewn around the Abuko and up-country slabs. Hides are air dried by stretching on a rack or laid on the ground. Pieces will have to be rewetted before further processing. Hides are purchased from butchers for D 25 per piece and sheep skins are D 12.

During the period of LMB, pieces were exported in the "wet blue" stage for further processing overseas. A frequent market was Greece. The processing cost for the wet blue product is D 46 per piece (Table --).

Table --. Costs and Returns for Hide Processing to Wet Blue Stage

Item	Dalaises
Up-country price of hide	D 15
Chemical Process	D 24
Labor, utilities, etc.	D 7
	=====
Cost to Wet Blue Stage	D 46
Revenue for export of piece	D 175
	=====
Gross Profits	D 129

Source: Personal communications with Mamodou K.B. Drammeh, Banjul

Based on information in Tables -- and --, the potential gross profits would be in the range of D 4 to 5 million. What is not currently available is an efficient collection method for hides and skins.

The Role of the Veterinary Service in Promoting Meat Standards and Hygiene at Slaughter Facilities

The Department of Livestock Services (DLS) plays an important role in insuring food safety in the meat industry. Meat grades and standards as well as health and hygiene are dual roles for the veterinary service. As standards are improved consumers will have greater confidence in the quality of Gambian meat products and Gambian meat will be able to better compete with imported meat products.

Food safety and inspection have become a cost that needs to be partly shared by the private sector and consumers. User fees and inspection charges are important in supporting food safety. Slaughter and meat inspection fees need to be instituted to offset some of the cost incurred by the Division of Livestock Services.

Value-added processing activities e.g. sausage making patties, cubed meat, packaging and equipment

The nature of the livestock production system is that the majority of animals being slaughtered are older animals which have been trekked long distances. These conditions result in the meat being dense, with little subcutaneous and surface fat. Generally the prime cuts will not be as tender as younger animals that have been through a fattening scheme. The size of the prime middle meats will not be up to hotel standards.

The composition of the carcass is such that the forequarter cuts are not suitable for the upscale hotel or restaurant trade. Typically this is the portion of the carcass that is best for further processing (hamburger, smoking meats and canning). In any improved system where value is added to the animal, this portion of the carcass normally is sold for less than the hindquarter cuts.

Meat processing is an excellent method for disposing of the forequarter cuts. The meat processing industry is in its infancy with little effort made to convert beef into a variety of sausages, frankfurters, patties, or cubed meats. The U.S. beef industry has been successful in taking lower valued cuts and merchandising them, e.g. fajitas and briskets, etc.

In discussions with a private individual interested in starting a meat processing facility, he estimated that about USD 300,000 would be needed to construct a new facility and purchase the required equipment.

STRATEGIC INTERVENTIONS IN THE SLAUGHTER AND PROCESSING INDUSTRIES

Upgrade the Abuko Facility

It is recommended that a protocol be established for the Abuko slaughter facility that sets standard operating procedures for killing of animals and cleaning of carcasses and offal at the Abuko facility. Waste management procedures need to also be addressed. The Division of Livestock Services in conjunction with the private owner of the facility (YAMS) agree to a time table to bring the plant into compliance with minimum health and hygiene standards for The Gambia as well as other West African markets. In conjunction with the design of the protocol and time table for implementation, low interest loans with attractive investment credits and duty free imports of equipment be granted to the company as it complies with procedures and meets prescribed improvements in the plant.

Meat Processing Facility for Value-added Products

The importance of value-added meat processing cannot be stressed enough. The types of carcasses that are provided require the manufacture of meats that can be used in sausages, frankfurters, patties and other specialty items. This would apply to both mutton and goat meats. It is recommended that a feasibility study be conducted for a small-scale meat processing business. The business could undertake both the cooking and smoking of meat products, including pork and bacon. Market testing of products could be done in conjunction with local meat technologists so that proper spices and seasoning are applied to the local and hotel markets. The business would utilize only Gambian raw materials except casings and spices. It is possible that as the business grows and the Abuko plant implements hygiene standards then local casings could be used. The estimated capital costs would be USD 200,000 to USD 300,000. Equipment needed are a cutter, mulsifier, grinder, mincer, stuffer, injectors and a smoke house. The facility would have a cold room for cutting and processing meat and a freezer for storage of finished meat products.

Cold Storage Facilities

A constraint in marketing meat to the hotel, restaurant and upscale markets is the ability to store carcasses for periods of time to allow tenderization of the carcass to occur. Without this rigormortis sets in making the meat tougher than it already is. A private cold storage facility could serve an important function in preparing carcasses and provided for a particular market niche. At some future period when export markets are to be exploited then this facility would be in a position to provide an important service. Estimated capital cost of this facility is USD 100,000.

Hides and Skins Processing

The private sector needs to be encouraged to enter into the processing of hides and skins for domestic and export markets. With prospects of good returns a feasibility study is recommended to outline the market opportunities. Small-scale processing facilities can be built to afford collection and processing of hides and skins for domestic and export markets. The capital cost of an appropriately design and managed tannery would cost in the range of USD 100,000 and a loan not exceeding 10 percent with a payback period of ten to fifteen years is recommended. An important component would be an efficient way to process, collect and preserve hides and skins at the up-country slaughter slabs for processing near Banjul. Smaller loans could be made to private individuals who want to set-up small-scale operations.

III. MARKETING OF LIVESTOCK

OVERVIEW

In this phase of the livestock system, livestock are transferred from livestock producer (owner or caretaker) into to the commercial marketing system. (Live animals are bought and sold for inter-herd sales but this transaction is not a focus of the study). With the privatization exit of the Livestock Marketing Board, private livestock dealers and butchers are now solely responsible for the movement of livestock. Private owners do sell their livestock to end-users but this is mostly for small ruminants (especially for fatten sheep; for Tobaski). The transaction costs would be very high for an individual producer to take animals into the terminal market at Abuko.

The interface between producers, livestock dealers and butchers is a difficult set of relationships and not easily understood to the casual observer or short term consultant. Many transactions are done on credit arrangements with money not appearing until the animal is slaughtered and sold to the final consumer. Generally, payments flow backward to the producer. Trust is imperative and easily abused. As one producer reported, he had over D 40,000 owed by a dealer and his prospects were slim of recouping his money. Dealers are both Gambian and foreign nationals which can make tracking claims a difficult exercise and the legal avenue not an viable option with high transaction costs.

Marketing Costs

There are several studies of marketing livestock in West Africa to indicate that marketing cost are low with respect to risks associated in the movement of animals. In The Gambia, marketing costs are estimated at around 3 percent which is reasonable (USAID - ANR annex). Barriers to marketing do not exist; however, there is some concern for the payment of unauthorized fees in transporting livestock through check points from up-country markets to Abuko. Transit permit issued by the DLS is D 2 per application. Included in the marketing costs should be shrinkage in transport and waiting at the holding grounds before final sale.

The major means of moving cattle to Abuko is by trekking except for producers on the North Bank who will likely have to ferry their animals across The Gambian River (UNDP). The cost of the ferry is D 5/head. Truck charges from Karra (near Farafenye) to Abuko is from D 70 - 100 per head and trucking from Basse to Abuko is D 100/hd.

The Gambian Livestock Dealers Association

The Livestock Dealers Association was founded in 1993 to fill the void created by the disbanding of the Livestock Marketing Board. There are 200 members in the Association. The dealers are interested in maintaining an improved terminal market at Abuko, facilitating the trade in livestock and improving the payment system for livestock by butchers. The charges in the holding ground are as follows:

Watchman..... D 3/hd
Herder..... D 3/hd/day

Dealers pay to the area council D 500/yr for a license.

The opportunity for investment by individual livestock dealers in improving the exchange mechanism is not likely. Dealers benefit when market and price information are restricted. Dealers would wish to increase their bargaining arrangements with the butchers who tend to have greater market power because of the butcher's relationship to the consumer who has the money. Like producers, dealers do not likely get paid until after the animal has been slaughtered and sold. Dealers have an interest in improving the situation at the Abuko terminal market where animals wait for the butcher to buy. A dealer can wait in the market for days or weeks waiting to sell a few head of livestock. Water, feed and shade are amenities that dealers are willing to pay for.

It is worth noting that the sheep fattening program has developed a marketing channel that directly links producers to dealers, butchers and consumers. It has been the success of this program in realized profits and the subsidization of transportation and field day (market) that has directly benefited the producer. Any effort to expand a feeding program for cattle will require that the value-added by the producer is not lost in an imperfect market system that favors the dealers or butchers. Cash needs to be a main component in moving livestock through the marketing channel. Offtake of animals could increase if there was more liquidity in the market exchange function. Critical is that markets are operating efficiently and sending accurate signals on types and numbers of animals needed at any one period of time.

Spatial and Seasonal Price Relationships

Because of the spatial distribution between human and the livestock populations, a situation exists where surplus livestock areas are in the eastern part of the country while the major consumption areas for meat are on the coast in the Greater Banjul Area. Examination of marketing prices collected in 1992 by the DLS reveal wide margins between coastal and interior markets based on luomo prices. A caveat is in order because the average liveweight of cattle in the Abuko market are 280 kg. compared to all up-country markets with an average of 200 kg. Older animals and males are sold in the Abuko market. The up-country markets have a

predominance for females and younger animals. The implication is that cattle for Abuko come directly from producer herds while local markets are for local slaughter and interherd sales. Livestock producers are even further removed from the terminal market for relevant price information by not having the luomo to guide their decisions.

According to DLS statistics, the major goat and sheep markets outside of Abuko are Sare Bojo for goats, and Farafenye, Wasu and Sare Bojo for sheep. Sheep sales in the markets are heaviest during the months of May and June. This is the period of the religious feast of Tobaski requiring the slaughter of a ram. Volumes fall off dramatically in July and level until February when sales begin to increase again. Improving the small ruminant market requires the spreading out of the sales to other months to encourage producers to continue fattening sheep and not just for the religious celebrations. Goats sales are heaviest during the dry season months of January to June and then decline and level off during the wet season.

STRATEGIC INTERVENTIONS IN THE LIVESTOCK MARKETING SYSTEM

Improvement of the Terminal Market at Abuko

The terminal market at Abuko is currently too close in proximity to the slaughter facility. Besides for health reasons, the current area does not allow for adequate water, shade, fencing, proper use of a weigh scale and maintaining of cattle, sheep and goats.

The current system is that animals which are transported to Abuko must receive a transit permit from The Division of Livestock Services. The cost of the permit is D 2 per ticket. It is recommended that the funds collected from permits be used to relocate, fence and upgrade the terminal market. Animals which enter into the terminal market will be marked and an entrance fee will be charged. The fee will go towards the upkeep and maintenance of the area. The operation of the facility would be the responsibility of the Livestock Dealers Association. No livestock sold outside the terminal market can be slaughtered at the abattoir, except those privately owned for custom slaughter.

Implementation of the Cattle Head Tax

The cattle head tax collected from owners of livestock should be implemented in an efficient manner and strict accountability of the funds set in place. It is recommended that the funds collected in the districts be used in that district to improve livestock production and marketing in that district. Improvement would be in the areas of infrastructure, e.g. markets, animal health prevention and training on livestock husbandry and feed supplementation.

Price Information System for Livestock and Meat Products

There is little that can be recommended in the form of changes in up-country market facilities. It is recommended that a market news service be instituted that provides information to livestock producers and traders on the situation at the terminal market at Abuko. The most cost effective way to do this would be through a short radio program at prescribes times during the week. The prices for selected classes of animals (weight, condition and age), numbers of animals in the market, and the most recent number of animals killed at the abattoir. This information would be useful to producers to better price their livestock at up-country markets.

Liquidity and Contracts in the Exchange of Livestock

A major impediment to private sector involvement in the livestock marketing system is the lack of cash transactions in the exchange of livestock. As the GOTG revises the Livestock Marketing Act it is recommended that emphasis be placed on ensuring contracts in the sale of livestock. In the United States, the Packers and Stockyards Act was implemented to protect livestock owners in the sale of their animals. The Gambian Government is encouraged to consider similar legal statutes that will encourage and protect livestock owners and dealers to further the efficiency of exchange. The revised Livestock Marketing Act needs to address the elimination of unnecessary transaction fees that ultimately result in lower prices to producers of livestock.

Alternative Marketing Programs for Livestock

The success of the sheep fattening program has shown that livestock producers can benefit from innovative programs that are tailored to specific market needs. Producers with the help of the DLS has been able to market their animals directly to butchers and other end-users through field days. The concept of field days is being expanded this year with decentralization to key district markets.

It is recommended that assistance be provided to conduct a similar program for cattle fattening programs that encourage the handling, feeding and marketing of fattened animals. A similar method of using livestock field days to advertise and recognize producers of these animals is strongly recommended.

IV. PRODUCTION SYSTEMS FOR QUALITY MEAT IN THE GAMBIA

To better understand the process of adding value to meats, one has to establish certain common denominators that will facilitate clarity of interpretation, these are:

QUALITY

When used in reference to meat, it is understood to mean hygienically processed livestock that have been raised, fed and managed within certain parameters of animal husbandry. In addition it implies meats that are tender to the taste and the chewing-cutting process, are flavorful and juicy to the taste, have an attractive appearance and require a minimum of cooking preparation to provide a delectable meat dish.

TENDERNESS

This quality as described above, has a direct correlation to the age of the animal. The older the animal gets beyond two years of age (the time at which the average bovine achieves adult maturity) the meat or muscle begins to acquire a natural ageing (getting older) process that progressively renders the meat tough and hard. One must also be cognizant of the fact that tenderness is also relevant to the customs and traditions of individuals. However, in today's present migratory society, these traditions are becoming mixed and varied and the meat/livestock industry must adapt to these new demands and trends.

FLAVOR AND JUICINESS

This quality in meats is acquired by adding moderate amounts of fat to the outside of the carcass of the animal. This is achieved through proper nutritional feeding combined with a more youthful age of the animal.

The addition of fat to the animal's carcass can be achieved in one of two ways or a combination of both, these are:

- a) Fattening the animal to a predetermined fattened (finished) weight, based on the genetic characteristics of the animal and market demands, strictly on GRASS/FORAGE ALONE. Thus the term GRASS FED BEEF. This method will render a certain type of meat with a traditional soft yellow fat that gives the meat a unique taste. Customs and traditions will again dictate or reject this preference. It must be remembered that in the evolution of the livestock/meat industry this system of fattening was the first and only kind. Due to the physiological characteristics of cattle, in regard to nutritional requirements, the GRASS FATTENING process requires time. This will add AGE to the animal which will be reflected in the texture of the meat. As a general rule a

fattened bull, steer or heifer will be considered TENDER if it is finished within an age range of 2 to 2 1/2 years, MEDIUM TENDER if finished within an age range of 2 1/2 to 5 years, and TOUGH if it is finished within an age range of 5 years plus.

b) Fattening the animal in total confinement with the minimal physical activity and is fed a ration low in forage (20% or less) and high (80% or more) in energy (grains) and protein concentrates (cake or meal a by product of the oil seed industry i.e., groundnut, cotton, sesame, etc.). This system evolved out of the need to sell surpluses of grain that could not be sold at the time as such. Therefore, this intense feeding/fattening system takes advantage of surplus grains and fattens and finishes an animal at a younger age (2 - 2 1/2 years old), adding a white hard fat to the carcass, which based on the genetic characteristics of the animal, will cause small particles of fat to penetrate into the muscle. The latter is known as marbling which provides flavor and juiciness to the meat. However, for feedlot economics and efficiency figures to be meaningful, it is necessary to know what kind of ration is being used. Otherwise, on a kilo basis, it is not unlike comparing steaks and vegetables in the human diet. The more concentrated and higher the energy value of the ration, the FEWER the pounds of feed required to produce 100 kilos of gain in a shorter period of time (100 to 150 days). Yet, many times due to economic circumstances, feeding time and age of animal not being too critical a factor, it is in the nature of good business to feed rations that are higher in roughage. Of course this will require more kilos of feed and a longer period to produce 100 kilos of gain but at a lower cost.

c) Grass/Feedlot Combination is a complementary process where the first one (grass) works in support of the other (feedlot) but are handled separately. First comes the grass phase better known as the STOCKER PHASE where weaned calves (8 to 10 months old weighing 200 kilos) or yearling calves (12 to 18 months old weighing 300 kilos) both male and female are intended for eventual finishing and slaughtering. They will be fed and cared for in such a manner that GROWTH rather than fattening is the objective. When the necessary growth and weight is attained (usually starting with 200 kilos weaned calf and growing it to a 300 kilo yearling) the calf is classified as a feeder and is placed in a feedlot to gain the necessary weight that the market demands. Not all markets want the same weight or grade of beef.

IMPLICATIONS

From the above, it becomes obvious that cattle fattening follows a sequential process starting with the cow-calf operation and this

becomes Phase I, followed by the growing out period (stocker program) Phase II, passing on to the Feedlot fattening (concentrated feeding scheme) Phase III, and terminating with the processing, marketing and merchandising of the meat, Phase IV.

In the present Gambian scenario Phases II and III do not exist and Phases I and IV are weak at both extremes. The livestock sectors of the world all have the same problem, in different magnitude but nonetheless the same, which are on the one extreme (Phase I) shortage of water, grass and financing, and on the other extreme (Phase IV) a lack of or an extremely weak marketing and financing system. Due to the lack of an adequate marketing system constantly burdening the sector, Phase I, in spite of their good intentions or lack of them, will remain stagnated. The issue then, is a marketing problem.

At present Phase I (cow-calf) has a direct effect on what Phase IV processes and supplies in meat products independent of Phase IV's own shortcomings. The literature well documents the problems confronting Phase I. Its extensive system of grazing communal rangelands without management or control has made an already marginal operation into an EXTREMELY inefficient system. Yet, it is from this pool of production that the meat demands of the country are met but not exclusively. It would also be from this same pool of production that animals would be extracted for the purpose of adding value to Gambian meat. However, the question remains, how can this be accomplished under the existing management system?

MARKETS FOR MEAT

An assessment of the situation reveals that at present there are three market demands for meat within the country, they are:

a) the local and traditional meat demands for the general public are supplied by an organized group of dealers and butchers. Neither group being overallly concerned about quality, hygiene, meat presentation, and least of all if the farmer/livestock owner benefits from his livestock or is even paid on time. They seem to work on a credit system at the farmer's expense who is already in bankruptcy. In addition he is expected to accept and implement technical interventions that might help his caotic condition. However, all the meat supplied within the greater Banjul area is processed in the local abattoir and the system, inspite of its shortcomings, is working. On the average meat from this system retails for approximately 22 to 25 Dalasis per kilo of meat and bone.

b) an intermediate local marketing system that is providing meat to a more quality conscious consumer. While this meat is also processed at the local abattoir there is more selectivity on the part of the butchers as to quality, hygiene and presentation. From all indications this market demand is growing within the general

public. This up-graded service sells the meat retail for an average price of 35.8 Dalasis per kilo of selected cuts.

c) a specialty type of meat marketing. This newer system of meat marketing is trying to cater to the Supermarkets, Hotels, Restaurants and an affluent clientele who demand quality and hygienically processed specialty cuts. At present most of the supermarkets and some Hotels import a good portion of their meat needs. This specific market niche is where the efforts of this assessment are oriented towards.

However, this type of market, while present demands mostly selected cuts which are produced from the hind quarter section of the carcass. This immediately creates a marketing out-let problem for the fore quarters which have less of the selected cuts but bears the same cost of production as the hind quarter section. In addition it would require twice the number of live animals to satisfy a determined amount of kilos of speciality cuts, which are composed of; fillets, T-bones, entrecoits, sirloins and rumps. It is estimated that approximately 300,000 kilos of selected cuts are imported yearly. This represents an equivalent of 2400 head of live animals. Therefore, the opportunity to capture a share of this market exists and business establishments have expressed an interest in buying locally produced, fattened, quality meats. The major obstacle in this regard is whether the finished carcass (not yet processed into cuts) can be produced for no more than the present selling price of 25 Dalasis per kilo for the entire carcass.

FEED RESOURCES IN THE GAMBIA

The most recent estimates of the quantities of feedstuffs available are listed in Table --. Groundnut hay is the most important crop residue by-product which has been fully commercialized.

Table --. Major crops and crop-residues available in the Gambia for cattle feeding

Product	Quantity (MT)	Origin	Price (D/kg)
Millet	58,000	Lumos	1.4
Maize	20,000	Lumos	1.4
Sorghum	12,000	Lumos	1.4
Rice	16,000	Lumos	2.5
Groundnut Hay	122,775	Farmers	.35
Brew Grain	-----	Banjul Brewery	--
Cotton seeds	1,200	CFDT	.65

Source: National Agricultural Data Centre. Statistical yearbook of Gambian Agriculture: 1991. Ministry of Agriculture, Banjul, Gambia, 1992.

THE FEEDLOT FATTENING SCHEME

ESTABLISHING A FEEDLOT OPERATION

The rationale for this type of fattening operation is an attempt to satisfy the growing meat marketing demands described in section "c" above. In addition it is hoped that through this mechanism a more modern system of meat marketing could evolve thus creating a demand for a quality animal for which a premium price would be paid and this might just create the stimulant needed to interest the local cattle raisers in improving their production.

ASSUMPTIONS

Based on the given estimates of 2400 carcasses imported annually, this translates to a weekly import of 46 carcasses. If one were to capture only 33% of this weekly market share this would mean that 15 head of feedlot finished animals would have to be processed weekly. Since it requires an average of 120 days to feedlot fatten an animal, it would require 16 weeks for the first 15 head to be ready to enter the market channel. This means that every week 15 "new" head of cattle would be purchased weekly and placed on feed. Over a 16 week period and 15 head of cattle per week one would have a complete set of corrals with a total of 240 head continuously on feed. With the cycle completed, 15 finished head would enter the meat market chain while 15 new head would replace them in the feedlot thus maintaining a constant number of 240 head at all times throughout the year. However, while the "pipe line" will be filled the first year only 540 head will actually be entering the market during the first year of operation. The remaining 240 head will not be ready until the beginning of the following year. At this rate it will take two full years to completely fatten and market the projected total of 780 head.

The start-up method is simple, realistic, and attainable without placing excessive pressure on capital investment or demand on the desired but limited quality of local animals. At the same time the market will be moderately penetrated. This gradual build up will provide an opportunity to test the availability of feed stuffs while at the same time creating a market for other by products that presently have a restricted market outlet. It will also provide on-the-job training back at the feedlot as the operation progresses.

QUALITY OF CATTLE

ESTABLISHING SPECIFICATIONS

Since feedlot fattening experience, within The Gambia and with Gambia's predominant breed (N'Dama cattle) managed in the traditional manner, is non-existent one has to start by establishing some modifiable, realistic specifications for cattle selection. This is important because not all cattle respond positively in a feedlot environment and especially if their previous management has been lacking. Therefore, to assure that the feedlot fattening scheme has a fair opportunity to succeed the following basic criteria would be recommended:

- a) select male cattle, bulls or steers.
- b) strive to locate and select bulls or steers that weigh 250 kilos.
- c) strive to obtain bulls or steers with the above weight at the YOUNGEST possible age. An ideal age range would be 2 to 3 years old. It is fully understood that this age range may be demanding and one may have to select from an age range of 3 to 4 years but certainly not much older than 4 years old.
- d) select animals that are healthy, eventhough there will a series of medications that will have to be administered while in the feedlot.
- e) be prepared to pay a premium for these basic requirements. The basic rationale behind the fattening scheme is to produce a high quality meat product by adding-on-value. Therefore, it is only logical to want to start with a high quality animal. However, there is an added future benefit behind the premium concept and that is the power of motivation stirred by the principal of economics (payment in cash). This will set the stage and introduce an attitude change for the desire to want to improve quality through better management. Experience has proved that there is no better incentive than CASH IN HAND directly to the provider for a service rendered. Then and only then will cattle raisers be motivated to think in terms of quality, management and proper rangeland utilization.

FEEDLOT FEED STUFFS AVAILABILITY

As mentioned earlier, a feedlot fattening scheme is an operation that is ventured into to satisfy a specific demand for quality meat products, to take advantage of an existent surplus of a feed resource or both. From the the start there have been reservations as to whether there would be sufficient feed resources and at an attainable price to sustain a productive feedlot

fattening scheme.

This section will attempt to prove or disprove this concern.

This exercise will be based on the most recent information available and the following assumptions;

a) that bulls or steers weighing 250 kilos between the ages of 2 to 4 years are available.

b) that these bulls or steers will have a minimum Average Daily Gain (ADG) of 700 grams while on feed.

c) that the feed ration meets the minimum nutritional requirements for an animal weighing 250 kilos with an ADG of 700 grams.

Table --. NUTRITIONAL REQUIREMENTS FOR ABOVE

ANIM.WT. KILOS	ADG GM	AMT FORAGE	TOTAL PROTEIN	TOTAL TDN	AMT CA(g)	AMT P(g)	VIT.A I.U.
250KGS	700	55%	.62KGS	4.0KGS	18gm	16gm	14 I.U.

d) a suggested feed ration that could meet these nutritional requirements will consist of the following local ingredients but can be modified to further meet the animal's change in nutritional requirements or feed price fluctuation. The ration will consist of a feed concentrate (high in protein and TDN) and a portion of ground nut hay.

Table --. Suggested Concentrate Feed Ration

ITEMS	AMT KG	%CP	AMT.CP KG	%TDN	AMT.TDN KG	%CA	AMT.CA GRAMS	%P	AMT.P GRAMS
CORN	330	9	29.7	70	231.0	.03	99	.3	990
RICE BRAN	330	7	23.1	68	224.4	.08	264	1.48	4884
SESA ME CAKE	330	44	145.2	71	234.3	2.02	6666	1.39	4587
SALT	10	0	0	0	0	0	0	0	0
TOT	1000	0	198.0	0	689.7	0	7029	0	10461
TOT %	0	0	19.8%	0	68.9%	0	.7%	0	1.05%

Table --. AMOUNT OF HAY AND CONCENTRATE NEEDED PER HEAD PER DAY TO MEET THE NUTRITIONAL REQUIREMENTS OF A 250 KG. STEER/BULL WITH ADG OF 700 GM.

ITEM	AMT.KG.	%CP	AMT.CP	%TDN	AMT.TDN	%CA	AMT.CA	%P	AMT.P
GROU.									
NUT									
HAY	4	3	.12	50	2.0	1.12	45 G	.15	6 G
CON									
CEN									
TRATE	3	19.8	.59	69	2.1	.7	21 G	1.0	30 G
TOTAL	7	0	.71	0	4.1	0	66 G	0	36 G

COST OF SUGGESTED FEED RATION

It will be difficult to arrive at a true cost per ton of feed because there is no organized system of pricing feed stuffs. Price tend to be at their lowest immediately after harvest and progressively increase as the dry season advances and supply becomes scarce. A normal respond to supply and demand. Therefore, it is logical to purchase as much of the feed stuff as needed after the harvest directly from the farmer and store. This has the major disadvantage of a sizeable outlay of capital plus the expense of transportation and storage. The latter two expenditures can be considered fixed cost of doing business because there will always be a transportaion cost and the need for a storage facility. Therefore, the savings from purchasing on time will justify the tie-up of capital. The more one saves on feed ingredients the more efficient the fattening operation and will be reflected on the cost per kilo of carcass produced.

An attempt will be made to price the suggested feed ration based on prices obtained for March 1994, they are:

COST PER METRIC TON
OF CONCENTRATE RATION

ITEM	AMT.KG.	DALASIS/KG	TOTAL COST/ METRIC TON
RICE			
BRAN	330	DO.50	D165.00

SESA ME CAKE	330	0.50	165.00
CORN	330	1.80	594.00
SALT	10	0.50	50.00
TOTAL	1000	0.974	974.00

AMOUNT AND COST OF SUGGESTED
FEED RATION PER METRIC TON

ITEM	AMT.KG	DALASIS/KG	TOTAL COST/ METRIC TON
GROU NUT HAY	570	D0.50	D285.00
CON CEN TRATE	430	0.974	418.82
TOTAL	1000	.703	703.82

ESTIMATED COST OF CARCASS
BASED ON FOLLOWING ASSUMPTIONS

%CARCAS YIELD	FINISH WEIGHT	WARM CAR. WEIGHT	CAR. LIVE WT.	PRICE/KG	TOTAL/ HEAD	PROCESS COST	TOT. PRICE/ COST KG.CAR
40	350KG	140KG		D14/KG	D4.00	85	4985 35.61
41	"	144 "		"	"	"	" 34.61
42	"	147 "		"	"	"	" 33.91
43	"	150 "		"	"	"	" 33.23
44	"	154 "		"	"	"	" 32.37
45	"	158 "		"	"	"	" 31.55

46	"	161	"	"	"	"	30.96
47	"	165	"	"	"	"	30.21
48	"	168	"	"	"	"	29.67
49	"	172	"	"	"	"	28.98
50	"	175	"	"	"	"	28.48
51	"	179	"	"	"	"	27.85

SELLING PRICE PROJECTION
TO DETERMINE THE BREAK EVEN
PRICE PER KILO OF FATTENED CATTLE

INPUT VALUES

1. SEX OF CATTLE (MALE OR FEMALE)	MALE
2. PURCHASE WEIGHT	250 KG
3. SELLING WEIGHT	350 KG
4. ESTIMATED FEED INTAKE/HD/DAY (2.86% OF AVE.WT. ON FEED 300 KG. #12 BELOW)	8.56 KG
5. VET/MEDICATION EXPENSES/HEAD	D192.00
6. FEED RATION COST/METRIC TON (A 20% MARK-UP WAS TO THE PRICE OF ORIGINAL FEED RATION)	D1169.00
7. ESTIMATED DEATH LOSS PERCENT	2%
8. INTEREST RATE PERCENT	10%
9. PERCENT OWNER EQUITY	100%
10. PURCHASE PRICE/KILO	D10
11. ESTIMATED SELLING MONTH (ADD FEEDING DAYS TO STARTING MONTH ON FEED, e.g. MAR. PLUS 143DYS)	JULY

CALCULATED VALUES

12.AVERAGE WEIGHT ON FEED (PURCHASE WT. PLUS SELLING WT. DIVIDED BY 2, e.g. 250kg + 350kg /2)=	300 KG
13.AVERAGE DAILY GAIN (ADG) EXPECTED	.700 KG
14.FEED CONVERSION AMOUNT OF FEED INTAKE TO PRODUCE ONE KILO OF BEEF (ESTIMATED FEED INTAKE TIMES DAYS ON FEED DIVIDED BY SELLING WT.)	3.50 KG
15.TOTAL GAIN DESIRED	100 KG
16.CALCULATED DAYS ON FEED (WT. DESIRED DIVIDED BY ADG, e.g. 100kg/.700kg)=	143 DYS
17.PURCHASE PRICE/HEAD	D2500
18.INTEREST ON CATTLE/HEAD (PRICE/HD TIMES INTEREST RATE % DIVIDED BY 365 DAYS/YR TIMES DAYS ON FEED)	D98
19.COST OF FEED/HEAD (ESTIMATED FEED INTAKE/DY TIMES DAYS ON FEED DIVIDED BY 1000 KG TIMES FEED RATION COST)	D1430.95
20.INTEREST ON FEED (COST OF FEED/HEAD DIVIDED BY TWO TIMES INTEREST RATE % DIVIDED BY 365 DYS/YR TIMES DAYS ON FEED)	D28.03
21.VET/MEDICATION EXPENSES/HEAD	D192.00
22.COST OF DEATH LOSS/HEAD (PURCHASE PRICE/HD PLUS INTEREST ON CATTLE/HD PLUS INTEREST ON	

e) an interest rate of return of 10% is charged to the overall capital investment for either personnel or borrowed capital. This is charged to the purchase price/head (D2500) and to the cost of feed per head (D1430.95). These add-on charges amount to D98 and D28.03. respectively.

Therefore the total cost of feedlotting an animal for the purpose of adding value to the meat in this exercise is D4302.57. It was further assumed that this animal would be sold for processing to either the feedlot management (integrated business) or to a private butcher. Based on the total cost per head of D4302.57, the break even price per kilo live weight is D12.29. To the break even price was added a mark-up of 13.9% (D1.71) bring the selling price per kilo live weight to D14 for a total per head cost of D4900. Finally to this cost is added the abattoir processing fee of D85/head bringing the the total cost per head to D4985.

It is difficult to estimate the carcass yield percentage for an N'Dama bull/steer that has been fatten under feedlot conditions because such data is not known. However, a personal supervised exercise at the local abattoir with eight GRASS FED cross-bred (Zebu N'Dama cross) steers and bulls ranging in age between 7 to 8 years with an average weight of 500 kilos produced a clean warm carcass weight of 254 kilos or 50.7%. If this were to be the case with a younger N'Dama bull/steer that was fattened to a weight of 350 kilos and produced a carcass yield of 50% the cost per kilo of warm carcass would be D28.48 (see table above). This carcass yield is considered low for a feedlot fattened animal which should be able to yield at least 55%. This data for N'Dama cattle is presently not known. It should be noted that as the percentage yields increase the cost per kilo of carcass decreases.

It would be incorrect at this time to pass judgement based on these estimates alone and without actual feedlot feeding trials as to whether a feedlot fattening scheme would be feasible. However if the present ceiling price of D25/kilo of warm carcass offered for quality GRASS FED beef prevails, the feedlot fattening scheme would be a marginal business. The suggested carcass selling price for a feedlot fatten steer/bull based on the above estimated carcass cost of D28.48 should sell for no less than D35.00 per for the whole uncut carcass.

BUSINESS PROMOTION

The underlying rationale for a feedlot fattening scheme is to add value and quality to the local meat industry. This added value has a cost, as has been illustrated, that has to be passed to the demanding consumer market. However, the existing market, that demands quality, has not been tested or presented with a sample of the proposed locally produced and fattened beef. Therefore, it would be premature to judge consumer acceptance or rejection at this time.

FEED DIVIDED BY % LIVE ANIMALS [100% - 2% DEATH LOSS = % LIVE ANIMALS] SUBTRACT FROM DIVIDEND)	D53.59
23. TOTAL COST OF CATTLE & COST OF GAIN (ADD #s 17, 18, 19, 20, 21, & 22 ABOVE)	D4302.57
24. COST OF GAIN WITHOUT INTEREST (ADD #s 19, 21 & 22 AND DIVIDE BY TOTAL GAIN #15 ABOVE)	D16.76
25. COST OF GAIN WITH INTEREST (ADD #s 18, 19, 20, 21 & 22 AND DIVIDE BY TOTAL GAIN #15 ABOVE)	D18.02
26. BREAK EVEN (TOTAL COST OF CATTLE & COST OF GAIN #23 DIVIDED BY SELLING WT. #3 ABOVE)	D12.29

The above production figures were based on the most realistic cost of inputs available at present, these include the following:

a) cost of feed stuffs is th most expensive but the hub of the operation. To the feed cost per metric ton of D974 was added a 20% mark-up of D195 to assure continuity and success of the fattening operation. Therefore the total cost of feed is D1169 per metric ton. This is equivalent to US\$110 per short ton which is a reasonable price comparison.

b) a premium price was paid per kilo of live animal. This price has two objectives:

1) to start with a good quality product. A feeding scheme is an expensive operation and can not succeed with poor quality animals.

2) to pay a premium price for a quality product is the strongest economic moving force to which a livestock producer can easily relate to, understand, accept without difficulty and motivate him to want to manage, produce and conserve more efficiently. It recognizes quality and is the universal language.

c) there is a variable cost of necessary medication that has to be administered to the animal pon arrival to the feed yard. These medications consist of broad spectrum antibiotics (LA-200 or PENICILLIN-G), an 8-WAY VACCINE (CO-VEXIN-8), CATTLE MASTER VACCINE, ANTHELMINTIC (IVOMEX), VITAMIN A and VITAMIN B COMPLEX, and AN IMPLANT FOR GROWTH STIMULATION (RALGRO). An approximate cost for this medication is D192/head.

d) there is a moderate cost for potential death losses of animals while on feed of 2%. This translates into an operating cost of D53.59.

RECOMMENDATIONS

Before judgement can be taken for or against feedlot fattening and before any infrastructure expenditures are made, it is strongly recommended that a feedlot feeding trial should be conducted with 10 to 20 head of cattle from the existing national cattle pool. The following steps should be considered in conducting a feeding trial or a small feedlot feeding program, these are:

- a) search, select and purchase the best quality N'Dama or N'Dama crosses (mixed) steers or bulls that can be located. It important that such a precedent be established from the start thus promoting quality that will be compensated with a premium price.
- b) select 10 to 20 heavy weight (250 to 300 kilos) steers or bulls of the youngest possible age, 2 to 4 years but not over 5 years.
- c) major infrastructure at this point is not necessary. A simple corral made of barbed wire allowing 2.5 square meters/head will suffice. However, a watering facility that will provide a constant supply of clean/fresh water is absolutely necessary plus ample feeding space (2 linear feet per head).
- d) record the price per head and weight of each individual animal at the start of the feeding trial and maintain accurate records of the amount of feed provided, the total number of days on feed, weigh each individual animal every 28 days while and calculate the average daily gain (ADG) for each animal. From this data establish a growth weight gain curve or chart to determine the peak or level off point when the animal reduces its ADG. This will be the time when the animal will have reached its maximum efficient weight gains and is ready for market. To keep the animal longer on feed would be costly and inefficient.
- e) provide a good quality feed (suggested ration acceptable) with ample hay available at all times, fed in a hay rack. Provide the concentrate feed, in a feeding trough, three times a day for better feed utilization and less wastage. Care should be taken not to over feed but the feed troughs should never be empty, specially the water trough.
- f) keep accurate records of ALL costs (feed, water, labor, tools, infrastructure, etc.) and convert all costs to a per head and kilo gain basis. Determine the break even price by using the detailed selling price projection outline guide above.

h) record the weight BEFORE slaughter and weigh the warm carcass (without head and inner organs) after washing. Determine the carcass yield by dividing the clean carcass weight by the live weight.

i) determine the break even cost assign a commercial price per kilo live animal plus all processing costs and divide by the net warm carcass weight to provide the cost per kilo of carcass meat. This will be the basis for the necessary price mark-up.

j) at the desired mark-up price and after allowing the carcass to hang and chill for 48 hours, process the carcass into selected cuts. Subject the cuts to a cooking-tasting-tender test, before penetrating the desired market.

ALTERNATIVES

If after having tried and tested the market, it is determined that the demand for feedlot fattened quality beef can not bare the cost of producing it then consider GRASS FED BEEF. While this method is an option, it too has its advantages and disadvantages. The following scenario confronts this endeavor:

a) the steers or bulls will still have to be selected from the present local pool of cattle from the national herd. The disadvantage is that the animal's productivity is stagnated due to malnourishment due to improper utilization of rangeland resources and improper husbandry management practices. All of these factors delay growth of an animal making it ready for market at a very old age. This situation will continue in its present state of stagnation until adequate marketing channels are opened and/or created (the feedlot scheme being an option for both quality with quick turn around time and the start of a marketing channel). Within a cadre of possible interventions to improve the status of The Gambian cattle situation only one stands out to be the least costly, most effective and motivating to create a change, namely a positive CASH market for cattle, sheep, goats, milk, hides and skins. The country side is dotted with remains of interventions that could not be sustained for the betterment of the livestock sector.

b) the single most important objective of this study is to identify avenues of marketing channels. If the main option, feedlot fattening, is for now too ambitious GRASS FED beef is no less demanding which if positive because it too could open a cash market for grains and by-products. At present these markets are weak which in some cases have caused production to decline. In a smaller degree grass fed beef production will have to use these products in a feed supplementation schedule which will be needed for maximum forage utilization.

GRASS FED BEEF

This method of beef production can be accomplished in two ways: 1) in an intensive setting of grass production; and 2) in a semi-intensive setting. Both methods require enclosing land areas for proper pasture or rangeland utilization. Unfortunately, as with the feedlot fattening exercise, the infrastructure for this intervention is not in place. Therefore, as for any business it too requires a start-up capital investment, a commodity in short supply and expensive. In addition to the initial investment both methods have to content with the factor TIME. This factor is one that landing institutions do not sympathize with. Due to the aforementioned these methods also have a cost, that has to be passed on the consumer.

OBJECTIVE AND DEFINITIONS

The objective is to add-on-value to beef via the feeding of a diet consisting mostly of grass and less of concentrate. The management, however, continues to be intensive to obtain maximum efficiency.

Grass fattening also adds quality and value to meat but it is different from that of feedlot fattened beef. The meat will not be as fat or marbled as feedlot beef nor will be any more tender because the system continues to add age to the animal because it requires time. However, this could be the transitional stage to a future more advanced feedlot fattening.

This activity will create a cash market for cattle by supplying itself with steers or bulls from the national cattle herd. This operation has to start small because of the initial capital inputs and grow with an increased price that the market can bear. For clarity it must be stated that a venture of this nature is not a cattle raising operation but rather a fattening scheme.

Productivity of beef to satisfy a constant demand of a quality product can not be viewed as seasonal supply, that is, good production only during the latter months of the rainy season and the first two or three months after the rainy season and declining drastically during the 6 to 7 months of dry season. Grass fattening is an option provided that forage, water, protein/energy supplementation, and cattle management are in place.

DISCRIPTION AND LOGISTICS

Grass fattening through an intensive grass production system. This operation will have to be located somewhere up country along the Gambia River on land that has already been cleared. The exact location is not determined but could be as far out as Basse. The size of the land area could vary but not smaller than 20 hectares. This exercise will contemplate a land area of 30 hectares. The land area must have access to river water for potential irrigation. This is the only way to assure oneself of a constant supply of green forage. Due to the cost involved some combination of a cash crop

could be contemplated. The potential is there.

LOGISTICS

The figures and calculations used in this exercise will all be assumed for lack of actual costs therefore the accuracy of the total cost could be misleading and discouraging. However, the purpose is to set the stage or introduce the idea for future consideration. The operation will entail the following:

a) select a semi-cleared or fallow land area of approximately 30 hectares along the Gambia River up country in the Basse area. The rationale for site selection up country is to introduce improvements and innovations to an area that needs development.

b) the area will have to be fenced with at least barbed wire around the perimeter. The perimeter of 30 hectares could measure 500 meters wide and 600 meters long. The distance one time around this area would be 2.2 kilometer. Usually a fence will have 5 strands of wire thus 2.2 km. X 5 = 11 km. of total perimeter fence.

c) the cost of fencing in The Gambia has been calculated to be as follows:

Table --. FIXED COSTS

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1) each 100 meters of fence will require the following:	
a) 2 rolls of barbed wire measuring 250 meters each @D250 per roll X 2 =	D500
b) 2 strong corner posts @ D5 ea X 2 =	10
c) 35 line posts @D1 ea X 35 =	35
d) labor for digging 40 holes @D2 X 40 =	80
e) one kilo of stapies @D10 =	10
f) total for 100 meters =	D635
2) one kilometer would have 10 sections of 100 meters each thus 10 X D635 =	D6350/Km.
3) as discribed the total perimeter requires 11 km. of fence, therefore D6350/Km X 11 Km.=	D63,500.00

4) the land will be prepared for planting of an improved grass variety that is adapted to the country. Cost of land preparation and planting is estimated to be approximately, D500/hectar X 30 hc.= D15,000.00

5) irrigation equipment

a) diesel motor with 6 inch pump	D50,000.00
b) shed for motor and pump	D25,000.00
c) approximately 100 six inch by 20 foot sections of aluminum irrigation pipe and fittings for water distribution	D90,000.00
d) solar panel for internal electric fencing to create five 5 hc. paddocks with a loafing area	5,000.00
e) one main water trough in loafing area	7,000.00
f) miscellaneous tools	2,000.00
g) vehicles	
1) 4 X 4 pick-up truck	200,000.00
2) 24 foot goose-neck cattle trailer	50,000.00
 SUBTOTAL	 507,500.00

VARIABLE COSTS

h) fertilizer (Urea) @100kg/hc. three times/yr X 30 hc.X D4/kg =	36,000.00
i) labor	
one herdsman D500 X 4 X 12 =	24,000.00
one worker D400 X 4 X 12 =	19,200.00
one watchman D500 X 4 X 12 =	24,000.00
j) petrol for	
1. water pump motor/yr =	12,000.00
2. pick-up/yr =	15,000.00

3. oil pick-up & motor/yr = 3,000.00

4. oil filters for #3 = 2,000.00

SUBTOTAL = D135,200.00

Table --. SUMMARY OF COSTS

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FIXED COSTS

ITEM	VALUE	LIFE	SALVAGE	DEPRECIATION
FENCE	63,500	10YRS	0	D6,350.00
IRR.EQUP				
MOTOR&PUMP	50,000	5 "	10,000	8,000.00
IRR.PIPE	90,000	8 "	10,000	10,000.00
SOLAR PAN.	5,000	5 "	0	1,000.00
WATER TRO.	7,000	7 "	0	1,000.00
PICK-UP	200,000	5 "	30,000	34,000.00
TRAILER	50,000	5 "	10,000	8,000.00
SUBTOTAL	465,500			68,350.00

VARIABLE COSTS

LAND PREP. & PLANTING	15,000	5 "	0	3,000.00
MISC.TOOLS	2,000	1 "	0	1,000.00
PETROL				
MOTOR&PUMP	12,000	0	0	12,000.00
PICK-UP	15,000	0	0	15,000.00
OIL&FILTER	5,000	0	0	5,000.00

FERTILIZER	36,000	0	0	36,000.00
LABOR/YR	67,200	0	0	67,200.00
CONTINGENCIES				
10%	13,920	0	0	13,920.00
SUBTOTAL	166,120			149,120.00

TOTAL EXPENDITURES

FIXED COSTS	465,500			68,350.00
VARIABLE COSTS	166,120			149,120.00
CATTLE PURCHASE				
50HD X 2500	125,000			125,000.00
SUBTOTAL	756,620			342,470.00
EQUITY 30% CF SUBTOT.	226,986			0000000.00
LOAN 70% @ 15%/YR.	529,634			79,445.00
TOTAL EXPENDITURES	756,620			421,915.00

INCOME

SALE OF CATTLE				
TWO 50HD BATCHES				
PER YR. 50HD X 2 X 350KG X D10/KG. =				350,000.00

PROFIT OR LOSS				<71,915.00>
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CONCLUSION

From the above approximate and assumed calculations even with a large margin of error the GRASS FATTING SCHEME is a negative venture. While all figures were assumed the production figures are

the ones that could be in the greatest error. At present there are not any trial or research production figures for this type of operation to use as guide. The economy of scale may not be the correct one, the infrastructure may be more in order for a more profitable cash crop (irrigated fruits and vegetables), a combination of a cash crop with grass fed cattle, or the operation may be able to produce and sustain a larger number of heads of cattle per year than the assumed number of 100 head/year used in this exercise.

GRASS FED BEEF PART 2

As mentioned above there is also the semi-extensive method of grass fattening cattle. This system is rangeland management, similar to the present system used in country with the major difference that it will be enclosed (fenced) and managed properly. For comparison purposes a calculated exercise will be tested. The following parameter will be used, they are:

a) a rangeland area up country with some access to the Gambian River as a source of livestock water will be selected for the purpose of grazing steers or bulls. These could either be completely fattened on grass or if the animals are young enough (yearlings, 12 to 24 months old) they will be used as stockers, PHASE II of the overall cattle operation. The stocker calves could be grown out to 230 kg. and finished out in a feedlot operation.

b) a rangeland area of 500 hc. will be selected and fenced. The perimeter would measure 2 km. X 2.5 km. for a total of 9 km. A five strand barbed wire fence would require 45 km. of fencing expenses. Based on the previous exercise one kilometer of fence costs D6350 thus 45 km would require D285,750 for perimeter enclosure.

c) a central corral and water facilities will be located in the center of the rangeland. From this area four separate electrical fences would divide the rangeland into four pasture for pasture rotation grazing. The cost of the electrical fencing is estimated as follows:

1) solar panel	D3,000.00
2) slick wire for electrical fence. Two strands X 9 km.= 18 km. or 90 rolls of wire X D200 =	18,000.00
3) staves to support electrical wire 3,000 X D3 =	9,000.00
4) corral & water tank and trough	20,000.00

VEHICLE				
PICK-UP	200,000	5	30,000	34,000
TRAILER	50,000	5	10,000	8,000
SUBTOTAL	685,750	0	0	91,875
VARIABLE COST				
FEED SUPL	64,800	0	0	64,800
MISC. TOOLS	2,000	0	0	2,000
PETROL				
MOTOR&PUMP	8,000	0	0	8,000
PICK-UP	40,000	0	0	40,000
OIL&FILTER	5,000	0	0	5,000
LABOR				
2 HERDSMEN				
X4X12	48,000	0	0	48,000
CONTIN				
GENCIES				
10%	16,780	0	0	16,780
SUBTOTAL	184,580	0	0	184,580

Table --. SUMMARY OF EXPENSES

FIXED EXP.	685,750	0	0	91,875
VARIABLE				
EXP	184,580	0	0	184,580
CATTLE				
PURCHASE				
200HD X				
D1050	210,000	0	0	210,000
SUBTOT.	1,080,330			486,455
EQUITY				
30%	324,099			0000000

5) water supply from river motor,pump and pipe	100,000.00
6) feed supplementation for 200 head of stocker X 2 KG/HD X 180 DYS/YR X D0.9/KG =	64,800.00
7) misc. tools	2,000.00
8) vehicles	
a) pick-up	200,000.00
b) trailer	50,000.00
9) petrol for	
a) motor & pump	10,000.00
b) pick-up	30,000.00
c) oil & filtes	5,000.00
10) labor	
a) two herdmen X D500 X 4 wks X 12 MO.	48,000.00

SUMMARY OF EXPENSES

FIXED COSTS

ITEM	COST	LIFE	SALVAGE	DEPRECIATION
FENCE	D285,750	10	0	D28,575
SOLAR	3,000	5	0	600
ELEC.WIRE	18,000	10	0	1,800
STAVES	9,000	10	0	900
CORRAL & WATER FAC.	20,000	10	0	2,000
MOTOR & PUMP,PIPE	100,000	5	20,000	16,000

LOAN 70%		
@ 15% ^{YR}	756,231	113,434
TOTAL	1,080,330	599,889

INCOME

SALE OF		
200HD X		
230KG X D10		460,000

PROFIT		
OR		
LOSS		<139,889>

CONCLUSION AND COMMENTS

The margin of loss in both these exercises of fattening steers or bulls through the grass fed system proved to produce negative economic results. From the assumed calculations, in spite of a possibly large margin of error, one can attribute these results to the disparity between cost of interventions and prices received for the final product. Modern technology require essential interventions for better management and conservation. However the cost of any given intervention has been able to keep pace with the rising costs of present day economics of commercialization. This is the case with the prices of livestock and its by-products within The Gambia. To best illustrate this point lets compare the cost of an imported intervention item that a cattle raiser could use and the price he receive for his cattle in comparison to what that item or the cattle would bring elsewhere in world, example:

Table --.

=====

ITEM	COST GAMBIA	= COST US\$	COMPARABLE ITEM US\$
BARBED WIRE	D250	26	29.00
SOLAR PANEL	D3000	313	275.00
FATTEN STEERS 400KG	D3400/HD	417/HD	651/HD

BEEF/KG
CARCASS
ABOVE
STEER D17/KG 0.80/LB 1.30/LB

Producers have recognized this problem but is beyond their capability to solve it and have taken a non-motivating passive attitude. Therefore the private sector is call upon as having the capability to address these issues. Technical interventions are implemented with a positive respond in productivity but the constrains remain with the final price paid for the improved product. A price that is not comparable to the break even cost of production.

This realization re-focuses on the initial concept of adding value to meat via a feedlot fattening scheme. This system, while expensive in itself, provides the opportunity to gain on the time factor by shortening the fattening process while adding value to the meat. In addition provides a faster return or roll-over of the capital invested.

It is in the best interest to initiate a pilot feedlot fattening program to further test its possibilities with the caveat of being conservative on infrastructure expenditure which ties-up capital.

FORAGES

FORAGES WITHIN THE GAMBIAN CONTEXT

The impresion of the forage biomass composition upon an up country trip to Basse tends to reveal that the Gambian rangeland is resilient and responds well to proper management. Burning more than the possiblity of overgrazing is the problem. However, it is interesting to note that if the rangeland burn so readily its because there is enough biomass to carry a fire. The abundance of biomass is a positive indication that at least the rangelands observed are not in a degrading state due to overgrazing. Rangelands are more threatened by the firemania that is so prevalent in the customs and traditions of the village population. The cattle population walk through them in a hungry state grazing only tender vegetation if any is available at this time of year. The abundance of biomass also indicates that the traditional livestock management or lack of it allows the forage to outgrow the grazing capability of the livestock. All this and more could be due to a series of problems and traditions that compel the owners or herders of livestock to contribute to the starvation of their cattle by keeping them tight-up during the most important grazing periods of the cattle's grazing day. As a result the cattle are undernourished specially the lactating cows and nursing calves. The non-lactating cows, steers, ox and bull weather the lack of nourishment better because their maintance requirements are not as demending as that of the cows with calf at side. However this

constant lack of nutrients do not permit the animal to graze mature and weathered grass because their metabolism is lacking in the energy required for them to make better use of this forage. Their state of condition worsens as the dry season progresses. By the rainy season the animals are so weak and their condition becomes more precarious by the new lush green grass in addition to the internal parasite load that they harbor. It requires the animal most of the first two months of the rainy season to become preconditioned to the new diet before fully assimilating a high percentage of it for their maintenance, production and weight gain. By the time the animal begins to improve its nutritional state the dry season is upon them again.

FORAGES IN GENERAL

Forages from an overall nutritional standpoint may range from very good nutrient sources (such as new green growth during the rainy season) to very poor feed (such as straw, stover, hulls and browse during the dry season). Many of the crop residues fall within this category as well as the abundance of biomass that has survived the burning. While all forages can be utilized advantageously discretion should be used in advocating their use without providing the the assistance necessary so that:

a) they are properly prepared and supplemented with a protein/energy ration.

b) judgement be used in selecting the type of forage and animals (bulls, cows, heifers, calves, sheep and goats) to which a particular roughage is fed. None of the above animals have the same nutritional requirements at any given time. This simple basic principal is the most misunderstood and abused. The result is that the animal is left lacking.

c) that emphasize be given to the fact that as grass becomes mature, the digestibility and nutritive value decreases. If left standing to bleach and weather on the stalk with a few leaves, it will be comparable to poor grade straw in composition and nutritive value. This is precisely the case with the dry/standing grass that is observed throughout the rangelands. Grass that has become too weathered with little to no nutritive value. It provides an abundance of biomass that the animals can not utilize and in most instances will be set on fire.

ENERGY DEFICIENCIES

Hunger due to a lack of nutritional energy needed by the animal to for its only body maintenance but also to make better use of undesirable forages that are more abundant than the palatable green grasses in the rainy season. Therefore, it is not surprising to observe cattle literally walk on grass and be hungry at the same time. During the rainy season the rangelands respond with such vigor that the cattle because of sad state of condition cannot

properly utilize nor keep pace with rapid growth.

The traditional herding of the animals further compounds the situation by depriving the animal of a complete diet by interrupting their natural grazing habits. In addition the animal spends the night tight-up without water or supplementation. As has been observed and reported in the literature all these inefficient practices have non-productive negative effects that if the animal survives can but not always compensate with time. Bulls, steers and non-lactating cows will tend to compensate easier but the lactating cow never seems to ever catch up.

SOLUTIONS

The problem is not always solved for lack of technical interventions but rather for lack of financial resources. From the above exercises it becomes evident that for major interventions to have an impact on production will require major financing and time with the first year, at least, operating with losses. This has been the demise of many projects that were transferred to the community for continuity. The only solution that continues to surface repeatedly is find, open or create new marketing channels making a complete circle back to the adding value to meats.

V. STRATEGIC INTERVENTIONS AND ASSESSMENT OF OPPORTUNITIES

AREAS FOR IMPROVEMENT

There are four overriding issues that need to be addressed if improvements in the livestock sector are to be achieved by the year 2000. The four critical areas are:

- o productivity
- o commercialization
- o meat quality and safety
- o marketing (domestic and export)

Improved productivity involves technological enhancements resulting in the changes in input/output relationships. The resultant benefit is for either increased outputs of livestock products with the current levels of inputs or maintain the current levels of outputs from fewer amount of inputs.

Improved commercialization of the traditional livestock herd involves the responsiveness of livestock owners to market signals and economic costs in maximizing commercial returns from livestock keeping. Incentives and disincentives are realized directly by producers from how animals are managed and scarce resources (labor, land and capital) are utilized.

Meat quality and safety result in economic and health benefits to The Gambia by being assured that meat wholesomeness is present at all stages of the production, processing and retailing levels.

Finally, improved marketing comprises those issues related to distribution, pricing, promotion of the product that results in both operational and pricing efficiencies and ultimately in overall economic efficiency of the marketing system.

GOALS AND ACHIEVABLE OBJECTIVES

To address the overriding four areas for improvement in the livestock-meat sub-sector, a series of goals with stated achievable objectives are presented. Specific roles are set out for private sector initiatives in all areas of production, distribution, processing and marketing. The role of the Government of The Gambia is to serve in support of private commercial development through training, research, monitoring and inspection.

Goal 1. Improvement in Gambia's Meat Standards, Safety and Hygiene to be the recognized leader in Quality in the West African Region

Objective 1.1. Improve the handling and processing of meat (e.g. slaughter, bleeding, and dressing of carcasses at the Abuko abattoir.

Method 1.1.1: provide the necessary equipment, tools, knives, clothing, etc. for proper inspection.

(year 1) Cost: USD 3,000.

Method 1.1.2: send a technician from DLS abroad for training in meat inspection systems and carcass and meat cutting. (year 2) Cost: USD 15,000.

Method 1.1.3: Establish a grading system for livestock and meat products based on age of the animal and body condition. (Year 3 - 4).

Objective 1.2. Improve the condition of the Abuko Abattoir owned by YAMS to a Standard to Export to Other African Countries.

Method 1.2.1: Clean the area around abattoir and designate a site near the abattoir for the disposal of condemned carcasses or organs until a rendering facility is in place. (Year 1).

Method 1.2.2: Abattoir will begin to capture major by-products during the slaughtering process to include blood and other valuable products through the establishment of appropriate rendering and cooking equipment. (Year 2) Cost: USD 50,000.

Method 1.2.3: Renovation of the refrigeration system at the abattoir based on market research (see method 2.1.1.) into alternative markets for Gambian meat to allow for product development and mix of meat products to different market segments - domestic and export. (Year 3) Cost: USD 30,000.

Method 1.2.4: Form a joint commission between the Ministry of Agriculture and YAMS for the formulation of an investment credit program to facilitate in the rebuilding of the plant for domestic and export conditions.

Goal 2. Expansion of the Market with New Product Development for Gambian Meat and By-Products

Objective 2.1. Conduct Research on Markets for Gambian Meat and By-Products

Method 2.1.1: Commission a study on the market conditions existing in The Gambia and regional African markets for livestock, meat and by-products. Study will include market analysis for fresh, frozen, bone-in, boneless and processed meats and hides and skins. Analyze transportation modes (truck, sea and air freight) and costs to these markets. (Year 1) Cost: USD 50,000.

Objective 2.2. Formulation of The Gambian Government's policy on the flow of livestock and meat within The Gambia and among neighboring African countries and to the European Economic Community.

Method 2.2.1: Ministry of Agriculture establish a joint commission with Senegal for the free flow of livestock for processing and reexport. (Year 2 - 3)

Method 2.2.1: Critically examine the role of imported subsidized meat into The Gambia and its effect on producer and consumer prices.

Objective 2.3. Encourage the entry of new private sector firms in the market development of livestock, meat and their by-products

Method 2.3.1: Encourage private sector development for the processing of hides and skins and encourage the creation of businesses to use these products in The Gambia, for example shoe, leather or apparel manufacturers.

Method 2.3.2: Undertake feasibility study on the private sector to establish a meat processing/manufacturing business with the purpose to utilize inferior animals and less desirable cuts from the carcass into value-added meat products, e.g. frankfurters, sausage (wet, dried, and smoked), cooked meats and other deli type meats with alternative packaging materials. (Year 2) Cost: Feasibility study: \$ 30,000. Cost of processing facility is estimated at USD 200,000 - 250,000.

Method 2.3.3: Undertake an economic appraisal of the benefits of a private sector cold storage facility for meat products. A central cold storage would facilitate the distribution of meat for domestic and export markets. This study would occur only after reviewing the development of the Abuko slaughter plant. (years 3 - 4). Cost: D 200,000.

Objective 2.4. Develop a cadre Gambians interested in private sector activities in the livestock/meat business.

Method 2.4.1: Conduct a series of training short courses for Gambian entrepreneurs in business planning, management, marketing, meat processing and exporting. (Year 2 - 6). Cost D 30,000.

Goal 3. The improvement in the quality of Gambian Livestock and Meat for penetration of domestic and export markets.

Objective 3.1 Introduce value-added livestock production system for targeted markets in The Gambia and for export.

Method 3.1.1. Private sector individual conduct feeding trials on ten head of cattle to test appropriate rations (immediate action). Cost: D 45,000

Method 3.1.2: Based on results from method 3.1.1. undertake confinement feeding by the private sector. (year 1). Cost D ?????????.

Method 3.1.3: Training programs on feeding and supplementation of livestock to heavier and marketable weights at earlier ages through year round on-farm feeding programs for cattle, sheep and goats. (Year 2)

Method 3.1.4: Establish improved private range management areas for improved livestock systems where deferred grazing and intensive forage production for the grow-out of livestock using local resources. (Year 3- 4). Cost D ?????????.

Objective 3.2. Increase the role of foreign investors in providing risk capital and business expertise in the agricultural and livestock sectors.

Method 3.2.1: The Gambian Government and the National Investment Bank will aggressively seek foreign investment in the development of the agro-livestock/meat sectors and will encourage investors through a package of investment credits and import and export enhancements.

Goal 4. Modern Livestock Marketing Facilities and Infrastructure for the Commercialization of The Gambian Livestock Sector

Objective 4.1. Improvement of market infrastructure to allow efficient movement of farm commodities to markets.

Method 4.1.1: Improvement of the Abuko terminal market to provide feed, water, fence and weigh scale away from the slaughter plant. (Year 1)

Method 4.1.2. Improve the road infrastructure for efficient movement of livestock and agricultural products. Repair the potholes on main trunk roads so that traffic can travel at 100 km/hr. (Years 1 and annually)

Method 4.1.3: Implementation of an auction market at the Abuko terminal market to improve the efficiency of the pricing system. (Year 5 - 6).

Method 4.1.4: Improve the liquidity in the livestock marketing system through cash purchases of livestock and the provision of agricultural inputs. (Year 3)

Objective 4.2. Timely and accurate market information disseminated to private sector on market conditions.

Method 4.2.1. Weekly market news reports (English and major African dialect) on the Abuko market on prices received, volume sold, head killed and inventory waiting to be sold. (year 2). Cost: D 15,000 per year for five years

Goal 5. Livestock Owners and Managers Perceive the Advantages of Improved Productivity in their Livestock

Objective 5.1. Promote Farmer Awareness on the Importance of Improved Livestock Production

Method 5.1.1: Farmer to Farmer Programs to bring U.S. livestock owners to The Gambian to share knowledge about improved livestock practices. (Years 2 - 6) USD 100,000/year.

Method 5.1.2: Establish regional agricultural shows with an emphasis on improved livestock: cattle, sheep and goats (meat and dairy). (Starting in Year 2 and continuing annually). D 250,000 per year.

Objective 5.2. Institute national range management practices on how to manage year round forage for livestock production.

Method 5.2.1: Revitalize and restructure the Dankunku project with greater linkage with the private sector for making butter, ice cream and cheese. (Year 1).

ASSESSMENT OF STRATEGIC INTERVENTIONS

Strategic interventions proposed for the improvement of the livestock-meat subsector are assessed in regards to their likelihood for success.

Penetration of Domestic and Export Markets for Beef, Mutton and Goat Meat and Hides and Skins

Supply/demand factors. The Gambian livestock industry is small compared to other surplus livestock countries in West Africa. Livestock from Senegal are currently being sold in the Abuko market. Supply availability for a year round supply of quality livestock is not present unless imports are allowed. Currently, the Senegal Government is not officially allowing livestock to leave the country. This policy needs to be investigated.

Demand for meat in The Greater Banjul Market is strong. It is felt that consumers are very price sensitive and will easily shift to other competing protein products, e.g. poultry and fish. This puts pressure on meat prices from rising. Also, there are cheap imports, particularly frozen meat shipped into the country which dampens consumer prices for fresh meat.

For the export market, it is difficult to know how competitive Gambian meat will be in the West African markets. Now that the CFA has been devalued it means that imported products from outside CFA countries will be more expensive. This explains why livestock are flowing into The Gambia presently.

Supplies of cheap imports into West Africa will continue but at a slower rate because of demand for EC stocks from Eastern Europe and the Former Soviet Union. This will help to keep Gambian livestock producers competitive in producing in the region.

The world market for hides and skins is strong making exports of quality Gambian hides attractive. The hide market needs to be improved to receive higher prices for quality finished products.

The major source of milk is from imports of canned and powdered milk. The demand for fresh milk from Gambian cattle is good and milk sells for) 2.50 per litre. Milk is a valuable output for Gambian livestock owners and is a primary reason for keeping cattle.

Prices. In the domestic market, import prices of high quality products are at least 75 to 100 percent higher than local beef. Opportunities exist for Gambian producers to be competitive especially given the import levies and sales taxes. Gambian beef does not match the high quality beef. On the other account imported beef is from South America where cattle are grass fed like in The Gambia.

The FOB price at Abuko for hot carcass meat before is approximately D 22 per kg (USD 2.29/kg = USD 1.04/lb). (This compares with recent prices of U.S. 1.30/lb. for Australian cow beef.)

Competition. With the privatization of LMB, the industry is in a state of flux. The uncertainty will be in the direction that the YAMS' abattoir will take in the future. In the trading and retailing of meat, sufficient number of buyers and sellers are

present to allow competitive prices.

Market entry hurdles. The major hurdle for market entry will be obtaining available supplies of quality meat to expand into new product lines, especially during the dry season. The shortage of working capital and affordable credit will hamper the expansion of the industry and the success of the proposed strategic interventions. Export entry will be delayed by the current infrastructure of the abattoir and the inability of neighboring countries to have available foreign exchange.

Product mixes. The product line is currently very narrow with only a hot meat trade. No fabrication of carcasses is being conducted and meat processing is not present. No grades and standards exist to direct products into different markets with the highest and best use for the products.

Product quality. The general taste and tenderness of Gambian meat is not present because of the production limitations in getting acceptable carcasses at an early age. Efforts to change the product will take time, but it is important to begin now.

Sanitary and other statutory requirements. A hygiene protocol is not in place to set standards for meat handling. The proposed strategic interventions will alleviate this bottleneck.

Consumer preference. Opportunities exist for designing marketing programs for The Gambian consumer. In the middle to low income strata of the population, price pressure will limit some gains from the strategic interventions proposed. Meat promotion is necessary to educating the public of the qualities of Gambian meat.

Impact on the Traditional Production Sector and potential for improvement, especially as regards the ability to tap into domestic and export markets.

The traditional production sector is constrained by management practices tied to communal grazing and a recognition that cropping is a more important than livestock rearing. Uncontrolled burning is a major detriment to potential improvement.

The tremendous amount of biomass cannot be consumed in its present state to any great degree without supplementation of protein/energy feed. The cost of the supplementation is too expensive for the traditional livestock owner.

Small-scale feedlots that have very low capital costs on infrastructure would be advisable for cattle. If a market can be found for the fed steers and bulls, then the strategic interventions for improved feeding will have a positive impact on traditional production systems. As for small ruminants, it is preferable to go to year round production rather than for a target festival. More market outlets through regional fairs and field days will create awareness of the value of fattening the animals.

The GOTG could start conducting feed trials for measuring inputs to obtain the necessary data to assist the private sector in starting a fattening scheme. The strategic interventions proposed by the GOTG on market development would be important to attracting new private companies to enter the meat business.

Assessment of Roles by Private Sector and Government in Attracting Investment and Facilitate Industry Development

The strategic interventions proposed rely heavily on attracting risk capital into the livestock-meat sub-sector. There has been some entry of private sector individuals in the butchery business. As the Gambian economy experiences the benefits of its economic policies to privatize, real incomes will rise and consumption of meat products will certainly increase.

The ability of GOTG to attract new investment is uncertain. Infrastructure in the interior of the country is lacking so that expansion in agro-industrial projects will be limited. Livestock production is not seen as a high valued commodity, like fruits and vegetables which have a high turnover rate in a shorter period of time.

Government policies for the livestock sector to encourage private development has to be linked to curtailing perceived environmental degradation. The ecosystem of the river and estuaries has to be factored into the land use planning and investment decisions for livestock development.

Assessment of Marketing Arrangements to Meet the Goals of High Quality Animals and Meat for Domestic and Export Markets

The strategic interventions on grading and meat standards coupled with an improved market information system will facilitate in livestock producers producing animals for the domestic and export markets. However, this is a long term development goal and will only be achieved if production activities, e.g. fattening and cross breeding, are economically viable.

Livestock producers will need to see improvements in the payment method for their livestock before they can be responsive to the needs of the market. The marketing arrangements proposed will afford a mechanism to retain quality added to the animal.

Assessment of Capital Costs to Implement the Necessary Changes for an Export Oriented Livestock Industry

At the current interest rates hovering around 20 percent in The Gambia, it is difficult for the private sector to undertake some of the strategic interventions recommended. Activities by the GOTG can begin to set the stage for private sector development after costs of capital decline to world market levels of 10 percent or less.

Commercial feedlot development is not profitable at the current levels of costs of capital. Other village level interventions, such as sheep fattening, will continue to remain competitive because of the use of local feeds and low input costs.

Several private individuals were identified who have an interest in expanding their current operations in the livestock industry. Joint venture capital will be difficult for projects that require the transformation of the traditional production system which is long term in nature.

Assessment of Strategies on Domestic Prices for Beef, Mutton and Goat Meat

If the strategic interventions are successful over the long term; the following impacts on prices for beef will likely occur. Increased export trade will have the effect of shifting supplies of meat to export markets consequently raising Gambian consumer prices for meat and less quantities of meat consumed. Prices for livestock will increase to producers. The export of beef will generate foreign exchange for The Gambia. All things being equal, a competitive export market will result in the export price being equal to the Gambian price plus transportation costs.

The long term rise in consumer prices for beef will also positively effect the prices for mutton and goat meat. Competition from poultry and fish will continue to impact on the price for red meat.

PERSONAL INTERVIEWS AND VISITATION SCHEDULE

Saturday, February 19th

Meeting with Omar Touray, Director of Livestock Services, Dr. Baudo Loum, Deputy Livestock Officer; Dr. Seasay, Regional Veterinarian Officer, Western Region; Steve Wade, FAPE Project Officer; Dr. Omare, ANR Project, USAID.

Visit to St. Mary's Cape Point Supermarket to collect retail meat prices.

Monday, February 21st

Driss Bensouda, owner of butcher shop and private entrepreneur involved in the trade of fresh beef products in Banjul area. Visited a proposed beef fattening ranch near the airport.

Lamin Inwara, financial advisor at the National Investment Bank, involved in the sale of Livestock Marketing Board's assets.

Meeting with Lamin Bojang, Senior Meat Hygiene Officer, and Dr. Seasay concerning meat inspection in the Banjul market and the planning of the week's activities.

Tuesday, February 22nd

Meeting at USAID with Nancy McKay, Program Officer, Gary Conley, Agriculture Officer; Steve Wade, FAPE Project; and Christine Elias, ANR project officer.

Mr. Pierre Shyngle, private butcher, involved in the wholesale and retail of meat products. Included in the meeting was Aliyu Joof, Range Management Officer.

Visit to Kariba Supermarket to record meat prices of imported meat products. Mr. Hussein, Managing Director, ph. 371146.

Visit to Paul Morrons Supermarket and met with the owner, Mr. Morrons, and discussed the differences between imported and domestic beef.

Visit to local meat market in Serekunda to speak with local butchers.

Visit with the feed dealer, Sheikh Sisay, about the trade in groundnut hay.

Visit with Abass Barrow, Director of Operation for YAMS, a private company, that purchased the abattoir at Abuku. Phone: 390722.

Meet with Alieu Ndow, Director of Central Statistics, in the Ministry of Finance, on household food consumption and livestock and meat import data. M. S. Tunkara is responsible for livestock

Central Corridor." Associates for International Resources and Development. Cambridge, MA. August, 1993. p.160.

Ministry of Health. "Banjul and Kombo St. Mary Slaughter House (Licensing and Management Regulations." Government of The Gambia. Cap. 40:03. no date.

Mortimore, Michael. "A Review of Mixed Farming Systems in the Semi-Arid Zone of Sub-Saharan Africa." Working Document No. 17. International Livestock Center for Africa. July, 1991. p.179.

National Agricultural Data Centre. "Statistical Yearbook of Gambian Agriculture: 1991." Ministry of Agriculture. Banjul, The Gambia. 1992. pg. 45.

Njie, Matarr. "Economic Assessment of Feeding Strategies for Fattening Ram Lambs Using Sesame Cake in The Gambia." Department of Livestock Services. Abuku. The Gambia.

----- . "A Survey of Crop Residues and Agro-Industrial By-Products in the Gambia, and Their Nutritive Value for Ruminants." Swedish University of Agricultural Sciences. Department of Animal Nutrition and Management. 1986.

Tuah, A. K. and Yaa N. Danso. "Preliminary Studies on the Performance and Productivity Indices of N'Dama and West African Shorthorn Cattle in Ghana." Trop. Animal Health Production. 17, p. 114-120. 1985.

United States Agency for International Development. "Program Assistance Approval Document - Annexes - Agriculture and Natural Resources (ANR) Program." Banjul, The Gambia. August 14, 1992.

UNDP/FAO. "Livestock Sector Review." Banjul. 1992. p. 213.

VI. APPENDIX MATERIALS

LITERATURE CITED

- African Link. "Beef Dumping - EC Robbing Local Farmers the Chance to Sell Their Own Goods." 1993.
- Agra Europe. "EC Beef Sales from Intervention Hit African Exporters." March 26, 1993. p. M/4.
- Agra Europe. "EC Beef Exports Swamping West African Markets." London. August 13, 1993. p. M/5.
- Agra Europe. "UK Importing More Third Country Beef." London. January 21, 1994. p. M/4.
- Central Statistics Department. "Social Dimensions of Adjustment - 1992/93 Price Survey Report - The Gambia." Ministry of Finance and Economic Affairs. Banjul. 1993.
- Department of Livestock Services. "Livestock Prices: January - December, 1992." Ministry of Agriculture. no date.
- Department of Livestock Services. Livestock Research Papers. 1988.
- Drammeh, Momodou K.B. "The Utilization of Hides and Skins for Income Generating Purposes in The Gambia." UNDP. October, 1992.
- Dwinger, R. H., K. Agyemeng, D. A. Little. "Productivity of N'Dama Cattle Under Village Conditions in the Gambia and Senegal." The International Trypanotolerance Centre. Banjul, The Gambia. December, 1990.
- Gombaudo, B. "Engraissement de Boeufs N'Dama de 4 Ans en Stabulation et sur Paturage Permanent Complemente." Centre de Recherches Zootechniques de Minankro. Bouake, Cote d'Ivoire. CRZ. 1972.
- Holtzman, John S. and Nicolas P. Kulibaba. "Livestock Marketing and Trade in the Central Corridor of West Africa." Abt Associates, Inc., Washington, D.C., July, 1992. p. 185.
- Jouve, J.L. and L. Letenneur. "Etude, en Cote d'Ivoire, de la croissance de taurillons N'Dama entretenus suivant divers modes d'embouche." Rev. Elevage Med. vet. Pays Trop. 1972, 25 (2): 317-324.
- Management Development Institute. "Consultancy Report for National Investment Board on Livestock Marketing Board." August, 1991. p. 115.
- Metzel, Jeffrey and Andy Cook. "Economic Comparative Advantage and Incentives in Livestock Production and Trade in West Africa's

statistics. ph. 228903. Others visited included: Mahen Njie, Household Survey Section, ph. 229683, and M. S. Raman, Senior Statistician, ph. 228327.

Wednesday, February 23rd

Mr. Bob Johnson, Groundnut factory, to discuss the role of private sector in the production of groundnut processing and sale of cake. Met with Richard Kittlewell, General Manager.

Visit with Driss Bensouda about feeding program for cattle and request for import data.

Visit to Amis Beach Hotel. Visit to Palm Cove Hotel. Visit to Sun Wind and the Chef Luis del Prado and the purchasing manager Mr. Kinte (ph. 495428/435.)

Visit to B & B Hotel and met with Chef Johan Ekstrom, the Food and Beverage Manager. (ph. 465288)

Meeting with Mr. Ibraheim Yanneh, Livestock Survey Division, on livestock prices.

Meeting with Eric Thiry, Livestock Specialist, Department of Livestock Services.

Meeting with Dr. Dana Wiltz, temporary veterinarian from the United States involved in animal health care and station at DLS.

Meeting with Mr. Pa Jallow, General Manager of the YAMS farm discussing the breeding herd and opportunities for feeding cattle.

Visit to the livestock market at the abattoir to weigh eight head of cattle purchased by Driss Bensouda for slaughter the next morning for data collection.

Thursday, February 24th

Inspection of the abattoir and collection of data on carcass weights on eight head of cattle purchase the following afternoon.

Meeting at DLS with the Livestock Dealers Association to discuss opportunities and constraints in the marketing of livestock products.

Visit to the Kariba Hotel to meet Chef Jimmy O'Donald about the opportunities of domestic beef.

Visit with Mr. Abdoullia Touray, chief executive officer of National Investment Bank and Steve Wade of FAPE.

Visit with Larry Ceasay and Lone Thorup of UNDP to discuss the Dankunku Livestock Project.

Friday, February 25th

Mr. Ponga, Department of Livestock Services, who was the field officer for the Dankunku Livestock Project.

Chief Omar Ceasay, President of the Sheep and Goat Fattening Association, from Youn Upsalon, McCarty Island District.

Mr. Momodou Jaiteh, Assistant Food and Beverage Manager, Senegambia Hotel, to discuss meat imports by the hotel. Phone: 463855.

Saturday, February 26th

Visit to the luomo, livestock market at Barikimaba, to inspect livestock and speak with livestock owners and dealers.

Met Mr. Yorro Beri Kunda, the officer at the Divisional Livestock Services Center at Y. B.K.

Travel to Sololo in the McCarty Island District. Met Mr. Momodou Mbake, station director of The International Trypanosomiasis Center (ITC), at Sololo, McCarty Island Division.

Sunday, February 27th

Visit to the Catholic Relief Service Center for sesame seed processing at Bakadagi.

Mr. Ebrima Bassa Sonko, Divisional Veterinarian Officer, for the Upper River Division stationed at Basse. He accompanied us to the slaughter slab at Basse and inspected the new building under construction. A visit was made to the meat market.

Met with Mr. Levaray, manager in-charge of the cotton gin at Basse. Phone 668362 and fax 668461.

Monday, February 28th

Visit to the rice project at San Kulay Kunda to understand the availability of rice milling. Met with the Assistant Agriculture Officer, Abdoulia Mbake.

Met with Chief Alhaji Lamin Bandeh near the rice fields who is a large livestock owner.

Woman involved in sheep fattening program in the village of Boiran (Denton).

The research center for Action Aid of The Gambia located at Sapo. Met Mr. Lamin Dibba.

Mr. Alhaji Babou Ceasay in Mamut Fana who is the president of the Maize Growers Association.

Tuesday, March 1st

Visit to livestock herds near the Dankunku Livestock Station to inspect the condition of the livestock and to view the range management system in place. A meeting was held with representatives of the range management committee.

Visit with Matarr Njie, divisional livestock officer, Lower River Division, about livestock activities and especially sheep and fattening schemes.

Wednesday, March 2nd

Visit with Mr. Tunkara and Mr. Raman, Central Bureau of Statistics, concerning import data on meat products.

Debrief FAPE project director, Steve Wade, at the National Investment Bank, on business opportunities at up-country locations.

Thursday, March 3rd

Site visit to GAMTAN in Abuko to inspect equipment and facilities.

Interview Mr. Momodou K.B. Drammeh who conducted a feasibility analysis of hides and skins tanning in The Gambia for the United Nations Development Program.

Met with Pierre L. M. Sarr, Marketing Manager, Banjul Breweries Ltd., about the opportunity to purchase breweries waste as a cattle feed.

Met with officials at the International Trypanosomiasis Center (ITC) to discuss opportunities for improvements in The Gambian national livestock herd. In attendance were Dr. Touray, Director, Derek Clifford, Bill Snow, and Hans Wagner.

Met with Dana Wiltz, livestock veterinarian, about animal health conditions in The Gambia and the opportunity for small ruminant production strategies.

Friday, March 4th

Met with Permanent Secretary for the Ministry of Agriculture, Mr. Yaya Jallow.

Met with Mr. Taylor, Director of Planning, in the Ministry of Agriculture.

Met with the FAO representative for The Gambia, Mr. Edward Bayagbona.

Met with Mr. Gaye, meat technologist for the Department of Livestock Services, at the central meat market in Banjul.

Monday, March 7th

Industry seminar at Abuko with over 60 participants from the private sector, financial community, government and donor agencies.

Visit with members of the Gambian Butchers Association about meat merchandising practices.

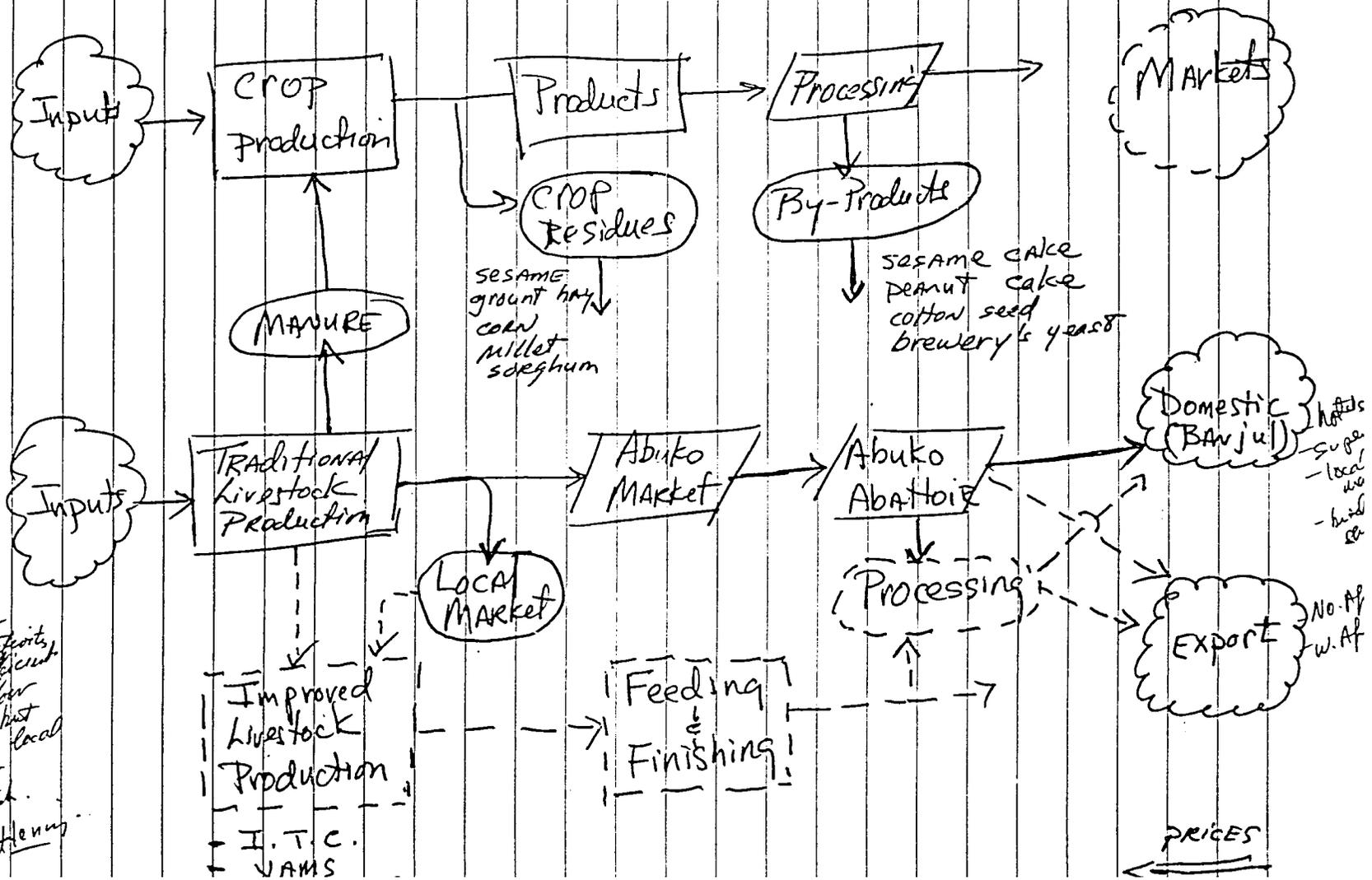
Toured the DLS facilities at Yundum Farm near the airport to view the area and inspect livestock.

Wednesday, March 9th

Exit briefing with USAID and FAPE program officer.

Exit briefing with Department of Livestock Services and the National Investment Bank.

Figure. Chart of Livestock-Crop Product Flows



low off take
low productivity
low efficiency
breed is slow
maturing / fast
adapts to local
condition
- crop / livestock
- sheep fattening

Improved
Livestock
Production
I.T.C.
VAMS

Notes
- super
- local
- wild
- se

No. AP
w. AP

PRICES

Department of Livestock Services
Abuko
The Gambia.

Ref: VS/CIR/27/(233)

4th March, 1994.

SEMINAR/BRAINSTORMING SESSION

You are kindly invited to attend the above-mentioned Seminar or Brainstorming Session.

TOPIC : FEEDLOTING AND MEAT DEVELOPMENT INITIATIVES IN THE GAMBIA -
THE WAY FORWARD.

VENUE : DEPARTMENT OF LIVESTOCK SERVICES, ABUKO (CONFERENCE ROOM).

DATE : 7 - 3 - 94 (MONDAY)

TIME : 11am - 12.30pm

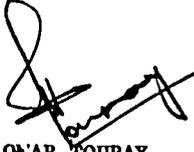
MODERATOR : DR. OMAR TOURAY

PRESENTERS : DR. RAUL HINOJOSA (LIVESTOCK RAISING CONSULTANT)
DR. GREGORY SULLIVAN (MEAT PROCESSING / MARKETING CONSULTANT)

ISSUES:

- Potentialities and Constraints of the Traditional Sector
- Potentialities and Constraints pertaining to the establishment of a modern sector.
- Policy issues - *free flow of livestock*
- The role of the public and private sectors
- Complementarity between the traditional and modern sectors
- Complementarity between the public and private sector
- Environmental issues.

- Product development, marketing and consumer issues
- Infrastructure
- ETC.

A handwritten signature in black ink, appearing to read 'Omar Touray', written over a horizontal line.

DR. OMAR TOURAY
DIRECTOR.

Government Attentive To Farmers

Government has listened to many complaints from traditional farmers, and as a result is now working on a number of proposals to remedy their situation.

by Mohamed Fauzee

This was told our reporter by Dr. Omar Touray, Director of Livestock Services, following a one-day seminar on feedlotting and meat development initiatives held last Friday at Abuko.

Dr. Touray said the purpose of the seminar was to examine ways of modernising the traditional livestock industry so that animal meat would



Dr. Omar Touray

be of consistently good quality throughout the year, and not just during the rainy-season (when there is plenty of grass for

grazing).

The seminar was sponsored by USAID. The presenters were Dr. Raul Hinojosa, livestock raising consultant, and Dr. Gregory Sullivan, meat processing and marketing consultant. Dr. Touray was the moderator.

Participants included officials from the Ministry of Agriculture, the National Investment Board, USAID, livestock dealers and butchers.