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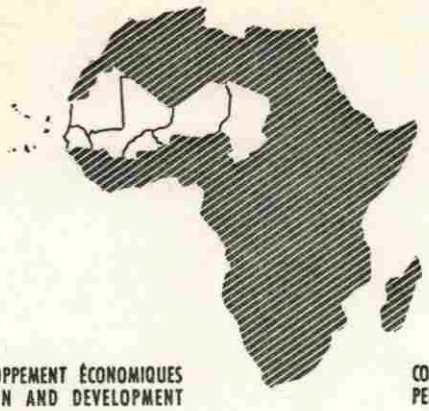

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CEREALS POLICY REFORM IN THE SAHEL

The Gambia

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by Jonathan Haughton
Elliot Berg Associates
907 Duke Street
Alexandria, VA 22314

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I. INTRODUCTION

1. In The Gambia, as elsewhere in the Sahel, there is considerable disagreement on the extent to which deficiencies in the agricultural marketing system can be blamed for the mediocre growth in agriculture experienced over the past decade. The current official position, as outlined in an annex to the 1980-85 Rural Development Program, is that

> ...marketing facilities are hardly developed. There is...a considerable need to build up and strengthen the marketing services such as market information, market research,...technical and financial (credit) support to marketing enterprises....This overall lack of facilities and facilitating services leads to an erratic flow of supplies to the consumer, results in price distortions and increases marketing costs considerably through disproportionately high transportation costs, spoilage and losses....It also hampers seriously the development of food production.[1/]

This "supply-leading" role of the marketing system is challenged by an FAO marketing consultant, who believes that the marketing system responds flexibly as needs arise. He cautions that

> ...the fact that modern marketing is also partly the outcome of modern production should not be overlooked. Lack of appreciation of this fact could result in the construction of marketing infrastructure which may prove to function well below capacity.[2/].

2. The aim of the present study is to assess the need for changes in the Gambian agricultural marketing system, and especially for cereals marketing. In the course of doing this we will try to clarify out the issues in the debate between those

who give the marketing system a supply-leading role and those who view it as demand-following.

3. Sections II to V provide the essential descriptive background required for the analysis of the main policy options which appears in Section VI. Our own set of proposed changes is outlined and defended in Section VII.

II. BACKGROUND: THE RECENT EVOLUTION OF AGRICULTURE IN THE GAMBIA

A. Structural Change

4. The Gambia is one of the world's 20 poorest countries, with an estimated GNP/capita in 1983 equivalent to approximately $U.S 290.[3/] However, among Sahel countries it is, after Senegal and Mauritania, the most prosperous. GDP rose rapidly in the mid 1970s, but this momentum has not been maintained (Table 1). Given relatively rapid population growth, at 3.5% p.a., GDP per capita fell from its peak in the 1975/79 period to current levels where it has remained for several years.

5. The global GDP figures hide important structural changes. Agriculture and livestock, while directly supporting an estimated three quarters[4/] of the population, now account for about a quarter of GDP, down from two-fifths or more a decade ago. The wholesale and retail trade accounts for almost the same proportion of national income, buoyed up in recent years by a growing re-export trade. The government sector grew rapidly in the 1970s but has since leveled off. Manufacturing, although contributing a relatively small share to GDP, has grown and diversified quite rapidly.

B. Agricultural Change

6. Gambian agriculture rests on three legs--groundnuts, coarse grain, and rice. These account for virtually all cultivation.[5/] The following figures summarize the relative importance of each. Details are in Table 2 and Appendix 1.

Crop	% of acreage harvested (1981/82-1983/84)	crop ('000 tons) (Annual Average, 1978/79-1983/84)
Groundnuts	57%	100
Coarse grain	28%	46
Paddy Rice	15%	35

7. By far the most important single crop is groundnuts, which are grown as a cash crop by farmers throughout the country. An estimated 15% of the crop is retained as seed and another 10% for domestic consumption.[6/] The remainder is sold to the Gambia Produce Marketing Board (GPMB), which exports the nuts either in shelled form or as oil or cake. GPMB purchases are typically augmented by inflows from Senegalese farmers.[7/] In a typical year, gross output approaches 150,000 tons, ("tons" refers to metric tons, the official measure adopted in the late 1970s), but in the disastrous years 1979/80 and 1980/81 it did not even reach half this level. As Table 2 shows, output has fluctuated dramatically over the past eight seasons.

8. Coarse grains consist of maize, sorghum, suno (a quick maturing millet) and sanyo (slow-maturing millet), and in 1981/82 and 1982/83 output of each of these four was approximately the same, at close to 15 thousand tons p.a. According to PPMU[8/] statistics the output of coarse grain has surged ahead during the past ten years, averaging 32,000 tons p.a. for 1974/75-1978/79

and 46,000 tons p.a. for 1979/80-1983/84. However other, possibly more reliable, estimates of output show a fall in annual output during this period, from 51,000 to 47,000 tons.[9/] Poor statistics mean that meaningful conclusions about the trend of something as basic as coarse grain output are all but impossible, and efforts to further improve data collection are essential. Probably not more than 10% of coarse grain is marketed,[10/] and it serves as a staple "subsistence" food crop for many, if not most, rural households.

9. Rice production statistics are similarly suspect, so that while the Programming, Planning and Monitoring Unit of the Ministry of Agriculture (PPMU) figures show a rapid expansion, information from other official sources shows a very modest increase in output over the past decade.[11/] In a typical year about 40,000 tons of unmilled (paddy) rice are produced; of this perhaps 6,000 tons come from irrigated areas; the rest is grown in riverine swamps and floodable upland depressions, and is more closely dependent on rainfall. The area cultivated in irrigated rice, although capable of producing high yields,[12/] has shrunk in recent years.[13/]

10. Other crops play a minor role. Cotton has not "taken off" to the extent hoped for.[14/] Palm oil, vegetable growing, and citrus (mainly limes) make some small further contributions.

11. In 1979 the typical male farming unit (dabada) consisted of 14 persons, and cultivated 6.3 hectares, producing 4.3 tons of groundnuts, and 1.2 tons each of paddy rice and millet (coos).[15/] On average such a household would need to buy

about 500 kilograms of (imported) grain to achieve an acceptable nutritional level; such purchases could easily be financed from part of the proceeds from the 3 1/2 tons of groundnuts sold.

12. In 1980 an FAO marketing expert conducted an informal survey of about 60 farmers where he asked how often they were self-sufficient in different crops. His results were as follows:[16/]

Crop	% Self-Sufficient: always/most of time	rarely/never	Sample size
Rice	45%	55%	53
Maize	37%	63%	56
Sorghum	70%	30%	53
Suno(early millet)	32%	68%	41
Sanyo(late millet)	71%	29%	51

This indicates that households are rarely self-sufficient in all the crops they consume, and most have recourse to the market, not only to buy rice, but for coarse grain as well.

C. Explaining Agricultural Performance

13. Recent agricultural output growth has been unspectacular. While some suggest that weaknesses in marketing are partly, or even largely responsible, other explanations are readily available, and include the following.

14. Climatic deterioration. Rainfall data collected in Banjul over 100 years show a secular, and statistically significant, decline. In Table 2 one can discern a correlation between rainfall in Banjul and groundnut output (r^2=-0.59). The timing and precise location of rains are also crucial, so that gross rainfall figures are only a crude measure of climatic

effect; nonetheless the country does appear to be becoming dryer.[17/]

15. Soil degradation. In 1946, 75% of The Gambia was well-forested (tree coverage over at least a quarter of the land); by 1968 this proportion had fallen to 26%; over the same period the area under continuous cropping rose from 0% to 18% of the total land area.[18/] A clear cause is population pressure;[19/] fallow periods have become shorter, and upland soils less fertile. However due to flat topography serious gullying is rare. At the very least agricultural output can be increased only by intensification (fertilizers, water control, etc.) or by extending to more marginal land. Salinization of rice-growing mangrove swamps has also led farmers to abandon some such areas.[20/]

16. Lack of a yield increasing technology? The yields of rainfed crops can be raised by using improved seeds[21/] and more fertilizer. Fertilizer use has increased rapidly over the past decade, both on groundnuts and on cereals. Farmers appear to want to apply more fertilizer to cereal crops, but cannot get credit for this.[22/] Very little information is available on the response of crops to fertilizer; one estimate considers that over the period 1973/4-1980/81 every ton of simple phosphate applied increased groundnut output by 2.8 tons.[23/] Output per household can also be raised by using animals. In 1981 animal use was as follows:[24/]

	% of dabadas (male farming units) using		
	for groundnuts	millet	sorghum
oxen	33	20	10
horses	13	8	6
donkeys	27	10	7

Thus animal use is already widespread for groundnuts, but significantly less so for coarse grains, suggesting a more marginal contribution of animal traction to raising labor productivity in cereal production. Tractors are used by 1 farmer in 10 or 12, especially for preparing irrigated rice fields. Two-thirds of farmers covered by the USAID-sponsored Mixed Farming Project owned a sine hoe seeder.[25/] In sum, some gains are possible through an animal traction/fertilizer/improved seed package, although probably these gains are fairly modest.

17. Labor constraint. Of farmers interviewed as part of the Mixed Farming Project, 60% said that their output was limited by labor shortages at the peak season. In the past this constraint was reduced by the use of migrant "stranger farmers," who would travel to the Gambia for the agricultural season, and be supported and granted use of a plot of land in return for about three days of work per week on the household farm. It seems that fewer "stranger farmers" come nowadays than two or three decades ago. The migration of young men to the urban areas may also have exacerbated the labor constraint. Farmers respond by planting a variety of crops and cultivars with differing planting and harvesting dates.

18. Worsening terms of trade. It is sometimes argued that farmgate prices have fallen relative to the price of inputs and of the goods farm households consume. The relevant evidence is considered more fully in Sections V; the real price of groundnuts has fallen, in part due to an overvalued exchange rate and high implicit taxation on groundnuts. This helps to account for the slight shift from groundnuts to food crops which is discernable in recent years.

19. Lack of information and management skills. Though nine-tenths of farmers are illiterate, most households have at least one literate member, and many have an English speaker.[26/] The country is well provided with extension agents; agricultural radio broadcasts are regularly listened to; and training in animal traction techniques has been extensive. No doubt more could be done, but it is hard to attribute slow agricultural growth to these factors.

20. In brief, erratic and declining rainfall, population pressure and more widespread soil degradation, insufficient input supply to meet demand, the lack of a "green revolution" package to drastically raise yields per worker, and high effective taxation on groundnuts have retarded agricultural growth.

D. Government Agricultural Policy

21. In its second five-year plan (FYP2), which runs from 1980/81 to 1985/86, the government aims to increase the output of both groundnuts and food output by 20%, to reduce soil degradation and to diversify the crops grown, in particular

stressing the need to shift to higher-value agricultural products.[27/] The hope is that such a program will reduce dependency on food from abroad, and by raising rural incomes help provide for the basic needs of the population.

22. To achieve these goals the government favors better inputs and production and storage techniques, coupled with "an equitable pricing policy."[28/] It also intends to improve and rehabilitate swamp rice areas, and improve the existing irrigated rice areas. Marketing institutions are not singled out for particular attention.

E. The Gambian Agricultural Marketing System

23. The agricultural marketing system has the following functions:

- gather groundnuts from farmers nationwide, and then process and export them;
- import grain (mainly Asian rice) to supply both urban and rural areas;
- collect cereals (rice and coarse grain) from those farmers with surpluses and make it available to rural and urban households who need it. Section III outlines how these channels work, and attempts to assess their efficiency.

III. TRADE AND AID IN GRAIN

24. Reliable statistics on grain imports and exports are not available, except perhaps for the last three or four years. Thus the food balance sheet has had to be pieced together from fragmentary information from various sources. The assumptions

made in constructing food aid and food import series are detailed in Appendix 2, along with the available statistics.

25. The food balance sheet shown in Table 3 is instructive, if tentative. In 7 out of the past 10 years grain imports, including food aid, exceeded domestic cereal production. Most grain entering the country consists of commercial imports, especially of rice, but food aid has exceeded 20,000 tons on three occasions. No usable information is available on how stocks of grain change from year to year. Nor are there any estimates of how much imported rice flows out to Senegal, although it is possible that some thousands of tons leave The Gambia annually.[29/] Hence it is not possible to estimate grain consumption.

26. However grain availability per capita has been computed, and fluctuates significantly from year to year. It is widely accepted that the average Gambian needs 170 kg of grain annually in order to be adequately nourished.[30/] While World Bank figures show that enough grain was available in each of the past 10 years, the PPMU ("official") data show insufficient availability in half of these years. Since the distribution of grain among households is unequal, even when enough is available on average, some people will go short. Catholic Relief Services confirm this; about 40% of the children who arrive at its Maternal and Child Health clinics are malnourished[31/] (i.e. less than 80% of the expected weight for someone of their age).

27. It is noteworthy that in 1983/84, when the grain harvest was considered to be especially poor,[32/] food aid and commercial imports increased so dramatically that the amount of grain available stayed at historically high levels; however given the preliminary nature of these figures this conclusion may be subject to later revision.

28. The relatively high level of commercial grain imports has become increasingly difficult to finance, due to the stagnation of export earnings. The following figures taken from Appendix 2, highlight this:

	1974/75-1977/78	1978/79-1982/83
(1) Annual value of exports (DM)	100	90
(2) Annual cost of food imports (DM)	30	64
(3) food import costs as of % of export earnings	30%	71%

29. In nominal terms the value of exports--mainly groundnuts and groundnut-based products, as well as re-exports--fell, while the nominal value of food imports rose. Even allowing for significant underestimation of exports, particularly re-exports, the growing burden of food imports is clear. Unless export earnings begin to expand, The Gambia will be unable to continue to increase its commercial food imports, and will be forced to rely more heavily on food aid or domestic production.

30. Food aid has both "emergency" and "program" components. Even in years of good grain harvest about 10,000 tons of food aid are given to The Gambia, partly for use in

School Feeding, Maternal and Child Health (MCH), and Food for Work Programs. This represents a non-negligible 8% of total grain availability. In years of poor harvest an additional 10 to 15 thousand tons can usually be obtained as emergency food aid. In 1983/84 almost one-fifth of all available grain came from food aid sources.[33/]

31. A breakdown of food aid appears in Table 4, based on PPMU worksheets, and while the details may be suspect the overall pattern is clear. Food aid consists largely of rice and flour; it expands dramatically in years of emergency; and even in a "normal" year (e.g., 1981/82) hardly falls below 10 thousand tons. Commercial imports show surprising variability, in part because a single shipment of wheat flour can last for over a year.

32. In most years significant amounts of coarse grain flow into The Gambia from Senegal. In Table 3 we have assumed a net inflow of 4,000 tons annually.[34/] Such flows do not seem to be included by the PPMU in the figures used in Table 4. The openness of the border with Senegal has many important implications, among them the fact that The Gambia would have great difficulty maintaining a producer price for coarse grain above the market price, since this would trigger large inflows from Senegal; the grain purchased as a result might be difficult to sell without substantial losses. Indeed, in general, the prices of grain in Senegal are of great importance to Gambian policymakers.

IV. THE GRAIN MARKETING SYSTEM

A. Coarse Grain

33. Unlike most Sahel countries, the marketing of coarse grain in Gambia has, with occasional minor exceptions,[35/] been left entirely to private traders. In a typical year the country produces about 45,000 tons of coarse grain, divided more or less evenly between early and late millet, sorghum and maize. Just 10% of this, or 4,500 tons, is marketed.[36/] The essential marketing channels are shown in Figure 1.

34. A farmer wishing to sell coarse grain has several options. He[37/] may sell directly to relatives (either locally or in an urban area) or to neighbors, or to women who use it to prepare food for sale, or he may himself sell the grain retail in a local or periodic market.[38/] Alternatively he may sell to a village shopkeeper, or to a larger local farmer who bulks grain for sale to outsiders, or who acts as an agent for larger merchants located elsehwere. The next possibility is to carry the grain to sell to a merchant located outside the village. Finally he may sell to a visiting trader, or to an agent acting on behalf of such a trader.

35. When asked, farmers say that "social relations" condition whom they sell to, at least somewhat. Provided the price offered is comparable to what others seem to be paying, they prefer to sell to locally based traders, who may be able to help (i.e., lend to) them in time of urgent need.[39/] Farmers also seem to prefer to sell to the same buyer once they have

found someone trustworthy. Despite these qualifications, price appears to be the single most important factor which farmers use when chosing to whom to sell.[40/]

36. Most farmers appear to make most of their grain sales shortly after the harvest, although some store it for resale later. When asked why they do not wait for prices to rise as the season progresses, typical responses include:

> "I don't have enough storage space";
> "Insects and rats will damage it";
> "I need the money for school books and clothes."[41/]

As Section V shows, there is relatively little seasonal fluctuation in the price of coarse grain and so the scope for profits from storage are modest, and may be outweighed by the convenience of selling all at once. Buyers may also enjoy economies of scale in buying in bulk, and so in effect offer a premium to buy in larger units after harvest.[42/]

37. It follows that much of the grain purchased by consumers late in the season has been stored by traders who bought it after the harvest.[43/] No information is available on the extent of such storage facilities. However in Sibanor one merchant regularly stores up to 40 tons of coarse grain. If the country has just 60 such merchants, they alone could store half of the marketed crop of coarse grain; such a situation is plausible, although needs to be verified.

38. Substantial quantities of coarse grain also enter the markerting system from Senegal. Senegalese traders, or their agents, bring grain to the larger periodic markets,[44/] and especially to the large Sunday grain market in Farafenni. This

grain is bought directly by consumers, or by Gambian traders for transport to and resale in Banjul or their local area.

39. Fairly significant amounts of coarse grain flow into the Banjul/Serrekunda area, and they do so in three ways. Typically, traders based outside Banjul bulk grain; once enough has been collected they transport it, by road or river, to the Banjul area, where wholesalers and retailers buy it by the sack (of 100 kg). Alternatively some traders based in the Banjul area travel to the provinces, or send agents to do so, to buy grain. Finally, some urban residents buy grain directly from relatives or friends in the rural areas.

40. In the Banjul area few traders handle wholesale quanitities of coarse grain. In Banjul city only 3 or 4 merchants handle 50 tons p.a. or more, and only one of these is believed to have access to bank credit to finance his operation.[45/] However there are numerous retailers who sell by the cup (c 1/2 lb.); one expert believes that nationwide there are about 2,500 petty traders "permanently involved in the food trade," [46/] although many of these would mainly handle rice. The same writer goes on to say that despite poor physical facilities the coarse-grain marketing system "does not appear to be unsatisfactory" and has been "successful in adjusting supply with demand."

41. No estimate of the quantity of coarse grain flowing into Banjul has been made, but the order of magnitude may be deduced as follows. According to the 1968/69 household budget study, 1.5% of the income of Banjul residents was spent on

coarse grain and 6.2% on rice. If grain consumption in Banjul was close to the "needed" 170 kg/capita, then roughly a fifth (35 kg) of this derives from millet, sorghum and maize. In 1983 the Banjul/Serrekunda area had a population of 148,000. The consumption of coarse grain there may thus be reckoned at a little more than 5,000 tons. In passing we might note that the household budget study probably underestimates the proportion of income spent on food; despite this the relative spending on rice and coarse grain may have been accurately determined.

B. Rice

42. Half of the grain consumed in The Gambia consists of rice; on average Gambians consume between 70 and 100 kg of rice annually, which is by far the highest level among Sahel countries.[48/] Out of the 60,000 tons of rice consumed each year approximately 10,000 tons come from food aid, 30,000 tons are commercial imports, and the remaining 20,000 tons, equivalent to 35,000 tons of paddy rice, are grown locally. The essential marketing structure for rice is outlined in Figure 2.

1. Local rice: collection

43. An estimated 20% of locally grown rice is sold by producers. About half of this is sold to relatives and neighbors, or to local traders or in local markets, in the same manner as coarse grain. The remainder is traded inter-regionally either by private merchants or, more usually, by the GPMB (Gambia Produce and Marketing Board). The GPMB has a monopoly on the importation of rice and on domestic rice trade

(except for small quantities). The Board has a large, but old, rice mill in Kuntaur. It entrusts the primary collection of paddy rice to about 20 licenced buying agents; currently 8 of these agents are local cooperative societies[49/] and the remainder are private buyers. These private buyers in turn often hire agents to work on their account.

44. Primary purchasers are obliged to pay the official producer price to farmers; in 1983/84 this was D510/ton of paddy rice. These buying agents must finance the primary purchase themselves, and are expected to deliver the paddy rice to a GPMB depot. For this they are paid a flat D43.07 per ton, a rate which has remained unchanged since 1979/80. The cooperatives complain that this margin is insufficient to cover their costs, and have regularly sought a higher margin (or a monopoly on paddy purchases, to reduce unit costs).[50/] However private buying agents seem to find the margin adequate, providing indirect evidence that the private traders are more efficient than cooperatives in the primary purchasing of paddy rice. Despite this, World Bank staff[51/] in 1980 called for the elimination of private licensed buying agents, and for giving the cooperatives a monopoly in the primary purchase of paddy; this, they argued, would facilitate the recovery of loans from, and the provision of inputs to, farmers.

45. The volume of paddy delivered to the GPMB is shown in Table 5. The amounts reached a peak of almost 8,000 tons in 1980/81, but have since declined sharply. In every year at least 90% of the GPMB's rice purchases came from imports.

46. The rice mill at Kuntaur is the only large mill in the country. It is poorly laid out and much of the equipment is old and worn. Given the small amount of paddy bought by the GPMB in 1982/83 and 1983/84 it ran for only a few months in each of those seasons. The out-turn is approximately 58%, which is low; a new mill is planned although the economic benefit of such a mill is likely to be marginal at best.

47. A number of small private mills are to be found in the larger rural towns and in some villages. The government estimates that there are 25 such mills, while an FAO study believes there are "considerably less."[52/] There certainly are private mills in Wellingara, Kuntaur, Kudang, Basse, Georgetown (3 mills) and Njayen Saniel as well as in a number of other towns and villages. A few of these mills can handle 850-1,000 tons of paddy annually; the rest can manage about 250 tons p.a. The private mills together can process perhaps 10,000 tons of paddy per year. Such mills typically have a low out-turn; a miller in Georgetown said that he was pleased to get a yield of 50%. Like most private millers he keeps the bran and 10% of the milled rice (or its equivalent in cash) for the service of milling.

2. Imported rice: basics

48. Only the GPMB may import rice. The rice consists of cheap 100% brokens, usually from Burma. Approximately 35% of this rice is distributed for sale in the Banjul/Serrekunda area

(see below); the remainder is sent to 17 depots in the provinces for further distribution.

3. All rice: distribution to final consumer

49. The GPMB does not retail rice; instead it sells it wholesale in three ways. Part goes to three large wholesalers; of these the National Trading Corporation (51% state owned, founded in 1973, with 5 wholesale and 15 retail outlets nationwide) gets the lion's share, and the rest goes to M.M. Njie and the Gambia National Trading Company. In 1983/84 these primary wholesalers paid D866.60 per ton (D880.80 in the provinces); some of this was sold to secondary wholesalers for D877.30 per ton (D891.50 in provinces), and the rest to consumers in bags of 100 kg for D91 per bag (D93.94 in provinces).

50. The second part goes directly to "medium" wholesalers, who pay D87.73 per bag (or D89.15), but are limited in what they may buy. The GPMB currently has a list of 479 such wholesalers, each of whom may buy at least 2.4 tons per month, (or more depending on the individual's quota). These traders typically sell by the bag, but some sell by the kilo or by the cup.

51. The third part of the GPMB's sales go to small wholesalers and retailers: 979 of these are currently listed, and they may buy anything from a few bags to about 2 tons per month, depending again on their quota. In total close to 1500 private traders buy rice from the GPMB for subsequent resale.[53/] However, the resale must be at the official retail

price of D0.91 per kilo (D0.94 in the provinces) or D0.25 per cup. The "cup" is a rather imprecise measure, which may fairly easily be altered in practice by filling it more or less completely. In one sampling of three cups in the Albert market (July 1984) a cup was found to weigh 229 gr; this would yield 436 cups/100 kg, or D108/100kg.

52. It is believed that a considerable amount of rice is bought by Senegalese. In June 1984 rice retailed for CFA140/kg in Senegal; at a parallel exchange rate of D1.08/CFA100 this CFA 140 would provide D1.51 which could buy over 1.6 kg in The Gambia (if bought by the sack in the provinces). This differential is clearly large enough to make it worthwhile to smuggle rice out of The Gambia. While in Kuntaur the author saw the GPMB sell 11 sacks of 100 kg to a trader who carried them off in a Senegalese van (with Gambian license plates). Some believe that many traders sell up to half their allocated rice quota to Senegalese buyers.[54/]

53. There do not appear to be serious barriers to entering the rice retailing business,[55/] although some paperwork is required.[56/] However, the market is not "free" in that prices are set by the government. An active price control unit helps to enforce compliance, but the supply of rice is typically large enough to ensure that the official price is a market clearing price (smuggling aside).[57/] A brief exception occurred in early 1984 when a shipment of rice was delayed, shortages occurred, and lines formed at NTC outlets.

C. Groundnuts

54. The groundnut marketing structure is shown in Figure 3, and is outlined here because it is sometimes held up as a model for grain marketing. Perhaps a quarter of all groundnuts are retained by producers, whether for seed or consumption. Another portion enters a marketing circuit similar to that for coarse grain, essentially to supply the urban areas. The bulk is bought by the GPMB, indirectly. The GPMB assigns primary collection to local cooperatives societies, to licensed buying agents, and to licensed buyers. These agents delivered groundnuts to the GPMB as follows:

	1982/83 ('000 tons)	1983/84 ('000 tons)
Cooperatives	90.5	68.2
Licensed buying agents:		
A.N. Tabbal	9.7	8.5
Korr Jorr Teng	3.8	1.6
Licensed buyers	23.6	14.6

The Cooperative societies, which number 62, have 80,000 members, and are united through the Gambia Cooperative Union, run a network of 97 buying points ("seccos").[58/] The licensed buying agents and 16 licensed buyers travel to farms and villages to buy. Finance for the primary purchase is the responsibility of the buying agent, and typically comes from the banking system. The cooperatives and licensed buying agents are paid a margin of D53 per ton collected, plus D18 per ton mile for transport costs to a GPMB depot. The licensed buyers are paid a margin of D41, plus transport, and find this to be profitable. All buyers must buy from farmers at the official buying price.

55. The GPMB receives the nuts at its depots, and transports them, usually by river, to Kaur or Denton Bridge (Banjul) for shelling or processing. The resulting products are then exported to Europe.

56. This marketing structure has limited application to cereal marketing because it focuses essentially on the collection and bulking of a crop; there is no need to send the groundnuts out to thousands of small and scattered consumers.

D. In Sum

57. The marketing systems for coarse grain and for rice stand in clear contrast. The former operates freely while the latter, despite the large number of traders, is subject to administered prices. The former collects local grain for sale in urban areas; the latter mainly brings in imports for dissemination nationwide. There is some evidence that private traders are more efficient at the primary collect of paddy rice. However a fuller discussion of efficiency, margins and prices is presented in the next section.

V. THE KEY ROLE OF PRICES

58. A discussion of grain marketing would be incomplete without some consideration of how the marketing system responds to, and in turn alters, prices.

A. Prices and Arbitrage

1. Arbitrage over space

59. In an efficiently working marketing system traders will buy in areas where grain is cheap, and transport it for resale in areas where grain prices are high. As they do this

the price differentials between one region and another should be squeezed until they reflect the costs (and risks) of transporting grain between the two regions.

60. This process appears to work well in The Gambia. Coarse grain flows from rural areas to Banjul; the price of millet (cous) should thus be higher in Banjul than in, say, the major market at Farafenni (140 km away) or in Basse (250 km away). Not only is this true but the price difference between Banjul and Farafenni or Basse is close to the transport cost between them. This is illustrated in Figure 4 and summarized below. The numbers suggest that traders

	1977-84 Average (Dalasis)		
	Banjul	Farafenni	Basse
Average Price per 100 kg millet:	31.7	28.7	27.5
Price differential with Banjul	0	3.0	4.2
Estimated transport cost to Banjul - 1984[59/]	0	2.5	3.0

respond to differences in prices and successfully arbitrage over space. In July/August 1984, coos was selling for D115 per 100 kg bag in Kaur, D115-125 in Farafenni, D120 in Kassewan and D120-125 in the Albert market in Banjul. At least for coos, the national market appears to be closely integrated, though we recognize that this evidence is not very rigorous.

61. Greater price differentials are common for maize, perhaps because it is less widely traded, and hence faces a thinner market.[60/] Also the price of groundnuts is far higher in Banjul than in the provinces; a bag of 100 kg cost at least D10 more there on average during the period 1977-84. It is unclear why this should be; possibly restrictions on private

trade in groundnuts play a role. However the price differences for groundnuts among provincial towns were very minor over the same period.

62. Most rice marketed is imported, and so is cheaper in Banjul than in the provinces. In 1982/83 the official retail price of rice was D2.78 more per 100 kg in the provinces and this rose to D 2.94 in 1983/84. Because supplies of imported rice are adequate, these price differences are reflected in observed market prices. Over the period 1977-84, rice cost, on average, D1.6 more per 100 kg in Basse than in Banjul. However there is some evidence that in small villages rice is occasionally sold at prices above the official level.[61/] The small price difference between Banjul and provincial prices indicates that the GPMB effectively subsidises the sale of imported rice up-country.

2. Arbitrage over time

63. The action of traders and speculators should reduce seasonal fluctuations in prices; when prices fall after the harvest traders and others will buy grain in the hope of selling it at a higher price several months later. However their actions will tend to pull up postharvest prices and reduce the prices which would otherwise pertain during the hungry season (July and August). The difference between postharvest prices and hungry season prices should thus reflect the costs of storing grain for several months, including a provision for risk.

64. In fact, grain prices in The Gambia fluctuate very little in the course of a given year. The essential reason is

that imported rice is widely available at a fixed price; the price of coarse grain, a close substitute for rice, is thus constrained to a narrow band, since high coos prices would cause consumers to switch to rice, and low coos prices would lead to greatly increased demand for coos.[62/]

65. The variability of prices may be measured by the coefficient of variation (which is the standard deviation divided by the mean). The following measures of the "seasonal" coefficient of variation (CV) are calculated by computing the CV for each product, using monthly data for each year, and then averaging these annual CV's for the period 1977-84.

	"Seasonal" coefficient of variation		
	imported rice	millet	groundnuts
Banjul	3%	8%	9%
Farafenni	5%	15%	15%
Basse	4%	n.a.	15%

These figures show almost no seasonal price movement for imported rice, and relatively little for millet and groundnuts.

66. An alternative measure--the "total" coefficient of variation--covers for the entire period, and thus shows both seasonal and interannual price changes, uncorrected for trend. For the period 1977/84 these statistics emerged:

	"Total" coefficient of variation		
	imported rice	millet	groundnuts
Banjul	14%	32%	30%
Farafenni	15%	31%	27%
Basse	16%	38%	30%

The relatively small increases in imported rice prices is evident. It is noteworthy that seasonal relative price

variation was smaller in Banjul than in the provinces, but overall price variation was similar in all three markets shown.

67. The pattern of price changes is shown graphically in Figure 5. As is to be expected the price of coarse grain shows a regular seasonal pattern, although a muted one. Since coarse grain is available in Banjul at all seasons, even the small seasonal swings must, on average, cover the storage costs from harvest to hungry season. However, as the price of coarse grain rises during the season (and as farm-level stocks are exhausted), rice sales increase to reach a peak during the hungry season.

3. Prices and marketing margins

68. The relatively small seasonal and spatial price differentials for coarse grains suggest that private traders effectively arbitrage over time and space, which implies reasonable competition and competitively determined profit margins. However, information on marketing margins is notoriously hard to obtain (or to believe!), so this cannot readily be confirmed directly. Some approximate inferences are possible, however.

69. In July 1984 rice retailer in the Albert market in Banjul could profitably buy a 100 kg bag of rice for D91.00 (at the NTC) and sell it for DO.25 per cup. The number of cups per bag is "never less than 400," and "usually 410 to 415," although our researchers found 436 cups per bag.[63/] The maximum margin,

after cash costs, was thus as follows:

		Per 100 kg
Purchase price:		D91
Transport cost:		D 1.50
Market tax:		.25
	Costs (excluding losses, etc.)	D92.75
Revenue:	436 cups @ 0.25	D108.00
	"Gross margin"	D 15.25

This margin could be overstated, and is highly sensitive to the number of cups per bag; at 415 cups/bag the gross margin falls to D10 per 100 kg. The retailer in question sells approximately 50 bags per month, half of which cost D87.73. This gives a maximum annual gross return to labor and management of about D10,000, which is a high income. Many smaller retailers would sell perhaps a quarter of this amount. The margin shown here is legally allowed.

70. The National Trading Corporation (NTC) buys rice wholesale from the GPMB ex store Banjul for D86.60/100 kg. It sells these bags for D91 from its 15 or so stores in the Banjul/Serrekunda area. After deducting costs of D2.51/bag it clears a net profit of D1.89 per bag, or 2.1% of its total revenue. Other wholesalers operate successfully within similar margins.

71. Retail margins on coarse grain are similar. In July 1984 at the Albert market one merchant was selling coos at 25 bututs/cup. At 596 cups/100 kg (our measurement) a bag would sell for D142.25; the merchant bought from suppliers (who transported it by pirogue to the Albert market) for D120 - D125 per bag, which implies a margin of D20/bag. This 15% margin

may be overstated if in practice less cups can be sold per bag. In Kaur in July 1984 retail margins were found to be D5/100kg for maize and D10/100kg for coos, when sold by the kilo. And in Kassewan, coos bought by the bag and sold by the cup yielded a D22 margin per 100 kg sold.

72. Bulking into bags is rare since farmers typically sell in units of a bag (at least 50 kg) at a time. However in Kassewan (July/August 1984) traders who bought and sold coos by the cup got a gross margin of D33 per 100 kg sold; of this D11 may be attributable to bulking.

73. Coarse grain wholesaling is common at the large Sunday market in Farafenni, where the following average prices held in July/August 1984:

	Price/bag [50 kg] paid to farmer	Price/bag [50 kg] for consumer	Margin/100kg on wholesaling
Sorghum	39.3	44.0	9.4
coos	57.5	62.5	10.0
millet	57.7	67.7	20.0
maize	40.1	46.8	13.4

These margins are fairly large, (9-16%) but no information on the costs of wholesaling are available.

74. Three studies give figures for a combined purchase/bulking/transport to Banjul/wholesale/retail operation, as follows (in dalasis per 100 kg):

	1. April 79	2. May 81	3. Winter 1982/83	4. Summer 1983/84
Cost of coos in rural markets	25	38	57 1/2	70
Transport costs (per 100/kg) (to Banjul from Farafenni)	5.89	3.50	5	5
Other costs		3.14	6*	4.4
Wholesaler net margin	6.11	3.36	3.5	2.6
Wholesale price Banjul	37	48	72.5	82
Retail margin	7	6		
Retail price	45	54		

Notes: * included storage cost. 1. Gebre-Mariam (1979) 2. PPMU (1981). 3. FAO (1983). 4. Observation by research team.

These figures show large variations in gross wholesale margins ranging from almost 50% as reported by Gebre-Mariam (12 divided by 25) to 15% from the FAO reports. The FAO compares such margins favorably with the 36% margin taken by the GPMB on rice imports.

75. In sum, the gross margins for bulking, wholesaling and retailing are fairly large, although private merchants operate less expensively than the GPMB. However in the absence of information on cash costs, risks, the opportunity cost of labor and enterprise, and profit rates elsewhere in the economy it is not possible to assess whether these margins are "excessive" or not. Given the large number of traders one might presume that margins are competitive, but this really needs to be verified independently. A few larger merchants may have favored access to credit, or be able to buy more rice cheaply from the GPMB; they would reap some rent from such advantages.

B. Prices and Production Incentives

1. Local deviations from world prices

76. The government sets four key agricultural prices--the buying prices for groundnuts and paddy rice, and the selling prices for imported rice and fertilizer. These prices are maintained by the actions of the GPMB.

77. Groundnut prices are set out in Table 6. By taking the actual export price (f.o.b. Banjul) and subtracting processing and collection costs one arrives at the import parity farmgate price.[64/] This is the maximum price which farmers could have been paid were the GPMB to make neither profit nor loss, given world prices. The actual farmgate price for groundnuts was below the import parity price in every year since 1973/74 except 1981/82 and 1982/83; in 1973/74 and 1983/84 farmers were paid less than half of the world price. The official rationale behind this is that the GPMB should build up a surplus when the world price is high, in order to maintain the actual farmgate price in years of low world prices. In practice, however, the bulk of the surpluses amassed prior to 1978/79 were drained off for use in general development and other activities. Substantial fertilizer subsidies raised the effective actual farmgate price by 2-3%.[65/] The price paid to Gambian groundnut farmers has typically been slightly higher than the price paid in Senegal, as Table 6 shows, inducing an inward flow of groundnuts of up to 10,000 or so tons annually.

78. The extent of fertilizer subsidies is set out in Table 7. Because of a lack of data the costs of handling, etc. were derived by extrapolating 1981/82 and 1982/83 estimates using the consumer price index--a less than ideal procedure. However some features are clear.

- Over the decade 1973/74-1982/83, the official price of fertilizer was between 25% (compound) and 29% (phosphate) of the estimated actual farm level cost. The subsidies have thus been large.

- The government has been reluctant to raise the farmgate price of fertilizer, and only did so recently under IMF and World Bank pressure.

79. In addition it is known that significant amounts of fertilizer filter out to (and in from) Senegal; this is often because of logistical problems in delivering fertilizer.[66/] Grain (including rice) farmers are generally unable to get credit for buying fertilizer, and substantial unsatisfied demand exists at current subsidised farmgate prices.

80. Imported rice typically consists of low grade "100% brokens" from Burma. The economic cost[67/] of such rice is derived in Table 8. Since 1975/76 imported rice has always been sold at a price above its economic cost. In other words, and perhaps surprisingly, no attempt has been made to raise urban incomes by subsidizing this staple. Imported rice is subject to fairly high import duties, averaging 30% of the c.i.f. price between 1977/78 and 1982/83. After paying this duty the GPMB has often lost money on rice importing.

81. Since 1975/76, official purchases of local paddy rice have been heavily subsidized, as Table 9 indicates. This is because the price actually paid for local paddy exceeds the estimated import parity price. Over the period 1975/76-1982/83 the price paid to farmers was on average twice the import parity level. It should be borne in mind that the derivation of the import parity price is subject to possible error; it assumes a 58% milling rate, and supposes that GPMB overheads and buying allowances are justified; the GPMB milling costs have been adjusted to a level which represents more "efficient" operation. Researchers from the FAO consider that the GPMB's rice operations are relatively inefficient, and have become more so over the past several years.[68/]

82. In sum if, hypothetically, all agricultural marketing were to be left in private hands (and taxes on agricultural commodities abolished) one would expect domestic prices to reflect world prices. Such a change would lead to:

1. a significant rise in the price paid to groundnut farmers, along with larger inflows of groundnuts from Senegal; the producer price would fluctuate more from year to year;
2. a threefold rise in the price of fertilizer;
3. a small fall in the price of imported rice, along with greater fluctuation from year to year, and;
4. a halving of the price paid for locally produced rice.

Some of the these changes may be socially desirable.[69/]

2. The relative profitability of different crops

83. As documented above, the effect of government policy has been to reduce groundnut and raise rice prices. Despite this the most profitable crop as measured by return per day's work, is typically groundnuts. For most farmers coarse grain can be as profitable if well cultivated; rice cultivation tends to yield the lowest returns.

84. These conclusions are based on the detailed calculations of returns to labor for different crops shown in Appendix 3 and summarized graphically in Figures 6 and 7. Figure 6 shows upper and lower estimates of the return to a day's work in groundnuts, swamp rice, irrigated rice and millet; the bounds reflect differences in assumptions about yields and labor inputs.[70/] In Figure 6 average yields are used, and so differences in the return to labor reflect differences in prices only; this should approximate a farmer's ex ante expectation, and hence influence the choice of what to plant. In Figure 7 the actual ex post estimated returns are shown.

85. No single crop is clearly and unambiguously more profitable than the others. This explains why a variety of crops are grown; for a "typical" farmer groundnuts will yield the highest return on labor, but some farmers, with different soil, climate, abilities or inclination will find other crops to be more profitable. Women typically cultivate rice, particularly irrigated rice, despite its lower average payoff; possibly they have less opportunity to cultivate more profitable crops.[71/]

86. Farmers also cultivate a variety of crops to spread the risks of failed crops, or low prices, or inadequate access to imported grain. However prices move approximately together (Figure 6) and the actual return to labor for different crops has historically moved in a parallel direction (Figure 7). It follows that for the country as a whole cultivating different crops does not cut risks much, although for individual households it may.

87. The underlying prices are presented in Table 10. They show fairly steady rises in nominal, but not real, prices of groundnuts and of paddy rice; the falling relative price of fertilizer until 1981/82; and the surges in millet prices in 1975/77 and 1982/84.

C. Prices and Incomes

88. In nominal terms the prices of major crops have risen fairly rapidly, as Table 11 shows. As a result the nominal return per day's work has risen too--slightly faster than the price of output in the cases of millet and swamp rice, where yields have risen, and less quickly than the price in the case of groundnuts, where yields have stagnated. A weighted index of the implicit returns per day's work for all crops shows an approximate 12% average annual increase over the decade 1973/74 to 1983/84, albeit with substantial variations from year to year.

89. This increase matches the 12% annual increase in the consumer price index, which is based on the costs faced by a low-income household in Banjul. Assuming that farm households

worked the same amount of days throughout this period one can conclude tentatively that real agricultural incomes neither rose nor fell on average over the decade 1973/74-1983/84. Indeed as the price of imported rice rose less quickly than other prices, and given that rice purchases are important in rural areas, the purchasing power of many rural households may have risen; against this it must be noted that the return from groundnuts, the predominant cash crop, rose less quickly than the price index; in practice it is likely that real cash income may have been squeezed, and much of the stability of real agricultural income is attributable to the technical effect of a revaluation of millet, largely produced and consumed on the farm.[72/]

90. For 1981/82, Kargbo [73/] found that hired labor cost approximately the same as the estimated implicit return to family labor. It is not known whether this link has persisted over time, although there is a presumption to that effect.

91. Table 11 also presents indices of urban wage rates and incomes, based on the data shown in Appendix 4. As is common in Africa, public sector, and formal private sector, wage scales have been changed infrequently and by modest amounts; the scales for higher paid groups have been revised less often and by very small percentages. However this gives little information on actual earnings. Between 1974/75 and 1978/79 there was no change in the public sector wage scale, yet the average wage of permanent government employees rose 61% over this period, or slightly faster than consumer prices, and far faster than the

price of imported rice, which is the staple cereal in urban areas.

92. It would appear that the government has not needed to keep grain prices "artificially" low to maintain the purchasing power of public sector incomes.

93. No viable information is available on incomes in the urban informal sector. However rural-urban migration has been rapid; the population of the Banjul/Serrekunda area grew at 6.5% p.a. from 1973 to 1983, compared to 3.5% p.a. for the rest of the country.[74/] Most of these immigrants could not expect to get formal sector jobs, so one presumes that incomes in the informal sector rose too.

D. A Note on Rice Prices

94. The government's efforts to alter the price structure have had a curious effect; in many years it is more profitable for rice farmers to sell paddy rice to the GPMB and buy back imported (or local) rice, rather than process the crop themselves. For instance in 1979/80 the government paid D492 for a ton of paddy; the retail price of milled rice was D710.[75/] Suppose a rice farmer could bring paddy rice to a miller who takes a 10% fee and converts paddy to rice at a high rate of 60%. Then the farmer with 2 tons of paddy rice has the following options:

1. Sell paddy to GPMB (brings in D984); the proceeds will buy 1.4 tons of rice; or

2. Go to a miller; (2 tons-10%) X 0.6 = 1.1 tons of rice.

It is clearly more profitable to sell to, and then to buy back from the GPMB, under plausible assumptions. In the above example the local miller would have had to produce an out-turn of 77% (which is technically impossible) for local processing to be worthwhile.

95. It is instructive to compare the proportion of the paddy harvest purchased by the GPMB with the milling rate which local millers would have to achieve to compete:

	% of paddy crop sold to GPMB[76/]	Milling rate of local millers needed to compete with GPMB[77/]
1973/74	2.6	54%
1974/75	1.5	56%
1975/76	2.2	59%
1976/77	7.0	64%
1977/78	7.0	71%
1978/79	7.0	69%
1979/80	14.7	77%
1980/81	18.4	76%
1981/82	12.6	69%
1982/83	7.3	69%
1983/84	(3.8)	(62%)

The pattern is striking; GPMB purchases (and presumably resale) rises rapidly as the price paid for paddy rice rises relative to the selling price of rice.

96. One might ask why everybody does not sell paddy to the GPMB and buy back rice. Transaction costs may be high, although probably not more burdensome than arranging to have one's own rice milled. Farmers may lack information on prices. Perhaps, in practice rice producers receive less than the official farmgate price.[78/] Or women may be constrained from

selling paddy by custom or their husbands. None of these explanations is wholly convincing, and so part of the puzzle remains.

E. Prices and the Macroeconomy

97. The government budget is only indirectly affected by the prices it sets for selling rice and fertilizer and for buying groundnuts. This is because the necessary cross-subsidization is done by the GPMB. Some useful information of the GPMB is shown in Table 12, and may be summarized as follows:

- most of the GPMB's profits come from its groundnut operations. These operations, highly profitable until 1977/78, incurred losses during 1978/79-1982/83 when the GPMB faced falling world prices, lower domestic purchases over which to spread its overheads, and continued significant export levies of up to 10%;

- since 1978/79 rice operations have lost money for the GPMB; however in most years these operations would have yielded profits had there been no tariff on rice imports.

- the GPMB has often paid large subsidies, especially for fertilizers. It has also ceded substantial amounts ("grants") to the government.

Profits retained on operations up to 1977/78 were insufficient to cover the huge losses--averaging 5% of GNP over each of the five years 1978/79 to 1982/83. This led to a serious macroeconomic crisis.

98. Thus, the GPMB was unable to make its customary contribution to help finance development expenditures during this period and indeed had to borrow heavily from the banking system. Without the GPMB contribution, the government had to borrow more. Credit in the economy expanded rapidly, fuelling inflation and putting severe pressure on the exchange rate; a

parallel exchange rate emerged in 1982; the dalasi was belatedly devalued 25% in February 1984, but by June 1984 the parallel market discounted the dalasi by 20% relative to the official rate.

99. The importance of the exchange rate in determining agricultural prices in The Gambia cannot be overstated; arguably it is the single most important price in the economy. To see this consider what might have happened in 1982/83 if the exchange rate had been at its "market" rate, or roughly 10% below the official level. Groundnuts could have been sold for D885/ton f.o.b. Banjul, giving an import parity price of D485/ton (instead of D429), which was close to the farmgate price of D520. GPMB losses on groundnut trading would have been closer to D8 million instead of D22 million. Or alternatively groundnut producer prices need not have been reduced for 1983/84, for a given level of loss. On the other hand fertilizer losses would have been higher, local rice producers would have been paid somewhat closer to import parity, and losses on imported rice would have been greater. The net effect could have been to reduce the GPMB's need for credit, easing the need for future exchange rate adjustments or a higher future implicit tax on groundnut farmers.

VI. POLICY ISSUES

A. At What Price Should Imported Rice be Sold?

100. The essential price structure for imported rice is as follows (from Section V):

	72/73-75/76	76/77-79/80	80/81-82/83
A. Economic cost, retail (D/ton)	574	523	645
B. Actual retail price (D/ton)	512	681	742
% by which B. exceeds A.	-11%	30%	15%
Import duty as % of A.	1%	22%	25%
GPMB net margin as % of A.	-12%	8%	-10%

101. Over the past decade the tariff on rice has been raised to at least 25%, and the domestic price has been raised steadily, although relatively slowly. A decline in the world price of rice after 1974/75 allowed the GPMB to make a profit on rice importing, but the double squeeze of a higher tariff and higher world prices caused losses in the early 1980s. Note that in recent years rice re-exports to Senegal have benefitted The Gambia since the duty levied on such rice as it is imported exceeds any GPMB losses on its distribution.

102. A tariff of about 25% on rice imports is not exorbitant. Tax revenues account for about a fifth of GNP, [79/] and since net incomes or retail sales are difficult to tax, a tariff on rice is simpler and harder to evade. Rice is also consumed in relatively larger amounts by better-off households, especially urban residents, so the tariff is probably slightly progressive [80/] in incidence. Such a tariff also serves the government's stated aim of achieving greater food self-

sufficiency, although the economic wisdom of such a move is questionable.[81/]

103. The world price of rice has fluctuated widely since the early 1970s, but the government has sought to insulate consumers from the effects of such fluctuations by maintaining a stable retail price for a year or more at a time. The financial costs or benefits are largely borne, or reaped, by the GPMB. However since 1979/80 the GPMB has lost on rice imports every year, forcing it to have recourse to bank credit, or to cross-subsidise rice importing from profitable lines of activity. Such an arrangement is unsatisfactory since it reduces the viability of the GPMB; put another way, it is an indirect means for the government to tax the GPMB further.

104. If the government wishes to maintain stable retail prices for imported rice, one solution would be for GPMB to continue to have an import monopoly; however the duty on rice would be adjusted annually so that the GPMB makes, on average, neither profits nor losses on rice imports. This shifts the burden of adjusting to fluctuating world prices, onto the government.

105. A second option would be to allow the domestic retail price to fluctuate following world prices. If the GPMB retained its import monopoly, it would be allowed to sell rice on an "import cost and markup" basis, to cover its handling and other costs. Consumers are used to more widely fluctuating prices for coarse grain, and may accept similar fluctuations in the price of rice.

106. The GPMB has had relatively easy access to foreign exchange at the official exchange rate. The dalasi has been overvalued since 1982/83, as reflected in foreign exchange rationing and an active parallel market in foreign exchange. Had the GPMB needed to buy foreign exchange at the market rate, its losses on rice imports in 1982/83 and 1983/84 would have been far higher. There is no clear justification for allowing rice imports to have privileged access to foreign exchange. A move to a "truer" exchange rate is the fundamental solution.

B. Who Should Import Rice?

107. Currently the GPMB has a monopoly in rice imports. This has certain advantages. The Board has a proven record of effectively supplying enough imported rice; it has access to financing; it is unlikely to try to evade taxes on its imports; it has suitable facilities; it can import in quantities large enough to enjoy certain economies of scale, including price discounts; [82/] and its costs for handling and transport rarely exceed 15% of the cif price in Banjul.

108. On the other hand there is some evidence that the GPMB's costs, notably overheads, have risen faster than the consumer price index, and some inefficiency may be appearing. The government may therefore wish further to encourage private traders, who have hitherto proven adept at importing. And there may be scope for expanding the re-export trade in rice. Under such arrangements,the GPMB would be encouraged to remain in the

rice importing business, but in competition with private traders. Its market share would fall if private traders can import, distribute or wholesale rice more cheaply; however if economies of scale are important it might continue to be the principal importer, although private traders are likely to make joint orders if this is to their advantage.[83/]

109. For private traders to compete on an equal footing with the GPMB they would have to be able to rent haulage space on GPMB barges making the backhaul up-river, at the economic cost of doing this; they would also need to have equal access to foreign exchange, which would automatically occur if the official exchange rate were not overvalued. A variable tariff would be the chief instrument of import price policy.

C. What Farmgate Price for Paddy Rice?

110. The essential price structure for paddy rice, taken from Section V, is summarized here, (in dalasis per ton):

	72/73-75/76	76/7-79/80	80/81-82/83
A.Estimated import parity farmgate price	265	161	260
B.Actual official farmgate price	265	448	504
% by which B. exceeds A.	0%	178%	94%
Actual GPMB margin on milling, distributing, selling local rice.	-223	-374	-371

111. The estimated import parity price is based on somewhat tentative assumptions about the costs of milling, handling, and so on. However, it is clear that the actual farmgate price, which once reflected import parity, now far exceeds it. As shown in Section V this provides an incentive to sell paddy to GPMB, allow it to absorb milling and other losses, and buy back milled rice. This is expensive, as evidenced by the huge GPMB losses on rice milling, and is probably inefficient; allowing the price of paddy to find its market level may be preferable. A tariff on rice imports already provides significant protection.

D. Should Fertilizer and Other Inputs be Subsidized?

112. As shown in Section V, farmers pay approximately a quarter of the real cost of fertilizer. In some years this subsidy has cost the GPMB almost D5 million. Should subsidies of this magnitude continue?

113. Fertilizer subsidies may be justified on several grounds. First, farmers are risk averse, and hence may not buy "enough" fertilizer at the full cost because a sure expenditure (buying fertilizer) is balanced against a return (the extra production attributable to fertilizer) which is variable, and which in a given year could be small, even if on average it is not.[84/]

114. This would not pose any difficulties if capital markets were sufficiently flexible--insuring against losses, and so bearing some of the risk (and return). However in practice loans to small farmers have high transactions costs; more

seriously, capital market imperfections may be present, notably the lack of collateral (where land has no resale value), and asymmetric information about risks.

115. A second reason for subsidising fertilizer is that the government may wish to redistribute income to farmers who happen to use fertilizer, although it is not clear why this would be. Third, farmers may need to learn how to use fertilizers by actually applying them ("learning by doing"), and a subsidy may persuade them to innovate where they would not otherwise do so. Fourth, fertilizers may help prevent soil degradation, thereby maintaining the future productive capacity of the economy, including that of neighboring fields. Thus the individual farmer reaps only part of the benefits of fertilizer use, and so will tend to use too little of it.

116. Finally, in principle at least, fertilizer and other subsidies may be justified as a "second-best" way to correct for distortions elsewhere in the economy. For instance, food aid, by keeping the value of the dalasi high, reduces the domestic price of imported, and hence all grain. This reduces the incentive for farmers to grow cereal crops; however the incentive may be restored by subsidizing inputs, and this may simply be easier to operate than a system which tries to maintain the farmgate price of output by subsidising it somehow.

117. Although intellectually respectable, these justifications are not wholly convincing. Even if farmers are risk averse, is a given subsidy best provided through cheaper fertilizer? The same resources could go towards raising the

price paid for output; this should encourage the greater use of all inputs, without favoring fertilizer in particular. Or the resources could be channelled into improving the rural credit system. The point here is that fertilizer subsidies are neither the only, nor necessarily the best way to combat risk aversion or a disinclination to innovate. It is also far from obvious that fertilizers help prevent soil degradation; in the U.S. the so-called "regenerative" farming, which is becoming increasingly popular, calls for reducing fertilizer use, in part to protect soils.

118. The PPMU has tried to measure the effect of fertilizer subsidies on groundnuts, and reckons that if the price paid for fertilizer by groundnut farmers were doubled then fertilizer use would fall by a quarter. They estimate that as a result the value of groundnuts produced would fall by twice as much as the (economic) cost of the fertilizer saved, thereby reducing GNP (although improving the GPMB's financial situation). Their result rests heavily on the assumptions they make about the reponsiveness of output to fertilizer application--assumptions which need to be investigated more fully. They do not consider alternative ways of ensuring more fertilizer use; nor do they try to estimate the optimal subsidy.

119. Fertilizers are not the only subsidised input. Crop protection, particularly spraying, is provided free, although farmers do complain of long delays between requesting help and receiving it. Seed multiplication has been subsidised, but the project has had logistical and other difficulties. Water for

irrigated rice is heavily subsidised, which is hard to justify on risk grounds since it reduces risk. Tractor plowing is also subsidised, and here too the justification is obscure. Agricultural extension agents are numerous and paid by the state.[85/] Research occurs on a modest scale and is supported by the state (or foreign donors). Finally the government has recently excused the repayment of large amounts of credit,[86/] thereby subsidising credit and also weakening "credit morality."[87/] These various services and subsidies, while extensive, cost less than the taxes levied, explicitly and implicitly, on groundnuts.

120. Given the large costs involved in input (notably fertilizer) subsidies, and the uncertain foundations of policy in this area, a more detailed study of the effects and desirability of input subsidies is urgently needed. Such a study should also consider the pros and cons of opening up the fertilizer trade to private merchants; fertilizer imports are currently a GPMB monopoly.

E. Should the GPMB Buy Coarse Grain?

121. The following argument is sometimes heard in The Gambia: farmers produce so many groundnuts because the GPMB guarantees that it will buy them at a reasonable price; food self-sufficiency would be enhanced if it were to do the same for coarse grain.

122. There are two issues here: will farmers respond if guaranteed an outlet for their goods; and what is a reasonable price. In 1979/80 the GPMB bought maize at an officially

determined price, but was unable to sell the maize locally and so had to export it, losing D307,000 in the process. In 1980/81 no maize was handled, but in 1981/82 the GPMB lost D192,000 handling 1,060 tons of maize (not counting overhead expenses). In 1982/83, 892 tons of sorghum and 218 tons of maize were bought, generating a trading profit of D139,000, although with appropriate allocation of overheads the trade probably led to losses. In a word, guaranteeing a price above the market level will typically lead to losses, especially if it sucks in large quantities from Senegal.

123. No hard evidence is available on how farmers respond to an assured market, but GPMB support for the official paddy rice price has not led to a dramatic increase in the output of rice, although rice is admittedly more economically marginal than groundnuts or coarse grain. However, private traders already assure an outlet for the farmer, although the price will vary from season to season. The output of groundnuts (assured market, stable nominal producer price) has risen more slowly than coarse grain (supposedly uncertain market, variable prices).

124. The Senegalese experience is instructive. In 1978/79 the government bought over 100 thousand tons of millet and sorghum. This was mainly because the guaranteed price was high, the weather was good, the crop bountiful and open market prices low. Yet by October 1980 the government still had as estimated 60 thousand tons in storage, which it could not sell anywhere for a profit.

125. Given that traders collect, transport and distribute coarse grain successfully (sections IV and V) it would seem unwise to forge a role for the GPMB here. At least some officials of the GPMB agree; they do not want to buy coarse grain, and indeed the GPMB hardly bought any in 1983/84.

F. How Much Food Aid?

126. Since 1974/75 The Gambia has received, in round figures, about 15,000 tons of food aid annually, or a seventh of all grain available. In no year has the amount of aid fallen below 8,000 tons, which probably represents the basic level of "program" (nonemergency) food aid.

127. Program food aid is used in food for work projects, school feeding, and maternal and child health clinics. The effectiveness of such programs in reducing malnutrition has been questioned for Africa in general, but no disinterested evaluation of the effects has been undertaken yet in The Gambia.

128. Although domestic cereal prices are largely directly determined by the price at which the government permits imported rice to be sold, food aid has substantially reduced domestic food prices, albeit indirectly, by permitting an overvalued exchange rate.

129. Over the period 1978/79 to 1982/83 food imports came to 25% of all imports and were equivalent to almost 80% of the value of recorded exports; if the government had had to buy food aid abroad these percentages would have been closer to 35% and 110% respectively. One can only speculate on what effect this would have had on the exchange rate, but it is certain that a

parallel market for foreign exchange would have appeared sooner, and the dalasi would have been more seriously overvalued, perhaps leading to devaluation sooner. Earlier reductions in the value of the dalasi would have put pressure on the government to raise the consumer price of rice sooner, and this would have accompanied an earlier rise in the price of coarse grain, and hence in the relative profitability of growing coarse grain; also the consumption of grain, expecially by urban consumers, would have shrunk.

130. This chain of reasoning, although long, is powerful, but the possible effects are difficult to quantify. However here are some illustrative figures (the [] figures reflect a higher level of re-exports than official figures show.):

	1981/82	1982/83
Exports (Dm)	95	119
of which declared re-exports	46	49
therefore exports of local goods	49	70
of which groundnuts	41	61
Imports (Dm)	233	290
of which for local use	192[151]	229[168]
Balance of trade	-143[-102]	-159[-98]
Official exchange rate, D/$ (end 1981,1982)	2.1	2.5
therefore trade balance in $	-68.1[-48.6]	-63.6[-39.2]
Food aid, '000 tons	8	9
Price of rice, cif Banjul ($/ton)	254	209
therefore value of food aid ($m)	2.0	1.9

131. Assume that exports are essentially unresponsive in the short run to a devaluation, but that for every 1% fall in the value of the dalasi, the volume of imports <u>for domestic use</u>[88/] falls 1%, so that the dalasi value of imports is constant. Since the dollar value of exports is given, the question is "what exchange rate would be required for the dollar value of imports to be reduced enough to buy enough food to replace food aid?" In both 1981/82 and 1983 the answer is "a dalasi devalued by 3%." If, as is plausible, declared re-exports are only half of actual re-exports (bracketed figures above) a 5% devaluation would be needed. Inasmuch as exports would respond to a devaluation, which is plausible in the long but not in the short run, a somewhat smaller devaluation would suffice. Balanced against this, food aid levels in 1981/82 and 1982/83 were well below the 15,000 ton average of the past decade.

132. In brief, <u>program food aid</u> alone probably enables the dalasi to be valued 5% above what it otherwise would be. If passed on to consumers and producers, this implies that as a result groundnut and grain farmers get 5% less, and urban consumers pay 5% less for food, than in the absence of food aid. It must be stressed that these figures are illustrative, and rely on several strong assumptions, but they probably reflect the right order of magnitude of the effect of program food aid on prices.

133. It is noteworthy that some US food aid has been provided explicitly to "ease balance of payments problems"; in the absence of such aid what exchange rate changes might have

occurred? It is reasoning such as this that led some observers of The Gambian economy to charge that "aid prevents necessary structural change"; in part such change might include a more flexible, and lower valued, exchange rate.

134. Emergency food aid is coordinated by the Drought Committee headed by the vice-President. In years of poor harvest the GPMB's logistical resources are mobilized to move grain up country; divisional commissioners oversee the local distribution of the food; a ration is given to every rural compound, roughly in proportion to the compound's size. The system is generally credited with being effective and relatively fair, although it suffers by not targetting the most needy areas or households. It has been suggested however that farmers have programmed food aid into their decision making, and as a result hold smaller stocks of grain for emergencies than they used to do. This proposition is probably untestable!

135. One of the most important questions is how the level of emergency food aid should be determined. In principle one could determine the country`s overall grain needs, and subtract local production and commercial imports to get a residual representing food aid requirements. However problems arise at each step of the calculation. First "needs" are hard to gauge. The conventional wisdom is that an average Gambian needs 2,027 kilocalories daily;[89/] if, as surveys suggest, 70% of this derives from grain, then about 170 kilos of grain are needed per person annually; with a skewed distribution of income a somewhat higher amount would be needed to ensure that, say, 90% of

individuals reached this level. Some villages reach the recommended levels of nutrition in a "normal" year, but in others there are habitual shortfalls, especially among women and young children.

136. The second problem is assessing production levels; as shown in Section II the data on production are very weak. In March 1984, well after the harvest was in, one food aid donor made a request to its home base for aid based on a significantly understated measure of the 1983/84 harvest (which also excluded any measure of the irrigated rice crop). This led to an overstatement of food aid needs.

137. The amount of commercial imports, although very substantial, cannot be easily predicted either; to some extent it depends on the amount of food aid promised! Viable statistics on grain flows between Senegal and The Gambia are unavailable.

138. According to one source the WFP/FAO aims to supply food aid which will ensure a supply of 146 kg/capita/year. This is well below the 170 kg/capita/year benchmark, but may be used by the WFP to allocate food aid internationally.

139. In practice emergency food aid needs should probably be calculated along the following lines:

1. compute cereal needs based on a target of 170 kg per capita per year. This figure, 170 kg, has not been seriously questioned;

2. assume that one-third of this amount will be imported commercially, unless there is strong evidence to the contrary; the remaining 113 kg per capita must be met from aid and local production;

3. subtract program food aid (10,000 tons) and estimated

local production to give the emergency food need;

4. revise these calculations regularly as more information on production levels or commercial imports becomes available.

In most recent years no emergency food aid would be warranted were these procedures to be followed (see Section III.). More common is a situation where the crop fails locally so that the country as a whole has sufficient food but some districts do not. What is needed in such areas is not necessarily food aid, but rather purchasing power. Ideally gifts of cash (or food vouchers) would be preferable to food; once traders know there is an effective demand for food in an area they are likely to respond by moving food into that area. Where donors are unwilling to give cash for such purposes food aid may be a second best solution. Food donors should discourage the Drought Committee from distributing food in almost all areas when the crop shortages are localised--as in 1984.

G. Are Improvements in Infrastructure Needed?

140. The grain marketing system could be improved somewhat with better infrastructure, although the effects are likely to be relatively small.

141. The transport network is basically good, although a few seccos (groundnut buying stations) are inaccessible in the rainy season. There may be a need for more cross-river ferries.

142. Radio Gambia [90/] broadcasts agricultural programs which attract many listeners; it should also broadcast price data, and could start with prices at the Sunday market in Farafenni. Market information appears to travel fairly well,

although one Georgetown merchant said he transported grain to Banjul for sale there without knowing in advance what price he could expect. He claimed he sometimes lost money in the process, but presumably on average he profits from the business.

143. The Albert market in Banjul is crowded, as is the main market at Serrekunda. Traders should be asked whether they would prefer the status quo or a higher market tax with a modernized marketplace. There is no clear economic reason for subsidizing improvements here.

144. Few traders have access to credit for financing their business. Indeed one can make a strong case that the credit system is biased in favor of the government and parastatal bodies. The banks should be encouraged to extend credit to traders; even if the amounts are small initially, such a move would help build mutual confidence. Because such lending is risky and has high transactions costs higher interest rates may be called for, although current short-term rates of 16-18% are not low.

145. One infrastructural improvement would be to encourage private grain mills, again by providing access to credit for millers. Related to this is the suggestion that more research should go into improving the food processing technology for coarse grain, especially with a view to making food preparation easier, although larger and wealthier countries such as Senegal may be in a better position to finance such research.

H. How Extensive Should Storage Capacity, and Security Stocks Be?

146. There is wide disagreement as to the amount of space available for grain storage in The Gambia. The following existed in 1981.[91/]

Ministry of Local Government	19,000 tons
GPMB	18,000 tons
Port Facilities at Banjul(shed)	4,000 tons
Cereal Banks	1,700 tons
On-farm Compounds	at least 390,000 m^3 (130,000 tons)

The official storage areas include a 6,000 ton warehouse for milled rice and a 5,000 ton store for paddy rice at the mill in Kuntaur. In addition to the above, private traders can store grain, whether in the marketplace or in a store or house. The extent of such storage is unknown.

147. In addition to grain stores the GPMB has a number of huge groundnut stores and large barges, which could be used in an emergency (except after groundnut harvest).

148. The 1981 FAO study put the capacity available for long term strategic reserves at 23,000 tons, which it suggests should be expanded by 4,500 tons. It also recommends a security stock of 8,500 tons. This seems to be rather large, and would be expensive to maintain. The Gambia has an excellent road and river system and a good port, so food can be brought in rapidly if need be. Moreover extra imported food is never needed until well after the harvest, so needs can, in principle, be accurately forseen, allowing time to place orders for imports.

And even in the worst years some grain is available all year round.

149. Hence a much smaller emergency stock would suffice, perhaps enough to supply a half of its grain needs to half the population for two months, which comes to about 5,000 tons.

150. Food security is not merely a matter of having food on hand, although this is a part of it. Regional stocks may have some role too, although they pose difficult political problems. Most important perhaps is to have adequate foreign exchange reserves, or access to foreign borrowing, so that in the event of a poor harvest grain may be bought and imported quickly.

151. Finally it should be noted that efforts to achieve food self-sufficiency do not ensure food security. When farmers are induced to grow more food they will grow less of other crops, including groundnuts, which they could have sold to buy food. The yields of grain and groundnuts move in tandem (see Section II). So a switch from groundnuts to cereal cultivation does <u>not</u> typically spread reducedrisk significantly. Given The Gambia's comparative advantage in groundnuts the cost of greater food self-sufficiency is high, and not balanced by any substantial gain.

I. <u>Should Cereal Banks be Encouraged</u>?

152. Taking a leaf from the Voltaic experience, cereal banks were first introduced to The Gambia in 1978/79, and 12 now exist. A cereal bank is a user-controlled storage facility aimed at ensuring cereal security as an essential step towards

making a community self-sufficient. The idea is that the cereal bank, owned and run by villagers, will buy grain after the harvest for an "adequate" price, store it until the hungry season, and then resell it back at "reasonable" prices. For such a system to improve on the existing arrangement there must be a strong presumption that private traders are inefficient or monopolistic, paying excessively low prices after the harvest and selling grain back several months later at excessively high prices.

153. A Gambian member of parliament has made the case eloquently as follows:

> For a long time farmers everywhere have been subjected to massive exploitation by...commercial dealers....A commercial dealer would purchase his (the farmer's) rice, his millet his sorghum and his maize at a very low price...and hoard these grains. A few months later, at times of difficulty, the dealer, through oppressive, commercial mechanisms resells the food grains to the same communities at exhorbitant prices.[92/]

The evidence of Section V shows very moderate seasonal movements in prices, largely because of the availability of imported rice at a fixed price. Hence the profits on storage (hoarding) are unlikely to be large. However if merchants take large margins for retailing, wholesaling and bulking, then an efficient cereal bank may be able to reduce the gap between a farmer's selling price and repurchase price. The extent to which farmers sell grain early in the season and buy it back later is unknown, but research in progress on farm decision making should help answer this question in the near future. The large number of grain traders, including village traders, larger farmers, and agents,

suggests that competition is likely to have driven margins close to costs.

154. These factors indicate that a priori the conditions for large gains from introducing cereal banks do not exist, except possibly if windfall profits arise regularly.[93/] Given such considerations it is not surprising that in practice the Cereal Banks have not worked well.

155. The first seven cereal banks built have a 55 ton capacity each, and the remaining five can hold 77 tons of grain. All are in the MacCarthy Island and Upper River Divisions. The cereal banks were set up in villages which grow substantial amounts of grain, are near a mixed farming center (government-supported agricultural extension center), and where the community was enthusiastic about the idea. The first store cost over D9,000 to build (including equipment), and was endowed with D20,000 in working capital. A management committee runs the cereal bank; the president is often the chief of the host village; the secretary acts as storekeeper and records transactions; the treasurer is often a businessman or trader. These committees have an ambiguous legal status. Subsequent cereal banks have been endowed with larger amounts of working capital in some cases.

156. Despite an absence of concrete information, there is general agreement that cereal banks face some serious problems, including the following.

- Reduced levels of activity. One bank visited in June 1984 had done no business in 1983/84, largely because of the poor harvest. However the real amount of working capital available has shrunk as grain prices have risen, and as losses have mounted; cereal banks have been unable to borrow from the banking system to augment their working capital.

- High storage losses, in part due to beetles.

- Lax accounting, with inevitable associated losses of grain and money.

- Inadequate provision for certain costs, including building repair and maintenance, and remuneration for those who handle and oversee buying and selling.

- Difficulties in pricing. Often the gross margin set is too small. For instance in 1982/83 one bank paid D40/100kg for purchases, and sold for D45/100kg, generating too small a margin to cover costs.[94/] Moreover in this particular case the market price at selling time was close to D60/100kg; farmers who had sold to the bank could not generally buy back an equivalent amount at D45, and as a result are likely to be reluctant to sell grain to the cereal bank in the future.

157. In response to these problems Freedom from Hunger Campaign (FFHC) [95/] officials have sought to provide training in accounting and management skills, and they urge cereal banks to be "flexible" and "imaginative" and to "respond to the market." This last is surprising since the view motivating cereal banks has been that markets exploit villagers.

158. Given that cereal bank buildings exist they should be put to use if possible. However, the need for such an institution, as now conceived, is not obvious. Alternatively it may have a role in warehousing, for collecting groundnuts and paddy, and distributing fertilizers and imported rice. The working capital might possibly be used as a loan fund, or might provide the initial capital for rural credit unions.

159. Before NGOs or the government funnel more resources into cereal banks--the existing 12 have been subsidized to the tune of well over a quarter of a million dollars--they should be more realistic about the problems they incur, and should study the existing banks more carefully (accumulating information on costs, buying and selling prices, market prices, and so on), with a view to assessing the social benefits and costs. On present evidence, aid money can find better uses elsewhere.

VII. SUMMARY AND RECOMMENDATIONS

Aim of the Study

160. The central aim of this study has been to investigate whether, as some have suggested, the grain marketing system in The Gambia has hindered agricultural growth. The key finding is that the cereal marketing structure has adapted well to the country's needs, but could be improved by further liberalization.

Gambian Economic and Agricultural Growth

161. The Gambia is one of the world's poorest countries. Income per capita peaked in the late 1970s and has since stagnated. Agriculture, while absorbing three quarters of the labor force, has seen its share of GNP decline; the small manufacturing sector has shown greater dynamism in recent years.

162. Agriculture is based on groundnuts--the main cash and export crop--coarse grain, and rice. Yields of all crops vary widely from year to year, depending largely on rainfall. Groundnut yields have stagnated in recent years; poor statistics make generalizations about grain yields or output very difficult, although neither severe decline nor rapid growth are evident. Not more than 10% of coarse grain and perhaps 20% of rice are marketed. Most farmers buy some grain during the year, partly for dietary variety and sometimes to augment the family store.

163. The slow growth of agricultural output since 1973/74 is largely explained by climatic and ecological factors rather than by marketing deficiencies. The marketing system gathers groundnuts for export, distributes imported rice, and buys and sells local coarse grain and rice nationwide.

Grain Trade and Aid Data

164. Grain import and aid statistics are weak. In most years grain imports exceed local production. Most grain inflows consist of commercial imports of broken rice, but this is augmented by program food aid in all years and emergency food aid in years of poor harvest. Grain availability per capita may have risen since about 1978/79, and in most years is, in the

aggregate, adequate. However, food import costs have risen dramatically relative to export earnings, putting in doubt future increases in commercial rice purchases abroad.

The Marketing Systems

165. Coarse grain marketing is in private hands; a network of traders, agents and farmer/entrepreneurs successfully collects the modest quantities of grain commercialized from farmers, and sells to consumers everywhere, including in Banjul. Coarse grain also flows in from Senegal, in unknown amounts, especially via the large weekly market in Farafenni.

166. Local rice is traded by some merchants on a small scale. Important quantities are sold to the parastatal GPMB, whose major job is, however, the purchase, processing and export of groundnuts. The GPMB has a large rice mill at Kuntaur, which gets an outturn of only 59%. Some small private mills also operate. The GPMB buys through a system of agents, and the producer is paid a relatively high price for paddy rice.

167. The GPMB has a monopoly on rice imports. It sells the rice to wholesalers and to a network of almost 1,500 private retailers and petty wholesalers. Retailers often sell by the cup, an imprecise although traditional measure of approximately half a pound in weight.

Interpreting Price Information

168. The government has altered the market price structure--at least using import parity prices as a guide--so as to reduce the price paid to the producer for groundnuts, and

increase the price paid to the producer of local rice and by the consumer of imported rice. The policy is implemented by cross subsidies within the GPMB coupled with taxes on groundnut exports and rice imports.

169. Based on estimated returns to a day's work, groundnuts are typically the most profitable crop, although coarse grain production has been more remunerative recently. Rice production appears to bring the lowest return; it is also mainly cultivated by women. Despite recurrent changes in relative prices, the cropping pattern has not changed radically over the past decade.

170. The price of groundnuts has not risen as fast as inflation, although the prices of coarse grain and paddy rice have. Real rural cash incomes may have fallen slightly over the period 1973/74-1983/84. Wages in the formal urban sector appear to have kept up with inflation, and certainly with the price of rice.

171. Market price data show that merchants move grain efficiently from surplus to deficit areas. Regional price differences mirror transport costs; the national grain market seems relatively well integrated. There is little seasonal price variation, even for coarse grain, due to competition from imported rice. Marketing margins for bulking, wholesaling and retailing are substantial, but consistent nationwide; it was not possible to relate these margins accurately to costs. Under reasonable assumptions food aid may depress grain prices 5% in a "normal" (i.e., nonemergency) year.

172. Since 1982 the exchange rate has been overvalued. This has contributed to an unduly low producer price for groundnuts, and cheaper rice for consumers. A more realistic exchange rate would have reduced GPMB losses in 1982/83 and helped stem a serious hemorrhaging of foreign exchange reserves, which are needed, among other things, for food security.

Policy Analysis and Recommendations

173. Our recommendations arise out of the previous analysis and are summarized below.

174. Imported rice should be sold at the economic cost (i.e., world price plus distribution costs), marked up by any tariff that is deemed appropriate. The current 25-30% tariff on rice imports is in line with taxation levels on other major consumption items, and as a source of revenue may be easier to collect than, say, taxes on income. To ensure a more stable domestic price such a tariff could be made adjustable; the government would thus explicitly bear the costs (and benefits) of stabilizing domestic prices in the face of fluctuating world prices.

175. Private traders should be permitted to import rice. While the GPMB has been an effective rice importer there are signs that its efficiency may be declining; private traders have proven adept at importing other goods, and should be allowed to compete with the GPMB in rice importing too. For private traders to compete successfully they would need access to foreign exchange and to river transport on an equal footing with the GPMB.

176. The government should not guarantee a farmgate purchase price for paddy rice. Despite an official farmgate price almost double the import parity level, farmers have been reluctant to respond by increasing sales of paddy rice to the GPMB, although the GPMB has still incurred significant losses on this activity. The tariff on imported rice provides some protection already. The inefficient rice mill at Kuntaur should be sold or leased to private millers; credit should be made available for private rice millers to modernize and expand their equipment. If paddy prices do not move to realistic levels now the government will eventually be forced to make such adjustments anyway, if and when more irrigated rice projects come on stream, since at that point the subsidy would be too large.

177. The entire system of input, and especially fertilizer, subsidies should be the subject of a detailed study. While valid reasons for fertilizer subsidies do exist, such subsidies have serious drawbacks too, and resources channelled to subsidise fertilizer may have a greater impact elsewhere, for instance by improving the system of rural credit. Also, changes in fertilizer subsidy policies in Senegal make a review of Gambian policies urgent.

178. The GPMB should not handle coarse grain. Most of its coarse grain transactions have caused losses, and there is no evidence that existing traders do this job poorly.

179. Better agricultural and food consumption statistics should be gathered; this is especially important when assessing the level of food aid needed. The effect of food aid on prices, indirectly via the exchange rate, should be recognized, and efforts made to measure the magnitude of such an effect more precisely.

180. Few infrastructural improvements are called for, but market prices for grain should be broadcast over the radio, and banks could be encouraged to build up credit relations with traders. Improvements in marketplaces should be financed entirely out of any extra fee which users would be willing to bear, though capital costs could find external financing.

181. Grain storage capacity appears to be adequate and can be expanded easily and quickly if an urgent need arises.

182. Only a small security stock is justified, to tide the country over unforeseen emergencies. Shortages (e.g., in the form of queuing) are rare, and the existing inventory practices of the GPMB have sufficed to date. A switch to private trading in rice would not change this situation. At most an emergency stock of 5,000 tons might be justified, but even this is probably too large.

183. No further cereal banks should be set up, since the need for such an institution has not been fully established, and the ability of cereal banks to solve the purported problem of excess private trading margins has yet to be demonstrated. Existing cereal banks may have a more useful role as warehouses; their working capital could seed credit unions.

184. In conclusion, we should note that the existing grain marketing system, and the accompanying price structure, is relatively satisfactory. There are no truly glaring inefficiencies or inequities to be eliminated. However improvement is possible, and in our opinion is most likely to come from giving a wider role to private traders, whose dynamism and effectiveness are impressive. This inevitably implies a reduced role for the government especially through its main agent, the GPMB. Although the GPMB is highly regarded as a professionally run parastatal, it is likely to serve the country better, rather than less well, when spurred on by the goad of competition from private traders. This is the essential principle underlying most of the ten specific recommendations outlined above.

Glossary of Terms

Coos: Millet, typically denoting either early or late millet (see suno and sanyo below)

GPMB: Gambia Produce Marketing Board

PPMU: Planning Programming and Monitoring Unit of the Ministry of Agriculture.

Sanyo: Late (i.e., slow maturing) millet

Suno: Early (i.e., fast maturing) millet

Ton: One metric ton, approximately 2,204 lbs. [1000 kgs.] Other "tons" are the imperial ton, 2,240 lbs., used in Gambia until the late 1070s. The third ton is the U.S. ton, at 2,000 lbs.

Note: All figures in tables are in metric tons.

FOOTNOTES AND REFERENCES

1. Republic of the Gambia, Preparation Report, Rural Development Program 1980-85, Annex 13: Demand and Marketing Aspects (July 1979), p. 1.

2. Z. Gebre-Mariam, Report on Cereals Marketing in The Gambia, Draft, (October 10, 1980), p. 3.

3. World Bank, World Development Report (1985), p. 232.

4. Alimani M. Kargbo, An Economic Analysis of Rice Production Systems and Production Organization of Rice Farmers in the Gambia, Ph.D dissertation (Michigan State University, 1983), p. 5. According to the Five Year Plan II, 1980/81-1985/86, some estimates put the proportion of the labor force employed in agriculture as high as 80% or even 85%. According to the 1983 census, 21% of the population lived in the Banjul/Kombo St. Mary area.

5. Minor crops include cotton, palm oil, vegetables and limes.

6. Republic of The Gambia, Ministry of Agriculture, The Programming, Planning and Monitoring Unit (PPMU), Studies Relating to Marketing and Pricing Policies for Agricultural Produce and Inputs in The Gambia, Vols. 1 & 2, (October 1981) puts groundnut consumption per capita at 50 g. daily. Using their figures for a typical household of 14 members producing 4.3 tons of groundnuts, this comes to 6% of output. However, 50 g. x 365 (days/year) x 693,000 (1983 population) = 12,600 tons, which is at least 10% of a typical year's crop. Note: throughout this paper "tons" refers to metric tons, which have been used by Gambia since the late 1970s. Before then, Gambia used imperial tons. There are also U.S. tons, which may figure in U.S. aid figures.

7. Mohammad Usman, Cotton Sector Price and Policy Analysis (May 23, 1984). Usman puts these flows at about 10% of GPMB purchases in a "typical" year. Since relative farmgate prices in Senegal and The Gambia vary significantly from year to year (see Table 6) this proportion probably varies widely.

8. The Programming, Planning and Monitoring Unit of the Ministry of Agriculture. Figures are from PPMU worksheets.

9. 1974/75-1978/79 figures from the Republic of The Gambia, Food Strategy Report, Part I (1981). The PPMU figures prior to 1979/80 may be unreliable.

10. No direct evidence is available yet on this question. A survey of 582 compounds by the USAID-financed Mixed Farming Project found that only 11% of maize cultivators sold any maize,

and of these over half sold "very little." Any grain leaving the compound for consumption elsewhere may be considered "marketed." See M. Alers Montalvo, et. al., Farming Activities in The Gambia: a Survey, Preliminary Report of The Gambia Mixed Farming Project (May 1983).
et.
11.. The conflict between PPMU and other official estimates is puzzling. For instance for 1976/77 the PPMU put paddy rice output at 18,000 tons; the Food Strategy Report, citing the PPMU as its source, put its estimate at over 32,000; the IMF, CILSS and World Bank put the figure at 33,000 tons, saying that this figure came from "The Gambian authorities." For 1978/79 onwards PPMU and other figures are in close agreement.

12. Yields of up to 9 tons per hectare, counting two crops, have been recorded.

13. This shrinkage has serious implications for the proposed Bridge-Barrage project, which would create almost 20,000 hectares of irrigable rice land. If existing irrigated land is not being used, would new paddy fields also be seriously underutilized? Most agree that the current problems of irrigated rice must be solved before the Bridge-Barrage project could be at all feasible.

14. For a recent analysis see Usman, Ibid.

15. Food Strategy Report (1981), Ibid.

16. Gebre-Mariam, Ibid., p. 5.

17. The reasons for this are much debated, and include secular climatic changes, and human-induced deforestation.

18. Documented in USAID reports; reported by Kargbo, Ibid., p. 30.

19. Human population has increased and so has the animal population.

20. In the dry season salt water moves upstream and salinates mangrove rice-growing areas. A good rainy season washes out these salts. However poorer rainfall makes cultivation of these areas more difficult.

21. Some believe improved seeds alone can raise yields 10%. The seed multiplication unit at Sapu has had some difficulties.

22. The Cooperatives extend credit for groundnut fertilizer (single superphosphate), but sell (subsidized) compound for cereals on a cash basis only. However, "subsistence" credit is available in August; of the MFP sample (see note 10. above) one-third borrowed at least D50 under this scheme in 1982. Some of this may have been used to buy compound fertilizer. In June 1984 farmers complained of a lack of fertilizer (at the subsidized price). Some fertilizer comes in from Senegal, informally and at a higher price.

23. PPMU (1981), Ibid.

24. Ibid.

25. See note 10.

26. Alers Montalvo, et. al.,Ibid. At least some knew Arabic in 45% of compounds surveyed, and English in 28% of cases.

27. e.g., onions, for export to Europe; citrus.

28. This is in contrast with the first five year plan which aimed "to maximize production incentives to the farming community." The first FYP also stressed research on coarse grain production, seed multiplication and extension.

29. In June 1984 rice sold for 93 bututs/kilo in Basse. In Wellingara (Senegal), 25 miles away, rice was available for 140 CFA/kg. At the parallel market rate then prevalent (D1.08/100CFA) Senegalese rice cost D1.51/kg. The incentive to export rice from The Gambia was thus very strong. However, coarse grain flows into The Gambia (net).

30. The Food Strategy Report, Part I, (1981), Ibid.,Annex 2, reckons as follows: average energy needs = 2,027 kcal/person per day (after adjusting for the age and sex distribution of the population); 70% of this comes from grain; a kilo of grain yields 3,400 kcals and 10% of coarse grain is lost in milling and processing. Average annual grain needs thus come to (2027x0.7x365)/(3400x.9) = 170 kg.

31. Ibid., pp. 26-27.

32. At least one donor underestimated the harvest as of March 1984 and requested unusually large amounts of food aid as a result.

33. The following information on food aid is useful (in `000 tons).

	1977/78	1978/79	1979/80
Estimated total food aid	21	19	21
Emergency food aid	13	8	5
Program food aid	8	11	16

This program food aid is a residual, consisting of nonemergency food aid. Details on how it was distributed are scarce. However for 1983/84, food aid for school feeding was scheduled to be 1,500 tons and for MCH programs 900. Just 250 tons were labelled "other programme aid," and 2,00 tons for sale for development project purposes. Together these do not total 5,000 tons; the remainder was emergency aid. Using these labels The Gambia receives emergency aid almost every year, which suggests a weaker interpretation of the emergency than usual!

34. This figure may be an underestimate; see the considerations in Section IV.A below.

35. In 1980/81, and again in 1982/83 the GPMB bought maize (and, in 1982/83, sorghum too) in modest amounts.

36. PPMU, (1981), Ibid., p. 46. See also footnote 10.

37. Coarse grain is mainly cultivated and marketed by men; rice cultivation is largely done by women.

38. One farmer interviewed in the course of research for this study refuses to sell his grain to a trader, but prefers to sell it retail in local markets. He does not handle other people's grain.

39. When a child is born an expensive naming ceremony is expected, and is commonly mentioned as a reason for "urgent need." Presumably some foresight is possible though!

40. These observations are based on the findings of five field researchers active in their home villages--one in each division--in July and August 1984.

41. One farmer said, "My children would steal it!"

42. The "economies of scale in buying" argument would also hold if farmers sold most of their crop at some future date.

43. However some farmers do sell throughout the season. It would be valuable to know more on this important question.

44. Known as lumo. Many lumos meet in open countryside, at some distance from any particular village.

45. PPMU, 1981, Ibid. p.48, FAO 1983.

46. Gebre-Mariam, Ibid., p. 10.

47. This figure is in line with our earlier reckoning that 4,500 tons of domestic and 3,000 tons of Senegalese coarse grain are marketed in The Gambia. The remaining 2,500 (7,500 minus 5,000) would supply rural areas and small towns.

48. According to the Food Strategy Report, Part I, (1981), Ibid., p. 17, rice consumption per capita p.a. for 1975/77 was 19 kg. in the Sahel, 47 kg. in Senegal and 85 kg. in The Gambia.

49. Local cooperative societies cover the whole country, and are allied through The Gambia Cooperative Union.

50. For instance in its annual report for 1981/82 The Gambia Cooperative Union stated that "the Rice Allowance paid by the GPMB was inadequate to cover all expenses." With inflationary

cost increases and no rise in the allowances losses from this source may have risen yet further since.

51. World Bank, The Gambia: Country Economic Memorandum, (December 23, 1980), p. 12.

52. Food and Agricultural Organization of the United Nations (FAO), The Rice Industry of The Gambia, Vols. 1 and 2, (October 1983), p. 183.

53. This comes to one rice trader per 480 people, or about one trader per 70 families.

54. This was mentioned by a couple of the field researchers; see note 40 above.

55. One might assume that political considerations enter somewhat in determining who may retail rice, and especially what quota they may buy from the GPMB. However the fact of almost 1,500 rice traders indicates ease of entry into rice trading.

56. This includes getting permission from the price control division.

57. In August 1984 a field researcher reported that rice was retailing for D1.50 per kg. in a lumo (market) north of the river, about 20 km. from Basse. This price was about 50% above the legally allowed price, or the price in Basse, and was almost exactly what someone from Senegal would be prepared to pay for rice in The Gambia! The area is relatively remote (by Gambian standards).

58. 1981/82 count of seccos.

59. Note that the average transport costs over 1977-84 would have been smaller--perhaps three quarters of these amounts.

60. A thin market is where a paucity of buyers and/or sellers causes wider random price fluctuations.

61. See footnote 57.

62. However the price of coarse grain rose markedly relative to rice during 1982/83 and 1983/84, indicating that the demand for coarse grain is not entirely price elastic, and it follows that some annual price variation is likely to occur, despite competition from rice.

63. If a cup were to weigh half a pound there would be 441/bag.

64. For this price to reflect true import parity one must assume that the existing system of collection and processing works efficiently, which need not be the case. It might be better to consider these as minimum import parity prices.

65. Only if farmers could have (theoretically) resold this fertilizer at the import parity price (or would have paid the full price to buy it, credit permitting) can one say that the benefit received by farmers from the subsidy is as large as the amount paid by the GPMB to subsidise fertilizer.

66. Gambian farmers sometimes resell subsidised fertilizer; but when subsidised fertilizer is scarce some comes in from Senegal. The quantities involved are probably fairly small. Given the large subsidy on fertilizer the GPMB may in effect ration its availability.

67. Once again efficiency on the part of the GPMB is assumed. This is not entirely justified. Note the rapid rise of port and handling costs, or the stagnation of the margin allowed distributors (which margin presumably does not always reflect costs).

68. FAO, Ibid.

69. For further discussion of policy see section VI below.

70. Details of the methodology used and sources of information, when not set out in Appendix 3, are available on request.

71. This is a highly speculative conclusion. Rice cultivation may generate a lower return per hectare than other crops but a higher return than the alternative use of time spent cultivating it, inasmuch as time spent of rice growing does not subtract from time spent on other crops because the crop calendars differ.

72. This is partly a pure index number problem. Market price of the subsistence crop (coos) rose faster than other prices; are coos-growing households better off? In one sense little has changed, if they continue to consume as before; however they could sell more coos, and the proceeds would buy more rice, etc. than before, so potential consumption has risen.

73. 1983.

74. Data from PPMU worksheet.

75. This was the average recorded market price for milled local rice in Kuntaur in 1980.

76. Purchase information from PPMU worksheets; total harvest from Food Strategy Report, Part I, (1980), Ibid. up to 1978/79, and PPMU worksheets thereafter.

77. (Price of padi x 0.9) divided by price of milled rice.

78. Paddy collection agents are paid a fixed margin per ton delivered to the GPMB, and may not find it profitable to travel far to collect paddy.

79. See, for instance, World Bank, The Gambia: Basic Needs in The Gambia (December 1981), Tables 1 and 4.

80. However very well-off households would spend a smaller share of their budget on rice, so the tax would become regressive at that point.

81. The Gambia has a clear comparative advantage in groundnuts; price alterations prompting farmers to switch to growing grain thus carry a cost. This cost will be clearly felt in government (or the GPMB's) revenues; exactly how this will occur depends on what mechanism is used to alter the price structure.

82. Cargoes of less than about 10,000 tons cost somewhat more per ton, according to one knowledgeable agent for a large rice trader with whom we spoke.

83. Togolese and Burkinabe traders make joint orders for rice. There is a possible danger of collusion here.

84. There is plenty of evidence of such risk aversion. Farmers grow a range of crops and use seeds from different varieties of a given crop; planting is staggered; they hold grain stocks; households accumulate assets (e.g., cattle) which may be sold if needed; crops are grown on land of different quality; and good relations are maintained with neighbors and other possible lenders.

85. In The Gambia there is one agent per 300 people; India has one agent per 800 people.

86. Two types of credit are common--for inputs used in producing groundnuts (fertilizers, hoes, etc.) and "subsistence" credit to help tide farmers over the worst of the hungry season.

87. From 1955/56 to 1978/79 over 90% of agricultural credit was repaid. But as of June 1982 only 22% of the previous year's subsistence credit had been recovered (D6.2 million had been lent). When the credit was excused, those who had repaid were not refunded their repayment. Farmers may now believe that if they postpone repayment, sooner or later their debt will be excused. If so, this bodes ill for future credit arrangements.

88. Re-exports are irrelevant here since they make no net claim on foreign exchange. Other exports consist largely of groundnuts; there is a significant lag between a devaluation and a higher official dalasi purchase price for groundnuts, which is a prerequisite to expanded exports. In the longer term exports would respond to a devaluation.

89. See Food Strategy Report, Part I (1980), Ibid., for a full discussion.

90. The privately run Radio Syd broadcasts in the Banjul-Kombo St. Mary area and emphasises musical programs.

91. FAO, Ibid.,; see too, USAID project documents.

92. Bubacar M. Baldeh, M.P., cited in L.D. Smith, A Review of the Economic and Social Performance of Cereal Banks in The Gambia (FAO, July 1982).

93. Who should gain if prices unexpectedly rise? The "windfall profit argument" says that Cereal Banks should. The persistence of such windfalls is questionable.

94. See Smith, Ibid.

95. The FFHC has been a major sponsor of the cereal banks. Much of the funding has come from German sources.

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Appendix 1. (Section II)

Production Estimates by Year, Crop and Source

Estimates of agricultural production are quite unreliable, and different sources often give widely different figures. The PPMU figures shown here come from recent worksheets and may be the most reliable estimates for the last several years; however the pre-1979/80 data on the worksheets appear to underestimate production, although the possible reasons for this are unclear. Up to 1979/80 or 1980/81 the Food Strategy Report figures, which are close to World Bank estimates, are more credible.

Appendix I. (Section II) includes Table A.II.1, which follows.

The Gambia

TABLE A.II.1
VARIOUS PRODUCTION ESTIMATES
['000 tons]

COARSE GRAIN		73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4 2/
Suno [early millet]	[PPMU]		6.7	3.6	3.0	4.4	9.5	1.6	5.4	14.5	16.9	14.4
Sanyo [late millet]	[PPMU]		11.6	9.3	8.1	6.4	10.3	7.0	9.9	14.7	16.8	11.7
All Millet	[PPMU]		18.3	12.9	11.1	10.8	19.8	8.6	15.3	29.2	33.7	26.1
	[World Bank]	13.3	29.2	20.8	12.1	19.0	28.6					
	[CRED] 1/	18.9	28.5	21.9	20.3							
Sorghum	[PPMU]		7.9	7.4	9.6	9.8	12.2	8.8	13.7	12.8	15.7	7.1
	[World Bank]	9.0	15.8	20.6	18.1	15.3	25.5					
	[CRED] 1/	14.6	16.4	12.6	12.2							
Maize	[PPMU]		10.8	4.9	4.5	7.0	9.5	6.6	6.3	12.5	17.0	8.5
	[World Bank]	8.7	8.9	5.8	5.6	8.7	13.3					
	[CRED] 1/		9.8	10.2	10.2							
Fonio	[PPMU]		1.5	1.2	0.9	0.6	1.6	0.2	1.3	2.2	1.2	0.4
	[CRED] 1/		1.7	1.8	1.5							
All Coarse Grain	[PPMU]		38.5	26.4	26.1	28.2	43.1	24.2	36.6	56.7	67.6	42.1
	[World Bank]	32	55.4	48.4	36.7	43.6	69.0					
	[CRED] 1/		56.4	46.5	44.2							
	[FSR1]		55.9	49.2	38.0	44.0	69.4	29.9	41.4			
	[Gebre +]		42	50	34	42	67	28				

1/ CRED figures for 76/77 are estimates.
2/ All figures for 83/84 are estimates.

SOURCES: [PPMU]: From PPMU worksheets
[World Bank]: World Bank (1980)
[CRED]: CRED (1977)
[FSR1]: Food Strategy Report 1 (1981)
[Gebre +]: Gebre-Mariam (1980) augmented with PPMU figures for maize and fonio.

Table A.II.1 (continued)

THE GAMBIA

VARIOUS PRODUCTION ESTIMATES
('000 tons)

PADDY RICE		73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4 1/
Upland Rice	[PPMU]		4.0	4.0	2.8	2.7	3.6	2.6	1.8	4.7	4.1	2.8
Swamp Rice	[PPMU]		11.0	10.5	10.5	9.6	26.0	17.5	25.3	27.8	28.6	18.4
Irrigated Rice	[PPMU]		2.4	4.3	4.7	3.1	4.1	9.3	15.6	6.8	3.5	5.4
	[World Bank]	7.0	8.7	9.9	8.1	9.0	11.8					
	[Central Bank]					3.5	6.3	10.0	17.6	13.8		
All Paddy	[PPMU]		17.4	18.8	18.0	15.4	33.7	29.4	42.7	39.4	37.2	26.1
	[World Bank]	24.5	32.1	39.9	33.3	27.9	37.3					
	[CRED] 2/	25.5	28.9	30.5	30.5							
	[FSR1]		28.0	35.2	32.3	27.8	36.0	29.7	40.3			
	[Gebre-Mariam] 3/		28	38	33	28	36	42				
MEMO ITEMS												
Cotton	[Usman]	0.3	0.3	0.3	0.8	1.2	0.8	0.8	1.4	2.8	2.4	0.8
Groundnuts	[PPMU]		145	141	143	100	133	67	80	108	151	114
	[World Bank]	113	150	158	144	117	151					
	[CRED]	115	138	135	137							
	[FSR1]		158	151	142	95	167	82				
	[GCU]						129	75	46			
Groundnuts received by GPMB 4/		135	135	134	124	82	120	86	45	82	127	93

1/ All figures for 83/84 are estimates.
2/ Figures for 76/77 are estimates.
3/ Figure for 1979/80 is an estimate.
4/ Includes cross border groundnuts from Senegal.

SOURCES: [PPMU]: From PPMU worksheets
[World Bank]: World Bank [1980]
[CRED]: CRED [1977]
[FSR1]: Food Strategy Report 1 [1981]
[Gebre-Mariam]: Gebre-Mariam [1980]
[Usman]: Usman [1984]
[GCU]: Gambia Cooperative Union [1981/2]
[Central Bank]: Central Bank [1981/2]

Appendix 2. (Section III)

Import and Food Aid Data

The data presented here come from a variety of sources, and in some cases there is no clear way to choose the "most believable" figures. In arriving at our global figures ("best estimates") for food aid and commercial imports we have made the following assumptions:

A. The milling rate from wheat and corn to flour is 0.75. Coarse grain is assumed to have no milling losses; imported rice is counted as equivalent to unmilled coarse grain, or wheat.

B. For commercial imports the most plausible figures are

(a) for rice: from the GPMB accounts. The GPMB has a monopoly in rice imports.

(b) for coarse grain: USAID for 1977/78-1978/79 and the CSO thereafter, except for the 1983/4 estimate from the FAO. Prior to 1977/78 we assume 1,000 tons of "recorded" coarse grain imports annually and an informal inflow from Senegal of 4,000 tons per annum.

(c) for flour: Sources as for coarse grain. We assume 4,000 tons of flour (in grain equivalent terms) was imported annually prior to 1978/79.

C. For food aid we use the following figures:

(a) CRED figures prior to 1977/78.

(b) the USAID totals for 1977/78-1981/82.

(c) FAO figures for 1982/83 and 1983/84.

The figures used in compiling the "best estimate" are underlined in the table.

The CILSS "implied rice equivalent" of food aid is not a direct measure of food aid tonnage but is calculated as follows. The value of food aid (in $US) is available annually for 1975-81. The dalasi price of 100% broken rice cif Banjul is available from GPMB accounts; this is converted to $US using the annual average exchange rate (IMF), and the number of tons of rice which this aid could have bought is thereby computed.

There are a couple of large and unexplained discrepancies in recent years. For instance the PPMU/FAO figures show no commercial flour imports in 1980/81 or 1982/83, but 22 thousand tons of such imports in 1981/82, whereas the central statistics office records between four and nine thousand tons in each of these years. Similarly FAO/PPMU data show 21 thousand tons of rice food aid in 1980/81, far higher than any other estimate.

The clear conclusion is that more attention needs to be paid to compiling accurate data on cereal imports and food aid. A retrospective compilation, and reconciliation of the figures presented here, would also be valuable.

Appendix 2. (Section III) includes Tables A.III.1 and A.III.2, which follow.

Table A.III.1

Breakdown of Cereal Imports
['000 tons]

	71/2	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4 1/
RICE													
Commercial Imports:													
CRED	14	25	13	19	30	34							
PPMU			20	13	24	31	31	28	31	30			
GPMB purchases	15	23	15	17	31	28	25	31	23	38	28	35	54
Central Statistics Off.									31	9	8	38	
USAID							30	28	28	34	35		
FAO/PPMU[1983]										34	35	33	
Gebre-Mariam				17	31	28	26	22	38				
Food Aid:													
CRED 2/				2	2								
PPMU							0.3	2.3	0	0.8			
FSRM 3/							3.5	1.0	0.9				
FAO/PPMU[1983]										21	3	8	24
COARSE GRAIN													
Commercial Imports:													
Cent. Stats. Off.									2.2	0.3	<.1	0.8	
USAID							4.3	0.7	2.2	0.5			
FAO/PPMU[1983]										0.5	0	0	1
Food Aid:													
CRED 4/			10	8	10	5							
FSRM 3/							8.3	5.5	0				
FAO										3.8	1.2	0.5	1.9
WHEAT													
Food Aid:													
CRED 5/				2		1							
FSRM 3/							1.5	1	3.7				
FLOUR													
Commercial Imports:													
Cent. Stats. Off.									8.6	8.7	4.3	5.8	
[grain equiv.]									[11.5]	[11.8]	[5.7]	[7.5]	
USAID							4.6	3.1	3.8	4.0	4.2		
[grain equiv.]							[6.1]	[4.1]	[5.1]	[5.3]	[5.6]		
FAO/PPMU[1983]										0	21.9	0	4
[grain equiv.]										[0]	[28.1]	[0]	[5]
Food Aid:													
FSRM 3/							0.7	0.7	0.7				
[grain equiv.]							[0.9]	[0.9]	[0.9]				
FAO/PPMU[1983]										11.7	1.7	0.3	0.3
[grain equiv.]										[15.6]	[2.2]	[0.4]	[0.4]

THE GAMBIA

TABLE A.III.1 (continued)
Breakdown of Cereal Imports
('000 tons)

	71/2	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
Total Food Imports:													
FAO: Commercial ["milled grain equivalent"]										34	64	33	60
Food Aid ["milled grain equivalent"]										41	7	9	26
WFP/CILSS: Commercial [grain equivalent]								44	33	90	84	51	
Food Aid [grain equivalent]								19	21	15	8	13	
Total Imports [grain equivalent]				23	45	52	68	63	54	105	92	64	
USAID: Commercial ["milled grain equivalent"]							40	33	35	39	41		
Food Aid ["milled grain equivalent"]							21	19	21	15	8		
FSR1: Commercial	15	25	22	15	30	34	48	47	39	34			
CILSS: Imported rice equiv., AID 6/				12	9	14	19	12	28	28			
'BEST ESTIMATE'													
Commercial imports	24	32	24	26	40	37	39	40	41	52	38	47	64
Cereal aid 7/		10	10	12	8	10	21	19	21	15	8	9	26

1/ All figures for 1983/84 are provisional (June 1984).
2/ 1975/76 figure provisional.
3/ FSR1 figures cover 'emergency aid' only.
4/ 1976/77 figure provisional.
5/ 1976/77 figure provisional.
6/ Calender years, i.e. 1974/5 is for 1975.
7/ 1975/76 and 1976/77 figures estimated.

NOTES: See accompanying text.

SOURCES: CRED (1977); R of T.G./PPMU (1981); GPMB Annual Reports (various); Central Statistics Office (worksheets); USAID (various project papers); FAO/PPMU (PPMU worksheets of Nov 15, 1983); corroborated in FAO (1983); Gebre-Mariam (1980); Food Strategy Report I (1981); CILSS (1983).

TABLE A.III.2
IMPORTS AND FOOD AID

	(July-June)						1/ (October-September)			
	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3
Value of EXPORTS (including recorded re-exports)			97	89	124	88	113	83	56	83	113
Value of COMMERCIAL IMPORTS (Dm)			78	121	145	178	189	290	263	240	262
--of which food	10	15	17	30	31	42	49	64	64	75	66
FOOD IMPORTS as % of TOT IMPORTS			19%	21%	19%	20%	22%	22%	24%	31%	25%
FOOD IMPORTS as % of TOT EXPORTS			21%	40%	28%	52%	54%	77%	114%	90%	58%

1/ Different fiscal year used after 1978/79.

SOURCE: Central Bank Bulletin (1984).

Appendix 3. (Section V)

Estimates of Returns to Labor in Agriculture

In principle it is straightforward to compute the return to labor in agriculture: find the value of output, subtract the cost of nonlabor inputs, and divide by the time spent cultivating the crop. In practice it is difficult, since measures of crop yields, input use and labor requirements differ hugely. A variety of estimates of yield appear in Tables A.V.1. and A.V.2,, measures of labor requirements in Table A.V.3, and some calculated returns to labor in Table A.V.4. Information on inputs--seed use, fertilizers, capital costs, water, and so on--are not presented here (available on request). The prices used are given in Table 10.

The estimated actual return to labor is shown at the top of Table A.V.4; any fluctuations are attributable to changes in yield per hectare or in the prices of output or inputs. These figures are graphed in Figure 7.

Also in Table A.V.4 are shown a range of returns to labor. This range was found as follows. Returns to labor were calculated, where possible, on the yield (and other) assumptions of various sources (labelled A through F at the top of Table A.V.2). Except where one assumption was an obvious outlier, the extreme cases were chosen. The resulting progression isolates the immediate effects of price changes only on returns to labor time, since it holds yields (and labor requirements) constant. These figures have been graphed in Figure 6.

Appendix 3. (Section V) includes Tables A.V.1, A.V.2, A.V.3 and A.V.4, which follow.

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TABLE A.V.1
Crop Yields (in Kg./ha harvested)

CROP	74/5	75/6	76/7	77/8	78/9	1/ *	79/80	80/1	81/2	82/3	83/4
Suno (early millet)	1135	554	660	688	954	*	941	898	1270	1241	1020
Sanyo (late millet)	710	589	791	494	671	*	752	853	1271	1050	1057
Sorghum	697	766	883	672	878	*	759	958	1079	965	1029
Maize	2004	1104	1129	1131	1396	*	1228	1068	1645	1800	1241
Upland Paddy						*	537	1200	1129	969	792
Swamp Paddy 2/	1129	1087	963	661	1095	*	1699	1462	1251	1296	1774
Irrigated Paddy (wet)						*	4869	5390	5059		4207
Cotton						*	904	608	1034	873	820
Groundnuts	1385	1429	1329	949	1256	*	1326	874	1349	1593	1172

1/ Change in methodology used from 1979/80 on.
2/ Bafaro rice/mangrove rice.

SOURCE: PPMU worksheets

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TABLE A.V.2
Crop Yields (in Kg./ha harvested)

CROP	A Usman (1984) [FAO 83]	B CILSS 74/5-78/9	C Kargbo (1981/2)	D Gebre-Mariam (1979) trad.	E Gebre-Mariam (1979) improved	F mean 74/5 -78/9	G mean 79/80 -83/4
Suno (early millet)		683	827	1136	1704	798	1074
Sanyo (late millet)		692	961	682	1136	651	997
Sorghum		712	884	795	1704	779	958
Maize		1200	1013	1704	2841	1352	1396
Upland Paddy	600		1326	909	2273		925
Swamp Paddy 1/	1800/800		1880/1828			983	1496
Irrigated Paddy (wet)	2000		2429				4881
Cotton	859						848
Groundnuts	1230		1717	(1283) 2/		1270	1263

1/ Bafaro paddy/mangrove paddy.
2/ Traditional/Improved distinction not relevant for groundnuts.

SOURCES: Usman (1984); CILSS (1983); Kargbo (1983); Gebre-Mariam (1980); FAO (1983)

TABLE A.V.3
Labor Inputs for Different Crops

Days/hectare	Usman (1984) [FAO 1983]	Kargbo (1981/2)	Gebre-Mariam (1979)	Dunsmore et. al.	"Assumed"
Suno		118	82	100	100
Sanyo		121	87	45	100
Sorghum		91	63	60	77
Maize		116	65	55	90
Upland Paddy	189	254		100	200
Swamp Paddy 1/	238/228	361/326		120	300
Irrigated Paddy (wet)	200	324		290	262
Cotton 2/	166/91			195	
Groundnuts 2/	121/71	119	140	115	120

1/ Banfaro paddy/mangrove paddy.
2/ Tradtional/animal traction.

SOURCES: same as table A.V.2

TABLE A.V.4
Return Per Day Of Labor, By Crop
(in D/day, current prices)

	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
ESTIMATED ACTUAL RETURN/LABOR DAY											
Sanyo		1.7	2.7	4.0	2.1	2.7	3.6	3.6	5.5	7.5	9.6
Bafaro (swamp) Rice		1.4	1.6	1.2	0.9	1.6	2.7	2.3	2.0	2.1	2.9
Groundnuts		3.2	3.2	4.0	2.7	3.9	4.1	2.7	4.9	6.1	3.5
ESTIMATED RANGE OF RETURNS/LABOR DAY (yield held constant)											
Sanyo	1.4-2.2	1.6-2.5	2.9-4.6	3.2-5.1	2.9-4.5	2.6-4.1	3.1-4.8	2.7-4.3	2.7-4.3	4.5-7.1	5.8-9.0
Bafaro (swamp) Rice	0.7-1.8	1.0-2.3	1.1-2.6	1.2-2.9	1.4-3.2	1.4-3.4	1.5-3.6	1.5-3.6	1.5-3.7	1.5-3.7	1.5-3.7
Irrigated Rice	1.5-1.6	1.9-2.1	2.2-2.4	2.4-2.7	2.7-3.0	2.8-3.1	3.0-3.3	2.9-3.3	2.8-3.4	2.6-3.3	2.3-3.3
Groundnuts	1.8-2.1	2.5-2.9	3.0-3.4	3.3-3.8	3.2-3.7	3.4-3.9	3.4-3.9	3.7-4.2	4.0-4.6	4.1-4.7	3.4-3.9

Source: Computed from data in Tables A.4.1.1-2 and A.4.2, Table 5.1 and additional input data.
See text for further notes.

Appendix 4 (Section V)

Wage and Income Data

Appendix 4 (Section V) includes Tables A.V.5 and A.V.6.

TABLE A.V.5
Data on Wage Scales

WAGE SCALES	1974 Jul	1974 Sep	1975 Apr	1976 Jul	1977	1978	1979 Aug	1980 Jul	1981	1982 Jan	1983	1984	1985
Government: (D/year)													
grade 1 (lowest)	750	921	1200	→	→	→	1200	?	1644	1884	→	→	→
grade 8	2860	3120	3396	→	→	→	3396	?					
grade 17	8547	9924	9996	→	→	→	9996	?					
grade 21 (starting)	13475	14700	16080	→	→	→	16080	?					
grade 21 (highest)	14732	?	17580	→	→	→	→	→	17580	19320	→	→	→
Non-government formal sector (D/day)													
lowest minimum wage		3.50	→	→	→	→	→	→	4.50	5.20	→	→	→
highest minimum wage		5.37	→	→	→	→	→	→	6.50	7.50	→	→	→
male agricultural laborer	2.20	2.75	3.50	→	→	→	→	4.50	→	5.20	→	→	→
bus driver	3.45	4.00	4.75	→	→	→	→	6.50	→	7.50	→	→	→
general workers, foreman	4.07	4.62	5.37	→	→	→	→	*****	→	13.00	→	→	→
dock workers:													
headman, Banjul	4.85	5.40	6.15	7.95	→	→	→	8.95	→	10.29	→	→	→
winchman, Banjul	3.90	4.45	5.20	7.05	→	→	→	8.05	→	9.26	→	→	→
winchman, provinces	4.50	5.05	5.80	7.60	→	→	→	?		?			
laborer, Banjul	2.90	3.45	4.20	6.00	→	→	→	7.00	→	8.05	→	→	→
laborer, Provinces	3.25	3.80	4.55	6.35	→	→	→	7.35	→	8.45	→	→	→

Sources: Ministry of economic planning (1978, January 1983, February 1983)

Notes: Arrows indicate that wages remained constant over the period.

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TABLE A.V.6
Data on Actual Wages

AVERAGE ACTUAL WAGES	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Government (D/day):											
established employees		6.17	8.96	?	9.41	9.96					
daily rated employees		3.87	4.53	?	5.85	5.28					
casual employees		2.91	3.94	?	4.64	5.91					
Formal private sector (D/day):											
established employees		6.82	8.25	?	9.88	10.30					
daily rated employees		3.92	4.88	?	6.53	6.48					
casual employees		3.12	3.60	?	6.19	4.53					
Wage paid for agricultural labor (D/day):											
upland rice									2.50-2.87 1/		
groundnuts									3.04 1/		2.50 2/
coos									2.90 1/		
Consumer Price Index	100	126	147	166	188	193	204	217	240	266	302 3/

1/ Figures for 1981/82 crop year.
2/ "Agricultural wage, Farefenni area," for working 8:00 am to noon.
3/ March 1984.

Sources: Ministry of economic planning (January 1983, February 1983);
Central Statistics Division (for price index); Kargbo (1983) for 1981/82 agricultural wages.

Appendix 5

FIGURES

FIGURE 1

Coarse Grain Marketing System

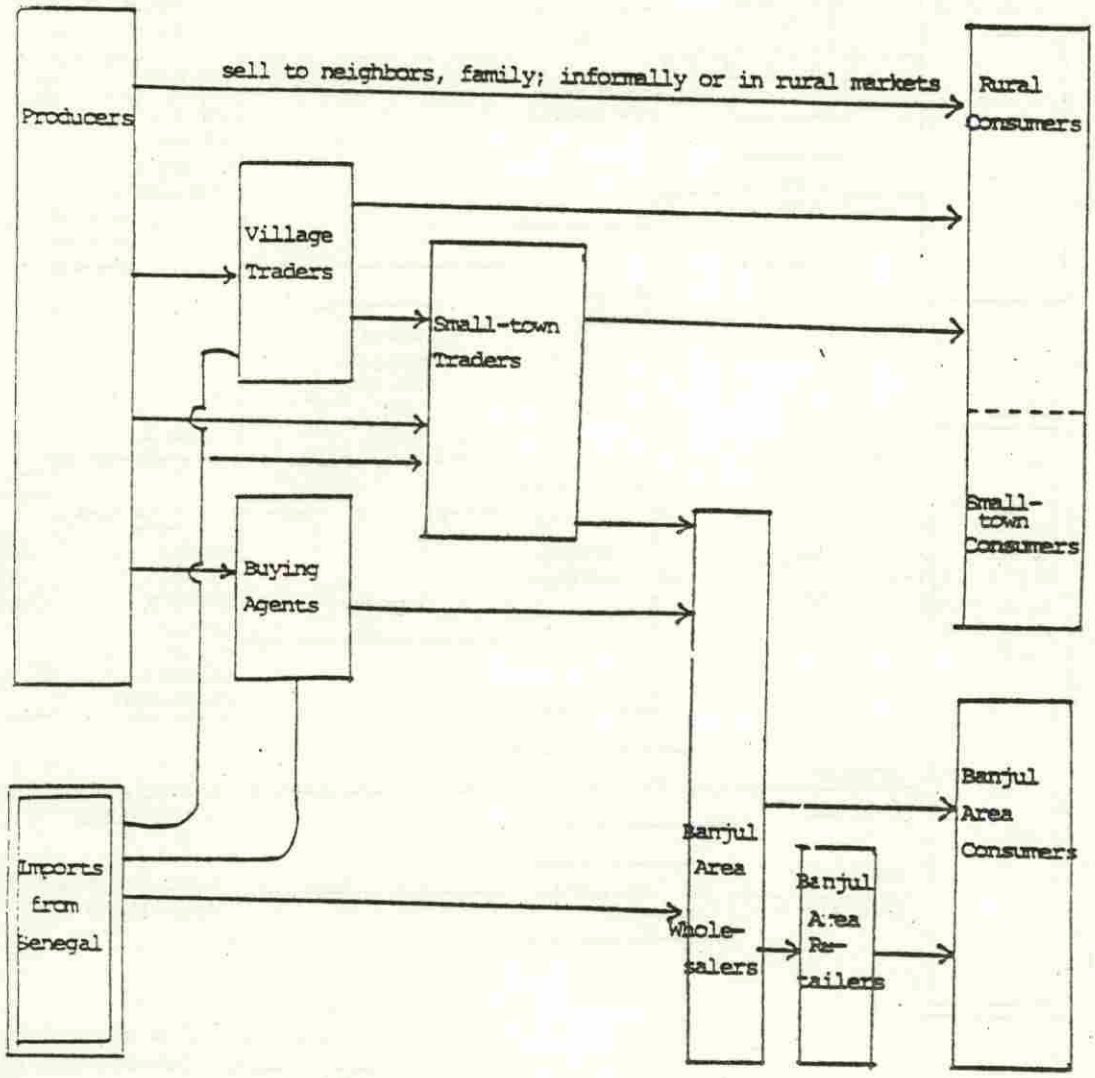


FIGURE 2

Rice Marketing System

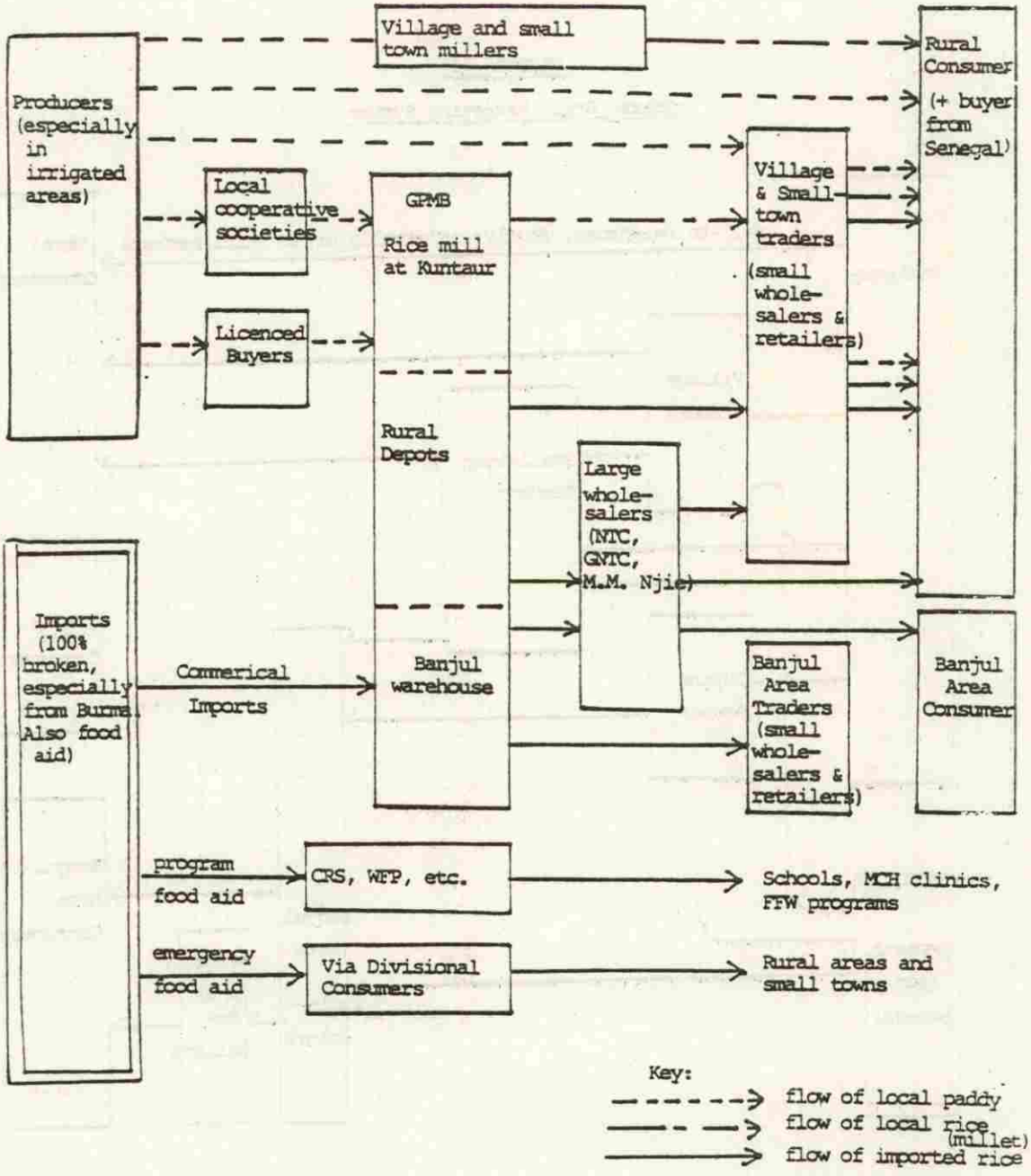


FIGURE 3

Groundnut Marketing System

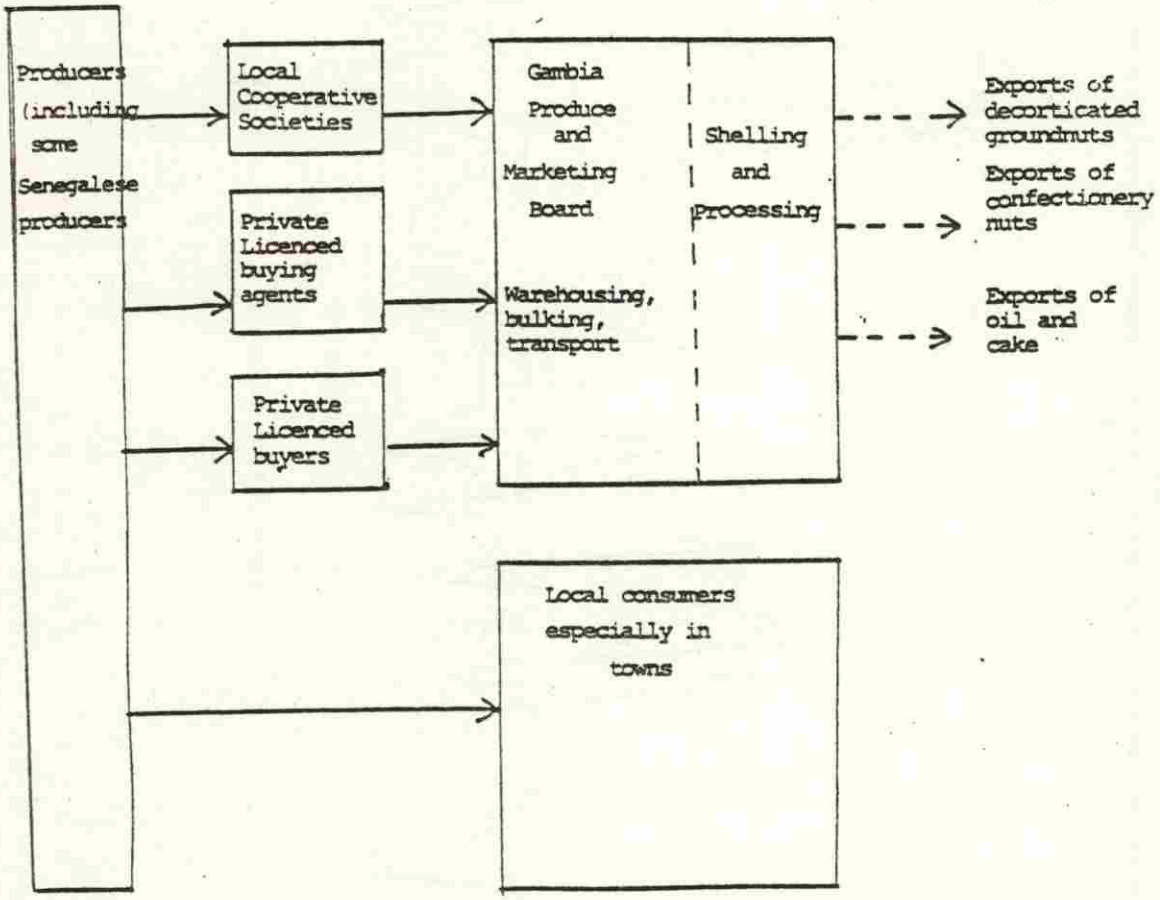


FIGURE 4
Price Differentials, Imported Rice, Millet, Between Banjul and Farafenni, Basse
1977-1984

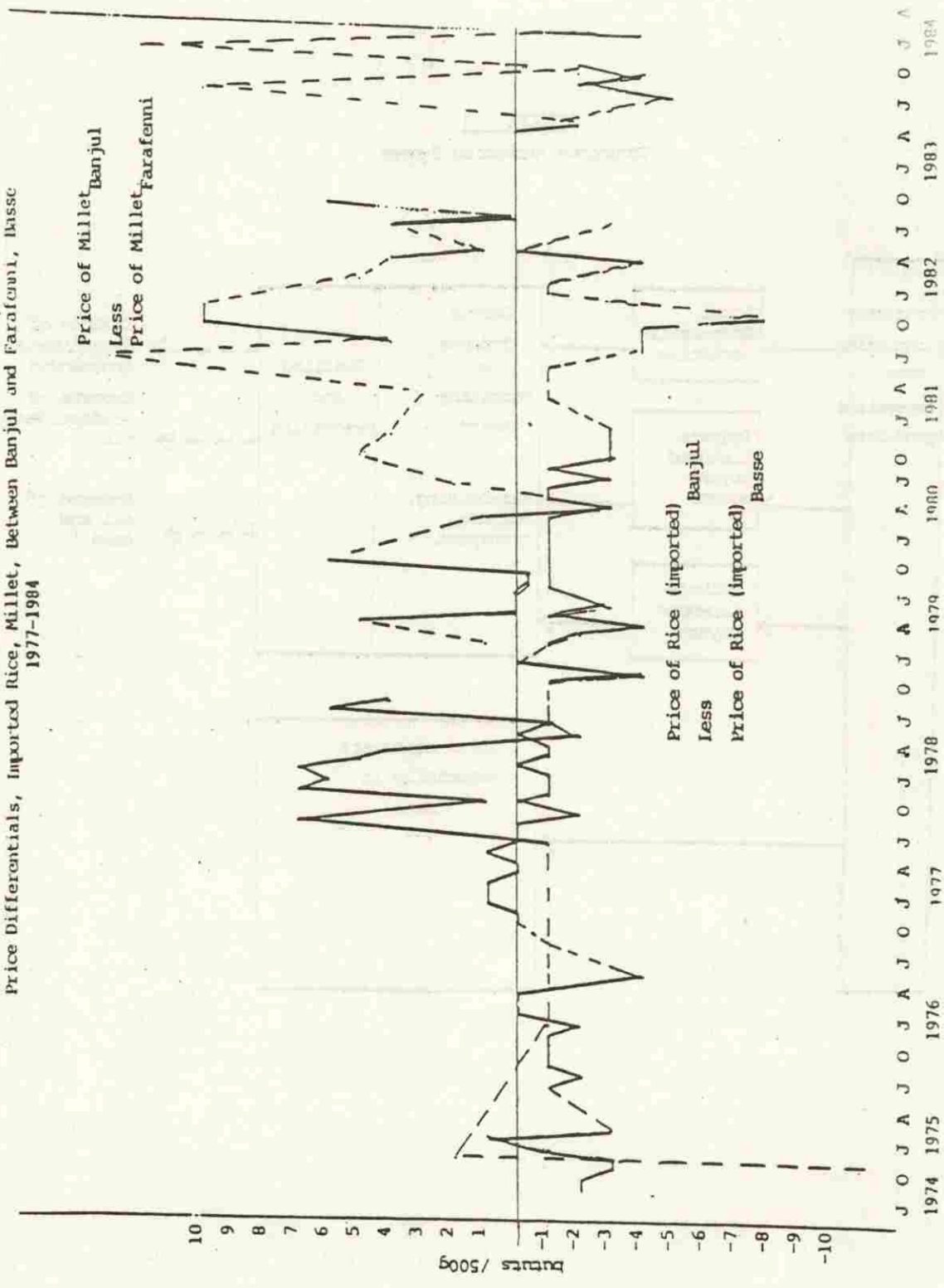


FIGURE 5

Banjul Consumer Prices of Rice, Millet and Groundnuts, 1977-1984

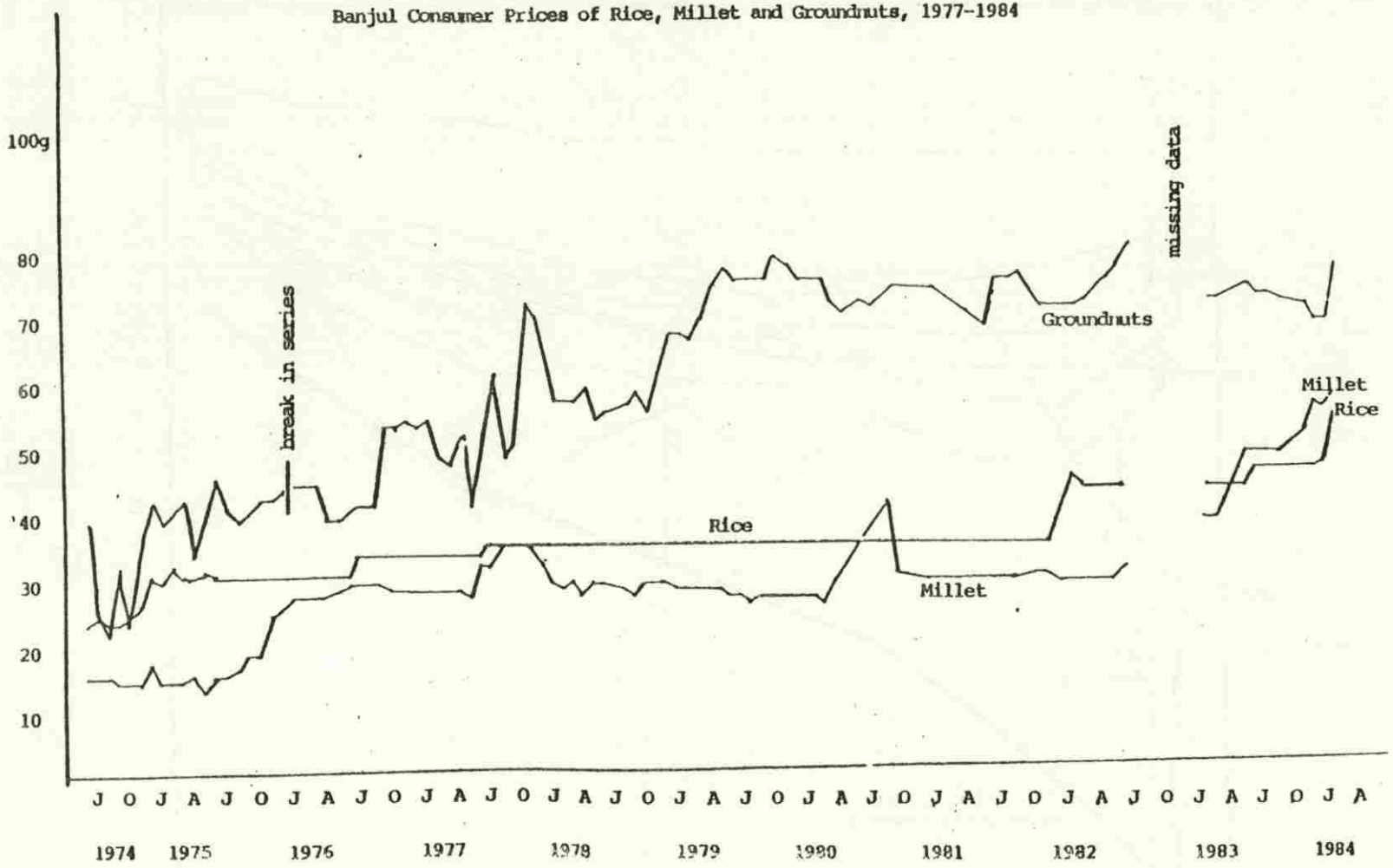
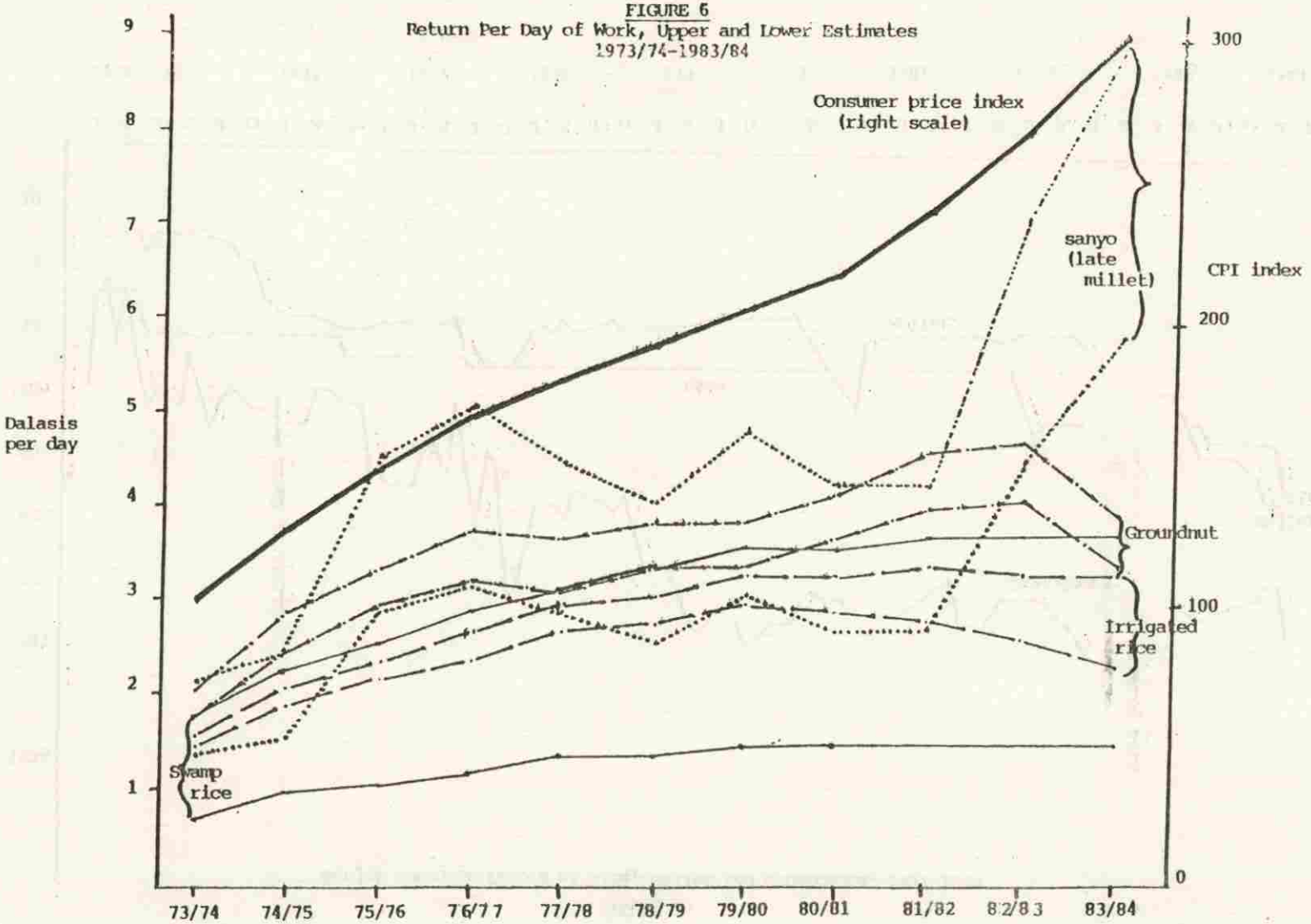


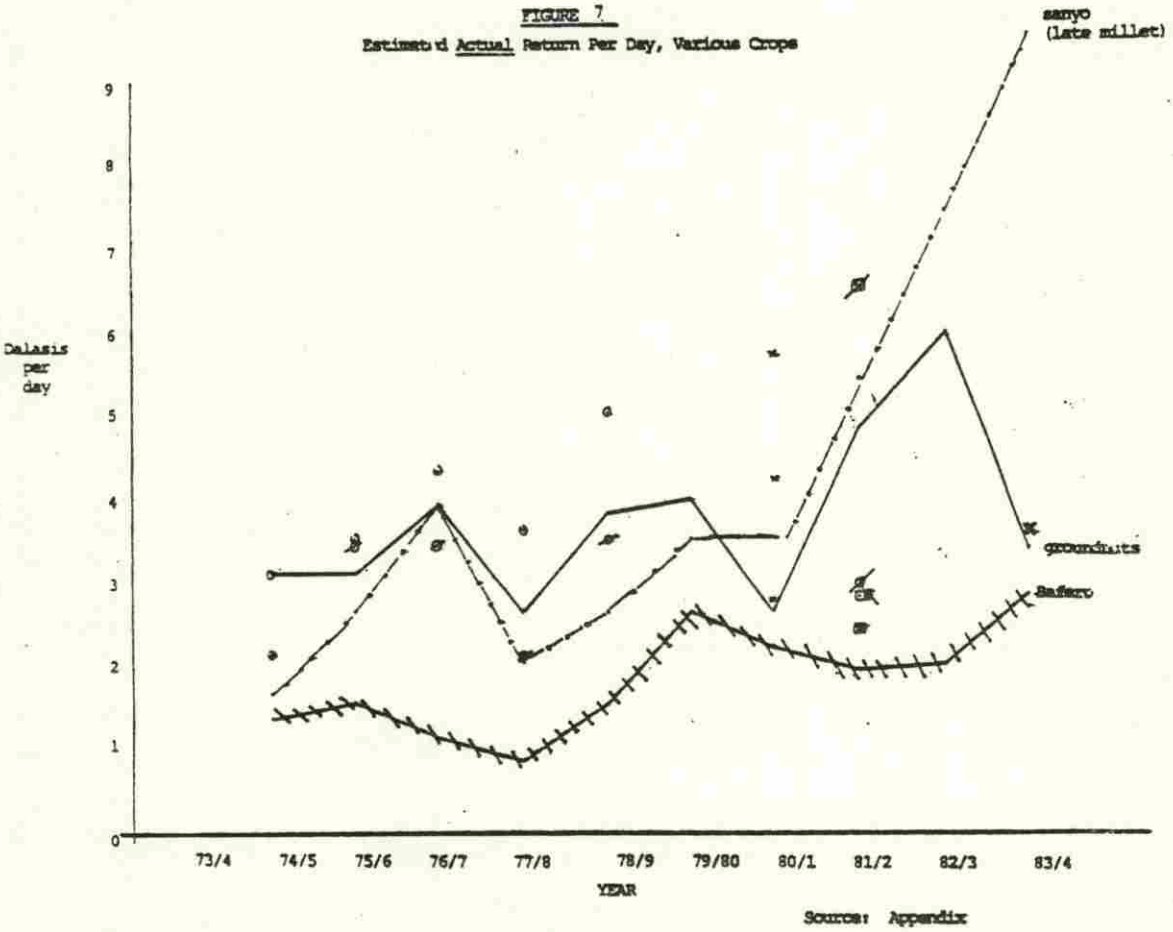
FIGURE 6
Return Per Day of Work, Upper and Lower Estimates
1973/74-1983/84



Source: Appendix

FIGURE 7

Estimated Actual Return Per Day, Various Crops



Source: Appendix

(1) World Bank (1980) return/day: swamp rice ⊗, groundnuts ⊗
(2) Kargbo (1983) return/day: swamp rice ⊠, groundnuts ⊠, sanyo ⊠
wage rate: swamp rice ⊡, groundnuts ⊡, sanyo ⊡
(3) return/day, groundnuts: X (Usman, 1984).

Appendix 6

TABLES

TABLE 1
Summary of Recent Economic Evolution of The Gambia

	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4	% annual growth rate 1974/5-1982/3
Real GDP 1/											
(1974 Prices; D million)	175	190	214	201	218	208	193	205	213	219	2.5%
Real GDP/capita 1/ (1974 Prices, D)	340	360	390	360	370	340	310	320	320	320	
Breakdown of GDP by sector 1/											
% originating in:											
-agriculture and livestock	47	37	39	31	30	24	21	26	26	27	
-wholesale and retail trade	14	21	22	22	24	28	26	25	22	22	
-government services	9	10	10	12	13	16	14	14	14	13	
-manufacturing	4	5	5	5	5	3	6	6	7	8	
Population ('000) 2/	511	529	547	566	586	606	628	650	672	698	3.5%

Sources: 1/ Central Bank of The Gambia (1983). Deflated by Consumer Price Index; 1983/4 figures are estimates from Budget Speech, June 22, 1984.
2/ Start of period figures; 1983 census figure; other figures interpolated from 1973 and 1983 censuses, assuming consistent percentage annual growth rate.

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TABLE 2
Summary of Recent Evolution of Agriculture

Production ('000 tons)	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
Groundnuts	145	141	143	100	133	67 1/	60	109	151	114
Cotton	<1	<1	1	1	1	1	1	3	2	1
Paddy Rice	17	19	18	15	34	29	43	39	37	26
Coarse Grain	39	26	26	28	43	24	37	57	68	42
Memo Items										
Rainfall at Banjul (mm)	910	1070	1150	540	1130	870	630	530	880	
Fertilizer Sales 3/ ('000 tons)	2.9	3.8	3.9	6.6	8.3	5.9	10 2/	10.4	7.8	
Grain Imports, 4/ Including Food Aid ('000 tons, milled equiv.)										
--total	38	48	47	60	59	62	67	46	56	90
--of which rice	17	31	28	25	31	23	36	28	35	54

1/ Probably an underestimate. The Gambia Credit Union uses a figure of 75; the GPMB bought 66 in 1979/80.
2/ Figures represent estimates from Food Strategy Report I (1981)
3/ Sales for 74/75 refer to fertilizer sold in 1973/74, and so on.
4/ From Appendix 3.1.

Source: Output information from most recent PPMU worksheets.

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TABLE 3
Food Balance Sheet

Figures shown in '000 tons milled equivalent unless otherwise stated	74/5	75/6	76/7	77/8	78/79	79/80	80/1	81/2	82/3	83/4
GROSS LOCAL GRAIN PRODUCTION	49	38	37	37	63	42	62	80	90	58
of which: coarse grain	39	26	28	28	43	24	37	57	68	42
rice	10	12	11	9	20	18	25	23	22	16
less: SEEDS & LOSSES (10%)	5	4	4	3	6	4	6	8	9	6
gives: NET LOCAL PRODUCTION	44	34	33	34	57	38	56	72	81	52
plus: IMPORTED GRAIN	38	48	47	60	59	62	67	46	56	90
of which: commercial imports	26	40	37	39	40	41	52	38	47	64
food aid	12	8	10	21	19	21	15	8	9	24
gives: GROSS GRAIN AVAILABILITY	82	82	80	94	116	100	123	118	137	140
Note: Population	511	529	547	566	586	606	628	650	672	696
GROSS GRAIN AVAILABILITY PER CAPITA (Kg.)	160	155	146	166	198	165	196	182	204	201

1/ Estimated figures for 1983/84.

Source: Appendices 2.1, 3.1
Note: Zero milling losses assumed

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TABLE 4
Breakdown of Food Aid Data

	Year [Oct.-Sept.] ['000 tons, grain equiv.]		
	1980/1	1981/2	1982/3
Commercial Purchases	52-4	82.9	50.8
**********	**********		
% of which:			
rice	99	65	100
coarse grain	1	-	-
wheat flour	-	35	-
Food Aid			
********	**********		
% of which:			
rice	63	60	97
coarse grain	7	14	-
wheat flour	30	26	3
Distributed by:			
Freedom from Hunger Campaign	2.1	2.3	0.0
Catholic Relief Services	37.7	1.3	1.6
World Food Program	6.4	5.0	7.3
Ministry of Local Government	5.7	-	3.8 1/

1/ Figure from CILSS.

Source: PPMU worksheet.

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TABLE 5
GPMB Paddy and Rice Purchases

	70/1	71/2	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4 1/
Local Paddy Bought ('000 tons)	0	0	0.04	0.58	0.75	0.54	0.71	1.95	2.51	4.32	7.85	4.97	2.7	1.0
Milled Rice Equiv. ('000 tons)	0	0	0.02	0.34	0.44	0.32	0.42	1.15	1.48	2.55	4.63	2.93	1.6	0.6
Rice Imports (tons)	5.3	14.9	23.1	14.7	17.1	31.1	27.6	25.1	31.2	23.3	35.5	28.2	34.8	54

1/ 1983/84 figures are preliminary.

Note: Milling rate assumed to be 0.59.

Source: GPMB accounts and documents.

Table 6

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Groundnut Prices

Dalasi/ton	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
1. Export Price, f.o.b. Banjul (shelled)	776	785	741	1151	1097	1039	854	1103	888	805	11650
2. Export Price (undecorticated equivalent)	543	557	518	806	768	727	598	772	622	564	1155
less: processing/marketing	15	20	30	39	51	37			60	52	
: primary collection	54	62	74	83	117	111	154 1/	180 1/	79	83	150 2/
3. Import Parity Price; farmgate, unshelled	474	475	415	674	600	579	444	612	483	429	1005
4. Memo: Actual Farmgate Price	227	305	364	402	402	421	421	480	500	520	450
Memo: 4 / 3	48%	64%	88%	60%	67%	73%	95%	75%	104%	121%	45%
5. Memo: Estimated fertilizer subsidy/ton g'nuts bought	2	7	7	11	17	8	8	37	15	9	
6. Memo: Farmgate Price; Senegal (D/ton, official exchange rate)	220	320	360	390	370	380	380	340	440	440	380
7. Memo: Price of groundnuts, shelled, cif Europe (D/ton, official exchange rate)	1038	814	839	1263	1288	1065	848	1254	923	920	
8. Memo: 1 / 7	75%	98%	79%	91%	85%	98%	101%	88%	96%	88%	

1/ Figures represent totals of processing/marketing and primary collection costs
2/ Estimate

Sources: GPMB Annual Report 1982/83 and other documents;
Senegal data from F. Martin; Europe data from
World Bank (1984).

Table 7

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Fertilizer Prices

	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
SINGLE SUPERPHOSPHATE [for groundnuts]											
Cost, D/ton, cif Banjul	158	357	284	260	247	229	266	250	250 1/	250 1/	
Plus: handling costs to GPMB depots 2/	37	47	55	62	67	72	76	81	89	89	
overhead	11	14	17	19	20	22	23	24	27	30	
losses [@ 3%]	5	11	9	8	7	8	8	8	8	8	
Plus: distributive allowance	20	25	29	33	38	39	40	43	48	48	
Gives: farm level cost	232	454	394	382	377	370	413	406	422	435	
Memo: actual farm level price	80	80	106	106	106	106	114	114	114	160	
Memo: GPMB margin/ton	-142	-384	-288	-276	-271	-264	-299	-292	-308	-275	
Memo: tons imported	1.8	2.7	3.2	4.8	5.1	3.5	1.8 1/	5.7 1/	3.9 1/	4.3	
COMPOUND [for rice]											
Cost, D/ton, cif Banjul	248	526	391	320	343	343	405	455	560	538	615
Plus: handling costs	24	30	35	38	43	46	48	52	57	99	
overhead	10	13	15	17	19	20	21	23	25	32	
losses [@ 14%]	35	74	55	45	48	48	57	64	71	76	
Gives: cost ex BMPB depot	317	643	496	421	453	457	531	594	713	745	
Plus: distributive allowance	20	25	29	33	38	39	41	43	48	48	
Gives farm level cost	337	668	525	454	489	496	572	637	761	794	
Memo: actual farm level price	110	110	134	134	134	134	134	134	134	200	286
Memo: estimated efficient farm level cost									644	680	
Memo: GPMB margin/ton	-237	-558	-391	-320	-355	-362	-438	-503	-627	-594	
Memo: tons imported ['000]	1.1	1.1	0.7	1.7	3.1	2.4	1.8 1/	4.7 1/	3.9 1/	5.3	

1/ Estimates
2/ Approximate costs only

Sources: GPMB Annual Report 1983/4 and other documents; Price Index from Central Statistics division.

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TABLE 8
Economic Cost of Imported rice

(D/ton)	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
Import Price, cif Banjul	388	591	622	437	392	398	429	485	570	562 1/	522	520 2/
Handling, port, transport costs	18	23	26	30	46	52	59	59	59	59	71	80 2/
Cost ex GPMB depots	406	614	648	467	438	450	488	544	569	621	593	600 2/
Wholesale margin (gross)	28	41	32	59	19	40	40	40	40	40	44	11
Reatail margin (gross)					34 3/						28	40
Gives: Economic cost, Imorted Rice (retail)	434	655	680	526	491	490	528	584	609	661	665	651 2/
Memo:Import duty on rice	10	0	0	22	77	118	126	146	162	145	177	
Memo:Actual retail price	352	484	572	638	638	695	695	695	695	710	820	910
Memo: net GPMB margin	-92	-171	-108	90	82	87	41	-35	-76	-96	-22	
Memo:Price of rice ($/ton) 5% broken, fob Bankok	147	350	542	363	254	272	368	334	434	483	293	274
Memo: official exchange rate, (D/$)	2.1	1.7	1.7	2.0	2.3	2.1	2.0	1.8	1.7	2.1	2.5	2.8

1/ Assumes 28,244 tons imported (GPMB accounts 1981/2, p. 7).
The accounts, p. 8, report imports of 24,263 tons.
2/ Banjul margin: D1.64/160 lbs.
Provincial margin : D3.24/160 lbs.
3/ Estimated figures.

Sources: GPMB Annual Report 1983/84 and other documents; exchange rate from IMF, International Financial Statistics, various issues; Bankok price from World Bank (1983/4).

TABLE 9
Import Parity Price, Domestic Paddy Rice

(D/ton)		72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3
Economic cost, ex GPMB depot		406	614	648	467	438	450	488	544	569	621	593
less: overhead		2	4	5	7	6	10	12	12	12	13	14
milling costs		198	102	200	231	218	187	98	69	69	116	110
[alt. milling costs		(30)	(34)	(43)	(50)	(57)	(62)	(66)	(69)	(69)	(116)	(110)]
plus: bran sales (3%)		12	18	19	14	13	14	15	16	17	19	18
gives: purchase price/ton rice:												
	(A)	218	526	462	243	227	267	393	479	505	511	487
	(B)	(386)	(594)	(619)	(396)	(388)	(392)	(425)	(479)	(505)	(511)	(539)
gives: purchase price/ton paddy:												
	(A)	126	305	268	141	132	155	228	278	293	296	237
	(B)	(224)	(345)	(359)	(246)	(225)	(227)	(247)	(278)	(505)	(511)	(319)
less: buying allowance		28	28	28	31	31	39	39	39	43	43	43
= FARMGATE PURCHASE PRICE:	(A)	98	277	240	110	101	116	189	239	250	253	194
FOR IMPORT PARITY:	(B)	(196)	(317)	(331)	(215)	(194)	(188)	(208)	(239)	(250)	(253)	(276)
Memo: Actual farmgate price:		154	242	309	353	397	441	463	492	492	510	510
Memo: GPMB marketing costs		11	20	16	24	27	38	35	43	43	20	16
Memo: GPMB margin, sales of local rice		-189	-131	-243	-331	-391	-394	-341	-369	-374	-413	-327

Source: GPMB Annual Report 1982/3 and other documents. Row 1 from Table 5.5.

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TABLE 10

Producer Prices for Main Crops

	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4	84/5
OFFICIAL BUYING PRICE PER TON (D)													
(A) Groundnuts	197	227	305	364	402	402	421	421	460	500 1/	520 1/	450	500
(B) Paddy Rice		242	309	353	397	441	463	492	492	510	510	510	560
Memo item: (A)/(B)		94%	99%	103%	101%	91%	91%	86%	93%	98%	102%	88%	89
OFFICIAL SELLING PRICE PER TON (D)													
(C) Compound Fertilizer	110	110	110	134	134	134	134	134	134	134	200	267	328
Memo item: (B)/(C)		220%	281%	263%	296%	329%	346%	367%	367%	381%	255%	191%	171
(D) Single Superphosphate	90	90	90	106	106	106	106	114	114	114	160		
Memo item: (A)/(D)	219%	252%	339%	343%	379%	379%	397%	369%	404%	439%	325%		
ESTIMATED FARMGATE PRICE PER TON (D)													
(E) Millet		240	270	490	540	480	445	515	465	465	760	965	
Memo item: (A)/(E)		95%	113%	74%	74%	84%	95%	82%	99%	108%	68%	47%	
Memo item: (B)/(E)		101%	114%	72%	74%	92%	104%	96%	106%	110%	67%	53%	

1/ Announced prior to crop planting.

Sources: GPMB Annual Report 1982/3, Central Statistics Division (millet prices), PPMU worksheets.

Table 11

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Indices of Prices, Rural Income and Urban Incomes

INDICES OF	72/3	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3	83/4
Producer Price of:												
Groundunts	65	74	100	119	132	132	138	138	151	164	170	148
Paddy Rice		78	100	114	128	143	150	159	159	165	165	165
Sanyo 1/		88	100	181	200	178	185	181	172	172	281	357
Consumer Price of: 2/												
Milled Rice		80	100	100	119	117	117	117	117	117	137	152
Sanyo 1/		88	100	170	188	173	187	188	176	178	273	339
Consumer Price Index: 2/												
Overall		79	100	117	132	143	153	162	172	190	211	240
Food & Drink		75	100	119	134	143	154	160	168	183	208	235
Cereals & Cer. Products		77	100					115	117	135	151	184
Import Prices	66	75	100	115	135	151	167	180	198	233	238	
Goods Consumed by Farmers		78	100	115	131	134	139					
Farmers' Cash Income		73	100	118	130	130	136					
Actual Wages, Public Sector:												
established employees [ave]			100	145		153	161					
daily rated employyes [ave]			100	117		151	136					
casual employees [ave]			100	135		159	203					
Wage Scales:												
Public Sector: minimum		83	100	100	100	100	100	100	137	157	157	157
maximum		84	100	100	100	100	100	100	100	110	110	110
Bus driver		73	100	100	100	100	100	137	137	137	137	158
Male agr. worker [official]		83	100	100	100	100	100	129	129	149	149	149
Return Per Day of Work:												
Groundnuts			100	100	125	84	122	128	84	153	191	109
Swamp rice			100	114	86	64	114	193	164	143	150	207
Sanyo 1/			100	159	235	124	159	212	212	324	441	565
Index of Rural Daily 'Wage' Rate 3/			100	121	150	92	132	166	138	202	258	265

1/ Late millet
2/ Indices for prices in Banjul.
3/ Weighted as follows: groundnuts: 0.5
rice: 0.2
coarse grain: 0.3

Sources: GPMB [1983], Central Statistics Division price sheets, World Bank [1980],
Ministry of Economic Planning [1978, January 1983, February 1983], Appendix 5.1

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TABLE 12
Prices, Government Revenues and Expenditure

	73/4	74/5	75/6	76/7	77/8	78/9	79/80	80/1	81/2	82/3
GPMB TRADING PROFIT (LOSS) (D million)	33.8	18.5 5/	4.4	29.9	13.8 1/	(3.1)	(17.6)	(9.4)	(15.6)	(24.6)
of which: groundnuts	36.2	24.3 2/	4.1	27.2	12.4 3/	(2.5)	(14.6)	(2.7)	(13.2)	(21.7)
: rice marketing and milling	3.1	2.6	0.3	2.0	0.9	(0.5)	(2.1)	(6.1)	(2.2)	(3.1)
GRANTS (to Government)		3.5	3.6	12.5 4/	9.3	9.6	2.2	0.2 8/	0.4	0.2
SUBSIDIES (esp. fertilizer)		1.2	0.8	2.4	2.7	1.4	4.8	4.6 6/	4.6 7/	2.4
NET GPMB PROFIT (LOSS)		18.7	2.0	17.4	4.8	(13.2)	(25.9)	(7.1)	(32.4)	(37.6)
Memo Item: net profit (loss) as % of GDP		8	1	5	1	(3)	(6)	(2)	(7)	(7)
Memo Item: Export duties (D mn)			4.6	4.6	5.7	4.3	7.5	0.5	3.8	8-10%
Memo Item: Revenue, rice duty		0	0.7	2.2	3.0	3.9	3.4	5.1	4.1	6.1

1/ 10.6 (IMF)
2/ 21.2 (IMF)
3/ 9.3 (IMF)
4/ 5.0 (IMF)
5/ 21.6 (Central Bank of The Gambia, Bulletin)
6/ 10.3 (GPMB %)
7/ 7.2 (GPMB %)
8/ 0.4 (GPMB %)

Sources: Central Bank, Annual Reports (1981/82, 1983); GPMB, Annual Reports (1982/83, 1981/82).