INTRAHOUSEHOLD DECISIONMAKING AND RESOURCE CONTROL: THE EFFECTS OF RICE COMMERCIALIZATION IN WEST AFRICA

by

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FOREWORD

Increased commercialization of semisubsistence agriculture is an important part of efforts to increase incomes and improve living standards in rural areas of many developing countries. However, effects on the incomes, food consumption, and nutritional status of the rural poor depend on how the increased commercialization is brought about; that is, the design and implementation of projects and policies and the response by the rural poor to changes in incomes, prices, labor demand, and other relevant factors.

The International Food Policy Research Institute is undertaking research to assess the effects on income and nutrition of increased commercialization of traditional agriculture in several countries and to generate new knowledge useful for those designing and implementing policies and projects, thus helping to avoid negative and to enhance positive nutrition and income effects.

Some of the results from this research will be published as IFPRI research reports. This series of working papers is intended to meet requests for additional information on commercialization of semisubsistence agriculture in various countries. These working papers complement IFPRI's research reports by providing detailed but primarily descriptive analyses.

In this working paper, Patrick Webb takes a detailed look into the intrahousehold effects of commercialization and technological change in the West African setting of The Gambia. The research particularly focuses on how women farmers are affected by new production technology. A very important aspect of this study is its detailed analysis of the effects of change in a system that has both communal farming at the extended household level and individual farming. The research particularly shows that distributional effects of commercialization and technological change in Africa can only be addressed appropriately if analysis does not stop at the door of the household, but actually looks into changes in burdens and benefits within the complex household production-consumption system.

Joachim von Braun

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1. SUMMARY

The present study evaluates the impact of technological change in agriculture (rice) and increased commercialization on intrahousehold decisionmaking, resource control, and patterns of labor activity. The study was born of an increasing concern about the dual issues of gender bias and intrahousehold inequalities in access to, and control of, resources, and their relationship to technological change in agriculture. Both issues are specifically addressed by this study.

The analysis focuses on the example of a rice irrigation scheme established in The Gambia in 1983. Involving roughly 3,500 smallholders and covering 1,100 hectares of both pump- and tidal-irrigated land, this scheme was designed to improve rice yields, to increase domestic output, and to encourage commercialization of the produce. These objectives were to be met with the stipulation that the rights of traditional tillers of rainfed swamp rice (displaced by the project) were to be protected. These original rice tillers were mainly women.

Woman farmers in The Gambia play an important role as independent crop producers. Under traditional arrangements, the Gambian farm is divided into two distinct parts: a communal farm, which is worked by all household members under the direction of the household head, and a set of private fields that are cultivated on an individual basis. The communal farm provides the basic food stock for domestic consumption, while the private fields are used by individuals (both men and women) to grow cash (market) crops for a private income. Formerly, rice was grown mainly by women, both as a private cash crop and as a communal food crop. Since the project started, however, there have been many changes in the organization of production and consumption of both rice and upland crops.

The first of these changes is that the new technology has led to a transformation in the status of the rice crop. No longer a mixed private/communal crop, the new rice has become almost exclusively a communal food crop. In 1985, only 19 percent of project rice harvested was sold or given as gift by the sample households. This compares with an equivalent figure of 36 percent for traditional swamp rice that is still under women's control. These figures indicate that contrary to planners' expectations, the increased yields and output have not induced farmers to grow the new rice primarily as a cash crop. Instead, it appears that most farmers have looked to the new technology to improve their household food security.

Secondly, control over the rice crop has passed from women to men. This is because responsibility for the provision of communal food falls primarily to the male household head. Decisions on the organization of field activities, on the storing of produce, and on the marketing of surplus are now taken by men rather than by women. This has resulted in a *de facto* concentration of decisionmaking authority in the hands of the household head.

In practical terms, the assignment of the new rice as a full-fledged communal crop means that there has been a substantial increase in the burden of communal farm work for both men and women (in terms of labor days), but relatively more for women. Men are indeed working much more in rice than previously. In fact, it is important to underline here the finding that men in this sample provided 68 percent of all family labor to communal agriculture, while women only provided 32 percent. This result in itself calls for a reassessment of generalizations that women always carry out the greater share of agricultural work in West Africa. Such a finding does not, however, imply that women are less important in agricultural production than was formerly assumed. In rice alone, the increased labor demands of the new technology fall more on the shoulders of women than of men: holding other factors constant, the acquisition of an average-sized piece of project lands increases the transfer of labor from private to communal farming by 22.5 percent for women, compared with only 6.9 percent for men.

Nevertheless, the displacement of women from control over rice and their increased burden of work on communal food crops is only part of the story. While women have less opportunity to grow a private rice cash crop, many women have responded by expanding their private production of upland cash crops such as groundnuts and cotton. Women are responsible for roughly 40 percent of all such fields in the survey area. There has consequently been a direct substitution of women's private rice fields by women's private groundnut/cotton fields.

The impact of the introduction of new agricultural technology on different household members has, therefore, been very varied. Not everyone gets an equal share of the pie. An understanding of how technological change affects the distribution of resources at intra-household level is therefore essential to a valid evaluation of who gains access to the benefits involved.

2. INTRODUCTION

The analysis of decisionmaking at household level has received increasing attention during the past few years. The principal reason for such widening interest in a field of study once regarded as the purview of anthropologists alone is a growing recognition on the part of policymakers that conventional assessments of the effect of development initiatives are often selective and incomplete.[1] The point at issue is one of the scale of analysis. An important step was made over a decade ago when it was acknowledged in development circles that growth and equity in resource distribution are not necessarily synonymous at national or even at regional levels. Yet recognition that neither poverty nor development interventions affect all individuals uniformly usually went no further than the door of the household.[2] Even when specific target populations have been identified, the effect of policies and projects has continued to be determined at aggregated household levels. Increased income or improved calorie availability on an average household basis continues to be the pointers for measuring success.

Yet the assumption that a household group can be dealt with as an homogeneous unit, which pools all resources, activities, and benefits evenly and for the common good, requires substantial modification. Data aggregated at the level of whole households can mask considerable inequalities *within* the household. Far from being amorphous aggregations of "typical" producers and consumers, the farm household in most parts of Africa is a flexible, multifunctional entity, comprised of diverse individuals who each have their own spheres of influence, their own rights, and their own obligations to the group. As a result of this plurality of internal form, households respond in many different ways to the interventions designed by development planners. The burdens and benefits of such interventions are also spread differently among the individual members of different households.

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[1]Beatrice L. Rogers, The Internal Dynamics of Households: A Critical Factor in Development Policy, Nutrition and Development Project Paper 83-2 (Washington, D.C.: U.S. Agency for International Development, 1983).

[2]Sarah S. Berry, Households, Decision Making, and Rural Development: Do We Need to Know More? Development Discussion Paper 167 (Harvard: Harvard Institute for International Development, 1984).

Thus in order for the benefits of any project or policy to reach, and be seen to reach, the target individuals for which they were intended, it is crucial for planners to understand more about the ways in which households allocate resources between their members and the decisionmaking processes involved in that allocation. At present the mechanisms of authority, control, allocation, and disposal of resources within rural households remain obscure. The present study was therefore designed to address these issues in a Gambian setting.

OBJECTIVES

The principal objectives of the study are threefold:

1) To provide an account of the decisionmaking hierarchies and processes within a sample of farm households, with a particular focus on agricultural production and marketing decisions. The questions asked are not so much how do households make decisions, but how does membership of different individuals in a household influence their status, their access to resources, and their obligations to others.

2) To place the discussion of authority structures and decisionmaking processes into a longitudinal time perspective. The interplay between individuals is considered in the context of an analysis of how technological change and policies of increased agricultural commercialization affect decisionmaking and resource control within the farm household. Accepting that decisionmaking on resource allocation (including working time) is a determinant of the household's response toward changes in the economic environment, linkages are sought between increasing agricultural commercialization, changes in decisionmaking structures, and resultant changes in productive activities.

3) To establish the extent to which different individuals are affected by the changing farming practices associated with the introduction of new agricultural technology. Through a detailed accounting of household labor flows, the relative gainers and losers in the labor exchange arena are identified.

These three issues have direct practical relevance to contemporary policymaking. While existing studies provide a limited understanding of how cash cropping affects agricultural production and, to a lesser extent, demand for hired labor, much less is known about how commercial agriculture affects the distribution of authority and of resources within the family.[3] In an attempt to meet some of these

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[3]Joachim von Braun and Eileen Kennedy, Commercialization of Subsistence Agriculture: Income and Nutritional Effects in Developing Countries, Working Papers on Commercialization of Agriculture and Nutrition 1 (Washington, D.C.: International Food Policy Research Institute, 1986).

informational gaps, the present analysis yields detailed microlevel insights into the distribution of benefits following the introduction of new farm technologies, and attempts to trace the impact of these new technologies on different decisionmakers within the household. Such detailed information is vital to an overall understanding of the responsiveness of farm households toward changes in incentives and in the technologies in agriculture. It is also crucial to a more accurate assessment of the potential effect of policies of agricultural change on the complex socioeconomic networks of the household unit.

METHODOLOGY

The study site in central Gambia was the location of an ongoing IFPRI research project.[4] The objectives of that study were to examine the income, consumption, and nutrition effects of technological change and increasing commercialization of agriculture on smallholder farming. A sample of 200 households had been selected for this study in 10 different villages in McCarthy Island Division. These households were involved in a newly introduced rice irrigation scheme that used improved production technologies to increase rice yields and encouraged large-scale commercialization of the produce. The sample was selected in such a way as to provide a cross section of household types according to size and degree of involvement in the new project.

The present in-depth decisionmaking study selected 22 of the households for a detailed analysis of the effects of the new technology on individuals at the intrahousehold level. The subsample was selected according to the following criteria:

- At least five households were chosen from each of the four main ethnic groups.
- One-third of the sample was made up of small households (<10 inhabitants), one-third had medium-sized households (11-20 inhabitants), and one-third had large households (>21 inhabitants).
- All five major lineage classes were represented.
- One-half of the sample was heavily involved in the rice irrigation scheme, and one-half was much less involved.

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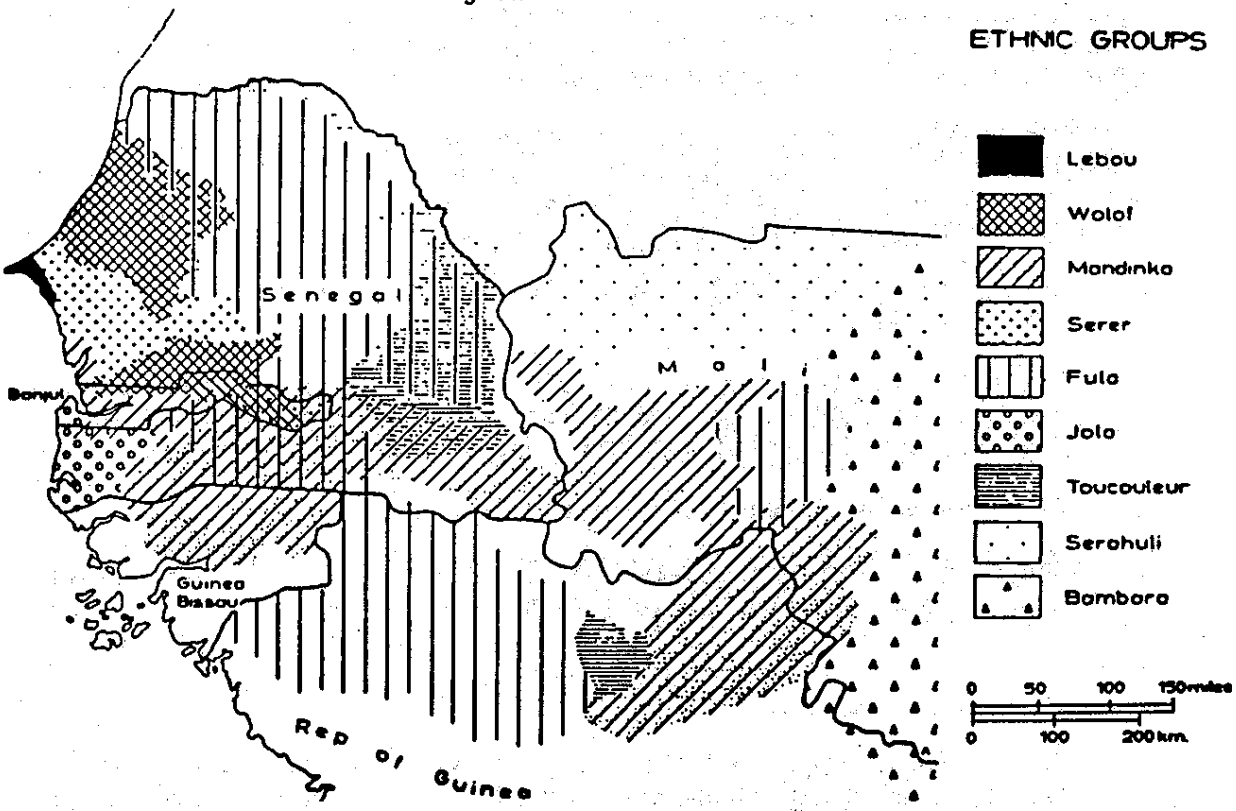
[4]For a full account of this large survey design, implementation, and results, refer to Joachim von Braun, Detlev Puetz, and Patrick Webb, "Technological Change in Rice and Commercialization of Agriculture in a West African Setting: Effects on Production, Consumption, and Nutrition" (Washington, D.C.: International Food Policy Research Institute, 1988).

- The households had to be suitable for, and agreeable to, intensive interviewing and close contact with researchers over a 12-month period.

All households selected were served by a single consumption unit (*sinkiro*). (More details concerning intrahousehold structure and organization follow in Chapter 3). This arrangement appears to be the norm for the project area where the average number of consumption units per household is 1.29 (IFPRI project data). The reader should nevertheless be aware that the structures and processes described throughout the following analysis are complicated even further in households comprising more than one consumption unit.

It should also be underlined at this point that the decision to include sample households from each of the four main ethnic groups was made because these groups are fairly equally represented numerically in the project area (Figure 1). In terms of total population (for the

Figure 1--Distribution of major ethno-linguistic groups in Senegambia and the wider region



Source: Ken Swindell, "A Report on Migrant Farmers in The Gambia," in Demographic Aspects of Migration in West Africa, vol. 1, ed. K. C. Zachariah and J. Condé, Staff Working Paper 414 (Washington, D.C.: The World Bank, 1980), p. 6.

46 villages participating in the project in 1984/85), the Mandinka made up 32.5 percent, the Fula 26.6 percent, the Serahuli 22.8 percent, and the Wolof 18.2 percent. The U.S. State Department data for 1985 show national averages for the four groups as follows: Mandinka 38 percent, Fula 16 percent, Wolof 14 percent, and Serahuli 8 percent.[5] Because of the unusually strong representation of the Serahuli and Wolof in the project locale, it was deemed necessary to consider all four groups in order to identify potential differences in household organization that might have a bearing on the analysis.

The 22 households finally selected continued to be a part of the large-scale IFPRI project, and were therefore visited several times by the enumerators attached to that project. However, the in-depth data for the present report were obtained on a more continuous basis in the following way:

1. Household monographs, documenting historical and other general information relating to farm and home management practices, were prepared by means of a questionnaire and also through informal discussions with each household head, his wives, and other older members of the family.

2. Structured questionnaires were applied to relevant family members on a one-off basis to obtain information on family structure, farming practices, nonfarm activities, the organization of food preparation and consumption, investments, and cultural norms.

3. All fields in the subsample were carefully measured, using tapes and compasses in order to ensure the accuracy of crop yield and labor data.

4. Open-ended questionnaires were used on a more regular basis to record farming activities, income and expenditure flows, the objectives and concerns underlying various decisionmaking patterns. Labor data were obtained partly on a short-term recall basis, but principally on an activity-by-activity basis.

5. All the information referred to above was verified and cross-checked through continuous biweekly interaction with members of each household. Discussions were frequently held in the fields, and participation by the researchers in all day-to-day activities, including farming activities, was considered of crucial importance to the study's success. The two principal field assistants (one man and one woman) who interpreted, and who also carried out independent data collection, each spoke three of the local languages as well as being fluent English speakers. The author also speaks the main local language (Mandinka) as a result of previous field experience in the

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[5]World Eagle, Inc., Africa Today: An Atlas of Reproducible Pages (Wellesley, MA: World Eagle, 1987), p. 52.

area. Women were generally interviewed by the female assistant. It is important to underline the fact that none of the households dropped out of the sample, even after more than 12 months of interviewing.

Following Hill, it is stressed that because of West Africa's ethnic and environmental heterogeneity, one may make only very broad generalizations on the basis of individual studies.[6] What is more, given the paucity of reliable baseline (preproject) data for this region--at a level of comparable detail--it is very difficult to separate out the effects of technological change on farm production and consumption from other sources of social and economic change. The problems inherent in cross-sectional analysis should therefore be kept in mind. Nevertheless, the detailed information gained from such a case study may lead to a reassessment of broad generalizations that are accepted as conventional wisdom. This is the objective of the present study.

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[6]Polly Hill, Development Economics on Trial (Cambridge: Cambridge University Press, 1986), pp. 78-82.

3. THE RESEARCH SETTING

THE LOCATION

The Gambia is one of the smallest countries in Africa. It occupies a narrow strip of land on both banks of the River Gambia, forming an enclave that is surrounded by Senegal. The population, estimated at around 770,000 in 1987, is growing at the rate of between 2 and 3 percent per annum.[7] Agriculture dominates the national economy, employing (directly and indirectly) 85 percent of the active population, and accounts for more than 60 percent of the GDP. Groundnuts are the main agricultural commodity, making up 37 percent of GDP and some 90 percent of exports.

Foreign trade plays a vital part in the economy. A thriving transit trade is carried on with Senegal and Guinea Bissau. All manufactured goods are imported, as is about 30 percent of the annual cereal requirement of the country. Rice, for example, is one of the principal staples of The Gambia's diet, yet almost 50 percent of the rice consumed during the early 1980s was imported. Food security at the national as well as at the household level, is therefore conditional on trade and pricing policies for groundnuts and rice. Since the reorientation of crop production is dependent on the location-specific resources of rural populations, the household-level effect of national food security policies may be quite diverse in different rural areas. In order to understand these regional effects, it is crucial to understand decisions made in agricultural households regarding production and consumption.

The study site is located on the south bank of the river in McCarthy Island Division, some 30 kilometers west of Georgetown (the divisional administrative headquarters), and 300 kilometers east of the capital, Banjul (Figure 2). This region of the country exhibits most of the characteristics that are typical of inland Gambia: a Sudano-Guinean vegetation associated with 700 millimeters to 1,200 millimeters of precipitation per annum; and a hand-and-hoe, bush-fallow agriculture based on the cultivation of groundnuts, rice,

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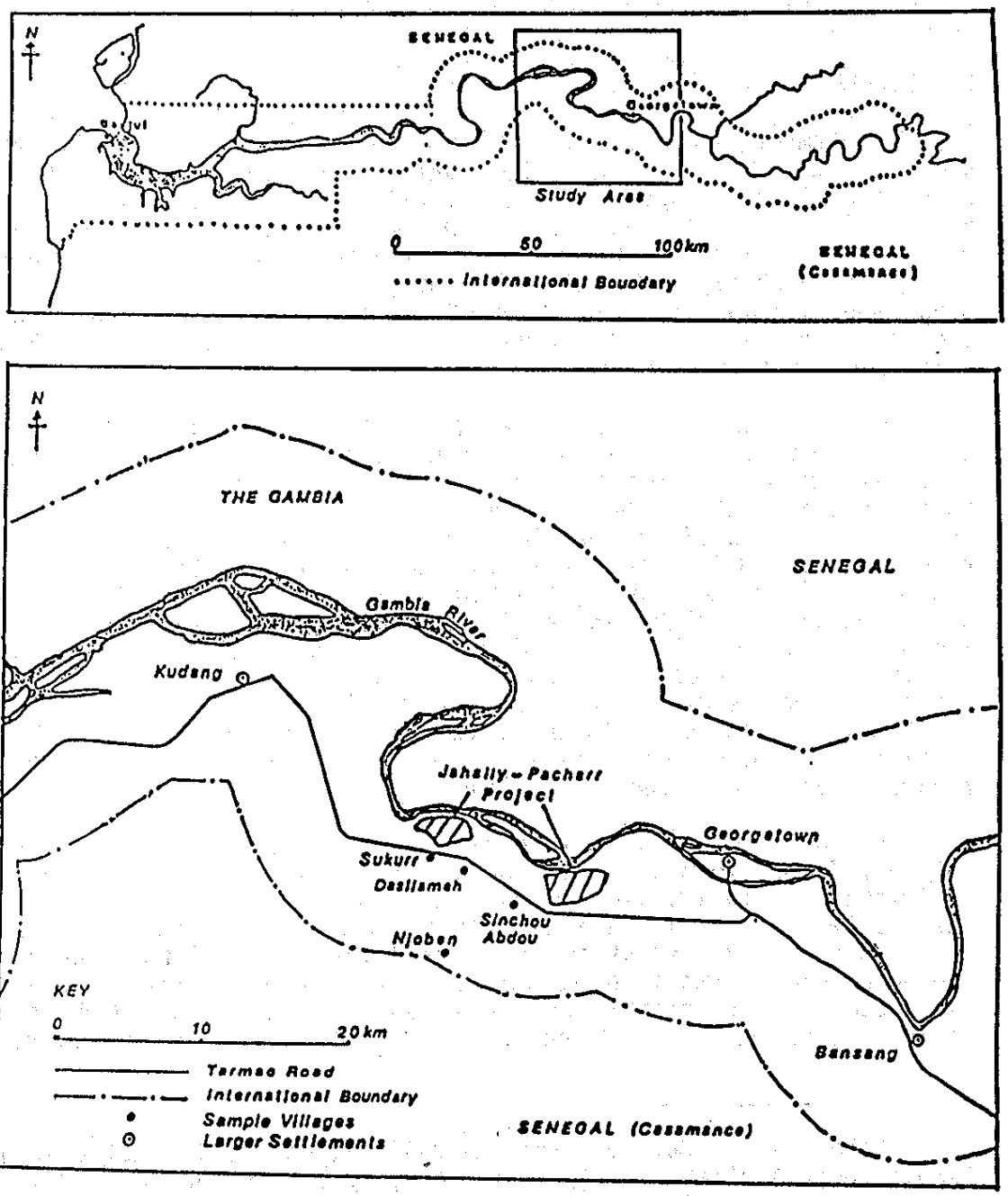
[7]Peter Weil, "Agricultural Intensification and Fertility in The Gambia (West Africa)," in Culture and Reproduction, ed. W. Penn Handwerker (Boulder, CO: Westview Press, 1986), p. 295; World Bank, Social Indicators of Development (Washington, D.C.: World Bank, 1987).

Figure 2--Location map of The Gambia with a study area inset



millet, sorghum, and maize. Table 1 shows the percentages of land area cultivated for the wet season of 1985, comparing data from the large sample villages with official figures on nationwide and divisional patterns.

This table shows that the cropping patterns of McCarthy Island Division match those of the country as a whole, except where millet and rice are concerned. McCarthy Island Division, which is generally drier than land to the west, has already shifted its focus away from growing late millet, toward the shorter-duration early millet as a measure of drought protection. McCarthy Island Division also differs from the rest of the country where rice is concerned, allocating almost twice as much land to rice farming as the national average. Part of the reason for this is that it was in McCarthy Island Divi-

Table 1--Percentage of land area cultivated for major crops during the wet season of 1985

Crop	Gambia Total[a]	McCarthy Island Division[a]	Sample Villages[b]	
			Upland Villages	Lowland Villages
	(percent)			
Fully water-controlled rice in new scheme (pump irrigated)	0.3	1.0	2.0	10.0
Partly water-controlled rice in scheme (tidal irrigated)	0.3	1.0	10.0	7.0
Old schemes (Chinese, World Bank)	0.4	1.0	...	...
Swamp rice	10.0	13.0	1.0	18.0
Early millet	20.0	27.0	34.0	16.0
Late millet	9.0	1.0	..	2.0
Sorghum	5.0	5.0	2.0	5.0
Maize	8.0	9.0	7.0	10.0
Groundnuts	46.0	42.0	50.0	27.0
Cotton	1.0	1.0	3.0	5.0
Total	100.0	100.0	100.0	100.0

Sources: a) Government of The Gambia, 1986/1987 Agricultural Sample Survey Report (Banjul: Planning, Programming, and Monitoring Unit, April 1987).

b) IFPRI/PPMU large survey, 1985/86.

sion that pump-irrigation technologies were first introduced to the country; and it is here that these technologies have had the most widespread use.

THE GAMBIA'S EXPERIENCE OF RICE IRRIGATION

The country's first step toward large-scale irrigation was taken in the late 1940s.[8] Driven by a desire to reduce costly food imports, the colonial government decided in 1948 to implement a large irrigation scheme--The Gambia Rice Farm, managed by the Colonial Development Corporation (CDC). Two swamps in McCarthy Island Division were selected as the sites for a 9,200-hectare project, which would cost £500,000. The irrigation was to be achieved through the canalization of levelled swampland fields, fed by the tidal flow of the river. The project was to be run on a plantation basis with heavy work being carried out by tractor, and local labor only being required as daily-paid hands for weeding.

The first 60 hectares were planted in 1950 but only 6 hectares survived flooding that year because the planners had taken insufficent account of local drainage problems. Also, the heavy machinery found it difficult to operate in slippery conditions. It was, therefore, decided to involve local farmers on a share-cropping basis, but the project was not attractive enough to encourage the participation of many farmers. By 1958 fewer than 200 women had joined, cultivating a mere 120 hectares. The project was abandoned that same year.

Irrigation was taken up again in 1966 with support from Taiwan. This project assisted smallholders to establish small 0.2-hectare perimeters for pump-irrigated double cropping. Inputs were provided free the first year, but farmers were expected to meet all costs themselves in later years.

The attraction of free inputs resulted in the development of 1,200 hectares by 1974. Yet these projects had serious shortcomings. Since no support was given to farmers after the first crop, yields and productivity levels declined rapidly. Flooding continued to be a problem because of deficiencies in technical design. Unlined canals leaked and the lifespan of pumps and tractors was short because they were ill-adapted to local conditions.

The Taiwanese mission was withdrawn in 1974 and replaced by personnel from mainland China. The latter committed themselves to furthering the work that had previously been carried out, and similar

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[8]For more historical detail, see Patrick Webb, "When Projects Collapse: The Impact of Agricultural Project Failure in The Gambia from a Household Perspective," International Food Policy Research Institute, Washington, D.C., 1988 (mimeographed).

methods were employed. However, by 1980 only 500 to 800 more hectares had been developed, and these schemes were suffering the same problems as their predecessors--mechanical failures, flooding, and declining yields.

Between 1972 and 1977, the World Bank sponsored a project costing US$1.5 million to consolidate existing irrigation perimeters and to develop a further 1,200 hectares. The main departures of this project from the Taiwanese model were the provision of inputs on credit and the establishment of a strict cultivation activity timetable that farmers were expected to adhere to or be expelled from the project.

When the project was completed in 1977, less than two-thirds of the target area had been developed, and countless farmers were falling behind on their loan repayments. Problems of canal seepage, pump and mechanical tiller breakdown, and pest damage were largely to blame. By 1982 only 30 percent of the perimeters undertook dry-season irrigation and less than 10 percent attempted a wet-season crop. Of the 50 perimeters originally established, fewer than 20 were still operational.

Despite these many setbacks, The Gambia's planners have remained staunchly committed to the idea of large-scale irrigation. The latest attempt is the Jahally-Pacharr project that was initiated in 1982. Involving 15,000 farmers and costing US$17 million, this is by far the most ambitious scheme yet undertaken: 1,510 hectares of land in the Jahally and Pacharr swamps have been developed and put under irrigation--560 hectares under mechanical pump irrigation and 960 hectares under improved rainfed/tidal-flow irrigation.

The project is owned and managed by the state, with water control, seeds, fertilizer, and plowing services all being provided on a credit basis. However, all other farming activities are carried out by smallholders who are registered as temporary tenants of plots. Depending primarily on the number of adult women present in a household, and on whether these women had access to swamp land in the area before the project started, farm households have access to portions of land varying in size from 0.01 to 1.5 hectares. The average size per household is 0.3 hectare.

SOCIAL ORGANIZATION

Four main ethnic groups populate this region, all of which are involved in agricultural production and in the new irrigation scheme--the Mandinka, Wolof, Fula (also known as Peul or Fulani), and the Serahuli (also known as Sarakole). The 22 households selected for this study are located in four different villages (see Appendix 1 for details of village background and infrastructure). Each village is dominated by either one or the other main ethnic groups. Although each ethnic group has its own language, manner of dress, and cultural

activities, all four sample villages are very similar in form and function. Each village comprises a concentration of dwellings around a central point that is usually occupied by a large silk cotton tree, a well or hand pump, and a low wooden platform (called a *bantaba*) that serves as a gathering place in the shade.

The land to which each village lays claim forms a band of varying width around the inhabited core. Depending on village location, this land is made up of either sandy detrital sediment of fairly low chemical fertility (upland soils) or more fertile hydromorphic soils occurring close to, or on the banks of, the river and its various tributaries (lowland soils).[9] A model of these village types by location is presented in Figure 3.

As a result of these varying soil characteristics, the farming of upland villages (which are traditionally occupied mainly by the Wolof and Fula ethnic groups) has a leaning toward the production of upland cereal crops and livestock husbandry, while the lowland villages (which are predominantly Mandinka and Serahuli in this area) traditionally place a much greater stress on rice.

In this relative land-surplus environment, quantity of land held by a household is determined primarily by the size of the household labor force (see Tables 40 and 43). However, the best quality land is commonly occupied by the highest-status families of the village. By tradition there exists a strong social stratification within villages, with all households falling into one of five broad groups (see Appendix 2 for details of sample compound characteristics). Writers on the social structures of The Gambia have divided villages in many different ways. Some, such as Weil, have identified four "castes" (so-called royal commoners and three occupational groups), each of which is subdivided into roughly three "classes".[10] Others, such as Haswell, Schaffer, and Elmer, have stratified Gambian societies into only three groups. Haswell defined these as founders, non-founder freeborn, and ex-slaves.[11] Schaffer and Elmer, on the other

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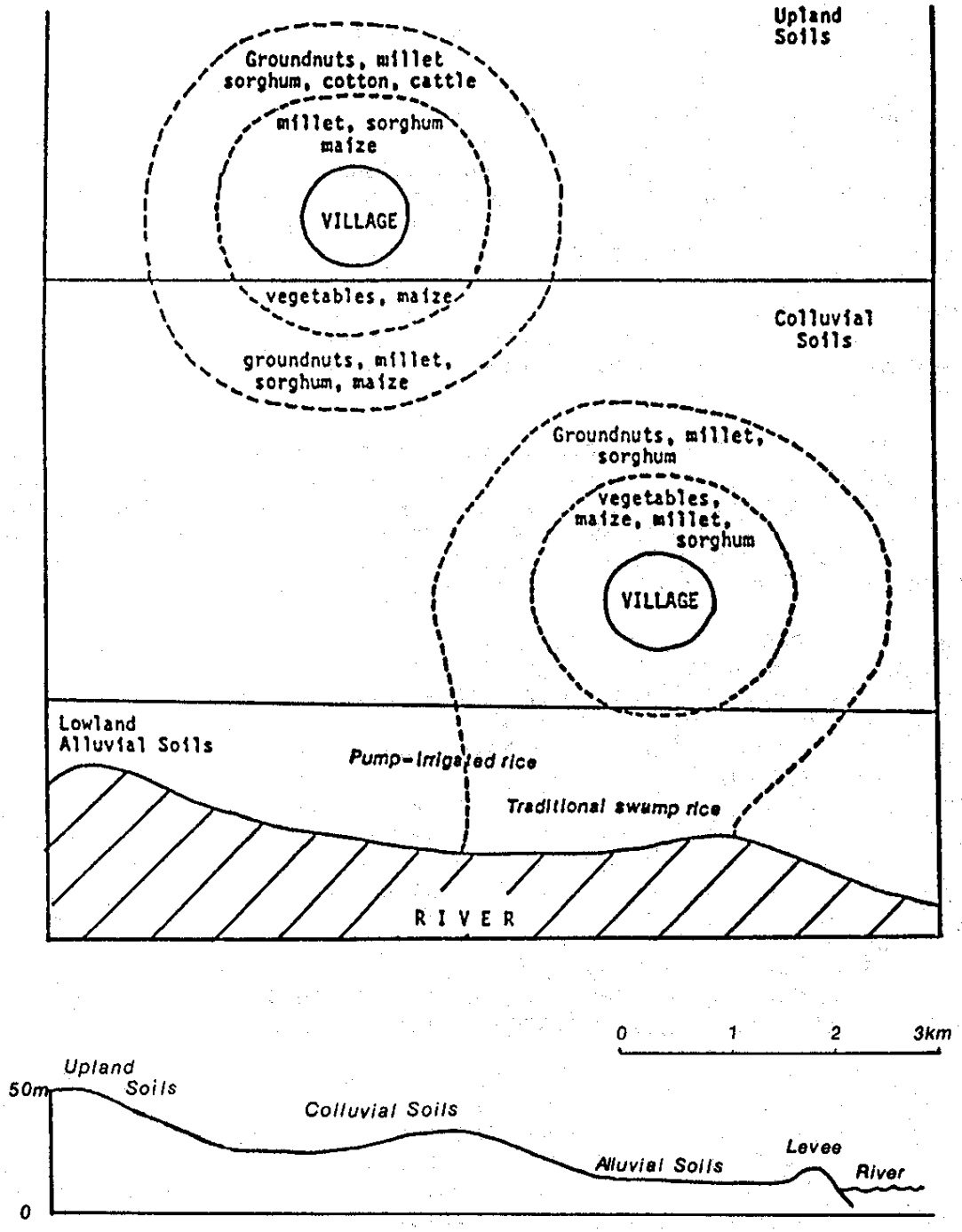
[9]J. R. Dunsmore et al., The Agricultural Development of The Gambia: An Agricultural, Environmental, and Socioeconomic Analysis, Land Resource Study 22 (Tolworth Tower, England: Ministry of Overseas Development, 1976), p. 65.

[10]Peter Weil, "Agrarian Slavery to Capitalist Farming in a West African Society," paper presented at the 75th Annual Meeting of the American Anthropological Association, Washington, D.C., November 1976, p. 5.

[11]Margaret R. Haswell, The Changing Pattern of Economic Activity in a Gambia Village, Colonial Research Studies 8 (London: Her Majesty's Stationary Office, 1953), p. 15.

Figure 3--A model of land use economies for upland and lowland villages in The Gambia



Source: J. P. Dunsmore et al., The Agricultural Development of The Gambia: An Agricultural, Environmental, and Socioeconomic Analysis, Land Resource Study 22 (Tolworth Tower, England: Ministry of Overseas Development, 1976), pp. 54 and 289.

hand, defined their three groups as the freeborn, artisans, and slaves.[12]

In the present study, detailed interviewing revealed that a variant of Weil's classification is the most appropriate for use in the study area. Weil's "royal" caste may be equated with a status group that shall here be referred to as the "master" lineage. (Terms such as "caste" and "class" are avoided here because of their very specific cultural and political connotations.) The "commoner" group used by Weil is found to be too general and is, therefore, subdivided into "Founding" lineages and "Freeborn" lineage groups.[13] On the other hand, Weil's three "artisan" castes are joined into one category for our purposes because the many professional artisanal families occupy a very similar position within the overall structure of society. The final group referred to here is composed of "ex-slaves" who descended from the slaves formerly owned by each of the above four lineage groups.

The highest status group is usually the founding lineage group. The founders, and the lineages which they establish, enjoy their elevated status within the community by virtue of precedence alone; these are the families who first cleared and settled the village lands. They thus constitute the principal reference point around which the village social structures subsequently evolve.

The founders of the oldest of the four sample villages, Dasilameh, came from Guinea Bissau at the turn of the century. As a group of five Mandinka families, they left Guinea Bissau to join relatives in the village of Sololo (20 kilometers east of Georgetown). On arrival they discovered that their hosts would not make sufficient land available to them for independent survival, so they sought another location. It was the chief of Brikama Ba who gave them the lands that have since been held in the name of Dasilameh village. The five original families have subsequently grown into the five largest and most important lineages in a village consisting roughly of 800 inhabitants.

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[12]M. Schaffer, Mandinko: The Ethnography of a West African Holy Land (New York: Holt, Rinehart, and Winston, 1980); and L. Elmer, The Gambia: A Cultural Profile (Banjul: The American Embassy, 1983).

[13]The "Founding" and "Freeborn" categories used here may be equated with Dey's "settler" and "later comer" status groups. As she rightly points out, the Master-Artisan-Slave distinctions may cut across the vertical distinctions of Founder versus later immigrant; ex-slaves may indeed found a new village. However, for this sample, all five divisions may be used horizontally without undue complication (see Jennie Dey, "Women and Rice in The Gambia: The Impact of Irrigated Rice Development Projects on the Farming System," Ph.D. dissertation, University of Reading, 1980).

The Wolof village of Njoben was founded in 1927 by three families from Mbarro Kataba in Senegal. They came to The Gambia to escape severe food shortages caused by drought and successive years of crop damage cuased by insect pests. Having pleaded with the most powerful chief of the region, they were granted land in a little populated area on the border with Casamance. The three founding families have now grown so large that they make up almost 50 percent of the population of the village of 1,200 inhabitants.

The founder and present-day chief of Sukurr claimed the right to an independent village in 1958. This man is a renowned Koranic teacher who attracts dozens of pupils from all parts of the Senegambia region. He decided to leave his former village of Medina Umfally (only five kilometers west of the present village) when accommodation space for his many disciples began to get short. So far Sukurr only comprises ten households, but it is already gaining a widespread reputation as a center of excellence for Koranic schooling.

The fourth and newest of the sample villages, Sinchou Abdou, was founded only in 1981 by three Fula families from central Gambia who sought new land for farming. They were attracted to the present spot because they heard of the forthcoming Jahally-Pacharr project and wished to be involved in such a scheme. Since 1980 another 12 households have joined the village.

The only time that a founding family does *not* command the most prestige in a community is when a "master" household has settled in the village. Master households may be defined as those whose inhabitants are descendants of noble families who were powerful in precolonial times. Prior to the death of King Mollo in the 1920s, and the subsequent abolition of domestic slavery in 1934, the status of nobility was linked to prowess in war and to the ownership of large numbers of slaves. Even 70 years later, those families are widely revered and in villages founded by nonmaster households, this special reverence leads to unusual arrangements. In Sinchou Abdou and Sukurr, for example, the village chief and the founding lineages have highest status in *de jure* terms, and it is they who carry out the duties of community leaders. Nevertheless, both villages contain one master household and any decision affecting the community as a whole has to be sanctioned by the masters before being implemented by the chief.

The third group comprises "freeborn" households. This is a heterogeneous group of farmers, traders, and religious instructors who join a village after its foundation and generally form the largest single caste in any one village.

The "artisan" group comes fourth in the status hierarchy. These households are specialist smiths, leather workers, musicians, potters, weavers, and carpenters. The status and skills of the artisans are passed down from one generation to the next, and although most artisans were not slaves, they were, and continue to be, attached to one

particular household of higher standing in a patron-client relationship.

The final group is made up of ex-slaves. Formerly kept as agricultural laborers or as domestic workers, slaves were usually well treated and maintained as junior members of the household to which they belonged. Since abolition, there has been a certain amount of intermarriage between slaves and other castes. However, the stigma of slavery lingers on. In Sukurr, for example, there are two "slave" households (called *horonkanu* in Serahuli). If the ex-slave households are ever hungry or need help, then their former masters (called *homonkuruntu*) are still under obligation to feed them or to provide any support required. On the other hand, if the masters require help on their own fields, then the ex-slaves are expected to respond. Additionally, during festive occasions, the *horonkanu* are expected to serve their *homonkuruntu* in a ceremonial fashion unchanged since precolonial times.

All villagers live together under the jural authority of one village chief (the *Alkalo*), one religious leader (the *Imam*), and a council of elders. The first two posts are elected positions, but usually only individuals from a master or a founder lineage fill such positions; ex-slaves and artisans will not even be considered for election. The council, on the other hand, is a body of elderly men and women which any individual may join once they reach "elder" status.

HOUSEHOLD STRUCTURE

The Gambian households are generally referred to in English by the term "compound". This word (derived from the Malay *kampong*, meaning a collection of village huts) is a term widely used in connection with West African households. It is a word that has now taken its place in the literature as a synonym for "household" and "family". Yet like the latter two terms, it is problematic because the entity to which it refers has multiple characteristics.[14] For this study of households in The Gambia, it was found that the three following elements were the most important when undertaking to define the compound: the physical structure, the socioeconomic function, and the conceptual structure. Each will be dealt with briefly in turn.

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[14]See Dey, "Women and Rice in The Gambia," pp. 149-150, for further detail concerning the complex definition of the compound and its subunits.

THE PHYSICAL COMPOUND

In physical terms the compound constitutes a collection of dwellings, kitchens, and stores that is clustered around a central courtyard and fenced off from the pathways outside. The buildings themselves are traditionally thatched mud-brick rondavels, although these are rapidly giving way to more expensive (thus more prestigious) and longer lasting rectangular cement-block constructions sporting galvanized aluminum sheet roofs (see Table 49). Fences are commonly fashioned of reed or split cane mats held up by wooden stakes or, alternatively, comprised of screens of sticks interwoven with the dried stalks of the sorghum crop.

The compound area varies in size from a single hut set in a few square meters of yard to huge perimeters of up to 500 square meters containing four or five large dwellings. The defined area serves as a living space for a group of people who are generally related by blood or marriage to the compound head, and who organize working, eating, and sleeping together.

SOCIOECONOMIC FUNCTIONS OF THE COMPOUND

The compound ranges in size from 1 to over 100 individuals. These individuals normally live together within the physical delineations outlined above, share various rights, duties and material possessions, recognize the overall authority of a single head, and contribute directly or indirectly toward the survival, reproduction, and advancement of the group as a whole, which, it should be noted, does not imply *mutual* advance of every member at the same rate.

The nucleus of this collection of individuals is a grouping of blood-related kin. Around this focal point, the internal organization of the compound varies considerably in time and in space, following patterns laid down by tradition, by ethnic codes, and according to the size, wealth, and age/sex characteristics of the constituent population.

In its minimal form, the compound that comprises only a handful of individuals is at one and the same time a joint production, storage, and consumption unit. In larger compounds a subdivisioning of distinct spheres of responsibility and activity becomes apparent. The three main functional subdivisions of the compound are the *dabada*, the *sinkiro*, and (among the Serahuli only) the *salumo*. The *dabada* (a Mandinka word deriving from the noun *daba*, or hoe) is a production unit. If all members pool labor to produce food on which the compound subsists, then the *dabada* is coincident with the compound. If, however, two or more groups of individuals living within the same compound decide to split their farming ventures, then that compound may contain more than two *dabadalu*. All members of the *dabada* work toward producing a joint harvest that will allow the group to survive, as

well as fulfilling obligations to each other on individually farmed plots.

The *sinkiro* is less easy to define. This term is generally accepted to refer to a compound subunit that is concerned with cooking and eating arrangements. However, commentators in the field have understood this in differing ways; for example, Dey calls the *sinkiro* "the basic production and consumption unit" and argues that it is "almost always headed by a man;"[15] von Bülow sees the *sinkiro* as a group of individuals "who are regularly served from the same pot;"[16] and the ODA Food Strategy Report approximates the *sinkiro* to "a kitchen, cooking unit, or group of people who eat together."[17]

In the study area, the *sinkiro* is best defined as a group of people who organize the storage, processing, cooking, and consumption of food to serve a defined section of the compound population. In many ways the *sinkiro* might be likened to the catering division of a large corporation--a separate, internally organized department that is part of the larger whole, but which is also subdivided into smaller units responsible for cooking and consumption. While the *ultimate* head of the *sinkiro* is the compound head (and he is often responsible for actually opening the *maruo* store door each day and doling out the day's ration of communal food), the operational head of the *sinkiro* is usually the highest status woman. Operating like a manager, she supervises the daily distribution of food to the cooks, its preparation, and its serving. As Phillips, Coles, and Seaman point out, and as shall be shown in Chapter 5, such arrangements are varied, and many have been undergoing rapid change in recent years.[18]

In some compounds populated by many adult women, the *sinkiro* head has an immediate subordinate in the form of a head cook. This person will usually be her immediate subordinate in the compound status hierarchy. The head cook is in charge of quality control of the food and tends to decide on the duty roster of the cooks. Typically, each

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[15]Jennie Dey, "Women Farmers in The Gambia: The Effects of Irrigated Rice Development Programmes on Their Role in Rice Production," July 1979 (mimeographed), p. 5.

[16]D. von Bülow, Final Report on Sinkirikutos--Improved Cooking Stoves and Fuel Consumption in The Gambia (Copenhagen: U.N.S.O, 1983), p. 5.

[17]Overseas Development Administration, The Gambia Food Strategy Report: Major Constraints and Strategy Options, Part II (United Kingdom: ODA, 1981), Annex 2, p. 2.

[18]Denzil Phillips, Anne Coles, and John Seaman, Village Food Systems in West Africa (London: International African Institute, 1982), p. 15.

woman cooks on a rotational basis, either for two days in a row or for three successive meals (lunch, dinner, and then breakfast the following morning).

As with the *dabada*, if the compound contains but one *sinkiro*, then it serves the entire compound membership. This is shown in Figure 4[a] where compound, *dabada*, *sinkiro*, and ultimately the eating unit served by the *sinkiro* (indicated by a "bowl") are identical. However, many compounds and many *dabadas* are divided into two or more *sinkiros*, each serving different (although frequently overlapping) sections of the compound group (Figure 4[b] and [c]). Food cooked by each *sinkiro* is normally shared out into a number of bowls that are presented to "eating groups" around the compound. In some instances, the entire compound will eat from one bowl; in others, the compound head and first wife share a bowl, the men eat together, boys together, women together, and girls together.

A further formal subdivision of the *sinkiro* is to be found among the Serahuli. The *salumo* is a mini-*sinkiro*. The Serahulis have one primary *sinkiro* that serves the entire compound. However, in addition to this main *sinkiro*, every married woman is responsible for her own *salumo*, which is a small-scale version of the *sinkiro*, designed to feed the woman's nuclear family (Figure 4[d]). The woman cooks for the *salumo* at her own personal kitchen site on those days when she is not on duty for the *sinkiro*. She then feeds her children, herself, and her husband, and may send any remaining food to other members of the compound, usually her co-wives or the head woman (*sinkiro* head).

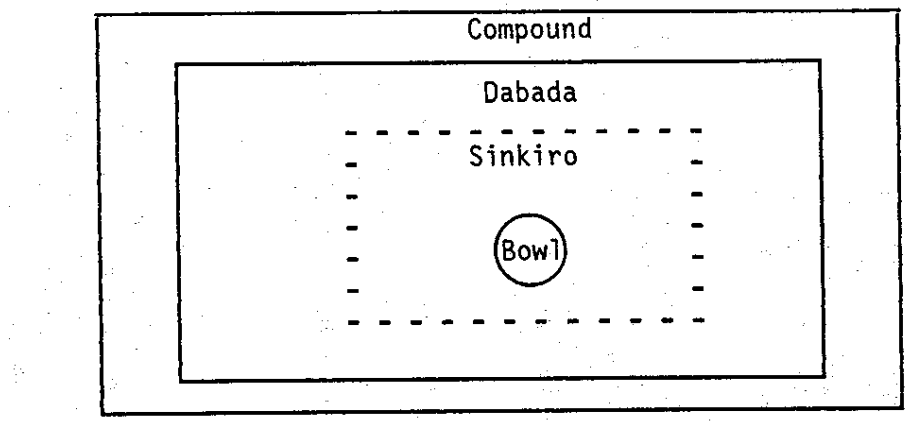
Interestingly, the Serahulis have the reputation of being miserly with food, and it is widely asserted by other Gambians that Serahulis do not feed their children properly. This misconception may be due to the fact that observers have taken only the main *sinkiro* food into account. At *sinkiro* meals, children run between bowls giving the impression that they are not being properly looked after. But this view is clearly flawed when one observes children being individually fed by their mothers later in the day.

In sum, the compound is not a monolith. It is a complex coalition of interacting, and frequently overlapping, subunits that are supposed to cooperate fully to pursue interlocking individual and common goals. The traditional philosophies guiding this ideal are dealt with in the next section.

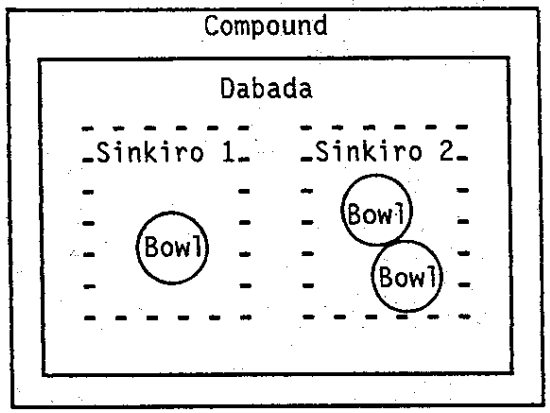
CONCEPTUAL STRUCTURE OF THE COMPOUND

The compound as a symbolic entity holds a place of high significance for Gambian cultures. All ethnicities share certain fundamental concepts with regard to the social meaning of the compound group. Children of each compound learn from the earliest age that they are bound together and to all other family members by what Sidibe and

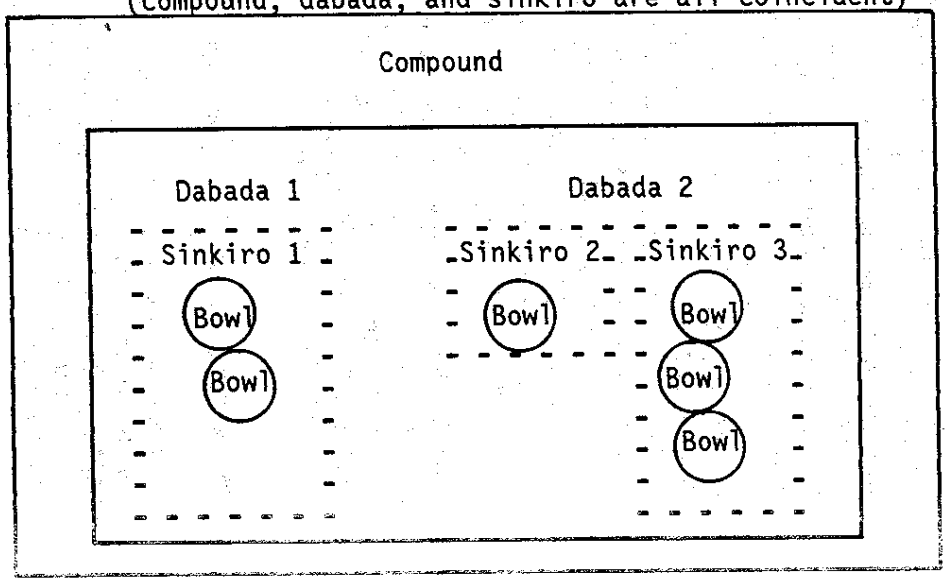
Figure 4--Models of compound subdivisions



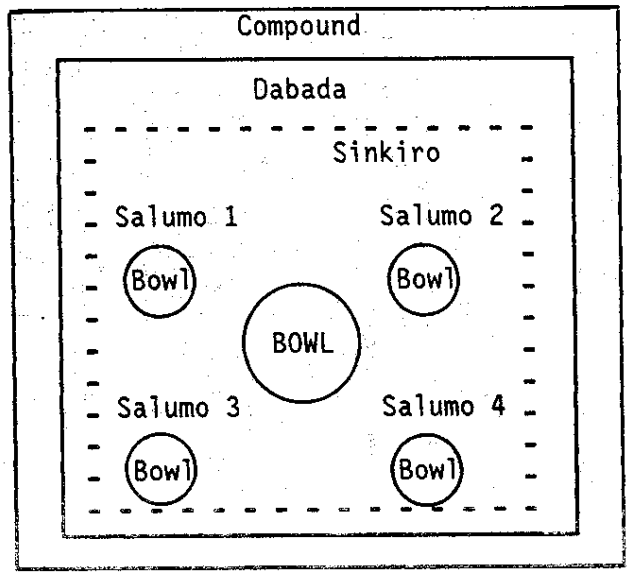
(a)
(compound, dabada, and sinkiro are all coincident)



(b)



(c)



(d)

Galloway have called "a seemingly limitless network of family obligations."[19] Two of the highest principles of life that define and govern such obligations both at compound and at village level are expressed by the Mandinka terms *badingya* and *fadingya* (*musidal* and *babuyotagal* in Fula). The concept of *badingya* represents harmony, cooperation, and productivity. It is the principle that binds relatives and whole communities together in an idea of shared progress and happiness or, alternatively, in shared decline. *Fadingya*, on the other hand, refers to the negative traits of personal, selfish ambition, competitiveness, even aggressiveness. If allowed to get out of hand, the negative attributes of *fadingya* could lead to the breakdown of structures of mutual support and, theoretically, to the collapse of community spirit. Yet the positive aspects of *fadingya* are also recognized as being the driving forces necessary for advancement of the group as a whole.

Popular belief in the power of these guiding principles is strong. But it is not always easy to adhere to them. Responsibility for the maintenance of a productive balance between *badingya* and *fadingya* therefore lies with the compound head. His is a prestigious position handed down from the eldest male of the line to the next. It is a position charged with power and status, and yet, following the edicts of tradition, the head is laden with the heavy burdens of his office. He should guarantee food, shelter, and security for compound members, manage and protect the compound's land rights, coordinate the compound's production strategy, and assist in procuring spouses for his young men and women.

In return for these responsibilities, the head expects allegiance, respect, and cooperation from all the individuals under his jurisdiction. However, this does not always ensure harmony or even cooperation between compound members. There are many different ways in which a head can run his compound. Like the head of a state in miniature, the compound head has to maintain a good grasp of all activities taking place within his domain in order to fulfill his obligations and to provide all the services required by the compound populace. In order to achieve this, he may elicit the active advice and assistance of other men and women in the day-to-day running of compound affairs; or he may stand aloof and take unilateral decisions.

Similarly, the compound head can return as little or as much as he sees fit to his compound members. Thus it is each head's own approach to headship that defines much of the system of give and take, benefit, and burden that prevails in any given compound. Feuds and grudges are common and disputes over internal resource distribution, land allocations, and decisionmaking power can lead to ruptures in

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[19]Bakary K. Sidibe and Winifred F. Galloway, Senegambian Traditional Families, Occasional Papers 1 (Banjul: Oral History and Antiquities Division, 1978), p. 1.

intrahousehold relations, even to compound fragmentation. The Mandinka phrase used to describe such a situation of tension within a compound, "*Y ka fadingya le samba nyokang*," means "they have a lack of cooperation in that compound." It is a derogatory statement implying that the compound head has been unable to control his family and that the compound has lost status in the eyes of the village.

THE COMPOUND FARM

The compound farm is not a unitary enterprise. The stock of fields to which any one compound enjoys use rights (land is held in common by the village as a whole) is divided into two distinct, yet complementary, parts: the *maruo* farm and the *kamangyango* farm. These parts are defined by the intended use of the harvest resulting from the fields--that is, whether the crop will be used *principally* for communal domestic consumption or for private individual disposal, be it for sale and/or for consumption.

The *maruo* farm comprises of a set of fields designated to provide the bulk of the food required by the household until the following harvest. This enterprise, fundamental to the maintenance and survival of the compound group, is under the control of the compound head (either directly or through the person of the production manager).

The harvest of a *kamangyango* field, by contrast, is allocated for individual rather than for communal disposal. Any person in the compound (including the compound head) has the right to a *kamangyango* field for which he or she will be solely (or sometimes jointly) responsible. The number of *kamangyangos* is limited to the stock of land available to the compound, and to the extent to which the head is prepared to subdivide existing fields.

However, because the key element of these basic definitions rests in the concept of "intention", one should be wary of assuming either that field assignations are immutable or that the two farm divisions represent a simplistic "food crop" versus "cash crop" dichotomy. For example, the head may sell some of the food produced on the *maruo* or he may plant a conventional cash crop on the *maruo* farm that is destined from the outset to be sold after harvest with the cash to be used for communal purpose. Also, portions of the *maruo* crop are frequently sold not by the household head but by individuals to whom the head has given some of the harvest as a reward. Data from the large-scale IFPRI survey show, for example, that 75 out of 243 female respondents who worked on pump-irrigated rice *maruo* fields sold *maruo* rice by the cup subsequent to the harvest. An average of three kilograms was sold by each of these women in the week preceding the income survey. Much of the income deriving from *maruo* produce is fed back into communal consumption in the form of purchased cooking ingredients. The same cannot be said, however, for the rice given as remu-

neration for work. (The crucial question of women's control over rice will be dealt with in detail in Chapter 5.)

The same variability holds true for *kamangyango* crops. If the *maruo* harvest is poor and it appears necessary to supplement the *maruo* food or capital stock, then it is usual for *kamangyango* produce to be surrendered voluntarily to the head for communal use.

Having seen that the compound is a highly complex organization that fulfills many different functions for many people, the next chapter will consider the authority structures and hierarchies of decisionmaking that go to control the production, distribution, and consumption activities within the group.

4. DECISIONMAKING WITHIN THE HOUSEHOLD

Decisionmaking within the compound household involves the exercise of authority. An analysis of decisionmaking in Gambian households, therefore, constitutes an analysis of structures of compound authority and the exercise of delegated or inherited responsibility by individuals within those structures. To understand how intrahousehold decisionmaking processes operate on a daily basis, one must seek to understand who is making decisions, for what activities, and at what times. In order to do this, one must necessarily depart from the tendency of focusing all attention on the sole figure of the compound head, and seek instead a disaggregation of the compound into its component spheres of real authority.

In the past, a majority of studies of decisionmaking on the African farm have been one of two kinds. The first type of study has sought to evaluate the economic "efficiency" and/or "rationality" of smallholder choice behavior in order to explain activity patterns that sometimes appear to defy neoclassical economic analysis. Following Schultz's seminal work on the relative economic efficiency of option-poor farmers,[20] a plethora of authors have sought to replace the idea of the profit-maximization imperative of the small farmer with theories that include risk minimization,[21] risk aversion,[22] risk-

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[20]Theodore W. Schultz, Transforming Traditional Agriculture (New Haven: Yale University Press, 1964).

[21]Michael Lipton, "The Theory of the Optimizing Peasant," Journal of Development Studies 4 (1968): 327-351. See also Polly Hill, Studies in Rural Capitalism in West Africa (Cambridge: Cambridge University Press, 1970).

[22]J. M. Boussard and M. Petit, "Representation of Farmer's Behavior Under Uncertainty With a Focus-Loss Constraint," Journal of Farm Economics 49 (no. 4, 1967): 869-880. See also Allen Johnson, "Security and Risk-Taking Among Poor Peasants," in Studies in Economic Anthropology, ed. G. Dalton (American Anthropological Association Monograph 7, 1971), pp. 143-150; and Jock R. Anderson, "Perspective on Models of Uncertain Decisions," in Risks, Uncertainty, and Agricultural Development, ed. J. A. Roumasset, J. Boussard, and I. Singh (New York: Agricultural Development Council, 1979), pp. 39-62.

profit balancing,[23] constrained utility maximization,[24] and maximum security assurance.[25] These and many other "efficiency" studies have explored crucial themes, such as price responsiveness, resource allocation behavior, and innovation adoption, with special focus on the problems of risk and uncertainty on the acceptance by farmers of exogenously-induced change.

The second trend in decisionmaking research has been one aimed at understanding how individuals actually make choices between sets of alternative decisions. Proponents of this approach have attempted to isolate the specific factors influencing a farmer's choice at different points in the production system, and then to define the rules that govern a farmer's mental discrimination between alternatives. These studies focus not so much on the cost-benefit aspect of behavior or on the theoretical "rationality" of objectives and means, but on the factors deemed to give rise to those objectives and how they are achieved.

However, a common problem with both types of approach to the analysis of decisionmaking has been their focus on "the individual", but not on *every* individual. On the one hand, there have been studies based on the belief that the dynamics of the macro economy can be understood as an aggregation of the actions of "individuals" in countless micro economies.[26] Yet, the "individual" usually portrayed and described as "the farmer" is only a stereotypic and, therefore, theoretical construct; the characteristics of this individual are proposed as typical and generalizable, and analysis of that "average person's" decisionmaking behavior is inevitably embedded in the assumption that

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[23]Glyn Williams, "Differential Risk Strategies as Cultural Style Among Farmers in the Lower Chubut Valley, Patagonia," American Ethnologist 4 (no. 1, 1977): 65-83.

[24]M. Balch, D. McFadden, and S. Wu, eds., Essays on Economic Behavior Under Uncertainty (Amsterdam: North-Holland, 1974). See also Sarah S. Berry, "Decisionmaking and Policymaking in Rural Development," in Agricultural Decisionmaking, Anthropological Contributions to Rural Development, ed. Peggy F. Barlett, Studies in Anthropology Series, University of California, Berkeley (Orlando: Academic Press, 1980), pp. 321-333.

[25]Frank Cancian, "Risk and Uncertainty in Agricultural Decisionmaking," in Agricultural Decisionmaking, ed. Peggy F. Barlett, Studies in Anthropology Series, University of California, Berkeley (Orlando: Academic Press, 1980), pp. 161-175.

[26]See Karl Menger, Principles of Economics (Glencoe, Illinois: Free Press, 1950); and D. de Tray, "On the Microeconomics of Family Behavior in Developing Societies," in Rural Household Studies in Asia, ed. Hans Binswanger (Singapore: Singapore University Press, 1980).

all farmers respond in the same way to given opportunities and incentives.

On the other hand, there are studies that work less with abstract models of "representative" individual behavior but more with the observed behavior of real farmers. However, there has been a strong tendency in these studies to assume that the observed behavior or decision preferences of one individual in each household generally approximates to the behavior and preferences of all the individuals in that household. For example, it has been argued that "the family, the house, the household, and the farm exactly coincide, and the male head of the family is typically the decisionmaker."[27] With reference to The Gambia, it has been similarly stated that the compound head has "authoritarian control over the flow of income and expenditure in the compound. Labor allocation for various crops...is the prerogative of the compound head who also retains the right to accumulate and allocate the subsequent financial benefits."[28]

While analytically convenient, this model of centralized household control requires substantial modification. The Gambian household was indeed presented in Chapter 3 as a grouping of individuals under the authority of a single head. But the compound head is not omniscient. However powerful and domineering a single figure of authority may be, it would simply be impractical for one person to make *all* the decisions that are necessary in the day-to-day running of a large household of diverse individuals. Therefore, in practice, the general authority of the compound head should not be confused with the *de facto* authority of other (less often considered) household members where certain operational decisions are concerned.

SPHERES OF AUTHORITY AND RESPONSIBILITY

Management responsibility for many aspects of compound life is subdivided, with powers relating to certain spheres of activity being delegated to individual decisionmakers other than the compound head. The number and strength of authority of such decisionmaking groups varies between compounds. Nevertheless, a common superstructure of six major spheres of responsibility has been identified as governing the life of the compound. These are as follows:

1. Compound headship.
2. Upland *maruo* management.
3. Rice *maruo* management.

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[27]John H. Cleave, "Decisionmaking on the African Farm," IAAE Occasional Paper 1, November 1977 (mimeographed).

[28]Dunsmore et al., The Agricultural Development of Gambia, p. 287.

4. Household management.
5. Head cook (kitchen management).
6. *Kamangyango* production management.

The first sphere of responsibility is that of compound headship. Having already underlined the principal functions of the compound head, suffice it to say here that all the other decisionmaking groups operate under the auspices of the head himself. Even if the head has devolved authority for *maruo* food production to a manager, he will still expect to be consulted. Such consultations may in most cases be mere formalities, but they are significant nevertheless in establishing the form of the compound's political hierarchy.

In the realm of production, the head can absolve himself of primary management responsibility to one or two people. When he becomes too old or sick to continue active work in the fields, the head often passes authority for upland *maruo* production to his eldest son or to a younger brother. This person usually continues as production manager until the former head dies and the roles of manager and head are combined once again. Additionally, there may be a rice *maruo* production manager. Before the introduction of pump-irrigation projects, this was usually the head woman, or at least the household manager. This woman would be held responsible for organizing the production of swamp rice for communal consumption on the compound's stock of swamp land. However, the sexual exclusivity of this position has recently been eroded. Where rice plots in the Jahally-Pacharr project area have been designated as *maruo* plots, men have in many cases taken over their charge. For example, in 18 of the 22 subsample compounds, the rice *maruo* which was formerly controlled by a woman is now in the hands of a man (usually, the same man who is responsible for the upland *maruo*). This important change is not universal, but a shift in authority over the rice crop from women to men is marked, especially in the higher-yielding, pump-irrigated areas.

The above three spheres of authority cover responsibility for farm production at compound level. The fourth relates to responsibility for household management. This role is commonly undertaken by the eldest active female in the compound. This may be the head's mother or aunt or, in their absence, the head's first wife. As with compound headship, however, if this person becomes incapable of discharging her responsibilities, then, she takes the title of "old woman" (*Muso Ba*--literally, big woman) but relinquishes the active role of managing the household to the next eligible woman. The "old woman" earns respect as "mother of the household" but makes few decisions important to the running of the compound. Instead the new "head woman" assumes the practical management duties of organizing and supervising food processing, preparation and distribution, mediation in disputes between female compound members, overall supervision of child care, and directing the socialization process of girls.

The fifth position of authority is that of head cook. While most compound women have an obligation to take on an equal share of necessary cooking duties, one woman is usually in charge of organizing the duty rosta and of monitoring food quality. If the compound head's first wife is household manager, then, it is common for the head cook to be his second wife.

Finally, there is the distinct authority role associated with *kamangyango* production. Each individual who takes charge of their own field is ultimately responsible for all choices and activities relating to that field. Other people may profer advice and even guide choices and activities indirectly, but in the last instance, responsibility for the *kamangyango* lies with the field cultivator.

The same principle applies to a large extent to the nonfarm-earning activities of individuals. When they are not required to work on the communal farm, men and women may choose to pursue craft or trade work that earns them additional private income (see Table 44). Where capital investments are required for such pursuits (such as in smithing or musicianship), a number of individuals often share the same tools of the trade, which then fall under the care of the compound head or of eldest sibling. However, while individual earners may be expected to donate certain portions of nonfarm income to the compound, they are in control of the bulk of this income as if it were of *kamangyango* origin.

These six spheres of responsibility are very important in terms of determining the role and status of individuals within the compound social structure. One may conceive of them as a hierarchy of positions around which all male and female roles revolve. An abstract model of this hierarchy is posited as in Figures 5 and 6.

Figure 5 constructs a compound authority model of the minimal type where only one man, his wife, and their offspring comprise the household. In this situation, responsibility for all decisions and activities must necessarily be vested in those two individuals alone. Thus, the man is compound head, upland *maruo* head, and possibly also rice *maruo* head all rolled into one. Likewise, his wife must be head woman, possibly rice *maruo* manager, *and* head cook. Additionally, both may be responsible for their own *kamangyangos*.

Of the 22 compounds examined in 1985, there were 10 compounds in which only 2 people made all the decisions covering all 6 spheres of responsibility. (These were the smaller, nuclear household groups.) In 9 of these cases, one man was compound head, upland *maruo* manager, and rice *maruo* manager together, while his wife was household head and head cook. In the last case, the single man was compound head and upland manager, but his wife retained control of the rice *maruo*.

Of the remaining 13 compounds, if we exclude the *kamangyango* managers for the moment, then, 7 were run by 3 major decisionmakers, 4

Figure 5--Model of compound authority structures: minimal type

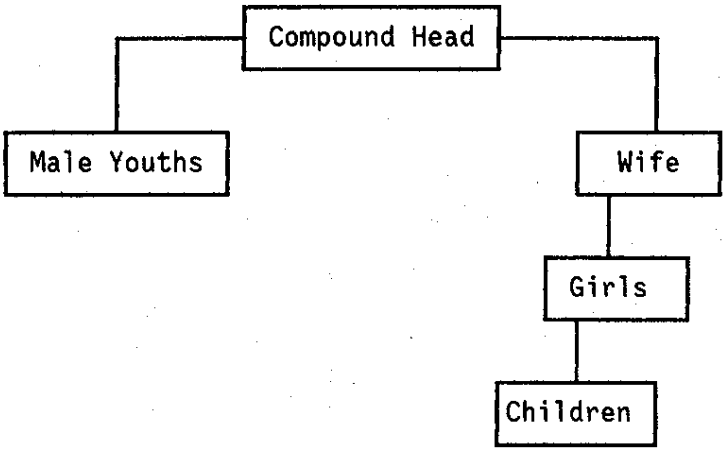
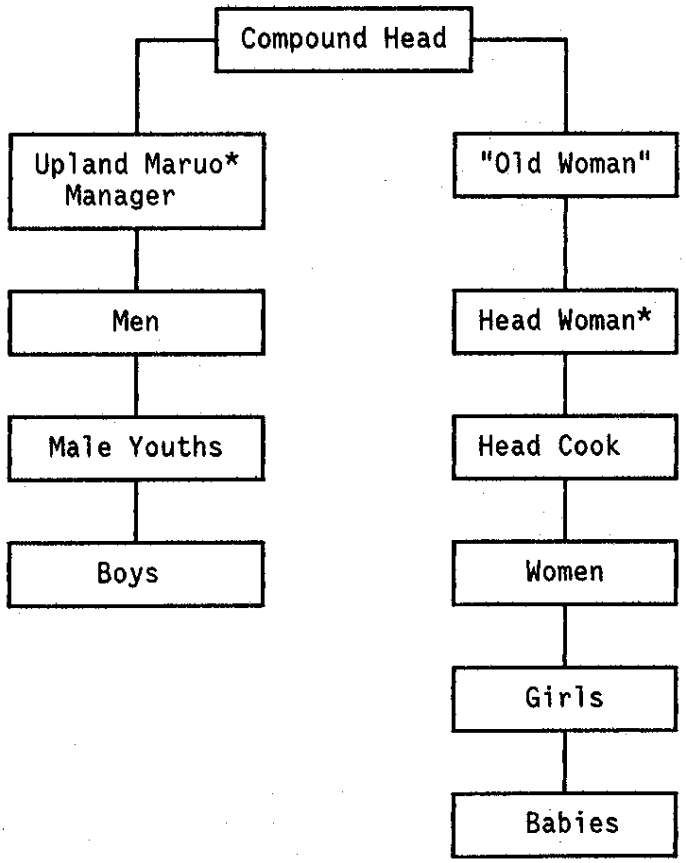


Figure 6--Model of compound authority structures: expanded type



* Sometimes also Rice Maruo Manager.

had 4, and 1 had 5. Compound heads, their senior wives, brothers, sons, and daughters-in-law fill the majority of positions of authority. It is clear, therefore, that individuals succeed to the first five status positions according to principles of precedence dictated by age and sex. The life cycle and age/sex structure of the household allows for upward social mobility (defined by increasing decision-making authority) through the transference of responsibility from one generation to the next and from one wife to the next. Girls and the newest wives, for example, tend to have the lowest positions, which they can only climb out of with the passing of time, with the decease of older women and the arrival of new wives below them. Only the characteristics of the *kamangyango* producer cannot be predicted since this person can be a male or female of any age from nine upwards. The main factor influencing the number of *kamangyango* producers is simply the number of people and the land available for *kamangyango* production.

AUTHORITY VERSUS POWER

Having recognized that the potential for the proliferation of decisionmaking groups is at least partly a function of the size and life cycle stage of the household, one must also consider the obverse implication of this fact. While a tendency for the spread of decisionmaking authority increases with household size, so does the number of people *not* in a position to make decisions, which brings one to the crucial question of what decisionmaking authority actually means.

It has been seen above that the six spheres of authority so far discussed are not necessarily discrete, mutually exclusive categories; one individual can fill several positions or the positions can be divided up among several individuals. But these categories are not necessarily all-embracing power blocks that account for *all* aspects of a compound's activities. The head may give someone absolute power for decisions or he may give them merely a supervisory capacity. But he cannot control everything. While authority legitimizes decisionmaking in certain prescribed spheres of responsibility, it does not predict how this authority will be used or how effective the decisions will be. And since individuals who have not been given decisionmaking authority are rarely passive receptors of orders in a centralized system, an important distinction should be made between decisionmaking authority that is *assigned*, and decisionmaking *power* that is not.

According to classic definitions proposed by Weber, and developed by Parsons and Bierstedt, the concept of authority involves the legitimate exercise of a right to make decisions by a person who has been given a status position that is known and accepted by the collecti-

vity.[29] Power, on the other hand, is held by a person who has the ability to influence decisions despite the fact that he or she has not been officially granted the right to such influence. Thus, the compound can be broken down not only into definable spheres of assigned authority but also into power bases that have no predictable parameters. These power bases may be in direct competition with "authority" by overriding, supplanting, or preempting decisions and directives. Alternatively, they may be driven less by a desire to compete and more by a desire to participate through consultation, suggestion, and persuasion. These unassigned power bases constitute a seventh category of decisionmaking power--a wild card element that cuts across all prescribed authority structures in different ways at different times. Thus, it is important to understand decisionmaking not as a sequence of bounded "events" monopolized by privileged individuals, but as an interactive process that involves consensus, bargaining, and competition between groups, both at the time when a decision is sealed and also over a more extended time horizon.

The importance of recognizing intrahousehold differences in aims and, therefore, competition in compound production and consumption activities is underlined in Table 2. This table shows rankings of desires and objectives organized by order of preference into three groups. This was achieved in the following way: various respondents were shown 12 picture cards representing the most often stated short/medium-term desires of farmers (arrived at through pretesting). Each respondent was required to place the cards in descending order of preference, and to explain their rankings. These rankings were then divided into three groups according to whether an item was listed in the first four preferences, the middle four, or the last four. For example, in Table 2, the item "cattle" was found to be in the first four desires of 11 out of the 22 compound heads, which represents 50 percent of the total vote for that item. The same item was recorded as being of lesser importance to eight of the heads (36 percent) who accordingly only placed "cattle" in the middle group of desires.

Table 2 shows these preference listings divided by different decisionmaking groups: compound heads, head women, and young male *kamangyango* owners. The first category of desires, "cash liquidity" (in other words, the ability to be able to purchase any good or service whenever the need arises), is shown to be of paramount importance to all three groups. One young man in Dasilameh, who put desire for cash at the top of his list, explained that "the importance of money

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[29]Max Weber, The Theory of Social and Economic Organization (New York: Oxford University Press, 1967); Talcott Parsons, The Social System (New York: The Free Press, 1951); and Robert Bierstedt, "The Problem of Authority," in Freedom and Control in Modern Society, ed. M. Berger, M. Abel, and C. H. Page (New York: van Nostrand, 1954).

Table 2--Objectives and desires of three decisionmaking groups

Desires	Compound Heads[a]			Head Women[b]			Male *Kamangyango* Heads[c]		
	1	2	3	1	2	3	1	2	3
	(percent)								
Cash	84	16	...[d]	77	23	...	65	35	...
Cattle	50	36	14	45	36	18	35	47	18
Horse[e]	45	45	10	36	45	18	47	35	18
Implements[f]	27	32	41	32	50	18	53	18	29
Education	27	50	23	14	18	68	58	...	42
House	32	50	18	50	18	32	24	53	23
More food	37	45	18	46	27	27	41	29	30
Western food	...	9	91	...	14	86	...	23	76
Mecca	59	36	5	50	36	14	29	41	30
Wife	18	45	27	4	41	55	23	59	18
Radio	9	27	64	9	41	50	24	35	41
Jewelry	14	4	82	36	50	14	...	23	76

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Notes: This table indicates the percentage of respondents voting objective "X" as a top priority (1), medium priority (2), or low priority (3). Top priority (1) = rankings 1 to 4, medium priority (2) = 5 to 8, and low priority (3) = 9 to 12.

[a] N = 22.
[b] N = 22.
[c] N = 17.
[d] Groups of 3 figures total 100 percent.
[e] All draught animals, including donkeys and mules, as well as horses.
[f] Agricultural implements, such as sine hoes, seeders, and harrows.
[g] Western foods included canned foods and imported nonessentials such as coffee and margarine.

is clear when you have a poor harvest and are in need of food. In the old days, people would share all they had; now we must all paddle our own canoes to survive." In other words, a cash reserve is today perceived by this man as a means of increasing food security. A woman in Njoben explained a similar sentiment by saying that "money is at the top because it can provide the rest of you--cash is the source of all other comforts."

But not everyone accords "cash" the status of universal provider. Eighteen percent of the compound heads, 23 percent of the women, and 35 percent of the young men did not have cash in their top four choices. This was explained by a woman who asserted a traditional belief that "money is of little use to me if I have no security in the form of house, farm, and cattle. As a Fula, it is better to have more cattle than to change them into cash." This does not constitute a negation of the importance of cash, but more a statement of conventional wisdom: if one works hard to secure a home, family, and farm, then money will come of its own accord.

The most interesting point here, however, is not that obtaining cash is not always seen as the primary objective in life, but that of the three decisionmaking groups, a desire for cash is seen as least important by the young men but most important by the older compound heads. One interpretation might be that in a drought-prone environment, the compound heads (who are responsible for food provision in the compound) are turning increasingly toward the marketplace as a source for staple foods. At the same time, the young men are well aware that their chances of earning cash are relatively good compared to their fathers, since they have a more flexible lifestyle that permits wet-season migration to work as agricultural labor or dry-season urban employment. For them, schooling and the possession of their own farm tools (both investment with potentially high returns) are higher priorities relative to the immediate desire for cash.

If this last assessment is correct, then the longer-term future of The Gambia appears quite bright. Table 2 indicates that more than half of the young men place education and ownership of farm tools among their top priorities, and that ownership of draught animals and other livestock follows closely after that. Education is seen as the key investment that can ultimately provide the greatest profit. A petty trader from Sinchou Abdou remarked that "news and information about other places is the best thing for me because I am a hustler. Education will, therefore, bring me wealth." Another explained that schooling would help him to obtain a secure job in the capital and an interesting wife.

Predictably, the five young men most desirous of a good education all come from the five sample compounds that have already succeeded in sending at least one child through secondary school. A total of seven sons from these compounds have graduated, and all are presently working either in Banjul or abroad in Sierra Leone and Libya, and are

sending remittances home. The rewards of "success" are clearly not lost on the younger siblings.

Yet, while the potential returns to education are enticing, it is a potential not fulfilled. Education is a long-term investment that involves competition and substantial financial burdens. For these reasons, schooling is accorded a relatively lower position by the women and compound heads who prefer to see their children provided for physically before mentally: "let my sons have a good house and a good wife before they put money into education," is how one Njoben woman put it. And the costs of schooling were also given as the main reason by the young men themselves why they desired to have a back-up in the form of a successful farm.

Success on the farm is being increasingly equated with possession and use of farm implements, such as animal-drawn hoes, seeders, and weeders. Such implements allow a farmer to expand total field areas cultivated, and at the same time they make jobs, such as seeding and weeding, much less arduous. There are even cases where hired labor and Strange Farmers refuse to work for someone because it would involve total manual labor.[30] A sample farmer in Njoben reported that one of the first questions a Strange Farmer asks when he reaches the village today is, "which compounds own a horse and a seeder?" It is these compounds that the Strange Farmer seeks out. For example, the poorest of the Njoben compounds, which owns no machines, took in two Strange Farmers at the beginning of 1985, and the compound head borrowed three bags of groundnut seed for them from the cooperative union. However, just as the rains were starting, the migrants discovered another compound that did use animal-drawn implements and they deserted their original host to move to the more affluent compound. The bags of seed had to be returned to the cooperative without being opened, and the poorer compound was left without a Strange Farmer for the rest of the season.

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[30]Strange Farmers are seasonal migrant laborers who travel to The Gambia and Senegal from as far away as Mali and Guinea. They are hosted by locals who need additional farm labor and who have surplus land available. In return for food, lodging, seeds, tools, and the land on which to grow a cash crop (usually groundnuts, but also other crops), the Strange Farmer works on his hosts' fields for three or four days each week of the wet season. After selling his harvest, the migrant may also be required to give 10 percent of his produce to the host before returning home. The host benefits from this arrangement by receiving labor and a nominal "rent" and the migrant benefits by being given access to land on which to grow a profitable crop, and lodging during the growing season. For more detail, see Ken Swindell, "A Report on Migrant Farmers in The Gambia," in Demographic Aspects of Migration in West Africa, vol. 1, ed. K. C. Zachariah and J. Condé, World Bank Staff Working Paper 414 (Washington, D.C.: World Bank, 1980).

Where livestock is concerned, young men see less of a need to own cows than draught horses. A 25-year old man in Sinchou Abdou expressed a common feeling in stating: "I am interested in things other than cows which are old-fashioned." It would appear that these men equate cows in a symbolic way with the life which they aim to escape. For them, association with this most traditional form of security is bad--ownership of cattle represents a bond that would hold them back. Predictably, for the compound heads and the head women, the situation is reversed. Cattle ownership was third among the highest priorities of the compound heads, and fifth overall for women.

Another desire placed high by the old and low by the young is travel to Mecca. Over 50 percent of the older men and women place this objective in their top four priorities; six men and six women classed it as objective number one overall. Such a strong and widespread ambition to fulfill the Koranic commandment is explained every time in the same manner: "I am a Muslim; therefore, before pleasing myself and anyone else, I prefer to please God." Only three people in the whole sample population have already been to Mecca, one Serahuli man and two Serahuli women, and yet all three still place this item as their highest goal because each wish to return there again. Perhaps inevitably, the younger men, who tend to have more exposure to Western influences, have less of a burning desire to become pilgrims than their peers.

A final comment should be made here about differences between ethnic groups. When the data in Table 2 are disaggregated by ethnicity, strong cultural traits become apparent. The most significant of these are displayed in Table 3. Here, one sees, for example, that the Mandinka respondents as a whole are much more concerned about possessing cash than the other three groups; the Serahuli appear to be the least concerned about this. Conversely, the Serahuli (the most devout of the four ethnicities) place travel to Mecca far above any other desire, and accord this objective twice as much importance as do the Mandinka. Similarly, the Fula, who are traditional cattle herders, place ownership of cattle high in their priorities after the desire for cash. Interestingly, it is also the Fula who are most concerned about improving their housing stock (an objective that ranks alongside cattle ownership). This is probably because Sinchou Abdou was only founded in 1981 and still being developed. As for the Wolof, ownership of horses and farm implements is among their top objectives, with a desire for more cattle and an increase in food availability coming close behind (see also Table 47).

These data confirm that there is no monolithic, collective objective operating in such households. Decisions about what to plant, invest, purchase, and consume may be different according to the age, sex, and ethnic characteristics of each decisionmaker. Consequently, decisionmaking in the compound should be understood as a flexible, interactive process that involves many different individuals. The key is to discover who is *responsible* for decisions, who is *influencing*

Table 3--Objectives and desires reported by ethnicity

Objectives/ Desires	Mandinka[a]			Wolof[b]			Serahuli[c]			Fula[d]		
	1	2	3	1	2	3	1	2	3	1	2	3
	(percent)											
Cash	93	07	...[e]	75	25	...	60	40	...	75	25	...
Cattle	36	43	21	45	35	20	33	67	...	58	17	25
Horse	57	36	07	50	45	05	40	40	20	17	50	33
Implements	50	36	14	50	30	20	20	40	40	17	33	50
Education	29	07	64	25	25	50	33	27	40	33	50	17
House	21	50	29	30	45	25	40	20	40	58	34	08
More food	36	35	29	45	20	35	33	47	20	25	50	25
Western food	...	21	79	...	10	90	...	13	87	...	17	83
Mecca	43	36	21	35	55	10	87	07	06	25	50	25
Wife	07	79	14	10	35	55	20	40	40	25	42	33
Radio	...	36	64	10	45	45	20	33	47	25	17	58
Jewelry	21	21	57	20	35	45	13	10	67	17	25	58

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Notes: This table indicates the percentage of respondents voting objective "X" as top priority (1), medium priority (2), or low priority (3). All men and women are taken together.

[a] N = 14.
[b] N = 20.
[c] N = 15.
[d] N = 12.
[e] Groups of 3 figures total 100 percent.

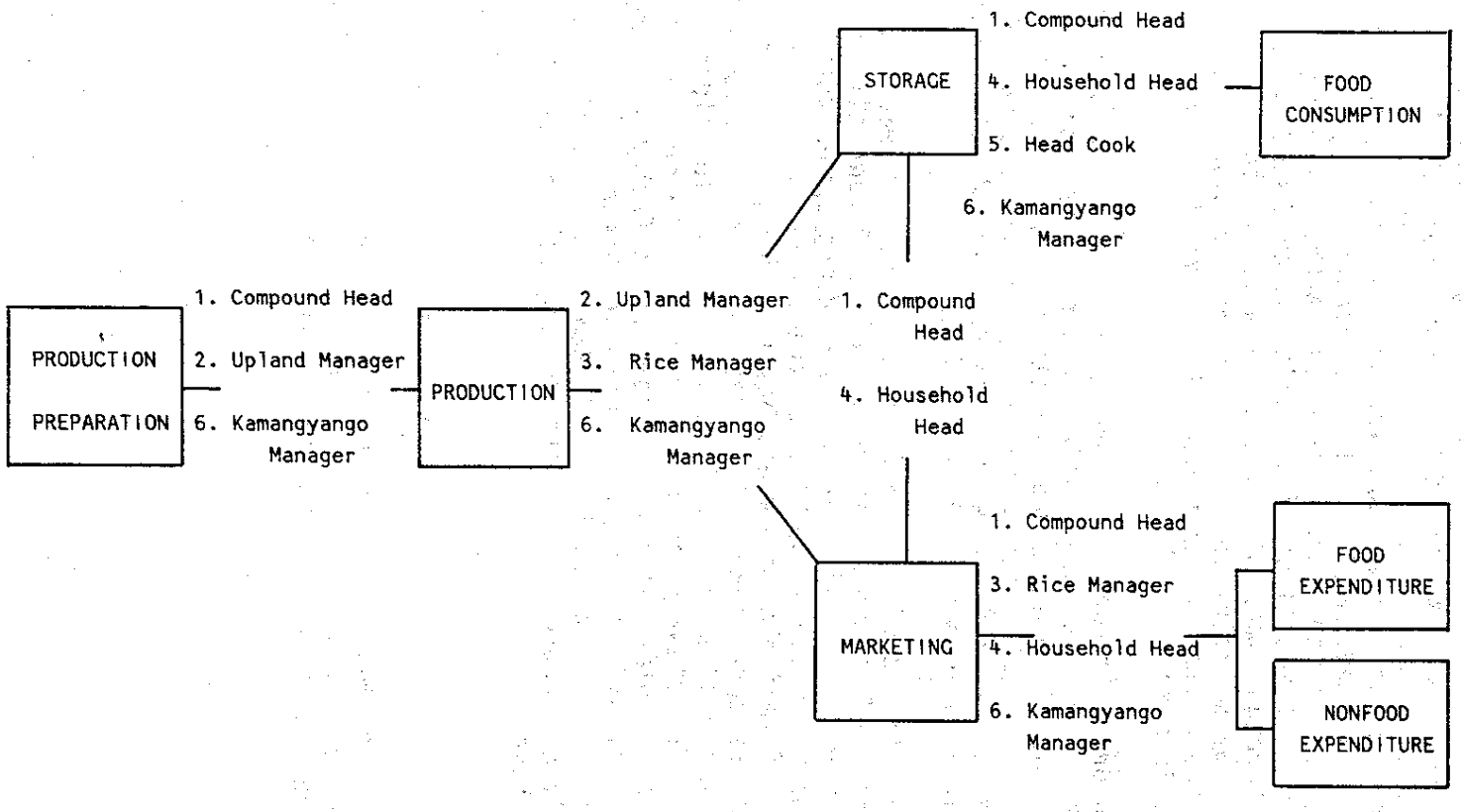
decisions, and who is actually *making* decisions at each point in the chain of events from farm production to food consumption and expenditure. Figure 7 illustrates the principal focii of activity along this food chain, with decisionmaking groups identified at the points between activities where important decisions have to be made.

At the same time, however, we need to examine the question of *change*. We have emphasized that decisions arise out of a dynamic interaction between individuals and authority groups, and that the incumbents of positions of authority succeed each other as households evolve through time. But how, if at all, are these long-term dynamics affected by modifications in the farming system? How do innovations affect those who make decisions within households and the when and why of decisionmaking?

In order to engage such questions, the analysis of decisionmaking shall be focused on the critical decisions and activities that relate to rice as it moves along the steps of the food chain outlined in Figure 7. Linking the consequences and antecedents of decisions to decisionmakers, how households respond to and become part of exogenously-induced change shall be examined.

This is a difficult task fraught with problems of how to identify indicators of change, how to compare different time periods (during which economic, environmental, and demographic characteristics are constantly changing), and how to trace causality linkages. Given the absence of reliable preproject baseline data, the information relating to that period of time is necessarily limited and carries with it all the uncertainties of recall data. It is, therefore, imperative to identify as clearly as possible where changes are being manifest within households and how they may have affected the compound authority structures. The task in the next chapter will be to examine the situation as it was in 1985 and 1986 in an attempt to pin down where recognizable changes (from the preproject era) can be linked to the rice scheme.

Figure 7--A conceptualization of the key authority figures involved in decisionmaking at each major step of the household food chain



5. CHANGING PATTERNS OF RICE PRODUCTION AND CONTROL

In 1908 the small village of Kai Hai, located opposite Pacharr on the north bank of the river, harvested a sufficiently bountiful rice crop to satisfy the domestic consumption needs of its 300 inhabitants for two full years.[31] Although this fact was deemed worthy of note by the local commissioner at the time, large rice crops were not unusual to the area, and time invested in rice work was considerable. Despite the strenuous nature of rice work, and the fact that land limitations kept individual field plots small, the rice subsystem was always regarded as a crucial component of the farm, often constituting up to 20-25 percent of the total farm area.[32] Today, however, while the importance of rice to this region has increased dramatically, the areas cultivated per compound have diminished and the organization of rice production has been dramatically altered. This chapter shall, therefore, begin by considering how the position of rice has changed within the local farm economy, both in terms of area and of yield, from preproject times to the present day.

PATHS OF CHANGE

As was seen in Chapter 3, the Jahally-Pacharr project aims to improve local incomes and nutrition by boosting the yields and output of rice (traditionally the one crop under the primary control of women), and by encouraging an increased level of commercialization of that crop (through the postharvest repayment of input loans). The project was also conceived with several social equity objectives in mind--that is, it was planned not only to increase production in overall terms but also to target the benefits of this increased production directly at rural women. This goal was to be achieved by awarding women priority access to project plots, by giving them formal leases to these plots, and by registering their names with the project's management unit.

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[31]Travelling Commissioner, Annual Reports on McCarthy Island Division (1902-1921) (Banjul: National Archives).

[32]See Margaret R. Haswell, The Changing Pattern of Economic Activity in a Gambia Village, Overseas Research Publication 2 (London: Her Majesty's Stationery Office, 1963); also D. P. Gamble, Economic Conditions in Two Mandinka Villages: Kerewan and Keneba (Gambia) (London: Colonial Office Research Department, 1955).

The implications of such goals, relating firstly to rice and secondly to women, are far-reaching. It has been argued in the literature that control over economic resources plays a big role in determining the status of individuals.[33] Recent "women's" issues literature in particular argues that "the strength of female decision-making power in the household is positively correlated with the extent of women's participation in the market economy."[34] These are crucial considerations given the nature of the Jahally-Pacharr project. For example, since the new irrigation initiative is focused on one crop and mainly on one gender, the greatest changes induced by the project to be closely linked to these two target groups should be expected. Thus, if the new rice regime has a minimal impact on the rest of the farming system (in terms of crop substitution and labor demands), then one might expect few changes in decisionmaking arrangements on production, produce disposal, and consumption. In other words, if women can, and do, continue to control the rice crops as they did before, then the spheres of responsibility need not change. But if there are discernible modifications in how rice production and the production of other crops are organized, then such changes are probably linked to similar changes in decisionmaking.

Three theoretical scenarios of change may be put forward for testing (see Figure 8). The first assumes minimal change in the traditional allocation of responsibility over rice and other crops. Although rice *kamangyangos* are necessarily lost to the project, women essentially maintain their status as independent producers and their income by working jointly on the rice *maruo* (which stays in the hands of a female rice *maruo* manager) and by selling portions of the increased output for their own needs. The position and status of this *maruo* manager and of other female farmers are, therefore, held constant, or may even increase as a result of the increased volume of rice produced. Meanwhile, the absolute levels of labor required by the new rice production technology are met mainly by the transfer of female labor from swamp rice and from some upland *kamangyangos* to the new rice economy. Men join in the work on the *maruo* plots at periods of peak labor demand but otherwise continue to focus on upland crops.

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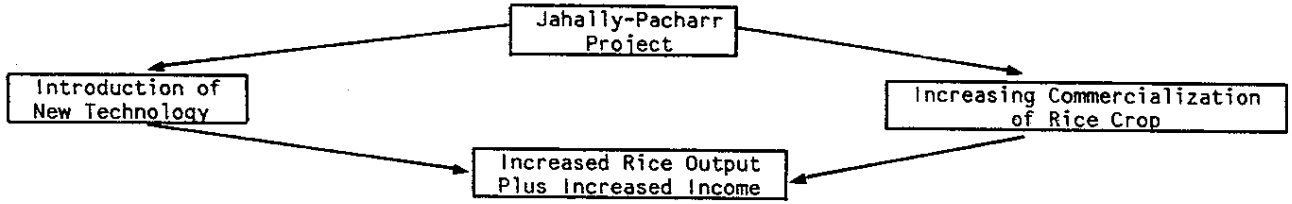
[33]See Christine Jones, "Women's Labor Allocation and Irrigated Rice Production in North Cameroon," in Rural Development: Growth and Inequity, ed. Bruce L. Greenshields and Margot A. Bellamy, International Association of Agricultural Economists, Occasional Paper 3 (Aldershot, England: Gower Publishing, 1983), pp. 172-178; and Sutti Ortiz, "What is Decision Analysis About? The Problems of Formal Representations," in Economic Anthropology: Topics and Theories, ed. S. Ortiz, Monographs in Economic Anthropology 1 (Lanham: University Press of America, 1983).

[34]Meena Acharya and Lynn Bennett, Women and the Subsistence Sector: Economic Participation and Household Decisionmaking in Nepal, Staff Working Papers 526 (Washington, D.C.: The World Bank, 1982).

Figure 8--Three theoretical scenarios of change associated with the Jahally-Pacharr project



	SCENARIO 1	SCENARIO 2	SCENARIO 3
System	Rice is mainly a female crop--both kamangyango and maruo	Rice is a male and female crop--mainly maruo	Rice is a male crop--both kamangyango and maruo
	***	***	***
Change in Land Demarcation and Tenure	Traditional rice lands occupied by the project. Lands held in usufruct by women farmers. Roughly 50 percent land is maruo	Farmers become plot tenants. Also most high-yielding plots become maruo	Control over rice work and produce becomes male dominated. Male interest in rice kamangyango initiates a market in land
	***	***	***
Change in Labor Organization	Women retain control over rice work. Project plots divided into maruo and kamangyango	Control over rice work shifts partly to the men. Labor is required from upland crops, increasing male involvement in rice	Women shift most attention to upland crops, and to off-farm/non-farm work for an independent income
	Labor required for rice met by original rice work force. No need for reduction in upland crop production	Women maintain former income by working small traditional rice plots, and shifting to upland kamangyangos	
	***	***	***
Change in Output Control and Disposal	Increased output enhances income and status of rice maruo head and other female producers	If upland kamangyango land is limited, women become more dependent on income transfer from men as reward for work on rice maruo. Women's income may decline	Maruo and kamangyango production are both substantially reorganized
	Patterns of decisions on expenditure and investment remain constant		
	***	***	***
Change in Responsibilities	Limited change in allocations of responsibility, labor time, produce disposal or expenditure	Responsibility for rice work and produce disposal shifts from women to men. Patterns of decisionmaking on expenditures change as balance of income changes. Power bases of women are challenged, but may reform around upland crop production	The higher-yielding technology has been taken over completely by the men, for private cash-crop production as well as maruo production. The compound's increased wealth favors the men relatively more than women. Women become major upland cash crop producers

Consequently, the six spheres of responsibility remain largely unaltered, although some individual women may gain increased economic power as a result of being able to secure an increased rice harvest for sale.

The second scenario assumes that men become increasingly interested in rice production. With high yields, favorable market prices, and a succession of years of poor rainfall (which reduces upland crop harvests), compound heads, desirous of securing adequate food harvests for domestic consumption, take over responsibility for the new technology/crop, and make the high-yielding rice mainly a *maruo* crop. In this situation, the area of upland *maruo* might decline, giving rise to larger male upland *kamangyangos* or to increasing numbers of female upland *kamangyangos*. Women would lose some of their decisionmaking power over rice and might lose income if this is not replaced by the opportunity to farm upland crops, or to receive an equal income from the men in return for work on the rice *maruo*.

The third scenario sees an upheaval in conventional sex divisions over decisionmaking, labor, and produce control. If compound heads felt that the profits from rice were such that the bulk of the rice could be sold in return for cash (with which to purchase food and other goods), then rice might become a male cash crop. If such were the case, then male upland *kamangyangos* would probably reduce in size, with labor-intensive crops giving way to less labor-demanding crops. In contradistinction, women would become much more heavily involved in upland *maruo* production and cultivate much larger upland *kamangyangos* than before. This may result in increased individual incomes for some and higher overall household income. The question remains, however, as to how increased household income would be distributed among household members. A redistribution of relative wealth and increased economic independence for certain individuals could lead to substantial changes in who makes decisions on how produce is disposed of and on how income should be utilized.

Naturally, there could be many variations around these three simple scenarios. Furthermore, one must be aware that time is a crucial variable. The three versions of change might pertain to households during a simultaneous time period, or one might see a progression from scenarios 1 to 3 as time passes and the impact of the project becomes clearer. Additionally, one might see a fluctuation in patterns, with a substantial reorganization of production and authority being short-lived and former practices being reestablished after a short time. The analysis of the following chapters will attempt to ascertain which of the three theoretical scenarios is the most apt in describing the contemporary situation. It should be underlined, however, that in the absence of reliable baseline data, the question of "change" has to be dealt with through recall interviews, by using secondary sources from other regions and by engaging in a cross-sectional analysis of contemporary events. In other words, however, constraining this approach may be, the associations between degrees of

project involvement and various patterns of household organization and activity are being examined here in an attempt to identify the links between technological change and changes in decisionmaking and crop control.

RICE PRODUCTION BEFORE THE PROJECT

Historical information relating to rice production was elicited through a series of in-depth interviews with all sample members who have lived in their compounds since independence. Three successive time periods were used in these interviews to subdivide era before the project started. These subdivisions are defined with reference to the CDC scheme described in Chapter 3, operational between 1953 and 1956. The three time periods used were "Pre-CDC" (pre-1953), "During CDC" (1953-1956), and "CDC-JP" (1956-1982). Preproject time parameters are necessary here because rice production levels prior to 1982 were not constant, based on unchanging patterns of activity stretching back into an ancient past. The development and exploitation of rice fields in McCarthy Island Division has been proceeding for many generations, with the CDC scheme constituting the first exogenous intervention in an ongoing updating of the River Gambia's low-lying swamps.

Table 4 tells us two important things about rice production by the sample compounds before the project started. Firstly, not all of the compounds were involved in rice cultivation prior to 1984. It has already been seen in Figure 3 that rice did not play a large role in the agriculture of villages located far from the River Gambia and its tributaries. Thus, the Wolof inhabitants of Njoben (situated 10 kilometers from the nearest swamp lands) rarely cultivated rice. Similarly, Sinchou Abdou (the Fula village) did not produce much rice before project started because the village itself was only founded in 1981. Yet in 1981, there were already six women cultivating 3.4 hectares of traditional rice, all borrowed from the inhabitants of the neighboring village of Kerewan Samba Sira. Three of these women were locally born and had been growing rice in their compounds of birth for several years before transferring their knowledge and labor to the new village.

By contrast, the villages of Dasilameh (Mandinka) and Sukurr (Serahuli) have both been long established as traditional rice-growing centers. In these villages, rice farming traditionally formed a distinct subsystem of the larger farm economy. With yields ranging between 1 and 2 tons per hectare, and no upland farmland needing to be sacrificed, villages located near the river generally found it profitable to engage in the cultivation of swamp rice. In both villages, it is reported that rice land frequently made up almost 20 percent of the total land available to the compound farm.

The second important point deriving from Table 4 is that the area of traditional rice land owned by the whole sample during the three

Table 4--Rice land area belonging to sample compounds in three sample villages during three preproject time periods and during 1986

Village	Pre-CDC[a] (1952)	During CDC (1953-1956)	CDC-JP[b] (1965-1982)	During JP[c] (1986)
	(hectares)			
Njoben[d]	0.0	0.0	0.0	0.89
Dasilameh[e]	6.8	11.0	11.8	4.00
Sukurr[f]	6.8	8.0	8.2	3.00
Total	13.6	19.0	20.0	7.89

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Note: For the sake of comparability, the village of Sinchou Abdou is omitted from these totals because it was only founded in 1981.

[a] CDC stands for Colonial Development Corporation.
[b] JP stands for Jahally-Pacharr.
[c] Double cropped.
[d] Njoben sample = 7 compounds.
[e] Dasilameh sample = 5 compounds.
[f] Sukurr sample = 5 compounds.

time periods up to 1981 increased from 13.6 to 20.0 hectares. Before the CDC project was implemented, the five sample compounds of Dasilameh cultivated 6.8 hectares of land in the Jahally swamp, which was increased to 11.0 during the CDC scheme, and then to 11.8 hectares after the CDC experiment was abandoned. The sample compounds of Sukurr also claimed access to 6.8 hectares of Jahally land prior to the CDC scheme. As a result of CDC, their land allocation was increased to 8.0 hectares; this was further increased to 8.2 hectares in the following years.

Not all of this land would have been cultivated every year since much depended on the availability of seed, water, and especially labor. It should be remembered that because of the dynamics of population growth and fluctuations in the composition of conjugal units, rice production systems may be differently organized from one year to the next. Nevertheless, the aggregate figures show a clear upward trend in the availability of land for traditional rice cultivation in these compounds up to 1981. This makes the changes that occur from 1982 onward all the more significant.

ARRIVAL OF THE JAHALLY-PACHARR PROJECT

In 1981 the traditional swamps of Jahally and Pacharr were acquired by the government for physical redevelopment. Project plots were allocated to each participating village by a Project Management Unit. Traditional (lowland) rice-growing villages were given priority access to the bulk of the pump-irrigated plots. Upland villages (not formerly involved in rice production) shared out smaller allocations of pump-irrigated plots, plus many of the lower-yielding rainfed and tidal plots.

Distribution of project land to individual compounds was carried out by elected Land Allocation Committees in each village. Although elected, these committees tended to be filled and controlled primarily by villagers of higher-status compounds. Despite this bias, however, the regulation that plots (or portions of plots) should be allocated strictly according to the number of able-bodied adult women present in each *sinkiro* appears to have been adherred to fairly well (see, for example, Tables 40 and 44).

Nine hectares of higher-yielding plots were distributed to 20 of the sample compounds in the first year of operation, and all 22 compounds had received a share out of a total of 15 hectares of project land by the dry season of 1986. The substitution of 20 hectares of low-yielding rice land with 15 hectares of much higher-yielding rice land had a profound impact on the farming system of the sample compounds. On the one hand, seven of the compounds that had never cultivated rice before were presented for the first time with plots of land that produced a cereal crop not dependent on rainfall. On the other hand, compounds familiar with growing rice in the traditional manner were faced with the novelty of yields that were more than three times higher than before the project, with the potential to produce *two* crops per year from fully water-controlled fields, and with the task of working in an agricultural project supervised by a centralized management.

The immediate impact in rice production was an absolute decline in traditional rice land availability, as well as a decline in the proportion of that land actually cropped each year (Table 5). Yet the rice production sphere was not the only sector to be affected by the project. Each compound had to modify its entire farming strategy in different ways in order to absorb the new rice production technology into its system. These modifications, linked directly to the shift from traditional production toward project-related rice production, are most visible at four points of the rice production-consumption chain as depicted in Figure 5 above:

1. The demarcation of rice plots between *maruo* and *kamangyango*.
2. The sexual division of responsibility for the rice crop.
3. Decisionmaking responsibility over crop storage and disposal.
4. The organization of consumption and expenditure.

Table 5--Rice area available, used, and devoted to *maruo* production, by level of rice production technology in 1981 and from 1983 to 1986

Crop/Area	1981[a]	1983[b]	1984	1985	1986
Traditional rice					
Area available (hectares)	17	6	2	3	3
Area used[c] (percent)	85	100	33	50	50
Area *maruo*[d] (percent)	54	52	47	48	48
Project rice					
Area available (hectares)	...	...	9	10	15
Area used[c] (percent)	...	...	100	100	100
Area *maruo*[d] (percent)	...	...	100	100	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] For the 17 compounds of Njoben, Dasilameh, and Sukurr only.
[b] From 1983 onwards, figures include the 5 compounds from Sinchou Abdou.
[c] Area planted.
[d] Percentage of area used that was allocated for *maruo* production.

Each of these modifications is associated with interrelated shifts in decisionmaking responsibility and power within the household. Yet, identification of change at one stage in the compound production system does not automatically confirm a structural change in the rest of the system. Focus shall, therefore, be made on each of the above points in turn, and later examine how they are interconnected.

CHANGES IN THE DEMARCATION OF PLOTS

Table 5 divides traditional and project rice into *maruo* and *kamangyango* components for the years 1981 to 1986. According to the women in these sample villages, rice fields were customarily divided into part *maruo* and part *kamangyango*. When a woman undertook to farm a plot of traditional rice for the common food stock, she tried to ensure that she could also plant a plot as *kamangyango* rice. Table 5 indicates that in 1981, just over 50 percent of traditional land was dedicated to *maruo* production and that this proportion declined only slightly in the following years. However, the project fields tell a very different story. All of project plots have been designated as 100 percent *maruo* since the commencement of the project.

This pattern is confirmed by data from the large sample survey. Table 6 presents the *maruo/kamangyango* breakdown for the main sample for the years 1984 and 1985. In 1984 traditional rice land was divided roughly 50/50, whereas the project's pump-irrigated plots were 94 percent *maruo* and only 6 percent *kamangyango*. In 1985 although there was a small increase in the proportion of *kamangyango* plots in the project rainfed area, the pump-irrigated plots became 100 percent *maruo*.

Table 6--The division of plots between *maruo* and *kamangyango*, by level of rice production technology for 1984 and 1985

Crop/Type of Farm	Percentage of Area Cultivated	
	1984	1985
Traditional rice		
Maruo	44	11
Kamangyango	56	89
Project pump plots		
Maruo	94	100
Kamangyango	6	...

Source: IFPRI/PPMU survey, 1985/86 (large sample and subsample).

These figures show that while project rice land is being used primarily as *maruo* land, surviving swamp rice land is being increasingly dedicated for *kamangyango* production alone. As one moves up the technology/productivity scale, from swamp to pump-irrigated production, the proportion of land alloted to *maruo* production increases (from 11 percent to 100 percent in 1985). The converse holds true for *kamangyango* land, which declined in proportion to *maruo* land from 89 percent to 0 percent during the same period. This apportioning of land according to its productivity level signals a conscious decision by most compounds to channel the increased food production potential associated with the project toward the *maruo* stores. The question is, who in the compound is making this decision? This brings one to the issue of who has responsibility for the rice crop.

SEXUAL DIVISION OF RESPONSIBILITY OVER THE RICE CROP

Before the new technologies for rice production were introduced, rice was produced *mainly* by women. There are many qualifications to

be attached to such a generalization but, in substance, the statement stands. Table 7 shows that in preproject days, it was the head woman who was usually responsible for deciding how much land should be allocated as *maruo* versus *kamangyango*. In this sample of 14 compounds, only 3 compound heads took the decision, and in one other case, it was taken jointly by the compound head and the rice *maruo* head.

Table 7--Responsibility for deciding the demarcation of rice land between *maruo* and *kamangyango* and controlling activities in the field before 1981 and in 1985/86

Activity	Compound Head	Head Woman	Joint Decision	Total N
Field demarcation				
Preproject	3	10	1	14
1985/86	18	3	1	22
Control of field activities				
Preproject	2	12	...	14
1985/86	18	4	...	22

Source: IFPRI/PPMU survey, 1985/86 (subsample).

The same applied to the control of activities in the field. Prior to 1984, 12 out of the 14 rice farms were operated under the direction of a female rice *maruo* head. In the other 2 cases, it was the compound head himself who dictated the timing of all activities and went to the field to supervise the work of the women. (Both of these cases were reported in the Serahuli village of Sukurr.) Since 1984, however, this female dominance in rice production has declined.

Of the 220 hectares of pump-irrigated land in the Jahally swamp originally distributed in 1982 and 1983, 87 percent was registered in the names of men (mainly compound heads).[35] This inequity, which clearly ran counter to stated objectives, caused considerable contro-

[35]Vanda Alterelli-Herzog, Monitoring of Land Distribution Activities and M&E Arrangements, Progress Report of a Second Mission to the Field (Rome: IFAD, 1984), p. 2; and Sarah Hobson, "Summary Report of Visit to Jahally Pacharr, The Gambia (November-December 1984)" (1985), mimeographed.

versy, resulting in a redistribution of land titles in 1984. After that, it was claimed that 99 percent of land in both Jahally and Pacharr swamps had been retitled in favor of women.[36] This action was widely praised as a model of enlightened, gender-sensitive development.[37] However, the *de facto* effect of this legalistic measure on actual control over rice land and produce has been mixed.

The large IFPRI study, for example, found that only 52 percent of the women surveyed in the ten sample villages were actually registered as official tenant of a piece of project land.[38] And only half of these have real decisionmaking authority over field activities and use of harvest.

As for the subsample, Table 7 shows that in 18 out of the 22 households, it is the compound head who currently decides on the demarcation of plots between *maruo* and *kamangyango*. Likewise, responsibility for the direction and supervision of activities in the field has in most cases shifted from a woman to the compound head. Yet, this increasing male involvement in rice production is not confined to a theoretical shift in "responsibility" over fields. Men are in practice working in the swamps, and they are doing so in greater numbers than ever before.

This is not to say that men did not work in rice fields before the project. Quite the contrary. Although it has long been held that rice cultivation is "the perquisite of the women,"[39] and that men give

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[36]Project rules currently allow for the transferral of plot "tenancy" from a deceased woman to the new female *sinkiro* head of the same compound. If a woman divorces out of her present compound, she is, in theory, permitted to take the plot tenancy with her. No such cases were found by the survey. See Hobson, "Summary Report of Visit to Jahally Pacharr," p. 2.

[37]Alan Rake, "After Rice Success, Will Bridge-Barrage Be Next?" African Business (January 1986): 21-23; and Friedhelm Mensing, "Using Tradition to Achieve Progress," Cooperation and Development 1 (1987): 13-15.

[38]Joachim von Braun, Detlev Puetz, and Patrick Webb, "Technological Change in Rice and Commercialization of Agriculture in a West African Setting: Effects on Production, Consumption, and Nutrition," International Food Policy Research Institute, Washington, D.C. (1988).

[39]Correspondence between Governor Palmer and the Secretary of State for the Colonies, April 20, 1931, Public Records Office, London, File C087-233/4, p. 2.

their womenfolk "no assistance at any time,"[40] such frequently repeated generalizations do not appear to be tenable. For example, it was reported in Sukurr that male contributions to rice production before the project ranged from 16 to 40 percent of total labor inputs per hectare of rice. Similar patterns of labor sharing by men and women since were found in Dasilameh and Sinchou Abdou where, on average, men provided 15 percent of necessary labor for traditional rice cultivation.

Furthermore, there do exist reports of men working in rice long before the present day. For example, the Annual Report of the Department of Agriculture for 1931 records that men helped women sow rice in parts of Lower River Province.[41] In 1955 Gamble noted that not only did men "do some work in the rice fields" in central Gambia but also that they were "taking a greater part in rice farming in the mangrove area."[42] And both Doughty and van der Plas recorded the fact that they saw men working in rice in different parts of McCarthy Island Division and Upper River Division during the 1940s and 1950s.[43]

However, since the introduction of the new production technologies, the male contribution to rice production has increased considerably. Table 8 shows that during the wet season of 1985, the 105 men of the subsample compounds provided a total of 1,443 labor days to pump-irrigated rice production (a mean of 12 days per man), compared with 855 days contributed by the 100 women (a mean of 7 days per woman). In the few remaining traditional fields, the male contribution was a *total* of only 3 days, compared with the 249 days worked by women (a mean of 2 days per capita).

Subsequently in the dry season of 1986, the male contribution to pump-irrigated rice was an average of 23 days, and women's was 17 days. The mean number of days per capita rises considerably in the dry season because fewer individuals are available to work in the rice fields (50 fewer men and 74 fewer women). In other words, although the same number of days are worked in the wet and dry seasons (2,299 and 2,345, respectively), a smaller number of people provide those

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[40]G. C. Dudgeon, "Third Report on Agriculture and Forest Products of The Gambia," Gambia Government Gazette, March 6, 1909, p. 124.

[41]Department of Agriculture, Annual Report, 1931 (Bathurst: Government of The Gambia, 1931), p. 5.

[42]Gamble, Economic Conditions, p. 26.

[43]Doughty, Report of a Nutrition Survey, p. 8; and Charles D. van der Plas, Report of a Socioeconomic Survey of Bathurst and Kombo St. Mary in The Gambia, United Nations Report TAA/GAM/1 (New York: U.N., 1956), p. 8.

Table 8--Mean labor inputs in rice production, by sex (all compound members) and by rice production technology level for 1985 and 1986

Rice Production Technology Level	Wet Season 1985		Dry Season 1986	
	Men (N=105)	Women (N=100)	Men (N=72)	Women (N=41)
	(days)			
Project pump irrigated	12	7	23	17
Traditional rice	0	2	...[a]	...[a]

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Not cultivated during the dry season.

days of labor in the dry season than in the wet. This is because of the high incidence of dry-season urban migration, which obliges remaining individuals to work more in the pump-irrigated fields than during the wet season when greater numbers of farmers are resident in the compound.

These results lead to one very important conclusion; namely, that while generalizations about the traditional gender specificity of rice cultivation should be avoided, fundamental changes *are* taking place in the organization of rice production, which are directly linked with the introduction of new technology for rice production. Firstly, as the production technology has improved and output has increased, rice has become less of a *kamangyango* crop and more of a *maruo* crop. Secondly, these *maruo* fields have come under the control of men who obtain a large proportion of labor help from other men in the compound. These two recent developments have far-reaching implications in the sphere of crop control after harvest.

DECISIONMAKING RESPONSIBILITY IN RICE CROP DISPOSAL

Once the rice crop has been harvested, it has to be stored or sold. Before the improved rice production technology arrived, *kamangyango* rice was usually stored in each woman's own store. Table 9 shows that 21 of the 28 subsample women who cultivated rice in 1981/82 stored their *kamangyango* produce in these individual stores. The remaining 7 stacked their personal rice portion in a specified corner of the compound head's store. By 1985 only 5 of these women were

Table 9--Numbers of women responsible for *kamangyango* rice stores in the wet seasons of 1981 and 1985

Year	Separate Section of Compound Head's Store		Own Rice Store	
	Sub-Sample	Large Sample	Sub-Sample	Large Sample
1981	7	20	21	87
1985	2	96	3	56

Source: IFPRI/PPMU survey, 1985/86 (large sample and subsample).

still cultivating traditional rice *kamangyangos* and only 3 of these still had their own rice stores. These data present a picture of declining female responsibility for rice storage, although the trend is not so dramatic in the large sample. In the latter, 87 women rice cultivators had control over their own rice stores in 1981, and 56 still retained this independent control in 1985 (Table 9).

The *kamangyango* rice was to be disposed of as the owner saw fit. As already pointed out in Chapter 3, this did not usually mean that everything was sold and therefore lost to the *sinkiro*. Frequently, a fixed amount of rice was set aside for feeding the compound in times of need or for entertaining unexpected guests. Anything greater than this amount was usually sold. Table 10 shows that in the 14 compounds that cultivated traditional rice before 1984, it was the norm for a woman to ask permission of her husband or the compound head before selling any rice, be it *kamangyango* or *maruo*. This was merely a formlity because none of the women who asked ever had permission denied.

The income gained from selling this rice was used to purchase cooking ingredients for clothes, jewelry, and sometimes for livestock. Often, it was used to support the husband in times of need. For example, Doughty records than in 1946 the wife of a man in Yoro-Beri-Kunda whose groundnut harvest had failed "sold 139 pounds of her rice ... in order to buy 1 head tie and 11 yards of material to provide clothes for her husband, herself, and their daughter."[44]

The *maruo* crop was different. In most cases, the *maruo* rice was stored either in the main *maruo* store under supervision of the com-

[44]Doughty, Report of a Nutrition Survey, p. 60.

Table 10--Responses to the question: "Was permission required from husband or compound head to sell rice before the project started?"

	Yes	No	Never Sold	Total N
Maruo rice	6	...	8	14
Kamangyango rice	12	2	...	14

Source: IFPRI/PPMU survey, 1985/86 (subsample).

pound head or it was kept in the rice *maruo* head's store. Table 11 indicates that in 12 out of 14 compounds, it was one of these two arrangements that prevailed. In the other two compounds, the *maruo* rice was divided up equally among the women who had worked on the crop and kept in their own stores.

Today, however, the entire *maruo* crop is kept in the compound head's store. This means that the male compound head is now the only individual with completely free access to, and therefore control of, the rice crop. Consequently, whereas before 1981, it was primarily the female rice *maruo* head and/or individual cook who decided how much rice needed to be used each day and who should physically remove the rice from the store, today those privileges have largely passed into the hands of the compound head. Tables 12 and 13 show that in pre-project days, the compound head was in sole charge of the *maruo* rice in one compound only out of 14. By 1986, however, a man was in charge of these daily decisions and functions in over 50 percent of the sample households.

The final use of rice coming out of the store on a daily basis has altered little since the project began. None of the compounds report any changes in the organization of food processing or cooking schedules or in the manner of food presentation. Each meal, whether it includes rice or not, is still distributed in a given number of bowls, as described in Chapter 3. Nor has the increased use of rice resulted in any major recipe changes. When asked whose taste is paramount in the choice of flavorings and ingredients for each meal, 33 cooks (out of a random subsample of 53) stated that they prepare meals that will please the compound head, 8 said that they try to please their mother-in-law, another 8 target the elder members of the compound as a whole, and only 4 said that they prepare meals to their own personal liking. All 53 women reported that these habits have not

Table 11--Storage responsibility for *maruo* rice in 1981 and 1985

Year	Compound Head	Head Woman	Individual Woman's Store	Total N
1981	9	3	2	14
1985	22	...	...	22

Table 12--Responsibility for deciding how many cups of *maruo* rice to be used for cooking each day

Year	Compound Head	Head Woman	*Sinkiro* Head	Individual Cook	Total N
1981	1	7	...	6	14
1985	12	3	4	3	22

Table 13--Responsibility for taking rice out of the *maruo* store on a daily basis

Year	Compound Head	Head Woman	*Sinkiro* Head	Individual Cook	Total N
1981	1	6	...	7	14
1985	11	...	6	5	22

Sources: IFPRI/PPMU survey, 1985/86 (subsample).

changed since the flow of rice into the compound stores began to increase.

Not all of the *maruo* rice is consumed, of course. Some of the stock has always been sold, and here, again, is an area where recent changes in organization are apparent. Prior to 1981, the right to decide how much *maruo* rice should be sold after harvest and how much should be kept was not usually the prerogative of a man. Tables 14 and 15 indicate that before 1984, the compound head was responsible for marketing decisions in very few cases. This authority generally lay with the head woman or else it was a joint decision taken between compound head and rice *maruo* head. However, in 1985/86, the reverse has become true: decisions on whether and when to sell *maruo* rice have mostly shifted over to the compound head.

Table 14--Responsibility for deciding on the amount of *maruo* rice to be sold in bulk after harvest

Year	Compound Head Alone	Head Woman	Joint Decision	Never Sold	Total N
1981	1	4	4	5	14
1985	8	1	1	11	22

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Table 15--Responsibility for deciding if *maruo* rice is to be sold by the cup later in the season

Year	Compound Head	Head Woman	Never Sold	Total N
1981	3	3	8	14
1985	17	1	4	22

Sources: IFPRI/PPMU survey, 1985/86 (subsample).

The next question to be addressed, therefore, is how does this sweeping transfer of decisionmaking power over rice from women to men manifest itself and affect the distribution of benefits from increased rice production and the resultant expenditure patterns?

THE ORGANIZATION OF MARKETING AND EXPENDITURE

In the ten subsample compounds that sold *maruo* rice immediately following the 1985 wet-season harvest, it was the head himself who decided when and how much should be marketed and who should physically handle the transaction. In most cases, these were unilateral decisions involving no discussion with other compound members. In only two of the compounds (both in Njoben) were all adult males brought together to discuss the matter openly, and in one small Dasilameh compound the decision was made jointly by husband and wife. In all ten compounds, it was also the head himself who took the rice to market and who kept the cash in his possession.

The proportion of crop sold by these compounds immediately after harvest was an average of 19 percent. This compares with a figure of 22 percent for the large sample. The subsample marketed surpluses ranged from a low of 2 percent up to 40 percent depending on individual perceptions of the balance between domestic food requirements and immediate cash needs. Table 16 compares the compounds that sold rice with those that did not in terms of mean income (means of total farm income) and mean compound farm income per adult equivalent. These

Table 16--Mean income per compound and per capita adult equivalent, by compounds selling rice versus compounds not selling rice

	Mean Total Compound Income	Compound Income in Per Capita Adult Equivalents
	(Dalasi)	
Compounds selling rice (N=10)	3,382[a]	472
Compounds not selling rice (N=12)	7,341	561
Means (N=22)	5,541	521

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] In January 1986, D 1 = US$0.30.

data indicate that those compounds that did *not* sell any *maruo* rice enjoy a mean income that is over twice as high as that earned by the compounds that did sell their rice. Expressed in adult equivalents, the income gap between sellers and nonsellers is reduced, but the nonsellers still earn an average of almost D 100 more per capita than the individuals in the compounds which did sell. These figures indicate a tendency for the relatively poorer compounds to choose to sell their project *maruo* rice, while the relatively wealthier compounds do not. This is the pattern one would expect where, holding income level and rice supply constant, an increase in income is associated with increased consumption and a relative decline in marketed surplus.

The income earned from these sales tended to be used for the payment of taxes and the repayment of project input loans. In other words, the project's communal rice was being sold to meet objectives common to the compound as a whole. The head's expenditure on other items was usually funded from other sources, such as the sale of upland crops (both *maruo* and *kamangyango*) and income from off-farm work. But it is important to stress that compound expenditure is not confined to, or coincident with, that of the male head. For while compound heads have, as ODA puts it, "complete control over the social and economic affairs of the family," they are not the only sellers or spenders in the compound;[45] different men and women are responsible for expenditure decisions on different items and each has their own sources of income. Compound marketing and expenditure behavior must, therefore, be examined not just from the perspective of household aggregates, or of the household head alone, but at a disaggregated level that considers differences by sex and by decisionmaker status.

Table 17, for example, shows who was responsible for the decision to purchase certain types of food and who paid for it, both before the project and in 1985/86. This table shows that the sharing of decisionmaking responsibility on spending *and* cash provision for expenditure vary according to the items concerned and are not concentrated solely in the hands of the compound head. What is more, there have been changes in some of these patterns since the introduction of the new rice technology. The data show that there has been relatively limited change in the allocation of *responsibility* for decisionmaking over food purchases; the role of women in deciding when to buy a food item has only increased in 3 compounds, and then only with respect to groundnut purchases. However, women have become more involved in the provision of cash for food purchases. Women now help a little more than before in the purchase of rice by the cup, groundnuts, meat, vegetables, and oil. These changes indicate a decentralization of financial power away from the head and an increasing involvement of women in the fiscal affairs of the compound as a whole.

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[45]Dunsmore et al., The Agricultural Development of The Gambia, p. 270.

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[45]Dunsmore et al., The Agricultural Development of The Gambia, p. 270.

Table 17--Responsibility for decisionmaking and cash provision in the sphere of food purchases in 1981 and during 1985/86

Decision	1981			1985/86		
	Compound Head	Women	Men and Women	Compound Head	Women	Men and Women
Decision to purchase						
Bulk rice	16	5	1[a]	16	5	1
Rice by cup	10	11	1	10	11	1
Groundnuts	15	6	1	13	7	2
Meat	6	13	3	5	12	5
Vegetables	6	13	3	5	12	5
Oil	6	13	3	5	12	5
Provision of cash for						
Bulk rice	21	...	1	21	...	1
Rice by cup	14	5	3	13	5	4
Groundnuts	20	2	...	19	2	1
Meat	9	7	6	7	6	9
Vegetables	9	7	6	7	6	9
Oil	10	7	5	9	6	7

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Groups of three figures total 22 (the number of subsample compounds).

Similar changes in the sharing of decisionmaking and financial responsibility are apparent in the spheres of nonfood expenditures. Where investment in agriculture is concerned, Table 18 indicates that before the project, the decision to buy a sine hoe or seeder was taken by the head alone in 17 out of the 22 compounds; and in the remaining 5 compounds, the decision was taken jointly by all adult men. The same ratio applied to the provision of the capital necessary for purchase. However, in 1985, the number of heads making unilateral decisions had dropped to 11 and those meeting all costs alone numbered only 9. Women are not involved in this sphere of purchase, except when they require new hand tools for their personal use. In some cases they purchase it themselves; in others, it is their husbands who provide.

With respect to housing, prior to the new project, 12 of the 22 compound heads decided alone when investments in the housing structure were required, and they also provided all the cash necessary. In six compounds, such decisions were taken by the head in consultation with

Table 18--Responsibility for decisionmaking and cash provision in the sphere of farm implement purchases in 1981 and during 1985/86

Decision	Compound Head	All Adult Men	Total N
Decision to buy			
1981	17	5	22
1985/86	11	11	22
Cash provision			
1981	17	5	22
1985/86	9	13	22

Source: IFPRI/PPMU survey, 1985/86 (subsample).

other adult men (although the head still provided all the capital alone). In the three remaining cases, the decisionmaking *and* cash provisions were shared among all adult male compound members.

Today, however, a number of changes have taken place in these arrangements because the young men of the compounds have reached an age to be able to earn independent incomes from *kamangyango* farming and are now in a position to be able to contribute toward costs. In 1985, four of the compounds formerly maintained by the head alone are now supported by all the men together. This does not necessarily mean equal sharing of costs, but it does mean that every male is expected to make a contribution. Given 1985 prices for building construction and repair--D 40 for a door, D 50 for a thatched roof, D 250 for a large metal sheet roof, and D 100 to D 200 for masonry work--the economic ascendancy of the head in this sphere of life is rapidly eroding as cost sharing becomes a necessity.

This erosion of economic dominance can affect the head in different ways. For example, in 1984 a compound in Sukurr built a large cement-block house with veranda and five rooms. It cost almost D 10,000, most of which was accumulated from remittances from sons working abroad in Libya and Sierra Leone. Alone, the head would have found it impossible to amass such a sum. On the other hand, a compound in Sinchou Abdou also built a new house, with metal sheet roof in 1984, the costs being shared by the compound head and his younger brother. However, the brother became financially embarrassed and left the region still owing many neighbors large sums of money. The head, as ultimate guarantor of debts incurred by members of his compound, was forced to pull down the metallic roof so that he could sell it for D 350 (far below its real value) and settle part of the debts to his

neighbors. Having done this, the head was left with the onerous task of personally rebuilding the roof with grass since he could not afford to hire a thatcher.

The position of the head as ultimate provider has also been eroded in other spheres of expenditure as well. In the past, the head usually held prime responsibility for wedding feasts, circumcision, and name-giving festivals, which can all be very costly. In 1985 the largest compound in Sukurr (numbered "Sukurr 5" in Table 40) invited the entire village to a name-giving ceremony during which two sheep were slaughtered and 45 kilograms of rice were consumed. Another compound in Sinchou Abdou ("Sinchou 5" in Table 40) celebrated the circumcision of two sons by killing one goat and serving 22 kilograms of rice and 30 kilograms of millet to over 100 guests. Total costs for this event exceeded D 170. As a consequence of such increasingly expensive obligations, the position of the compound head in such matters is gradually diminishing. For example, Tables 19 and 20 show that before the project, the organization and funding of social events rested mainly with the compound head. However, today the exclusive

Table 19--Distribution of decisionmaking authority with respect to the organization of social events

Year	Compound Head Alone	Head Plus Adult Men	All Adults	Total N
1981	10	6	6	22
1985/86	7	6	9	22

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Table 20--Responsibility for the provision of cash for social events

Year	Compound Head Alone	Head Plus Adult Men	All Adults	Total N
1981	7	7	8	22
1985/86	4	6	12	22

Sources: IFPRI/PPMU survey, 1985/86 (subsample).

Two Fula compounds noted that since the project started, women have less cash because they no longer have rice *kamangyangos* and the men have, therefore, to make larger contributions to costs than previously.

Where expenditure on clothing and health is related to personal needs, it is usual for the individual to make the decisions and pay costs on their own. Men commonly purchase their own clothes when they feel it necessary, and women do the same. Likewise, if a man feels sick and in need of medical attention either at the clinic at Brikama Ba or at the hospital in Bansang, then he will pay to go. Women do the same unless they have no ready cash, in which case they must appeal to husbands or the compound head for help.

The other categories of expenditure met mainly by individuals (as opposed to the compound head alone or the joint sharing of costs) are kitchen utensils and luxury consumer goods. New kitchen utensils (pots, spoons, pestle, and mortar) normally accompany a wife into her husband's compound as part of her dowry. Nevertheless, utensils wear out and in most cases (17 out of 22 compounds), it is up to the women who use the items to decide when replacements should be obtained. The costs are sometimes shared and sometimes met by the women alone, depending on the cash flow situation in the compound at that moment in time. In the remaining five compounds, it is the compound head who decides and pays. None of these arrangements have been affected by the project.

Finally, luxury goods, such as jewelry, bicycles, watches, and radios, have to be purchased by the person desiring them. That person can decide when to buy, but again it is expected that permission to spend large sums of cash will be obtained from the compound head beforehand. The most popular articles purchased by men in 1985/86 were radios, suitcases, and watches, while the women spent most money on jewelry and cosmetics.

SUMMARY

To end this chapter, three important facts that have arisen from the analysis so far may be underlined. First, the introduction of new rice production technology has caused control over land demarcation, production, and harvest disposal to shift from the hands of women to those of the men. Also, men are working in the rice fields much more than they ever did before, and women are working relatively less.

Second, the rice crop has changed from being both a *maruo* and *kamangyango* crop to being primarily a *maruo* crop. Only 19 percent of the rice was sold by the subsample compounds in 1985, indicating that the men have not claimed the new high-yielding crop as a cash crop; the bulk of the crop is consumed by the household and the income

gained from rice that was sold was used primarily for payment of compound-wide taxes and loans.

Third, the decisionmaking and purchasing power of many women has changed since the project started, but only in certain compounds. In six of the compounds, there had been no major changes in decisionmaking or spending patterns since the initiation of the project. However, in the 14 compounds where changes of some kind were reported, these took the form of *increased* participation by women and young men in decisionmaking and spending, rather than a decline. These 14 compounds experienced a *de facto* decentralization both of authority and of economic obligations. Spending on items, such as housing and farm tools, has come to be increasingly shared among all adult males rather than met by the head alone. At the same time, women in these compounds have been increasingly included in decisionmaking and spending on social events, medical care, clothing, and education. In only two compounds was it reported that women's participation in decisionmaking and spending has declined.

This variable pattern of change is only partly explained with reference to ethnicity. The six compounds claiming no change comprise four Wolof, two Serahuli, and two Mandinka. To some extent, this pattern might have been expected. The Wolof are the ethnic group that are least involved in the project because they did not formerly farm rice in the Jahally-Pacharr swamps. Their plots are very small and consequently, the effect of the project rice work on the preexisting farming system is relatively small. Furthermore, Wolof men do most of the laboring in the project fields, which means that changes in the roles of Wolof women with respect to rice are limited. As one of the heads put it, "while in Mandinka and Fula the men are in the hands of the women, here the women are in the hands of the men; they do household work, *we* do the farm work."

By contrast, all of the Fula reported changes in decisionmaking and spending behavior since the project had started. Most of the male Fula moved into the region just as the project was about to commence, as well as many married local women who had access to rice lands in the swamps. It might be postulated, therefore, that the Fula households provided particularly fertile ground for potential changes in household organization associated with the introduction of the new technologies and work patterns of the project.

However, the question of degree of involvement in the project is also crucial. Table 21 shows that the group of six compounds that have not reported major changes in decisionmaking or spending patterns have access to an average of 0.18 hectare of project land. The 14 compounds that *have* experienced changes in intrahousehold organization, particularly in the sense of increasing female participation in decisionmaking and expenditure, enjoy access to an average of 0.52 hectare per compound. The two compounds that reported *reduced* female participation in decisionmaking and spending have an average of 0.19

Table 21--Access to project land and income by compound reporting positive change, no change, or negative change in the participation of women in decisionmaking and household spending

Change	Mean Jahally-Pacharr Land Equivalents Per Compound	Mean Land Per Capita (Adult Equivalent)	Mean Per Capita Income[a]
	(hectare)		(Dalasi)
Positive change (N=14)	0.52	0.04	1,150
No change (N=6)	0.18	0.02	903
Negative change (N=2)	0.19	0.03	528

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] From agriculture and nonfarm sources (see Table 44).

hectare of land in the project. In per capita adult equivalent terms, these differences correspond to 0.04 hectare, 0.02 hectare, and 0.03 hectare per capita, respectively.

In addition to these differentials, the 14 compounds reporting increased female participation have a mean per capita income of D 1,150. The "no-change" and negative change compounds have mean per capita incomes of only D 983 and D 528, respectively. Such figures point toward a possible link between degree of involvement in the high-yielding, high-technology project, rising per capita incomes, and the increasing participation of women in decisionmaking and cost sharing in household expenditure.

These results fulfill most of the conditions predicted in the second hypothetical scenario outlined on page 43. The element that remains to be considered in this scenario of change is the role of women in the upland farm. If women are working less in rice, and controlling less of this crop, yet are being increasingly included in decisionmaking and household cost sharing, then a question remains: What are the women doing with the time formerly spent in rice production, and where is the cash coming from that the women are using to help with household expenditures? These are the issues that shall be addressed in the next chapter.

6. THE CHANGING ORGANIZATION OF UPLAND FARMING AND INTRAHOUSEHOLD RESOURCE CONTROL

THE UPLAND FARM

Just as male involvement in rice farming has increased since the introduction of improved rice production technologies, the contribution of women to upland farming has shown a complementary and parallel increase. It should be understood that this does not mean that women formerly worked *only* in rice. Some writers, such as Longhurst and Cleveringa, have argued that "the division of labor and responsibility for crops by sex is quite clear cut. Women are responsible for rice cultivation, while men cultivate groundnuts and the upland cereals."[46] However, detailed research in the sample communities indicates that this division is not so strict. For example, only 18 out of 71 women randomly interviewed within the subsample planted rice as their first *kamangyango* crop when they started agriculture as young girls; all the others grew groundnuts (Table 22). For the women interviewed in upland villages (who rarely cultivated rice), it is not surprising to see primary emphasis placed on groundnuts, but more than half of these 71 women (41) were from lowland villages, and still a majority of them cultivated groundnuts as a first crop.

The average age of these girls when they obtained their first *kamangyango* field was 15 years, and yet 46 of them (65 percent) claim that they alone chose which crop to grow; another 16 (22 percent) were influenced in this decision mainly by their mothers. The 71 women ranged in age from 15 to over 65, and since only 10 of them had started their *kamangyangos* in the past five years, the bulk of the responses refer to periods long before the new rice production technologies were introduced. Consequently, it is inappropriate to claim that rice is simply a "women's crop," and that this is all that they grow.

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[46]Richard Longhurst, "Cropping Systems and Household Food Security: Evidence from Three West African Countries," Food and Nutrition 11 (no. 2, 1985): 13; Rudolph P. Cleveringa, Swamp Improvement for Rice Production in the Western Gambia, Project Report 80.2135.4 (Eschborn, West Germany: German Agency for Technical Cooperation, 1983); also Jennie Dey, "Development Planning in The Gambia: The Gap Between Planners' and Farmers' Perceptions, Exceptions, and Objectives," World Development 10 (no. 5, 1982): 377-396.

The labor required for work on these first *kamangyangos* was provided mainly by the girls themselves with additional help coming both from both women and men (Table 23). There were no reported instances of males helping the girls on their rice fields; for this crop, it was primarily mothers who provided the guidance and help that the girls needed. As for groundnuts, both men and women helped the girls with their maiden upland *kamangyango* crop.

Table 22--Crops grown on first *kamangyango* fields by a subsample of 131 farmers, by sex and by village location

Village/Sex	Groundnuts	Sorghum	Millet	Cotton	Rice	Total[a]
Upland villages						
Men	49	4	5	...	...	28
Women	25	...	...	...	5	30
Lowland villages						
Men	30	...	1	1	...	32
Women	28	...	...	...	13	41
Total	102	4	6	1	18	131

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Based on a random subsample of 131 farmers out of the total 205 in the 22 compounds.

Table 23--Source of help received by girls on their first *kamangyangos*

Crop	No Help	Help From Men	Help From Women	Total
Rice	6	...	12	18
Groundnuts	18	19	16	53
Total	24	19	28	71

Source: IFPRI/PPMU survey, 1985/86 (subsample).

But female labor on upland crops was not confined to helping women and girls with their *kamangyango* groundnut crops. Women were also formerly involved in sowing *maruo* millet, and in the weeding, harvesting, winnowing, and stacking of *maruo* groundnuts and male *kamangyango* groundnuts. For example, two of the larger sample compounds in Sukurr generally mustered seven or eight women to work together in groups to heap and winnow *maruo* groundnuts. These women considerably reduced the workload of the men and obviated any need for the hiring of outside labor. Even in smaller compounds, women were always present to be called upon when necessity arose.

Since the introduction of new rice production technologies, this female involvement in the upland farm has increased substantially. Firstly, because of the takeover of swamp land by the project, former female rice *kamangyangos* have been lost, to be replaced in large part by groundnut *kamangyangos*. Table 24 compares the number and area of rice and groundnut *kamangyangos* over the time period 1981 to 1986. This shows a decline in rice area of 6.7 hectares associated with a decline in the number of women cultivating rice *kamangyangos* from 31 to 5 (a difference of 27). During the same period, the number of women growing groundnuts rose by 27, resulting in an increase in the cultivated area of *kamangyango* groundnuts of 7.4 hectares.

It is also important to note here that 35 of the 67 female groundnut farmers of 1986 reported that they are much happier cultivating groundnuts than they were previously when growing rice. 1985 was the first year that many women engaged in all of the activities of groundnut cultivation, including land clearing. Nevertheless, most commented frequently that dry-land clearing is much easier, and certainly pleasanter, than plowing swamps.

Table 24--Changes in cultivated area and the number of female cultivators of rice and groundnut *kamangyangos* from 1981 to 1986[a]

	1981	1983	1984	1985	1986
Groundnut					
Area (hectares)	18.90	23.70	23.20	25.75	26.30
Cultivators	40	50	53	53	67
Rice					
Area (hectares)	8.00	2.90	0.90	1.30	1.30
Cultivators	31	11	6	5	5

Source: IFPRI/PPMU Survey, 1985/86 (subsample).

[a] Data for 1982 was not collected.

Consequently, while sexual divisions of labor by crop were probably never as clear cut as formerly claimed by many, this region of The Gambia *is* witnessing a substantial change of emphasis in patterns of labor allocation, with men moving toward rice production and women moving increasingly toward the upland crops. Table 25 indicates the percentage contribution of male and female labor inputs into lowland and upland crop production in 1985. These data show three very important points. Firstly, the men are contributing twice as much labor per capita to household agriculture as are the women (68 percent compared to 32 percent). This finding is backed by the main IFPRI survey results that showed men in 200 compounds of 10 villages providing roughly 65 percent of all family farm labor, compared with women who provided only 35 percent. Secondly, men provide the majority of all labor for each crop type, except traditional rice. And thirdly, women contribute more labor to private *kamangyango* production than they do to communal food production.

It should be noted that the overall contribution of women to agriculture is slightly depressed in this sample compared to the large sample because of the small number of traditional rice *kamangyangos* accounted for in the subsample. In villages such as Pacharr, for example, where many women still have access to swamp rice plots, the total number of days provided by women to agriculture (and therefore their relative contribution in the last column of Table 25) rises a little to 35 percent of household agricultural labor.

Nevertheless, these results strongly challenge the widely accepted view that women invariably provide the bulk of agricultural labor

Table 25--Percentage of total labor inputs to each crop type, by sex

Sex	Communal Crops		Individual Crops		Average Total
	Rice	Upland Cereals	Upland Cereals	Rice	
			(percent)		
Men[a] (N=105)	61	85	61	1	68
Women[b] (N=100)	39	15	39	99	32
Total	100	100	100	100	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Men = males aged 15 or older (see Table 40).

[b] Women = females aged 15 or older.

in West Africa, and that women are engaged almost exclusively in food crop production. Similar conclusions have already been arrived at by researchers focusing on the Wolof, Serer, Bambara, and Hausa in West Africa and the Sahel.[47] The important questions to ask now, therefore, are (a) toward which crops are the women transferring the labor that was once dedicated to rice production? and (b) to precisely whose fields are the women transferring this labor?

THE INTRAHOUSEHOLD LABOR EQUATION

Women farmers are faced with much the same choices and dilemmas as men when deciding how to allocate the time that they have available for compound farm work. There are four major possibilities open to them: (a) to work on the compound's rice *maruo* farm, (b) to work on the upland *maruo* farm, (c) to work on their own *kamangyangos*, or (d) to work on *kamangyangos* of other compound members. Figure 9 displays these options and indicates the average number of days per capita spent by men and women in each type of work during the 1985 wet season.

This diagram shows, for example, that out of a total average of 74 days spent by men in intrahousehold agriculture, 43 of these days were spent in *maruo* work versus 31 days in *kamangyango* work. The next line down shows how the shares for *maruo* and *kamangyango* were divided up into the four possible options outlined above.

MARUO PRODUCTION

The first two possibilities are less of a choice than a requirement. All compound members have a customary obligation to provide a certain amount of labor to the *maruo* farm. It is the compound head who decides how much of the upland farm will be devoted to *maruo* production and which crops will be grown.

Concern with the drought appears to be one of the most significant factors influencing the head's selection of *maruo* crops (see Table 26). When asked which factors were paramount in their minds when they decided on the cropping strategies for 1985 and 1986, around 60 percent of the compound heads put fear of drought at the top of the

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[47]The respective sources are in B. Venema, "Male and Female Farming Systems and Agricultural Intensification in West Africa: The Case of the Wolof, Senegal," in The Household, Women, and Agricultural Development, ed. C. Presvelou and S. Spijvers-Ewart (Wageningen: Agricultural University, 1980), pp. 27-34; also in E. Boserup, Women's Role in Economic Development (New York: St. Martin's Press, 1970), p. 21.

Figure 9--Time spent by men and women in each category of household farm labor during the wet season of 1985 (days per capita)

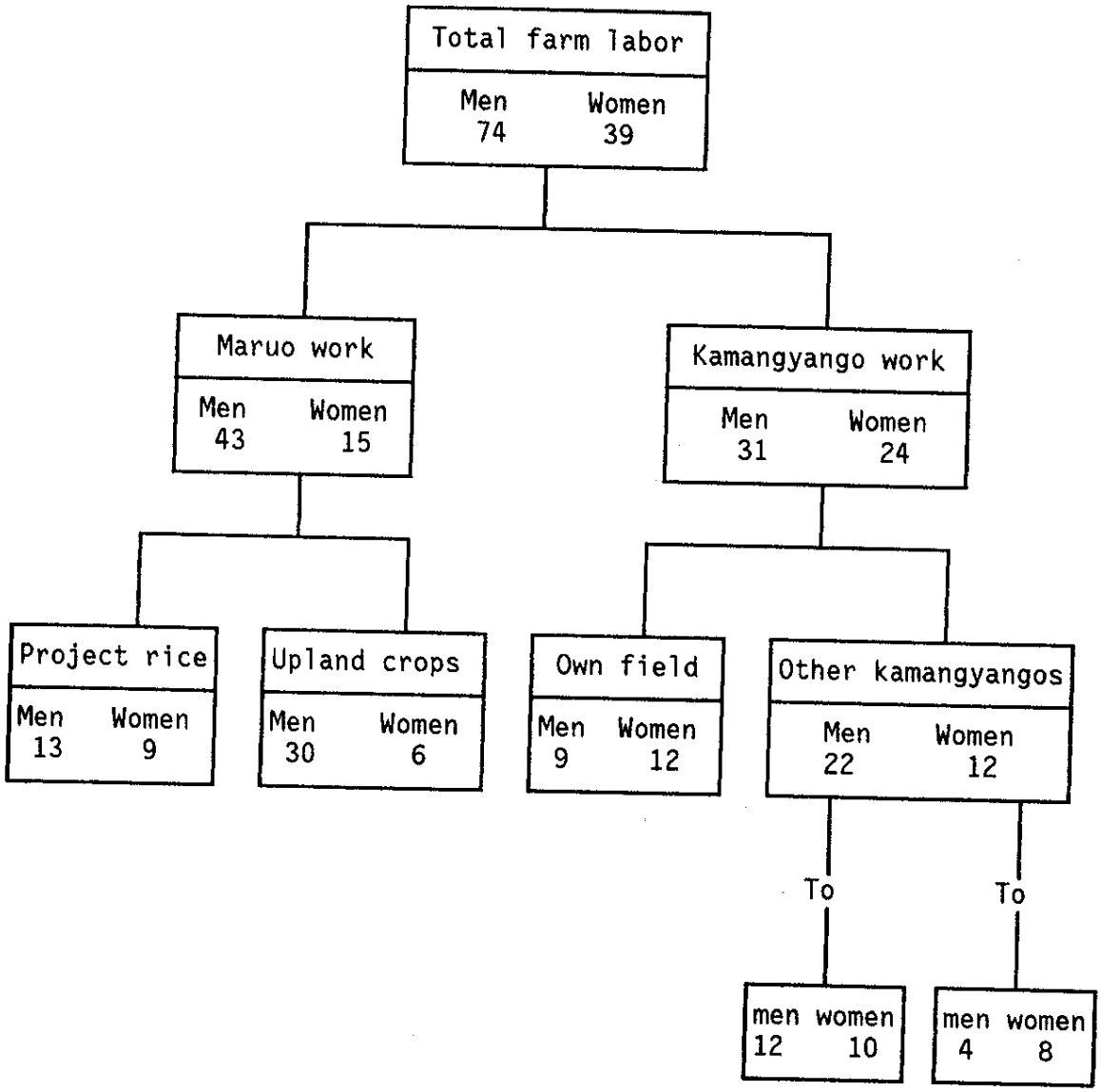

Table 26--Principal concerns in upland *maruo* crop selection for 1985 and 1986, by sample village

Village	Lack Rain	Pests	Tradition	Seed Availability	Total
Njoben	6	1	...	...	7
Sinchou Abdou	2	3	...	...	5
Dasilameh	4	...	1	...	5
Sukurr	1	2	1	1	5
Total	13	6	2	1	22

Source: IFPRI/PPMU survey, 1985/86 (subsample).

list. These 60 percent emphasized the fact that their entire farm strategy was centered on trying to ensure a basic level of food security for their families in a very unpredictable climate.

The second concern was a fear of animal, bird, and insect pests. Late millet and late sorghum are avoided, for example, because they are the crops most susceptible to attack, while maize and early millet are seen as pest-resistant crops.

Fifty percent of the compound heads decided their *maruo* cropping strategy either before or during the pre-rains ground clearing work, and the other 50 percent made the final decisions once the first rains had arrived. In 14 of the compounds, these were decisions made without any discussion with other compound members; in seven, there was discussion among all adult males; and in only one (the smallest in Dasilameh) was there discussion involving the women.

Having selected the demarcation and the cropping strategy, upland heads decide how much labor will be demanded from every compound member for work on the *maruo*. Such demands vary from compound to compound according to ethnicity, and to the age, sex, and status of individual members. Among the Mandinka, it is common for men to work on the upland *maruo* from 8 a.m. to 2 p.m. on Saturday, Sunday, Monday, and Tuesday. After 2 p.m. individuals are free to choose how they spend their time. The other days of the week are designated as *kamangyango* work days. In some compounds, women have the same schedule as the men; in others, they are called upon only when needed for specific tasks. This pattern is largely due to a strong cultural belief that it is bad luck for farmers to work on *maruo* crops on Wednesdays and Fridays. All Mandinka respondents averred that "if a farmer works on a Wednesday or a Friday, his farm will be spoiled by

rabbits, monkeys, and bush pigs." This statement, it was asserted (erroneously), is to be found in the Koran as the word of Allah.

The other three ethnic groups do not share this belief. The Wolof tend to follow a pattern of *maruo* work that sees them in the fields from 7 a.m. to noon on Tuesday, Wednesday, Saturday, and Sunday. The Fula and Serahuli appear more flexible in that few of them claim to follow a fixed regimen of labor allocation by calendar days. The one pattern that is common to all four ethnic groups is that farm work finishes early on a Friday because of the Moslem prayers at 2 p.m.

The overall result of these various activity patterns was that in 1985 men dedicated 58 percent of their household farm labor to communal food production, while women only provided 38 percent of their labor to communal food production. The women, however, allocated their time within *maruo* production very differently from the men. Men concentrated the bulk of their *maruo* work days (61 percent) on producing upland cereal crops, whereas women did the opposite by spending 61 percent of their *maruo* work days in the rice fields. Thus, while men are providing more labor to rice than women in absolute terms, the women are choosing to contribute almost twice as much of their available *maruo* work time to rice as are the men. While women may provide only 37 percent of the *total* labor to *maruo* rice production, this female portion still constitutes more than half of the total labor contributed by women toward *maruo* production.

These data simply underline two facts: firstly, that men are generally spreading their labor more evenly across the principal *maruo* crops than women; and secondly, although women no longer control the *maruo* rice crop as they used to, this crop has by no means ceased to have an important place in their daily lives.

This naturally holds more true for those compounds with a greater degree of involvement in the project than for those that are not so involved. Table 27 indicates that labor allocation patterns by *maruo* crop are not identical across all compounds. When divided into two groups by degree of access to project land (converted to pump-irrigated land per adult equivalents), men and women in each group spread their time differently. In group 1, which has access to a mean project land area of 0.02 hectare per adult equivalent, men spend 18 percent of their *maruo* work time in pump-irrigated rice production, while women allocate 25 percent of their time to these fields.

In group 2, which has access to a mean of 0.06 hectare per adult equivalent (three times more than the individuals in group 1), men and women spend 43 percent and 79 percent, respectively, of their total *maruo* work time on the pump-irrigated fields. Thus, women in compounds who have access to a relatively larger portion of project rice land still allocate the majority of their *maruo* work time to that crop, and this amounts to three times as much labor as that provided

Table 27--Labor inputs to all *maruo* crops, by sex and by compound group

Group	Project Rice: Irrigated	Project Rice: Rainfed	Millet	Sorghum	Maize	Groundnuts	Cotton	Total Labor
	(percent)							
Group 1								
Men (N=62)	18	2	34	11	24	9	1	100
Women (N=65)	25	10	33	5	16	11	...	100
Group 2								
Men (N=43)	43	6	24	6	16	5	...	100
Women (N=35)	79	6	1	...	12	1	...	100
Total								
Men (N=105)	27	3	31	9	21	7	1	100
Women (N=100)	53	8	17	2	14	6	...	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

by women in the compounds with little project rice land. The converse applies where upland crops are concerned. The amount of land worked in the project, and hence the size of the rice crop, can therefore be seen as having a very strong influence on patterns of *maruo* labor activity by sex.

KAMANGYANGO PRODUCTION

Does this influence translate itself in the same way into the sphere of *kamangyango* production? After helping with rice and upland *maruo* farming, the second time use option open to those farmers with *kamangyangos* is to spend as much time as possible on their own fields.

The fields considered surplus to communal food production are distributed as *kamangyango* fields by the compound head. The manner in which he allocates the remaining fields varies from one household to another. For example, Mandinka heads often let *kamangyango* farmers

sort out access to fields among themselves. Inevitably, the best plots go to the higher status individuals. The Wolof heads tended to be more active in the distribution process, going to the fields with each compound member in turn and showing them their plot. In this instance, field quality is also allocated according to a strict order of precedence by status. By contrast, one of the Serahuli compounds distributes its fields by lottery. The names of individuals desiring a field were written (in Arabic) on pieces of paper and drawn from a "hat" (in this case, the revered wooden bowl that is used to measure out daily food rations). These names were then matched against fields drawn in a similarly random fashion. The compound head (who is over 80 years old) states that this is the way his grandfather used to do things.

The *kamangyango* fields constitute one of the focal points of competition between personal interest and cooperation with the rest of the compound group. For individuals without access to a *kamangyango*, household farm labor can only be divided between *maruo* work and helping other *kamangyango* owners with their crops. However, for people with their own fields, time spent on the *maruo* and on other *kamangyangos* is time spent away from potential private cash crop production. The problem facing each farmer is how to balance these opposing demands.

Table 28 shows that men possessing *kamangyangos* spend an average of 9 days each on their own fields, compared with women who put in 12 days each on their personal crops. In the context of all labor inputs to household agriculture, own production, therefore, accounts for only 12.5 percent of men's total time spent in household farming and 30 percent of women's time. These surprisingly low figures are revealing.

The more detailed literature on smallholder agriculture in The Gambia acknowledges the important distinction between *maruo* and *kamangyango* farms. The studies by Doughty, Gamble, Haswell, Phillips et al., and Dey all note that household members have a duty to provide labor to *maruo* fields, the produce of which is allocated for group consumption.[48] In addition to this communal work, it has been widely reported that individuals have access to their "own" fields, on which they cultivate cash crops for sale.

Yet most existing studies have all made the assumption (be it implicit or explicit) that with the possible exception of the household head, the personal fields are worked primarily, or perhaps even exclusively, by the owners of those fields. Dey, for example, notes

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[48]Doughty, Report of a Nutrition Survey; Gamble, Economic Conditions; Haswell, Changing Economic Conditions; Phillips, Coles, and Seaman, Village Food Systems; and Dey, "Development Planning in The Gambia."

Table 28--Per capita labor inputs to agriculture, by sex, crop category, and compound group

Group/Sex	Rice *Maruo*	Upland *Maruo*	Own Field	Other *Kamangyangos*	Total
			(days per capita)		
Group 1					
Men (N=62)	10	36	12	29	87
Women (N=65)	5	7	12	13	37
Group 2					
Men (N=43)	18	19	6	12	54
Women (N=35)	18	3	12	10	43
Total average					
Men (N=105)	13	29	9	22	74
Women (N=100)	9	6	12	12	39

Source: IFPRI/PPMU survey, 1985/86 (subsample).

that "it is customary in all four ethnic groups for junior men to work on the food crops and personal cash crops of the household head."[49] For other people, however, she comments that "*kamangyangos* are usually cultivated by each individual."[50] Likewise, the ODA Food Strategy Report notes that the individual crop owner is solely responsible for providing the labor that is required by his or her own field.[51]

While both of these studies accept that owners often do receive help on their fields, this is understood as being either help from unmarried daughters to their mothers, or paid labor from outside. The possibility of substantial labor sharing *within* the household between personal field owners, between siblings, and between husbands and wives is largely overlooked. But if *kamangyango* owners are spending such little time working on their own fields, then they must be receiving labor either from other household members or hiring labor from outside. Both, in fact, occur.

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[49]Dey, "Development Planning in The Gambia," p. 384.

[50]Ibid.

[51]Overseas Development Administration, Food Strategy Report, Annex 2.

OUTSIDE LABOR

Considerable amounts of labor are brought in from outside of the household either on an exchange basis with friends and neighbors or else as labor hired for cash or in-kind payments. The group 1 compounds made use of a total of 666 days of outside labor during the 1985 wet season, while the group 2 compounds brought in 827 days of labor. Seventy-four percent of all outside labor was male labor, 16 percent was provided by women, and 10 percent by children.

Table 29 shows how the two compound groups made use of these nonhousehold labor inputs. In both groups 30 percent of outside labor was used for project *maruo* rice production. However, the remaining 70 percent was used very differently by the two groups. The group 1 compounds used 34 percent of their outside labor for work on *kamangyango* groundnut and cotton fields and 25 percent more for the upland *maruo* crops. The group 2 compounds, on the other hand, used the greatest portion of outside labor (38 percent) for upland *maruo* crop production, with only 22 percent being brought in for *kamangyango* cash crop production.

Interestingly enough, the primary recipients of outside labor on *kamangyango* fields were women, not men. Table 30 shows that female field owners received 54 percent of the total 287 days of labor brought in from outside of the household, the bulk of which was provi-

Table 29--Distribution of hired labor between crop types, by compound group

Crop Type	Group 1 (Households with Limited Access to New Rice Fields)	Group 2 (Households with Greater Access to New Rice Fields)
	(percent of total hired labor)	
Maruo		
Rice	30	30
Upland cereals	25	38
Groundnuts and cotton	6	3
Kamangyango		
Traditional rice	...	8
Upland cereals	5	...
Groundnuts and cotton	34	22
Total	100	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Table 30--Hired labor to *kamangyango* fields, by sex of giver and of recipient

Receivers	Hired Men	Hired Women	Children	Total
		(percent)		
Male field owners	36	6	4	46
Female field owners	30	22	2	54
Total	66	28	6	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

ded by women. Male field owners, on the other hand, received 46 percent of all outside labor to *kamangyangos*, of which 78 percent was from men and only 15 percent from women.

Yet despite these inputs, the absolute levels of incoming labor were still insufficient to meet the needs of most *kamangyango* crops and the additional labor required for production had to come from within the household. The last branch of the tree-like structure of labor input options presented earlier in Figure 9 showed the exchanges of labor that are carried out within the household. On average, men and women spend 22 and 12 days, respectively, working on *kamangyango* fields that are not their own. For women, the 12 days that they work on other *kamangyangos* is identical to the number of days they spend on their own fields. However, men are putting over twice as much time into other people's *kamangyangos* as they are spending on their own crops. And most importantly, they are not spending this time only on fields belonging to other men.

Table 31 indicates that of the 22 days per capita given by men to other individuals, 12 of those days went to other men's fields and 10 days went to women's *kamangyangos*. In return, 4 of the days worked by women on *kamangyangos* other than their own were spent on men's fields and 5 days were spent on the personal crops of other women. It appears, therefore, that a high level of cooperation between household members is more important to compound cohesion than an individualistic concentration of labor inputs by farmers solely on their own plots.

Such exchanges are most frequent between father and son, between siblings, between mother and daughter, and between husband and wife.

Table 31--Labor exchanges between the sexes to *kamangyango* plots

Receivers	Givers: Men to: (N=105)	Givers: Women to: (N=100)
	(average days per capita)	
Men (N=105)	12	4
Women (N=100)	10	8
Total	22	12

Source: IFPRI/PPMU survey, 1985/86 (subsample).

But while a balance of reciprocity may be aimed for, the exchange is clearly not always equal. In gender terms alone, men in this subsample are giving more labor to women's fields than they are getting in return from women. But are all men and women giving the same? These differences beg the question: Are some men and women in a household "giving" more labor either to the household head or to other compound members than others, and "receiving" less than others? And, as a corollary, do the flows and resultant balances of such intrahousehold labor exchanges differ from one compound to the next?

This brings us back to the issue of authority within the household and to the differential decisionmaking status groups. So far we have considered the control and organization of intrahousehold labor only from *maruo/kamangyango* and gender points of view. We must now take the analysis a step further and consider how authority and status affect each individual's own labor budget and how this might change according to the type of household to which an individual belongs.

LABOR EXCHANGE AND BURDEN SHARING WITHIN THE HOUSEHOLD

Table 32 is a labor-exchange matrix. It shows the average number of days worked per capita by each decisionmaking group on the *kamangyango* fields belonging to other decisionmakers. Several points of interest stand out from this table. Firstly, the individuals providing the most labor to other people's fields come primarily from the "male *kamangyango* owner" group. These are followed by the male *maruo* heads and then by the males who do not have access to their own fields. The decisionmakers providing the least amounts of labor to other people's fields are the head women. This outcome is consistent with the fact that the latter have the heaviest burden of responsi-

Table 32--A matrix of labor exchanged between decisionmaker groups

Receivers	Male Labor Givers				Female Labor Givers				Total (Net Balance)[a]
	CH	MH	MK	MnoK	HW	HC	FK	FnoK	
	(average days/capita)								
Group 1 compounds									
Male									
CH	...	...	8	2	...	1	1	...	12 (-1)
MH	2	...	3	3	1	5	...	1	15 (-4)
MK	3	4	14	5	2	1	3	1	33 (-7)
Female									
HW	4	4	7	...	...	4	3	5	28 (+20)
HC	1	2	2	2	3	...	2	2	15 (+1)
FK	3	10	6	4	2	3	5	2	30 (+22)
Total	13	19	40	17	8	14	14	11	

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Note: CH = Compound head; MH = Upland *maruo* head; HW = Head woman; HC = Head cook; MK = Male *kamangyango* owner; FK = Female *kamangyango* owner; MnoK = Male with no field; FnoK = Female with no field.

[a] Net balance = total days received to own field minus total days given out to other people's fields.

bilities within the compound and have, therefore, the least available time to spend helping other compound members on their private fields.

Perhaps more surprising is the fact that the individuals *receiving* the most amounts of labor help are those junior male and female field owners who have fewer major responsibilities within the compound. By contrast, the compound heads and upland *maruo* heads receive the least amounts of help on their own fields. In other words, the bulk of the labor given by one individual to another does not flow in the direction of junior compound member to compound head, but more from one junior member to another and, as observed in Table 31, from male decisionmakers to females.

But this does not mean that there is simply a pooling of private labor in the "junior half" of the compound, while the "senior half" gets on with producing food for everyone to eat. The compound heads,

the *maruo* heads, and the head women do have the duty to ensure food security for the household group, and they therefore spend large amounts of their time in the *maruo* fields fulfilling those obligations. This fact comes out quite clearly in Table 33. This table shows how individuals in each decisionmaker group apportion their overall time between the different crop types. It is apparent from this table that the senior decisionmakers do focus more of their overall time on the *maruo* crops than do the junior compound members: the senior group as a whole spend 61 percent of their household labor on the *maruo* farm, while the junior group only allocates 46 percent of its total labor to the *maruo*. In both cases the major portion of *maruo* labor goes to the upland *maruo* crops.

Yet this does not mean that the junior members are escaping their obligations. While the proportion of time spent by the junior men and women on *kamangyango* production is certainly higher than it is among their peers, their absolute contribution to *maruo* production is crucial to the compound's survival. Table 34 shows that in mean per capita terms, the junior males of the group 2 compounds provide the highest number of days per capita of all the decisionmakers to the upland *maruo* (a total of 39 days), and together provide 32 days to the rice *maruo* alone. In group 1 the same categories of males contribute

Table 33--Labor inputs to each crop type, by decisionmaker group

Decisionmaker	Rice *Maruo*	Upland *Maruo*	Own Field	Other *Kamangyangos*	Total Labor
			(percent)		
Senior decisionmakers					
Compound head	33	45	7	15	100
Maruo head	17	46	13	24	100
Head woman	27	43	41	19	100
Head cook	32	15	29	25	100
Group average	29	32	20	19	100
Junior decisionmakers					
Male *kamangyango* owner	7	33	25	36	100
Female *kamangyango* owner	17	16	40	27	100
Male with no *kamangyango*	21	43	...	36	100
Female with no *kamangyango*	24	20	...	56	100
Group average	15	31	18	36	100

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Table 34--Mean per capita labor inputs to household agriculture, by decisionmaker and by compound group

Compound Groups	*Maruo* Rice		*Maruo* Upland		Own Field		Other *Kamang-yango*		Total	
	1	2	1	2	1	2	1	2	1	2
	(days)									
Senior decisionmakers										
Compound head	18	31	37	28	9	1	15	6	79	66
Maruo head	11	13	54	26	14	10	38	12	117	61
Head woman	4	21	7	3	18	18	10	6	39	48
Head cook	11	36	13	5	20	18	17	15	61	74
Junior decisionmakers										
Male *kamangyango* owner	3	16	28	31	22	22	33	34	86	94
Female kamangyango owner	7	16	9	4	18	32	15	10	48	62
Male with no *kamangyango*	7	16	28	8	..	..	23	11	56	35
Female with no *kamangyango*	1	14	4	2	..	..	13	13	18	29

Source: IFPRI/PPMU survey, 1985/86 (subsample).

52 days per capita just to *maruo* rice production. Junior females contribute less overall than the junior men, yet their contributions to *maruo* production are still crucial.

Clearly, the burden of *maruo* work is not spread evenly among all compound members. The labor input to *maruo* production is higher from certain groups of compound members than it is from others. The considerable variation in the mean per capita inputs of the various decisionmakers (both within and between the two compound groups) underlines the fact that compound heads make different demands on the available work time of different individuals. In other words, certain individuals are bearing more of the burden of communal food production than are others.

In an attempt to measure the differential burden of labor to individuals working on the communal fields and to identify the people being called upon most by compound heads (and thus having to forego some of the potential profits of private agriculture), a "labor taxation" index was devised and applied to the sample population. This index provides a measure of the potential income that is being

implicitly transferred to the compound head by each individual who works on the *maruo* farm.[52]

The index scale runs from 0 to 1, with 1 being equivalent to a 100 percent taxation rate. The closer a person's index is to 1, the higher is the potential personal income that they are transferring to the compound head in the form of labor. Individuals taxed at 100 percent have no *kamangyango* of their own and are thus, in terms of farming, completely at the disposal of the compound head.

Table 35 shows the taxation indices aggregated by sex for the two compound groups. On average, men are taxed at a level of 0.79, while women are taxed at the lower rate of 0.56. This is consistent with the data shown earlier, which indicated that men generally put 20 percent more of their labor into *maruo* production than do women. Table 35 also shows that men and women from compounds with access to relatively more of the high-productivity rice land are being taxed more heavily by their compound heads than members of the compounds less involved in the project. These results are confirmed when a tax index is calculated for the two compound groups at the household level (using all the farmers in each household). Compound group 1 emerges with an average tax index of 0.45, compared to group 2 whose index stands at 0.6.

Table 35--Mean taxation indices for men and women, by compound group

Group	Men	Women	Total Average
Group 1[a]	0.74	0.51	0.63
Group 2[b]	0.87	0.67	0.77
Total average	0.79	0.56	0.70

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Compounds with access to an average of 0.02 hectare of project rice land per adult equivalent.

[b] Compounds with access to an average of 0.06 hectare of project rice land per adult equivalent.

[52]Joachim von Braun and Patrick Webb, "The Impact of New Crop Technology on the Agricultural Division of Labor in a West African Setting," Economic Development and Cultural Change (April 1989, forthcoming).

This pattern suggests that where productivity levels on the *maruo* farm increase (in this case, as a result of access to the new rice production technology), the compound head decides to maximize production of *maruo* fields by making higher demands on all of his compound dependents than was formerly the case. Such behavior might be explained as a risk-minimizing strategy. Five years of drought have made the job of assuring food security for the household a very difficult one for many compound heads. Given a production technology that allows much greater certainty in terms of yield and output, many heads have decided to make the most out of their participation in the rice scheme and, therefore, pull labor toward the area that they see as being the most productive for the compound as a whole.

The data indicate that the technological change in agriculture brought about by this type of rice irrigation scheme is linked with a major shift in the emphasis of household farming away from *kamangyango* production toward *maruo* production. The compounds more heavily involved in the project have reorganized their internal labor resources in such a way that communal food production has assumed prime importance.

Such a major shift in patterns of household labor organization was hypothesized as the most likely outcome of changes in rice farming set in motion by the introduction of the project's new production technologies (scenario 3 posited in Chapter 5). For that scenario, it was argued that the most complete transformation of the traditional farming system would occur if (a) control of all of the project's high-yielding rice was taken over by males, (b) that this rice was made entirely *maruo*, and (c) that the relative importance of *kamangyango* production declined in the face of the higher net returns to labor made possible by the high-technology rice.

Each of these three conditions has been fulfilled to varying degrees by different compounds in both groups: in all 22 compounds, control over the production and disposal of rice has become a male responsibility; in all 22, the project rice has been demarcated solely as a *maruo* crop. Yet the greater focus of household labor on *maruo* work compared with *kamangyango* work is visible only in the group 2 compounds--that is, in those that have a much higher degree of involvement in the project and have, therefore, adapted their farming systems more completely to the new technologies of production.

These results indicate that the greater the acceptance of new agricultural technology, the more likely the members of a compound are to cooperate in the centralization of their labor resources toward communal food production. This does not necessarily mean that *kamangyango* production declines in absolute terms, but in the relative terms of a balance between individual and communal farming, it is the communal farm which generally seems to win.

This conclusion seems to contradict many studies of The Gambia and Senegal that have emphasized an increasingly rapid *decentralization* of authority and a resultant fragmentation of compounds during the past 50 years.[53] It has been argued that as the technological upgrading and commercialization of agriculture has spread, so junior household members have become increasingly unwilling to provide "free" labor to communal fields whenever the compound head demands it. Instead, it is claimed, these junior compound members have either become migrant groundnut farmers, absent from the compound for several years at a time, or else they have left home in order to set up their own households in which they will be in a better position to increase their personal incomes.

While longitudinal data on this issue is not easy to come by, the trend has been widely reported for many decades, and, more importantly, it is a trend that is confirmed by many Gambian farmers, both young and old. Thus, if these arguments are accepted, one must find an explanation for the opposite tendency observed in the compounds that have most readily accepted the new rice production technology.

A first explanation might be that senior men in the compound are exerting their influence to pull other members toward the communal fields because this permits them to fulfill their *maruo* obligations in the quickest and most cost-effective manner. This would then permit them to concentrate more on their own *kamangyango* production for private profit or to increase time spent in nonfarm activities.

A second explanation relates to drought. There have been persistent droughts of varying severity in The Gambia for the past ten years. This has made food security an increasingly pressing concern for all members of the compound. The most severe food shortfalls occurred in 1983, the same year that the irrigation scheme started with its maiden harvest yields of over five tons per hectare. It is likely, therefore, that the guarantee of a harvest (especially such good harvests) has persuaded compound heads and more junior compound members alike of the sagacity of concentrating as much household labor as possible on producing a *maruo* rice crop. The more land a compound has in the project, the more incentive there is to increase the rice crop, thereby securing domestic food needs *and* raising the potential for a greater marketable surplus.

Two pieces of evidence tend to support this proposition. The first is the small size of the 1985 marketed surplus. The fact that only 19 percent of the subsample crop and 22 percent of the large

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[53]Philipps, Coles, and Seaman, Village Food Systems p. 17; also L. B. Venema, The Wolof of Saloum: Social Structure and Rural Development in Senegal, Department of Rural Sociology of the Tropics and Subtropics, Agricultural University, Wageningen (Wageningen: Centre for Agricultural Publishing and Documentation, 1978), p. 180.

sample crop were marketed indicates that farmers involved in the project have not yet accepted that this was intended to be a cash-cropping scheme. Most farmers see the project as a means of securing their staple diet and they, therefore, cooperate in concentrating household labor where the returns are the highest.

The second piece of evidence is based on a questionnaire that asked compound heads and head women the following two questions: (1) "If rainfall improved in the next few years, would you still want to grow as much rice in the Jahally-Pacharr project as today, or would you concentrate more on upland crops?" and (2) "If the former small-scale irrigation schemes were made operational again, would you prefer to keep your present plot in the new irrigation scheme or join one of the former smaller-scale schemes?" All 22 compound heads and head women responded that even if the rains improved, they would continue with rice irrigation because it provides greater certainty of harvest. But 18 of the compound heads stated that despite the lower-yield potential associated with the small-scale schemes, they would prefer to move to those because they would have their own control over water pumping and plowing. In other words, these farmers claim that if the rains improve, then the importance of the new high-technology crop will decline.

The message that these responses signal to project managers and policymakers is that agricultural commercialization and technological change are not irreversible steps along the road to an inevitable "modernization". Small farmers are highly successful in adapting their farming practices to suit the conditions of the moment. They have skillfully adopted new techniques, new machinery, new farming timetables, and made the most of prevailing opportunities for their survival and advancement. But this does not mean that the "converted" cannot, and will not, return to former practices if the situation demands it. The fact that so many farmers have desired to share in the rewards offered by new technology does not mean that their present involvement is an optimum arrangement in the longer term. The implications of such results will be discussed in the final chapter.

7. CONCLUSIONS

Starting from the premise that an appropriate understanding of the impact of agricultural policies and projects in developing countries can best be gained through an analysis of intrahousehold dynamics, this study sought to fulfill three principal objectives:

1) To describe the form, function, and operation of intrahousehold structures of authority and decisionmaking in Gambian rural households.

2) To assess the impact of changing agricultural practices on those structures of authority and their related power bases; and

3) To analyze how modified agricultural practices associated with technological change affect resource allocations (especially access to, and control of, labor) among different members of the household. This was to be achieved through an examination of changes in the organization of a) rice production, storage, and consumption, b) upland crop production and disposal, and c) intrahousehold labor flows.

The study uncovered many changes in each of these spheres. Firstly, the upgrading of rice cultivation through mechanical pumping, draining, and increased water control has dramatically raised production levels in this part of The Gambia. Traditionally yielding between one and two tons per hectare per year, rice can now be harvested twice per year at average yields of six tons per hectare. These impressive yields have been achieved by small farmers themselves, simply through making the best use of improved packages of seed, fertilizer, and technology that were made available to them. However, the introduction of these new means of production has also led to a transformation in the status of the crop. Before pump irrigation, women were generally in charge of the demarcation of rice plots between *maruo* and *kamangyango*, for organizing labor activities in the field, for storing the crop, and for marketing surplus. Today these functions have in most cases been taken over either by the compound head or by the active male upland *maruo* head. While women continue to control all aspects of traditional rainfed rice production, they have little direct authority where the new rice crop is concerned.

Yet this transfer of crop control by gender has involved more complex changes in the system than a simple switch from rice being a

woman's crop to becoming a man's crop. Men have not just replicated the work of women. In every sample compound, the male heads have changed the status of rice from being a mixed *maruo* and *kamangyango* crop to being a purely *maruo* crop. Proportionally less of the rice crop is thus marketed today, now that it falls under male control as a communal crop, than when it was under female control as partly a private cash crop.

Although this result was not expected by project planners, such adjustments to traditional arrangements are consistent with the compound head's obligation to ensure food security for the household as a whole. Being the most productive of the local crops, it is understandable that the compound head should seek to maximize returns to labor by focusing on pump-irrigated rice production. This is rational in terms of fulfilling *maruo* crop production obligations in the most cost-effective manner.

At the same time, however, the displacement of women from the rice fields does not mean that they are no longer active in agriculture. The reassignment of rice as a communal crop (which has reduced the opportunity for women to grow a private rice cash crop) has led many women to expand their individual production of upland cash crops, such as groundnuts and cotton. There has consequently been a direct substitution of female rice *kamangyangos* by female groundnut *kamangyangos*. Furthermore, this increased involvement in groundnut production has meant that very few women have completely lost a *kamangyango* income of their own. This is evinced by the data that showed that women have generally been taking an increasing role in decisionmaking related to expenditures and an increasing role in actual spending. The rise in joint decisionmaking and cash provision between men and women was explained by all respondents as a natural outcome of the fact that most women have higher real incomes today from groundnuts than they ever did from rice.

But not all women and men have gained from the increased male involvement in rice production. The introduction of pump irrigation, which has resulted in rice being given a greater role in domestic food security strategies, has brought absolute increases in the burden of communal agricultural work for both men and women, although the increase is relatively more for women than for men.

Such a burden has a direct bearing on women's capacity for *kamangyango* production. The data indicate that the more a compound head emphasizes a central role for irrigated rice in the household's farm strategy, the more he calls for a centralization of labor resources with a view to increased labor inputs into *maruo* production. The increased expansion of communal agriculture inside the compound, therefore, leads to a reduced ability of individual farmers to maximize individual profits from private farming. In this sense, the increased labor demands have impinged relatively more on the private income-earning capacities of women than on those of the men.

However, generalizations should be treated with care. It was found that head women of compounds most involved in pump irrigation benefited considerably more in the intrahousehold labor exchange arena than did head women of compounds least involved in irrigation. The converse was frequently true where junior women were concerned. Thus, it is difficult to talk in general terms about the impact of a project on "women", or about improving the welfare of "women", since women are such an heterogeneous group, differently affected according to their social status and activity patterns.

Little is known about how this centralization of labor control around domestic food production might affect the supply response in Gambian agriculture. With men and women allocating increasing amounts of their time to the communal farm, responsiveness of the whole system to economic incentives becomes more centralized under the compound head. Certainly, a concentration of economic power with the compound head means that he has more leverage to make demands of his people, while at the same time he has a greater ability to redistribute the benefits of agricultural change within the compound. However, since individuals are responsible for a large portion of every farm's total productive output (in the form of private crops), if they are unable to make full use of available credits and productivity-increasing inputs on their own fields, then overall productivity of the farm might be compromised.

With respect to the sexual division of labor by crop, the data showed that men's labor input to communal agriculture is higher than women's, and that men provide the greater share of labor inputs for all crops, except for swamp rice. These results call for a reassessment of the generalization that women carry out most of the agricultural work in West Africa. While the role of women in cash crop production tends to be underemphasized, their role in food production may sometimes be overemphasized.

This does not imply that women are any less important in agricultural production than men, but that oversimplistic generalizations should be avoided. The myth of the "lazy" Gambian man needs to be done away with in order that the important role of both sexes can be properly assessed by project and program designers. The considerable labor sharing and exchange between sexes on all crops is especially relevant in this regard, since it indicates that attempts to improve the economic circumstances of one sex in isolation from the other is probably inappropriate.

Taking the argument a step further, it can also be maintained that the very concept of a "woman's crop", the cornerstone of the Jahally-Pacharr project in particular, may be redundant in this area. The study has shown that men can grow rice with ease and that women are much more successful cash croppers than has generally been acknowledged. Therefore a more appropriate way of helping a broader spectrum of women (since this was one of the desired targets of the

larger-scale scheme) would be to reject the isolationist approach of seeking to preserve traditional roles in traditionally gender-prescribed crops, and instead to turn attention toward the promotion of improved productivity in all crops for both men and women. Such an approach is justifiable not only on productivity grounds but also on equity grounds.

However, it should also be underlined that within such a broader-based approach to improved welfare on a gender basis, one would also need to consider targeting subgroups within the household, regardless of gender. The rural poor are not to be seen just at the household level or even by looking inside the huts belonging to women. Some women, and indeed some men, are more disadvantaged than others within the same household. This study attempted to document such disparities in relation to access to labor resources; however, this is an area in which much more research needs to be carried out before any effective targeting at such a micro level could be brought into play.

In sum, rice today flows along a substantially modified chain of production, storage, and consumption than it did just a few years ago. Rice is moving along this chain in far greater bulk than ever before, but it is now passing mainly through the hands of men rather than women. These data indicate that the more involved a household becomes with farming technologies that upgrade the productive potential of a single crop, the more likely it is that control of the crop will be taken over by men. Yet in this particular instance, the shift by women away from their traditional crop has only been made possible by a complete reorganization of the entire household farming system. This has had a different impact on men versus women and on certain decisionmaking groups versus others. Few individuals have entirely lost their independent incomes, including women. But few individuals have escaped the seemingly widely perceived imperative of making the most of the new irrigation technology for the common good while the need is great and while the opportunity lasts.

These changes were predicted in the second scenario outlined in Chapter 5. However, the changes involved in the third scenario (complete transformation of the crop into a male cash crop and the development of a rice land market) have not appeared. And in all likelihood, they will not appear unless farming conditions in The Gambia alter drastically. If the rainfall were to improve, it could be argued that men would reemphasize their upland crops and let women take back a larger measure of control over rice. If rains do not improve, the need for an irrigated rice *maruo* would be ever more critical, making the transformation of rice into an irrigated cash crop much more difficult.

In other words, the questions of rainfall and, by extension, the questions of relative returns to labor and crop security are of fundamental importance. The long-term viability of the Jahally-Pacharr project rests on its attractiveness to the compound head and on his ability to adjust intrahousehold resources to cope with the demands

made by these schemes. Gambia's farmers have proven themselves to be masters of adaptability and innovation. They have also shown that the organization of their productive resources is extremely flexible. But this study has underlined the fact that some households, and some people within households, bear a greater burden of such innovation and change in agriculture than others. Thus, it would appear that policy-makers seeking an understanding of the effects of new technologies in agriculture should look beyond production figures that measure income per capita at the household level and delve deeper into the realm of intrahousehold relations. The policies, programs, and projects implemented in the name of agricultural development all have the potential for causing changes in intrahousehold balances of power, income flows, and patterns of farm activity. This study has shown that different household members have different functions to fulfill and different needs and interests. The potential for an irrigation project, or for any other agricultural scheme, to have a differential impact on members of each household is therefore strong. In order to identify and target the desired beneficiaries of change (and to avoid possible negative side effects of policy implementation), a much more realistic conceptualization of intrahousehold dynamics is required at the planning stage.

APPENDIX 1: DETAILS OF SAMPLE VILLAGES

Table 36--Ethnic and historical characteristics of the sample villages

Village	Ethnicity[a]	Age of Village	Founders' Country of Origin[b]	Number of Compounds 1976	Number of Compounds 1986	Population
Njoben	Wolof	60	Senegal	50	76	1,200
Sukurr	Serahuli	27	Gambia	9	10	200
Dasilameh	Mandinka	80	Guinea Bissau	32	50	450
Sinchou Abdou	Fula	5	Gambia	...[c]	15	150

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Since few villages are ethnically homogeneous, this refers to the dominant group.

[b] Country from which the village founders migrated to establish their present home.

[c] Village only founded in 1981.

Table 37--Services and infrastructure of the sample villages

Village	Distance to Tarmac Road	Distance to Jahally-Pacharr Project	Closest Primary School	Closest Daily Market	Number of Shops in Village
			(kilometers)		
Njoben	7	10	in village	8	4
Sukurr	0	1	0.5	5	0
Dasilameh	0.1	2	0.5	0.5	26
Sinchou Abdou	0.5	5	1	0.5	0

Source: IFPRI/PPMU survey, 1985/86 (subsample).

Table 38--Health infrastructure of the sample villages

Village	Closest Clinic	Closest Village Health Worker	Closest Shop Selling Drugs[a]	Number of Traditional Healers	Number of Wells[b]	Coli Count PMN/100 ml[c]
	..... kilometers					
Njoben	15	0	0	5	2	>2,400
Sukurr	3	2	2	3	2	540
Dasilameh	1	0	0	5	2	14
Sinchou Abdou	6	1	0.5	2	1	>2,400

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Drugs such as aspirin, malaria syrup, cough sweets, and mentholated rubs.

[b] Wells used to supply drinking water.

[c] Water analysis carried out in the field in September 1986 by water quality officers of the Ministry of Water Resources, under contract from IFPRI. PMN stands for parts per million per 100 milliliters.

Table 39--Nonfarm employment, credit, and investment in the sample villages

	Number of Craft Workers[a]	Number of Marabouts[b]	Number of Strange Farmers	Number of Savings Societies[c]	Number of Money Lenders	Number of Aluminum Roofs[d]	Number of Bicycles
						(per compound)	
Njoben	17	8	61	1	3	1.3	0.7
Sukurr	24	3	0	2	1	2.5	2.5
Dasilameh	30	7	2	1	1	0.9	0.1
Sinchou Abdou	5	0	2	2	0	0.2	0.3

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] All types of nonfarm income-earning activities included, such as thatchers, potters, weavers, smiths, musicians, bicycle repairs, palm wine tappers, and so on. All such crafts are part-time activities engaged in alongside farming.

[b] Islamic preachers who teach the koran as well as preparing quasi-animistic charms.

[c] Traditional kitties organized by age group and by sex.

[d] Traditional thatched roofs are rapidly giving way to larger-lasting, but more expensive, galvanized aluminum roofs. The number of metal roofs in a village provides an indication of the level of wealth of that village.

APPENDIX 2--DETAILS OF SAMPLE COMPOUNDS

Table 40--Ethnic, historical, and population characteristics of the sample compounds

Village/ Compound	Ethnicity	Age of Compound	Founders' Region of Origin	Lineage Status	Adult Men	Adult Women	Children[a]
		(years)					
Njoben							
1[b]	Wolof	6	Gambia	Freeborn	4	4	3
2	Wolof	6	Gambia	Freeborn	3	2	4
3	Wolof	80	Gambia	Founder	5	7	6
4	Wolof	8	Senegal	Freeborn	3	1	4
5	Wolof	18	Gambia	Founder	3	2	9
6	Wolof	60	Senegal	Freeborn	8	3	6
7	Wolof	47	Senegal	Freeborn	5	6	11
Sukurr							
1	Serahuli	5	Gambia	Artisan	6	7	12
2	Serahuli	28	Gambia	Ex-slave	6	8	9
3	Serahuli	27	Mali	Ex-slave	4	3	2
4	Serahuli	25	Gambia	Master	4	4	6
5	Serahuli	28	Senegal	Artisan	14	16	15
Dasilameh							
1	Mandinka	80	Senegal	Founder	7	6	2
2	Mandinka	15	Gambia	Freeborn	3	4	6
3	Mandinka	35	Gambia	Artisan	7	6	3
4	Mandinka	8	Gambia	Founder	3	2	3
5	Mandinka	9	Guinea Bissau	Founder	4	5	6
Sinchou Abdou							
1	Fula	4	Gambia	Freeborn	4	4	5
2	Fula	4	Senegal	Freeborn	2	1	1
3	Fula	4	Gambia	Founder	2	2	4
4	Fula	4	Gambia	Master	6	4	3
5	Fula	4	Guinea Bissau	Freeborn	2	3	2

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Present in the compound during the wet season of 1985. Children are defined as less than 14 years of age. It should be noted, however, that strict definitions are difficult to come by.

[b] In this and all subsequent tables, the sample compounds are referred to by village name and a compound number from 1 to 7.

Table 41--Education and religion in the sample compounds

Village/ Compound	Years of Western Schooling-Compound Head	Years of Koranic Schooling-Compound Head	Number of Children With Secondary Schooling	Foreign Country Radio Broadcasts Listened to[a]	Number of Weekly Visits to Mosque-Compound Head	Number of Compound Members Having Visited Mecca	Number of Compound Members Having Visited African Shrines
Njoben							
1	...	6	...	RFI, BBC	21	...	3
2	...	3	...	BBC, RFI	21	...	1
3	...	6	...	Senegal, BBC	35	3	3
4	...	2	...	...	...	...	1
5	...	...	...	Senegal	1	...	1
6	...	7	...	Senegal	1	...	...
7	...	5	...	Senegal, Guinea	1	...	1
Sukurr							
1	...	...	...	Senegal	1	1	...
2	...	3	...	...	22	...	...
3	...	3	2	...	...	...	...
4	...	5	...	...	1	1	...
5	...	7	5	BBC, RFI, Senegal	...	4	1
Dasilameh							
1	...	7	2	Senegal, Guinea Bissau	35	...	...
2	...	3	...	Guinea, Mali	35	...	3
3	...	...	...	...	8	...	3
4	...	2	...	BBC, Senegal	28	...	...
5	...	4	...	...	1	...	...
Sinchou Abdou							
1	...	2	...	Senegal, Mauritania	...	...	3
2	...	...	...	Senegal, Mali	1	...	2
3	...	4	...	Mali, Mauritania	1	...	1
4	...	4	1	BBC, VOA, Senegal	1	...	1
5	...	...	...	Guinea Bissau, Mali	1	...	1

Source: IFPRI/PPMU survey, 1985/86.

[a] BBC = British Broadcasting Corporation; RFI = Radio France International; VOA = Voice of America.

Table 42--Medical history, health, and hygiene in the sample compounds[a]

Village/ Compound	Number of Children Deceased Prematurely[b]	Number of Adults Deceased Prematurely[b]	Period September 1985 - August 1986				Treatment Preference[e]	No. Times Children Washed Per Day
			Most Common Illness-Children[c]	Most Common Illness-Adults[c]	Average No. Days Sick per Child[d]	Average No. Days Sick per Adult[d]		
Njoben								
1	4	1	G.I.S.	Conjunctivitis	20.8	8.1	Own	3
2	3	...	G.I.S.	R.T.I.	12.5	20.3	Own	3
3	4	...	E.N.T.	G.I.S.	10.8	32.2	Own	1
4	2	...	Malaria	R.T.I.	26.3	9.0	Traditional	2
5	1	...	E.N.T.	E.N.T.	9.6	18.8	Traditional	2
6	4	...	G.I.S.	R.T.I.	34.3	6.2	Clinic	3
7	6	...	Malaria	G.I.S.	19.9	6.7	Traditional	3
Sukurr								
1	4	1	Dermatitis	R.T.I.	42.7	12.9	Own	1
2	4	4	E.N.T.	G.I.S.	8.0	14.6	Clinic	2
3	4	...	E.N.T.	R.T.I.	13.0	19.6	Clinic	2
4	8	...	E.N.T.	R.T.I.	32.3	21.8	Own	3
5	13	3	Malaria	R.T.I.	20.5	9.2	Own	3
Dasilameh								
1	6	2	G.I.S.	Dermatitis	22.5	31.9	Own	2
2	8	1	Dermatitis	G.I.S.	29.8	15.3	Clinic	1
3	5	...	R.T.I.	G.I.S.	15.3	7.8	Clinic	4
4	2	...	Measles	R.T.I.	18.7	16.7	Clinic	1
5	4	...	Malaria	G.I.S.	33.5	11.4	Clinic	2
Sinchou Abdou								
1	...	1	E.N.T.	G.I.S.	20.5	10.5	Clinic	2
2	...	1	G.I.S.	G.I.S.	6.3	32.0	Clinic	2
3	3	...	E.N.T.	Conjunctivitis	14.8	10.9	Own	1
4	4	2	Measles	G.I.S.	47.0	11.1	Clinic	2
5	...	1	G.I.S.	G.I.S.	7.3	39.8	Traditional	1

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Guidelines for health monitoring were provided by the Medical Research Council (Fajara) and Save The Children Fund (U.S.).

[b] Defined as deaths caused by sickness or wound before the age of 45.

[c] G.I.S. = gastrointestinal disorder (diarrheal diseases); E.N.T. = ear/nose/throat; R.T.I. = respiratory tract infection.

[d] All illnesses. Data collected weekly from mothers of children sick, and from sick adults themselves. The overall figure combines illnesses both serious and mild, and should therefore be treated merely as an indicator of relative levels of days sick by compound.

[e] Observed preference for traditional versus modern medical treatments: Own = personal remedies; Traditional = treatment by herbal remedy specialist; Clinic = modern treatment.

Table 43--Areas cultivated during the 1985 wet season by the sample compounds, by crop

Village/ Compound	Jahally-Pacharr Irrigated Field Equivalent[a]	Traditional Swamp Rice	Upland Maruo Fields						Upland Kamangyango Fields				Total Cultivated Area
			Early Millet	Late Millet	Maize	Sorghum	Groundnuts	Cotton	Early Millet	Maize	Groundnuts	Cotton	
			(hectares)										
Njoben													
1	0.10	...	1.2	...	...	...	...	...	0.8	...	2.6	1.0	5.7
2	0.12	...	2.0	...	0.4	...	...	...	...	...	1.8	...	4.3
3	0.12	...	1.8	...	1.0	...	...	...	0.6	...	5.4	...	8.9
4	0.10	...	0.4	...	0.1	...	...	...	...	...	2.0	...	2.6
5	0.12	...	2.4	...	0.4	...	...	...	...	...	3.6	...	6.5
6	0.12	...	1.6	...	1.2	...	...	...	5.1	...	5.9	...	13.9
7	0.15	...	3.2	...	1.0	...	...	...	1.4	...	3.4	...	9.2
Sukurr													
1	0.50	...	...	...	1.6	1.2	1.6	...	...	...	2.4	...	7.3
2	0.50	...	...	...	0.8	1.2	0.8	...	0.8	...	5.6	...	9.7
3	0.50	...	0.7	...	...	...	...	...	...	...	2.7	...	3.9
4	0.50	...	...	...	0.7	...	...	...	...	...	2.7	...	3.9
5	1.00	...	...	...	1.8	0.4	...	1.5	...	...	2.4	...	7.1
Dasilameh													
1	1.00	0.8	...	...	0.6	...	...	...	...	...	1.0	0.6	4.0
2	1.00	...	0.4	...	1.0	1.6	...	...	...	...	1.8	...	5.8
3	0.50	0.9	0.6	...	0.9	0.6	...	...	...	...	0.4	0.6	4.5
4	0.50	...	...	...	0.4	...	...	...	...	...	...	0.3	1.2
5	1.00	0.8	0.4	...	0.6	...	...	...	...	...	...	0.8	3.6
Sinchou Abdou													
1	0.24	...	1.6	...	0.4	0.6	0.8	...	1.6	...	2.6	1.0	8.9
2	0.15	...	2.2	...	0.2	...	...	...	...	...	2.0	...	4.6
3	0.18	...	1.0	...	0.8	0.4	...	...	...	...	1.2	...	3.6
4	0.50	...	1.6	...	...	0.8	...	...	...	0.4	1.0	0.9	5.2
5	0.28	...	1.6	...	...	...	...	...	...	...	1.6	...	3.5

Source: IFPRI/PPMU survey, 1985/86 (subsample).

[a] Jahally-Pacharr pump-irrigated field equivalents weighted according to the following ratio: pump-irrigated plots = 1, tidal and rainfed plots = 0.265.

Table 44--Sample compound farm income for 1985 and sources of nonfarm income

	Compound Farm Income February 85-February 86	Compound Nonfarm Income February 85-February 86	Main Source of Male Nonfarm Income	Main Source of Female Nonfarm Income	Regular Remittances from Family Overseas?
	....(Dalasi per capita).....				
Njoben					
1	771	109	Building	...	No
2	431	3	...	...	No
3	1,096	155	...	Trading	Yes
4	480	12	...	...	No
5	814	8	...	...	No
6	1,038	91	Marabout	Trading	No
7	727	12	Building	...	No
Sukurr					
1	1,265	989	Goldsmith	Pottery	No
2	578	65	...	Trading	No
3	819	49	Weaving	...	Yes
4	1,236	594	...	Trading	Yes
5	977	711	Goldsmith	Pottery	Yes
Dasilameh					
1	858	461	Marabout	...	Yes
2	954	280	Marabout	Pottery	No
3	537	264	Musician	Trading	No
4	1,010	160	Carpenter	Milling	No
5	819	137	Fishing	Trading	No
Sinchou Abdou					
1	638	106	Trading	Trading	No
2	784	72	...	Trading	No
3	692	88	Marabout	...	No
4	714	354	Teacher	...	No
5	547	76	Marabout	...	No

Source: IFPRI/PPMU survey, 1985/86 (subsample and large sample).

BIBLIOGRAPHY

Acharya, Meena, and Bennett, Lynn. Women and the Subsistence Sector: Economic Participation and Household Decisionmaking in Nepal. Staff Working Papers 526. Washington, D.C.: The World Bank, 1982.

Alirol, P. Consultancy Report on Desertification in The Gambia. UNCTAD; Chamix, 1983.

Alterelli-Herzog, Vanda. Monitoring of Land Distribution Activities and M&E Arrangements. Progress Report of a Second Mission to the Field. Rome: International Fund for Agricultural Development, 1984, p. 2.

Anderson, Jock R. "Perspective on Models of Uncertain Decisions." In Risks, Uncertainty, and Agricultural Development. Edited by J. A. Roumasset, J. Boussard, and I. Singh. New York: Agricultural Development Council, 1979, pp. 39-62.

Balch, M.; McFadden, D.; and Wu, S., eds. Essays on Economic Behavior Under Uncertainty. Amsterdam: North-Holland, 1974.

Berry, Sarah S. "Decisionmaking and Policymaking in Rural Development." In Agricultural Decisionmaking, Anthropological Contributions to Rural Development. Edited by Peggy F. Barlett. Studies in Anthropology Series. University of California, Berkeley. Orlando: Academic Press, 1980, pp. 321-333.

_____. Households, Decision Making, and Rural Development: Do We Need to Know More? Development Discussion Paper 167. Harvard: Harvard Institute for International Development, 1984.

Bierstedt, Robert. "The Problem of Authority." In Freedom and Control in Modern Society. Edited by M. Berger, M. Abel, and C. H. Page. New York: Van Nostrand, 1954.

Boserup, Ester. "The Position of Women in Economic Production and in the Household with Special Reference to Africa." Wageningen, 1980.

_____. Women's Role in Economic Development. New York: St. Martin's Press, 1970, p. 21.

Boussard, J. M. and Petit, M. "Representation of Farmer's Behavior Under Uncertainty With a Focus-Loss Constraint." Journal of Farm Economics 49 (no. 4, 1967): 869-880.

von Braun, Joachim and Kennedy, Eileen. Commercialization of Subsistence Agriculture: Income and Nutritional Effects in Developing Countries. Working Papers on Commercialization of Agriculture and Nutrition 1. Washington, D.C.: International Food Policy Research Institute, 1986.

von Braun, Joachim; Puetz, Detlev; and Webb, Patrick. "Technological Change in Rice and Commercialization of Agriculture in a West African Setting: Effects on Production, Consumption, and Nutrition." Washington, D.C.: International Food Policy Research Institute, 1988.

von Braun, Joachim and Webb, Patrick. "The Impact of New Crop Technology on the Agricultural Division of Labor in a West African Setting." Economic Development and Cultural Change (April 1989, forthcoming).

von Bülow, D. Final Report on Sinkirikutos--Improved Cooking Stoves and Fuel Consumption in The Gambia. Copenhagen: U.N.S.O., 1983, p. 5.

Cancian, Frank. "Risk and Uncertainty in Agricultural Decisionmaking." In Agricultural Decisionmaking. Edited by Peggy F. Barlett. Studies in Anthropology Series. University of California, Berkeley. Orlando: Academic Press, 1980, pp. 161-175.

Carney, Judith A. "Struggles Over Land and Crops in an Irrigated Rice Scheme: The Gambia." In Agriculture, Women, and Land: The African Experience. Edited by Jean Davison. Boulder, CO: Westview Press, 1988, pp. 59-78.

Cleave, John H. "Decisionmaking on the African Farm." IAAE Occasional Paper 1. November 1977 (mimeographed).

Cleveringa, Rudoph P. Swamp Improvement for Rice Production in the Western Gambia. Project Report 80.2135.4. Eschborn, West Germany: German Agency for Technical Cooperation, 1983.

Colonial Development Corporation. Gambian Rice Mission Report. File No. 65/AIR/7, vol. 1. London, 1952, p. 4.

Correspondence between Governor Palmer and the Secretary of State for the Colonies, 20th of April, 1931. London: Public Records Office File CO87-233/4, p. 2.

Department of Agriculture. Annual Report (1931). Bathurst: Government of The Gambia, 1931, p. 5.

Dey, Jennie. "Development Planning in The Gambia: The Gap Between Planners' and Farmers' Perceptions, Exceptions, and Objectives." World Development 10 (no. 5, 1982): 377-396.

_____. "Women and Rice in The Gambia: The Impact of Irrigated Rice Development Projects on the Farming System." Unpublished Ph.D. Thesis, University of Reading, 1980.

_____. Women Farmers in The Gambia: The Effects of Irrigated Rice Development Programmes on Their Role in Rice Production. July 1979, p. 5 (mimeographed).

Dudgeon, G. C. "Third Report on Agriculture and Forest Products of The Gambia." Gambia Government Gazette. March 6, 1909, p. 124.

Dunsmore, J. R. et al. The Agricultural Development of The Gambia: An Agricultural, Environmental, and Socioeconomic Analysis. Land Resource Study No. 22. Tolworth Tower, England: Ministry of Overseas Development, 1976, p. 65.

Elmer, L. The Gambia: A Cultural Profile. Banjul: The American Embassy, 1983.

Gamble, D. P. Economic Conditions in Two Mandinka Villages: Kerewan and Keneba (Gambia). London: Colonial Office Research Department, 1955.

Haswell, Margaret R. Economics of Agriculture in a Savannah Village. Colonial Research Studies 8. London: Her Majesty's Stationary Office, 1953.

Haswell, Margaret R. The Changing Pattern of Economic Activity in a Gambia Village. Overseas Research Publication 2. London: Her Majesty's Stationery Office, 1963.

Hill, Polly. Development Economics on Trial. Cambridge: Cambridge University Press, 1986, pp. 78-82.

_____. Studies in Rural Capitalism in West Africa. Cambridge: Cambridge University Press, 1970.

Hobson, Sarah. "Summary Report of Visit to Jahally Pacharr, The Gambia (November-December 1984)," 1985, mimeographed.

Johnson, Allen. "Security and Risk-Taking Among Poor Peasants." In Studies in Economic Anthropology. Edited by G. Dalton. American Anthropological Association Monograph 7, 1971, pp. 143-150.

Jones, Christine. "Women's Labor Allocation and Irrigated Rice Production in North Cameroon." In Rural Development: Growth and Inequity. Edited by Bruce L. Greenshields and Margot A. Bellamy. International Association of Agricultural Economists, Occasional Paper No. 3. Aldershot, England: Gower Publishing, 1983, pp. 172-178.

Lipton, Michael. "The Theory of the Optimizing Peasant." Journal of Development Studies 4 (1968): 327-351.

Longhurst, Richard. "Cropping Systems and Household Food Security: Evidence from Three West African Countries." Food and Nutrition 11 (no. 2, 1985): 13.

Mensing, Friedhelm. "Using Tradition to Achieve Progress." Cooperation and Development 1 (1987): 13-15.

Menger, Karl. Principles of Economics. Glencoe, Illinois: Free Press, 1950.

Ortiz, Sutti. "What is Decision Analysis About? The Problems of Formal Representations." In Economic Anthropology: Topics and Theories. Edited by S. Ortiz. Monographs in Economic Anthropology 1. Lanham: University Press of America, 1983.

Overseas Development Administration. The Gambia Food Strategy Report: Major Constraints and Strategy Options, Part II. United Kingdom: O.D.A., 1981, Annex 2, p. 2.

Parsons, Talcott. The Social System. New York: The Free Press, 1951.

Philipps, Denzil; Coles, Anne; and Seaman, John. Village Food Systems in West Africa. London: International African Institute, 1982, p. 17.

van der Plas, Charles D. Report of a Socioeconomic Survey of Bathurst and Kombo St. Mary in The Gambia. United Nations Report TAA/GAM/1. New York: United Nations, 1956, p. 8.

Rake, Alan. "After Rice Success, Will Bridge-Barrage Be Next?" African Business (January 1986): 21-23.

Rogers, Beatrice L. The Internal Dynamics of Households: A Critical Factor in Development Policy. Nutrition and Development Project Paper 83-2. Washington, D.C.: U.S. Agency for International Development, 1983.

Russo, Sandra L. "The Use of Crop Residues for Livestock Feed by Small Farmers in The Gambia." Gainesville, FL: University of Florida, Animal Science Department, 1988 (mimeographed).

Schaffer, M. Mandinko: The Ethnography of a West African Holy Land. New York: Holt, Rinehart, and Winston, 1980.

Schultz, Theodore W. Transforming Traditional Agriculture. New Haven: Yale University Press, 1964.

Sidibe, Bakary K. and Galloway, Winifred, F. Senegambian Traditional Families. Occasional Papers 1. Banjul: Oral History and Antiquities Division, 1978, p. 1.

Stokke, Kristian. "Development and the Natural Environment: The Case of the Jahally Pacharr Smallholder Project in The Gambia." Unpublished Cand. Sci. degree thesis, Department of Geography, University of Oslo, Norway, 1988.

Swindell, Ken. "A Report on Migrant Farmers in The Gambia." In Demographic Aspects of Migration in West Africa, vol. 1. Edited by K. C. Zachariah and J. Condé. Staff Working Paper 414. Washington, D.C.: The World Bank, 1980.

Travelling Commissioner. Annual Reports on McCarthy Island Division (1902-1921). Banjul: National Archives.

de Tray, D. "On the Microeconomics of Family Behavior in Developing Societies." In Rural Household Studies in Asia. Edited by Hans Binswanger. Singapore: Singapore University Press, 1980.

Venema, B. "Male and Female Farming Systems and Agricultural Intensification in West Africa: The Case of the Wolof, Senegal." In The Household, Women, and Agricultural Development. Edited by C. Presvelov and S. Spijvers-Zwart. Wageningen: Agricultural University, 1980, pp. 27-34.

_____. The Wolof of Saloum: Social Structure and Rural Development in Senegal. Department of Rural Sociology of the Tropics and Subtropics, Agricultural University. Wageningen: Centre for Agricultural Publishing and Documentation, 1978, p. 180.

Webb, Patrick. "When Projects Collapse: The Impact of Agricultural Project Failure in The Gambia from a Household Perspective." Washington, D.C.: International Food Policy Research Institute, 1988.

Weber, Max. The Theory of Social and Economic Organization. New York: Oxford University Press, 1947.

Weil, Peter. "Agrarian Slavery to Capitalist Farming in a West African Society." Paper presented at the 75th Annual Meeting of the American Anthropological Association, Washington, D.C., November 1976, p. 5.

_____. "Agricultural Intensification and Fertility in The Gambia (West Africa)." In Culture and Reproduction. Edited by W. Penn and Handwerker. Boulder, CO: Westview Press, 1986.

Williams, Glynn. "Differential Risk Strategies as Cultural Style Among Farmers in the Lower Chubut Valley, Patagonia." American Ethnologist 4 (no. 1, 1977): 65-83.

World Bank. Social Indicators of Development. Washington, D.C.: The World Bank, 1987.

World Eagle, Inc. Africa Today: An Atlas of Reproducible Pages. Wellesley, MA: World Eagle, 1987, p. 52.

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