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DESFIL

Development Strategies for Fragile Lands

**SENEGALESE WOMEN'S HOUSEHOLDS AND NATURAL RESOURCES
MANAGEMENT: A GENDER ANALYSIS of USAID/SENEGAL'S 1992
"KNOWLEDGE, ATTITUDES and PRACTICES" SURVEY DATA
A Discussion Paper**

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EXECUTIVE SUMMARY

This report analyzes women-headed households in five regions of Senegal, in terms of their household resources and use of modern natural resources management (NRM) practices. Simple descriptive statistics are used to describe women-headed households' demographic composition, material resources, and agricultural production, and to compare them with that of households headed by men. The data in this report are from the 1993 USAID/Senegal Agriculture and Natural Resources Office's Knowledge, Attitudes and Practices (KAP) survey.¹ The survey included a total of 102 women-headed households.

This gender analysis shows that there are significant differences between women's and men's households, in terms of their material resources and use of NRM practices. Women-headed households control less land, own fewer livestock, and have less equipment for agricultural production than do households headed by men. Off-farm sources of income are more important in women's household economies than in men's. The data also show that women's households depend less on marketing staple food grains and more on gifts from other households for their economic survival, which is a precarious position in Senegal's marginal environment.

Forty-three percent of women-headed households do not use any NRM practices at all. Women reported that cost is the major constraint on their use of NRM practices. The practices that they use most frequently are to enhance soil fertility: application of manure, crop rotation, and agricultural chemicals (fertilizer and pesticides). Their major reason for using these practices is to improve yields. A significantly larger proportion of men-headed households use these practices and men's use has increased over time, unlike women's use of these practices. These differences point to the need for further research to increase the understanding of Senegalese women's management of their natural resources.

¹ The research for the KAP survey was carried out in 1991-1992, and the report was published by USAID/Senegal in 1993.

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ACRONYMS

AF	Agroforestry
ANRO	Agriculture and Natural Resources Office
API	Assessment of Program Impact
CBA	Cost-Benefit Analysis
CFA	Communaute Financiere Africaine
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CR	Communaute Rurale
DEFIL	Development Strategies for Fragile Lands Project
FAO	Food and Agriculture Organization
GIS	Geographic Information System
IARC	International Agricultural Research Center
ICRAF	International Center for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
IITA	International Institute for Tropical Agriculture
IMF	International Monetary Fund
KAP	Knowledge, Attitudes and Practices Survey
LOP	Life of Project
LUMP	Land-Use Management Practice
M&E	Monitoring and Evaluation
NGO	Nongovernmental Organization
NPA	Non-Project Assistance
NRM	Natural Resources Management
ORSTOM	Office de la Recherche Scientifique et Technique d'Outre-Mer
OTA	Office of Technology Assessment
PAM	Policy Analysis Matrix
POL/CDIE	Political/Center for Development Information and Evaluation
PRA	Participatory Rural Appraisal
PVO	Private Voluntary Organization
SFE	Soil Fertility Enhancement
SSA	Sub-Saharan Africa
SWC	Soil and Water Conservation
USAID	U.S. Agency for International Development

I. INTRODUCTION

This report is the result of disaggregating data by sex from USAID/Senegal's Agriculture and Natural Resources Office/Economics Division, and using those data to describe women-headed households and their use of natural resources management (NRM) practices. The report uses simple descriptive statistics to provide a general description of women-headed households. The major purposes of this report are to: 1) characterize women's households in terms of demography, resources, and use of NRM practices; and 2) compare the data with that collected for men's households. The figures presented here are approximate and not intended to represent exact values. All the data are summarized in the tables in the Annex to this report.

The data in this report are taken from the 1992 USAID/Senegal Knowledge, Attitudes and Practices (KAP) survey, prepared by R. Kite, M. Keita, and L. Thiam.² The major purpose of the KAP survey was to collect baseline data for USAID/Senegal's impact monitoring program. The data in the KAP database and in this report are from 1,531 randomly selected households in five regions of Senegal (Fatick, Kaolack, Tambacounda, Kolda, and Ziguinchor). These regions are in USAID's zone of intervention, which is a zone of reliable rainfall of approximately 500 millimeters per year.

The KAP survey, and therefore this analysis, focuses on 19 NRM practices that are grouped into three categories:

Agroforestry:

1. Field trees
2. Windbreaks
3. Orchards
4. Live fences
5. Alley cropping

Soil and Water Conservation:

6. Fall plowing
7. Grass strips
8. Check dams
9. Water diversion structures
10. Contour dikes
11. Tied ridges
12. Anti-salt dams

Soil Fertility Enhancement:

13. Manure/parquage
14. Fallowing
15. Compost
16. Crop rotation
17. Chemical fertilizer
18. Agricultural chemicals
19. Improved seed

² The USAID/ANRO Knowledge, Attitudes and Practices Survey (1992), prepared by R. Kite, M. Keita and L. Thiam, Economics Division, Agriculture and Natural Resources Office, USAID/Senegal, February 1993.

II. SUMMARY AND CONCLUSIONS

A. Conclusions

A gender analysis of USAID/Senegal's 1993 KAP survey data shows that there are significant differences between rural women's and men's households, in terms of their material resources and use of NRM practices. The purpose of this report is to present those key differences and to identify areas for further gender-specific analysis and field research. It is important to note that disaggregating data by sex within the household unit, both female- and male-headed households, also produces valuable information and insights. That level of analysis has not been done in this report, although some appropriate data are available from the KAP survey.

Based on the survey data, the typical woman head of household in USAID/Senegal's zone of intervention is 48 years old, Muslim, and has no education. Her primary occupation is agriculture; a small minority of women reported commerce as their primary occupation.

Women-headed households generally have fewer human and material resources than households headed by men. They have an average of seven household members—4.2 economically active members and 2.8 children—and a dependency ratio of 1.6 (defined as the ratio of consumption units to labor units in the household). In comparison, male-headed households have an average of 10 members, 5.7 economically active members and 4.8 children, and the same dependency ratio.

Women-headed households control less land, own fewer livestock, and have less equipment for production than do households headed by men. About one-quarter of the women-headed households control no land; only 6 percent of the men's households face this serious economic constraint. On average, the livestock owned by women's households is equivalent to 2.3 cattle; the average for men's households is three times that. Fewer women's than men's households own livestock of all types, and women's herds are smaller. Only 20 percent of women-headed households own traction animals, on average enough to cultivate .11 hectare per day. Sixty-nine percent of men's households own traction animals, on average enough to cultivate .50 hectare per day. Only one-quarter of the women's households own equipment such as plows, seeders, and carts; twice the proportion of men's households own this equipment.

Perhaps as a result of their limited resources for agricultural production, off-farm sources of revenue are more important in women's household economies than in men's. Gifts, commerce, and salaries are major sources of revenue for women; millet, sorghum, maize, cotton, and commerce are major sources of revenue for men. These data indicate that women's households depend less on marketing staple food grains and more on gifts from other households for their economic survival, which is a precarious position in Senegal's marginal environment.

Women's use of NRM practices is limited. Forty-three percent of women-headed households do not use any of the above NRM practices at all. The most frequently used

practices in 1991-1992 were to enhance soil fertility: manure/parquage (40 percent of the women's households), crop rotation (25 percent), agricultural chemicals (18 percent), and chemical fertilizer (16 percent). The women's major reason for using these practices is to improve yields; the nonusers' major reason for not using them is cost. A significantly larger proportion of men's households use these practices, and men's use has increased over time, as this report explains.

B. Potential for Further Research

These data and conclusions clearly show that further research would increase the understanding of NRM practices by Senegalese women. The two key research questions that emerge from this analysis are: why do almost half of women's households not use any of the above NRM practices at all, and why has women's adoption of these practices not increased substantially over time? A short, focused field study to answer those questions—to identify women's incentives for and constraints on the use of modern NRM practices—would provide valuable information for project managers. The target population, women-headed households, already has been identified and described by the KAP survey. The fact that women use few if any modern NRM practices, and those mainly to improve soil fertility, are shown in this report. A study focused on why women use relatively few NRM practices, and to identify potential incentives to change that, is the next step that builds on these previous research projects.

III. HOUSEHOLD DEMOGRAPHICS

There are a total of 102 women-headed households in the KAP database, which represents 6.6 percent of the total survey sample (1,531 households). This figure is low, given the estimate that worldwide one of three households is headed by women (U.S. General Accounting Office, *Foreign Assistance*, Washington, D.C., December 1993).

The average woman-headed household consists of 7 members, 4 of whom are economically active (Table 2). The ratio of average household consumption units to average labor units shows that each labor unit must support 1.6 consumption units. The types and numbers of livestock in women-headed households add up the equivalent of about 2 head of cattle. (USAID/Senegal's 1993 KAP report states that the rural household is the basic sampling unit in the survey, but it does not define that key term, nor others in Table 2 such as "compound" or "family." "Women household heads" were based on self-reports. The 1993 KAP survey report, page 55, has converted the total amount of livestock in each household into "equivalent animal units," that are "based on animal weights [and] normalized on cattle." It defines "equivalent animal traction units" as "a measure of the number of hectares a household's stock of traction animals can plow in a 6 hour day.")

The average age of a female head of household is 48 years and the great majority (83 percent) are Muslim (Table 3). Three-quarters of these women are of the Serere, Toucoulor, and Wolof ethnic groups. The majority (62 percent) report that agriculture is their primary occupation, followed by "merchant" (11 percent). Perhaps the most sobering characteristic

of household heads, both women and men, is that 94 percent of them have had no education (Table 3).

Men-headed households have an average of 10 household members, and thus on average are 30 percent larger than households headed by women, including almost 6 economically active members (Table 2). However, their ratio of consumption to labor units is the same as women's (1.6). The livestock in men's households adds up to the equivalent of about seven head of cattle, three times as many as women have.

The average age of male household heads is 51 years and 93 percent are Muslim (Table 3). However, agriculture is more important as a primary occupation for men (89 percent) and "merchant" is less important (2 percent), compared with its importance to women.

IV. WOMEN'S HOUSEHOLD RESOURCES: LAND, LIVESTOCK, AND EQUIPMENT

A. Land Ownership and Main Crops

Seventy percent of women-headed households reported that they control less than 10 hectares. About one-quarter of the women's households (27 percent) do not control any land at all, and none of them control 20 hectares or more (Table 4). Most women (65 percent) report that their household owns the land they control and cultivate; the KAP data do not address individual ownership within the household. As 25 percent of the women did not answer the question about who owns the land they use, their land ownership and security are only partially revealed (Table 4).

Men control more land than women: 17 percent have more than 10 hectares and only 6 percent report having none. However, like the women, the large majority of men control and cultivate less than 10 hectares of land (77 percent).

The main food crops in women's households are millet, sorghum, maize, rice, and cowpeas. The figures in Table 5 indicate that part of these crops also is sold for cash. A lower proportion of women than men produce cotton, a purely commercial crop. Further analysis is necessary to reveal whether women-headed households' production systems are oriented toward producing food crops rather than cash crops, which is a common phenomenon and in contrast with men's production. Women reported that their major marketing problems are low market prices, as well as lack of clients, transportation, and surpluses (Table 6).

B. Livestock

Livestock definitely are a scarce material resource in women's households, as Table 8 shows. Ninety-eight percent of the women's households have no oxen and 84 percent have neither horses nor donkeys. Women thus lack the traction animals used for agricultural production (oxen and horses) and for transportation, even donkeys. Seventy-eight percent of

their households do not own cattle, animals that generally represent savings on the hoof in Senegal. The majority of women's households do not even own the small ruminants that generally are women's animals: only 40 percent own goats and only 25 percent own sheep. Most of the women who own goats have at most five animals, and most of those who have sheep have at most 10 animals. The fact that women own few livestock probably constrains their agricultural production and marketing activities, increases their households' workload in daily chores such as collecting firewood and water, and limits their ability to cope with household emergencies by raising cash through sales. The combination of having less land and fewer livestock than men have means that women's households are poorer, as well as more vulnerable to food insecurity and disaster than are men's households.

Eighty-two percent of men's households do not own oxen, but 51 percent own horses and 35 percent own donkeys. Men thus have better resources for traction and transportation. Larger proportions of men's households own all types of livestock, and they own more animals of each type than do women (Table 8). Forty percent of the men's households own cattle (versus 23 percent of the women's households), 63 percent own goats (versus 40 percent of the women's households), and 52 percent own sheep (versus 26 percent of the women's households; see Table 7).

C. Equipment

Women's households also own less productive equipment—carts, plows, radios—than men's (Table 9). About one-fourth of the women's households own these types of equipment, versus about half of the men's. This lack of equipment means that women either must generate the cash to rent equipment such as plows for agricultural production, or do without it, which probably affects their production. The cumulative effect of women's lack of resources probably lowers their productivity: they must generate cash with their limited resources for the recurring costs of agricultural production (traction animals, plows, seeders), or not make the investments and have lower production. A smaller proportion of men face these recurring costs. The data show that women's households have fewer key material resources than men's and thus they are likely to be and remain poorer.

V. HOUSEHOLD SOURCES OF REVENUE AND EXPENDITURES

A. Sources of Revenue

Women report that their major sources of income are groundnuts, gifts, commerce, garden vegetables, and salaries. Off-farm sources of income—commerce, salaries, and gifts—evidently are more important in women's households than in men's (Table 11). The fact that "gifts" are reported as a major source of income indicates that women's household economies are more dependent on people outside of their household than are men's households. Such dependency is a position of economic weakness, particularly in an environment where hard times are frequent and people have fewer resources to share.

Men's major sources of income are groundnuts, millet, sorghum, commerce, cotton, and garden vegetables. Agricultural surpluses evidently are more important in their

household economies than off-farm income. In addition, sales of livestock contribute more to men's household income than to women's (Table 11). These figures imply that men can afford to sell more staple food grains (millet, sorghum, groundnuts, maize) and can afford to use their resources to produce a strictly cash crop, cotton, more than women can.

B. Major Expenditures

Households' major expenditures are summarized in Table 12. Both women's and men's major expenditures are staple food grains—rice, millet, sorghum, and maize. It is unusual, in comparison to data from previous rural household surveys, that other staple foods (vegetable oil, tea, sugar) and expenses such as cloth, education, and medical care are not reported as major expenditures.

The majority of women (70 percent) report that their household revenue has decreased during the past three years (Table 13). The men (69 percent) report the same thing.

VI. WOMEN AND NATURAL RESOURCES MANAGEMENT PRACTICES

A. Soil Fertility Enhancement: the Most-Used NRM Practices

Forty-three percent of the women-headed households do not use any of the 19 NRM practices investigated by the KAP survey that are listed on page 1 of this report (Table 14). Of the women who use some practices, a minority (28 percent) use two or three practices; only 21 percent use four practices or more.

The NRM practices listed in Table 15 are defined as the "most used" on the basis of past and present usage rates reported by the survey sample. "Current users" are defined as those who were using the practice in 1991-1992, when the KAP survey was conducted. "Past use" is defined as respondents having used the practice during 1975-1990. All of the practices in Table 15 are in the category of "soil fertility enhancement practices," with the exception of "fall plowing" (the last practice listed, that is categorized as soil/water conservation).

The soil fertility enhancement practices currently most commonly used by women's households are manure/parquage (40 percent of respondents), crop rotation (25 percent), agricultural chemicals (18 percent), and chemical fertilizer (16 percent) (Table 15, column 4). Only 13 percent of the women-headed households currently are using compost. Women's use of manure/parquage, agricultural chemicals, and compost has increased since 1975; their use of chemical fertilizer has decreased; and their use of crop rotation has not changed (compare columns 3 and 4 in Table 15.) Overall, the figures in Table 15 show that: 1) the majority of women-headed households have never used these practices, and 2) women's usage rates are much lower than are men's usage.

The second column in Table 15 shows that the majority of women's households have never used any of these soil fertility enhancement practices, except manure/parquage. Fifty-eight percent of the women have never used chemical fertilizer, about three-quarters have

never used other agricultural chemicals or crop rotation, and more than 80 percent have never used fallowing, improved seed, or compost to improve soil fertility. The fact that few women are spending money on chemical fertilizer, other agricultural chemicals, or improved seed reflects their households' lack of cash resources to invest in agricultural production, their primary economic activity, and in improving soil fertility.

A greater proportion of male-headed households currently use all of these soil fertility enhancement practices. Sixty-seven percent are using manure/parquage, 58 percent use crop rotation, 41 percent use agricultural chemicals, and 38 percent use chemical fertilizer (Table 15.) Almost one-fourth of men-headed households fallow their land and 21 percent use improved seed, compared to only 9 percent and 4 percent of women-headed households that use these respective practices. The data also indicate that men's use of all these practices has increased significantly since 1975. This is particularly true of men's use of manure/parquage, agricultural chemicals, crop rotation, improved seed, and compost (compare columns 3 and 4 in Table 15.) This trend has not occurred in women's households. This difference implies that men's control of more resources, that probably includes better access to technical assistance, has a positive effect on their adoption and use of soil improvement practices. The factors that promote men's use of these practices, and constrain women's use, are not identified by the KAP survey and thus remain to be investigated through further field research.

B. Women's and Men's Reasons for Using or Not Using Soil Fertility Enhancement Practices

The women's primary reason for using these soil fertility enhancement practices is to improve yields (Table 16). Controlling erosion and increasing revenue are secondary reasons (blanks in the table indicate responses of < 1 percent of the households). Unfortunately, more than 85 percent of both women's and men's reasons for using or not using the NRM techniques were recorded as "no response," so the figures in Tables 16 and 17 in fact represent responses from less than 15 percent of all the households surveyed.

Women report that the cost of fertilizer and other agricultural chemicals is the major reason for not using them, and that lack of land is their reason for not fallowing (Table 17). Men's responses are very similar.

C. The Least-Used NRM Practices

Table 18 presents the NRM practices that are used or have been used by very few women- or men-headed households. All of these are categorized as agroforestry practices, except "water diversion structures" and "tied ridges" that are soil/water conservation practices. A few of the women-headed households use tied ridges and orchards; a few of the men's households do also, and also use live fences. Improving yields is the main reason cited by both men and women for using these practices (Tables 19 and 21).

Little data exists to explain why both women and men do not use the seven practices listed in Table 18 (more than 85 percent of all responses are recorded as "no response").

Lack of seedlings for field trees, windbreaks, and orchards is one reason for not using these practices, as well as lack of labor and cost (Tables 20 and 22). A few households also report that these practices are not appropriate.

ANNEX

TABLES

Table 1. Summary of Village Infrastructure*

Infrastructure	Percent of Villages
Village School/s	46
Village Health Facility	39
Village Project Associations:	
None	72
Agriculture	11
Forestry	8
Animal Husbandry	2
Literacy	2
Time to Market:	
< 1 Hour	55
1 to <2 Hours	25
2 to 3 Hours	18

*Village water sources = missing data.

Table 2. Household Demographic Characteristics (percents)

Characteristic	Men's Households (averages)	Women's Households (averages)
Number of Household Members	10.0	7.0
Number of Active HH Members	5.7	4.2
Number of Consumption Units*	7.2	5.2
Number of Labor Units*	4.6	3.3
Equivalent Animal Units*	6.8	2.3
Equivalent Animal Traction Units*	0.50	0.11
Number of Families in Compound	2.0	2.2
Number of Family Members	10.3	6.6
Number of Children	4.8	2.8

- * The KAP survey report, page 55, defines "equivalent consumption units" as: a base calorie daily requirement of 3,200 KCal for men and 2,300 KCal for women, as established by FAO.
- * Ibid, page 55, states that "equivalent labor units" are based on information from "Notion de l'Economie Generale ed d'Economie Rurale," FAO, Rome, 1973.
- * Ibid, page 55, defines "equivalent animal units" and "equivalent animal traction units" as: "based on animal weights, normalized on cattle and the [traction units] are based on work hours per hectare and normalized on a 6 hour day. Thus, the [traction unit] is a measure of the number of hectares a household's stock of traction animals can plow in a 6 hour day. Note that 'oxen' include work cattle and that they are treated individually, not as a 'pair.'"

Table 3. Head of Household's Social Characteristics (percents)

Social Characteristic	Men	Women
Average Age in Years	51	48
Ethnicity:		
Serere	15	29
Toucoulor	30	23
Wolof	28	20
Diola	8	16
Other	19	12
Religion:		
Muslim	93	83
Christian	5	12
Animist/Other	1	5
Education:		
None	92	94
Primary	6	4
Secondary	2	2
University	0.21	0
Primary Occupation:		
Agriculture	89	62
Animal Husbandry	0.70	1
Merchant	2	11
Migrant Worker	1	1
Civil Servant	1	1
Religion	1	1
Other	3	9

12.

Table 4. Household Land Ownership (percents)

Land Ownership	Men's Households	Women's Households
Number of Hectares Controlled by the Household:		
0	6	27
< 10 has.	77	70
10 - < 20 has.	12	3
20 - < 30 has.	3	0
30 to 80 has.	2	0
Number of Hectares Cultivated in 1992:		
0	6	27
< 10 has.	83	72
10 - < 20 has.	8	1
20+ has.	3	0
Owner of Household Land:		
Household	76	65
Rural Community	8	3
Non-Family Member	8	5
Government	3	2
Missing Data	4	25

Table 5. Main Food and Cash Crops (percents)

Food and Cash Crops	Men	Women
Food Crops:		
Millet/sorghum	90	55
Maize	49	24
Rice	19	24
Cowpeas	13	13
Groundnut	4	1
Cash Crops:		
Millet/sorghum	23	12
Maize	15	2
Cotton	15	3
Groundnut	12	7

Table 6. Major Marketing Problems (percents)

Marketing Problem	Men	Women
Low Prices	46	44
Other	36	18
Lack of Clients	13	18
Lack of Transportation	20	15
Distance to Market	18	13
Lack of Surplus	8	10
Lack of Storage	10	7
Bad Roads	16	7
Post-Harvest Losses	6	3
High Storage Costs	6	3

**Table 7. Types of Livestock Owned by
Percent of Households**

Type of Livestock	Men's Households	Women's Households
Cattle	40	23
Oxen	18	3
Horses	51	17
Donkeys	35	16
Goats	63	40
Sheep	52	26

Table 8. Number of Livestock Owned by Percent of Households

Type of Livestock	Number of Livestock					
	0	1	2	3-5	6-10	11+
Cattle:						
Men	60	4	6	9	10	11
Women	78	2	2	7	5	7
Oxen:						
Men	82	1	11	4	2	1 HH*
Women	98	0	0	2	0	1 HH
Horses:						
Men	49	22	17	10	1	1
Women	84	9	4	3	0	0
Donkeys:						
Men	65	23	8	3	3 HHs	2 HHs
Women	84	10	5	1	0	0
Goats:						
Men	38	8	10	22	13	9
Women	60	7	8	15	7	3
Sheep:						
Men	48	6	8	17	11	10
Women	75	3	4	8	8	2

* HH = household.

**Table 9. Type of Equipment Owned
by Households (percents)**

Equipment	Men's Households	Women's Households
Plow	63	25
Seeder	57	25
Cart	41	17
Radio	53	31

**Table 10. Amount of Equipment Owned by
Percent of Households**

Equipment	Number of Pieces			
	0	1	2	3+
Plow:				
Men	37	38	17	8
Women	75	17	4	4
Seeder:				
Men	43	37	13	7
Women	75	17	3	5
Cart:				
Men	59	35	4	2
Women	83	15	1	1
Common Group Equipment:				
Men	22	8	13	57
Women	42	8	18	32

Table 11. Major Sources of Household Revenue (percents)

Source of Revenue	Men's Households	Women's Households
Groundnuts	79	39
Gifts	8	36
Commerce	16	24
Other	15	22
Salary	7	15
Millet and Sorghum	24	10
Maize	15	5
Rice	4	5
Cowpeas	6	3
Groundnut Oil	3	5
Palm Nuts, Oil, and Wine	3	2
Cotton	15	3
Potatoes and Sweet Potatoes	2	3
Garden Vegetables (Tomatoes, Onions)	14	16
Mangos and Oranges	6	6
Cattle	8	2
Goats and Sheep	6	0
Fish	2	4
Fuel Wood	< 1	2

Table 12. Households' Major Expenditures (percents)

Expenditure	Men's Households	Women's Households
Rice	58	73
Staple Food Grains (millet, sorghum, maize)	11	3
Religious and Social Obligations	6	4
Debt Repayments	5	1
Purchase Livestock	4	2
Taxes	3	3
Medical Care	2	4
Sugar	2	1
Clothing	2	5

Table 13. Perceptions of Change in Household's Gross Revenue in the Past Three Years (percents)

Change in Gross Revenue	Men	Women
Same	8	17
Increased	22	13
Decreased	69	70

**Table 14. Number of NRM Practices
Used by Women-Headed Households***

Number of Practices	Percent of Women's Households
0	43
1	8
2-3	28
4-5	17
6+	4

*Preliminary figures.

**Table 15. Soil Fertility Enhancement: the Most-Used NRM Practices:
Non-Users, Past Users, and Current Users (percents)**

NRM Practice	Never Used	Used 1975-1990	Used 1991-1992
Manure/Parquage:			
Men	20	13	67
Women	46	14	40
Chemical Fertilizer:			
Men	34	28	38
Women	58	26	16
Agricultural Chemicals:			
Men	52	7	41
Women	77	5	18
Crop Rotation:			
Men	37	5	58
Women	72	23	25
Fallowing:			
Men	65	12	23
Women	82	9	9
Improved Seed:			
Men	72	7	21
Women	87	4	9
Compost:			
Men	80	2	18
Women	81	6	13
Fall Plowing:			
Men	85	3	12
Women	88	1	11

**Table 16. Major Reasons for Using Soil Fertility Enhancement Practices*
(percents)**

Practices	Reasons for <u>Using Practices</u>		
	Improve Yields	Control Erosion	Increase Revenue
Manure/Parquage: Men	69	3	7
Women	Missing Data		
Fallowing: Men	29	2	6
Women	19	1	1
Compost: Men	17	2	2
Women	19	2	0
Fertilizer: Men	60		7
Women	40		1
Agricultural Chemicals: Men	38		5
Women	18		1
Crop Rotation: Men	55	3	5
Women	28	3	0
Improved Seed: Men	24		4
Women	12		1

* More than 85 percent of the responses are recorded as "no response."

**Table 17. Major Reasons for Not Using Soil Fertility Enhancement Practices*
(percents)**

Practices	Reasons for Not Using the Practices						
	Lack of Equipment	Lack of Labor	Lack of Land	Inappropriate	Cost	Fertilizer Not Available	Improved Seed Not Available
Manure/Parquage:							
Men	2	1					
Women	Missing Data						
Fallowing:							
Men			22				
Women			12	1			
Compost:							
Men	2	4		1			
Women		1		1			
Fertilizer:							
Men					15	6	
Women					15	3	
Agricultural Chemicals:							
Men					22		
Women					16		
Crop Rotation:							
Men		2					2
Women				2			2
Improved Seed:							
Men					7		15
Women					9		9

* More than 85 percent of the responses are recorded as "no response."

**Table 18. The Least-Used NRM Practices:
Non-Users, Past Users, and Current Users (percents)**

NRM Practice	Never Used	Used 1975-1990	Used 1991-1992
Alley Cropping: Men	97	1	2
Women	99	1 HH*	0
Water Diversion Structures: Men	98	7 HHs	1
Women	98	1 HH	1
Tied Ridges: Men	97	5 HHs	<1
Women	95	0	5
Orchards: Men	93	3	4
Women	94	2	4
Live Fences: Men	92	3	5
Women	99	1 HH	0
Windbreaks/Borders: Men	92	2	6
Women	96	2	2
Field Trees: Men	90	6	4
Women	96	4	1 HH

* HH = household.

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Table 19. Major Reasons for Using Agroforestry Practices* (percents)

Practices	Reasons for <u>Using</u> the Practices			
	Improve Yields	Control Erosion	Protect/Delimit Fields	Increase Revenue
Field Trees:				
Men	6	2		
Women	2	0	2	
Windbreaks/Borders:				
Men	3	1	4	
Women	2	0	3	
Orchards:				
Men	3	1		4
Women	4	0		2
Live Fences:				
Men	3		5	
Women			3	
Alley Cropping:				
Men	2			
Women				1

* More than 85 percent of the responses are recorded as "no response."

Table 20. Major Reasons for Not Using Agroforestry Practices* (percents)

Practices	Reasons for <u>Not</u> Using the Practices						
	Lack Labor	Inappropriate	Lack Plants	Lack Knowledge	Cost	Land Not Owned	Lack Equipment
Field Trees:							
Men	3	6	10	1	2		
Women	3	5	5	0	2		
WindBreak/ Borders:							
Men	3	2	16	2			
Women	6	2	8	0			
Orchards:							
Men	3		11	10	3	1	1
Women	1		2	2	3	2	0
Live Fences:							
Men	3	4	6	2	3		3
Women	5	4	3	1	3		4
Alley Cropping:							
Men	2						
Women	1						

* More than 85 percent of the responses are recorded as "no response."

**Table 21. Major Reasons for Using Soil and Water Conservation Practices*
(percents)**

Practices	Reasons for <u>Using</u> the Practices				
	Improve Yields	Increase Revenue	Conserve Water	Control Erosion	Protect Field
Fall Plowing: Men	14	1			
Women	10			1	
Contour Dikes: Men			1		
Women	1		4		2
Tied Ridges: Men	1	1			
Women	2	3			

* More than 95 percent of the responses are recorded as "no response."

**Table 22. Major Reasons for Not Using Soil and Water Conservation Practices*
(percents)**

Practice	Reasons for <u>Not Using</u> the Practice				
	Lack Labor	Inappropriate	Lack Equipment	Lack Knowledge	Cost
Fall Plowing: Men	3	2	8	4	
Women	1	1	3	2	3

* More than 95 percent of the responses are recorded as "no response."