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Gender in Decision Making, Access to and Control over Labor and Extension Services

A Perception Survey in Mali

Food security and better livelihoods
for rural dryland communities

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ACRONYMS AND ABBREVIATIONS

WB:	World Bank
GPRS:	Growth and Poverty Reduction Strategy
DNA:	National Directorate of Agriculture
DNCN:	National Directorate for Nature Conservation
PTD:	Participatory Technology Development
DRA:	Regional Directorate of Agriculture
SAG:	Strategic Assessment of Gender
FAO:	United Nations Food and Agriculture Organization
LOA:	*Loi d'Orientation Agricole* (Agricultural Framework Law)
MPFEF:	*Ministère de la Promotion de la Femme de l'Enfant and de la Famille* (Ministry for the Promotion of Women, Children and the Family)
NGO:	Non-Governmental Organization
SNVACA:	*Système National de Vulgarisation et d'Appui Conseil Agricoles* (National Agricultural Extension and Advisory System)

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SUMMARY

African agriculture is characterized by a progressive decline in yields correlated with a steady increase in population. Yet it is to feed 1.8 billion people in 2050, compared to 832 million people in 2002 (Riviera *and al*. 2005).

Recognizing this, Mali, a country located at the heart of the West African region, has embarked on extension programs supported by research institutions and foreign mining companies since the years of independence. As part of the structural adjustment programs of the 1980s, the Government has gradually withdrawn from the agricultural sector, promoting the professionalization of farmers. This disengagement was marked by the implementation of macroeconomic and sector reforms, Government withdrawal from production and marketing activities, and the strengthening of the role of private operators in the sector and an improvement in the management of public agencies.

As the economy is essentially based on agriculture and livestock, the Government of Mali realized the need to develop policies, laws and strategies to assist in securing and promoting agriculture. It is in this context, that the Agricultural Framework Law (LOA) was adopted in 2006 as a unifying instrument for all legislative and regulatory provisions relating to the areas of agriculture, livestock, fisheries and forestry. These laws and strategies focus on a new distribution of the different stakeholders' roles, including the recognition of the role of actors from the agricultural sector and civil society.

Thus, a study was conducted on target groups as key stakeholders of agricultural and veterinary extension systems and women's employment on the one hand, and producer organizations and households on the other hand. The objective is twofold: (i) to analyze gender equity in decision-making and access to and control over labor and resources; (ii) to provide scientific evidence on strategies to be undertaken to improve women's access to and control over agricultural extension and veterinarian services.

To this end, a mixed research methodology, both quantitative and qualitative, was used. For the qualitative component, focus group discussions and individual interviews were conducted in 3 villages. For the quantitative side, interviews were conducted with a sample of 500 individuals, representing the different target groups of the study in the three villages. As such, the survey in the three villages covered: 85 women and 77 men in Karangasso; 80 women and 72 men in Fama; and 97 women and 89 men in Kebila. Thus, the sample was made up of 49% men and 51% women. Six enumerators, including three women, were recruited on the basis of their proficiency in the local language, experience in conducting socio-economic studies and knowledge of the local environment and culture to conduct this survey under the supervision of two officers, including the consultant. To this end, a questionnaire consisting of a set of closed and semi-opened questions was provided to enumerators after a pre-test and training for data collection, which lasted 14 days. The data collected related to the social dimension of households, the place and roles of women in agriculture, the level of involvement of women, men and youth in access to, management of and control over agricultural and related resources, investment decisions and strategies developed to improve technology adoption by the most disadvantaged groups represented by women and youth.

The data collected were entered using the CSPRO 6.1 software exported to SPSS 20 and then STATA 10 was used for the statistical analysis of logistic regression.

The following results were obtained:

- ***General and Socio-Cultural Characteristics of the Surveyed Communities***

The results related to the general features of the surveyed actors highlight the cultural characteristics shared by the villages of Zantiebougou, main town of the *Commune* of Zantiebougou in the *Cercle* of Koutiala, and Kani and Farakoro in the *Commune* of Molobala, *Cercle* of Bougouni. The average age of respondents was 42, the oldest being 75 and the youngest 17 years old.

There was a large proportion of illiterate people among the respondents (81%). Women (86%) were more affected by the lack of education than men (76%).

The cash crop production was the most widespread activity in the villages covered by the study. Indeed, overall 34% of respondents practiced this activity, followed by agroforestry (15%) and market gardening (9%).

As regards the marital status, a majority of respondents were married, i.e. 91% of women and 98% of men. Also, there were fewer singles in the 15-24 age group, 91% being married. However, 5% are heads of households.

Men had the highest rate of native people with 85.8%. Non-native people have settled in the villages and live there carrying out an activity. As for women, they are wives whose presence in these villages results from marriage. The proportion of non-native youth is high and represents 53%. This trend results from labor migration from other places.

The Minianka (44%) and Bobo (43%) ethnic groups predominate in the surveyed villages.

The results of the study show a low level of involvement of respondents in basic community organizations. Indeed, there were more men (44%) in producer associations than women who represented only 14%. No woman was a member of the decision-making committee for the use of community land and only 2% of men were members.

- ***Equity Gender in Access to and Use of Labor and Related Resources***

Regarding gender and access to inputs, the analysis of land resources by gender shows that women had equal access to the land as men. However, the proportion of women owning land is lower than that of men: 81%, compared to 96%. The results of the study show that men hold about 69% of rain-fed land, compared to 31% for women.

Overall 40% of adults, i.e. people aged 25 and older, had access to credit during the last 12 months. Men have more access to credit than women: 42%, compared to 39%. 17-25 year-old youth, accounting for 25% of the population, had less access to credit. There were numerous and various credit sources (Government, banks, parents, neighbors, cooperatives, etc.) and no gender discrimination was noticed. Men (91%) were more likely to repay loans than women (60%). Also, young people (63%) were more likely to repay loans.

- ***Gender Equity in Investment Decision-Making***

Investment decisions for livestock purchase, management and control were subject to the principle of separate assets management. The results of the study show that for assets owned alone, the investment decision is made by the person to whom the asset belongs. Therefore, respondents said they had decided themselves on the investment made. As for collectively owned assets, the investment decision is generally made by men.

- ***Gender Equity in Access to Agricultural and Veterinary Extension Services***

In terms of agricultural extension services, this is traditionally the responsibility of Government technical services, although NGOs and development projects provide substantial support for the dissemination of rural technologies. Less than half of respondents (41%) reported having had access to an extension worker. More men (55 %) had access to extension services than women (30%). Only 13% of youth had access to an extension worker. Overall, 55 % of respondents believed that there was difference between men and women in terms of access to and control over extension services. The proportion of men (69%) who believed there was difference was higher than that of women (46%).

- ***Access Improvement Strategies to Enhance Women's Access to and Control over Agricultural Extension and Veterinary Services***

Further analysis of the data collected through the focus group helped identify several strategies to improve the access of women and young people to agricultural extension and veterinary services. These are: (i) building the capacity of decentralized technical services as the management structure and enhancing advisory support to producers; (ii) supporting this target segment of the population with equipment and animal traction farming units; (iii) transferring improved technologies; (iv) developing irrigated production sites to retain youth during the off-season; and (v) facilitating credit access for producers.

54 % of respondents believed that there were strategies that would improve women's access to and control over agricultural extension and veterinary services. In terms of gender, more women (67 %) than men (38%) considered a possible strategy. The most cited strategies referred to capacity building, including training in new technologies, conservation, production and marketing technologies, etc.

INTRODUCTION

Mali is a large landlocked Sahelian country located at the heart of West Africa. It covers an area of 1,241,138 km2, of which about 60 % is located in the sub-Saharan or desert zone. It shares more than 7,000 km of borders with seven neighboring countries: Algeria to the North, Niger and Burkina Faso to the East, Côte d'Ivoire and Guinea to the South, and Mauritania and Senegal to the West. The climate is of intertropical type, characterized by a long dry season and a rainy season which varies from 2 months in the North to 5-6 months in the South. The average rainfall varies from less than 100 mm in the North to over 1,100 mm in the South.

The population, estimated at about 14.5 million inhabitants in 2009, is mainly rural, with 50.5 % women and 49.5 % men. Mali is experiencing increasing urbanization. The urban population, estimated at 3.3 million inhabitants in 2006 – less than a third of the total population, is expected to reach 12 million in 2025, i.e. about half of the total population[2].

The Malian economy is essentially based on agriculture. In 2006, this sector (excluding cotton production) contributed 1.6%[1] of the 4.6% growth rate of the Gross Domestic Product (GDP). Despite the huge agricultural potential of the country, a significant proportion of the population cannot meet their food needs. Agricultural production is not much diversified and depends on weather conditions and the technical and economic capacities of producers.

From 2007 to 2011, Mali developed its Growth and Poverty Reduction Strategy Paper (GPRSP) asserting the political will to make agriculture the engine of the fast growth of the country. This period was marked by the global financial crisis, whose effects were strongly felt on the economy in general and the agricultural sector in particular.

The Sikasso region has a significant agricultural potential which provides socio-economic benefits to village communities, management structures and local authorities. As the country's top agricultural immigration region, it is experiencing a growing pressure from agricultural activities and extensive farming systems imported from the areas of emigration. Interventions were undertaken to facilitate the dissemination of farming methods among communities.

Research Objectives

The objective of this study is twofold: (i) to analyze gender equity in decision-making and access to and control over labor and resources; (ii) to provide scientific evidence on strategies to be used to improve women's access to and control over agricultural extension and veterinarian services.

Research Questions and Assumptions

1. Gender equality in decision-making enables women to have access to and control over resources and labor.

- Is there any difference between women and men in terms of access to inputs?
- Do women participate in decision-making like men?

[1] DNSI, Mali Economic Accounts, 2006

- Does the participation or non-participation of women in decision-making affect access to and control over resources and labor?

2. Men and women do not have the same level of access to and control over agricultural extension and veterinary services

- Is there any difference between men and women in terms of access to and control over extension services?
- Are the activities of extension services gender-sensitive?

3. Strategies can be used to improve access to and control over agricultural extension and veterinary services for women.

- Is there any difference between women and men in terms of representation in decision-making organizations?
- Do women participate in and/or influence decision-making?
- Are there strategies that improve women's access to and control over to agricultural extension and veterinary services?

II. Study Methodology

2.1. Presentation of the Study Sites

The study was conducted in three villages in three different *Communes* of the Sikasso region which is the largest agricultural region in Mali. Indeed, the villages of Zantiebougou, Kani and Farakoro are respectively located in the *Communes* of Zantiebougou, Nafanga and Koloningue.

- The Village of Zantiebougou

Physical Characteristics

Zantiebougou is the main town of the rural *Commune* of Zantiebougou which includes almost all the villages of the former *Arrondissement*, except Soron, M'Piakala and Zemblebougou.
It is bordered:

- To the North by the *Communes* of Dogo and Debelin;
- To the South by the *Communes* of Garalo and Kebila;
- To the East by the *Commune* of Koumantou;
- To the West by the *Commune* of Bougouni.

The *Commune* Zantiebougou is located 27 km from Bougouni, the main town of the *Cercle* to which it belongs and 187 km from the regional capital (Sikasso). It covers an area of about 1,500 km2. Located in the Sudano-Guinean area with a rugged terrain, the *Commune* of Zantiebougou is based on a peneplain dominated by hills that have no general direction. The average altitude is around 260 m, but rarely reaches 300 m.
The vegetation of that high rainfall area is quite abundant.

Demographic information and population characteristics

The population of Zantiebougou is mainly Bambara and Fulani. According to the 2009 General Population and Housing Census, the *Commune* has forty (40) villages divided into six (6) development areas with a population of about 35,762 inhabitants.

The migratory movement is characterized by a rural-urban drift with massive migration of the workforce within the country, especially towards cities like Sikasso, Bamako and Bougouni, in search of marriage outfit, livelihood during lean periods or leisure. Migration to neighboring countries, especially Côte d'Ivoire, is also a feature of this phenomenon.

Social and Political Organization

In Zantiebougou, the social organization is based on the lifestyle of the Minianka society, where social relationships within lineages and between ethnic groups play a very important role in the social balance.

Economic Characteristics

The main economic activities in the *Commune* are agriculture, livestock, forestry and trade. In the area of microcredit, the presence of several stakeholders was noticed:
The main crops are cotton, which is a cash crop, and cereals, with millet, sorghum and maize as the most important ones in terms of acreage. Rice growing in lowlands or plains is mainly practiced by women. The areas developed for rice production are estimated at 111.79 ha, with a rice threshold. However, cotton – the cash crop – is taking precedence over food crops. Despite the fertility of the soil and the abundance of rains, the population of the *Commune* is not self-sufficient because of the keen interest of all in cotton growing.

- Kani

Physical Characteristics

The village of Kani is located about 45 km from the main town of the *Cercle* (Koutiala). It is bordered: to the east by the rural *Communes* of Zebala and Karangana (*Cercle* of Yorosso), to the West by the rural *Commune* of Cinsina and to the North by the rural *Commune* of Logouana.

The terrain is made up of savannah plains and undeveloped lowlands suitable for agriculture and livestock. The climate is of Sudanese type. Water resources are limited, most of the water needs being met through existing groundwater and ponds filled with rainwater during the rainy season. The vegetation is dominated by trees such as nere (*Parkia biglobosia*), shea, etc.

Demographic information and population characteristics

The village of Kani is part of the *Commune* of Nafanga and has a total population of 2,488 inhabitants (2009 census), of which 1,274 are women (51%) and 3,493 men (49%).

Economic Characteristics

Agriculture is the main activity of the village community. The different crops grown include cotton, millet, sorghum, maize, groundnuts, rice, soybean, forage crops etc.
It was noted that new crops were slowly adopted, while cereals and cotton were predominant in the cropping system. The small amount of rice was due to the failure to develop rice plains.
Market gardening was also not a widespread practice. This reflected the lack of land developed to this end. The village of Kani has 100 hectares of developable plains. There is a potential of sand and rubble mining in the village. If developed, this natural wealth can contribute to the development of the village. There are also gathering products such as shea, nere, baobab, Palmyra ("Zaban"). The village of Kani has four (4) primary school classes with a female enrollment rate of 39% (2004/2005 school year). Constraints are essentially the same as in Farakoro.

- Farakoro

Physical Characteristics

Farakoro village is part of the rural *Commune* of Koloningue, which is located in the South-East of the *Cercle* of Koutiala, in the region of Sikasso. It is located about 35 km from Koutiala and 440 km from Bamako, the capital city of Mali. The terrain there is relatively less rugged, often with some rocks (villages of Farakoro, M'peresso and Tarasso 1), but also some plains (Soungounlasso, Sogo, etc.) and suitable for agriculture and livestock. The climate is of tropical type. Water resources are limited, most of the water needs being met through existing groundwater and ponds filled with rainwater during the rainy season.

Demographic information and population characteristics

The village of Farakoro has a population of 2,224 people (1,157 men and 1,067 women) distributed among 283 households, who belong mainly to the Minianka (major ethnic group), Fulani, Bamana, Dogon and Bobo ethnic groups. The population is essentially agro-pastoralist.

Economic Characteristics

The *Commune* of Koloninque covers an area of 800 km2, of which 20,400 ha are arable and 2,600 ha marginal lands.

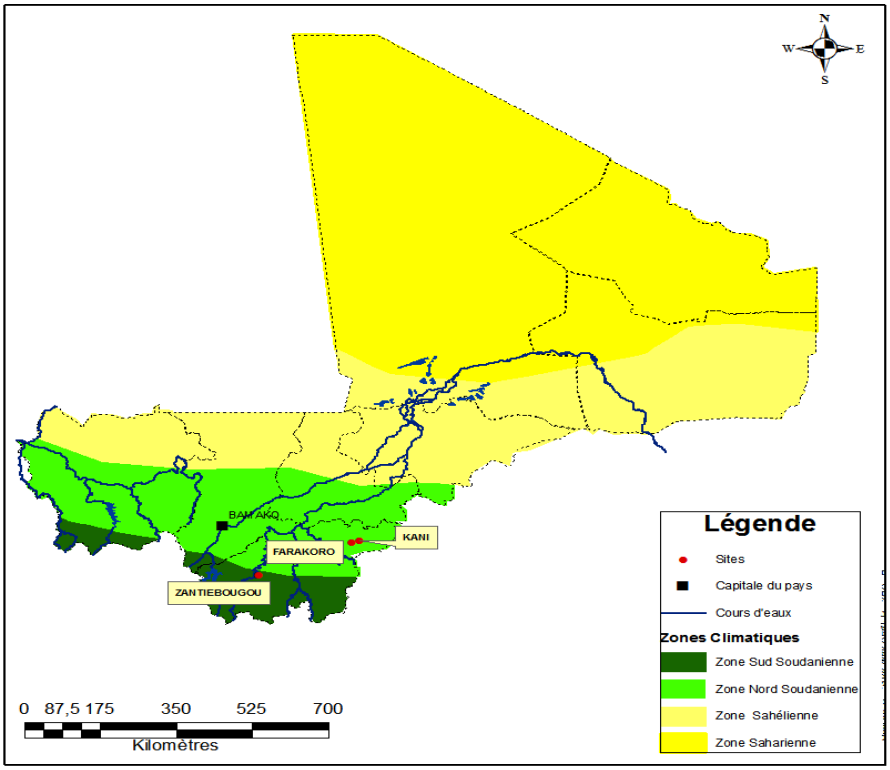
The village economy is based on agriculture, livestock, fisheries, petty trade, crafts, gathering and wage employment. Agriculture is the main activity in the *Commune* and is practiced by all the villages. The different crops grown include cotton, millet, sorghum, maize, groundnuts, rice, soybean, forage crops etc. It was noted that new crops were slowly adopted, while cereals and cotton were predominant in the cropping system. The small amount of rice was due to the failure to develop rice lowlands. If developed, this natural wealth can contribute to the development of the village. There are also gathering products such as shea, nere, baobab, Palmyra ("Zaban").
The village faces some constraints, namely: continuous degradation of the environment due to poor farming practices, excessive wood cutting, bush fires, animal wandering and overexploitation of land.

Failure to develop plains is a barrier to the extension of rice farming and market gardening, contributing to food insecurity in the *Commune*. It should also be noted that livestock markets and abattoirs were not developed. These constraints are also compounded by low literacy levels, the over-indebtedness of producers and high input costs, among others.

Gender Relationships

In all the concerned villages, relations between men and women are characterized by significant disparities. In agriculture, women do not own land and are confined to the cultivation of a limited number of crops. In practice, decisions are taken by men, although the work of some NGOs has began giving voice to women. Young people also are confined to specific tasks in agriculture and are generally left out of decision-making bodies made up of men and elders and built around traditional authorities.

Figure 1: Map of the Study Sites



2.2. Sampling

- **Selection of Sites**

Sikasso is the largest farming region in Mali. Different crops are grown: cotton, maize, dry crops, mango, oil seeds and tubers. Interventions in terms of support (technology) could be different in nature and magnitude depending on the type of crops. This is due to the interest in any farming and crop and its importance in the regional and national economy. That is why we found it necessary to extend the study area within Sikasso region in order to reach all the specifics of this region.

The region is mainly populated by Senoufo, Minianka, sedentary Fulani, Bambara and Samoko. The Senoufo and Samoko (akin) are mostly found in the *Cercle* of Sikasso. The Bobo and Mianka populate Koutiala *Cercle* with a majority of Bobo in Yorosso *Cercle* too. In the *Cercle* of Kolondieba we mostly found Bambara and sedentary Fulani. In the *cercle*s of Bougouni and Yanfolila, Bambara from the Fulani and Mandinka interbreeding are majority.

Socioeconomic realities vary from socio-ethnic group to another. The Large-scale farmers are Senoufo and Mianka and women activities in these communities consist essentially in being labor for harvesting, and cultivation of oilseed products. Socio-ethnic group movements exist in the region beyond the situation described above. In Bougouni Kolondieba and Yanfolila *Cercle*s for example, there is a Mianka settlement but Dogon also arrived after the drought of the 1980s.

For the choice of study sites/villages, we have taken into account social/ethnic and cultural differences and major production systems (agriculture and agroforestry). To this effect, the region was divided into three areas/*cercle*s:

(i) Koutiala, mainly populated by Mianka: dry crops and cotton;

(ii) Kolondieba, inhabited by mostly Bambara and sedentary Fulani: cotton and tubers;

(iii) Sikasso, populated par Senoufo: dry cereals (sorghum and millet), cotton, fruit trees and vegetables.

Using the knowledge of some key informants familiar with the agricultural practices and social/ethnic characteristics) at regional level, one study site/village was chosen in each of the 3 areas identified above: Karangasso (Koutiala *Cercle*), Kolondieba (Kolondieba) and Fama (Sikasso *Cercle*).

- **Selection of Respondents**

Once in the village, enumerators will join the village centre. A random method will be chosen for the choice of interviewees. A pen will be thrown to indicate the direction to take. Each enumerator will throw his/her pen and take the direction under the supervision of the team leader (supervisor). Thus, individuals targeted in the study will be selected in each house respecting a step of one house. Enumerators will resume the same random process until they reach the number of individuals to be interviewed.

Besides, the community level was considered through focus group discussions, individual interviews with key informants (elected officials, mayors, community leaders, and traditional leaders, representatives of community-based organization, technical services representatives or NGO). At least two key informants (Technical services, NGO) and a Focus group, (community representative) will be interviewed on each site, taking into account gender consideration, where possible.

- **Sample Size**

To ensure representativeness according to village size (number of households), a sample of 510 people were interviewed in three target sites/villages in the *Commune* of Zantiebougou, including 285, 122 in Kani and 103 in Farakoro. The population structure provided by the General Population Census (RGP 2009) shows that the Malian population is composed of 50.4% women and 49.6% men. Based on national statistics, 85 women and 77 men were surveyed in Karangasso; 80 women and 72 men in Fama; and 97 women and 89 men in Kebila. The number of interviewed women was higher than that of men in all the villages. Due to the difficulties encountered (including availability in the midst of the rainy season), this sample was modified in terms of target group by area of activity and 510 people were reached (including more than 50% women). Associations and cooperatives, as well as local authorities, helped draw up lists of people by type of activity in order to be able to reach them.

Focus group discussions and interviews were conducted in each surveyed village with farmer organizations and technical services, as well as NGOs working there. Therefore, research has touched at least one farmer organization, one representative of Government extension services, one NGO and one labor supplier group per the surveyed village.

Table 1: Study Sample in the Three Villages

No	VC actors	Sub-actors	Female		Male	
			Projected	*Realized*	*Projected*	*Realized*
1	Producers	Cash crops	92	97	92	75

		Vegetables (market gardening)	36	24	36	23
		Agroforestry (trees)	33	45	33	33
		Livestock	22	28	22	24
	Sub-total		183	194	183	155
2	Collectors	Agroforestry products	10	14	10	16
	Sub-total		10	14	10	16
3	Processors	agricultural products	9	10	9	4
		Forestry products	9	22	9	8
	Sub-total		18	32	18	12
4	Traders	Agricultural/forestry products	12	15	12	10
		Non-agri/forestry products	7	12	7	6
	Sub-total		19	27	19	16
5	Laborer	All categories	20	25	20	17
	Sub-total		20	25	20	17
6	Extension/veterinary service providers		0	1	0	1
	Sub-total		0	1	0	1
	GRAND TOTAL		250	293	250	217

2.3. Tools and Data Collection

Quantitative and qualitative data collection instruments were used individually and collectively to collect gender disaggregated data.

Two types of tools were used for this study: the discussion guides and the questionnaire. For the qualitative component, discussion guides were developed to facilitate focus group discussions with communities and extension services. For the quantitative component, a questionnaire was used for individual interviews with the target women and men.

2.4. Data Analysis

Quantitative data were entered on Sphinx by two data entry operators. For this purpose, a data entry mask has been developed to take into account the different parameter and consistency checks. The data were transferred to the SPSS 20 software and Stata 10.0 for statistical analysis.

The analysis was presented separately for men, women and youth (15-24). Content analysis was used for qualitative data and descriptive statistical analysis for frequencies. Linear and logistic regression was also used to analyze the determinants of access to and use of technology, labor, decision-making and extension services.

Some techniques were developed to assess the relationship between this set of "multidimensional" variables. Thus, in a function where Y is considered as a dependent variable to be assessed by explanatory or independent variables. In fact, the proposed regression analysis is a statistical technique providing potential to establish a relationship between dependent variables – "access to and use of labor", "access to and use of technology", "access to and control over decision-making" and "access to and control over extension services" – and explanatory variables

associated with the prevailing economic, demographic and social characteristics to finally examine associations and make projections.

To ensure an effective analysis of this relationship, it is important to know the nature of Y among the dependent variables. In fact, access to variables and use of labor and technology was built on a categorical binary variable, with 0 = "no access" and 1 = "access to and use of various agricultural and veterinary technologies during the last 12 months". In addition, access to employment variables was created with working hours per year, depending on the type of farming land and gender previously expressed in terms of counter variable.

Similarly, for the decision-making variable the frequency of decisions was assessed by type of farming and livestock flagship activities, by gender and by type of farmland. In addition, extension service access and control variables were built on a binary variable, with 0 = no and 1 = use of extension services at least once last year. In addition, independent variables such as the number of households, transportation and assets were derived from the sum of the numbers of assets per household. However, the number of animals was derived from the conversion of the number of Tropical Cattle Units (TCU), with 0.8 TCU for cattle, 0.15 TCU for sheep/goat, 1 TCU for horses and 0.5 TCU for donkeys (JGRC 2001). Poultry is not reflected in this count.

So, a linear regression model was used to assess the determinants.

Difficulties and Limitations

The main difficulty was related to the availability of communities during the survey period. This led to a change in the original sample. This difficulty was compounded by the fact that there was only one questionnaire for all the actors. Some people had difficulties with some questions that fell beyond their expertise. The study limitations were associated with the nature of the quantitative data and the potentially inherent biases, though all reasonable care had been taken during the survey in order to minimize such biases.

Outcomes of the Study

3.1. General Characteristics of Actors

This section describes the general characteristics of respondents including demographic, cultural, economic, social and membership in social organizations characteristics.

- Socio-Cultural Characteristics

The table below presents the characteristics of the populations surveyed.

The survey focused on a sample of 510 individuals of which 52% were women, 42% men and 6% 17-24 year-old youth. The average age of the population was 42, the youngest 17 years old and the oldest being 75.

Youth (15-24) accounted for 6% and it is the same proportion, according to the International Labor Organization.

Most of the respondents had marriage relationships with the head of the household. Indeed, 44% of respondents were wives of household heads and 33% were heads of households. The largest proportion of household heads surveyed was in the Village of Zantiebougou (40%).

As regards the marital status, the majority of respondents (93%) were married and the widowers accounted for 5%. The proportion of widowed women (8%) was higher than that of men (1%).

The respondent included a large proportion of illiterates (81%). Women (86%) were more affected by the lack of education than men (75%). The largest proportion of illiterate people was found in the village of Kani (90%), followed by the village Karakoro (88%). 14% of people could read and write, with the largest proportion of which was found in the village of Zantiebougou (18%).

Men represented the largest proportion of natives (85.8%). Non-native men had settled in surveyed villages and lived there, conducting an activity. As for women, they were wives who came there through marriage. The proportion of non-native youth is high, representing 53%. This trend could be the result of an immigration of young labor from other towns.

The Minianka (44%) and Bobo (43%) ethnic groups predominated in the surveyed villages.
To acquire knowledge in agriculture, one in four women claimed to have received at least one training in agriculture, compared to 14% of men. This shows integration of women in agricultural extension programs.

Table 1: Socio-Demographic Characteristics of Respondents

		FARAKORO	KANI	ZANTIEBOUGOU	Total
Sex	Male	49.5%	23.0%	48.4%	42.5%
	Female	50.5%	77.0%	51.6%	57.5%
Age Group	Youth (17-24)	1.0%	15.6%	4.2%	6.3%
	Adults (25 and older)	99.0%	84.4%	95.8%	93.7%
Relationships with the Head of Household	Himself	24.3%	23.8%	40.0%	32.9%
	Wife	48.5%	44.3%	42.5%	44.1%
	Daughter	0.0%	0.8%	0.7%	0.6%
	Son	21.4%	0.0%	9.8%	9.8%
	Sister-in-law	1.0%	21.3%	3.2%	7.1%
	Husband	0.0%	0.0%	0.0%	0.0%
	Other	4.9%	9.8%	3.9%	5.5%
Level of Education	Illiterate	88.3%	90.2%	74.4%	81.0%
	Can read and write	11.7%	5.7%	17.5%	13.5%
	Basic	0.0%	3.3%	3.9%	2.9%
	Secondary	0.0%	0.8%	3.9%	2.4%
	Tertiary	0.0%	0.0%	0.4%	0.2%
Marital Status	Single	0.0%	0.0%	2.1%	1.2%
	Divorced	0.0%	0.0%	0.7%	0.4%
	Married	99.0%	92.6%	92.6%	93.9%
	Widowed	1.0%	7.4%	4.6%	4.5%
Ethnic Group	Senoufo	1.0%	0.8%	2.8%	2.0%
	Fulani	0.0%	0.0%	0.0%	0.0%
	Bobo	94.2%	95.1%	1.4%	42.6%
	Bambara	0.0%	0.8%	13.0%	7.5%

	Minianka	3.9%	2.5%	77.1%	44.4%
	Samoko	0.0%	0.0%	0.4%	0.2%
	Other	1.0%	0.8%	5.3%	3.3%

The average number of children and dependents per household was 5 and 4, respectively.

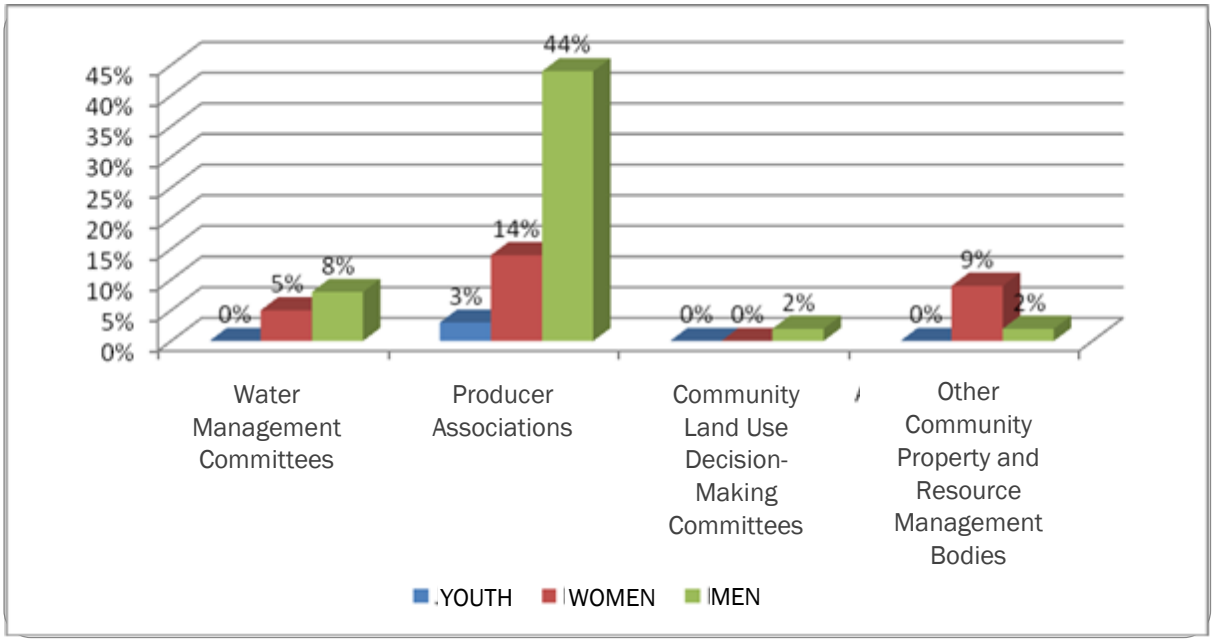
Social economic variables	Total Average
Age	42
Number of children	5
Number of dependants	4
Number of years in the village	3

- **Involvement in Social Organizations within the Community**

Involvement in local social organizations has been addressed in the survey. We noted a very low level of involvement in local organizations. Overall, 32% of respondents were members of at least one local organization. In terms of gender, men were more involved in organizations (47%) than women (20%). In terms of age groups, 17-24 year-old youth (3%) were less involved than adults.

By type of organization, the highest rates of involvement were recorded in producer organizations where men accounted for 44% and women 14%. This was due to the fact that most of the respondents were not even aware of the existence of such organizations in their villages. Cooperatives and producer associations were the most common organizations and involved men and women, but also up to 3% of youth. These results are shown in the Table below.

Figure 2: Involvement in Organizations



Besides their overall low level of membership, young people were also less active in the organizations of which they are members, as none of them had a leadership position in such organizations. They reported having no influence on decisions and being afraid to take the floor during meetings.

Overall, 6% of women claimed to be among the leaders of their organizations. It should be noted that women's organizations are generally exclusively female. A little less than half of these female leaders (47%) called for their ideas to be taken into account during meetings. The most cited reason for the non-participation of women and men in local organizations was their lack of awareness of the existence of such organizations in the village.

27% of men are leaders in the organizations to which they belonged and more than half of them (79%) reported making suggestions and advocating during meetings to influence decisions.

We noticed the presence of several tontine-type women's – but also of men's – organizations. These constitute the bulk of "other community property and resource management bodies." Women's cooperatives were very active in the processing of forestry products as shown on the picture below.

Photo 1: Shea Butter Manufacturing by Women in Zantiebougou

- Economic Characteristics

The analysis of the employment situation shows a multiplicity of activities conducted by respondents. So, it is rare to find a head of household who is confined to a single activity. All of them perform two or more activities to address the adverse effects of the growing poverty and their multifaceted vulnerability. Agriculture is the main activity. Indeed, 69 % of respondents were producers (see table below).

Table 2: Types of Actors

Type of actors	Total
Producers	69.2%
Collectors	4.7%
Processors	8.8%
Traders	8.6%
Laborer	8.2%
Extension/veterinary service providers	0.4%
Total	**100%**

The main crops grown are millet, sorghum, cowpea, groundnut, sesame, etc. Almost all arable lands were developed. Agriculture provides for the bulk of household own consumption needs, and supports commercial activities in the locality.

3.2. Gender Equality in Access to and Use of Assets

- **Access to Land Resources**

Land ownership in the survey area reflects the marginalization of certain segments of the population (youth and women). Access rate were higher for rain-fed land than for irrigated land. More men had access to rain-fed land (96%) than women (81%) and youth (69%). Very few respondents reported having access to irrigated land: 2% of men, compared to 5 % of women.

It should be specified that land belongs, in the strict sense of the word, to men. In the three survey sites, it was found that no women had control over land. However, they may have access to land as the property of men. It was reported that, culturally, the ownership of agricultural land was exclusively reserved for men. The following table shows the average areas of land, as well as the average number of fruit trees.

Table 3: Land Resources by Village

	Land areas by village (ha)				Total
Village	Area of Rain-fed Land Owned	Area of Rain-fed Land Leased	Area of Rain-fed Land Shared	Communal Rain-fed Land	
FARAKORO	1,186	0	169	804	2,159
KANI	1,144	0	0	0	1,144
ZANTIEBOUGOU	1,101	1	19	77	1,198
Total	3,431	1	188	881	4,501

Land resources are prominent in household resources. The data analysis on recorded assets shows a total of 4,501 ha in the three villages, the largest area (2,159 ha) being in the village of Farakoro.

The area of rain-fed land owned was greater (3,431 ha) than that of other types of land, i.e. land users had full ownership of their lands.

The proportion land lease in cultivated land was low.

The gender analysis of land distribution (see table below) also confirms that women have equal access to land as men. They hold a larger area of rain-fed land (3,234 ha) than men do (1,267 ha).

The irrigated land area was very small at 19 ha (Table No.).

Table 4: Inventory of Rain-fed Farmland by Gender

	Land areas by village (ha)									
Village	Area of Rain-fed Land Owned		Area of Rain-fed Land Leased		Area of Rain-fed Land Shared		Communal Rain-fed Land		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
FARAKORO	65	1,121	0	0	169	0	21	783	255	1,904
KANI	669	475	0	0	0	0	0	0	669	475
ZANTIEBOUGOU	338	763	0	1	5	14	0	77	343	855
Total	1,072	2,359	0	1	174	14	21	860	1,267	3,234

Table 5: Inventory of Irrigated Farmland in the Three Surveyed Villages

	Land areas by village (ha)				Total
Village	Area of Irrigated Land Owned	Area of Irrigated Land Leased	Area of Irrigated Land Shared	Irrigated Communal Land	
FARAKORO	2			2	4
ZANTIEBOUGOU	15	0	0	0	15
Total	17	0	0	2	19

Table 6: Status of Irrigated Lands by Gender

	Land areas by village (ha)									
Village	Area of Irrigated Land Owned		Area of Irrigated Land Leased		Area of Irrigated Land Shared		Irrigated Communal Land		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
FARAKORO	0	2	0	0	0	0	0	2	0	4
ZANTIEBOUGOU	12	3	0	0	0	0	0	0	0	15
Total	12	5	0	0	0	0	0	2	0	19

A total of 11,851 fruit trees were reported by farmers as part of their assets (see table). More fruit trees were found in Zantiebougou than in the other two landscapes.

Table 7: Fruit Tree Ownership

Village	Number of Rain-fed Fruit Trees	Number of Irrigated Fruit Trees	Total
FARAKORO	1,805	0	1,805

KANI	973	0	973
ZANTIEBOUGOU	9,073	0	9,073
Total	11,851	0	11,851

- Access to Credit

In the 3 localities surveyed, 39 % of respondents had access to credit (see Table below). The credit access rate was higher in the village of Zantiebougou (42%), followed by the village of Farakoro (39%).

Men had more access to credit (42%), compared to women (39 % – see table). So, it seems that there is no gender-based discrimination in credit extension.

Table 8: Credit Access Rate by Village

Access to Farm Credit		Did you receive credit during the past 12 months?		Total
		Yes	No	
Village	FARAKORO	38.8%	61.2%	100%
	KANI	33.6%	66.4%	100%
	ZANTIEBOUGOU	41.8%	58.2%	100%
	Total	39.2%	60.8%	100%

Table 9: Credit Access Rate by Gender

		Yes	No	Total
Gender	Male	41.9%	58.1%	100.0%
	Female	39.2%	60.8%	100.0%
	Total	39.2%	60.8%	100.0%

The credit sources identified were cooperatives (60%), followed by parents (8%) and neighbors (7%). More women obtained credit from cooperatives than men. Bank lending sources represented only 6 %, while there was no government source of credit.

Credit sources were less diversified, but access to credit was still very limited. Thus, 61 % of respondents did not have access to credit. The contribution of banks and micro-finance institutions was very low.

Figure 3: Sources of the Credits Received

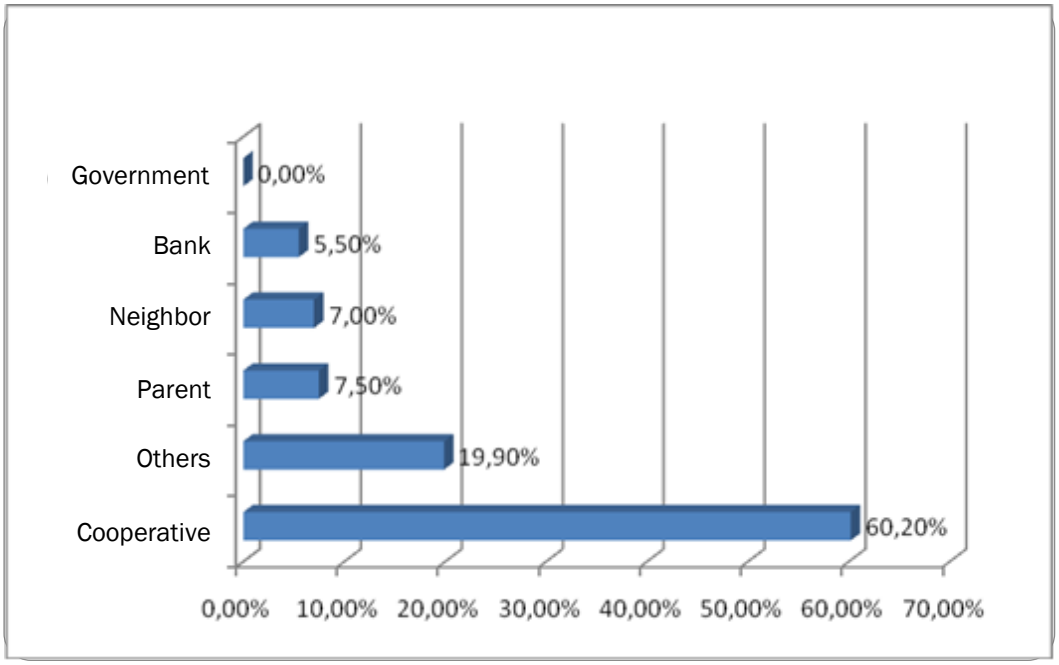


Table 10: Proportion of Credit Sources by Gender

Credit Sources	Sex		
	Male	Female	Total
Cooperative	57.6%	62.4%	60.2%
Neighbor	7.6%	6.4%	7.0%
Parent	2.2%	11.9%	7.5%
Bank	5.4%	5.5%	5.5%
Government	0.0%	0.0%	0.0%
Others	27.2%	13.8%	19.9%
Total	100.0%	100.0%	100.0%

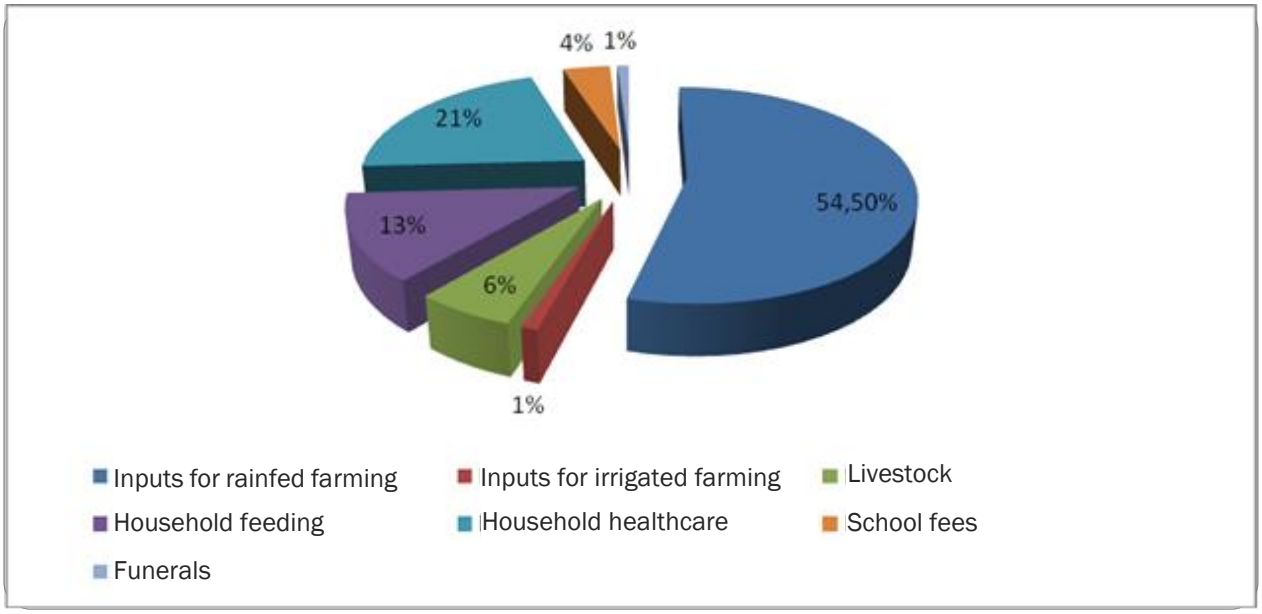
However, 75% of borrowers pay the interest due (see table), mostly women (90%), followed by men (57%). Bank and cooperative credits were mostly repaid.

Table 11: Credit Interest Payment by Gender

	Sex		
	Female	Male	Total
Cooperative	92.5%	64.7%	76.9%
Neighbor	57.1%	14.3%	35.7%
Parent	50.0%	30.8%	33.3%
Bank	100.0%	83.3%	90.9%
Government	0.0%	0.0%	0.0%

More than half of respondents (55%) reported having used the credit to purchase inputs for rain-fed farming; 21% spent it on health care and 13 % used their credits to feed their household.

Figure 4: Proportion of Use of the Credits Received



3.3. Gender Equity in Decision-Making and Control over Resources and Labor

From our discussions with respondents, it appears that access to paid labor is exclusively reserved for men. This is corroborated by the daily wage of men and women labor. When women are employed in agriculture, regardless of the type of activity, their daily wage never exceeds 750 CFA Francs[2], whereas men's remuneration can reach 5,500 CFA Francs, depending on the type of activity (e.g. plowing). There were 24 men with a certificate or a degree in 510 the households covered by the survey, compared to 17 women; this also reduces the opportunity for women to have equal access to job.

For 52% of female respondents, there is no difference between men and women in access to and control over extension services, compared to 31% of men. For 58% of respondents believed, extension services were gender sensitive. It is worth noting that several actors in the agriculture and community empowerment areas specifically supported women. Qualitative data show that women's cooperatives are better managed and more dynamic, despite women's limited access to resources (including land). The main challenges they face are, in order of importance: limited access to capital (74% of female respondents), lack of equipment (68%) and low cooperation within the community (23%). But, it is clear from our discussions with communities that, overall, the challenges were the same for men and women, but on different scales. Women have very little room for maneuver due to the above mentioned challenges posed by the secondary role assigned to them by the community. Women think that implementing main activities in the field of processing and marketing of agroforestry products can allow them to improve their access to labor. In this

[2] 1$US =500 CFA Francs (XOF)

area that they can not only move towards a greater involvement in decision -making but also have control over labor.

- **Women's Farming on Female Owned Lands**

In the light of our findings, works mostly undertaken by female respondents on women's farmlands were done in a moderate way. These are, in order of importance, sowing, crop transportation, weeding and soil preparation. The table below provides details of the frequency with which the different tasks were performed.

The tasks mostly performed by women consisted in deciding on the use of crops (26%), followed by soil preparation and carrying the harvest home (21%).

Table 12: Frequency of Activities on Women's Farmlands

Tasks	(%)			
	Never	Seldom	Moderately	Always
Preparing the organic fertilizer	41.4	6.0	35.7	16.9
Preparing the soil	23.7	5.6	50.0	20.7
Sowing	23.3	3.4	53.8	19.5
Weeding	24.1	2.6	53.0	20.3
Harvesting vegetables (tomato, onion, etc.)	70.7	1.9	9.4	18.0
Harvesting general crops (rice, millet, etc.)	25.2	3.8	53.0	18.0
Carrying the harvest home	22.9	3.0	53.4	20.7
Deciding on the use of crops	28.2	3.4	42.9	25.6
Other (specify)	99.6	0.0	0.4	0.0

Beyond the frequency of performance of the different tasks on women's farmlands, the survey also studied people performing them. Thus, it can be seen from the table below that Female adults perform tasks themselves on their farmlands.

Table 13: Implementation of Activities on Women's Farmlands

Tasks	*%*						
	No Answer	*Male Adult*	*Female Adult*	*Girls*	*Boys*	*Mutually*	*Waged Labor*
Preparing the organic fertilizer	41.35	5.26	50.75	0.00	1.50	0.75	0.38
Preparing the soil	23.60	2.62	63.30	0.37	4.12	1.12	4.87
Sowing	23.68	0.00	65.79	2.63	2.26	3.76	1.88
Weeding	24.25	1.12	64.18	3.36	1.49	2.61	2.99

Harvesting vegetables (tomato, onion, etc.)	69.55	1.13	27.82	0.00	0.75	0.38	0.38
Harvesting general crops (rice, millet, etc.)	25.84	3.75	58.05	0.37	3.75	7.12	1.12
Carrying the harvest home	22.93	13.16	52.63	1.13	6.39	2.63	1.13
Deciding on the use of crops	28.95	6.02	63.91	0.38	0.00	0.38	0.38
Matures	100.00	0.00	0.00	0.00	0.00	0.00	0.00

- Men's Farming on Male Owned Lands

As regards the tasks on men's farmlands, sowing, weeding, and general crop harvesting and carrying were cited. These tasks are similar to those mostly cited by women on their farmlands. The table below provides details on the frequency of performance of these tasks among men.

Table 14: Frequency of Activities on Men's Farmlands

	%			
Tasks	Never	Seldom	Moderately	Always
Preparing the organic fertilizer	84.43	3.77	6.13	5.66
Preparing the soil	68.87	8.96	21.70	0.47
Sowing	32.08	10.38	55.19	2.36
Weeding	27.83	7.08	63.68	1.42
Harvesting vegetables (tomato, onion, etc.)	67.45	4.72	22.64	5.19
Harvesting general crops (rice, millet, etc.)	38.21	9.91	43.40	8.49
Carrying the harvest home	61.79	10.85	26.42	0.94
Deciding on the use of crops	83.96	0.94	3.30	11.79
Other (specify)	100.00	0.00	0.00	0.00

As to "who does what", we found that adult women were mostly the ones who performed major tasks such as weeding (55%), sowing (53%), general crop harvesting (rice, millet, etc.) in men's farms. This is not only due to the fact that some tasks are assigned to women but also and above all to the fact that, strictly speaking, women simply do not own land as indicated earlier. In fact, although women use land, this resource does not belong to them. Those we met were well aware of this reality. The following table shows the different people who perform these tasks.

Table 15: Implementation of Activities on Men's Farms

Tasks	No Answer	Adult Male	Adult Female	Girls	Boys	Mutually	Waged Labor
Preparing the organic fertilizer	83.96	7.55	6.60	0.00	1.89	0.00	0.00
Preparing the soil	68.40	5.19	25.47	0.00	0.94	0.00	0.00
Sowing	32.08	11.32	53.30	0.47	2.83	0.00	0.00
Weeding	28.64	8.92	55.87	1.88	3.76	0.47	0.47
Harvesting vegetables (tomato, onion, etc.)	67.92	8.96	21.70	0.94	0.47	0.00	0.00
Harvesting general crops (rice, millet, etc.)	37.26	17.45	39.15	0.47	4.72	0.94	0.00
Carrying the harvest home	60.85	10.38	18.87	0.94	7.55	1.42	0.00
Deciding on the use of crops	81.60	3.77	14.15	0.47	0.00	0.00	0.00
Other (specify)	100.00	0.00	0.00	0.00	0.00	0.00	0.00

The results below show that women spend more time on harvesting, weeding and sowing, whereas men spend more hours a day on harvesting, sowing and weeding. But on average, women spend significantly more time performing agricultural tasks than men. In terms of number of months, women reported spending, on average, more time on weeding (1.7 months) and harvesting (1.6 months), whereas men spent more time on preparing organic fertilizer and weeding as shown in the Table below. It should be noted that some of these tasks are recurring during the rainy season. This fact is not taken into account in the number of months reported.

Table 16: Duration of Farm Activities

Tasks	Average Amount of Time per Day		Seasonality – Number of Months	
	Women's Farms	Men's Farms	Women's Farms	Men's Farms
Preparing the organic fertilizer	4.89	0.87	1.28	1.88
Preparing the soil	6.50	2.02	0.84	0.26
Sowing	6.85	3.48	0.49	0.73
Weeding	6.91	3.45	1.70	1.12
Harvesting vegetables (tomato, onion, etc.)	1.38	1.94	1.62	0.70

Harvesting general crops (rice, millet, etc.)	6.92	3.65	0.46	0.79
Carrying the harvest home	5.99	2.64	0.37	0.23
Other (specify)	0.00	0.00	0.00	0.00

Men's wages in agriculture were well above those of women as shown in the table below. On average, women earned around 500 CFA Francs, regardless of the type of task performed, whereas men can earn up to 5,000 CFA Francs a day for plowing. It appears from our discussions with communities that paid work for women in agriculture was rare in the study zone.

Table 17: Average paid-labor costs by gender (in FCFA Francs)

Works	Men's Waged Works in Agriculture	Women's Waged Works in Agriculture
Grubbing	1202,70	534,72
Plowing	5147,34	532,12
Hoeing	1012,35	533,33
Weeding	1221,71	533,33
Harvest	1107,06	533,33
Carrying	347,56	532,12
Others	0,00	15,06

Source: Field Survey, 2015

Plowing generally requires a plow and an ox as shown in the picture below. Young men and children are the ones who are solicited for this practice.

Photo 2: Plowing in Kani

3.4. Gender Equity in Access to and Use of Labor and Related Resources

- **Determinants of Access to and Use of Labor and Related Resources**

For the purpose of modeling, we used the variable "area of the rain-fed land owned" to account for access to labor. We assumed that the people who have access to labor are those who have access to land. The regressions gave the following results:

Regression Equation for Women:

*Rain-fed land area owned = +0.301 * Age -0.132 * Number of children -5.649 * Number of persons +0.663 * Number of fruit trees +0.441 * Irrigated land area owned +2.285 * Number of hoes +1.384 * Number of shovels -14.611 * Number of axes -9.802 * Number of plows -0.000 * Cost of agricultural inputs +0.297 * Experience in the business -1.769*

Regression Equation for Men:

*Rain-fed land area owned = -0.165 * Age +0.649 * Number of children +0.235 * Number of individuals -0.008 * Number of fruit trees -1.054 * Number of radio asset still functioning -0.690 * Number of hoes +0.683 * Number of shovels +1.690 * Number of axes +0.483 * Number of plows +1.194 * Oxen +0.413 * Goats +0.233 * Sheep +0.543 * Distance from inputs +0.000 * Cost of agricultural inputs +2.137*

Regression Equation for Youth:

*Rain-fed land area owned = +0.090 * Age +0.203 * Number of children +0.058 * Number of fruit trees -2.164 * Number of radio asset still functioning +0.000 * Number of hoes -1.043 * Number of axes -0.038 * Goats +0.684 * Sheep +0.765 * Distance from inputs -0.000 * Cost of agricultural inputs -1.473*

We found that for women, 11 variables accounted for 100.0% of the variance in Rain-fed land area owned, with the multiple correlation coefficient (R) = 1.00 and the Fisher's coefficient (F) = 7.58. We can see that the variables "Number of hoes" and "Number of shovels" are strongly correlated (correlation coefficient = 0.96).

For men, 14 variables accounted for 81.2 % of the variance in Rain-fed land area owned, with the multiple correlation coefficient (R) = 0.90 and Fisher's coefficient (F) = 5.84. We notice a significant contribution of the variables "Number of axes" and "Number of oxen".

Finally, for youth, 10 variables accounted for 100.0% of the variance in Rain-fed land area owned, with the multiple correlation coefficient (R) = 1.00 and the Fisher's coefficient (F) = 0.31. Here, it is the variables "Number of radio asset still functioning" and "Sheep" that are strongly correlated (correlation coefficient = 1.00).

- **Determinants of access to inputs**

The following estimated model determines access to inputs. The specified model is as follows:

- Access to inputs ("acces_in"): 1 = Yes; 0 = No;

- Occupation of the household head ("occupati") has the following modalities: 1 = Unemployed; 2 = Maid; 3 = Student; 4 = Farmer; 5 = Farm labor; 6 = Day laborer; 7 = Pastoralist; 8 = Craftsman; 9 = Retailer; 10 = Wholesaler; 11 = Civil servant;
- Possession of rain-fed land ("poss_surface"): 1 = Yes; 0 = No;
- Number of plows "nbre_cha";
- Number of hoes "nbre_hou";
- Number of axes "nbre_hac"

```
Iteration 0:   log likelihood = -324.62223
Iteration 1:   log likelihood = -257.28098
Iteration 2:   log likelihood = -252.67763
Iteration 3:   log likelihood =  -252.4244
Iteration 4:   log likelihood = -252.42345
Iteration 5:   log likelihood = -252.42345

Logistic regression                             Number of obs   =        510
                                                LR chi2(5)      =     144.40
                                                Prob > chi2     =     0.0000
Log likelihood = -252.42345                     Pseudo R2       =     0.2224

------------------------------------------------------------------------------
    acces_in |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    occupati |   .0050115    .003346     1.50   0.134    -.0015465    .0115695
poss_surface |    2.11504   .2365895     8.94   0.000     1.651333    2.578747
    nbre_cha |   .9712124    .295906     3.28   0.001     .3912474    1.551177
    nbre_hou |   .0871404   .0648269     1.34   0.179     -.039918    .2141987
    nbre_hac |  -.3516761   .1299039    -2.71   0.007    -.6062831   -.0970692
       _cons |  -.7665342   .2070528    -3.70   0.000     -1.17235   -.3607182
------------------------------------------------------------------------------
```

The estimated model gives the following equation:

acces_in = -0.76 -0.005 * occupati + 2.11 * poss_surface - 0.97 * nbre_cha - 0.08 * nbre_hou - 0.35 * nbre_hac

Coefficient of determination of the model: Pseudo R2 = 0.224. The coefficient of determination lies between 0 and 1. The closer it is to 1, the more the model is crucial. But, generally, the coefficient of determination is lower in logistic regression models than in the linear regression model.

The estimated value of "acces_in" is always between 0 and 1. It is equal to zero (0) if the household has no access to inputs and to one (1) if the household has access to inputs.

It should be noted in this estimated model that access to inputs is strongly related to possession of rain-fed land.

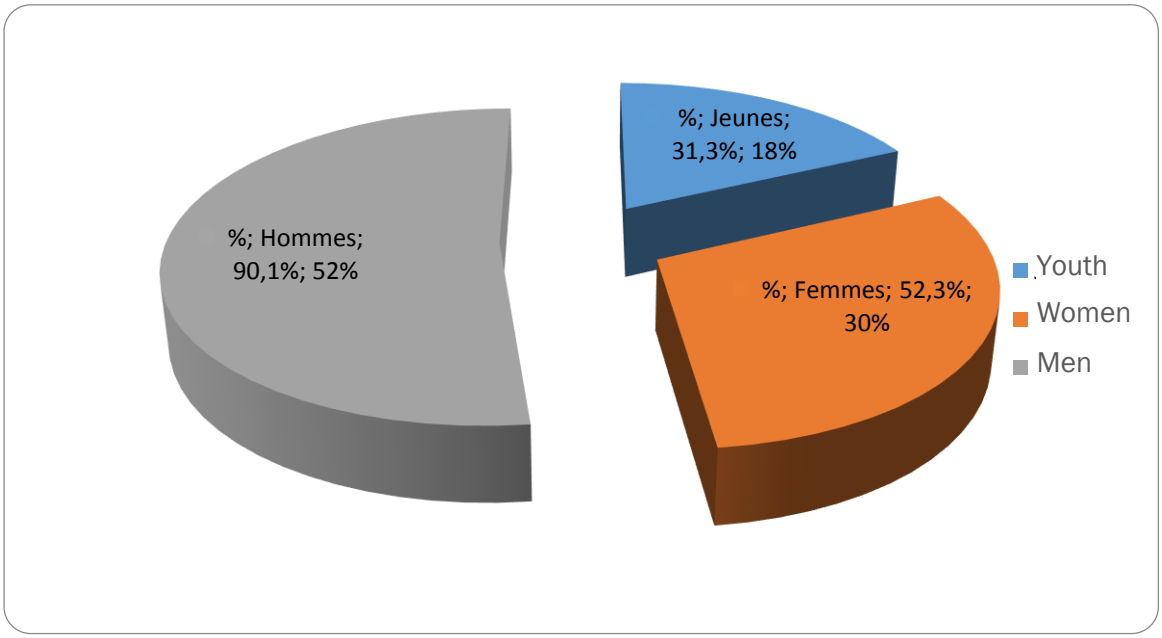
To improve this model and be able to make regressions on the three strata (Men, Women and Youth) in a robust way, we recommend collecting data on input availability, cost and distance from all households. In this study, these data have been collected only for those who had access inputs.

- Gender-Related Gap in Access to Inputs

Respondents were asked if they had had access to inputs during the last 12 months.

Overall, the findings show that 69% of respondents had had access to inputs during the last 12 months in the three surveyed villages. More men (90 %) had had access to inputs during the last 12 months than women (52%) and 17-24 year-old youth (31%). The table below shows the results.

Figure 5: Access to Inputs



The average distance to inputs was one kilometer for women and men and less than one kilometer for youth 17-24 years. Almost all of the study subjects had access to inputs in their own village or in a neighboring village. So, physical access to inputs was not an obstacle. The inputs mostly purchased by youth were fertilizers, whereas women and men mostly secured fertilizers and pesticides. The average cost of the inputs purchased varied from 95,700 CFA Francs for youth (transportation cost of 15,000 CFA Francs) to 73,000 CFA Francs for women and 212 144 CFA Francs for men. The average transportation cost was 100 CFA Francs for women and 500 CFA Francs for men, respectively. Since the inputs were generally available in the village, they were carried on foot or by cart, which significantly reduced transportation costs.

Young people were not engaged in income-generating activity. Few women and men also conducted such types of activities: only 20 women out of the 246 respondents (7.5%) and 12 men out of the 212 respondents or 5.7%. Women were involved in forestry and agricultural processing activities, whereas men were engaged in the processing of forestry products and cobbling (shoe and bag manufacturing). Value-added activities were generally rare.

- Agricultural Challenges

Overall, the challenges mostly cited by respondents were: the lack of capital (77%), the lack of agricultural equipment (73%) and the lack of fertilizer (63%).

The challenges mentioned by men were numerous, including, in order of importance: the lack of fertilizers, poor soils, the lack of agricultural equipment and the lack of capital. It should be recalled that the latter was cited very often by women. According to them, it was the main constraint to the development and expansion of their farming practice so as to include crops that were the monopoly of men. The lack of capital is interlinked with the lack of equipment and fertilizer. The latter was available, even in the villages concerned, but financial access was a constraint for women. Yet the challenges cited by women were fewer than those reported by men, including, in order of importance: the lack of capital, the lack of agricultural equipment, the lack of fertilizer and poor soils.

As highlighted above, fertilizer was often available but not always accessible to farmers. Agricultural challenges also included (plant) diseases and labor shortage due to the migration of young people to mining areas.

Table 18: Main Challenges by Gender

Types of Challenges	%		
	Male	Female	Total
Shortage of arable land	70.3%	19.9%	42.7%
Lack of fertilizer	88.6%	41.5%	62.6%
Poor soils	78.8%	29.4%	51.8%
Limited market access	32.1%	19.1%	25.0%
Low rainfall	60.8%	18.4%	37.6%
Diseases/pest	76.9%	26.1%	49.0%
Lack of agricultural equipment	78.7%	69.1%	73.4%
Flood	17.5%	5.8%	11.1%
Lack of capital	78.8%	76.1%	77.3%
Labor shortage	72.2%	20.8%	44.1%
Food shortage during the dry season	39.3%	16.0%	26.5%
Access to useful/crucial information	33.6%	19.6%	26.0%
Weak cooperation within the community	42.3%	23.3%	31.8%
Other challenges	17.6%	15.5%	16.1%

Women need capital, especially as their primary activity remains agricultural processing as can be seen with a cooperative producing shea butter in Zantiebougou.

Photo 3: Shea Butter Production in Zantiebougou

- ***Challenges Facing Youth***

For youth, the top challenge was the lack of agricultural equipment (63%), followed by the lack of capital (61%). To address these challenges, a majority of respondents suggested that an external support from NGOs and the Government was needed. This support would help provide them with equipment and inputs. Women would like to have access to credit or income-generating activities that would enable them to meet their agricultural needs and empower them. Literacy and training/advice in agriculture are other means that could help address some of the challenges. The challenges are still multiple and varied and the related responses must be coordinated to achieve the expected goals.

Table 19: Challenges facing Youth

Types of Challenges	%
Shortage of arable land	41.9%
Lack of fertilizer	35.5%
Poor soils	45.2%
Limited market access	25.8%
Low rainfall	29.0%
Diseases/pest	40.0%
Lack of agricultural equipment	62.5%
Flood	9.7%
Lack of capital	61.3%
Labor shortage	16.7%
Food shortage during the dry season	22.6%

Access to useful/crucial information	22.6%
Weak cooperation within the community	35.5%
Other challenges	17.6%

3.5. Gender Equity in Decision-Making and Resource Control

- **Asset Ownership**

The pattern of individual possession of assets was largely in favor of men. As shown by the results below, more women than men owned axes, hoes and processing utensils, as well as threshers and plows. It should be specified that all the assets owned together were often controlled by men. Very few young people owned assets, except for hoes, axes and mobile phones which almost all of them owned (30 out of 32 young respondents).

Table 20: Asset Ownership (in %)

Assets	Youth		Women		Men	
	Alone	Together	Alone	Together	Alone	Together
Thresher	1	0	1	2	1	2
Radio asset	5	3	99	39	157	28
Bicycle	5	9	32	91	166	53
Hoe	21	14	166	107	84	115
Shovel	3	6	46	68	80	39
Ax	21	9	159	79	126	117
Plow	1	8	12	101	91	78
Sprayer	2	4	9	53	97	45
Sickle	1	6	22	42	110	51
Processing utensils	14	1	63	12	4	2
Water pump	0	0	2	8	7	3
Cart	2	8	13	106	108	50
Tractor	0	0	0	0	1	5
Mobile phone	20	10	143	39	184	14
Other assets	2	0	1	10	29	9

On average, men had the highest number of assets. Overall, we found that the average number of assets was low for youth, women and men. All of them owned more than one (1) hoe on average. Also, all of them owned more than one processing utensil. We also noted that men and youth owned one mobile phone, on average, in contrast to women. The detailed results are provided in the table below.

Table 21: Number of Assets Owned by Gender

Assets	Youth		Women		Men	
	Individual assets	Collective assets	Individual assets	Collective assets	Individual assets	Collective assets
Thresher	0.11	0.00	0.00	0.01	0.03	0.05
Radio asset	0.45	0.36	0.54	0.25	0.98	0.62
Bicycle	0.42	0.65	0.19	0.56	0.98	1.56
Hoe	1.57	1.27	1.79	3.01	2.39	9.52
Shovel	0.00	0.85	0.28	0.64	1.24	1.41
Ax	1.11	0.82	0.86	0.59	1.39	2.83
Plow	0.00	1.26	0.08	1.14	0.95	3.04
Sprayer	0.11	0.62	0.07	0.36	1.39	0.95
Sickle	0.11	1.00	0.15	0.57	0.95	2.34
Processing utensils	2.50	0.11	1.15	0.27	1.31	0.10
Water pump	0.00	0.00	0.00	0.02	0.05	0.03
Cart	0.11	0.60	0.14	0.67	0.10	0.96
Tractor	0.00	0.00	0.67	0.02	0.90	0.07
Mobile phone	1.00	0.65	0.00	0.25	1.10	1.05
Other assets	0	0	0.01	0.07	0.05	0.38

- Management of Household Livestock Capital

Considering the average number of animals, men were the biggest livestock owners. The average number of animals varied from 0.18 (other animals – mainly pigs) to 7.83 (cows). These apparently high averages were due to the presence of pastoralists in the survey sample. Moreover, livestock is a common practice in the areas concerned, along with agriculture. It allows for investment in order to cope with possible financial difficulties. Both men and women engage in that activity.

Table 22: Average Number of Animals

Species	*Owned by Youth*	*Owned by Women*	*Owned by Men*
Horse	0 .62	0.04	0.15
Ox	3.24	3.39	3.11
Cow	5.05	**2.85**	**7.83**
Goat	2.39	2.95	4.74
Sheep	3.52	3.21	5.70
Donkey	1.19	1.00	1.39
Other animal	0.00	0.71	0.18
Other animal	0.00	0.00	0.00
Other animal	0.00	0 .00	0.00

Domestic goat keeping is an activity in which most women were engaged as shown below.

Photo 4: Goat Keeping in Farakoro

- Gender Equity in Investment Decisions

  - **Difference Between Men, Women and Youth**

Decision-making regarding the family farm helps determine the level of responsibility in the farm. It helps to know who does what or who decides what at the farm level.

Respondents owned assets both individually and collectively. The following table on individually owned assets shows that investment decisions are made by the asset owner, except in exceptional cases. Thus, respondents reported having decided themselves on the investment made. The assets mostly possessed by women and in which they invest are the following, in order of importance: the hoe (50.4%), followed by the ax (51%) and the radio asset still functioning (35%). The table below shows the levels of responsibility in investment decision for the different social categories surveyed. The assets mostly possessed by men and in which they invest are: the bicycle (77%), the radio (72%), the ax (60%) and the sickle (54%). As for youth, they owned axes and hoes.

Table 23: Decision to Invest in the Assets Individually Owned by Men

ASSETS	ASSETS INDIVIDUALLY OWNED BY YOUTH			ASSETS INDIVIDUALLY OWNED BY WOMEN			ASSETS INDIVIDUALLY OWNED BY MEN		
	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE
Thresher	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0 .0%
Radio asset	12.5%	3 .1%	0.0%	3.0%	34.6 %	0.0%	72.2%	0.9%	0.5%
Bicycle	6.3%	12.5 %	0.0%	1.5%	10.9 %	0.0%	77.4%	0.9%	0.5%
Hoe	31.3%	31.3 %	0.0%	12.0%	50.4 %	0.0%	41.5%	0.0%	0.0%
Shovel	0.0%	3.1%	0.0%	0.8%	15.0 %	0.0%	37.7%	0.0%	0.0%
Ax	25.0%	46.9 %	3.1%	10.2%	51.1 %	0.4%	60.4%	0.9%	0.0%
Plow	0.0%	0.0%	0.0%	0.4%	3.4%	0.0%	44.8%	0.0%	0.0%
Sprayer	3.1%	0.0%	0.0%	0.4%	2.3%	0.0%	42.9%	0.5%	0 .0%
Sickle	3.1%	0.0%	0.0%	1.9%	5.6%	0.0%	53.8%	0.0%	0.0%
Processing utensils	3.1%	37.5 %	0.0%	0.4%	24.1 %	0.0%	0.9%	0.0%	0.0%
Water pump	1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%
Cart	3.1%	0.0%	0.0%	1.1%	4.5%	0.0%	50.0%	0.0%	0.0%
Tractor	00.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mobile phone	21.9%	40.6 %	0.0%	7.1%	47.0 %	0.0%	87.3%	1.4%	0.0%

Unlike for the individually owned assets, it is men who generally make investment decisions on the collectively owned assets. For both youth and women, the decision to invest in the collectively owned assets is not made together. The most collectively owned asset for women was the cart, with 43.3% of respondents. And it is men who make investment decisions on these assets in 41% of cases. They decide on the investment for the hoe in 40 % of cases and for the plow in 38 % of cases.

Table 24: Invest Decision on the Collectively Owned Assets

ASSETS	ASSETS OWNED COLLECTIVELY BY YOUTH			ASSETS OWNED COLLECTIVELY BY WOMEN			ASSETS OWNED COLLECTIVELY BY MEN		
	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE
Thresher	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.9%	0.0%	0.0%
Radio asset	9.4%	0.0%	0.0%	13.2%	1.5%	0.0%	12.3%	1.4%	0.0%
Bicycle	34.4%	0.0%	0.0%	32.0%	1.9%	0.4%	25.0%	0.0%	0.5%
Hoe	40.6%	6.3%	0.0%	39.5%	2.3%	0.8%	53 3%	0.5%	1.4%
Shovel	15.6%	0.0%	0.0%	25.2%	0.8%	0.4%	19.3%	0.5%	0.5%
Ax	21.9%	6.3%	0.0%	26.3%	1.5%	0.4%	33.5%	20.8%	0.9%
Plow	34.4%	0.0%	0.0%	38.0%	1.1%	0.0%	36.8%	0.0%	0.5%
Sprayer	15.6%	0.0%	0.0%	19.9%	0.8%	0.0%	21.7%	0.0%	0.5%
Sickle	18 .8%	0.0%	0.0%	16.9%	0.4%	0.0%	20.3%	0.0%	0.5%
Processing utensils	3.1%	0.0%	0.0%	4.1%	0.8%	0.0%	0.5%	0.0%	0.0%
Water pump	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.5%	0.0%	0.0%
Cart	21.9%	0.0%	0.0%	41.0%	2.3%	0.0%	24.1%	0.5%	0.5%
Tractor	0.0%	0.0%	0.0%	1.9%	0.4%	0.0%	1.4%	0.0%	0.0%
Mobile phone	34.4%	3.1%	0.0%	16.2%	0.8%	0.0%	6.6%	3.3%	0.0%

Like the investment decision, the control over individually owned assets was mostly assumed by the owners, whether they are young people, women or men. For example, 52% of women claim to control the hoe and the ax. The table below shows the respondents' level of control over assets in percentage for the different categories (youth, women and men).

Table 25: Control on the Individually Owned Assets

ASSETS	ASSETS INDIVIDUALLY OWNED BY YOUTH			ASSETS INDIVIDUALLY OWNED BY WOMEN			ASSETS INDIVIDUALLY OWNED BY MEN		
	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE
Thresher	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%
Radio asset	9.4%	3.1%	0.0%	2.3%	35 .3%	0.0%	72.6%	0.9%	0.5%
Bicycle	6.3%	9.4%	0.0%	1.5%	11.3%	0.0%	78.3%	0.9%	0.0%
Hoe	31.3%	34.4%	0.0%	10.5%	51.5%	0.0%	40.6%	0.0%	0.0%
Shovel	0.0%	3.1%	0.0%	0.8%	15.8%	0.0%	37.3%	0.0%	0.0%
Ax	25.0%	46.9%	3.1%	8.6%	51.9%	0.4%	59.0%	1.4%	0.0%
Plow	0.0%	0.0%	0.0%	0.8%	3.4%	0.0%	45.3%	0.0%	0.0%
Sprayer	3.1%	0.0%	0.0%	0.8%	3.0%	0.0%	43.9%	0 .5%	0.0%
Sickle	3.1%	0.0%	0.0%	1.9%	5.6%	0.0%	53.3%	0.0%	0.0%
Processing utensils	3.1%	40.6%	0.0%	0.4%	22.6%	0.0%	0.9%	0.0%	0.0%
Water pump	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%
Cart	3.1%	0.0%	0.0%	1.1%	4.5%	0.0%	49.1%	0.0%	0.0%
Tractor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mobile phone	25 .0%	40.6%	0.0%	5.3%	48.9%	0.0%	87.3%	1.4%	0.0%

Like the investment decision, the control over of collectively owned assets is assumed by men.

Table 26: Control on the Assets Collectively Owned

ASSETS	ASSETS OWNED COLLECTIVELY BY YOUTH			ASSETS OWNED COLLECTIVELY BY WOMEN			ASSETS OWNED COLLECTIVELY BY MEN		
	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE	MEN	WOMEN	SPOUSE
Thresher	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.9%	0.0%	0.0%
Radio asset	9.4%	0.0%	0.0%	12.8%	1.5%	0.4%	11.8%	1.4%	0.5%
Bicycle	31.3%	31.3%	0.0%	31.2%	2.3%	0.0%	25.0%	0.0%	0.5%
Hoe	34.4%	12.5%	0.0%	39.1%	3.0%	0.4%	53.8%	0.5%	0.9%
Shovel	15.6%	0.0%	0.0%	25.6%	0.4%	0.4%	18.9%	0.0%	0.5%
Ax	18.8%	9.4%	0.0%	25.9%	1.5%	0.4%	34.0%	20.3%	0.9%
Plow	34.4%	0.0%	0.0%	38.7%	0.8%	0.0%	37.3%	0.0%	0.5%
Sprayer	15.6%	0.0%	0.0%	20.3%	0.8%	0.0%	21.2%	0.0%	0.5%
Sickle	18.8%	0.0%	0.0%	16.2%	0.4%	0.0%	21.7%	0.0%	0.5%
Processing utensils	3.1%	0.0%	0.0%	4.5%	0.8%	0.0%	0.5%	0.0%	0.0%
Water pump	0.0%	0.0%	0.0%	1.4%	0.4%	0.0%	0.5%	0.0%	0.0%
Cart	21.9%	0.0%	0.0%	39.5%	1.5%	0.0%	23.1%	0.5%	0.5%
Tractor	0.0%	0.0%	0.0%	2.6%	0.4%	0.0%	1.9%	0.0%	0.0%
Mobile phone	25.0%	9.4%	3.1%	16.2%	1.1%	0.0%	0.4%	0.0%	0.0%

The decision to invest in livestock is shared among youth. It is taken by the person concerned, his/her spouse or someone else. No modality emerged significantly. As for women, they choose to invest especially in small ruminants (goats, sheep) and donkey to some extent. Men, on the other hand, reported making themselves the decision to invest in livestock. The table shows the detailed results in percentage of respondents who made the investment.

Table 27: Decision to Invest in Livestock

Animals	OWNED BY YOUTH			OWNED BY WOMEN			OWNED BY MEN		
	Me	Spouse	Someone else	Me	Spouse	Someone else	Me	Spouse	Someone else
Horse	0.0%	0.0%	3.1%	0.4%	0.0%	3.0%	0.0%	0.0%	0.0%
Oxen	6.3%	6.3%	15.6%	9.8%	25.2%	6.8%	76.9	0.0%	0.9%
Cow	6.3%	6.3%	12.5%	7.9%	11.7%	4.9%	49.1	2.4%	0.5%
Goat	25.0	12.5%	3.1%	28.6	13.5%	6.0%	52.4	13.7%	0.9%
Sheep	12.5	15.6%	3.1%	21.4	16.5%	5.6%	53.8	8.5%	0.9%
Donkey	6.3%	9.4%	12.4%	13.2	25.2	6.0%	71.7	0.0%	1.4%
Other	0.0%	0.0%	0.0%	3.0%	1.9%	0.4%	0.5%	0.0%	0.5%

Like in the case of investment decision, livestock control among youth is relatively shared between the respondent, the spouse and someone else. For women, like in the case of investment, they have control over small ruminants, anything else being left to the spouse. Men control livestock themselves, often leaving the control of their small ruminants to women.

Table 28: Livestock Control

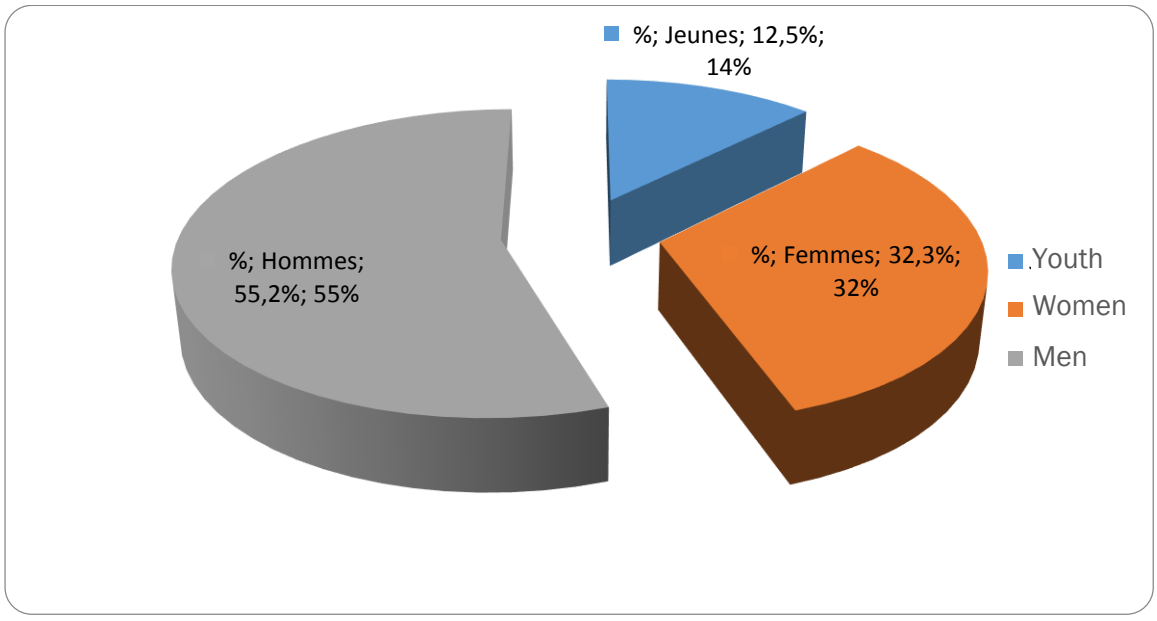
Livestock	OWNED BY YOUTH			OWNED BY WOMEN			OWNED BY MEN		
	Me	Spouse	Someone else	Me	Spouse	Someone else	Me	Spouse	Someone else
Horses	0.0%	0.0%	3.1%	0.4%	0.0%	3.0%	0.0%	0.0%	0.0%
Oxen	6.3%	6.3%	15.6%	8.6%	25.6%	7.1%	77.4	0.0%	0.9%
Cows	6.3%	6.3%	12.5%	7.1%	12.8%	4.9%	49.5	1.9%	0.5%
Goats	15.6	21.9%	3.1%	26.3	15.0%	6 .0%	51.4	14.2%	0.9%
Sheep	9.4%	18.8%	3.1%	18.0	18.8%	5.6%	53.4	9.0%	0.9%
Donkeys	6.3%	9.4%	12.5%	13.5	25.2%	6.4%	71.7	0.0%	1.4%
Other animal	0.0%	0.0%	0.0%	3.0%	1.9%	0.4%	0.0%	0.0%	0.5%

3.6. Gender Equity in Access to and Control over Extension Services

- **Frequency of Contacts with Extension Services and Major Extension Organizations**

Respondents were asked if they had access to extension services in their locality. The results obtained show that men represented the highest proportion (55%) of respondents who had had access to extension services, followed by women (32%) and youth (13%). Among all the survey villages, there were extension agents in Zantiebougou (NGO and services) and Farakoro (NGO).

Figure 6: Access to Extension Services



The most cited extension organizations are NGOs and the CMDT for youth, NGOs and technical services for women, the CMDT and technical services for men. The overwhelming majority of respondents reported having access to the support of extension agents for farming in arid areas. For men, it consisted in support/advice in the area of cotton production provided by CMDT staff that has a strong presence in the region. For women, who do not grow cotton, production and new

technology support came from the NGOs present in the area, as well as from Government technical services. This support was mainly for cereals and the cereal value chain.

On average, young people reported having attended two extension meetings, compared to two meetings for women and four for men. It should be recalled that 4 young people, 86 women and 117 men reported having access to an extension agent. The table below provides details on the frequency of meetings between the respondents and the extension agent.

Table 29: Frequency of Contacts

Frequency	Youth	Women	Men
No meeting	87.5%	68%	44.8%
Never	6.3%	14.7%	4.2%
Seldom	0	12.4%	15.6%
Often	0	3.0%	24.5%
Frequently	6.3%	1.9%	10.8%

It can be seen that men were the category that met extension agent more often and frequently. Young people had the highest proportion of people who had no contact with an extension worker.

- **Determinants of Access to and Use of Extension Services (Use of Econometric Regressions and Comparer Results by Men-Women-Youth)**

To model the variable “access to extension services”, we previously used the variables related to access to inputs, the possession (or not) of rain-fed land, the number of men and women holding a degree in agriculture, experience in the activity, level of education and the sex of the household head. The variables on the level of education and gender are not explanatory and do not improve the quality of the model.

```
Iteration 0:   log pseudolikelihood = -344.41564
Iteration 1:   log pseudolikelihood = -283.62101
Iteration 2:   log pseudolikelihood = -281.71544
Iteration 3:   log pseudolikelihood = -281.71145
Iteration 4:   log pseudolikelihood = -281.71145

Logistic regression                             Number of obs   =        510
                                                Wald chi2(4)    =      74.51
                                                Prob > chi2     =     0.0000
Log pseudolikelihood = -281.71145               Pseudo R2       =     0.1821

------------------------------------------------------------------------------
             |               Robust
    acces_vu |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         m_a_f |   1.185583   .565029     2.10   0.036     .0781461    2.293019
    acces_in |   1.726001   .2775322     6.22   0.000     1.182048    2.269954
         exp |   .1337402   .0545732     2.45   0.014     .0267788    .2407017
poss_surface |   1.092526   .2787788     3.92   0.000     .5461301    1.638923
       _cons |  -2.954957   .3657542    -8.08   0.000    -3.671822   -2.238092
------------------------------------------------------------------------------
```

The estimated model gives the following equation:

acces_vu = - 2.95 + 1.18 * n_a_f + 1.72 * acces_in + 0.13 * exp + 1.09 * poss_surface

With:

- acces_vu: access to extension services
- n_a_f: number of household members holding a certificate or degree in agriculture training. This is the number of women and men. This variable is equal to one (1) if there is at least one person (man or woman) in the household with this degree and zero (0) otherwise.
- acces_in: access to inputs
- exp: experience in the core business
- poss_surface: No or the possession of a rain-fed land

As with access to inputs, the data collected did not lead to a more robust model. We only have 18% of the variance accounted for by the explanatory variables selected.

3.7 Gender in Extension Structures

Extension services were provided by facilitators from Government technical services, with the National Department of Agriculture (DNA), the Regional Directorates of Agriculture (DRA) and the agricultural *Secteurs* at *Cercle* and *Commune* levels. But now the Mali Textile Development Company (*Compagnie Malienne de Développement du Textile* – CMDT) and NGOs are increasingly involved. Extension services have been conducted by technical services since the beginning of independence and by the CMDT for about forty years. NGOs are the most recent actors in this regard and they started in the early 2000s.

In addition to being present in communities, they also provide information through radio and television. These media are very useful as they help reach a majority of producers, in a context of limited staff.

Within communities, extension workers inform authorities and explain their strategies and innovation before implementing them. Meetings are organized to share information and knowledge. Each agent supervises a specific geographical area. A few years ago, extension services were targeted to men only, but now women are also targeted. This was due to the fact that women did not use to produce a lot, but they are currently largely engaged in agricultural activities. Also, extension agents are used to be men and the men within the community were reluctant to let them work with their wives. The presence of extension workers is advantageous for both men and women as the knowledge of new technologies is vital for the improvement of productivity.

Nowadays, extension workers are men or women who manage their respective areas with no gender bias. There is no conflict with local knowledge. However, farmers adhere to new technologies as a last resort, when local knowledge fails. But there is no difference between men and women in terms of technology adoption. NGOs increasingly require mixed cooperatives to collaborate with.

What remains true is the exclusivity men enjoy concerning the growing of some crops such as cotton. Women are rather engaged in rice, sesame or groundnut production. This is due to the fact that women did not own adequate land and did not have the financial resources required to grow cotton for instance. Therefore, men were better reached and more knowledgeable about the use of new technologies. So, they benefit more than women from extension services.

Concerning the information provided, it was limited for all topics. The extension staff was insufficient and radio broadcast did not reach everyone. NGOs use the most popular radio stations, but the information was not disseminated frequently enough to enable farmers to absorb it. This is probably why women stayed confined to their traditional crops. They need to be trained so that they can also better enjoy the knowledge transferred. NGOs were more active in this direction.

3.8. Toward Gender Equity in Access to, Decision-Making on and Control over Agricultural Resources and Veterinary Extension Services

- **Strategies to Improve Access to Labor and Related Resources for Youth and Women**

Two major difficulties hinder the access of women and youth to labor and the related resources: lack of access to land and lack of capital. NGOs and technical services working on the ground are making efforts in this regard. The idea is to develop a strategy to achieve conclusive results in a synergistic way. This will require the following conditions: organizing women and youth in associations/cooperatives, creating links with the various partners working in the area, training women and youth groups on the identification and development of promising sectors, integrating the developed value chains in the *Communes*' planning, intermediating with a view to facilitating access to credit and advocating/lobbying for improved access to land. These actions, if carried out as part of a comprehensive strategy, will improve the current status of women and youth.

- **Strategies to Improve Control over Labor and Related Resources for Women and Youth**

Cooperatives were increasingly feminizing, which reduces the difficulties faced by women. Such mixed cooperatives and the strong involvement of women in agricultural production and agroforestry were new and so women and young people were more in need of support and monitoring. In addition to facilitating the dissemination of new technologies, NGOs improved access to credit from financial institutions and subsidies through the provision of support/advice to cooperatives. They were also more gender sensitive in their activities and increasingly encouraging women into cereal production. These strategies need to be strengthened and expanded.

Women were generally engaged in more productive and money-earning rice farming and market gardening. They had a slower understanding of technologies and were less keen to adopt them, according to the NGOs interviewed. To overcome these constraints, it is necessary to address the land problem. Whatever the willingness of women and youth, their attempts will be doomed to failure, without access to land on the same basis as men, at least to use it.

The major difficulty in the extension is the fact that the subjects were related to local seeds. Efforts are underway through organization of demonstration plots and farmers' field schools. For these farms, NGOs still targeted men as they were used to working with them. The following criteria are taken into account in this regard:

- Farmer's adherence;
- Availability of land;
- Acceptability; and
- Land topo-sequence.

Thus, women and young people need to be involved in this process in order to improve their access to, but above all, control over labor and related resources.

- **Strategies to Improve Access to and Control over Veterinary and Extension Services for Women and Youth**

Men and women were represented at all levels of extension services, whether at management, supervision and field level. Therefore, men and women worked at all levels. But men greatly outnumbered women. At the regional level for example, there were 40 male staff members, compared with 13 women. However, there was a gender policy, even though the services were faced with the lack of competent female staff.

The resources available to extension agents did not benefit women in that the number of agent per area was inadequate, especially in big *Communes*. Having more staff and being closer to the beneficiaries would enable women to be better represented. In addition to that, there is also the need to provide means of transport (motorbikes) and the systematic participation of women in training sessions for capacity building on new technologies. Men also need capacity building, especially on new technologies in women's major areas of activity (gathering, processing). It should be noted that in NGOs and technical services, extension agents are recruited through a selection process. Such recruitments are not discriminatory. Men and women face the same constraints, especially logistical ones. Otherwise, there is no religious or socio-cultural barrier hindering their mission.

Extension workers have no preference in working with farmers. They address gender issues in their training and are faced with the fact that more and more women are producers. Also, farmers make no difference between male and female staff members, the most important thing being their respective skills.

The methods used by extension workers include: awareness-raising, demonstrations, training and farmer-to-farmer visits. They use all means to ensure behavior change and the adoption of new technologies. For them to be successful, these agents must be available, courageous and good listeners. The benefits for farmers are the improvement of their activities and an increase in their productivity and income.

The factors affecting the adoption of new technologies include the introduction technique and continuity of the technology or innovation. So, the technology must be well explained, introduced and understood by farmers. If it is accepted, then they will continue to practice it; otherwise it will not be sustained. The technology adoption pattern varies according to the types of activity. The women who were engaged in forestry product processing were more likely to adopt and use them. Extension services of particular benefit to the men and women of the locality included the provision of new technologies related to improved seeds and crop protection products.

To better reduce constraints, extension services must combine the use of new technologies with communication. This will help advance the promotion of the technology and improve access to it

and adherence of farmers for their own benefit. But there are potential drawbacks associated with the engagement of extension workers with farmers. These include distrust of technologies, inefficiency of the technologies promoted and failure to achieve the expected goals.

To be successful, extension workers must, as a necessity, take into account the specific needs of all segments of the community and show the required level of expertise. It is a fact that the adoption of new technologies by farmers depends on the profitability of these technologies. To achieve this, extension services must meet the needs of women in agriculture by determining all the challenges through a comprehensive participatory diagnosis which will help prioritize the constraints and their solutions.

IV. Conclusion and recommendations

Malian's economy is based on agriculture. Recognizing the importance of this sector, governments have adopted, for several years, laws, policies and strategies in support of the agricultural sector. The region of Sikasso, which emerges as a farming area par excellence, is the country's breadbasket. Since the immediate aftermath of independence, the Government (and NGOs and other organizations since more recent times) have been promoting new technology among farmers, with encouraging results according to stakeholders.

Sustainable agriculture requires the participation of all, including women and youth. Yet it has to be recognized that there are disparities in access to and control over labor, resources and extension services by the latter. Both our findings and discussions with communities show that these two groups have less access than men not only to land – and therefore to work – but also to other resources and extension services. The main challenges can essentially be summed up as the lack of land, capital and education (they are not involved or taken into account by extension services).

To address these challenges, the stakeholders' efforts should fit into a comprehensive strategy. This will include gender mainstreaming in extension services (by government, NGOs and other organizations). Women should be encouraged and equipped to engage in this business. Access to land should be facilitated for women and men as well. This will enable the development of their farming activities. Initiatives to facilitate access to credit or the financing of agricultural activities are vital. Extending loans or providing equipment to women and young groups will enable them to have better access to labor.

There are not sufficient extension workers in the surveyed villages. These workers need to be deployed so as to adequately cover their area of intervention. In addition to their presence within the communities, they should use different communication channels such as radio and TV, but also the widespread mobile phones. The languages, the period and the frequency of dissemination of messages should be discussed with the beneficiary communities. Extension activities should involve women and youth; i.e. farmers' field schools, exchange visits, among others, should target women and young people as well. This should be complemented by training them on the same basis as men. This will enable them to acquire skills and engage in the production of other crop previously exclusively reserved to men.

For successful extension services, the agents themselves, both men and women, must be well trained. Also, they must not look down on local knowledge, as it is clear that communities are attached to some practices and seeds. Effective communication is critical to bring behavioral change and prevent the non-adoption of the promoted technologies by farmers.

Finally, the promoted technologies must take into account the notion of profitability and the specific needs of women, men and youth.

Annexes-questionnaires

CGIAR

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