DRYLAND SYSTEMS CRP STRATEGIC GENDER RESEARCH IN WAS-DS FLAGSHIP

GENDER IN DECISION MAKING, ACCESS TO AND CONTROL OVER LABOR AND EXTENSION SERVICES

A PERCEPTION SURVEY IN NIGER

By

Djalal Ademonla Arinloye
Lawali Sitou
Patrice Savadogo
Joachim Binam
Antoine Kalinganire
Jules Bayala

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LIST OF ABBREVIATIONS

CAIMA	*Centrale d'Approvisionnement en Intrants et Matériel Agricoles* (Agricultural Input and Equipment Supply Center)
CFJA	*Centre de Formation des Jeunes Agriculteurs* (Training Center for Young Farmers)
CGIAR	Consultative Group on International Agricultural Research (A Consortium of International Agricultural Research Centers)
CPR	*Centre de Promotion Rurale* (Rural Promotion Center)
CPT	*Centre de Perfectionnement Technique* (Technical Upgrading Center)
MFI	Micro-Finance Institutions
INS	*Institut National de la Statistique* (National Institute of Statistics)
IPDR	*Institut Pratique du Développement Rural* (Technical Institute for Rural Development)
ONAHA	*Office National des Aménagements Hydro-Agricoles* (National Irrigation Scheme Development Authority)
NGO	Non-Governmental Organization
PO	Producers' Organization
PDC	*Programme de Développement Communal* (Communal Development Program)
GDP	Gross Domestic Product
PNRA	*Programme National de la Recherche Agronomique* (National Agriculture Research Program)
PRSAA	*Projet de Renforcement des Services d'Appui à l'Agriculture* (Agriculture Support Services Capacity Building Project)
FMNR	Farmer-Managed Natural Regeneration
NARS	National Agriculture Research Systems
SPSS	Statistical Package for Social Sciences

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EXECUTIVE SUMMARY

For decades, agricultural policies have focused on promoting rural areas where more than 80% of the populations of Niger live. To this end, new knowledge, technologies, practices and policies have been developed through institutions such as National Agricultural Research Systems (NARS), universities, the CGIAR consortium and NGOs. However, technological and institutional innovations that do not take into account the influence of gender and the differences between men and women on resources management and control can have detrimental effects.

It is in this context that a study was conducted on the target groups as key actors of agricultural and veterinary extension systems and employment of women, 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 work and resources; (ii) to provide scientific evidence on strategies to be implemented to improve women's access to and control over agricultural and veterinary extension services.

Thus, an approach based on quantitative and qualitative methods was used in conducting this study. For the qualitative component, discussions through focus group and personal interviews were conducted in 3 villages of the *Commune* of Gazaoua, namely Milli, Gourjia and Gazaoua. For the quantitative component, interviews were conducted with a sample of 500 individuals, representing the different target groups of the study in the three villages. The surveyed sample was made up of 49% men and 51% women. Six enumerators, including three women, were recruited on the basis of proficiency in the local language, experience in conducting socio-economic studies, knowledge of the local environment and culture to conduct this survey under the supervision of two officials, 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.

Before the installation of each interviewer on his site, visits were conducted to introduce them and explain the objectives of the study to the customary and administrative authorities in these three villages. The data collected were then entered using the Excel spreadsheet, encoded and analyzed with the SPSS software (version 21).

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

The results concerning the general characteristics of the surveyed actors highlighted the socio-cultural patterns shared by the villages of Milli, Gourjia and Gazaoua, the main town of the *Commune*, with a social organization based on the lifestyle of the Hausa society, where social relationships within lineages and between ethnic groups play a critical role in the social equilibrium. The average age of respondents was 36 in Gourjia, the oldest being 65 and the youngest 16 years old. In Gazaoua and Milli, on the other hand, the minimum age was 18 and 20, and the maximum 75 and 90, respectively.

Furthermore, most of the surveyed actors were illiterate, especially in Milli and Gourjia where illiterate respondents represented 70.1% and 41.4%, respectively. Overall, in these areas, the proportion of respondents who had attended primary and secondary school in formal education was relatively low. Priority was given to Koranic school, with an attendance rate of 28.3%. The findings of the survey show little enthusiasm of respondents as to their involvement in local social organizations within the community. On average, over 76% of households were not involved in water management committees and an overwhelming majority (94.5%) was not members of any producers' association. However, regarding the land use decision committee, 55.5% of household heads indicated they participated. The site-based analysis shows significant disparities between villages. The participation rate is higher in Milli (76.9%) and Gazaoua (56.9%) than in Gourjia (6.1%).

As for economic activities, these people were engaged mainly in agriculture (68.4%), trade (3.3%) and livestock (1.8%), regardless of sex or age. Handicraft, as a secondary and income-generating activity, was practiced by both men and women in the three villages and included pottery, weaving, blacksmithing, etc.

- ✓ ***Gender Equity in Access to and control over Inputs***

Regarding gender and access to inputs, a gender-based analysis of land tenure shows that women and men had equal access to land. In the whole sample surveyed and analyzed, men held about 65.5% of cultivated rain-fed land, compared to 34.5% for women. Men and women access land through inheritance, gift or purchase. After marriage, young people are offered a small piece of land as a starting capital in their capacity as head of household. In the surveyed villages, labor is largely provided by household members. Nevertheless, in some large farms, the household head uses hired labor to perform the tasks in time. In the context of the study area, waged labor is provided by both men and women. This is used for various farming operations ranging from sowing to harvest. Women participate in all operations in the family farm in the same way as

men. There are many and varied credit sources (government, bank, parent, neighbor, co-operative, etc.) and there is no gender discrimination in this respect. However, our findings show that women are mostly those who do not repay credit. In the *Commune* of Gazaoua, which includes three survey sites, farm management is the responsibility of the farm manager. Women achieve this status only when there is no man old enough to hold this position.

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

As for investment decisions, they were also a prerogative of the farm manager. The latter decided, as opportunities arose, to purchase some equipment for the farm. However, Investment decisions for livestock purchase, management and control were subject to the principle of separate assets management.

- ✓ ***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, even though NGOs and development projects provide substantial support for the dissemination of technologies in rural areas. The majority of respondents (72%) reported having had access to an extension worker. But, the majority (73.3%) of the remaining 28% were women. The main constraints identified by women and youth were common to all the study sites. These included the problem of access to land, overloaded schedules, lack of agricultural inputs, lack of employment during the dry season, the lack of funds, lack of training on other income-generating trades, animals wandering during the off-season, among others. Regarding livestock, the main constraints reported included rangeland invasion by unpalatable grasses such as *Sida cordifolia*, the narrowing of corridors for livestock transhumance and grazing areas, among others.

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

I. INTRODUCTION

Niger is a landlocked West African country located in the Sahelo-Saharan region. It covers an area of 1,267,000 km2 divided into four agro-climatic zones:

- the Sahara or desert area, which covers 77% of the land area, receives less than 150 mm of rain per year ; this makes it a particularly suitable area for livestock;
- The Sahelo-Saharan area, representing 12% of the territory, lies between the 150-350 mm isohyets; the northern part of this area is a vast pastoralist area;
- The Sahelian zone covers 10% of the country and receives 350-600 mm of rain; it is the area of agriculture, but also of sedentary pastoralism;
- The Sudanian area, which represents about 1% of the total country area, receives 600-800 mm of rain per year in normal years.

It is indeed in these latter two areas making up the southern strip that agriculture and pastoralism are practiced in difficult conditions due to inadequate and erratic rainfall, but also to low soil fertility (Guengant and Banoin, 2003). In terms of population, Niger has a population of 17 129 076 inhabitants, with an annual growth rate of 3.9% (INS, 2012).

Agriculture and livestock employ nearly 87% of Niger's population (Rhissa, 2010) and contribute about 42% to its Gross Domestic Product (GDP). However, everyday rural producers face tremendous difficulties that hinder not only the development of their activities but also their integration into their products' marketing channel.

Indeed, in the region of Maradi, smallholders are exposed to informal transactions and multiple constraints that, in turn, expose them to all forms of vulnerabilities. These constraints include the following:

- Limited markets that are very far from production areas, especially in pastoral areas;
- Isolation of the pastoral area and lack of road infrastructure, which constrain the dynamics of trade and the flow of agricultural products (cowpea, nutsedge, milk, livestock);
- Difficult access to agricultural and livestock inputs;
- Inadequate forage resources due to low rainfall;
- Failure to control the market price-setting mechanism;
- An intermediation in transactions on agricultural products which is often detrimental to producers.

Research Questions and Hypotheses

Hypothesis 1: The equitable distribution of capital and gender-based participation in decision-making improve women's access to resources and control over work.

- ✓ Is there any difference between women and men in terms of access to inputs?
- ✓ Do women participate in decision-making like men?
- ✓ Does the participation or non-participation of women in decision-making affect access to and control over resources and work?

Hypothesis 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?

Hypothesis 3: Strategies are 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 bodies?
- ✓ 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 MATERIAL AND METHODOLOGIES

This research was conducted using an approach that combined qualitative and quantitative tools and methods. For the qualitative component, interviews and focus groups discussion were conducted. To collect the quantitative data, a questionnaire was administered to a sample of 507 producers representing the different categories targeted by the survey.

Table 1: Composition of the Surveyed Sample by village

		Milli		**Gourjia**		**Gazaoua**		
VC actors	**Sub-actors**	Male	Female	Male	Female	Male	Female	**TOTAL**
Producers	Cash crops	27	25	19	20	20	22	133
	Vegetables (market gardening)	20	12	11	15	18	10	86
	Agroforestry (trees)	12	10	10	10	10	8	60
	Livestock	10	6	5	5	5	5	36
Collectors	Agroforestry products	4	3	3	3	3	3	19
Processors	agricultural products	3	5	3	5	5	5	26
	Forestry products	2	5	3	5	5	5	25
Traders	Agricultural/forestry products	3	5	3	5	5	5	26
	Non-Agri/forestry products	3	5	3	5	5	5	26
Laborer	All categories	6	13	10	6	16	10	61
Extension/veterinary service providers		1	1	1	2	1	2	9
GRAND TOTAL		**86**	**91**	**90**	**72**	**80**	**94**	**507**

A total of 507 individuals were interviewed, including 258 men and 249 women (or 50.88% men and 49.11% women, respectively). The respondents were selected based on their socio-professional activities. There were farmers, livestock producers and traders. Yet, in the context of the three villages surveyed or even the *Commune* of Gazaoua, it proved very difficult to meet farmers specialized in forestry products or cash crops trade exclusively. Interests were almost the same, i.e. access to productive resources, producing and selling for the purpose of subsistence.

2.1. Preparatory Phase

Before the beginning of the study, enumerators were recruited on the basis of the following criteria: proficiency in the local language, knowledge of the local environment and culture, experience in conducting socio-economic studies and understanding of the gender-based approach. A total of six (6) enumerators were recruited, including three (3) women. All of them held at least a Bachelor's degree in Agricultural Sciences, with a good mastery of outreach techniques and rural survey.

The data collection tools previously developed by the international team have been revised and adapted to the Niger context. A training of enumerators on the content of these tools helped ensure a clear ownership of the objectives and methodology of the study. Then the enumerators were tested on the conduct of interviews and the survey under the supervision of two supervisors.

The questionnaire, consisting of a set of closed and semi-open questions, allowed to collect and assess the importance and frequency of information about: social components, the place and roles of women in agriculture, men and women participation level in the management and control of resources, resource access methods, agricultural investments, agricultural extension methods and tools, as well as strategies to be developed to better foster the adoption of technologies by producers, and agricultural and veterinary advisory support.

Photos 1-2: Personal interview in Milli and focus group discussion in Gourjia

2.2. The Field Phase

The fieldwork was done during a two-week mission conducted in the selected villages. Besides presenting the objectives of the survey to the municipal authorities and technical services, village meetings were held at each site to explain the objectives of the study to communities. Thus, the survey was conducted in three villages selected beforehand, and the vocation and activities of populations were clearly relevant for the context of the survey. Overall, a sample of 500 farmers was interviewed. They were distributed among the three villages.

The body of data was established through surveys focused on the actors and groups of actors directly involved in agro-sylvo-pastoral activities. As indicated by Blanchet and Gotman (1992), the quality of the data depends on how respondents were chosen. Thus, the selection of the people to be interviewed was guided by some principles, including the focus, the availability those people, gender-sensitivity and the triangulation of information gathered. In addition, interviews concerned the heads of agricultural and livestock technical services, the agricultural extension officers, local customary and administrative authorities, representatives of the NGOs operating in the villages and representatives of producers' organizations.

2.3. Data Processing

To better analyze the data collected, two methods are used, namely a quantitative method and a qualitative method.

- ✓ ***Quantitative Analysis***

The quantitative analysis was used to assess the evolution of agricultural land owned by the respondents, the gender-distribution of capital, input prices, labor costs, time spent for on-farm work, etc. The data collected were checked, encoded, entered and processed using SPSS for more scientific rigor. A series of cross-tabulations helped highlight the links between the different indicators analyzed by the village and gender.

- ✓ ***Qualitative Analysis of Interview Contents***

According to Berelson (1952), content analysis is "a research technique for the objective, systematic and quantitative description of the manifest content of communication". The analysis of qualitative data is designed to objectively obvious report what was said by the interviewees in the most reliable manner (Krippendorff, 2003[1]; Andreani and Conchon[2], year). It is based on the

[1] KRIPPENDORFF K. (2003), *Content analysis : an introduction to its methodology*, 2nd Edition, Sage publications, Thousand Oaks, CA

processing of information collected through the review of the interview notes and the exploitation of individual interviews with the respondents. It mainly concerns the contents of focus group discussions, informal interviews, as well as data from participants' comments on farm operation.

2.4. Overview of the Study Area

Located in the Southern strip of the Republic of Niger, the rural *Commune* of Gazaoua is one of the two *Commune*s of the *Département* of Gazaoua in the Maradi region. It is bordered to the North and Northeast by the urban *Commune* of Tessaoua, to the East by the rural *Commune* of Kona, to the South by the Federal Republic of Nigeria, to the Southwest by the rural *Commune* of Gangara, to Southeast by the rural *Commune* of Korgom and to the West by the urban *Commune* of Aguie. In terms of geographical coordinates, the territory of the *Commune* lies between 7° 54' and 8° 04' East longitude and between 13° 24' and 13° 34' North latitude.

The rural *Commune* of Gazaoua was created by the Law No. 2002-014 of June 11, 2002 enshrining the practical implementation of decentralization. Administratively, the *Commune* s attached to the City of Gazaoua, a new *Departement* of the same name created in 2011 in replacement of the administrative station that was attached to the *Departement* of Aguie. In terms of traditional organization, Gazaoua is the main town of the *Canton* of Gangara administered by a *Canton* Chief who is the customary authority, assisted by *Secteur* Heads and notables. Village Heads are the pillars of the customary administration and work in perfect harmony with the *Canton* Chief.

- ***History of the Settlement of the Commune***

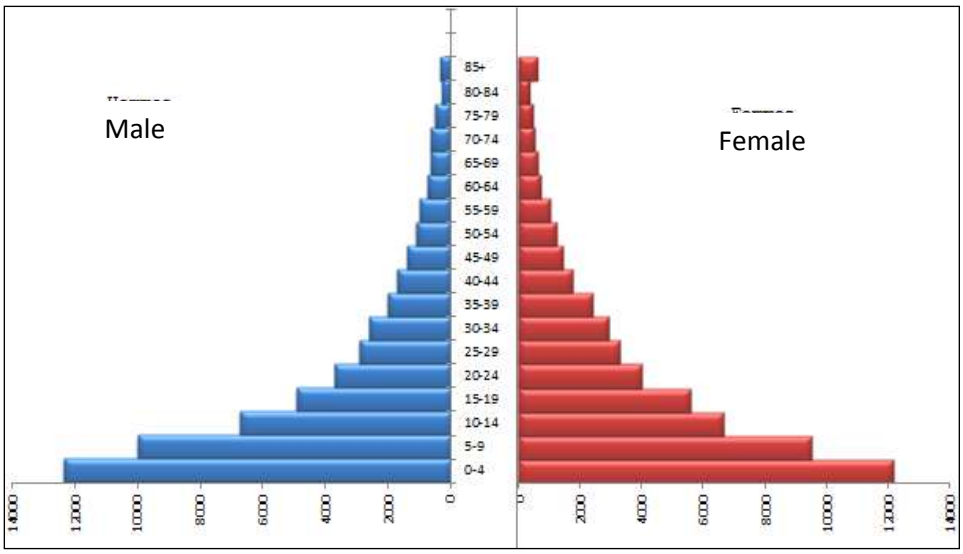
According to oral tradition, the territory of the *Commune* and the *Canton* has long been predominantly occupied by Hausa populations. The name Gazaoua originates from "Gazaoui", the name of the first occupant and founder of the village. Gazaoua became the main town of the *Canton* following the resettlement of Kaoura Adamou from Gangara to Gazaoua. Since 1901, there have been 8 successive *Canton* Chiefs, the first of which was Kaoura Kodo, followed by Kaoura Chaibou, Kaoura Batoure, Kaoura Adamou Abdou Kaoura, Kaoura Halarou, Kaoura Issaka and the current Kaoura Mahaman Sani who has been in office since June 26, 2003 (Source: PDC *Commune* de Gazaoua, 2013).

[2] ANDREANI JC, CONCHON F. (sd), « méthodes d'analyse et d'interprétation des études qualitatives : état de l'art en marketing. *Consulté le* http://www.escp-eap.net/conferences/marketing

In 2012, the rural *Commune* of Gazaoua had an estimated population of 108 606 inhabitants. This population consisted of 50.82% of women and 49.17% of men (Figure 1). With an annual growth rate of 3.4%, the population of the rural *Commune* of Gazaoua is very young. Indeed, this sharp population growth is due to polygamy, high fertility levels and a pro-natalist behavior in this community. The analysis of the sample surveyed perfectly reflects the demographic gender-balance.

With such a growth rate, the increase in the population of the *Commune* will generate huge challenges in terms of education and school infrastructure, health and sanitation infrastructure and the availability of drinking water. This population is distributed among 65 communities consisting of administrative villages and tribes.

Figure 2: Structure of the Population of the *Commune* of Gazaoua by Gender and Age (INS, 2012)



- ***Soils***

The *Commune* of Gazaoua has a relatively flat topography, with 3 types of soils. However, sand dunes can be found in its Southern part, along the Goulbin Kaba Valley. There is only one hill in the Southeastern part of the *Commune*.

There is a glacis (Fako) with yellowish compact soils in landscapes between Rafa, Ounwala Dan Karma, Birnin Gueza, Bardakoye, Rijiar Tambari, Oumaraoua, Sahiya, Aikawa, Gwaramjawa, Kaguirka, Birnin Dafas, Sabon Layi, Guidan Gazobi, Ido Bissa Lalli, Ido Bissa Jaki, Dogon Dawa and Madaoua milli.

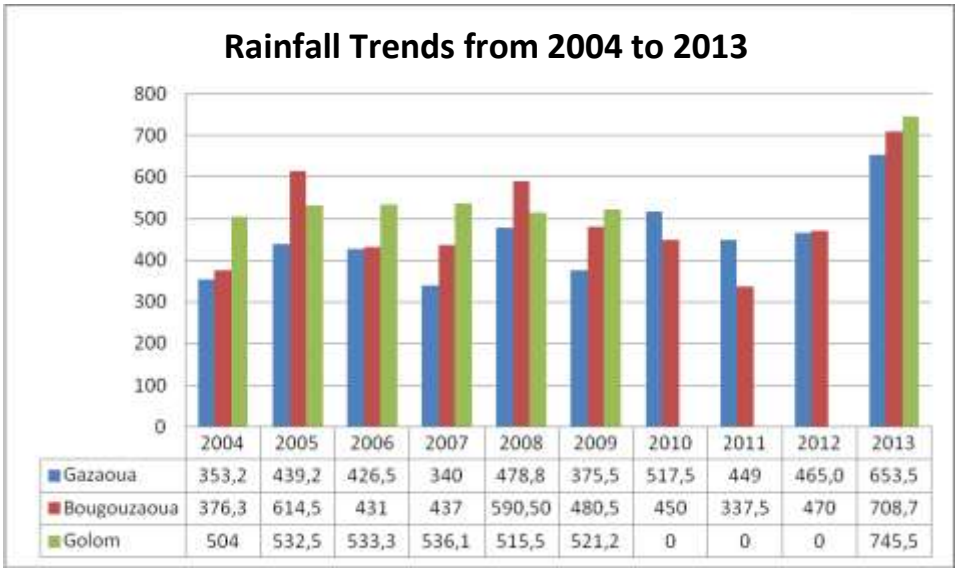
The Fadama, with its brown or black loamy soils, can be found in the landscapes between Fara, Barana, Gazori, Kakou, Boukouzaoua, Bouga, Dandamou, El Gueza, Gazaoua, Guilguige and the rest is the "gigawa" or sandy soil area.

- ***Climate***

The local climate is of Sudano-Sahelian type along the Southern border with Nigeria. It is characterized by a long dry season from October to May and a rainy season from June to October. The rainfall is between 400 and 600 mm per year from North to South, with a high spatial and temporal variability.

According to rainfall records, in the *Commune*, the rainfall amounts range from 350 mm to 708 mm. Figure 2 below illustrates rainfall trends over the decade 2004-2013.

Figure 3: Rainfall Trends from 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gazaoua	353,2	439,2	426,5	340	478,8	375,5	517,5	449	465,0	653,5
Bougouzaoua	376,3	614,5	431	437	590,50	480,5	450	337,5	470	708,7
Golom	504	532,5	533,3	536,1	515,5	521,2	0	0	0	745,5

Source: PDC, *Commune* de Gazaoua, 2013

During the decade 2004-2013, the year 2013 recorded the highest rainfall with 708.7 mm at the Bougouzaoua Center and 745.5 mm at the Golom Center.

- ***Water resources***

Two rivers water the *Commune* of Gazaoua, namely Goulbin Kaba and El Fadama that cross the landscape from South to North. The Goulbi River consists of quaternary formations comprising old alluvial sandy-clay deposits from the erosion of the crystalline massif of Northern Nigeria and recent alluvial deposits containing less clay.

The *Commune* has 7 semi-permanent to permanent ponds with 3- to 12-month water reserves used to water animals, make bricks and conduct market gardening (for the Gazaoua pond). In

addition to these ponds, there is the groundwater mobilized from two types of aquifers: the shallow alluvial groundwater located in the valleys and beds of the Kaaba Goulbin. However, the depth ranges from 5 to 15 meters. The level of the deepest groundwater table is between 40 to 50 meters. These valleys are the main fruit and vegetable production areas. The Gourjia site is one of the most important ones in the *Commune*.

- ***Forestry Resources***

There are no real forests in the *Commune* of Gazaoua, but the whole agricultural area of the *Commune* is dominated by parklands that are very dense and diversified in terms of species. There is a large of tree and shrub stands in village landscapes. The vegetation is very abundant, especially in the Southern and Southeastern parts of the *Commune*. It consists of trees, shrubs and herbaceous plants. The tree species consist mostly of *Acacia albida* (gao), *Hyphaene thebaica* (gorouba), *Balanites aegyptiaca* (adoua), *Acacia nilotica* (bagaroua), *Acacia senegal* (dakora), *Bauhinia rufescens* (dirga), *Piliostigma reticulatum* (kalgo), *Lannea fruticosa* (farou), *Parinari macrophilla* (gawassa). The exploitable species potential is mostly dominated by:

- ✓ *An important natural stand of "*doumier*s" and palm trees* in the landscapes between the villages of Rafa, Fara, Raba, Kakou, Birnin Gueza, in the area of Rafa; Bougouzaoua, El Gueza, Bouga, Dan Damou, in the area of Bougouzaoua; Gazaoua, Maifarou, Daratou and Madobi in the area of Gazaoua; Ido Bissa Jaki, Ido Bissa Lalli and Milli in the area of Guidan Gazobi;
- ✓ *A stand of fruit trees* in the landscapes of the villages of Gourjia, Golom, Laouni, Hardo Saley, Birnin Kouka, Guidan Kaje, Darto, Gourjia and Milli;
- ✓ *A stand of Diospiros mespiliformis* (Kanya) along the El Fadama valley;
- ✓ *A stand of tamarind trees* (Tsamia) in landscapes of Birnin Gueza, in the areas of Rafa and Oumaraoua Gourjia;
- ✓ *A stand of tannin trees*, namely *Acacia nilotica* (Bagaroua) in the landscapes of the villages of Birnin Kouka in the area of Golom; Ounwala Dan Karma, Rafa, in the area of Rafa; and Oumaraoua, Birnin Dafas and Kaguirka in the area of Oumaraoua;
- ✓ *An important stand of Faidherbia albida* (gao) in the landscapes of the villages of Golom, Gourjia, Gazaoua and Birnin Kouka, in the area of Golom; Bougouzaoua Mazawage and Mado, in the area of Bougouzaoua; Rafa, Fara, Rapa and Gazori and Kakou, in the area of Rafa;
- ✓ *A stand of Prosopis africana* (kirya) in the El Gueza and Laouni area; and
- ✓ *A large herbaceous cover.*

Note also the existence of wild fauna (rabbits, guinea fowls, geese, monkeys, squirrels, rats, hedgehogs and reptiles), which reappeared following land reclamation activities, followed by reforestation and the planting of herbaceous species in the rangeland of Oumaraoua (Mataki).

III. RESULTS

3.1. General Characteristics of the Surveyed Actors

Analyzing the socioeconomic characteristics of the surveyed villages first required a thorough knowledge not only of the general characteristics of the environment, including biophysical characteristics, but also of the type of population and socio-economic activities, all of which factors are likely to influence the development of agriculture and livestock in the whole *Commune*. The purpose of the preliminary investigations was to understand the social and land characteristics, particularly in the village landscapes surveyed. Thus, the main elements discussed helped us determine the level of development of the surveyed farms and households.

3.1.1. Socio-Demographic and Cultural Characteristics

The village of Milli is seven (7) kilometers southwest from the main town of the *Commune* and has a population of 1,500 inhabitants, while the village of Gourjia is located 30 km far south of the *Commune* and has a population of 1,700 inhabitants.

The analysis of the social organization of the village reveals the existence of large families across the geographic space according to membership of a lineage. All these families shared the same cultural realities and coexisted through interdependencies and marriage ties which strengthen consanguinity among families. Thus, people get married regardless of ethnicity and this is a rooting factor for immigrants into their host environment.

In the villages of Milli, Gourjia and Gazaoua, the main town of the *Commune*, the social organization is based on the lifestyle of the Hausa society, where social relationships within lineages and between ethnic groups play a critical role in the equilibrium within the rural society. These relationships include the *buki* [3].

[3] *"The buki" is a mutual solidarity network between the production system and economic reproductive system, which consists in material and financial support for anyone organizing a ceremony. It plays a social role and helps measure the social inclusion of the organizer. It also has an economic function, because the amount received from an individual will be refunded with a markup (or doubled) (Yamba, 2001).*

The village head is the representative of the administration to the community he administers. He is responsible for social control and supervises development actions undertaken on his territory. He is usually assisted by the village religious leaders who are the primary advisors and educators of the community.

The ethnic composition of the population is very heterogeneous (see Table 1), including especially the Hausa[4] "*Katsinawa*" and "*Gobirawa*" who represent 49.38% of the sample, followed by the Fulani (43.64%) and the Tuareg "*Bougage*" representing (5.94%), who live in Milli, as well as Gazaoua and Gourjia. This ethnic composition involves not only a cultural diversity, but also various lifestyles and customs. This may imply conflict between communities. But, on the contrary, these three ethnic groups live in harmony in the same territory. As is tradition, the Fulani live mostly in hamlets and camps created in family groups sharing the same land on which they conduct their activities (Lawali, 2011).

Table 2: Proportion of Ethnic Groups Surveyed by Village (%)

		VILLAGE			Total
		Gourjia	Milli	Gazaoua	
Ethnic Groups	Hausa	16.16	38.15	73.02	49.38%
	Fulani	50.89	51.31	32.89	43.64%
	Kanuri	0.05	0	1.97	0.82%
	Tuareg	0.47	10.52	3.28	5.94%
	Djerma	0.05	0	0	0.20%
Total		34.22%	31.14%	34.63%	100%

The "*One farm one hamlet*" pattern, which is particularly characteristic of the Fulani, is not only one of the farmers' space management strategies, but also a soil fertility management strategy.

The Fulani also engage in agriculture and livestock. The types of habitats are based on ethnicity and depend on the households' resources. Today, habitats seem to evolve into mud houses, while among the Fulani, the habitat remains traditional (hut) and therefore suitable for mobility. The

[4] *The Hausa constitute over 60% of the total population, or about 6 million people. They live predominately in south-central Niger and tend to be farmers, petty traders, and merchants. Hausa is one of the most important languages in West Africa, largely because Hausa traders – well known for their entrepreneurial spirit – have established a commercial network that stretches across the subcontinent. The Hausa population in Niger represents a northern extension of a larger Hausa population - the heartland of this ethnic group is located across the border in Nigeria, where there are over 20 million Hausa.* (Extract from the report of the Working Group on Indigenous Populations/Communities in Africa, Republic of Niger, 2006).

analysis of data on the relationship with the household head (Table 2) shows that the sample includes all the groups of stakeholders, namely the heads of households, women and youth.

The average age of respondents was 36 in Gourjia, the oldest being 65 and the youngest 16 years old (Table 3). In Milli and Gazaoua, on the other hand, the minimum age was 18 and 20, and the maximum 75 and 90, respectively. Table 3 below provides details on the average ages by village.

Table 3: Relationship between Respondents and the Household Head by Village

Relations with the Household Head		Villages			Total
		Gourjia	Milli	Gazaoua	
	Himself	43.1%	38.2%	65.7%	49.4%
	Spouse	50.9%	51.3%	29.6%	43.6%
	Daughter	0.6%	0%	1.8%	0.8%
	Son	4.8%	10.5%	3.0%	5.9%
	Nephew	0.6%	0%	0%	0.2%
Total		100.0%	100.0%	100.0%	100.0%

Table 4: Respondents' Ages by Village

Ages of respondents	Surveyed Villages		
	Gourjia	Milli	Gazaoua
Minimum	16	20	18
Maximum	65	75	90
Average	36	50	47

The gender approach being the backbone of the study, the selection of the survey sample was no exception to this rule as reflected in its composition predominated by women (Table 4).

- **Respondents' Marital Status by Village**

The analysis of the respondents' marital status (Table 5) shows a predominance of married people among the men surveyed as well as the women.

Table 5: Respondents' Marital Status by Village

Status	VILLAGE			Total
	Gourjia	Milli	Gazaoua	
Single	0	0	3.6%	1.2%
Married	99.4%	96.1%	77.5%	90.8%
Divorced	0	0.7%	6.5%	2.5%

Widow/Widower	0.6%	3.3%	12.4%	5.5%
Total	34.2%	31.1%	34.6%	100.0%

Table 6 below shows that the population was mostly illiterate, especially in Gourjia and Milli where the proportions of illiterate people were 70.1% and 41.4%, respectively. Overall, in these areas, the proportion of respondents who had attended primary and secondary school was relatively low. Note also that 28.3 % of respondents had attended Koranic school.

Table 6: Educational Levels by Village

Educational level	VILLAGE			Total
	Gourjia	Milli	Gazaoua	
Illiterate	70.1%	41.4%	24.3%	45.3%
Can read and write	6.0%	5.3%	13.0%	8.2%
Basic	7.8%	9.2%	11.8%	9.6%
Secondary	8.4%	6.6%	8.9%	8.0%
Higher	0%	0.7%	1.2%	0.6%
Koranic education	7.8%	36.8%	40.8%	28.3%
Total	100.0%	100.0%	100.0%	100.0%

Table 7: Educational Levels by Gender

Educational level	Educational level by gender	
	Male	Female
Illiterate	33.5%	66.5%
Can read and write	75.0%	25.0%
Basic	55.3%	44.7%
Secondary	69.2%	30.8%
Higher	1%	0%
Koranic education	57.2%	42.8%
Average	49.0%	51.0%

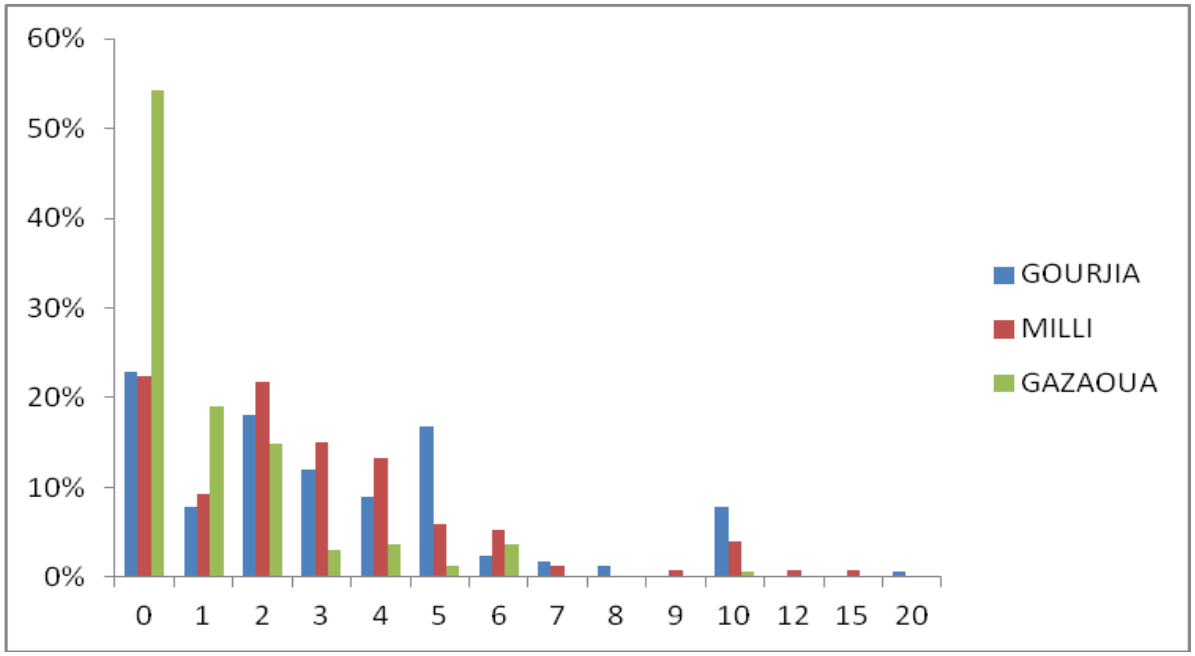
The analysis of respondents' educational levels by gender (Table 7) also shows that 66.5% of women had not attended school, compared to 33.5% of men. The grade varies mostly from primary to secondary. The proportion of respondents with a higher education level is almost zero. These results reflect the overall situation in the Maradi region where we noted low

attendance of girls often for socio-cultural reasons. Other causes include early marriage, the rural-urban migration among young boys, massive school failure in primary school, etc.

- ***Attendance of Community Meetings***

While the majority of household heads had access to extension services, 33.5% of respondents said they had never attended a meeting organized by an extension worker. The abstention rate is higher in Gazaoua, representing 54.2% (see Figure 3). Overall, it is mostly women who did not attend meetings, with an abstention rate of 60.7%.

Figure 1: Frequency of Attendance of Community Meetings Organized by an Extension Worker



- ***Involvement in Social Organizations***

Traditionally, rural African societies are hierarchical and very supportive. Formerly solidarity networks were operating around tontines or collective work groups. As far as associative life was concerned, involvement in a social organization depended on its nature. Thus, the results of the study show very low enthusiasm among the actors interviewed. For example, on average, over 76% of households were not involved in water management committees and 94.5% were not members of a producer association (Tables 8 and 9). But, with regard to land use decision-

making committees, 55.5% of household heads said they were members, unlike 44.5% of them. The site-based analysis indicates significant disparities between villages. The participation rate was higher in Milli (76.9%) and Gazaoua (56.9%) than in Gourjia (6.1%) probably because of the pressure on land which was greater in the first two villages (less than 2 hectares per household). Also, the proximity of the sites to the urban center can affect the extension and advisory support services sometimes faced with means of transport issues.

Table 8: Participation Rate in Water Management Committees

Frequency of answers	VILLAGE			Total
	Gourjia	Milli	Gazaoua	
No	86.2%	59.2%	83.3%	76.8%
Yes	13.8%	40.8%	16.7%	23.2%
Total	100%	100%	100%	100%

Table 9: Participation Rate in Producers' Organizations

Frequency of answers	VILLAGE			Total
	Gourjia	Milli	Gazaoua	
No	94.0%	96.1%	95.5%	94.5%
Yes	6.0%	3.9%	4.4%	5.5%
Total	100%	100%	100%	100%

Social organizations operate mainly according the strategies and approaches developed by NGOs and development projects. Thus, in implementing their activities, they develop associations led by management committees whose members are elected in General Assembly. There were groups formed around cereal banks, input banks, market gardening activities, stock recapitalization, etc. In some villages like Gazaoua and Milli, there were mixed groups and women's groups for some gender-specific activities.

3.1. 2. Economic Characteristics

- *Economic Activities*

The analysis of professional situations shows a multiplicity of activities carried out by respondents. So, it is rare to find a head of household who is confined to a single activity. All of them carry out two or more activities to address the adverse effects of growing poverty and their multifaceted state of vulnerability. Table 9 shows the proportion of activities carried out by farmers by type. As can be seen, agriculture remains the main activity (68.4%), followed by trade (3.3%) and livestock (1.8%). It is worth noting that the 16.2% of households recorded as housewives were also farmers. Handicraft, an income-generating activity, was practiced in the three villages and includes pottery, weaving, blacksmithing, etc. Both men and women were engaged in that activity.

Table 10: Respondents' Core Activities

		Respondents' core activities by village			Total
	Activities	Gourjia	Milli	Gazaoua	
Respondents' core activities	None	0%	0%	0.6%	0.2%
	Housewife	0%	1.3%	45.6%	16.2%
	Student	0.6%	0	1.8%	0.8%
	Farmer	95.2%	73.7%	37.3%	68.4%
	Farm worker	1.2%	2.0%	.6%	1.2%
	Pastoralist	1.8%	2.6%	1.2%	1.8%
	Craftsman	1.2%	6.6%	1.2%	2.9%
	Trader	0%	.7%	1.2%	0.6%
	Wholesaler	0%	9.9%	.6%	3.3%
	Civil servant	0%	0%	.6%	0.2%
	Private operator	0%	0%	4.1%	1.4%
	Charlatan	0%	3.3%	5.3%	2.9%
	Total	100,0%	100,0%	100,0%	100,0%

The main crops grown were 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.

Photo 3: Millet + Groundnut Crop Mix

Photo 4: Crop/Livestock Integration

The highly diversified cropping system varied according not only to the potential of each landscape, but also to producers' choices. Two recent studies on the dynamics of change in cropping systems and resource management methods helped identify the following:

The agroforestry system where farmers integrate the production of cereals such as millet and sorghum with small ruminant breeding in parklands created through Farmer-Managed Natural Regeneration (FMNR).

The agro-pastoral system: it is characterized by the existence of damp valleys, steady flows, a shallow water table, a rich and varied vegetation and a high potential of irrigable farmland, leading to a high human population density. The population consists of farmers and Fulani agro-pastoralists. The main activities of these populations are (rain-fed and irrigated) agriculture and large ruminant breeding. The farms are small, involving a highly intensive agricultural production system. This is the case of the village of Gourjia.

3.2. GENDER AND ACCESS TO INPUTS

3.2.1. Access to Land Resources

The farm is characterized by inputs (land, labor, livestock, farm equipment, etc.) and is operated by a farm manager who makes decisions (at least partially) on production modalities, including the allocation of inputs. But it is more than a production unit, because it plays other socio-economic roles such as consumption, accumulation and residence.[5]

Table 11: Land Resources by Village

Indicators Observed		Areas of Farms by Village (ha)			
		Gourjia	Milli	Gazaoua	Total
Area of rain-fed farmland owned	Total area of rain-fed farmland owned	230.5	271.5	465	967
	Land leased	5	3.5	24.75	33.25
	Land shared	62	309.8	155.5	527.3
	Communal land	0	2	5.25	7.25
	TOTAL	297.5	586.8	650.5	1534.8

Land resources are prominent in household resources. Thus, the analysis of data on registered assets reveals 1,534.8 ha rain-fed lands, of which 597.5 ha were cultivated by the sample of 167 farmers surveyed in Gourjia (Table 11), giving a ratio of 1.78 ha per household. In the case of Milli, there were 586.8 ha for the sample of 152 households, representing a ratio of 3.85 ha per household. In Gazaoua, 650.5 ha were recorded for a total of 169 households, representing a ratio of 3.83 ha per household.

[5] Benoit-Cattin M. et Faye J., 1982, L'exploitation agricole familiale en Afrique soudano sahélienne, Paris : presse universitaire de France.

Photo 5: Ripe Cowpea Farm

The results of the analysis also show that 967 ha or 63% of rain-fed farmland were possessed (Table 12), which means that farmers had full ownership of their lands. The latter were mostly acquired through inheritance or purchase. Only a small proportion of cultivated lands were leased and most of them were found in the landscape of Gazaoua, with 24.75 ha of leased land, representing a ratio of 1.61%.

Table 12: Inventory of Rain-Fed Farmlands by Gender

Indicators Observed		Villages			
		Gourjia	Milli	Gazaoua	Total
Area of rain-fed farmland owned (ha)	Male	171.5	207.5	276.25	655.25
	Female	59	64	188.75	311.75
Area of rain-fed farmland leased (ha)	Male	3.5	0.5	17.5	21.5
	Female	1.5	3	7.25	11.75
	TOTAL	235.5	275	489.75	1,000.25

The gender analysis of land distribution (see Table 12) also confirms that women have equal access to land as men. Long-marginalized on land issues, women now have access to land through inheritance. Yamba (2008) specifies that "*on behalf of the principles of Islam, and contrary to customary law, women's right to inherit from their father and late husband is now acknowledged, though in practice they are left with paltry shares and inadequately informed about the possibility of inheriting the 1/8 of the land assets of their late husband*." Across the whole sample surveyed and analyzed, men held about 65.5% of cultivated rain-fed farmland, compared to 34.5% for women.

Thus, these proportions perfectly reflect the land and resource sharing principle set out in Islamic laws. The transfer of land by inheritance is governed by customary and Islamic rules. Thus, the right of heirs to land and other property is well recognized as follows: in case the head of

household dies, his wives share 1/8 of his properties and the remaining 7/8 go to his children, of which each son inherits one full share while their sisters receive only half of the share of their brothers. This gender-biased sharing between the male and female is rooted in the provisions of Islam laws.

After marriage, young people are offered a small piece of land as a starting capital in their capacity as head of household. This long-standing practice of the Hausa society in Niger is part of a process of initiation and transfer of responsibility for land management, while maintaining the individual in the collective household farm. But the latter must not sell this piece of land, at the risk of being excluded for good from the family. Unfortunately, given the small size of crop areas, some families are no longer able to assume that responsibility towards the younger generation.

The results show that there is a good proportion of irrigable land in the three villages (Tables 13 and 14). These are located mainly in the Goulbi Valleys, basins, semi-permanent and permanent ponds, as well as around water points developed for off-season farming.

Table 13: Inventory of Irrigated Farmlands in the Three Villages Surveyed

Indicators Observed		Villages			
		Gourjia	Milli	Gazaoua	Total
Irrigated farmlands	Total area of irrigated farmlands owned	118.37	19.31	59	196.68
	Irrigated farmlands leased	5	0	13.5	18.5
	Irrigated farmlands shared	28.25	276.25	36.25	340.75
	Irrigated communal farmlands	0.5	1.6	51	53.1
	TOTAL	152.12	297.16	159.75	609.03

Table 14: Status of Irrigated Farmlands by Gender

Indicators Observed		Villages			
		Gourjia	Milli	Gazaoua	Total
Area of irrigated farmlands held (ha)	Male	42.12	10.2	18.5	70.82
	Female	76.75	9.35	50.5	136.6
Area of irrigated farmlands leased (ha)	Male	4.5	0	0	4.5
	Female	0.5	0	13.5	14
TOTAL		123.87	19.55	82.5	225.92

Pepper production is more important as there is a safe outlet, namely Nigeria. Cabbage, the second crop and is consumed and sold in local markets. Manual watering using traditional dippers was the irrigation technique identified on the sites. Very few modern irrigation

techniques (Californian system, drip irrigation) were implemented. Also, farmers did not master any product conservation and value-addition techniques.

Most of these lands were underexploited due to lack of water throughout the year. Thus, crops were mostly grown in the Gourjia Valley where each man, woman and young person is busy developing his/her portion of land. According to the respondents in this village located close to Nigeria, market gardening earned more income than rain-fed farming.

A total of 4,720 fruit trees were declared by farmers as forming part of their assets (Table 15). More fruit trees were found in Gourjia than in the other two landscapes.

Table 15: Fruit Tree Ownership

Type of land	Fruit trees reported	Villages			
		Gourjia	Milli	Gazaoua	Total
Rain-fed land	Number fruit trees	2,153	789	660	3,602
Irrigated land	Number fruit trees	721	85	312	1,118
Total		2,874	874	972	4,720

In general, natural resources, including herbaceous plants and forage species, were freely accessible in the *Commune* of Gazaoua, except for fruit species. These species of economic importance were increasingly under the exclusive management and control of their owners or the owners of the land on which they were planted. Beside fruit crops like mango, lemon and guava, some other fruit tree species resulting from farmer-managed natural regeneration have been subjected to a controlled exploitation in recent years. This is the case of baobab, tamarind, "*doumier*", etc.

3.2.2. Access to Farm Work

An agricultural family is a group of people united by kinship who agree to pool their strength and means to ensure production for the benefit of all members. According Dufumier (1996), a farm is an agricultural production unit whose components are the (family and hired) labor force, farmlands, plantations, livestock, farm buildings, equipment and tools. This is where the farm manager combines his various resources and implements his agricultural production system. So, he defines the family farm as a farm where the members of the manager's family provide most of the labor force used to operate the production system.

So, in the villages surveyed, the work was largely done by family labor. However some farms who had a large agricultural area, the farm manager resorts to hired labor to carry out activities

in time. In the context of the study area, the agricultural wage labor was provided by both men and women. Hired labor is used for various farm operations ranging from sowing to harvest. Women participate in all farm operations in the family farm. They participate in planting by the closing of pits. Owing to the lack of labor, some women dig pits by themselves. Women also participate in weeding and harvesting. The results of analyses show that the daily cost of labor depends on the type of operation and gender.

3.2.3. Access to Credit

In the 3 localities surveyed, 54% of households had access to credit, as against 45.4% (Table 16). Women represent 44.8% of those without access to credit, compared to 46% for men (Table 17). So, it seems that there is no gender-based discrimination with respect to credit extension.

Table 16: Credit Access Rate by Village

Access to agricultural credits	Frequency of answers	VILLAGE			Total
		Gourjia	Milli	Gazaoua	
	No answer	1.2%	0.7%		0.6%
	Yes	57.5%	57.2%	47.6%	54.0%
	No	41.3%	42.1%	52.4%	45.4%
Total		100.0%	100.0%	100.0%	100.0%

Table 17: Credit Access Rate by Gender

Frequency of answers (%)		Gender		Total
		Male	Female	
	No answers	46.9%	36.0%	41.6%
	Yes	17.2%	18.7%	17.9%
	No	36 %	45.3%	40.3%
Total		100%	100%	100%

The results of the gender analysis of access to credit show that there is no difference between men and women. The credit sources identified were numerous and varied (government, bank, parent, neighbor, cooperative, etc.), but credit was mostly provided by close relatives (20.7% of cases), while bank or governmental credit sources represented only 3.1% and 0.2%, respectively. Moreover, it was much easier for women (24.6%) to get credit from parents than for men (17.2%) (see Table 18).

Credit sources were less diversified, but access to credit was still very limited. Many farmers receive assistance only from parents, generally young migrants. Thus, 43% of respondents

reported not having access to credit, while 21% receive support through fundraising within their solidarity group. The contribution of banks and microfinance institutions is very low.

Figure 4: Proportion of Credits Received by Source

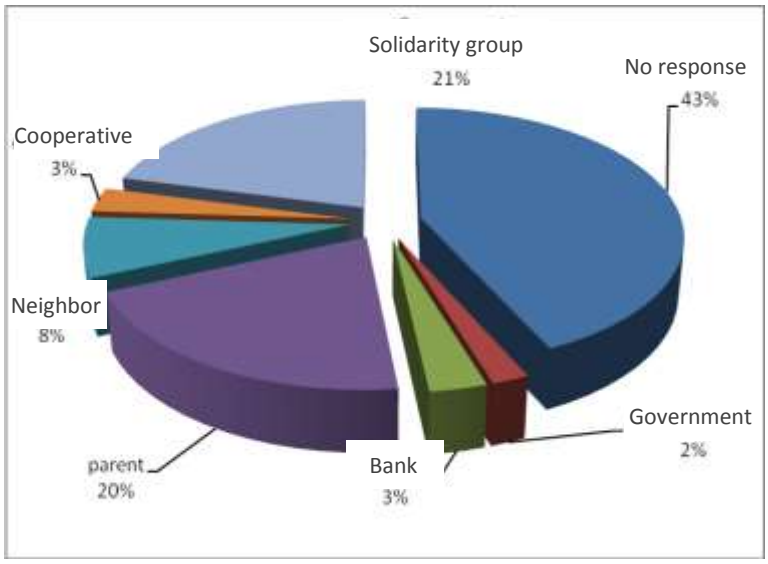


Table 18: Proportion of Credit Sources by Gender

Credit source	Gender		Total
	Male	Female	
No answer	46.9%	40.8%	44.0%
Government	0 %	0.5%	0.2%
Bank	2.9%	3.3%	3.1%
Parent	17.2%	24.6%	20.7%
Neighbor	6.7%	8.5%	7.6%
Cooperative	2.1%	4.3%	3.1%
Solidarity group	24.3%	18%	21.4%
Total	100%	100%	100%

Table 19: Frequency of Answers Regarding Interest Payment

	Village			Total
	Gourjia	Milli	Gazaoua	
No answer	42.5%	38.2%	44.1%	41.6%
Yes	4.8%	28.3%	22.1%	17.9%

No	52.7%	33.6%	33.8%	40.3%
Total	100%	100%	100%	100%

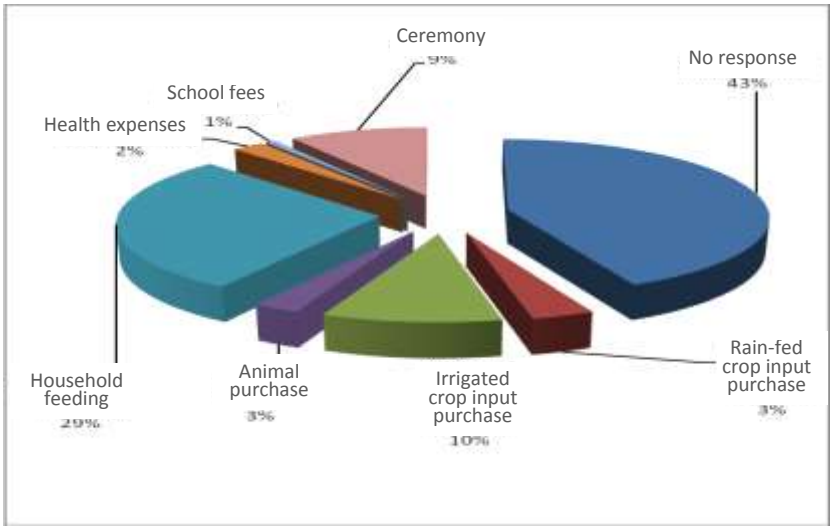
However, 40.3 % of borrowers did not repay the interest due (Table 19) and this proportion was made up mostly by women (45.3%), compared to 36 % for men (Table 20). Let us note here that most of the credit granted to women was in form of assistance funds.

Table 20: Interest Payment by Gender

Credit source	Gender		Total
	Male	Female	
No answer	46.9%	40.8%	44.0%
Government		0.5%	0.2%
Bank	2.9%	3.3%	3.1%
Parent	17.2%	24.6%	20.7%
Neighbor	6.7%	8.5%	7.6%
Cooperative	2.1%	4.3%	3.1%
Solidarity group	24.3%	18%	21.4%
Total	100.0%	100.0%	100.0%

While 43 % of respondents did not remember exactly what they had done with this credit, 29% reported having used it to meet household food needs (see Figure below). So, in reality, the credit is not secured for income-generating activities but just to feed the family. It was also noted that 10 % of respondents had invested their credit in agricultural inputs. It is therefore easy to understand why the borrowers did not pay interest. This also reflects the precariousness in which these households live.

Figure 5: Allocation of the Credits Received



- ***Discussion***

The issue of access to credit remained intact regardless of membership in farmer organizations (FOs). However the causes were multiple, including the issue of interest rates which is a real bottleneck. Other causes are outlined below:

- ✓ The banking penetration rate in rural areas is close to zero given the high risk associated with this type of operations and the inability of rural households to provide the collateral required by banks;
- ✓ The low geographical coverage of MFIs, which are concentrated in big cities;
- ✓ Unfair competition from informal credit providers;
- ✓ Inadequate financing;
- ✓ Producer organizations were in their early stages and they were faced with dysfunctions (internal differences of opinion, leadership conflict, organizational difficulties and low technical and financial capacity to provide services to their members).

3.3. GENDER EQUITY IN DECISION-MAKING AND CONTROL OVER RESOURCES AND WORK

In the *Commune* of Gazaoua, farm operation is the responsibility of the manager. Women only achieve this status if there is no man old enough to hold this position. Nevertheless, there were some cases of widow household heads. The farm manager operates the resources in the farm, including the farm output. In the three villages surveyed, the production management system was the same. Thus, one part is for own consumption and is shared on the basis of the number of member household heads and the other part is stored in a common granary until the next rainy

season in order to meet the food needs of farm workers. As for the investment decision, it is also the prerogative of the manager. The latter decided, as opportunities arose to purchase implements such as hoes, plows, carts, seeders and fertilizer and even land. The investment funds usually come from the sales of cash crops such as groundnut, cowpea, etc. They also include financial support from some household members who have migrated to neighboring countries, including Nigeria and Libya. The farm manager plans the activities to be undertaken and ensures the smooth implementation of farm works.

- ***Distribution of on-Farm Tasks***

In the case of collectively owned household farms, all of the workforce work first in the common farm called "gandou" before caring for their individual farms. Women owning "gamanas" generally have two days in the week that they dedicated solely to operations in their farms. In "gamanas", women are sometimes helped by their children when they do not work in the "gandou". Sometimes the farm manager might lend his farm equipment to his wives. Children of the manager who are still in the household also work in the common farm until 14 o'clock before going back to their "gamanas".


Photos 6-7: Women Weeding and Thinning a Farm in Milli

Table 21: Average Hired Labor Cost by Gender

Operations	Average daily amount (f/d) in CFA Francs		
	Male	Female	Youth
Sowing	2,000	1,000	1,500
Weed control	1,500	1,000	1,250
Weeding	2,000	1,500	1,500
Thinning	1,000	750	750
Average	**1,625**	**1,062**	**1,250**

So, it appears from the results that farmers were aware of the value of farm assets. They clearly explain that a woman's work force is not the same as an adult man's, which accounts for the difference in the cost of farm operations by gender. Thus, the daily costs of operations vary between 1,500 and 2,000 CFAF for men and 1,000-1,500 CFAF for women. For youth, the costs vary between 1,500 and 750 CFAF, depending on the operations.

- ***Management of Farm Implements and Equipment***

Family farms in the *Commune* Gazaoua are generally under-equipped. Agriculture is not mechanized. Farm equipment consists mainly of hoes, picks, and in very rare cases, animal traction farming units. Access to farm equipment seems to be commonplace for the majority of farms.

Nevertheless, in all three villages, there were some animal traction farming units procured during the years of good harvests. This shortage of farm equipment due to the lack of resources for investment is a serious constraint to agricultural development. The means of transport were carts, bicycles and motorbikes for the most affluent. Most of the farm equipment was provided under development projects. Household equipment such as beds, mattresses were bought by women or their husbands, but entirely under the control of women.

- ***Management of the Household Livestock Capital***

Despite the pressure exerted on plant resources and the lack of space specifically reserved for livestock in several villages in the *Commune* of Gazaoua, breeding ranks second in terms of income-generation. It is practiced under extensive conditions by the sedentary Hausa and the agro-pastoralist and transhumant Fulani and Tuareg. Crop residues and by-products from the processing of agricultural products are the main sources of livestock feed. Throughout the rainy season, farmers keep animals in pens.

Table 20: Household Livestock Size

Species	Total	Number Owned By Men	Number Owned by Women	Number Jointly Owned
Cattle	10	5	5	0
Oxen	247	161	86	0
Sheep	183	142	41	0
Goats	885	253	632	0
Poultry	361	201	160	0
Pigs	38	24	14	0
Donkeys	718	399	319	0
Horses	296	226	70	0

The situation analysis of livestock in the households surveyed reveals the existence of a good potential in the landscapes of Gazaoua, Milli and Gourjia. Overall, we noted a predominance of goats and donkeys. Indeed, the observed prevalence of goats can be explained by the introduction of the Maradi red goat, a species characterized by its high fertility (calving twice a year with 3-4 young per parturition), i.e. a growing rate of 3%.

In the case of donkeys, they were the central animals of the farm. Indeed, this animal is used in the implementation of all the household chores. As such, the donkey was seen by all the beneficiaries as a resilient animal, easy to take care of by women without great means. It is an essential animal for household chores, especially for pastoral mobility. Then come the horses for a total of about 296 heads. This proves that the horse, considered as a prestigious animal, is also raised and cared as much by women as by men. Cattle, the main source of income, occupy an important place in livestock in the *Commune* of Gazaoua. The cattle fattening is common in the three villages, for several reasons including: the need of animal traction for farm work, income-generation and water collection. Female cattle raising is mostly practiced by sedentary Fulani herders for milk production and reproduction, while the Hausa considered this type of livestock as a prestige.

- ***Gender Equity in Investment Decisions***

The analysis of family farm-based decision-making patterns helps determine the levels of responsibility in the farm. It helps know who does what or who decides what at the farm level. Thus, the results of our investigations show that the manager is the one who makes decisions on the types of crops to grow on the various plots of the farm, the area allocated to a particular crop, the management of income from agricultural activities, the purchase of inputs and routes to follow; all these elements are subjected to the decision of the manager. Female farm managers were assisted in these tasks by their sons. However, there were variants as to harvest management depending on whether the farm was individually or collectively owned. Some household heads who migrate seasonally to town entrust the management of the harvest to their wives for the duration of their absence. It is also clear from our analysis that investment decisions related to the purchase, management and control of animals were governed by the principle of separate asset management. There was a clear distinction between the properties

belonging to the woman and those belonging to the man as head of household or manager of the farm.

3.4. GENDER EQUITY IN ACCESS TO AND CONTROL OVER EXTENSION SERVICES

In the 3 villages surveyed, household heads had a long tradition in agriculture. For example, in Gourjia and Milli, some heads of households had more than 40 or even 50 years of agricultural experience. On average, the experience of household heads in agriculture amount to 16 years in Gourjia, compared to 23 and 12 in Milli and Gazaoua respectively. However, this remains purely traditional agriculture as 88.1% of male farmers declared that no member of their household held a certificate or diploma in agriculture (Table 23). This rate is even higher among women with 95.7% (Table 24).

Table 23: Agricultural Experience of Household Heads in the Three Surveyed Villages (Years)

		VILLAGE			Total
		Gourjia	Milli	Gazaoua	
Number of short term agricultural training certificates	None	87.4 %	89.5 %	87,4 %	88.1 %
	1	12.0 %	5.9 %	11,4 %	9.9 %
	2	0.6 %	1.3 %	0,6 %	0.8 %
	3	0%	1.3 %	0,6 %	0.6 %
	6	0%	1.3 %	0%	0.4 %
	9	0%	0.7 %	0%	0.2 %
Total		100.0%	100.0%	100.0%	100.0%

Nevertheless, some claimed to have received agricultural advisory support at a highly variable frequency depending on the sites. Therefore, respondents had attended one to two training sessions. This low access to training and extension services is due to the limited number of extension workers in the *Département* of Gazaoua. In total, the Departmental Directorate of Agriculture had 8 agents distributed across four agricultural districts or two agents per district. This low number comes nowhere near covering the real training and supervision needs of people in the *Commune*.

Table 24: Number of Men Holding a Certificate or Degree in Agriculture

	VILLAGE			Total
	Gourjia	Milli	Gazaoua	

Number of short term agricultural training certificates	None	94.0%	97.4%	95.8%	95.7%
	1	6.0%	0.7%	2.4%	3.1%
	2	0%	0%	1.8%	0.6%
	5	0%	1.3%	0%	0.4%
	11	0%	0.7%	0%	0.2%
Total		100,0%	100.0%	100.0%	100.0%

- ***Access to an Extension Worker***

As regards agricultural extension services, 72% of respondents said they had access to an extension worker, unlike 27% of them. These households were more concentrated in Gazaoua (44 %) than in Gourjia (21.7%) and Milli (13.8%) (Table 25). There are several reasons for this high proportion of producers who did not have access to extension services. On the one hand, very little training was organized in urban areas and there were very few agricultural support service interventions in urban centers.

There is gender discrimination in access to agricultural extension workers. We note in fact that only 42.3% of women claimed to have access to extension workers, compared to 57.7% for men. Also, women represented 73.3% of the people with no access (Table 26).

Table 25: Rate of Access to an Extension Worker

Access to an Extension Worker	VILLAGE			Total
	Gourjia	Milli	Gazaoua	
No answer	0%	1.3%	1.8%	1%
Yes	78.3%	84.9%	54.2%	72%
No	21.7%	13.8%	44%	27%
Total	100%	100%	100%	100%

Table 26: Access to Extension by Village

Access to an Extension Worker	Gender		Total
	Male	Female	
No answer	40.0%	60.0%	100.0%
Yes	57.7%	42.3%	100.0%
No	26.7%	73.3%	100.0%
Total	49.2%	50.8%	100%

In addition to difficulty in accessing credit, the people who succeeded in obtaining funds complained about the low number of extension staff, which resulted in the limited access of farmers to training and coaching.

- ***Structure and Type of Extension Services Provided***

Traditionally, the extension services were the prerogative of the government technical services. In order to address the inadequacy of resources and staff, NGOs and development project provide substantial support for the dissemination of technologies in rural areas.

In the context of the *Commune* of Gazaoua, the current agricultural technology dissemination system for farmers uses a mass or pilot farmer group approach. This approach is based on the principle of producer contact groups receiving technical assistance from extension workers responsible for the provision of technical solutions to the constraints faced by farmers. The most commonly used tools are farmer field schools whereby farmers receive observations and a one-week training from an extension worker. Farmer-to-farmer visits provide farmer with an opportunity to acquire a technology already tested and popularized through farmer interactions.

These tools are used by NGOs and development projects through the assignment of multidisciplinary technicians to support populations. The extension services provided to communities concern the development of rain-fed crops, erosion control, Farmer-Managed Natural Regeneration (FMNR), market gardening, micro-dose, pesticide use, etc.

- ***Overview of the Extension Process in Niger***

Agricultural extension, which is an integral part of agricultural policy, started in Niger in 1930, in colonial times, around cash crops such as groundnuts and cotton. Just as the agricultural policy, extension has gone through several steps in line with the political vision of the current regime.

So, the decade of independence (1960-1970) was marked by the opening of training centers for rural producers. It is in this context that the Young Farmer Training Centers (CFJA) were created in 1969. These centers have provided intensive training to young farmers on farming techniques.

After independence in 1960, development projects were developed with a focus on government subsidy. So, at the multisectoral level, regional or national projects were developed with critical components on the training of rural producers. Indeed, centers for young couples of farmers were constructed in villages considered as important in the respective regions. These centers were

called *Centres de Perfectionnement Technique* (Technique Upgrading Center – CPT) or *Centres de Promotion Rurale* (Rural Promotion Center – CPR).

The 1988-1998 decade was the period of the *Projet de Renforcement des Services d'Appui à l'Agriculture* (Agriculture Support Services Capacity Building Project – PRSAA) and the *Programme National de la Recherche Agronomique* (National Agriculture Research Program – PNRA) whose missions were respectively to train rural producers through visits and to develop innovations. Since the end of the PRSAA and the PNRA, several attempts at setting up an integrated research-training-extension framework were launched, but most of them were blocked for lack of funding.

Today, extension and advisory support services are no longer the preserve of the government alone. A great deal of training/consultancy work is being carried out by NGOs, projects relying upon producer organizations such as the farmers platform and producers groups according to agricultural value chains, for the benefit of all the stakeholders of value chains. Unfortunately, there remains a coordination issue, reflecting the lack of statistics on these activities.

- ***The Success of Extension in Niger***

Agricultural extension in Niger still records significant results, in spite of the lack of resources and ever increasing training and coaching needs. The following was noted:

- There have been many technical coaching services for rural areas since the start of extension (agricultural, livestock, water and forestry and rural engineering services, etc.);
- Many extension workers trained and involved in the training and supervision close of farmers. From 2000 to 2008, 1,477 supervisory staff, including 780 rural development technicians and 684 technical staff, have been trained at the IPDR (Siddo and Yacouba, 2009);
- Several *brigadiers phytosanitaires* trained and equipped for phytosanitary interventions: for example from 2000 to 2007, 26,448 *brigadiers* were trained and equipped (Siddo and Yacouba, 2009).
- Mastery of production techniques by rice farmers, including irrigation schemes under the supervision of ONAHA;
- The use of mineral fertilizers, organic manure and animal traction has become commonplace in farmers' cropping practices;
- Adoption of technical topics including improved seed in favor of local varieties;
- Several assistant extension workers have been trained in farmer-to-farmer coaching.

- ***Strengths and Weaknesses of Production***

- **The Site of Gourjia *According to Men***

Strengths	Weaknesses
- Availability of irrigable land; - Availability of labor; - Presence of very wet basins; - Very shallow water table; - Existence of local markets for the sale of their vegetable production.	- Accelerated land degradation under the effects of wind erosion; - Gradual silting of sites in periods of high water in the valley; - Deforestation due to excessive tree cutting; - Isolation of the site due to lack of access roads and feeder roads for the sale of agricultural products; - Inadequate fertilizer and pesticides.

- **The Site of Gourjia *According to Women***

Strengths	Weaknesses
- Existence of women's groups; - Availability of water on the site; - Strong motivation and mobilization; - Availability of land and access on demand; - Existence of extension bodies (Head of agricultural district in place) ; - Availability of pasture; - Strong social cohesion.	- Lack of access to land; - Lack of support to women for market gardening; - Market gardening requires much effort and technical skills; - Poor soils and high pest pressure on crops; - Low agricultural productivity; - Inadequate pasture; - Lack of seed and agricultural inputs; - Overloaded work schedules (water collecting, firewood collecting, on-site work, etc.)

The Site of Gourjia *According to Young Farmers*

Strengths	Weaknesses
- A relatively young population; - Availability of labor to work on the site; - Availability of irrigable land and water at all times; - Existence of a well-structured and functional young market gardeners group; - Strong cohesion between young people.	- Lack of employment during the off-season; - Lack of training in others trades (sewing, handicraft, joinery); - Lack of funds for the running of small businesses; - Depopulation of rural areas during the dry season.

- **The Site of Gazaoua**

The main socio-economic activities in Gazaoua are agriculture, livestock, trade and handicraft. Agricultural is practiced all over the landscape. It is practiced under rain-fed and irrigated conditions during much of the dry season around improved water points. The main rain-fed crops are millet, sorghum and cowpea, grown on dunal and sandy-clay soils. Sesame farming is being developed primarily by women.

The production system is poorly mechanized despite the intervention of programs and projects which provide support in the form of agricultural equipment (plows, seeders, processing equipment, etc.). Irrigated crops are grown in the Goulbi Valleys covered by the landscape of the *Commune*. Besides helping bridge the cereal gap, irrigated crops such as potato, pepper, onion, cabbage and tomatoes are sources of income for farmers.

In terms of agricultural output marketing, the Gazaoua market is a very important collection center for cereals (millet, sorghum) and cash crops, including cowpea, groundnut and sesame. As far as horticultural crops are concerned, pepper is more valued by Nigerian traders. Other products such as cabbage are sold either on local markets or in the nearest urban centers.

Agriculture is practiced by men and women, with a good proportion of young people involved in the development of the site. Access to land is not an obstacle to the development of market gardening. Land is transmitted through inheritance, customary pledge, lending and sales. The irrigable lands of the site can be accessed by natives and immigrants as well.

Strengths and Weaknesses of Production According to Men

Strengths	Weaknesses
- Availability of irrigable land; - Availability of labor; - Existence of a developed site; - Very shallow water table; - Very rich loamy-clay soils; - Strong integration of agriculture and livestock; - A relatively good rainfall per year; - Existence of local markets for the sale of their vegetable production; - Existence of coaching services; - Proximity of Nigeria; - Existence of an irrigation potential along Goulbi Kaba and El Fadama.	- Inadequate agricultural material and equipment; - Difficult access to inputs and credit by POs; - Undeveloped irrigable land potential; - Water shortage in the developed sites; - Silting and lack of fences at the developed sites; - Difficulty in selling some horticultural products; - Poor soils; - Pest pressure; - Support to farmer-managed natural regeneration.

The Area of Livestock According to Men

Strengths	Weaknesses
- Conducive area for livestock export; - Livestock fattening; - Existence of bred poultry; - Existence of a transhumance corridor; - Significant poultry breeding; - Existence of a forage growing potential; - Existence of markets for farm outputs.	- Pastoral enclaves largely dominated (80%) by *Sida cordifolia;* - Occupation of rangelands and transhumance corridors; - High concentration of transhumance animals during the harvest period; - Contamination of transhumant animals by certain diseases; - Inadequate coaching.

Strengths and Weaknesses According to Young Farmers

Strengths	Weaknesses
- A relatively young population; - Availability of workforce; - A strong youth engagement in agriculture; - Availability of irrigable land; - Existence of a well-structured and functional young market gardeners group; - A strong cohesion between young people.	- Lack of employment during the off-season; - Lack of training in others trades (sewing, handicraft, joinery); - Lack of funds for the running of small businesses; - Depopulation of rural areas during the dry season.

Strengths and Weaknesses According to Women

Strengths	Weaknesses
- Strong social cohesion; - Existence of women's groups; - Availability of water on the site; - Strong motivation and mobilization; - Availability of land and access on demand; - Existence of extension bodies (Head of agricultural district in place); - Availability of pasture.	- Overloaded farm work schedules; - Lack of means for adequate fencing of their plots; - Very frequent damages caused by animals; - Poor soils and low yields; - Limited seed and agricultural inputs in terms of quantity and quality; - Lack of input shops in the landscapes; - Lack of access to female credit; - Inadequate means for livestock.

- ***Individual Initiative to Access Extension Workers***

Although private initiative to individually meet an extension worker was developed here and there, it was noted that, on average, 49.6% of respondents had never taken the initiative to contact an extension worker individually, with a strong disparity between places and based on gender. For example in Gazaoua, 65.3% of the sub-sample had never consulted an extension worker, compared to 59.2% in Milli and only 25.1 % in Gourjia. Women represented more than half of the people (69.3%) who had never had individual contact with an extension worker. So, there is indeed a difference between men and women in access to and control over extension services, even though 65.2% of respondents claimed the contrary.

Photo 8: Farmer-Managed Natural Regeneration (FMNR)

Table 27: Frequency of Individual Access to the Extension Worker by Village

	VILLAGE			
	Gourjia	Milli	Gazaoua	Total
No answer	9.0%	7.9%	2.4%	6.4%
Never	25.1%	59.2%	65.3%	49.6%
Seldom	17.4%	18.4%	16.8%	17.5%
Often	29.9%	9.9%	4.2%	14.8%
Frequently	18.6%	4.6%	11.4%	11.7%
Total	100.0%	100.0%	100.0%	100.0%

Table 28: Frequency of Individual Access to the Extension Worker by Gender

	Gender		
	Male	Female	Total
No answer	25.8%	74.2%	100.0%
Never	30.7%	69.3%	100.0%
Seldom	61.2%	38.8%	100.0%
Often	72.2%	27.8%	100.0%
Frequently	93.0%	7.0%	100.0%
Total	49.2%	50.8%	100.0%

Yet, overall, 62.8% of households reported that extension services took into account gender aspects in their activities (Table 29), though 70.9% of the women surveyed said no (Table 30).

Table 29: Gender Mainstreaming into the Agricultural Extension Process

		VILLAGE			
		Gourjia	Milli	Gazaoua	Total
	No answer	21.6%	6.6%	0.6%	9.7%
	Yes	78.4%	48.7%	59.9%	62.8%
	Non	0%	44.7%	39.5%	27.6%
Total		100.0%	100.0%	100.0%	100.0%

Table 30: Opinions on Gender Mainstreaming into the Process of Agricultural Extension by Gender

		Gender		
		Male	Female	Total
	0	19.1%	80.9%	100.0%
	Yes	62.6%	37.4%	100.0%
	No	29.1%	70.9%	100.0%
Total		49.2%	50.8%	100.0%

Yet, 52.4% of households reported that there were strategies that improved women's access to and control over agricultural and veterinary extension services, while 40.6% – predominantly women (62.4 %) – thought otherwise.

- ***Discussion***

It appears from focus group discussions that the overwhelming majority of producers, regardless of gender, understood the *modus operandi* of extension workers in their villages. However, the setting up of the extension service at the community level for men and women farmers was relatively recent. Today, we note the presence of community advisory support and extension workers in some village clusters.

The various technologies disseminated were related to the technical itineraries of some cash crops like sesame and cowpea among others, and the mineral fertilizer input mode for such field crops as millet. These different technologies were easily understood and adopted by the majority of recipient farmers, especially for cash crops, even though the level of understanding of these technologies differed according to gender.

However, extension workers did not interact differently with men and women farmers, nor did they promote practices or crops according to gender. Moreover, the concerned people thought

there was no ground for the extension to provide different services for men and women farmers, especially as the benefits of extension services were the same for men and women. In addition, men and women carried out the same agricultural activities. We note, however, gender specific constraints associated with some tasks such as clearing, thinning and pit digging for sowing, ear compiling and groundnut shelling that are particularly difficult for women.

The only potential factors differentiating technology adoption by gender are physical ability, ease of understanding, assiduousness and punctuality. Besides these gender specific constraints, both men and women farmers are limited by the shortage of extension workers and the lack of monitoring by them.

Note that the sex of the extension worker is not a barrier to his/her accessibility as voluntary female farmers also train male counterparts without constraint and vice versa. In addition, extension workers still work together with traditional authorities and, to date, no conflicts of interest have been reported in these localities.

The main channels through which men and women farmers access information are usually village assemblies, community radio stations, NGOs and agricultural extension services. This information focuses on access to chemical fertilizers, storing methods and post-harvest conservation, dissemination of new technologies and weather forecasting, among others.

3.5 GENDER EQUITY: ANALYSIS OF AGRICULTURAL AND VETERINARY EXTENSION SERVICE ACCESS IMPROVEMENT STRATEGIES

Intensifying agro-forestry-pastoral production and preserving both the productive potential and the environment can only be ensured through the promotion of socio-economic activities for youth and women by improving their access to resources and building their capacities. To achieve this, several strategic priorities were proposed by the actors we met. These priority actions include:

- ✓ Capacity building of decentralized technical services as coaching structures and provision of advisory support to farmers;
- ✓ Equipment and animal traction farming units support;
- ✓ Strengthening the farmer coaching and training mechanisms;
- ✓ Adoption of improved technologies;
- ✓ Development of irrigated production sites;
- ✓ Facilitating access to credit for farmers.

A further analysis of the data collected through focus group discussions helped us identify several constraints, strengths and challenges and develop concrete proposals for the specific actions to be taken for the respective villages and categories of actors (men, women and youth). The following tables show the strengths, constraints and proposals for actions to be taken.

Site of Gourjia: Actions Proposed by Women

Actions Proposed
- Support in the form of vegetable seed, agricultural inputs and other equipments (hoes, shovels, rakes, watering pots, etc. - Provision of wells in market gardens; - Provision of wire fences or hedges in plots; - Creation of a village input shop for women; - Support in the form of fruit crops seed; - Technical training in market gardening; - Stock recapitalization (sheep); - Provision of oil press for AGR; - Various trainings on vegetable and fruit cropping technologies; - Acquisition of carts.

Actions Proposed by Youth

Actions Proposed
- Provision of wells in market gardens; - Support in the form of vegetable seed; - Support in the form of fruit tree seedlings; - Training in market gardening and fruit growing techniques; - Training of the *brigadiers phytosanitaires*; - Technical training on the use of mineral fertilizers on crops; - Veterinary care training; - Training on PO operation; - Provision of Californian system; - Establishment of organizations; - Development of the market gardening site selected by sinking wells and providing motor pump; - Support in the form of small production equipment and inputs; - Provision of agricultural output transportation means (cart)

Actions Proposed by Youth

Actions Proposed

- Facilitating access to land for young people;
- Facilitating access to loans;
- Revitalizing inputs banks where they exist;
- Developing market gardening sites;
- Sinking wells and providing market gardeners with a motor pump;
- Support in the form of small equipment and production inputs;
- Introduction of fruit tree seed and seedlings in the site;
- Technical training in nursery operation and fruit tree production;
- Provision of agricultural output transportation means (cart);
- Literacy training;
- Control of market tax collection procedures.

Site of Milli: Challenges and Actions to Be Taken

Women's expressed training needs
Various training topics were suggested by women: ✓ Agricultural advisory support; ✓ Technical itineraries of major crops (millet, sorghum, etc.); ✓ Market gardening technologies; ✓ Cowpea conservation and storage technique; ✓ Pesticide use methods; ✓ Fertilizer use technical; ✓ Use of farm equipment; ✓ Sesame and groundnut oil extraction.

GENERAL CONCLUSION

It appears from the global diagnostic analysis of the *Commune* of Gazaoua that production bases are affected by a deterioration of the living conditions of the population of the *Commune*, the main causes of which are related to:

- ✓ The shortage and degradation of farmlands leading to a limited agricultural and pastoral production;
- ✓ A strong demographic pressure, which negatively impacts inputs, and huge challenges to be addressed concerning the meeting of basic social services needs;
- ✓ The illiteracy of the population, which stems from a deteriorating education and adult literacy system;
- ✓ The impoverishment of the population, which reflects the underdevelopment of economic activities resulting in the migration of youth to other regions in search of wellness;

- ✓ The lack of access to agricultural credit;
- ✓ The severe shortage of agricultural and veterinary extension and coaching staff.

Agriculture and livestock are the basis of the economy in Niger, especially in the Maradi region, owing to their contribution to GDP and proportion of populations they employ. However, it is clear from several studies that one of the factors that hamper their development is the difficulty in accessing credit. In addition to this, there are the archaic nature of agriculture and the limited surface areas of family farms, as well as the widespread impoverishment of soils. Moreover, access to inputs remains very difficult, especially in densely populated areas, including all the villages of the *Commune* of Gazaoua. Furthermore, the difficulty in accessing financial and technical resources limits the efficiency of production systems.

In terms of support to the rural sector, government subsidies and the support of projects and programs are still very low in light of the significant investment needed to revitalize the sector. The services of the institutional structures supporting agriculture, including the Agricultural Bank of Niger and the Agricultural Input and Equipment Supply Center (*Centrale d'Approvisionnement en Intrants et Materiel Agricoles* – CAIMA) are still not accessible to farmers in rural areas.

In terms of agricultural support and extension services, the study notes a shortage of extension workers compared to the generally accepted FAO standard of 1 extension worker for 1,000 farm families. In Niger, there is about one extension worker for 3,000-5,000 families. The basic scale within which extension workers operate is the agricultural district level which corresponds to a cluster of more than twenty villages, while FAO suggests 10 villages for one extension worker.

Also, the decentralized agricultural technical services lack transportation means. This limits their effectiveness in coaching farmers. Also noteworthy is farmers' mistrust regarding innovations resulting in poor access to extension services and technologies. There is also a low flow of information between research, extension, training and farmers.

Regarding gender and access to inputs, a gender-based analysis of land tenure shows that women and men had equal access to land. Out of the entire surveyed and analyzed sample, men held about 65.5% of rain-fed farmlands, compared to 34.5% for women. Men and women acquired land through inheritance, gift or purchase. After marriage, young people are offered a small piece of land as a starting capital in their capacity as head of household. However the low involvement of women and youth in the decision-making process also limits their empowerment. The involvement of a woman in the extension or project activities depends on the opinion of her

husband, so the massive participation of women in project activities is dependent on the approval of men.

The determinants of the different degrees of vulnerability according to gender in terms of access to and control of resources are due to the social inequalities and exclusion faced by women in the distribution of goods, control over these assets and access to opportunities that reflect limited choices for women (Doka and Monimart, 2014). These authors also state that unmarried, widow, divorced and single women can seem less vulnerable because of their greater mobility, but due to their low access to opportunities, they are among the most vulnerable as they have less access to assets and resources. Young and unmarried girls do not own any productive assets.

As for investment decisions, they were also a prerogative of the farm manager. The latter decided, as opportunities arose, to purchase some equipment for the farm. However, Investment decisions for livestock purchase, management and control were subject to the principle of separate assets management.

As for investment decisions, they were also a prerogative of the farm manager. The latter decided, as opportunities arose, to purchase some equipment for the farm. However, Investment decisions for livestock purchase, management and control were subject to the principle of separate assets management. This corroborates the assumption that the equitable distribution of capital and participation in decision-making by gender improve women's access to resources and control over work.

In terms of agricultural extension services, this is traditionally the responsibility of Government technical services, even though NGOs and development projects provide substantial support for the dissemination of technologies in rural areas. So, given some socio-cultural constraints, men and women do not have the same level of access to and control over agricultural and veterinary extension services.

Given the constraints related to women's access to land, with strategies denying women's legitimate rights, it is urgent to develop communication strategies to improve women's access to and control over resources and agricultural and veterinary extension services.

Recommendations

The main recommendations of this study can be summarized as follows:

- ✓ Build the capacity of decentralized technical services, as farmer coaching and advisory support structures;

- ✓ Support communities with equipment and animal traction farming units, as well as other agricultural inputs, through the establishment of input banks;
- ✓ Support research and development and training in order to provide farmers with cultivars adapted to Sahelian conditions, together with close technical coaching;
- ✓ Develop adequately open and flexible facilities for the various actors to discuss their priorities, problems and proposed solutions. Such facilities must also be able to adapt to the changing economic, social and cultural environments in which farmers operate;
- ✓ Transfer the improved technologies;
- ✓ Develop irrigated production sites to fix youth during the off-season;
- ✓ Facilitate access to credit for farmers;
- ✓ Support partnership between POs MFIs and facilitate security deposit.

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