

DAM COMPLEX OF UPPER ATBARA PROJECT

SOCIO-ECONOMIC ASSESSMENT OF PRESENT SITUATION

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Christian Potin Consultant with contribution of Henri Bak for agricultural aspects and Françoise Estreguil for gender aspects (both of them consultants also)

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1. SOCIO-ECONOMIC APPRAISAL OF THE BASELINE SITUATION AND THE RESETTLEMENTS ISSUES

1.1. ADMINISTRATIVE SET-UP AND INSTITUTIONS

1.1.1. ADMINISTRATIVE SET-UP OF THE STUDY AREA

In Sudan rural areas local administration is structured through 3 levels under the State/Regional Government level :

- The Locality level (*Mahaliya*)
- The Administrative Unit level (*Wahda Idariya*)
- The Local Community (people's) level (*Legna Chabiya*). This level constitutes actually the interface level between the local administration and the population represented through an elected Local Committee but is not really an administrative unit (see below).

On the whole 77 villages have been identified as included in the study area upstream the future dam and in its vicinity. The breakdown of these 77 villages according to the administrative set-up is as follows (see nominative list and details in annex)

Tableau n° 1 - ADMINISTRATIVE SET-UP OF THE STUDY AREA

State	Locality	Administrative unit	Nb. of Local Community Committees	Nb. of villages	Nb. of hamlets
Gedaref	Fashaga	South Fashaga	60	53	117
Kassala	Goresha	Mugrane	17	9	21
	Wad El Helew	Wad El Helew	53	15	51
<i>Study area</i>			<i>130</i>	<i>77</i>	<i>189</i>

Source : Study surveys

If we except the big centres of Wad El Helew and Sifawa there is an average of 1,3 Local Committees per village (between 1 and 9, except Wad El Helew) for a mean of 1,8 hamlets per Local Committee (between 1 and 9 except Wad El Helew).

1.1.2. MISSIONS AND RESPONSIBILITIES OF LOCAL ADMINISTRATION

1.1.2.1. LOCALITY LEVEL

According to Gedaref Local Government Ordinance of 2006 the Localities are composed of two bodies, one legislative and one executive.

The legislative body is represented by the Locality Legislative Council and has the following duties :

- Adoption of local orders.
- Adoption of local services and development plans.
- Adoption of the budget.
- Building and control of Local Community Committees.

The executive body is headed by a Commissioner (*Muhtamad*) who is directly nominated by the State Governor. The Commissioner has the following responsibilities :

- Implementation of an efficient administration.

- Preservation of law and order.
- Handling of the proposed budget to the legislative council.
- Handling of local orders to the Legislative Council.
- Co-ordination of social and political activities according to the law.
- Handling the proposals of building the Local Community Community Committees to the Legislative Council.

Under the responsibility and control of the Commissioner the Locality executive body is organised through 8 public sectorial administrative departments with the following responsibilities and missions :

- Education : building, maintenance and management of pre-schools and basic schools ; encouraging of vocational training and technical education.
- Economic affairs and development : preparation of development plans and programmes of poverty alleviation and livelihood improvement ; organization of markets ; organization of trading and commercial activities ;
- Health and social affairs : public health, management and maintenance of hospitals, health centers and units ; sanitation and safety environment management.
- Follow-up and coordination : capacity building ; participation in physical planning, residential and agricultural land allocation.
- Engineering, water and public works : construction and maintenance of water supply units, electricity supply, roads and bridges.
- Agriculture affairs, natural resources and animal health.
- Culture, youth and sports.
- Environment and disasters.

The Commissioner is assisted by an Executive Administrator who is his deputy and in charge of the administrative and fiscal affairs. He has also the responsibility of the supervision of the sectorial administrative units.

1.1.2.2. ADMINISTRATIVE UNIT LEVEL

Normally each sectorial administrative department of the Locality is represented at the *Wahda Idariya* with the main following responsibilities and tasks :

- Implementation of local orders and regulation.
- Collection of local taxes and fees for the Locality.
- Direct grass-roots supervision over programmes and infrastructure management concerning education, health, sanitation, environment health, immunization and vaccinations, markets.
- Coordination and communication between the Locality services and administration and the Local Community Committees.
- Participation and assistance to Local Committees for village zonation.

1.1.2.3. LOCAL COMMITTEES LEVEL

This grass-roots level is not actually an administrative level but the level of representation of people at village level. A Local Committee is elected by the population on political basis and is the formal representative body of the so called Local Community. There are between 7 to 12 elected members forming a council and the Local Committee is headed by a president elected by the council. Most of the times there is one Local Committee per village but in cases of bigger villages one can meet 2 or 3 ones (one per hamlet often in that case).

The main responsibilities and involvement of the local committees can be summarized as follows :

- To facilitate and watch over people participation in Locality and Local Community development as well as in the basic socio-economic services (including cost sharing).
- To fight against possible negative social behaviour and to try to solve social disputes in a first step.
- To encourage Local Communities to contribute in the establishments of socio-economic services and equipments (schools, health units, water points, etc.).
- To supervise educational local councils and their official and non-official committees or societies.
- To issue some administrative certificates.
- To help and participate in local taxes and fees collection.
- To watch over early reporting of disease-out-break, flooding, fires and other security threats.

1.1.3 NATIVE ADMINISTRATION

The Native Administration NA (*Al Idara al Ahliya*) is an heritage from the colonial time. It was inspired from the “tribe” administration system during the Funj Sultanate and then during the Turco-Egyptian period. It was based on the control of territories and people by a segmentary hierarchy of local tribal leaders : *nazir* at the apex level of a big tribe or a confederation with subordinate levels of *hakim al-khutt*, *‘Omda*, *sheikh* at village level or nomadic sub-tribe unit level. The tribal leaders were recognised as the local owners and rulers of their tribal lands.

But since the Turco-Egyptian period and after the Mahdiya many political and socio-demographic changes occurred such as dislocation of tribes entities, settlement of new groups, nomadic movements, immigration of west African populations, demographic growth, development of towns and rural centres, etc. The British Administration had thus to face the haunting problems of correspondence between territory administrative units and ethnic and tribal groups and to establish a new tribal leadership system for Northern Sudan. To reach this goal dispersed tribal entities were amalgamated, ethnic groups¹ were established as new tribal entities with demarcated territorial units and the alliance of dominant tribal ruling families.

This historical short benchmark is necessary to understand the specificity and the complexity of the two-headed actual local administration system in the study area in relation to its ethnic diversity from one village to another, and even sometimes inside one village. Although the Native Administration System has been abolished by the 1971 People Government Act and has not been formally integrated in the Local Government Act of 2006, it plays still in reality the effective role of a traditional ruling body. NA regulates the state control of local populations and has an important economic function in ruling traditional land rights, and a key social function in forming contemporary ethnic structures.

Although the two systems (Local/Native Administration) generally are working in close collaboration, the effectiveness of each one depends on some factors, which can be globally identified as follows :

- The administrative set up in the villages of sedentary cultivator are well established with specified function of each form of village administration level. In such villages usually, the Sheikh has greater role in managing the administrative affaires and supervising the use of community economic resource. The People Committee usually assists the Sheikh and gives formal approval to his decisions. The degree and extend of the Sheikh power depends on community ethnic harmony.

¹ West African ethnic groups in particular in the study area which were fragmented and not anthropologically structured in segmentary tribes originally when in-migrating in Sudan like Haoussa, Zbarma, etc.

- In the case of pastoralist villages, despite ethnic harmony of nomadic or semi-nomadic groups, the role of the local committees could become greater than the one of the Sheikh and the administrative set up is less ordered and organized.

Through field surveys and Rapid Rural Appraisal's (RRA's) two level of NA responsible have been identified :

- The *sheikh* at grassroots level of each village,
- One '*omda* for the town of Wad El Helew and the centre of Sifawa (Al Hokuma).

Except from one village recently established there is at least one *sheikh* per village, 1,4 in average (between 1 and 6) with a total of 105 *sheikhs* for 75 villages Wad El Helew and Sifaoua not included (see details in annex, table "key persons").

It has not been possible during the field surveys to identify the upper levels of NA (*nazara* and *umudiyā*) above village level.

According to a survey report² from Faculty of Community Development and Women Studies (September 2005) NA of Gedaref State is organized through 5 *Nazara*, as defined in table 2 below.

Tableau n° 2 - NAZARA-IN GEDAREF STATE

Name of Nazara	Main reference area	"Tribes" under umbrella
Bakur	South of the State	Four, Maassalat, Felata and other West African "Tribes"
Shukriya	Butana	Shukriya, Bataheen, Kawahla, Lahwiyne
Dobaina	East of the State	Dobaina and other minor groups
Beni Amer	Gedaref City	Beni Amer
Nahal	Nahal and Howata	Borgou and other minor groups

If we consider the multi-ethnicity of the study area (see hereafter) we realize that in fact the 5 *nazara* are more or less concerned ethnologically even if they are not on area basis. This underlines the squaring of the circle that has met NA for combining the framing of both multi-ethnic territories and spread ethnic/"tribe" groups. It explains also why NA in the study area is not easily readable in the field.

1.1.4 POLITICAL PARTIES

The political organization in the area is characterized by domination of the ruling party influence among both rainfed cultivators and pastoralists. Only small fraction of the other competing political parties and groups are observed including the SPLM (Sudan Peale Liberation Movement). There is correlation between the political system and administrative set up in the area, the more organized and highly active political institutions of the ruling part in the village the more effective role of the Local Committees and vice versa.

² "Sexually Transmitted Diseases, with Focus on HIV/AIDS : context and policy implications in Gedaref State"

1.2. POPULATION AND DEMOGRAPHIC FEATURES

1.2.1. DEFINITIONS AND CONCEPTS

A right understanding of the social baseline situation of the study area and the resettlement issues needs to precise definition of key concepts and social entities utilised in the present report such as :

- Ethnic group and ethnicity
- Domestic unit and extended family
- Household and nuclear family
- Descent group, lineage and clan
- Tribe, sub-tribe and tribalism

Ethnic group and ethnicity

An ethnic group can be defined globally in short as a social group sharing the same culture (language, customs and institutions). According to the famous contribution of F. Barth (1969)³ ethnic group refers to a population who :

- i. Biologically reproduces itself to a large extent,
- ii. Shares in common cultural values presenting an obvious unity,
- iii. Constitutes one communication and interaction space,
- iv. Consist of a group of members who identify themselves and are identified by the others as making a distinctive category from other comparable categories.

One must keep in mind that an ethnic group is identified more or as much through shared differences vis-à-vis other ethnic groups rather than cultural homogeneousness coming from social and territorial isolation. Ethnicity concept is not static but dynamic, evolutionary and interactive. It implies always socio-political dimensions, particularly in Sudan. Actually an ethnic group can claim itself its own identity or has distinctiveness imposed by a politically superior group or a state administration system. Definition of “ethnic group” has thus very often a “variable-geometry” and is subject to ambiguity as it reflects political struggles in historical, geographical and demographic background. Ethnic groups can be organized or not in “tribe” structure and must not be confused with a tribe unit (see § 1.4).

Domestic unit (*hush*)

A domestic unit corresponds to a **base extended family** (*ousrah*) comprising parents and children and other more distant relatives, perhaps including grandparents, uncles and aunts, living in one housing unit (*hush*) and daily involved together in production tasks necessary for their life and consuming together the products of their labour. A domestic unit (or domestic group) can correspond to one or several households (see below) living together generally under the authority of a head of the domestic group.

Household

The household or **nuclear family** corresponds generally to a married couple with its children living in one house (single persons living alone are considered also as one household) in contrast with the extended family of the domestic unit in traditional societies. The household is the elementary “family” unit of the modern statistics utilised in census and corresponds to a modern way of life in which each household is economically independent.

³ “Ethnic groups and boundaries. The social organization of culture difference” – Col. Dir. Frederik Barth, Bergen, Oslo, Universitet, 1969.

Descent group

A descent group (*'aila*) corresponds to a more extended family than the base extended family of the domestic unit (*ousrah/hush*). It is defined as any social group in which membership depends on common descent from a real or a mythical ancestor. A **lineage** is an unilineal descent group in which membership may rest either on patrilineal descent (patrilineage) or on matrilineal descent (matrilineage). In some societies descent groups are bilineal, in that case all descendants of an ancestor/ancestress enjoy membership of a common descent group by virtue of any combination of male or female linkages. In patrilineal descent which is the general rule in the study area for any ethnic group kinship is traced through the father of the father of the father, etc. from a minimum of 5 generations up to several tens in case of tribal structure and the social history (see paragraph 1.4.4 below). A **clan** is an unilineal descent group among which the members do not know the genealogical ties with the ancestor

Tribes

Tribe and tribalism are, like ethnic group and ethnicity, other difficult and “variable-geometry” concepts which applied originally to societies with non-state, complex and diversified socio-political organisations. According to the Anglo-Saxon school tribal model constitutes an universal step in the history of the humanity. It would be based on the generalized opposition of the groups which are making it at every segmented hierarchical level and homogeneousness of segments. Economic, politic, religious issues are not dealt with in distinct institutions but generally in the kinship order (real or mythical) based on lineages units defined according to a genealogical tree. Of course the more the number of segments and of level of lineages from the elementary biological family up to the apex level of the ancestor, the more real biological descent becomes mythical.

Such ideal-type theoretical “tribe” model has been described for the Nuer⁴ tribe in South Sudan and the Arabic tribe. It had been changed and diversified during the colonial period and after by the modern State systems (see paragraph 1.1.3 above). One must note on the other hand that in the case of the Arabic tribe the segmentary model had always to adapt and to compromise with the necessary assimilation/dissimilation of sub-tribe and descent groups linked in the history to demographic phenomenon and migrations.

1.2.2. HISTORICAL BENCHMARKS AND ETHNICITY

The exhaustive village survey achieved in the frame of the field works of present study provides objective benchmarks of the history of the village establishment and population settlement in the study area. Declared year of establishment of each of the village (except town of Wad El Helew) is given in table 2 in annex. Chronology of the modern sedentary installation of population is summarized below.

Tableau n° 3 - YEAR OF VILLAGES ESTABLISHMENT IN THE STUDY AREA

Year of establishment	Nb. of villages	Percent. of villages
Before 1900	3	4%
From 1900 to 1939	17	22%
From 1939 to 1956	24	32%
From 1956 to 1989	26	34%
After 1989	6	8%
TOTAL	76	100%

Source : Village survey

⁴ « The Nuer », E.E Evans-Pritchard, Oxford, Clarendum Press, 1937.

- Three villages only were founded during the 19th century : two first one in 1821 (Soufi El bachir and Al Kreida), and the third one (Oum Touaguia).
- 54% of the villages were founded during the first part of 20th century before independence.
- 34 % between independence and advent of present political regime, period which has met also severe drought, provoking settling of nomadic groups.
- 8% since the advent of present political regime,

In the whole 7 main ethnic groups are represented in the 77 villages of the study area (see details per village in table 2 in annex). The main ethnic groups are Arabic, Felata (Fulani), Hausa, Zbarma (Songhai), Borno (Kanuri), Borgo, Beja (mainly Beni Amer sub-group) and other minor ones (mainly Darfurian).

Table 4 below shows the presence frequency of the main ethnic groups for the 76 villages (Wad El Helew not included) according to the exhaustive village survey achieved.

Tableau n° 4 - MAIN ETHNIC GROUPS IDENTIFIED PER VILLAGE

Ethnic group	Nb. of villages with ethnic group	Frequency
Arabs	27	36%
Hausa	28	37%
Felata	23	30%
Zbarma	12	16%
Borno	11	15%
Borgo	7	9%
Beja (Beni Amer and Others)	10	13%
Others (Darfurian and Others)	11	15%

We will see also in the following of this report that there distinctiveness still appears here and there upon socio-economic and anthropological criteria (lifestyle and livelihood, tribe and non tribe organization, marriage system, women condition, etc.)

Among the 77 villages (Wad El Helew included) 69% are monoethnic, 26% are made of from 2 to 4 ethnic groups, 5% are pluriethnic. Village ethnic diversity is illustrated in table 5 below :

Tableau n° 5 - VILLAGE ETHNIC DIVERSITY

Ethnic group	Nb. of villages	Percentage
Arab only	19	25%
Hausa only	16	21%
Felata only	8	10%
Zbarma only	5	6%
Beja only	4	5%
West African ethnic groups mixed	11	14%
Arab + West African ethnic groups mixed	6	8%
Beja + West African ethnic groups	3	4%
Mixed Darfurian groups	1	1%
Pluriethnic	4	5%
TOTAL	77	100%

Source : Village survey

We will notice the most salient following features at villages level :

- West African ethnic groups (Hausa, Felata, Zbarma, Bornou, Borgou) are more important together than the Arabic group, and Hausa is the first group among them.
- Arab tribes are more often inhabiting in separate villages.
- Beja, mainly represented by Beni Amer are mainly localized on Settiti River right bank.

- Borno and Borgo are always found in mixed villages, mainly with other West African ethnic groups.
- Darfurian groups are less frequent ethnic group (one monoethnic village, Mugrane Bas-salam) and minorities groups in West African mixed villages.
- The 4 pluriethnic settlements (more than 4 ethnic groups) are of course the fact of big village and rural centres (Maghareef Shirq, Al Hashaba, Sifawa Hokouma and Wad El Helew).

After having systematically identify ethnic composition of the villages we will briefly come back hereafter on historical benchmarks of ethnic groups installation in the study area.

The **Arab ethnic group** is composed of various tribes in the study area (see definition and details in paragraph 1.4.4 after) have settled in the study area at different times. The first wave arrived in the first quarter of the 19th century with the 3 villages mentioned above made mainly from the famous Ja'aliyne tribe who fled from their original home in Northern Sudan to this area to escape from the oppression of the colonial Turkish government at that time. In the beginning of the 20th century. Only another Ja'aliyne village (Darabi Ghirb) was established after in 1928.

But the most important Arabic tribe who settled in the study area is the Lahwiyne, a nomadic tribe from the Butana. This tribe is still partly nomadic, crossing and using seasonally the pastures of the study area⁵. Apart from few Lahwiyne villages established before the Independence (Ghiriegana and Tuletha in early fifties) the bulk of Lahwiyne villages settled in the beginning of the eighties after the first drought period of the seventies. But one must keep in mind that most of these villages have kept a semi-nomadic way of life and maintain relation and tribe solidarity with the other Lahwiyne segments who are still pure nomads.

Other minor Arabic tribes have been met here and there in the villages of the study area, having settled in few villages all along the 20th century : Taysha (Al Rumeila 1903), Digheen and Kinana (Al Muneera Kobur1936), Al Amara (Al Amara Wadazine 1958), Dabaïna (WadNaïm 1962 and Wad El Merine 1984).

The **West African ethnic groups**⁶ (Hausa, Felata, Zbarma, Borno, Borgo) are presently all together demographically dominant in the study area (see paragraph 1.2.3 after). Their migration began in the beginning of the 20th century and did not last until the end of the eighties (see details in table 2 in annex).The majority of them claimed that their descent resided in the area while were on their way to Mekka for pilgrimage or back home. But many West African villages in the study area were formed in fact by "second hand" migrants coming from other parts of Sudan (Kordofan, Blue Nile, Kassala, Tokar, The Gash) where there were already established during the colonial time. After the independence a series of villages (see table 6 in annexes) have been grown as a direct manifestation of the establishment of the Mechanized Farming Projects, integrated other ethnic groups coming from Darfur (see below).

Although all West Africans speak common Sudanese Arabic and consider themselves as true Sudanese citizens each of the ethnic group defined above has its original language still utilised or corresponds to a linguistic family (Fulani, Beja). They became politically, economically and demographically a new powerful group vis-à-vis the Arab groups who were their rulers during the colonial time through the Native Administration system

⁵ For a detailed study of the Lahwiyne see "The Lahawiyyin in Showak Rural Council : Imposed Boundaries and the Quest for Political Recognition", by Tamadur Khalid, Isabelle Dalmau, Catherine Miller, in "Land, ethnicity and Political Legitimacy in Eastern Sudan", collective, Dir. Catherine Miller, CEDEJ/Development Studies and Research Center, Univrsity of Khartoum.

⁶ For a detailed study of the history of West African in Gedaref State see "The West African (Fellata) Communities in Gedaref State : process of settlement and local integration, by A-Amin Abu-Manga and Catherine Miller in "Land, ethnicity and Political Legitimacy in Eastern Sudan", op. cit.

The **Felata**⁷, some times wrongly confused⁸ with all the West African groups, are corresponding to different lineages and clans of **Fulani** coming from different West Africa countries : Mali, Burkina Faso, Niger, Nigeria, Cameroon, Chad. They had previously a pastoral way of life deeply rooted in cattle breeding (from pure nomadic to sedentary pastoralists). The Fulbe (Fulani) have a specific language comprising various geographical dialects. They founded in the history several kingdoms and empires and conducted the *jihad* all over West Africa eastward where they founded during the 19th century with the Hausa the Sokoto Califat of Usman Dan Fodio in the present Nigeria. In the study area all of them became now farmers sometimes without cattle anymore. (see figure 1 hereafter). Felata settlements were established in during main periods (table 2 in annexes) : first quarter of the 20th century (4 villages), during the forties (6 villages) and after independence (6 villages).

The **Hausa** are coming from between the Niger Loop and Chad Lake. Their language is connected with Chad languages family. In the ancient times they were there famous for there old cities with surrounding walls. In the study area their housing style is particular with earth made houses and walls (see paragraph 1.2.1.6 after). The Hausa are traditional good farmers but also merchants and craftsmen. In return there are not livestock keepers (figure 1 below). They were in their origin area in close linkages with the Fulani through complementarity between their cereal-growers systems and the cattle breeding of the later. Nowadays in the study area they maintain close relation with the Felata economically, socially and politically as well. Most of the Hausa in the study area settled continuously from the end of the first quarter of the 20th century until the independence.

The **Zbama**⁹ are historically and ethnographically very close to the **Songhaï** who were making a famous empire in the Niger Loop during the 14th - 15th century from were clans and families came in Sudan after during the 19th century. Zbarma and Songhaï have their own language belonging to the nilo-saharian family. The Zbarma lifestyle is comparable to the Hausa one (figure 1 below). The major part of Zbarma clans and families settled in the study area between 1920 and 1940 (7 villages).

The **Borno** speak traditionally the Kanuri language and are coming from the eastern region of Chad Lake. The Borno is in fact originally the name of a geographical region which formed during the 19th century the Kanem-Borno empire created before by a Zaghawa clan and then ruled by the Fulbe of the Sokoto Empire through their *jihad*. This empire was including in the west part of the Hausa country. Borno families migrated in the study area between the end of the first quarter and the end of the seventies of the study area. There are notably represented in 11 villages, always associated to Haoussa or Felata and also Borgo. Heir way of life is comparable o the Hausa one.

The **Borgo** are a more minor group coming from the Borno region on the eastern bank of the Niger downstream its loop and in he western part Nigeria; Population coming from this region must not be confused with the Bargo which is a ethnic group part of the Darfurian and corresponds to a geographical area at the eastern feet of Darfur mountains¹⁰. West African so called Borgo are in fact originally Bariba ethnic group which was making the Borgo Kingdom during the 15th century and resist to the *jihad* from the Sokoto Califat. The Borgo are represented in 7 villages always associated with Hausa or Felata and also Borno. There are also traditionally farmers.

⁷ The name Felata is probably deriving from the ethnonymic *fula, fulde, fulbe, fulani*

⁸ In particular in the article mentioned in the above foot note (n⁵).

⁹ Probably deriving from the French ethnic name *Djerma*.

¹⁰ We cannot insure at this stage that this possible confusion has always been checked and avoided during the field surveys.

The Darfurian ethnic groups

In this report, the term Darfurian indicates the non-Arabic tribes of Darfur. This geographical category encompasses in fact various ethnic groups and tribes like Bargo, Masalit, Dajo, Bilala, Fur, Tama, Gimir, which are in minority in the study area. Darfurian ethnic groups seem to have strong social ties with the West African groups in terms of the inter-marriage relations.

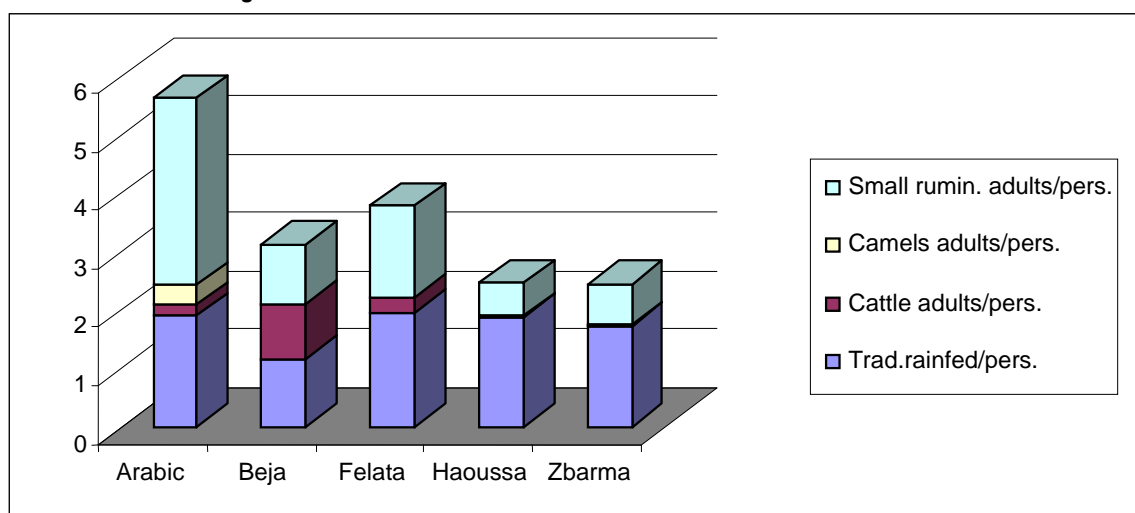
The Beja could be considered in fact more as linguistic big family (the ancient couchitic languages) rather than one single ethnic group. Beja people are present in 10 villages of the study area plus Wad El Helew.

The Beja mainly are represented in the study area by the **Beni Amer** group or tribe or better confederation of tribes (see paragraph 1.4.4). The Beni Amer are coming From Kassala and Red Sea State. Their origin land is North Eastern Sudan. They settled first on right bank of Settit River in Old Wad El Helew village, Guiraine and Dar Hilla between 1925 and 1940. Another wave of settlement occurred from the independence until the end of the seventies. In general Beja are historically well known as nomadic Arabs as camel keepers, the one's of the study area are the most specialized in semi-nomadic cattle breeding associated secondarily to small ruminants and rainfed farming as illustrated in figure 1 below.

In conclusion the ethnic diversity of the study area is high and complex. It will be one of the main issues to well approach and integrate in the social mitigation measures and resettlement plan of DCUAP in order to avoid risks of interethnic conflicts and disputes which could take political and social troubles in the future.

As mentioned above we will try in the following of present report to correlate as much as possible socio-economic analysis to ethnic groups and identities. Figure 1 below gives a first rough picture of this diversity in term of agricultural way of life through ratio per inhabitant of rainfed cultivated land, camels, cattle and small ruminants for the main ethnic groups living in monoethnic villages. A more in depth approach of farming systems diversity is done after in paragraph 1.8.5.

Figure n° 1 COMPARATIVE RURAL WAY OF LIFE OF MAIN ETHNIC GROUPS



Source : Village survey

1.2.3. DEMOGRAPHIC FEATURES

1.2.3.1. POPULATION ESTIMATE

The 2008 population estimate has been done at this stage from the temporary and unofficial data of the new 2008 census data available for the villages of the study area. These data were communicated with the courtesy of the Statistics Service at Gedaref State Level. Population and household number have been obtained exhaustively for the villages belonging to Gedaref State (Fashaga Locality). For the villages belonging to Kassala State (right bank of Settit River) only a first estimate of number of households were available at Kassala Statistics Service Level population estimate has been made by applying the mean size of households per village of the Fashaga Locality part.

On another hand domestic units (*hush*), have been systematically enumerated in the frame of the village survey¹¹. Results of population estimate is given in detail per village in table 2 in annexes and summarized below. More in-depth analysis of domestic units characteristics will be given in paragraph 1.4.1 after.

In the whole 2008 population of the study area is estimated over its 77 villages (Wad El Helew included) at 109 917 inhabitants for 19 154 (demographic) households, what it represents an overall mean of 5,7 persons per household.

Related to river systems table 6 below) 56,7% of population is along Atbara River and 43,3% along Settit River, out of which the third roughly (15 960 people) in Wad El Helew Centre.

Table 6 gives also a first benchmark of comparison between household and domestic unit (*hush*) size. Globally on the whole of the study area there is a mean of 2 households (11,5 persons) per domestic unit with a variation per river bank from 1,7 to 3,8 (from 9,5 to 22,0). We will see after in paragraph 1.4.1 the ethnic determinant of these variations.

Tableau n° 6 - POPULATION ESTIMATE ACCORDING TO RIVER AREA VICINITY

Area	Nb. villages	Nb. people	Nb. households	Nb. pers./household	Nb. domestic units (<i>hush</i>)	Nb. Households/ <i>hush</i>
Atbara left bank	29	41 635	7 491	5,6	4 464	1,7
Atbara right bank	22	20 736	3 356	6,2	1 133	3,0
Total Atbara River	51	62 371	10 846	5,7	5 597	1,9
Settit left bank	11	11 015	1 899	5,8	497	3,8
Settit right bank	15	36 531	6 409	5,7	3 307	1,9
Total Settit River	26	47 546	8 308	5,7	3 804	2,2
Total study area	77	109 917	19 154	5,7	9 401	2,0

Table 7 below is providing a population distribution per ethnic group and grouping of ethnic groups identified per village in the frame of the village survey. It gives benchmarks of compared demographic weight of the main ethnic groups described before underlining :

- The pre-eminent weight of the West African,
- The first place of the Haoussa among them
- The relative secondary weight of the Arab tribes.
- The minor weight of the Beni Amer

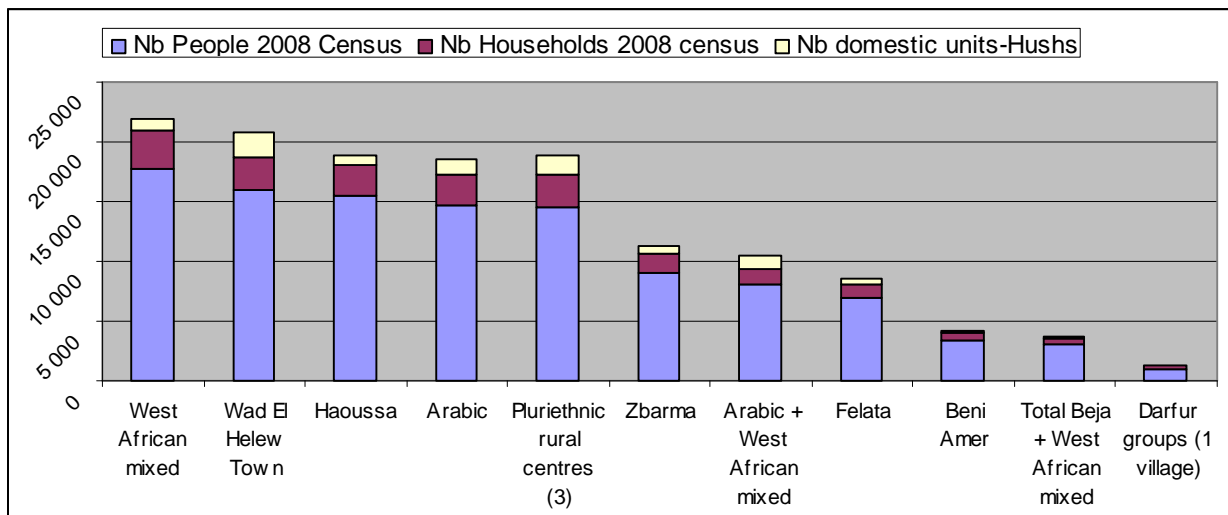
¹¹ We tried also to get a rough estimate of total population per village through the village survey but results were not reliable at all, respondents overestimating generally the resident population in relation with DCUAP and their automatic thinking that the more people declared the more compensations could be expected in the future ...

Tableau n° 7 - POPULATION ESTIMATE ACCORDING TO ETHNIC GROUPS

Name of villages ethnic groups	Nb People 2008 Census	Nb Households 2008 census
West African mixed	17 721	3 186
Wad El Helew Town	15 960	2 800
Hausa	15 559	2 446
Arabs	14 657	2 654
Pluriethnic rural centres (3)	14 592	2 592
Zbarma	9 041	1 537
Arabs + West African mixed	8 019	1 414
Felata	6 905	1 163
Beni Amer	3 406	598
Total Beja + West African mixed	3 021	564
Darfur groups (1 village)	1 036	201

Figure 2 below illustrates this distribution.

Figure n° 2 POPULATION ESTIMATE ACCORDING TO ETHNICITY

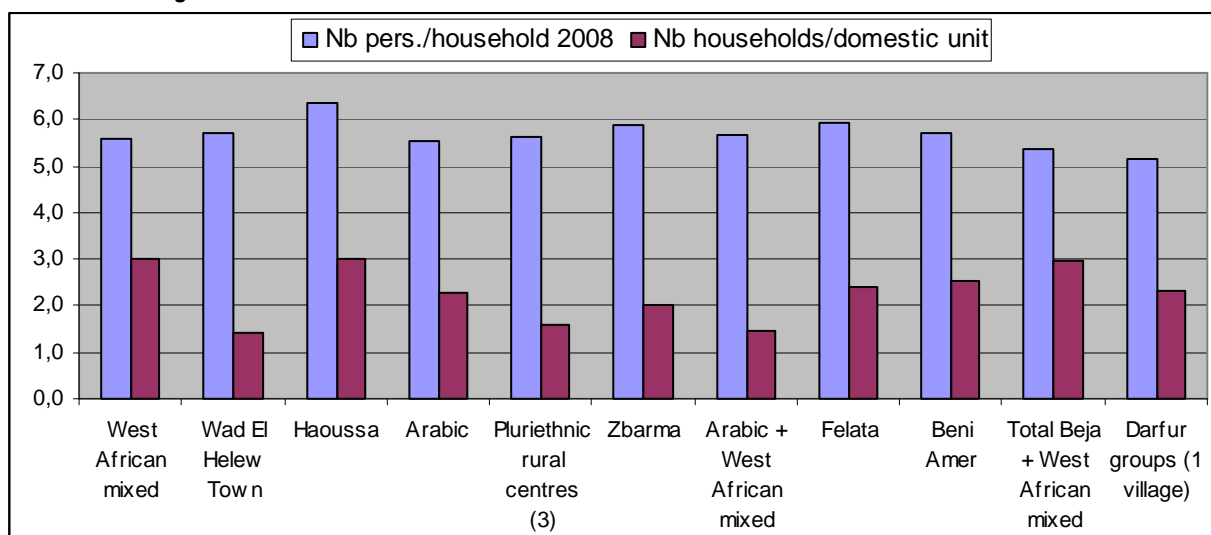


Source : village survey

Figure 3 below gives a picture of the mean of households per domestic unit (*hush*). It teaches the first following lessons :

- The biggest domestic units are found among the Hausa.
- Arabs population have smaller domestic unit when there are still keeping a semi-nomadic way of life (case of villages where there are co-dwelling with Wets African).
- In Wad El Helew and in the big rural centres the domestic unit comprises smaller domestic units.
- Felata and Beni Amer have comparable domestic unit structure.
- Zbarma have an average domestic unit structure compare to the West Africans.

Figure n° 3 SIZE OF HOUSEHOLDS AND OF DOMESTIC UNITS ACCORDING TO ETHNICITY



Source : Village survey

In addition to this population estimate the village survey has provided an estimate of the non resident households in the study area : 1640 in total, which represents 8,6 % of the total resident households and will have to be taken into account for the social mitigation measures and resettlement plan.

With respect to refugees issue only 336 people have been enumerated in 3 villages of the study area through the village survey.

1.2.3.2. POPULATION GROWTH

Population growth per village has been estimated by comparison between 1993 and 2008 data. Difficulties appeared from the fact that the list of villages of 1993 census is different from the one of 2008 census. This is due probably because some villages were established just before 1993 census and have then been enumerated as satellites of other villages as some other small other older ones. Details are given in table 2 in annexes.

On the whole of the study area the population growth rate between 1993 and 2008 is as estimated at 2,5 % for people and 2,7 % for households which indicates globally a trend of a relative social fragmentation of the population at domestic unit level, number of households increasing faster than population and size of the domestic units diminishing.

In comparison and for a benchmarking we will compare this global population growth rate in the study area to other ones between 1983 and 1993¹² for different territorial entities such as :

- Nahr Atbara Province, rural sedentary population : 3,7%
- Nahr Atbara Province, nomadic population : -9,9%
- Gedaref Province, rural sedentary population : 4,8%
- Gedaref Province, nomadic population : -5,5%

On another hand a specific demographic survey made¹³ at Gedaref State level gave for Fashaga locality a population growth rate of 3,4% between 2000 and 2002.

¹² For a detailed consideration of demographic data in Kassala and Gedaref States see the article "A demographic profile of Kassala and Gedaref States", by François Ireton in "Land, ethnicity and Political Legitimacy in Eastern Sudan", op. cit.

¹³ Quoted in "Sexually Transmitted Diseases, with Focus on HIV/AIDS : context and policy implications in Gedaref State, Op. cit.

It appears that population growth in the study area is less than in Atbara River rural areas between 1983 and 1993, and had undoubtedly decreased since this period. At this stage of data availability we can assume provisionally that the global population growth rate of the study area is of the same rank of order as the natural growth rate (around 2,5%) with a compensation and balance between migratory flows according to villages situation. From this assumption we can proceed to a rough demographic diversity analysis at village level as given below.

The global population growth ratio of the study area hides in fact diverse situations according to village location, their ethnic composition, demographic behaviour, availability of natural resources and socio-economic dynamism. In brief we could distinguish 3 categories of villages in term of population growth (details in table 2 in annexes) :

- Around 20 villages have a high population growth rate (ranging between 3% and 6% per year) which reveals an important immigration phenomenon. These villages are first of all villages located on left bank downstream Atbara River, between Al Amara Wadazine and Heleiba Ghirb (12 villages mainly Arab). Secondly we find in this category 4 West African villages on Atbara right bank between Taïba Shirq and Um Dawaban Shirq, and 4 West African villages on Settiti River (Usham on left bank and the 3 others on right bank downstream). In this village category we can note that in most of cases household growth rate is noticeably superior to population growth rate which is normal because part of population increase is due to immigration of households. It indicates also a certain degree of social fragmentation of the domestic units.
- Another twenty of villages are on the contrary deeply in demographic depression with a population growth rate between -5% (Maghareef Ghrib) and 0,7%. These villages are made of three main groups : 3 villages on Atbara left banks (Mashra Al Doum, Hilat Kow and Digah), 6 villages on Atbara right bank (between Karaï and Hilat Khalil Shirq, mainly West African), 10 villages (mainly West African and Beja) located on Settiti River left bank and Maghareef Shirq partly under the influence of the vicinity of Wad El Helew. In all of cases of these villages migratory flows are accompanied by social fragmentation at domestic unit level, emigration concerning both individuals and entire households.
- The other villages, Wad El Helew included, have a middle population growth rate between 1,7% and 2,6% corresponding more or less to natural population growth and a relative stability in term of balance emigration/immigration.

Finally we could temporary conclude that demographic evolution of each village is determined by its geographic situation and the availability of land and natural resources in its ethnic and historical context. We will remind that since 1992 no more new village has been settled and it is obvious that now the study area has reached its maximum capacity of rural population taking according to land non-availability and farming systems both traditional and mechanized (see paragraph 1.7 and 1.8.5 after).

1.2.3.3. *POPULATION STRUCTURE ACCORDING TO AGE AND SEX*

The household survey allows at this stage to get a first picture of the structure of the population in the study area according to age and sex. Analysis has been made on domestic units structure on a sample of 185 surveys out of a total of 223 surveys performed. This sample has been rectified in order to fit with the overall domestic unit size measured through the village survey and the 2008 census data (see paragraph 1.4.1 after).

The structure estimate of population according to age and sex is given in percentage table 8 below out of which the most salient features are as follows :

- The population is characterized by the importance of its young people who represent 46%.

- 6,5% only of the population is over 55 years what indicates a rather low life expectancy rate.
- From 16 to 30 years old female are more numerous than males which could be explained by differential migratory flow of males in this category.
- On the contrary after 31 years female are less numerous than males and have a lower life expectancy rate due globally to women condition (see paragraph 1.6 after).

Tableau n° 8 - POPULATION STRUCTURE ACCORDING TO AGE AND SEX

	Young less than 16 years	From 16 to 30 years	From 31 to 55 years	More than 55 years	Total
Male	22,7	13,5	10,3	3,7	50,2
Female	23,3	15,0	8,8	2,8	49,8
Total	46,0	28,5	19,1	6,5	100,0

Source : Household survey – 185 questionnaires

1.2.3.4. MARITAL STATUS

Marital status of population has been approached through the household survey. It reveals among 223 surveyed households the following ratios /

- 61 % of the adult males (16 years and more) are married
- 73% of the adult females are married (1,15 female married in total for 1 man married)

From these ratios we can assume that the percentage of polygamic couples ranged between 7% and 15%.

1.2.3.5. LITERACY LEVELS

Literacy level of the head of domestic units have been asked in the household survey. (92% of respondents to 185 questionnaires were head of their *hush*).

To the question “*Have you been at school?*” 78% of the respondents reply Yes. The level of schooling declared is as follows (in percentage of respondents with 28% of interviewees no answering) :

- *Khalwa* (Coranic school) : 57%,
- Basic school : 37%
- Secondary school : 6% only.

In comparison literacy rate in Fashaga Locality was estimated in 2004¹⁴ at 73% for males, which would mean that young males have a higher literacy rate than head of family. For females the literacy rate was given at 38% which is low.

1.2.1.6. HOUSING STANDARDS

Housing standards and domestic unit assets have been approached through the household survey adjusted to a sample of 185 questionnaires as explained before.

At the question “*Is there separate different ownerships of the houses (bayt-s) in hush?*”, 54% of the respondents reply yes, what means that concerning houses people consider that each household has the ownership of his houses inside the *hush*, on the contrary of the agricultural land which is not divided between the households corresponding to the family (*ousrah*) of the *hush* (see paragraph 1.4.1 after).

¹⁴ Quoted in “Sexually Transmitted Diseases, with Focus on HIV/AIDS : context and policy implications in Gedaref State, Op. cit

On the whole all situations included an average domestic unit comprises 5,5 houses (bayt) with 6,8 (*ghorfa*) rooms what represent :

- 1,2 rooms per house
- 2,2 houses per household
- 2,6 rooms per household
- 1,9 persons per room

These global ratios hide an important diversity of situations according to the socio-economic level of each family (*ousrah*) corresponding to a domestic unit, her history and ethnic identity. In term of number of rooms per domestic unit we can observe through the household survey achieved the following distribution for 185 domestic units (table 9 below).

Tableau n° 9 - DISTRIBUTION OF DMESTIC UNITS ACCORDING TO NUMBER OF ROOMS

Nb. of rooms per hush	% of hush
1 room	2%
Between 2 and 4 rooms	17%
Between 4 and 6 rooms	27%
Between 6 and 10 rooms	36%
10 rooms and more	18%
Total	100%

The ethnic diversity of housing standards is illustrated in table 10 below. We will take note of the following most salient features :

- The number of houses per domestic unit (hush) is higher for Haoussa, Zbarma and Borno and significantly lower for Beni Amer.
- Circular houses are the rule for Arab, Borgo and Beni Amer. They are dominant for Felata. On the contrary square houses earth made are he rule for Hausa and dominant for Zbarma and Borno.
- With respect to number of houses and rooms per hush and per household (married couple + children + associated family members) Zbarma and in a less extend Hausa and Borno live in a significant more comfortable condition. On the contrary Beni Amer present the worst condition of housing with only 1,4 houses and 1,4 rooms per household. Vis-a-vis these criteria Arab, Felata and Bogo are in a middle situation.
- The number of persons per room gives finally a synthetic ratio of comfort and hygienic conditions of housing. We will note that Zbarma appears far before the other ethnic groups in a relative better situation. In a second position are Arab, Hausa and Borno. Then in a third position Borgo and Felata and lastly Beni Amer in the worst situation with 3,4persons in average per room.

Tableau n° 10 - TYPE OF HOUSES PER HUSH AND PER HOUSEHOLD ACCORDING TO ETHNIC GROUP

Ethnic group	Nb. of circular houses (huts)	Nb. of square houses earth made	Total houses/hush	Total houses/household	Nb. of rooms/hush	Nb. of rooms/house	Nb. of rooms/household	Nb. of pers./room
Arab	3,4	0,8	4,2	1,8	6,1	1,5	2,7	1,7
Felata	3,4	1,2	4,6	1,9	5,6	1,2	2,3	2,6
Haoussa	0,8	7,0	7,8	2,6	8,5	1,1	2,9	1,7
Zbarma	2,4	5,6	8,0	4,0	10,7	1,3	5,2	1,1
Borno	2,4	5,0	7,4	2,6	7,9	1,1	2,9	1,8
Borgo	3,5	0,5	4,0	1,8	5,0	1,3	2,3	2,3
Beni Amer	3,3	0,0	3,3	1,4	3,3	1,0	1,4	3,4
Others	5,0	2,5	7,5	2,4	9,2	1,2	2,9	1,7

Source : household survey – 185 questionnaires

Another question was included in the household survey questionnaire concerning small equipment of the domestic units. Results are given in table 11 below. We will note that besides houses most of domestic units have shelter, surrounding wall or permanent fence. In another respect 41% hold a radio receiver but only 4% a TV receiver in relation of course with lack of electricity supply (see paragraph 1.3.4 below).

Tableau n° 11 - SMALL EQUIPEMENT EXISTING IN DOMESTIC UNITS

Type of equipment	Percent of hush
Oven	2%
Well	1%
Shelter	95%
Mill	7%
Loom	1%
Surrounding wall	83%
Permanent fence	23%
Radio receiver	41%
TV receiver	4%
Others	7%

1.3 SOCIO-ECONOMIC INFRASTRUCTURE AND SERVICES

1.3.1 ACCESS ROADS AND TRUCKS

=> Access road and trucks network inside and around the study area par category (length and category parameters, bridges)

1.3.2 HEALTH

1.3.2.1. HEALTH UNITS AND SERVICES

In each Locality centre (Wad El Helew and Showak) there is an hospital. The mission cannot gain detailed information for Wad El Helew hospital which is directly situated in the study area (number of beds, staff) but only for Showak hospital which is outside the study area.

Showak hospital is the reference hospital for the 50 villages of the study area belonging to Fashaga Locality (both banks of Atbara River and left bank of Settiti River). It has 3 doctors, 3 medical assistants and 25 nurses. Out of its 60 beds only were occupied during the mission visit beginning of November 2008.

Below the territorial level of the Locality hospital there are 4 hierarchical levels of health with the following theoretical staff :

- Health Center with 1 doctor and 1 nurse
- Rural Clinic (*shafakhana*) with 1 medical assistant
- Health Support Unit (*nuqta dam*) with 1 nurse + 1 worker
- Basic Health Unit (*wahda sahiya*) with 1 "under-nurse" (worker).

In the whole study area the mission has identified through different sources¹⁵ 34 health units for 77 villages and centres with the following distribution per category (see details per village in table 2 in annex) :

- 3 Health Centers
- 5 Rural Clinics
- 12 Health Support Units
- 14 Basic Health Units

For the villages population (except Wad El Helew center) the health units rural frame represents an overall rough ratio of 2 820 people per health unit, 13 700 people per doctor or medical assistant and 47 990 people per doctor¹⁶ which is very low.

1.3.2.2. PREVAILING DISEASES

A first approach of the health situation of population and the most prevailing diseases has been obtained through discussion with the doctors in charge of Showak hospital. It gave the following frequency of main diseases registered at the level of the statistics service of the hospital for year 2007 (in % for 6 912 diseases registered in total in 2007) :

- Malaria : 64%
- Acute bronchitis : 9%
- Viral pneumonia (children) : 9%
- Urinary diseases : 6%

¹⁵ Village survey, data of Showak Locality administration and hospital.

¹⁶ In Barnawi Health Center there is actually only one medical assistant and no doctor appointed.

- Diarrhoea : 3%
- Intestine helminthiasis : 3%
- Others : 6%

If these figures reflect only partly the actual health situation in the study area it illustrates the predominance of malaria and hides probably the frequency of waterborne diseases (children diarrhoea, amibian dysentheria, etc.) at village level in relation with the most common origin of water supply for villagers which is river (see paragraph 2.2.5 below).

1.3.3 EDUCATION

Existing schools have been systematically enumerated through the village survey with tentative estimate of number of pupils and teachers per category. Detailed results per village are given in table 4 in annexes.

On the whole of the 76 villages of the study area (Wad El Helew not included for which the field mission did not obtain available data) the total schools units are estimated as follows.

- Number of preschools : 20 – Number of pupils in preschools : 1 563 (78 pupils in average per preschools).
- Number of *khalwa* (coranic school) : 173 for 12 469 pupils (72 pupils per *khalwa*). 2 *khalwa* in average per village – 15% of village without *khalwa*.
- Number of basic schools : 54 out of which 36 mixed schools, 10 schools for girls and 8 for boys – Total number of pupils in basic schools : 12 420 out of which 39% of girls – Total number of teachers : 340 (37 pupils in average per teacher) – 37 villages (49%) without a basic school – 1,4 basic school in average per village having basic school.

In a first approach a first rough tentative estimate of the primary enrolment rate can be done by comparison to total population of boys and girls being between 6 and 15 years old (paragraph 1.2.3.3 above). It gives apparent rates of 70% for boys and only 45% for girls.

1.3.4 WATER AND ENERGY SUPPLY

According to the village survey the river remains the first source of water supply and secondarily hand pumps from shallow wells as illustrated below :

Origin of water supply in 76 villages (Wad El Helew not included) :

- River : 99%
- Hand pump : 41%
- Well : 7%
- Hafir : 1%
- Other (water tank/*donky* from deep well) : 5%

Concerning energy supply for domestic needs natural wood remains the first resource followed by charcoal, private generator, solar panels (mainly for television receivers and not for cooking of course) an gas, as illustrated in the following percentages /

Origin of energy supply in 76 villages (Wad El Helew not included) :

- Wood 99%
- Charcoal 62%
- Private generator 32%
- Solar 28%
- Gas 25%

- Electricity supply 7%

1.4. SOCIO-ANTHROPOLOGICAL STRUCTURE

1.4.1. DOMESTIC UNITS (*OUSRAH/HUSH*)

The definition of the domestic unit has been already given before (paragraph 1.2.1). This name includes both a common housing concept (*hush*) and an elementary extended family concept (*ousrah*) above the level of the nuclear family level of the household. For the reminder the elementary extended family of the domestic unit is the primary community unit of population in the study area as for other rural traditional areas and exists for all the ethnic groups.

Extended family composed of number of small or big house holds living together in one big integrated apartment's house or extended house, each household live in relatively separate unit. Members of domestic units divide their economic resources between the common consumption or use and their own interests or the elementary household needs. An domestic unit may consist of a whole descent group like the cases of some Felata; Hausa and Beja villages or on the contrary a single household.

Men spent most of the day especially in the slack period in the *khalwa*¹⁷ or the common *khalwa*. The common *khalwa* some times named the *dara* (place of common males), usually established by extended families who live close to each other. The *khalwa* can be a grass shelter, a *rakuba* or a big tree, distance from the houses. It act as common reception hall where guests are received and unmarried men spent their time and also acts as meeting place for the community in which various topics are discussed and disputes are settled .

The process by which the domestic unit is formed, is based on the relation of interdependence between the father and his son and his close blood lineage group e.g. cousins' brothers. The father and his unmarried son usually keep joint cultivation or herding .When a son marry he get a separate house within his father domestic unit, maintain the same economic activities and most of times remains dependent of his father for access to agricultural land. Progressively the married son will aim at gaining some financial self-sufficiency for his own household in managing more or less private capital accumulation. When the father is becoming old he will sometimes share his land between his married sons or not. After his death sometimes married brothers or close cousins are maintaining the *hush* organisation with its economic solidarities and common land asset until one day the son will become or not head of a *hush*.

The impacts and options of the resettlement plan of DCUAP on the domestic unit structure and its evolution, toward patriarchal social reproduction or on the contrary its fragmentation in autonomous households, will be one of the key issues according to generations, ethnic groups and their way of life (see paragraph 1.10 after).

For the reminder the result of domestic unit enumeration has been already given before and compared to demographic features (paragraphs 1.2.3.1 and detail per village in table 2 in annexes). Its diversity in term of housing standards has also been discussed before (paragraph 1.2.1.6). Hereunder are given more analyses of domestic unit size distribution per class and according to ethnicity.

According to the village survey the average size of the domestic unit per village is 2 households and 11,7 persons, ranging from 1,1 to 12,4 households per domestic unit (table 2 in annexes). According to the household survey (on the basis of the sample of 185 questionnaires not including extreme values of bigger *hush* over 30 persons and the centres of Wad El Helew and Sifwa

¹⁷ Not to be confused with the same name given also to coranic school (see paragraph 1.3.3 before).

Hokuma) the mean of the domestic unit appears a little higher with 2,5 households and 12,7 persons per *hush*.

Table 12 below gives distribution of domestic units according to number of married men and table 13 per size class (number of resident persons in the *hush*). From these tables we can conclude at this stage that domestic units consist roughly :

- Around 40% of one single household (single and married couples with aggregated members)
- Around 30% of 2 households
- Around 15% of 3 households
- Around another 15% of 4 households and more.

Tableau n° 12 - DISTRIBUTION OF DOMESTIC UNITS ACCORDING TO NUMBER OF MEN MARRIED

Nb. of married men/ domestic unit	Percent of domestic units
0	2%
1	39%
2	28%
3	15%
4 and more	16%

Tableau n° 13 - SIZE DISTRIBUTION OF DOMESTIC UNITS PER SIZE CLASS

Nb. of persons/ domestic unit	Percent of domestic units
Less than 5	7%
From 5 to 10	31%
From 10 to 15	32%
From 15 to 20	15%
More than 20	15%

According to the household survey (on the total of 223 questionnaires filled) the biggest domestic unit met through the household survey consists of more than 20 households/140 persons (Hausa *hush*). On the other hand sometimes a domestic unit can be reduced to one household made of one single person living alone in some particular cases.

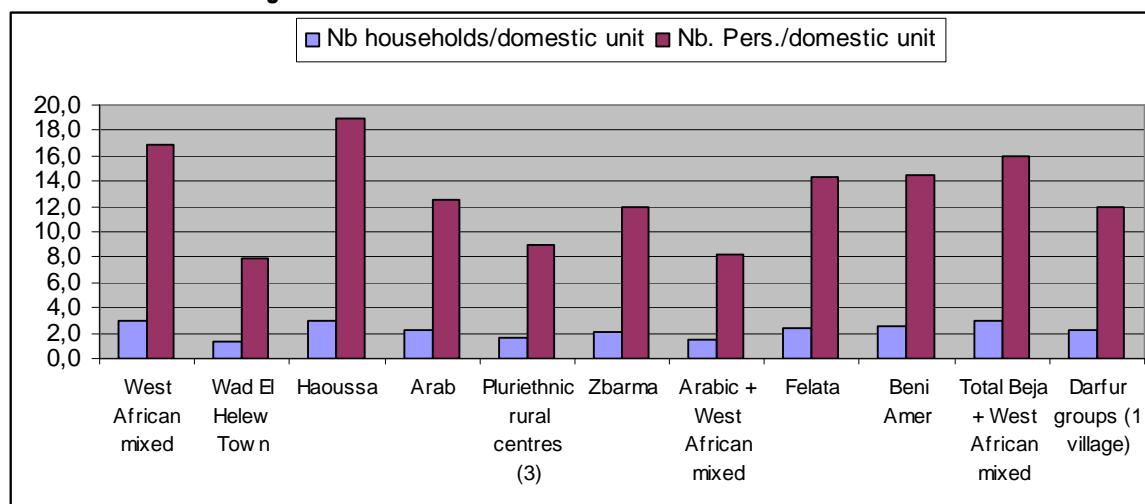
In respect to ethnic diversity of domestic unit structure a tentative analysis has been made at village level through the exhaustive village survey. Table 14 and figure 4 below give and illustrate the outcome of this analysis that indicates the following most salient features (see also table 1 à paragraph 1.2.1.6 before) :

- Hausa and also probably Borno (table 10) are the ethnic groups who are structured in the largest domestic units with an average of 3 households and 19 persons
- In second position are Felata and Beni Amer with an average of 2,5 households and 14 persons per domestic unit. From housing standard analysis (table 10) we could assume that Borgo are also in the same category.
- In third position ate Arab and Zbarma with an average of 2 households and 12 persons per domestic unit.

Tableau n° 14 - DOMESTIC UNITS STRUCTURE ACCORDING TO ETHNICITY

Name of villages ethnic groups	Nb house-holds/domestic unit	Nb. pers./domestic unit
West African mixed	3,0	16,8
Wad El Helew Town	1,4	8,0
Hausa	3,0	19,0
Arab	2,3	12,5
Pluriethnic rural centres (3)	1,6	9,0
Zbarma	2,0	11,9
Arab + West African mixed	1,4	8,2
Felata	2,4	14,3
Beni Amer	2,5	14,4
Total Beja + West African mixed	3,0	15,9
Darfur groups (1 village)	2,3	11,9

Figure n° 4 DOMESTIC UNITS STRUCTURE ACCORDING TO ETHNICITY



1.4.2. KINSHIP SYSTEM

Kinship is a relationship between any entities that share a genealogical origin, whether biological, real or assumed (social kinship). In Sudan, the family is considered to be the cornerstone of the social structure.

The basic social unit among the different ethnic groups is the nuclear family of the household and the elementary extended family organized in domestic units. It serves as both the production unit and the base for the main kinship elementary group. The extended family is the main elementary kinship unit where the household members constituted coherent economic and social unit.

The domestic unit and its households as well are usually each of them headed by a male at their own level. For every ethnic group of the study area, as for the Sudanese cultural system in general, kinship is based on patrilineal kinship identity and social relations and patriarchal decision making system.

Rapid rural appraisals and Gender appraisals performed during field mission gave some precisions on kinship system according to ethnic groups.

Kinship among Arabic groups in the villages interviewed¹⁸

The sedentary, nomadic or semi-nomadic Arab groups usually marry within the same tribe or sub-tribe (endogamous marriage). The dominant kinship system is the patrilineal system. In Arab villages surveyed, the respondents were usually related to the head of the hush via their father, with the head of the hush usually being the grandfather or a cousin. The head of the hush is highly respected by all members of the family and every decision taken by the family is in his hands.

Families prefer to marry within the same sub-tribe or with close relatives. All decisions are taken by men, while the women's contribution is restricted mainly to the private domain. They have no part in making decisions on issues that affect either their lives or those of their children.

Kinship among Hausa groups in the villages interviewed¹⁹

These communities are very isolated and closed. The head of the hush is related to the respondents in different ways. He is the father of some, husband to others and at the same time uncle or cousin on the mother's or father's side, while for others he is their brother-in-law.

People prefer to marry within the family but at the same time they have no problem marrying outside the family or with other tribes, especially the men. For example it is common to witness intermarriages between Borno and Hausa. However, according to some families interviewed they do not like to marry Zbarma.

Kinship among Borno groups in the villages interviewed²⁰

The families are very connected and interrelated and marry amongst themselves. Married couples are always related to each other either on the father's side or the mother's side (paternal or maternal) but they prefer to marry on their father's side.

Kinship among Zbarma groups in the villages interviewed²¹

The head of the household and the respondents are always related on the father's side.

Kinship relation among Borgou groups in the villages interviewed²²

Because they prefer to marry within the same tribe or sub-tribe, all members of the families interviewed are relatives. The respondents are always related to the head of the hush as cousin or uncle or both. They are all cousins on the father's or the mother's side. Although they prefer to live together in the same hush they are allowed to live outside.

Kinship relation among Felata groups in the villages interviewed²³

In Kona Faleta, the head of the hush relates to some of the respondents as their brother, to others as their brother-in-law, and to others as their cousin. Even in the case of women who do not

¹⁸ Al Amara Wadazine (tribe Al Amara), Soufi Al Bachir (tribe Ja'aliyyin), Al Jazeira Shariq (tribe Lahawiyiyin), Tabouassi (tribe Lahawiyiyin).

¹⁹ Hagueb Sidou (Medgory descent group), Um Dawaban Shirq (Gandama, Sokoto, descent groups), Maghareef Shirq (Damgrin descent group)

²⁰ Al Bahkir Ghrib and Magareif Sharig, (Manga descent group).

²¹ Al Bahkar Ghrib (Najami descent group) Um Dawaban Shirq (Soumiw descent group).

²² Hagueb Sidou (Silehab descent group).

²³ Kona-Faleta village and Abu Usher village.

belong to the family, he relates to them as their brother-in-law or uncle. Generally, in all the interviewed groups, because the Felata prefer to married within the close relatives or the same sub-tribe, they declare that all the interviewees are relatives.

Polygamy exists and considered normal in the family. If some of the women disapprove the choice of their husband to marry another woman they know that they cannot say anything.

Kinship among Beni Amer groups in the villages interviewed²⁴

The head of the hush relates to some of the respondents as their grandfather and to others as their father-in-law or cousin. They fear discrimination on grounds of race if they marry from outside tribe.

Traditionally, in most of the villages interviewed, polygamy system exists even if it is not the preferred system. Traditionally, the focus for Sudanese people has been the local village or nomadic community. These relatively small and closed communities are made up of extended families based on lineage of male relatives and ancestors. The members of a lineage act in the group's interest, safeguarding territory or forming important ties with other families by marriage.

The families are very connected and interrelated and marry from within. It is usual the case that married couples are related to each other either on the father's or the mother's side but they prefer to marry on their father's side, which means that the paternal line is given the stronger consideration.

1.4.3. DESCENT GROUPS ('AĪLA)

The descent group ('*aĪla*) constitutes the superior anthropological level above the elementary extended family level of the domestic unit (*hush*). As for every patrilineal system such extended family is called a lineage (patrilineage) or a clan (patriclan)²⁵.

In most of villages except Wad El Helew town and pluriethnic centres like Sifawa, Al Hashaba and Maghareef Shirq, domestic units identify themselves as part of a patrilineage or a clan, and are located in the same hamlet in case of monoethnic villages. In case of there are 2 or 3 ethnic groups domestic each ethnic group can make a separate hamlet with often their own sheikh and in this case domestic units of the same lineage or the same clan are in the same neighbourhood or sub-hamlet.

The majority of the villages of the study area are so organised and identify themselves through lineages or clans upon history, origin and specificity of the ethnic groups.

This level of superior extended family constitutes the intermediate social community level between the domestic unit and the village in case of monoethnic village or the ethnic hamlet of the village in case or village with several ethnic ethnic groups. This level of extended family is traditionally the lowest and strongest solidarity frame of social groups vis-à-vis other groups either from the same ethnic group or tribe in case of segmentary tribalism sub-groups. Internally the lineage or the clan is on the other hand a micro-collective reference for customary rights (access to land, pasture) solidarity (mutual aid and community works and services) and also for domestic unit representation and arbitration (head or elders of lineage or clan, representatives vis-à-vis Local Administration and/or native Administration).

Permanent existence of descent groups ('*aĪla*) has been checked both through the village survey and the household survey. In the village it has been difficult to get a reliable assessment of the number of lineages or clans without enumerating them namely per ethnic group or tribe or

²⁴ Digah (M'aala sub-tribe), Guiraine (Maria sub-tribe, Mada sub-tribe).

²⁵ See definition in paragraph 1.2.1 above.

sub-tribe in relation with the time allocated to each village survey. But in each village question was understood by the interviewees without any ambiguity.

In the case of the household survey each domestic unit gave a precise name of extended family in reply to the question with the enumeration of number of domestic units (*hush*) being part of the so called extended family (generally a patrilineage or a patriclan has the name of the reference ancestor preceded by *Wad* or *Awlad X*, what means the sons or the descent of X).

On the 167 questionnaires the household survey filled for this question the mean size of a descent group is made of 5,4 domestic units, with extremes varying from 1 to 30 domestic units.

From this household survey sample distribution of descent group size per class of number of domestic units is given in table 15 below and average size of descent group per ethnic group is given in table 16. These two analytic tables call the following main comments :

On the whole 87% of descent groups are made of less than 10 domestic units and 58% less than 5. This relative small size of the descent groups can be explained first of all by the history and the origin of the population of the study area (see paragraph 1.2.2 before). The oldest families settled in the study area at the end of the 19th century that means can refer to a maximum of 6 generations since this period and a maximum of 3 or 4 generations for those, the majority who came after the beginning of the 20th century.

On the other hand we must make a difference between families who came isolated, having broken with origin descent groups and without segmentary tribe identity (case of Hausa, Zbarma, Borno for instance) and those who came with still strong descent group or segmentary tribe identity like the various Arab tribes, Beni Amer tribes and in a less extent sometimes some Felata (Fulani) groups (see paragraph 1.4.4 after).

Another determinant of the size and thus the strength of the descent groups is the demographic dynamism of the groups in relation with their way of living and their access to natural resources.

Finally The ethnic diversity and determinism of the descent group structure appears less clearly marked than for the domestic unit structure. We could just note at this stage and level of analysis the following comments :

- Arab lineages have a relative low size despite their segmentary tribe structure.
- For Hausa the relative limited number of *hush* per descent group is compensated by the important size of the domestic unit.
- Felata and Zbarma have bigger descent group and Felata is in the first position in term of number of persons per descent group.
- Beni Amer, Borno and in a less extent Borgo present weaker descent groups (in both senses of number of *hush* and persons and social strength).

Tableau n° 15 - DISTRIBUTION OF DESCENT GROUP SIZE PER CLASS OF NUMBER OF DOMESTIC UNITS

Number of domestic units/ descent group	Percent. of descent groups
Less than 5	58%
From 5 to 10	29%
From 10 to 15	6%
More than 15	7%

Tableau n° 16 - AVERAGE SIZE OF DESCENT GROUP PER ETHNIC GROUP

Ethnic group	Nb. of <i>Hush</i> / descent group	Nb. of persons/ hush	Nb. of persons/ descent group
Arab	5,8	12,5	73

Hausa	4,7	19,0	89
Felata	6,8	14,3	97
Zbarma	7,3	11,9	87
Borno	3,1	14,5	45
Borgo	4,9	11,4	56
Beni Amer	3,3	11,3	37
Others	3,3	16,0	53
Total	5,5	12,7	70

1.4.4. TRIBES AND SUB-TRIBES

The problematical definition of tribe and tribalism has been presented before paragraph 1.1.1. and the historical benchmarks of the main ethnic groups and Arab tribes in paragraph 1.1.2. We will review briefly hereafter the level of tribalism and of tribe/sub-tribe identities for the main ethnic groups as it has been investigated through village and household surveys and RRA's performed during the field works.

1.4.4.1. ARAB TRIBES AND SUB-TRIBES

In the case of Arab ethnic group definition of tribe (*qabila, dar*) and sub-tribe (*khashem el-beyt*) is understood by interviewees during the field surveys and RRA's without any ambiguity, which is not systematically the case for West African ethnic groups (see hereafter).

A detailed listing of Arab tribes and sub-tribes or major lineages²⁶ met in the study area is given in appendix 2 in annexes and is summarized below :

- The most represented Arab tribe in the study area is the **Lahwiyne** with 13 sub-tribes/lineages in 14 villages, among which 7 are made of one single sub-tribe.
- Secondly we find the **Jaaliyne** with 16 sub-tribes/lineages in 4 old villages (none of them with a single sub-tribe).
- Minor tribes are represented here and there in one or two villages (10 villages in total, see list in appendix 2 in annexes). These tribes are namely : **Taïsha, Guemana, Dighem, Dabaïna, Kwaldah, Kinana, Rufaa, Rawashda, Bederiah, Al Amara**, with generally one single sub-tribe/lineage per village.

1.4.4.2. BEJA TRIBES AND SUB-TRIBES

The **Beja** ethnic group is mainly represented in the study area by the **Beni Amer** tribe which is sometimes considered as a confederation of tribes or particular ethnic group itself. Coming from Eastern Sudan Beni Amer are also organised through a genuine segmentary tribe system.

Beni Amer domestic units are present in only 8 villages of the study area, out of which 5 are monoethnic (Digah, Guiraine, Guerma Guerma, Dar Hilla, Oum Ali Wifaq) and 3 villages mixed with West African ethnic groups (Maghareef Ghirb, Magareef Shirq, Abu Usher Ghirb).

Among these 8 villages 8 sub-tribes or major lineages have been identified with 1 to 4 sub-tribes per village, namely : Mariah, Beyt Ma'ala, Waladna, Almada, Aflandah, Elabiah, Sub Laleet, Beyt Awad.

Each sub-tribe or major lineage is in turn divided into minor lineages or descent groups (see paragraphs 1.2.1 and 1.4.3 before) with fluctuation from 1 to 20 minor lineages (descent groups) per sub-tribe represented per village.

²⁶ At this level of surveys it has not been possible to check the actual tribal level identified : either the first sub-tribe level (direct under tribe level) or a major lineage level under a sub-tribe level not identified (case of villages having already the name of a different upper lineage e.g Wad Nager).

1.4.4.3. PROBLEMATIC TRIBE IDENTIFICATION OF WEST AFRICAN ETHNIC GROUPS

The difficulty to identify genuine tribe social systems has already been evoked before in paragraphs 1.1.3 dealing with Native Administration and paragraph 1.2.1 discussing the tribe and tribalism concept. Not willing to embark into theoretical considerations we will just summarize hereafter the outcome of the village and household surveys and RRA's with respect to this item.

The **Felata (Fulani)** ethnic group is represented in 23 villages of the study area. In their origin territories (from Senegal to Cameroon and Chad) Fulani social groups were not organized anthropologically and socio-politically in genealogical segmentary tribes like the Arab, would they be pure nomads or completely settled, although during the Jihad period the different Fulani kingdoms and empires were enrolling Fulani and non Fulani people in military "tribe" organization with segmentary chief systems. In brief we could say that the backbone of the Fulani social organization was based originally on a segmentary lineages/clans²⁷ and caste system²⁸ with many variations according to history, territories and way of life.

Among the 23 villages comprising Felata families 20 villages replied to the question concerning tribe and sub-tribe identification, out of which 16 villages declare Felata as a "tribe" unit, 4 villages "Male"²⁹ and 1 village Tora as a "tribe" of Felata. 14 villages quote different names as "sub-tribe" units and other "tribe" and "sub-tribes". In fact a quick compared socio-linguistic analysis shows that the "tribe/sub-tribe" names declared correspond to various ethnographic levels as summarized below :

- Some names correspond to geographical names of countries or region from where ancestors of the Felata families were coming to Sudan, like : Male, Tora³⁰, Futa, Sokoto (Nigeria), Kano (Nigeria), Katsina (Nigeria), Macina (The Mali).
- Some other names are the names of some main cultural sub-groups of Fulani like nomadic Jafoon (Cameroon) and Fulbe Waïla (Niger), Dalawbe, Belewe, Jalgobe.
- Others names correspond probably to major clans names like Mashieka, Gara, Bobala, Gudry, Hassanapy, Dagra, Yaboo, Danja, Doka.
- Lastly some names are in fact patronymic names or minor descent groups names (Awlad X).

The **Hausa** are even more clearly not organized in segmentary tribe system, but globally in a patrilineal lineage and clan social system. So most of the Hausa villages surveyed declare that Hausa is their "tribe" and 50% of the 28 villages where Hausa families are present declare for "sub-tribes" a series of various names with "variable social geometry" as for the Felata :

- Names of origin regions like Sokoto, Kano, Katsina, Gobir (Niger), Zamfara (Nigeria), Kebi (Nigeria)
- Names of major clans like Miggah, Hlock, Forock, Cofrock, Ecodig, Lock, Trock, Dorah, Damfram, Yarbow, , Zgzaguh, Dawra, Kamal, Bolwa, Shaïgen, etc.
- Patronymic names or names of minor descent groups (Faki X).

²⁷ In Fulani language the lineage is called *legnon/legnol* in the study area. In Futa Djalon (French Guinea) the clan is called *kabile* (from the Arabic *qabila* which mean tribe), and the "tribe" was called *bonsoe* during the Jihad times.

²⁸ For a detail research on Fulani see the key reference "Organisation sociale des Peul", Marguerite Dupire, Plon, Paris, 1970, 624p.

²⁹ From the country The Mali

³⁰ From Futa Toro in Senegal

The **Zbarma** and **Borno** present a similar situation to Hausa. All of the villages where there are represented consider the name of their ethnic group as a “tribe” name. Some clan names are declared sometimes as follows :

- For 4 villages out of 12 villages with Zbarma families in total : Sanay, Doda, Taya, More, Toky, Koly, Bamba, Soley
- For 7 villages out of 11 villages with Borno families in total : Badya, Manga, kama, gala, gama, Swari, Kineen.

Lastly among 7 villages with **Borgo** families 2 villages give as “sub-tribe” names of the “tribe” Borgo : Marareet, Solon and Sulihab. These Borgo groups coming probably from the Bargou region in Chad in the west side of Darfur mountain.

1.4.5 MARRIAGE SYSTEMS

Marriage is a symbol of continuity for all the ethnic groups and it is practised according to the norm and the values of each of them. To marry outside of the ethnic group, the tribe or even the sub-tribe can be considered as an exception to the norm of the group.

The most prevailing marriage system in the study area is endogamy. Usually a man marries his father brother daughter or some girl in the same lineage group. Marriage within similar groups like between Fallata and Housa and Borno is also wide spread. Only some cases of intermarriage between the Beja and some West African are observed. Arab pastoralists usually adopt endogamy marriage.

Regarding Marriage system for the Arab ethnic groups in surveyed villages, we find that the Hamlet kinship system in these villages is a patrilineal system. In general, Arab tribes do not practice any kind of intermarriage. The preferential choice is the marriage with cousins or direct relatives. The families prefer to marry from the same sub-tribes like Al Amara Wadazine. For Soufi Al Bachir it is possible and common to marry from the same tribe, but it does matter if it is not from the same sub-tribe.

Traditionally, the dowry is paid by the man (groom) to the bride family and it is a general practice of the tribe that the bride stays with her mother for a period not more than 2 years provided that she spends the night with her husband. Moreover, young brides in the age of 13-12 years they are allowed to stay with their mothers for a period that can reach the 3 years.

Polygamy exists in all Arabic tribes and considered a common practice. For example polygamy does exist in Al Amara Wadazine hush. Polygamy is consented by some of them as they view it as a means through which their families would enlarge and consequently gain social prestige and fame. However, many others disapprove of this custom and dislike to be second wives.

In some cases like Al Jazeir Shirq and according to the sub-tribe traditions, polygamy system is not preferable. In such cases marrying more than one wife is only due to certain circumstances like divorce, the death of the first wife or lack of the ability to have children. They justify the absence of polygamy to the non sufficient economic condition of the families that necessitates the focus on how to feed the members of the families and educate their children, that does not allow them to marry. The lack of fixed and reliable income and their dependence on the day by day income as well as the existence of children to after are major obstacles for the spread of polygamy. However, the idea of polygamy in itself is not denied as even the women think that "if the men can earn sufficient amount of many they will spend it in marriage."

Consequently, we find that most of the families are small families despite the fact that they prefer to have large families. One woman said despite the fact that it is a sad idea "It is ok with polygamy. We want to be large family; we are few if compared with others"

In the West African groups similarly, the families prefer to marry from the same descent groups e.g Hausa (Sokoto) or from close relatives but it is not a problem to marry from other descent group. We find for example that there is intermarriage between Borno and Hausa while they refused to marry from Zbarma.

All the family lives together in the same hush. Although all the sons live in the same hush those who are married to women from the hush are not allowed living with their father in law.

Polygamy is widely spread among the Hausa group. We find that most of the respondents from these groups especially Hausa do not mind being second wives. Some say that everything is (*Gisma*) and some of them consider polygamy an important advantage as it increases the family members and they want their families to grow and enlarge in order to gain social status and political power. That is why we find great increase in fertility and mortality rate among those western African groups. Despite this belief they agree that the being the main decision maker and the sole provider of the financial resources make it difficult to marry more than one wife. Having two wives and two families increase the number of dependants on that limited resource and consequently decrease the level of living.

For the Zbarma the family prefers to marry from their relatives or same descend group. Relative marriage is dominant in the family especially from the father side, few married from the mother side. While men are allowed to marry from outside of the family, women marry from the family especially from the father side. If it is not problem for family sons to marry from other tribe, they prefer to live in their family's hush while the daughter should live with her husband in his hush or in separate house. .

For Beni Amer the families prefer to marry inside the same sub-tribe (Maria, M'aala) or from close relatives but it is not forbidden to marry from other sub-tribes. Although decisions are mainly taken by men, women to some extent are participating in decision making of issues that affect their lives or children. For the Mada, usually the men come to live in the hush of his wife. If there is a necessity for the wife to live out of her village in her husband's hush, the husband's father builds a house for the couple. The men do not care to live in their fathers in law's hush, they say « We are all parents ».

Concerning the dowry, in the Al Mada sub-tribe, the father gives jewellery and two caws to the bride. These animals stay in her property and she can sell the veal and kept the money for her. In the sub-tribe Maria, the father gives gold as present to his daughter.

1.4.6. RELIGIOUS BROTHERHOODS AND ASSOCIATIONS

Existence of religious brotherhoods³¹ and non religious associations has been surveyed in the household survey.

Out of the 76 villages surveyed (Wad El Helew not included) 62 villages (81%) declare having one religious brotherhood or more. Comparative importance of different brotherhoods is given below in table 17. Far ahead is Tijaniya brotherhood and secondarily Gadiriya and Ansar Sunna.

Tableau n° 17 - RELIGIOUS BROTHERHOODS IN THE STUDY AREA

Name of brotherhood	Percent of villages
Tijaniya	73%
Gadiriya	15%

³¹ For a more in-depth study of the history and the role of religious brotherhoods see the article "Sufi brotherhoods in Kassala and Gedaref States" by Amani Mohammed El-Obeid in "Land, ethnicity and Political Legitimacy in Eastern Sudan", op. cit.

Ansar Sunna	13%
Khatmya	8%
Sammaniya	5%
Others	2%

Most of West African villages are involved in Tijaniya brotherhood whereas Gadiyya, Ansar Sunna and Khatmiya is the fact of Arab and Beja villages, and sometimes secondarily of Felata who prefer however Tijaniya.

Concerning non religious associations or NGO's programme only 29 villages (38%) declare having some. First of all Mosque Committee/Association is quoted 11 villages, secondarily Women Associations and Youth Associations (5 villages each). Other minor associations are declared : Farmers Union (4 villages), Public Services Association (3 villages), Environmental Society (2 villages), Others (3 villages).

1.4.7. GRASSROOTS REPRESENTATIVE AND LOCAL LEADERS

We have seen in the beginning of this section (paragraph 1.1) that there are two formal representative institutions in each village, the sheikh and the people Local Committee. (*legna chabiya*). Their roles and functions are varying according to the socio economic structure of the population.

We have mentioned already before (paragraph 1.1.2) that as with other traditional rural areas in the Sudan, the sheikhdom system refers back to the early days of the condominium rule. The emigrant tribe was already following the system of Native Administration in their countries of origin. Prior to the advent of the Salvation regime, the Sheikh was performing the main socio-economic and political role in the village. The Sheikh had legal administrative and judge power over the villagers. Nowadays the Native Administration System is no longer officially stated in the state Local Government .But the Sheikh in the area keeps significant important with effective administrative and judge power over the village jurisdiction. The Sheikhs are holding de facto power and act as judge in cases of disputes in the different villages.

The other grass root institution is the People Committee. All the villages have formed their People Committees, which perform its duties in close collaboration with the sheikh. In some cases the sheikh forms a counselling body with representatives of the domestic units and their descent groups, it helps the sheikh to decide in the important affairs, which concern the whole population. In some villages like in El Darabi for instance, common affaires talk about and decide upon in public meeting.

Usually the People Committees play the official games; it has the official stamps and formal character. However, it observed that this character is overriding the power of the sheikh among the Arab, while the sedentary cultivators praise the sheikh role more than People Local Committees.

No contradiction or conflict between the two institutions is observed, in most cases the functions of the two institutions are performed by the same people, usually the Sheikh and his closed relatives i.e. sons or brothers. Usually the decisions on the important themes concern the whole population are left to the counselling committee while the local committee holds the position of official channel or transmitter for the village.

Besides the Local Committee and the sheikh the following persons are declared by 46 villages (60%) as influent persons through the village survey :

Tableau n° 18 - OTHER INFLUENT PERSONS DECLARED BY VLLAGES

Identity of	Number of
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influent person	quoting villages
Wise men (' <i>ayane</i>)	22
Imam	12
Dean of a descent group	9
Others	5

We will keep in mind that :

- wise men could be also deans of descent group,
- big merchants or big framers (rich men) are never declared as possible influent persons as so,
- young educated men could not be considered as influent persons apart from being member of the People Local Committee.

1.5. LOCAL COMMUNICATION AND INFORMATION CHANNELS

The local communication and information channels are not always the same in the different vil-lages. According to the Local Act of 2006, Gadaref state, People Local Committees are the for-mal representative of people and the main official channel through which people voice their opinions. In practice People Committees' role and effectiveness is influence by the village so-cioeconomic structure and political adherent.

West Africans People Committees, usually refer to the Sheikh in every detail, while the Arabs and Beja People Committees are more formal oriented and override the Sheikh role.

The Local Committees members do not always perform the direct contact with the outside. There are initiative groups or individuals in each village who take part of the outside connections whether on their own or on behave of the People Local Committees. Such are first of all influent persons mentioned above (paragraph 1.4.7) who play both a role of internal informants and mediators, and a role of external spokesman representative of the reference social group (de-scent group, hamlet, ethnic group of the village, village). These persons are recognized in the different villages and their role praised and accepted by the community members.

In another respect people, and first of all adult head of domestic units and adult males are in-formed on the outside world when travelling and going to the souk, by relatives and neighbours, and when listening to the radio (see table 11, paragraph 1.2.16 before).

1.6. GENDER ISSUES

1.6.1. FAMILY AND WOMAN FUNCTION

In the project area, as in other rural regions of Sudan, women are excluded from all economic, political and social power. Traditionally, a woman's role is defined throughout her life in relation to that of men. She goes from being under her father's authority to being under that of her husband. As a counterpart to this subordinate position, which results in women being almost completely excluded from public life, there is a relatively closed female society characterised by solidarity in terms of common tasks, the care and socialisation of children, initiation into ritual practices and a hierarchy organised according to age and status.

1.6.1.1. *FAMILY DECISION CENTER*

Concerning Family decision centre for the Arabic respondents from the surveyed villages³², most of the respondents agreed that men are responsible on taking all kinds of decisions in the family saying: The decision is always in the man's hand. The financial decisions as well as all other arrangements are male right only and because it is the man who works and earn the money for the family all economic issues and decisions are taken by him.

However, in Soufi Al Bachir there are some kind of awareness and independence among women due to the existence although limited of education among some of them.

Women from other ethnics groups especially from West African ethnic background enjoy a little space of independence even if for some of them. However, the male figure dominates all the decisions concerning family issues. The respondents from the interviewed villages³³ claim that all decisions are in the hand of the men who take the decisions for everything in their lives especially the financial and economical activities about which all the women agree it is the men's domain and responsibility.

Women rarely share their husbands in taking any decision concerning the various family issues because they have the power to do that as they are the ones who work and have the total control over the family finance and decision making.

Women do not get out unless within the family and everything is decided and executed by the husband who does everything even buying their basic needs and they have to accept what he gets to them even if they do not like it. However, we can say that education plays a role in realizing women's rights and importance as we find that some men usually the educated do share some decisions concerning family issues with their wives.

Similar to the Arabic women respondents, Beni Amer women³⁴ agree that all decisions are in the hand of the men who decide everything especially the financial issues and the economical activities.

The Beni Amer follow a very restrict patriarchal system with a very keen division of labour where men control everything and do everything that relates to outside the household unit. They work on either agriculture or on pastoralist and provide the money for their families.

1.6.1.2. *STATUS OF THE WOMAN AND SOCIAL REPRODUCTION*

Social reproduction refers to all of the services provided by the respondents to ensure the

³² Soufi Al Bachir, Al Amara Wadazine, Al Jazeir Shirq and Tabouassib.

³³ Al Bahkar Ghrib : Zbarma and Housa ; Um Dawaban Ghrib : Housa ; Hagueb Sidou : Housa and Borgou; Kona Fellata : Fellata; Um Dawaban Shirq : Housa and Zbarma ; Abu Usher Shirq : Fellata ; Maghareef Shirq : Bornou and Haoussa.

³⁴ Villages : Digah Hay El Mahtar and Guiraine

healthy maintenance of their families, including cooking, cleaning, and child care women perform all the household duties. In all the surveyed villages, patriarchy and patriarchal system is dominant where division of labour, social stratification, and value systems determine gender roles. There is a distinct female and male word and each one have his own sphere activities and power. Accordingly, women are generally accorded a lesser status than men.

The social system is very restrict among Arabic groups, but in the case of Soufi Al Bachir, women enjoy some kind of freedom because they have strong connection with Gedarif city where their relatives live creating some sort of bridge between them and urbanism and modernity. Education and stability, nonetheless, give them the opportunity to enjoy some space and freedom.

It is obvious that the status of Beni Amer women in Guiraine is somewhat better than women in Digah. Despite the difficulties that they face due to poverty, some of the families do care about educating their daughters that might sometimes reaches the level of high education like some family we met.

Regarding the African groups, from the interviewed villages the status of women is usually determined by their reproductive role that is why a high fertility rate exists among them. Women take care of all domestic tasks, child rearing, caring for all the family members, and cooking food. Furthermore, some of them fetch water and contribute in some of the work in the field. Influence of women among these groups varies greatly between private and public levels.

We find that the relation between the respondents is very deep and interlinked. They help each other and take care of each other establishing very close communities. Visits that usually encompass contribution activities whether in accompanying each other in fetching water, helping each other in hand making products, or even in mere chatting and drinking coffee are common and fixed practice among all women. This cooperation and support do go further in establishing kind of social origination among them represented in the (Khatta) which is a kind of saving system although it is very limited due to the limited financial resources.

1.6.1.3. RELIGION AND SUPERSTITION

All the interviewed women of the three interviewed ethnic large groups are Muslims who practice Islam and belong to different religious Sufi group e.g Haoussa and Fellata belong to El Tejanja Sufi group (tariga).

Islamic knowledge and awareness among women are rather feeble. We realize that women in some Arabic tribes like Al Amara Wadazine and other women from other ethnic groups do not own the religious knowledge to differentiate between cultural beliefs and religious values. For example FGM is widely practiced and to some is not negotiable as it is believed as a religious value that must be practiced.

Many women regardless of their tribe hold certain superstitions, such as believe in the evil eye. It is common to wear an amulet or a charm as protection against its powers. They also believe in the powers of sheikh or faki as a spiritual figure that is connected to demons or angels. Women from some tribes like Al Amara Wadazine go to the sheikhs for (Baraka) or blessing if they have problems in conceiving believing that they are able to heal.

1.6.1.4. HEALTH AND FAMILY PLANNING

According to the survey, there is rather a strict division of private and public domain in the Arabic groups interviewed. Women in Soufi Al Bachir contribute in taking care of the household only. Although they take care of their children and of those who are sick, they can do that only inside the household as only men who can take the sick to the hospital if any complications happened while women are restricted to do that and even in the extreme necessity they can only accompany them but not do it by themselves.

The same applied to the women of Al Amara Wadazin village. Women's domain is the household where she takes care of the sick but it is the man's decision when it comes to taking the sick to the hospital. They justify this by saying that the hospitals are located in Gedarif city which is very far from their residents. Consequently, women are not allowed to go or accompany the sick unless in the extreme emergencies.

As for Al Jazeir Shirq village, women can take children to health care centres that mainly exist in Hagueb Sidou or Teleta while the father is responsible of paying for the expenses. However, we realize that women do not usually get medical care when they are sick as they pay for their treatment. One woman said " if a woman get sick she has to pay for herself the husband pays only for his children" another said "if he has money he can pay for her".

For the West African groups, the women mentioned that when a child or one of the family members gets sick, it is the father who is responsible to take him to the doctor. It is only on the emergency situation and only when the head of the family is not available that the women are allowed to take this responsibility. For them their relation with the outside is rather weak as they try as much as possible to avoid any exterior contact even when concerning their health as one of the Haoussa interviewed women mentioned that they prefer to take their sick people to traditional healers than to hospital or doctor.

For the Beni Amer health is not a major issue. They, especially women, do not give much attention to health care. However, if there is a critical situation concerning the sickness of one the family member, it is usually men responsibility to take the sick to the hospital while women take care of the sick people only within the household.

Another very important contribution of women of the surveyed communities in the households and community is the assurance of physical and mental health of the family members.

Concerning health issues women in all surveyed ethnic groups look after their children wellbeing and health. Those who have health centres or units in their village or in the villages near them are able to accompany their husbands to the centre in case of emergency medical need. However, if the woman finds herself with no male figure to escort transport and inaccessibility of facilities remain the major obstacles to obtaining health services. As their community prefer to have as much children as possible mortality rate tend to be rather high. One of the respondents mentioned her relatives that had died in pregnancy or childbirth in the five years preceding the survey and it was a real threat.

Birth control is not used at all among all interviewed women especially among the Arabic groups like in Al Amara Wadazine. They justify this by saying that "we prefer natural ways more than using contraceptives." High fertility rates, low contraceptive use, little knowledge of ante-natal care, poor access to birth services, high rates of complicated deliveries, and numerous cases of sexually transmitted diseases characterize these communities especially in Maghareef and Um Dawaban. Moreover, the quality of services existing is very weak deteriorating as the majority of those surveyed who had sought gynaecological services from health units had not yet been effectively treated.

It is obvious that there is lack of awareness about health care, especially among men as some women mentioned that their husbands discourage them for seeking any medical treatments considering such action as forbidden by god and Islam. Most women are very reluctant to talk

about contraceptives and mentioning that they fear that if they stop having children their husbands may seek to have a second wife.

1.6.1.5. *EDUCATION AND SCHOOL*

Women in Arabic tribes especially the nomadic or semi-nomadic play a faint role in deciding their children's future. We find that men are the ones who take the responsibility of sending their children to school. However, according to the interviewed families in Soufi Al Bachir we realize that women status is somewhat better as women have the space to involve in taking decisions with the head of the family or with her husband concerning either their sons or daughters education. Furthermore, in Al Amara Wadazine men also take the power of deciding their children's education. Usually only boys go to school for education while girls stay at home. Only one or two families send their young girls less than 7 years for education but when they reach 10 they leave school and stay home in order to be prepared for marriage. In Al Jazeir Shirq and Tabouassib are the same men who decide to send kids to school or not.

Women who belong to the West African ethnic groups mentioned that decisions on sending children to school are undertaken by the father and "on a cultural basis". Despite the fact that fathers may often have the major say regarding their sons, we find that in some of the villages the only decision maker concerning this issue is the head of the hush who is considered the main obeyed figure in the family.

However, in some interviewed families we find that some women do take the decision of sending their kids to school. Haja Ala'wuaia has invaded men's domain by working and taking responsibility of different financial and economic issues and consequently, gained the power on taking the decisions on her children's education. She said that she has to work even if from inside her house in order to educate her children

On the other hand, we find that Bornou women in Maghareef Shirq are more aware and open minded towards their kids' education and enjoy the right to share the men the responsibility in taking the decisions jointly.

School decision and decisions concerning sending the kids to school is taken mainly by men who send preferably the boys to school. However, due to the Beni Amir way of life that mainly depend on pastoralism some fathers do not prefer to send their boys to school in order to assist in the various pastoralist activities and taking care of the Animals.

Among all the surveyed villages, we find that the rate of illiteracy is very high especially among women. Although in some tribes like in Soufi Al Bachir, the educational situation is considered better, we find that in other tribes like Haoussa and Fellata in Abu Usher and Maghareef tradition and customs play crucial role in increasing the rate of illiteracy. Similarly, in Arabic tribes like in Al Amara Wadazine, illiteracy rate is very high especially among girls despite the fact that in Hagueb Sidou educational status is a little better. The high illiteracy rate of the women in the project area is due to several causes:

Remoteness of the locations of schools represents a major cause in discouraging them from sending their children especially girls. This is was confirmed by some of the respondents from Al Amara Wadazine and Digah villages who mentioned that it may take the children one hour to reach the school which is very dangerous and exhausting.

Most of the respondents agree that they prefer to send their children to Khalwas even the elder girls. Some of the respondents from Bornou group in Al Bahkar justified that by saying that school fees are too high for them contrary to the khalwas.

Concerning girls' education, mother usually supports her daughter early marriage. This is in addition to the fact that due to the low status of women regarding decision making which the men's right, women naturally obey their husbands decisions in stopping the girls' education in

early ages. Furthermore, girls are normally preferred to stay at home to help their mothers in the domestic chores, such as cooking, cleaning as well as gathering vegetables from the fields. But it should be noted that some interviewed girls declared they like going to school. They want to keep going and to become schoolteacher.

According to customary traditions, girls are supposed to stop their education at the age of 13 which is considered the age of marriage or preparing for marriage.

School fees constitute a heavy pressure on many parents and comprise a further disincentive to poor families to allowing their children to continue their schooling.

Lack of sheer interest among the parents to educate their children let alone to send them to schools.

School teacher they are not come regularly during school days, this led some children leave the school

1.6.1.6. *HOUSEHOLD ACTIVITIES*

If there is a distinguished women and men activities, the sphere of activities is also distinguished according to age, social status and season. There are dry and rainy season activities, there are activities despised by the well-off and undertaken only by the poor women. There are activities that are socially acceptable for old women and shameful for married women.

A lot of women from Arab tribes, Beni Amer and Fellata do not work in the farms³⁵, but they work in handcrafts, for sale purposes and domestic use. The woman's domain is the domestic arena. She is the one responsible for all the household chores and for its total management and arrangement. They also take care of the children and the elders' health.

As for the Beni Amer women their lives is confined to the hush and to taking care of the children within the household only while the move with the animals from the morning to sunset, contrary to their husbands, the women lives with plenty of time and void. Therefore, social activities and female gatherings are plenty and activities like drinking coffee occupy an important place with very long and precise rituals.

All interviewed women from other ethnic groups have the same domestic responsibilities like cleaning, cooking, washing, taking care of the children and the elders. In agricultural and pastoralist societies, in addition to the women's role in child bearing, caring and teaching the society's norms and values, preparing the food into usable forms, cooking meals, they also responsible for fetching water and firewood, collecting grass for construction of houses, land preparation, planting, weeding, harvesting and storage of food. Furthermore, for those who own agricultural lands go to the field as early in the morning to attend their lands might not get back home before 5 o'clock³⁶.

³⁵ Depending on their tribal background, on their age and on their social condition.

³⁶ Women involved in agricultural activities from specific ethnic groups include (Hausa, Zbarma, Borno).

1.6.2. ECONOMIC ACTIVITIES

1.6.2.1. WOOD AND WATER

Water and wood are brought by young girls or boys and women and rarely by men. But usually, women are not allowed to bring water or wood³⁷ depending on their tribal background, on their age and on their social condition. In most of the surveyed villages, the respondents use wood which is usually brought from the forest by the young girls or boys for cooking. In addition to that, young girls are also responsible to help their parents at home, feed and look after the animals. Some girls from Guiraine or from Hagueb Sidou sometimes cook and prepare the food for the family .

However, sometimes old women fetch the water from the river accompanied by their relatives or neighbours. Yet, women do fetch water from the river sometimes during the rainy seasons when the river water is high. Using the river water in the daily chores of women like washing clothes, and bathing children, as well as drawing water from surface sources increase rural women's risk of exposure to water diseases as a woman mentioned that one of her relatives died of bilharzia.

1.6.2.2. CROPPING SYSTEM AND ANIMAL HUSBANDRY

Women involved in agricultural activities from specific ethnic groups include (Haoussa, Zbarma, Bornou). The women from Arab tribes and Fellata do not work in the farms, but they work in handicrafts, for sale purposes and domestic use.

Women in crop production

Durra is the main food staple of the villagers. It is grown in expansive plots throughout the area in the clay soil. There are several varieties of durra, but, Felata the most staple food variety, is widely spread in the area. Others types of durra varieties are grown for national and international markets. Millet is also grown for local consumption and national markets. The third main rain fed crop is sesame, which produced as the main cash crops in the area. With the exception of pastoralists villages, the three crops are cultivated together all over the visited sites.

As paid or unpaid labor, some of the surveyed women are heavily involved in subsistence crop production, and a few activities related to cash crop production. A gender division of labor is observed in the farming systems of the surveyed villages based on the nature of the agricultural enterprise itself, and on the operations used in the production process. Consequently, men though not all of them are involved in capital-intensive mechanized crops and operations (mechanical land preparation, irrigation, spraying, mechanical harvesting, tractor-driving, etc.), while women are responsible for the more labor-intensive work that requires hand effort, patience and perseverance. Thus, women use their hands or simple tools to broadcast seeds and fertilizers, hand weed and harvest, pick fruits and vegetables manually (okra, sesame, dura beans), and transform the crop which is usually done by caring it on their backs. They likewise spend many long hours in post-harvest activities such as, cleaning, sorting, grading and bagging.

Concerning the issues of land right, most of the farmer women do not own the land. They usually, especially old women, hire it or use the family land. However, some women inherit lands from their fathers but in this case the men (husband, brother, etc...) take charge of it as women in general are not allowed to own a land, even if it is inherited. Traditionally, lands should be managed by men while women can keep the animals which sometimes are inherited at home like in Maghareef, Hagueb Sibou and Um Dawanban Ghrib villages.

In Al Jazeir Shirq (Lahawiyin), some old women interviewed own land or inherit. Those women

³⁷ Except if they are accompanied by their relatives.

are cultivated and harvested alone, and the production is sold by their brother or husband. Also women are helping their husbands in field. In same time they collect Okras from field. They thinks that "families are poor and land is consider as main source of income, so they have to work beside their husband". They cultivate Dura for feeding and few for sale, rarely they cultivate sesame (considers as cash crop).

Some Felata women (Kona Felata) do have lands Hauwash (small land) where they cultivate some vegetables and Okra.

Women and animal husbandry

Livestock production is an important and integral component of farming systems in the rural societies. In nomadic and semi-nomadic societies, livestock rearing is the main production activity and the source of most, if not all, economic output. Livestock also contributes a large proportion of the income of farmers with small-landholdings In general; women are more involved in live stock production, especially small ruminants, than in crop production. Usually, women in the hush own some animals like goats, donkeys and sheep's and they responsible of feed them. Cash income obtained from women's work in livestock production plays crucial role in supporting the family.

1.6.2.3. HANDICRAFT AND OTHERS ECONOMIC ACTIVITIES

Craft activity is essentially made by pastoral community and most of the women complain that they do not have enough money to buy the necessary equipment. The production of floor mats, body cover,(Arabic) tapestry (Beni Amer) was an important economic and social activity, especially in nomadic tribes, but recently women engaged in the production of wool mats tend to be from the poorest strata of the villages³⁸. A few young women make bead necklaces or bracelets that they keep for themselves or more often offer to members of their families. At Al Amara Wadazine, some sell them via relatives when they go to the souk.

1.6.3. ATTITUDES AND BEHAVIORS

1.6.3.1. CHANGE AND CONTINUITY, EVOLUTION AND FUTURE

Most of the respondents have great expectations with regard to the future, especially the young women. Lack of information and awareness among them regarding the dam building produces a certain fear, particularly among old people. Such a critical change gave rise to disturbing speculations and questions about their lives and future, especially with regard to their lands, homes, way of life and identity. However, some are looking forward to better lives for their families and themselves.

Concerning their expectations for the future, although they prefer to live in one large extended family, they hope for their families to live in comfortable conditions. They also hope for their children to have good education in order to be able to get jobs in the future. However, they believe that it is better for them to stay in their current village provided that they enjoy the comforts of having a health care centre, schools, and other infrastructure such as roads, electricity and other modern conveniences like television.

However, the traditional demographic structure in the area is not likely to change in the near future. Any significant change will depend on the dynamics of people's interactions with the new

³⁸ Cf. Tamadur Khalid, « Dynamics of change in Gender Relation among the Lahawiyyin pastoral community », in "Power, land and ethnicity in Kassala-Gedaref States", Catherine Miller Dir. Le Caire, CEDEJ/DSRC, 2005.

set-up in the new settlement. The spread of education and improvements in livelihood systems, including the development of new modes of production mobilized by the project development programmes would accelerate the processes of demographic change; likewise, the provision of basic services is likely to be reflected in the demographic characteristics of the population.

1.6.3.2. ATTITUDE AND BEHAVIOR VIS A VIS TRADITIONAL AND MODERN VALUES AND BELIEF

Traditional cultural practices reflect the values and beliefs held by members of a community. All the social groups interviewed have specific traditional cultural practices and beliefs, some of which are beneficial to all members of the society while others are harmful to a specific group, such as women. Most of the respondents and especially the young women or teenagers in the villages surveyed are affected by harmful traditional practices such as female genital mutilation (FGM), early marriage and various other taboos and practices like traditional birth practices, traditional taboos, early pregnancy, dowries, and son preference and its implications for the status of the girl child that prevent women from controlling their own fertility, lives and futures.

Most shockingly, despite their harmful nature and impacts, some women still practice and actually embrace such customs and traditions, especially women from Arabic tribes like Al Amara Wadazine. Although some groups are more aware than others of such practices, tribes from West African origins such as the Hausa and some Fellata tribes, who do not practice FGM, appear to have a better attitude and greater awareness than the Arabic tribes.

All of the ethnic groups surveyed possess a high sense of collective identity. Almost all of them are extremely proud of their identity to the extent that they isolate themselves and resist any integration with other ethnic groups, especially the Arabic ones.

1.6.3.3. ATTITUDE AND BEHAVIOR TOWARD THE FAMILY MODEL

Although some of the respondents prefer to live in extended families, others claim that they love to have small families because they are getting tired of the large, extended one. They said that they want to enjoy some privacy and to socialize with others like them in their own way without the elders interfering in their lives or in the lives of their children. They hope for better and comfortable lives that they can enjoy in their own way and wish that their husbands would live independently and be able to stop depending on their fathers. However, respondents in the semi-nomadic tribes (especially the elders) and in the nomadic tribes are not willing to change their way of life.

1.6.3.4. SPECIAL POINT OF VIEW OF THE TEENAGERS ON THEIR FUTURE

It is clear to the interviewer that there is resistance among the young girls in most of the villages surveyed. They talk about living differently from the way their ancestors lived although it is almost impossible to achieve this dream as their cultural restraints would not allow them to do so. They resent the routine their mothers live in and hate to spend their lives cleaning the house, washing clothes in the river and doing other domestic chores. Although most of them are in favour of having large numbers of children as a way of holding on to their identity, most of the young generation are starting to adopt new ideas and beliefs. They do not like to have too many children and prefer to have organized families. They also say that there are cultural practices that they do not like and do not approve of, such as preventing them from receiving education and early marriages. They want to go to school, to dress differently and have more freedom with regard to their movements and choices in life.

Although almost all of the respondents are very attached to their land, the environment around them, the river and nature that give them a sense freedom, they hope for some changes. Contrary to the elders, who prefer to live in large families as a means of earning social respect, the young generation does not want to have too many children and prefers to have organized families. Younger people complain that there are cultural practices they do not like and do not ap-

prove of, such as early marriage and forbidding them from education. Arabic culture is a focus of their interest and that they look upon it as something they would love to adopt, especially the way the city girls live and dress.

1.6.4. CONCLUSION : WOMEN ATTITUDE VIS-À-VIS THE DAM PROJECT

Attitudes towards the effects of the dam project differ within the same community and between different villages communities. Many of the people likely to be affected have no clear picture of the impact of the dam or the resulting consequences in the area. In general, while the Beni Amer think of the project as a way out of their dilemma with regard to their limited resources and their seasonal grazing areas, some West African communities are suspicious that the project may be implemented at the expense of their historical gains in the area.

The majority of West Africans are satisfied with their present location and economic situation. Only a small fraction of them have shown any tendency to resettle once again. They all agreed that they hope to have strong houses built with bricks, and good planning for the neighbourhood with infrastructure such as roads, electricity, schools and health centres.

The Zbarma women prefer to live in large and extended families but at the same time they hope for their families to be more comfortable. They also hope for their children to have good education and a comfortable life and wish that one day they would have electricity and clean water in their village. They hope for better and more comfortable lives in their village. They do not prefer to move from their land, especially those who have settled recently, but they hope that development plans and projects could be implemented in their land/village. They want health services, electricity, and a doctor as well as education.

Such development projects may change the patterns of use of land, water and other natural resources, causing a range of resettlement effects. This may result in loss of livelihoods and resources and a breakdown of community networks and social services that already exist in some surveyed communities, as well as loss of resources. The people affected have no option but to rebuild their lives, incomes and asset base and this may lead to tension among these communities.

Gender issues are very important in resettlement because women do not enjoy the ownership of land and property rights, have lower levels of education than men, do work in the informal sector, experience restricted mobility, and carry responsibilities for meeting basic needs such as water, wood and fodder. Hence, economic and social disruption may result in greater hardships for women than for men. In all situations of change, affected persons (individuals or groups) are differentially impacted and gender is an important factor in determining differential impact. Misunderstanding of intra-household dynamics is more likely to affect women adversely than men. Gender disparities that already exist in society and the family tend to become aggravated at times of social and economic stress. Women may not have landownership and property rights. Women may have lower levels of education, skills, health, and nutrition than those of men.

Lack of exposure to the outside is one of the gender-specific factors resulting in women's lack of ability to adjust to new situations. Women tend to have responsibilities for basic needs like fuel, fodder, nutrition, water, and sanitation. Loss of these has a far greater impact on women than on men, as does a breakdown of community and social networks, which are a source of help in times of crisis and provide security for the household. Gender disparities embedded in social practices and traditions render women vulnerable to violence and stress. Any situation of economic and social distress creates more scope for violence against women. Economic and social distress can aggravate the situation and cause further deterioration of women's health and consequently affects the health of children.

The previous chapters give a detailed assessment of the socio-economic problems connected

with the condition of women and their essential role for any development project in such rural areas:

- Women are the "kingpins" of the social reproduction system. They are the ones responsible for children's education and unavoidable joint decision-makers in managing the patriarchal family.
- From the point of view of natural resources, women are often the ones directly responsible for gathering activities (cultivated fodder, crop by-products, natural fodder and branches, fuel wood).
- From the economic standpoint, women in certain ethnic groups represent a labour force that is essential for ensuring the survival of production systems. They also manage the household.
- Lastly, from the socio-sanitary standpoint, women are the main decision-makers for the family. They are also responsible for managing household water and watering small herds of sedentary ruminants.

1.7. LAND-USES AND TENURE

1.7.1. AGRICULTURAL LAND USE

Global agricultural land use has been surveyed and estimated per village from the different following sources :

- For rainfed traditional farming through the village survey and estimates at Gedaref Statistics Service level : details are given in table 5 in annexes.
- For rainfed mechanized farming from an exhaustive farmer inventory provided by the Mechanized Farming Corporation : details are given in table 6 in annexes
- For irrigated lands or more precisely irrigable lands (*jerrofs* in the river beds) from aerial photos interpretation.

Global agricultural land use in the study area is summarized in table 19 below per river system. Analysis of cropping and farming systems making this global agricultural land use is presented in chapter 1.8 below.

Tableau n° 19 - AGRICULTURAL LAND USES ACCORDING TO RIVER BANK AREAS (FEDDAN)

	Rainfed traditionnal farms	Rainfed mechanized farms	Number of big farmers	Irrigated land (<i>jerrof</i>)
Atbara River left bank	66 227	97 000	87	415
Atbara River right bank	36 074	30 000	30	358
Total Atbara River	102 301	127 000	117	773
Settit River left bank	38 000	25 500	20	195
Settit River right bank	45 140	-	-	327
Total Settit River	83 140	25 500	20	522
Total Study area	185 441	152 500	137	1295

1.7.2. LAND TENURE AND LAND RIGHTS IN THE STUDY AREA

A brief reminder of the historical conditions of the formation of the land tenure and land rights legislation in Sudan is given in annex (Appendix 1). The main historical steps were successively :

- The customary tribal homelands system.
- The Mahdist military period with at the end considerable number of migrants, in central and eastern Sudan especially from Darfur and West Africa.
- The British colonial time with the issue of several land ordinances aiming both at creating a government land status for colonial and public purpose, and a formal customary right system. The right was vested through the institutionalization of the Native Administration primarily based on the principle of *Dar*, or “tribal homeland”, and empowered by economic and legislative mechanisms”.
- After independence land tenure legislation differed only in superficial respects from the colonial legacy. It was in 1970 when the first substantive national legislation on natural resources, the Unregistered Land Act, was introduced and implemented indiscriminately all over the country. The legislation proved even more repressive and detrimental than the colonial ones. Article 4(1) states that *“All land of any kind whether waste, forest, occupied or unoccupied, which is not registered before the commencement of this act shall, on such commencement, be the property of the government and shall be deemed to have been registered as such, as if the provisions of the Land Settlement and Registration Act, 1925, have been duly complied with”*.

Visit to land office at Showak, and interviews with Sheikhs and key persons from different villages revealed the following actual situation in the field.

Residential Land

The land is owned by the government. They are redistributed and registered according to the 1970 Act (Unregistered land Act). The lands are allotted to citizens on lease to be used following the conditions and regulation specified in the contract to be signed by them .i.e lease hold ownership.

Rainfed Agricultural Lands

Large and small farm lands allocation is the responsibility of the State Ministry of Agriculture and Irrigation via the Mechanized Farming Corporation.

Farmers were allotted lands on lease, to be cultivated following the regulations and conditions specified on the contract agreement between the farmer and the Mechanized Farming Corporations. They pay nominal lease fees for the land but also have to pay renewal fees annually.

Horticultural Lands

Irrigated land is also allotted based on lease hold ownership the following steps have to be followed for their registration :

- Certificates to prove ownership have to be obtained from the village sheikh and local community committee.
- A no-conflict certificate has to be issued by the locality to the Agricultural office at the locality.
- A letter from the Agricultural office has to be issued to the Agricultural Committee of the state Ministry of Agricultural together with all supporting documents after certifying the following :

- I. That the applicant has a health certificates and a document of financial ability.
 - II. That the land is proven to be outside the forest reserved land, the animal migratory routes and the already contracted farm lands (already legally distributed).
- After Approval from the Committee the Minister of Agriculture has to write a letter to the Chief of the Judiciary in Sudan requesting permission to open a registry for the land in the name of the applicant.
 - After the request has been garneted, the registration procedure would be completed by the applicant signing a contract at the State Judiciary office.

In general the land ownership for the rainfed Agricultural lands can be categorized as follows:

1. Village farm lands

Small areas of lands at the vicinity and/ or surrounding the village. Their use and utilization rights (the usufruct rights) are for the whole village population to practice agriculture, grazing, wood cutting and forest investment. Usually the acreage owned by households or individuals is small (small farmer) and normally they practice a type of traditional agriculture.

2. Undemarcated farm Lands

These are lands for the state citizens (farmers). The farms given or allotted to individuals usually range between 1000 to 3000 feddans.

They were allotted and redistributed with special laws, high rank state authorities' decrees and orders according to very strict obligatory conditions of which are :

- I. Should be outside the village farm land.
- II. Should be outside the forest reserved land.
- III. Should be outside the area of animal migratory routes.
- IV. Should be outside the area of mechanized agricultural schemes already allotted by the Mechanized Farming Corporation (M.F.C).
- V. The farmer has to observe carefully all regulations and fulfil all the conditions agreed upon.

The Mechanized Farming Corporation (M.F.C) now is undergoing the process of demarcation of these lands to pave the way for their registration as proper mechanized farms with same contract as the Mechanized Agricultural Schemes.

3. The Mechanized Agricultural schemes

These were allotted and redistributed by the Mechanized Farming Corporation according to special legal contracts between the Government represented by the (M.F.C) and the farmers (investors). The contract has specified the rights and/or obligation of each party as well as the relationship and the ways of using and utilizing the lands.

The area per farm (per individual farmer) ranges between 1000 to 1500 feddan and for some companies and cooperative societies ranges between 5000 to 14000 feddan.

In conclusion the general features of the customary tenure include :

- Occupied land for cultivation, pasture, wood cutting etc . Are not formally registered.
- Usufructuary rights, not ownership rights, are the predominant forms.
- Land is deemed to be the property of a tribe or a clan or village and dealings in land are an exception rather than the rule.
- The allocation of land rights is vested in the village's headman (Sheikh). The Sheikh has the right to divide the land within his domain among his villagers as well as to allot land to outsider or to settle a dispute if he wishes to do so.

- Women have restricted access to land, rights and in most cases, they do not possess the land, unless inherited from fathers or husbands.

1.8. AGRICULTURAL ACTIVITIES AND PRODUCTION

1.8.1. CROPPING SYSTEMS

Farming systems are composed of three main economic activities:

- crop production with various cropping systems;
- animal production with different livestock systems;
- off-farm economic activities and incomes.

Apart from local ecological conditions, these three types of production are dependant - quantitatively and qualitatively - on the farmer's access to labor (an effect of demographical and social structures), to land (an effect of land tenure and land rental systems), to technology (cultural system) and to capital (social position of the farmer).

Cropping systems usually are based on a mixture of two main subsistence food crops, sorghum, and millet and one cash crop sesame. Both the environmental constraints and the decisions of farmers in allocating resources for agricultural inputs, such as seeds, chemicals, directly effect crop output which in turn influences consumption, marketing and investment.

Livestock systems involve the rearing of animals such as cattle, sheep, goats, camels, donkeys, horses and poultry. Animals serve several functions including: (i) a source of investment; (ii) a food source and (iii) a transportation and labor source. Patterns in animal rearing result from the strategies. Farmers follow regarding investment of their resources in different types and amounts of livestock and the various uses to which they are put.

Off-farm economic activities consist of the various income generating activities that farmers pursue to supplement the income generated by their own farms. These include dry season migration for paid labor including other farmers, specialized non-farm occupations (e.g. drivers, tailors, carpenters, blacksmiths, etc...) Recurring patterns of non-farm economic activities often appear amongst the farmers. The income generated by these activities can be channelled into agricultural inputs for cropping, animal purchases, or consumption needs. Both due to additional income strategy and water shortages constraints seasonal migration for employment plays an important role in the farming systems.

No general reliable statistical data are available concerning farm size distribution and land tenure.

1.8.1.1. VARIETIES AND SOCIO-ECONOMIC FUNCTIONS OF THE MAIN CROPS.

□ **Sorghum (Dura)**

Sorghum (*Sorghum bicolor*) is the most important staple crop. Local types of sorghum are quite numerous, the major difference between them being maturation length. The Feterita group is the most important with the three main categories :

- “Korokolu” : white grain – local short maturing variety
- “Zara al gadambaria” : white grain – improved short maturing variety
- “Harfa gamadak” : white grain – improved short maturing variety

The other most popular varieties of dura grown are Hariray (red sorghum), Mugud, and Daber tadab, and Wad Darmat, all being late maturing varieties.

All varieties are long-stalked and are unsuitable for combine harvesting but have grain characteristics acceptable to local consumers. The cultivated land is flat; the fields' preparation is only possible and sensible after the seasonal rains have started.

The role of sorghum in the farming system found in this area is quite important due to the multiple functions it serves. First, it serves as a food source for farmers and therefore is considered the first most important subsistence crop grown in this area. Second, the stems of sorghum also serve as a food source for both farmers and their animals. The high moisture and sugar content of the stems make it a thirst quenching-energy source in the field where it is consumed in great quantities by farm laborers harvesting crops like sesame.

Likewise, animals such as cattle, donkeys, goats and sheep find sorghum stems a palatable fodder, and farmers will often cut and save the stems to feed animals throughout the long dry season. This practice emphasizes the importance of sorghum to animal husbandry in this area,

□ **Millet (dukhn)**

Millet mainly pearl millet (*Pennisetum glaucum*) is the second most important staple crop. Several local types of millet are grown. They are known according to their maturation period: early maturing from 70 to 80 days; late maturing from 90 to 110 days. The extent of millet cultivation demonstrates its importance in the farming system. In addition to serving as one of the main sources of food for farm households, millet stalks are used for various purposes. They are, for example, the main construction material for houses and other structures in the villages.

□ **Sesame (simsim)**

Sesame is the most important cash crops grown by farmers in the area. Locally recognized types of sesame are known from their maturation length: from short maturing types, 70-80 days, to long maturing types, 100-120 days. Some farmer mix seeds of several types with different maturation lengths to allow a continuous harvest in the framework of a labour force management strategy.

Improved varieties are Abu Neama, Abu Sufa, Tahiarib and Zeraha saba.

The extensive cultivation of sesame among farmers in the region has an important bearing on the farming systems. Sesame has significantly displaced subsistence crops such as millet and sorghum to the point that farmers are depending on the revenue gained from sesame to purchase food supplies which supplement the grain supplies grown on their own fields.

Aside from being a source of cash, sesame is also used as a source of food. Farmers consume sesame raw, mix it with other vegetables and consume it as a main dish, or grind it up to make an oil used in food preparation. In addition, sesame is used as a source of fodder. The pods are saved during threshing and fed to camels, and the leafy stems remaining in the fields after cutting are consumed as fodder by livestock. Thus, as with the other crops farmers grow, sesame serves a number of functions.

Other field crops like sunflower, cow peas and groundnuts are also grown in the southern part where rainfall is sufficient, but their superficies are marginal.

Some farmers practice intercropping: millet is sometimes intercropped with sorghum in order to prevent *Striga* infestation. Most common crops which are intercropped with sesame are water melon, cowpeas, and karkadeh (*Hibiscus Sabdarffa*). Several reasons can be given for farmers' tendency to intercrop other crops with sesame. First, labour is a critical constraint in farm production in this area. Because many farmers cannot afford to expand their cultivation through land clearing, they grow several crops on the same field to take advantage of what limited area they can cultivate. This practice also helps cut down on weeding costs since several crops are weeded at once when they are in the same field. Second, many crops are grown in one field to ensure that some output will be obtained from the piece of land they are cultivating. Should

drought conditions or pests adversely affect one of the crops, one of the other crops will produce something.

□ **Irrigated vegetables and fruits**

Locally, on the low terraces of the Atbara and Setit rivers, small parcels of irrigated vegetables and fruits are present; the vegetables include mainly tomatoes and onions but also okra and beans. Two cropping periods are possible: the first during the rainy season taking profit of the floods and the second during the dry season using pumping from the river.

Available land on the terraces represent approximately 1600 feddans , but cultivated areas are very small, less than 500 feddans. Irrigated agriculture does not form part of the tradition of the local populations of the area.

When the rainy season is favorable, sesame crop occupy between 25 and 30% of the cultivable area, sorghum between 60 and 70 %. The cropping pattern in the riverine villages near the Settit and Atbara rivers is very similar as that the whole Big Fashaga region shown in the table 4.

Tableau n° 20 - LAND USE IN THE BIG FASHAGA AREA

Table 1 : Land use in the Big Fashaga region (Gedaref State)

Season	Sesame		Sorghum		Millet		Sunflower		Total
2005	48150	16%	247500	81%	10500	3%			306150
2006	48600	25%	132425	67%	16700	8%			197725
2007	67900	26%	176237	68%	14377	6%	2000	0.8%	260514
2008	162750	30%	332750	61%	49000	9%	2300	0.4%	546800

Source : MFC - Gedaref State 2008

The land use pattern in the villages is given in table 5 in annexes. The total irrigable lands was estimated from the field work and by photo interpretation (aerial photos at 1: 10.000 scale)

1.8.1.2. CROP CALENDAR AND AGRICULTURAL PRACTICES

The cropping activities are summarized below for the three main crops :

(a) Sorghum:

- Planting: between the middle of May and the end of July
- Replanting: end of June -first of August
- Weedings: first one: middle of June -middle of September
- Cutting: first of September -first of December
- Threshing: first of October -middle of January

(b) Millet:

- Planting from April to July
- replanting from the end of May to July
- Weddings (2): the first one between the end of June and the first of August; the second one between the middle of July and the end of September
- Cutting and threshing: between the end of August and the first of January
- Land clearing between January and May.

(c) Sesame:

- Planting between May and July
- Replanting: between June and July
- Weeding : first one between middle of June, and end of .August; second one between the middle of July and the end of September
- Cutting: between the middle of August and the first of January
- Threshing: between the first of September and the first of January.

Most of the farmers practice thinning during the first weeding. Millet is the most frequently thinned crop, before sesame and sorghum.

1.8.1.3. INPUTS AND LABOR

Given this unpredictable rainfall pattern farming in this area is a high-risk venture. Missing one or two rains could mean the difference between a crop success or a crop failure. Periodically, during years of minimal rainfall, obtaining any kind of crop output is not feasible. Also there is a very limited use of purchased inputs (fertilizers or herbicides).

Some farmers, particularly on big mechanized farms use herbicides like 2.4D in order to compensate rising labor costs.

Next to environmental conditions, labor is the most critical input in the traditional farming system. This input usually determines the size of the area under cultivation and, thereby, the limits of a farmer's crop production. Labor is obtained from three sources. First, farmers use their own labor and the labor of their households, this is the main source of labor for most farmers. Second, farmers will hire labor from within their own village. This labor source is especially important when time constraints are imposed on cropping activities. Third, farmers will hire labor from outside their village.

These laborers perform some or all the agricultural operations. Some farmers prefer outside laborers because they usually will work on a particular task until it is completed, Local laborers may not always do this because they have their own fields to take care of. Various combinations of these three sources of labor are often used, depending on the availability of the labor, the monetary resources of the farmer, and the time limitations imposed by the task.

Several labor arrangements are found:

- Payment system by task;
- Wage system upon the working period of the day, depending also on the length of time worked (morning wage work; late afternoon wage work; full day work for wages);
- Negotiated lump-sum for a particular task;
- Payment according to the quantity of threshed grain;

1.8.1.4. MAIN CROPPING SYSTEMS : YIELDS AND FINANCIAL RESULTS

The yields obtained in the area vary considerably due to a number of factors.

Rainfall is near the minimal average level required for any type of agricultural production (annual average (470 mm in Showak). Aside from this low average, the amount of rains from one year to the next will vary significantly ranging from 200 mm to 600 mm. In addition, rains are very sporadic within a particular season, and long periods of no rain may occur between periods of abundant rainfall. Given this unpredictable rainfall pattern falling in this area is a high-risk

venture. Missing one or two rains could mean the difference between a crop success or a crop failure. Periodically, during years of minimal rainfall, obtaining any kind of crop output is not feasible. Variable rainfall leads to large fluctuations in production. Prices fall abruptly in good years, leaving traders reluctant to enter the market, especially since stockholding infrastructure is usually inadequate. This increases the price risk that producers face, and their unwillingness to invest in external inputs as fertilizers or seed of improved varieties.

Another major constraint to sorghum production is Striga, a parasitic weed that attaches itself to the sorghum roots from where it draws its moisture and nutrient requirements, inhibiting plant growth, reducing yields and in severe cases, causing plant death.

Crop pests are a significant problem which contribute to the low yields characteristic of farmers' fields in this area. Millet has the greatest number of pests of all the crops grown. Some of the major millet pests as well as those which attack other crops are listed below.

Sorghum -quelea birds, jiraad, joraan, long smut, and buuda.

Millet - santa (Cyrtoconia spp.) , quelea birds , nafaasha (Eulemna brachygonia), abu dagging (a type of moth), jiraad (locusts), joraan ' a small black beetle), direena³⁹ , / buuda (striga) , downy mildew and long smut.

Sesame -joraan , raguuma, (caterpillar) , surfa (mii peck), jiraad , ants and termites.

Farmers plant their millet early (May or early June) so that it reaches maturity before the peak seasons of major pests like santa and quelea birds (late August through October). One serious consequence of this strategy is that early-planted millet does not always germinate, so replanting is often necessary.

Farmers rotate their crops in a field from one year to the next. For instance, if they planted millet or sorghum in a field this year they often plant sesame in it the following year. This strategy helps lessen the danger of a major pest build-up year after year in the same field.

In some areas grain production is constrained by birds, which attack the crop particularly during the grain-filling stage. To minimize bird damage, sorghum with a purple undercoat ("Hariray") is cultivated in some villages. The undercoat contains tannins, bitter, stringent substances (polyphenols) that are distasteful to birds. Several techniques are employed by farmers for combating quelea birds, such as:

- small children carrying noise makers through the fields;
- farmers erecting "scare quelea bird" figures in their fields; and
- farmers getting together and destroying any bird nests they find in trees adjacent to their cultivation areas. None of these methods is very effective in controlling the bird

The yield figures collected during the Rapid Agricultural Appraisals and during the households enquiries are shown in the next tables. Respondents were asked to give crop acres and levels of production for the 2007 and 2008 season. Results for sorghum and millet correspond to "normal" years in terms of rainfall, the low results for sesame in 2007 were strongly related to strong rains and prolonged period of soil waterlogging during the growth phase

³⁹ direena (small-beetle) is a bug which attacks millet and sorghum stored in sacks.

Tableau n° 21 - AVERAGE YIELD PER FARM SIZE (KG /FEDDAN)

Farm size	Sorghum	Sesame	Millet
<10 feddans	367	219	270
10-20 feddans	449	250	305
20-50 feddans	404	208	256
50-100 feddans	503	293	381
100-400 feddans	423	264	267
>500 feddans	400	228	285
All	428	241	293

Source : 2008 households surveys

Tableau n° 22 - TRADITIONAL FARMS - YIELDS (KG/FEDDAN)

	2007		2008	
	min	MAX	min	MAX
Sorghum	351	505	380	551
Sesame	117	114	230	300
Millet	334	428	513	627

Source : 2008 Consultants RAA's

Due to continuous cultivation, the cultivated land is entirely downgraded. As a result the yields are low to very low, depending mainly on rainfall. Crop budget sheet in annex present the financial results in terms of gross margin for the main crops. They are resumed in the following tables

Tableau n° 23 - BIG FARMS - FINANCIAL RESULTS PER CROP

Crops	Sorghum	Sesame
	SG per feddan	
Gross return	370 - 490	540 - 720
Production costs	180 - 200	230 -270
Gross margin	190 - 290	310 - 450

Tableau n° 24 - TRADITIONAL FARMS - FINANCIAL RESULTS PER CROP

Crops	Sorghum	Sesame	Millet	Onion	Tomato
	-SG per feddan				
Gross return	420 - 580	560 - 800	340 - 420	3000 - 3600	3000 - 4200
Production costs	190 - 230	250 - 300	140 - 160	1500 - 1600	1500 - 1700
Gross margin	230 - 350	310 - 500	200 - 260	1500 - 2000	1500 - 2000

Detailed crop data sheet budgets are given in Annex A.1.

1.8.3. LIVESTOCK SYSTEMS

Livestock production plays an important role in the region economy. Livestock rearing is considered among the most prominent economic activities pursued by almost 80% of the rural population. Livestock owned by the people are sheep, goats, cattle and camels. Donkeys are used for transportation. Accurate statistics of livestock numbers are always difficult to get, in view of the dynamic and constant mobility of pastoral nomads. The present available data are based on villages and households surveys.

The total heads number in the villages concerned by the project is about 160.000 heads. The composition of the herd is 10% cattle, 86 % sheep and goats, and 4% camels. Details by villages are given in table 7 in annexes.

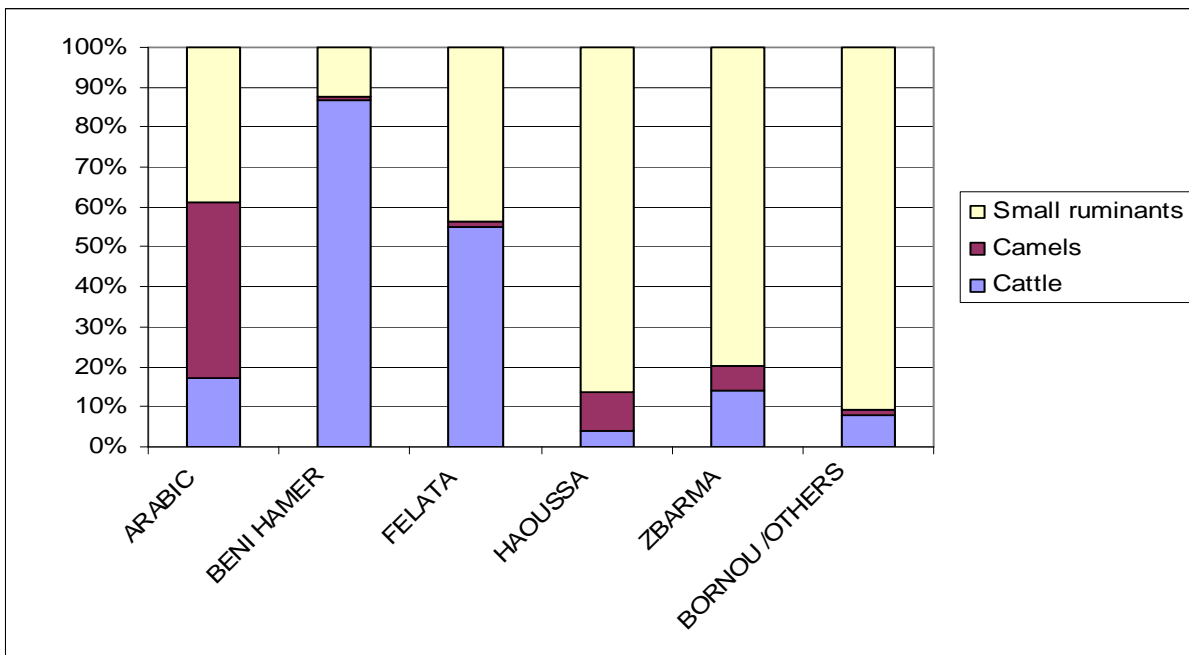
The contribution of cattle, camels and goats and sheep to total DRB (domestic ruminant biomass) has been calculated on the basis of the mean population weight (MPW) of each species. The MPW is the average weight of each animal in the herd or flock and is obtained from weights at specific ages and for different sexes. Although there are obviously some local differences, MPWs have been standardized at 300 kg for camels, 200 kg for cattle, 30 kg for sheep and 18 kg for goats. For all villages, small ruminants give the highest contribution with 45%, camels represent about 30% and cattle only 25%.

Proportional contributions to total livestock are shown for the main ethnic groups in the following table. Differentiations are of considerable importance in these groups:

- camels and small ruminants are predominant in the Arabic group
- cattle is predominant in the pastoralist groups Beni Amer and Felata
- small ruminants contribute for more than 80% in the Haoussa and Zbarma groups;

Tableau n° 25 - SPECIES CONTRIBUTION TO DOMESTIC RUMINANT BIOMASS BY ETHNIC GROUP

Villages	Ethnic groups	Cattle			Camels			Small ruminants		
		nb heads adults	DRB tons		nb heads adults	DRB tons		nb heads adults	DRB tons	
Al Rumeïla-Al Amara Wadazine-AL Muneera Kobur-Soufi Al Bachir-Wad Al Merine-Wad Naim-Teleta ou Teletine (Hillat Al Imam)-Oum Touaguia-Hillat Abdelmahmoud-Al Kreïda-Al Jazeir Ghib-Hashaba Maala-Wad Nager-Al Jazeir Shirq-Ghiriegana--Wad El Hedy-Gaber El Maksour- Tabouassib-Banat Shirq	ARABIC	3734	747	17%	6406	1 922	44%	65 560	1 705	39%
Guiraine-Guerma Guerma (Shaloguy)-Dar Hilla	BENI HAMER	3940	788	87%	25	8	1%	4 250	111	12%
Hillat Ali Khalifa-Wad El Haboub-Al Amara Shirq-Hillat Hachem-Khorshet-Darabi Shirq (Hillat Ali Goroum)-Abu Usher Shirq	FELATA	1770	354	55%	15	9	1%	10 865	282	44%
Karaï-Kazourou-Taïba Sharq-Katurgui-Madashi-Al Bahkar Shirq-Heleiba Shirq-Birguima-Banza-Hawata Gadid-Hillat Hassan-Hillat Gadid-Hillat Zakariya-Berdana-Banza Shirq	HAOUSSA	55	11	4%	22	27	10%	9 076	236	86%
Al Mentik-Wad Gaber-Kona Zbarma-Al Bagbaga	ZBARMA	150	30	14%	10	13	6%	6 600	172	80%
Mashra Al Doum-Tayboune-Guira-Heleiba Ghib - Al Bahkar Ghib - Barnawi - U'sham	BORNOU /OTHERS	386	77	36%	65	20	9%	4 450	116	54%



Generally, livestock in the region move to Butana in the wet season and southwards in the dry season. Biting insects and muddy conditions of the southern areas during the rainy season force livestock to move northwards to utilize grazing in the drier areas which get enriched with water supplies as a result of rains. After the rainy season, grazing and water get scarce and livestock are moved southwards where they find abundant natural grazing and browsing material as well as crop residues. At present dry season feed resources form the major constraint to the number and productivity of livestock in the region. The crop residue market is becoming lucrative in the dry season. In the wet season pressure on feed resources is, therefore, increasing and resulting in serious overgrazing of the most valuable rangeland.

Services directed towards the existing animal population in the region are highly negligible if not completely absent. The pastoral sector is almost out of consideration.

Pastoralists in this north-eastern part of the Sudan face many challenges that resulted in pushing them to marginal areas. The development of mechanized rainfed farming occupied most of the traditional areas used by pastoralists. Under such circumstances, they developed coping strategies to respond to problems in the field of range management, water availability and the health of their animals. These strategies are based on survival and attempt to save their livestock. In such harsh environments with frequent years of droughts, animal loss by death is high. Hence, diversification is an important adaptive strategy. They keep different types of animals such as camels combined with sheep and goats. Another form of adaptation is farming done by some members of the family to produce food and to sell the excess to replenish the lost animals.

Mobility to long distances is also an important adaptive mechanism to overcome shortages of grazing, scarcity of water and to avoid areas infested by insects. There is a trend to keep the type of animals suitable to harsh conditions. For this reason, there is the dominance of camels and small ruminants (sheep and goats) and fewer cattle.

Free grazing of rangelands is the most common feeding system for livestock. During the short wet season grasses grow and mature rapidly producing abundant biomass. The body condition of the grazing animal is at its best during this period, but with the onset of the dry season both quantity and quality of the pasture herbage decline and fail to meet the maintenance requirement of grazing animals.

Crop residues are available from dry land crops. They include cereal straws and stovers (sorghum, millet). The crop residues are a strategic source of feed for livestock during the dry season, with a part grazed in situ and part transported and stored for subsequent use. Weeds as adar (wild sorghum : "Sorghum arundinaceum", taber (*Ipomea cordofana*) and crop residues may also contribute to livestock feed.

Traditionally most farmers keep some kind(s) of livestock; the animals benefit from crop residues, weeds and in a few cases grown fodder crops.

Integration of livestock in mechanized farming schemes has been attempted by some owners through their own initiatives. Livestock graze during the wet season in communal areas then after crop harvest return to the scheme to utilize crop residues, chaff and other materials produced after screening of grains. Most owners have established their own dugouts (Hafir) to provide water during the dry season.

1.8.3.1. CATTLE

The cattle population in the villages is estimated to be 15000 heads adults. Cattle rearing is the main activity of the Beni Amer ethnic group . Cattle comprise more than 85% of all domestic ruminant biomass (DRB) kept by the Beni Amer group, and near 55% for the Felata farmers.

Butana, Kenana and Gash cattle are the dominant livestock species present in the region. They are kept in a mixed crop-livestock production system. Kenana and Butana are indigenous milk breeds, which under improved feeding can yield more than 1500 kg milk per lactation.

The primary reason for keeping cattle is to generate income from the sale of milk and animals, milk for home-consumption or as insurance against financial problems. Free grazing of communal rangelands is the most common feeding system, especially during the short wet season. With the onset of the dry season, the farmers in both areas supplement range grazing with stored hay and farm grown crop residues. Lack of livestock feed is the most important constraint. Diseases (contagious bovine pleura pneumonia, trypanosomosis, theileriosis, foot and mouth disease, diarrhoea, mastitis and brucellosis) are the second most important constraints .

Hereafter qualitative zootechnical characteristics and parameters are given per zootechnical unit⁴⁰ ; they summarize the variability of the systems of breeding of small ruminant on the level of the farms from a technico-economic point of view. The variations of the various quantitative standards correspond to the variability of the interannual climatic conditions (pastoral food and additional complementation in period of dryness), in relation with alternative rates of relative intensification of the systems according to the stockbreeders.

⁴⁰ The zoo-technical unit is defined as a female and its continuation: per example 1 ZU cattle = 1 cow + 0.4 male calve + 0.3 female calve + 0.18 heifer of 1 year + 0.18 heifer of 2 year + 0.18 heifer of 3 year.

Tableau n° 26 - PERFORMANCE OF BUTANA AND KENANA CATTLE UNDER FIELD CONDITIONS⁴¹

Parameters	
Milk yield, Kg	
Beginning of lactation	2.2 - 2.3
Middle of lactation	4.5 - 5
End of lactation	1.6 – 1.8
Lactation length, days	180 - 207
Age at first calving, years	4
Calving interval, months	18 - 21

Tableau n° 27 - INDICATIVE NORMS PER CATTLE ZOOTECHNICAL UNIT

Parameters	
Composition	1.8 - 2.2 heads
Feed requirements	1600 – 1900 FU
Products	
Meat	40 – 60 kg
Milk	400 – 800 kg

1.8.3.2. SHEEP AND GOATS

The number of small ruminants for all the villages is approximately 140.000 heads. The ratio of goats to sheep approaches 1:2 .

Small ruminants are present in all villages, but they constitute at least 80% of livestock in the Haoussa and Zbarma ethnic group.

The majority of goats and sheep are "indigenous" types, Watish for sheep, Nubian and Sudanese desert groups for goats.

The black Nubian goat is a milk breed, large relatively long-legged with pendulous ears; weights of up to 40 kg were recorded; Nubian goats produce milk yield as high as 4 kg/day.

⁴¹ Source : Musa L M-A, Peters K J and Ahmed M-K A 2006: On farm characterization of Butana and Kenana cattle breed production systems in Sudan.

Tableau n° 28 - SMALL RUMINANTS MANAGEMENT SYSTEMS AND ZOOTECHNICAL PARAMETERS

Parameters	Sheep	Goats
First kidding	410 – 430 days	290 - 360 days
Gestation period	147 – 166 days	145 – 160 days
Kidding interval	280 – 400 days	220 – 240 days
Litter size	1.1 – 1.2	1.3 – 1.4
Multiple births percentage	5 - 10	40 – 55 %
Annual reproductive rate	1.0 – 1.6	2.2 – 2.4
Lifetime production	6 -8 kids	8/10 kids
Mortality rate youngs	10 -30 %	15-30%
Mortality rate adults	5 – 10 %	5 – 10 %
Lactation length	120 - 135 days	120 – 150 days

Source : FAO 1991, Small ruminant production and the small ruminant genetic resource in tropical Africa. By Trevor Wilson

Tableau n° 29 - INDICATIVE NORMS PER SMALL RUMINANT ZOOTECHNICAL UNIT

Parameters	Sheep zootechnical unit (SZU)	Goat zootechnical unit (GZU)
Composition	2 à 2.4 heads	1.8 to 2.2 heads
Feed requirements	350 - 420 FU	300 - 350 FU
Rangeland dependence	30-70%	70-95%
Products		
Dressing percentage	45-50% at 32 kg weight	45-50% at 15 kg weight
Milk	0 – 75 kg	150 – 200 kg

1.8.3.2. CAMELS

Camels are all of the Arabian one-humped species. Farmers of the Arabic ethnic group are the only cameleers. They breed Anafi and Bishari camels which are more riding camels than pack camels. The Lahawiyyin tribe is known for its performance in the breeding sector. Their animals are big and therefore attractive for the camel merchants who buy for the trade with Egypt.

Camels are very choosy in what they eat. They appreciate grazing hantut (grasses) and tabar (Ipomea cordofana) and selim and sayal (trees). They eat sorghum. Camels are first used for riding and transportation.

Female camels are used for milk. They have milk every second year yielding 4 to 6 rotl a day during the rainy season. They give birth from 6 to 14 years old. Their pregnancy lasts one year during which time there is no milk.

Tableau n° 30 - CAMELS MANAGEMENT AND ZOOTECHNICAL PARAMETERS

Parameters	
First kidding	4 years
Gestation period	360 - 390 days
Kidding interval	18 -24 months
Litter size	1
Lifetime production	6 -8 kids
Mortality rate youngs	30 -50 %
Mortality rate adults	10 – 50 %
Lactation length	12 – 14 months

Numerous young animals die during the first year. Barren females and old animals are quite frequently slaughtered. Camel meat is not popular outside the nomadic population. A few camels are sold to the slaughter-houses; many are exported to Egypt by the Rashaïda. A young camel, between 3 and 4 years is worth 500 SG, a good male (8-10 years) 2000 SG, a female of 10 years between 1000 and 1500 SG.

The major animal production systems are described here:

Nomadic system : Livestock, mainly camels and sheep, with some goats, are raised entirely on natural rangelands (mainly Butana). Households move with their animals and have no permanent base on which to grow crops. They spend the rainy season in the northern, semi-desert zone and during the dry season, move further south into the savannah. Income is derived from the sale of animals, meat and milk in the form of white cheese.

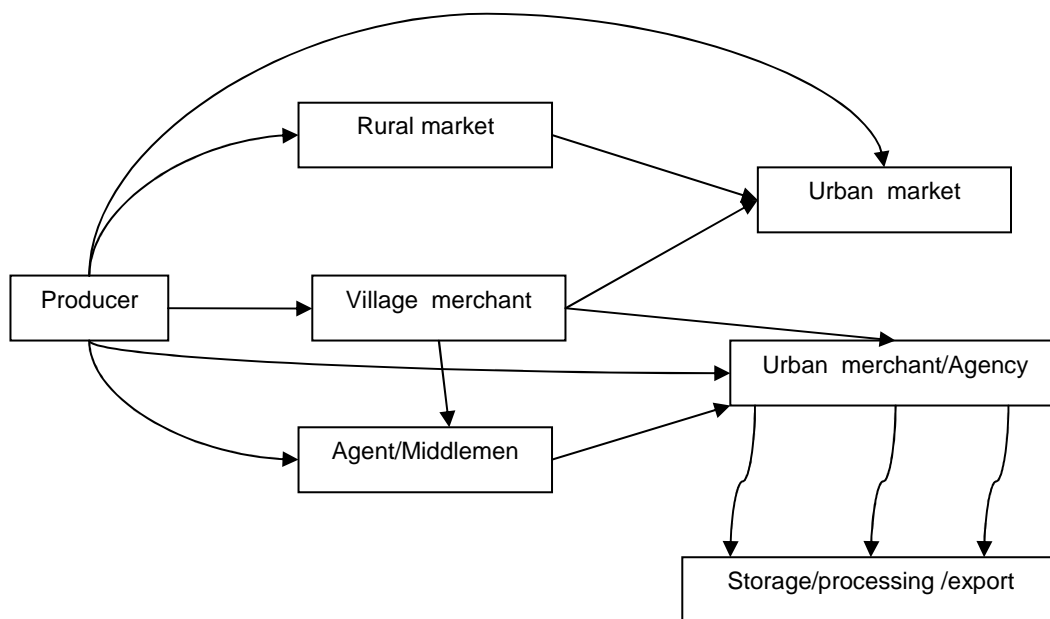
Transhumant system: In the transhumant agropastoral system, households depend mainly on livestock, mostly cattle, with some sheep and goats, although they also have some cropping on permanent base. These herds migrate north during the rainy season and return to the riverine villages during the dry season.

Sedentary system : In the sedentary system , livestock, mainly small ruminants (sheep and goats) are kept in the village during the night. During the day, they graze the areas around the villages. For this, the animals are often collected by a village shepherd, assisted by some children.

1.8.4. MARKETING

Marketing consists of all sales made by farmers of agricultural products (both crops and animals) and all purchases of consumption goods by farm households (food and material goods). In addition, marketing includes the purchase of livestock for investment purposes. Marketing patterns result from the strategies of farmers regarding the timing of the sales of agricultural products (e.g. cash crops, livestock), the timing of the purchases of consumption goods (e.g. foodstuffs like millet and sorghum), and the timing of the purchase of livestock for investment. Marketing is closely related to cropping patterns because farmers are price responsive in selecting the mix of crops they grow. Likewise, market prices heavily influence consumption patterns. For instance, farmers' decisions to purchase sorghum at low prices may result in forgoing the consumption of millet during the dry season.

Main marketing system for cash crops is summarized below:



To obtain a cash income from agriculture, farmers may sell their crops (primarily sesame, and sorghum) to a variety of buyers, including the shopkeeper, the urban crop merchant's agent who buys at rural crop markets, and jobbers and truck-owners who are prepared to haul the purchase immediately to the urban market.

A number of important marketing institutions are involved in marketing including the village-shop, periodic vendors attending weekly markets, the government administered crop market, and the government administered livestock market.

Two kinds of crop marketing systems are prevailing. The most prevalent is the system in which the crop's price is determined in auction, on Gedaref market, after which the farmer's produce is weighed. The government prefers this procedure because the tax rate is precisely assessed. The other kind of system relies on an estimation of the weight and price of the crop in the villages. This procedure results in a lower tax estimation than the weighing and auction system, but it appears to be well suited to small, isolated markets where the extra incentive of reduced taxes encourages crop buyers to visit the market.

A preliminary analysis of crop marketing channels revealed a number of incentives and constraints for the participants. For example, farmers whose production is small or who lack equity are typically unable to hold their crops off the market until the post-harvest rise in price occurs. They have to begin selling their crops immediately after the harvest to pay their consumption bill. Better-off farmers, on the other hand, may be able to reserve their crops several months in anticipation of a rise in prices. Prices collected during the field work are shown in annex.

Concerning livestock products marketing, the Showak market represents one of the main regional center of this economic activity. The location of the market (next to the agricultural production area and to the free pasture range) was a major factor for its rapid development throughout the last years. The landscape around Showak is more favourable and easily accessible compared to the other markets. The Kassala market, for example, is located near the Rashayda (the traders) but is surrounded by the first hills of the Eritrean Mountains and separated from the pastureland by the Setit River. The Showak site is also better located than Gedaref market, surrounded by large mechanized agricultural schemes where the fairly narrow animal corridors lead to the costly watering places (donki, bir). Rashaïda traders are attracted by Lahawiyyin livestock and by the cheaper but also smaller livestock coming from western Sudan and sold by the other tribes. Gradually, these livestock owners and merchants come to

Showak market, attracted by the large herds and by the more direct type of dealing that takes place there.

Showak market is mainly an export trade market. The Arab traders and merchants, particularly the Rashayda, find there a good part of the livestock to be exported or to be used for traditional agriculture. The main commodity sold on the market is the camel, followed by sheep and goats and a few donkeys and cows. The low proportion of camels sold for meat in Showak market (around 3 camels slaughtered per week compared to 15 daily in the Gedaref market slaughtering house).

1.8.5. MAIN FARMING SYSTEMS

Broadly, farming system in the region is dualistic with the combination of mixed large commercial and smallholder rainfed farming systems, across a variety of diverse production patterns with mixed crop-livestock and pastoral systems with low current productivity or potential because of aridity and low inputs application.

Crops, (mainly sorghum and sesame, and millet) and livestock are of comparable importance in this farming system. Rainfed sorghum and pearl millet are the main sources of food and are rarely sold, whereas sesame is always sold.

As a result of the soils consistence, the land preparation must be mechanized. The hard clay soils are tillable only during and immediately following the annual rainy season. The soil is too hard to break by subsistence farmers on any significant scale without mechanized power. Consequently the predominance of sorghum cropping by mechanised cultivation methods is presenting severe problems. Virtual mono-cropping with sorghum causes rapid decline in soil fertility and serious infestation with sorghum-associated weeds, especially striga. The use of the disc harrow as the only tillage implement working the soil to the same shallow depth year after year is producing a hard soil layer. And delaying sowing until late July/early August (a consequence of relying on the secondary tillage operation to destroy germinated weeds, and hence save on the cost of weeding) on vertisols is wasteful of available moisture, forces farmers to use low crop densities, and results in machinery being used under unfavourable conditions. About 425 tractors with disc plough and seeder are available in the villages, i.e. about one tractor for 430 feddans (traditional rainfed area).

The machinery and tools distribution by villages is given in table 8 in annexes

Ethnic groups are often former livestock-keeping peoples who have become sedentary. Livestock are kept for subsistence (milk and milk products), offspring, transportation (camels, donkeys), sale or exchange, savings, and insurance against crop failure. Rather than carts, pack animals or animal-drawn sledges are used to transport crops.

The population lives in villages the whole year round, although part of the herd may continue to migrate seasonally with herd boys.

The production units of the area near the rivers banks are of mixed farming with a relatively high degree of self-sufficiency. In such a unit the production factors are combined to produce food and foodstuffs for home consumption and farm use as well as crop produce, live animals and livestock products for the market.

Food insecurity is basically caused by drought and aggravated by low levels of assets. Upper stratum households are food secure even in most bad years, because they have enough livestock to trade for the grain they lack. Households in the lower stratum are chronically food insecure – in both good and bad years – because they cannot grow enough grain to feed themselves and they have few livestock or other assets to exchange for grain. The middle stratum is grain self-sufficient in good years and in deficit during bad years. They are food secure in aver-

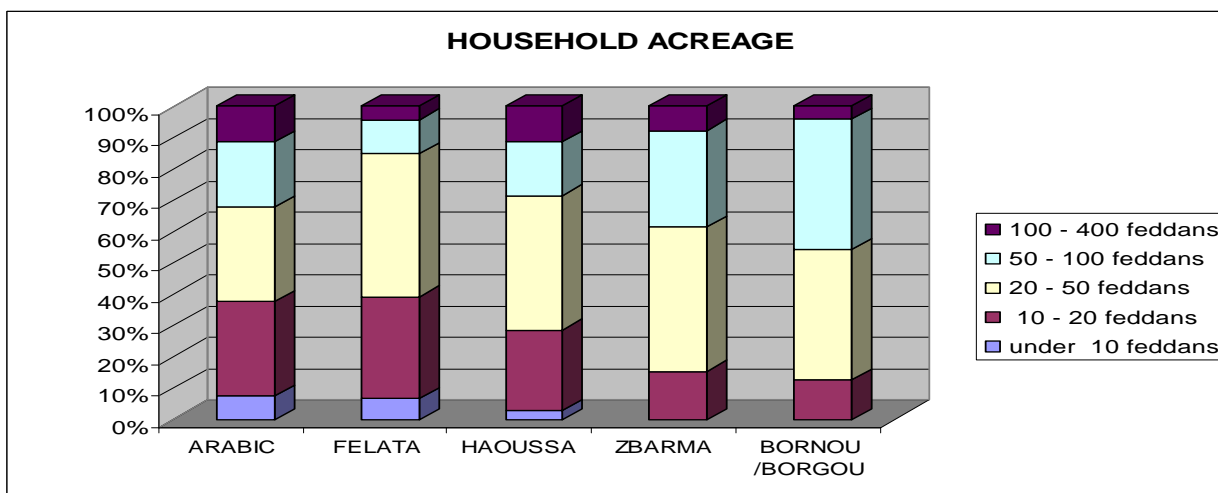
age years because they have some animals to exchange for grain, but in bad years they are highly vulnerable.

1.8.5.1. TRADITIONAL FARMS SIZE

Table n°11 below classifies the households surveyed by cropped areas size and ethnic groups.

Tableau n° 31 - CROPPED AREAS AND ETHNIC GROUPS (TRADITIONAL FARMS)

	ARABIC	FELATA	HAOUSSA	ZBARMA	BORNOU /BORGOU	BENI AMER	ALL
under 10 feddans	8%	7%	3%	0%	0%	25%	6%
10 - 20 feddans	30%	33%	26%	15%	13%	0%	26%
20 - 50 feddans	30%	46%	43%	46%	42%	75%	40%
50 - 100 feddans	21%	11%	17%	31%	42%	0%	21%
100 - 400 feddans	11%	4%	11%	8%	4%	0%	8%
TOTAL OBS.	53	46	35	13	24	4	175



The farm size vary widely both in the ethnic groups and in the villages. More than 70 % of the farms have areas smaller than 50 feddans.

1.8.5.2. TRADITIONAL FARMS INCOME

An attempt has been made to assess the cash incomes derived from farming activities. The results obtained should be considered with reservation because of the large variation of possible yields and prices in rainfed conditions of production. The attempt, however, was considered worth while since the information collected could give an indication of how the family incomes depend on the different farming systems.

Detailed calculations are given in Annex A.3. Table 18 shows the cash incomes derived from various kinds of farms.

Average income per feddan in traditional farm with only rainfed crops are the lowest about 250 to 300 SG per feddan. Farms with livestock generate more profitable incomes:

- about 300 SG per feddan for farms with only small ruminants

- between 300 and 350 SG per feddan for farms with cattle and small ruminants
- about 450 SG per feddan for farms with camels, cattle and small ruminants.

Finally, the vegetables production on irrigated fields makes it possible to increase the incomes. These irrigated lands are however very few (less than 2000 feddans on the whole of the villages concerned).

Tableau n° 32 - GROSS INCOME BY FARMING SYSTEM

Farming system		without livestock	with livestock					With livestock and irrigation
			25	20	35	35	50	
Farm size	feddan	25	25	20	35	35	50	27
Cropping pattern								
Sorghum	feddan	10	10	12	10	20	27.5	10
Sesame		5	5	3	10	5	7.5	5
Millet		10	10	5	15	10	15	10
Tomato								1
Onion								1
Livestock								
Cattle	zootech nical unit			5	2	2	10	
Sheep		8	10	20	15	20	8	
Goats		2	5	5	5	5	2	
Camels						20		
Gross value	SG	12100	13690	15494	22675	21144	44649	20290
On-Farm use	SG		939	4539	3779	3053	11649	939
Production costs	SG	5058	5058	3874	6993	6886	10078	8086
Gross income	SG	7042	7693	7081	11903	11205	22922	11265
per feddan	SG	282	308	354	340	320	458	417
Main ethnic group concerned		All	Haoussa	Beni Amer Arabic, Zbarma, Felata			Arabic	Haoussa, others

Sale of agricultural products has been questioned in the household survey at domestic unit level. On the whole sample of the 185 questionnaires considered the average cash income provided by the sale of agricultural products appears at 4 720 SG per domestic unit. Table 33 below gives the distribution of this financial income per class. We will note that the financial agricultural income is unequally distributed with 72% of the domestic units earning less than 4 000 SG from sale of agricultural products.

Tableau n° 33 - DISTRIBUTION OF AGRICULTURAL CASH INCOME PER CLASS

Class of agricultural cash income (SG)	Percent of domestic units
Less than 2 000	45%
From 2 000 to 4 000	27%
From 4 000 to 10 000	16%
10 0000 and more	12%

To this agricultural (crop) cash income we must add sale of animals that is weighing on the whole for an average of 645 SG per domestic unit with the following distribution per lass (table 35below) In total whole average agricultural cash income including sale of animals would be around 5 365 SG per domestic unit.

Tableau n° 34 - DISTRIBUTION OF INCOME FROM SALE OF ANIMALS

Class of income from sale of animals(SG)	Percent of domestic units
Less than 500	67%
From 500 to 1 000	9%
From 1 000 to 4 000	20%
4 000 and more	4%

According to ethnic groups average cash income coming from sale of animals are as follows (table 36 below)

Table 35 below gives the distribution of the average agricultural cash income per ethnic group. We will note the very higher level of agricultural cash income of the Arab and, on the opposite the low level of Zbarma⁴², Beni Amer would be in second position after before the other West African ethnic groups being roughly at he same level.

Tableau n° 35 - DISTRIBUTION OF AGRICULTURAL CASH INCOME PER DOMESTIC UNIT AND PER ETHNIC GROUP

Ethnic group	Average agricultural cash income (SG)	Average cash income from sale of animals	Total average agricultural cash income
Arab	8 940	970	9 910
Hausa	3 415	250	3 665
Felata	2 835	530	3 365
Zbarma	1 355	300	1 655
Borno	3 150	240	3 390
Borgo	2 635	740	3 375
Beni Amer	2 950	1 840	4 790
Others	2 500	850	3 350

⁴² This finding is apparently in contradiction with the highest housing standard found for this ethnic group (see paragraph 1.2.1.6 before). It could mean perhaps that Zbarma are in a more self-sufficient socio-economic situation and have a less money culture ?

1.9. NON AGRICULTURAL ACTIVITIES AND INCOME

Non agricultural activities and corresponding incomes have been also questioned in the frame of the household survey. Table 36 below gives distribution of domestic units surveyed according to non agricultural activities.

Tableau n° 36 - DISTRIBUTION OF DOMESTIC UNITS ACCORDING TO NO AGRICULTURAL ACTIVITIES

Type of non agricultural activity	Percent of domestic units
Without non agricultural activity	24%
Agricultural wage labor	33%
Trade	21%
Other wage labor	17%
Handicraft service	13%
Domestic handicraft	9%
Other	17%

Correlation analysis between ethnic group and type of non agricultural activity indicates globally that Felata are more engaged in agricultural wage labour and in a less extent Hausa and Borno. Arab are on the other hand noticeably engaged in non agricultural wage labour. Arab, Felata, Hausa and Zbarma seem to be engaged at the same level for trade activity. Zbarma seem on the other hand less engaged neither in wage labour nor in handicraft activity. Hausa are the first group for handicraft activities (domestic and non domestic) and in second position Arab and Felata.

Rough estimate of average yearly incomes per domestic unit according to non agricultural activities is given below :

- Agricultural wage labor : 620 SG
- Trade : 425 SG
- Non agricultural wage labor : 310 SG
- Sale of handicraft : 100 SG
- Handicraft service : 80 SG

1.10. FIRST ELEMENTS OF VILLAGES ATTITUDES TOWARDS THE PROJECT

A light approach of the villages representatives (sheikh and members of People Local Committee) has been made at the end of each village survey. First provisional benchmarks are summarized hereafter.

First of all the level of information of villagers with respect to DCUAP and its possible impacts was questioned. On the whole of the 76 villages surveyed (Wad El Helew not included) 50 villages (66%) declared to be aware of the dam project. Most of them add that there were unofficially informed, do not know about the possible impacts and are waiting for more detailed information. Sources of information mentioned are in rank of order as follows :

- Neighbouring villages and by word of mouth : 46%
- DIU agents and engineers : 20%
- Gedaref State radio : 18%
- Members of Fashaga Locality or of People Local Committees : 10%
- Old information dating from seventies (first project prevision) : 4%.

In term f global opinion vis-à-vis DCUAP villages' distribution can be roughly depicted as follows :

- Global positive opinion : 41 villages (54%)
- Global negative opinion : 30 villages (39%)
- No opinion at this stage : 5 villages (7%).

We must however note that among villages formulating a global positive opinion we could make difference between 40 % of them expressing a strong expectancy of socio-economic benefits linked with the positive pinion, and 60% expressing on the contrary with their positive opinion a certain degree of uncertainty and future interrogation.

If we enter into details of reasons and issues why villages express an a-priori positive opinion we find the following declarations in rank of frequency ::

- 1) The dam project will bring development and will improve socio-economic situation (16 villages) in term of health services, schools, water and electricity supply. But most of hem without précising that they are expecting such an improvement in the existing vil-lages or in the frame of resettled villages.
- 2) The dam project will globally improve life situation in the villages' areas (6 villages).
- 3) DCUAP will bring new possibilities for irrigation development (4 villages).
- 4) DCUAP implementation will bring work and new employments (3 villages).
- 5) DCUAP implementation will be accompanied by development of roads and a bridge (2 villages).

If we consider on the other hand villages expressing a negative opinion justifying and reasons are as follows :

- 1) Global fear of an unknown future (9 villages).
- 2) "Loss of their village and every thing, ruin of their life" (6 villages).
- 3) Fear of loosing their culture, tradition and customs, the land of their grandfather (4 vil-lages)
- 4) Fear of having to face resettlement in unknown new areas (3 villages)
- 5) Other social groups and people (Ethiopian) will get more benefits than them.