

CHAPTER 6

SOCIO- ECONOMIC ENVIRONMENT

Karuma Hydro Power Project, proposed to be constructed nearly 1.5 km upstream of Karuma Bridge across river Nile, falls in Kiryandongo and Oyam Districts of Uganda. Total land required for the project is 465.52 ha out of which 192.75 ha of land is privately owned land which is required to be acquired from locals residing in four villages i.e., Karuma and Awoo villages located in Mutunda Subcounty of Kiryandongo district and Nora and Akuridia villages in Kamdini sub county of Oyam district. As the land of private owner is required to be acquired, information on the socio-economic status of the people living in the vicinity of the project especially in the four villages from where the land will be acquired is necessary. Therefore, socio-economic survey was undertaken in the affected villages using sample size of 149 households for entire population in four villages apart from a comprehensive survey by the Chief Government Valuer of Uganda for developing Resettlement Action Plan (RAP) for the Karuma HPP which is presented separately in volume IV of the present report. Desk study was also taken and the literature that was reviewed included policy documents, district development plans as well as other related literature. Findings of the socio-economic survey and review is discussed and presented in this chapter.

6.1 DISTRICT PROFILE

6.1.1 Oyam District

Oyam district is a district in the Northern Region of Uganda. Like most Ugandan districts, it is named after its 'chief town', Oyam, where the district headquarters are located. the District is bordered by Gulu District to the north, Lira District to the northeast, Apac District to the east and south, Kiryandongo District to the southwest and Nwoya District to the west. The administrative headquarters of the district at Oyam, are located 73 km by road, west of Lira, the largest city in the sub-region.

Oyam District with total land area of 2,207 sq km was established by the Ugandan Parliament in 2006. Prior to that, Oyam District was part of Apac District. Together with Lira District, Amolatar District, Apac District and Dokolo District, Oyam District is part of the larger Langi sub-region, home to an estimated 2.7 million Langi. The district is a predominantly rural district

6.1.2 Kiryandongo District

Kiryandongo district falls in western part of Uganda and is named after the town Kiryandongo which is the main municipal, administrative, commercial center and headquarter of the district. District is located on the main Gulu-Masindi Highway and is bordered by Nwoya District to the

north, Oyam District to the northeast, Apac District to the east, and Masindi District to the south and west. The District was established on 01 July 2010. Prior to that, it was part of Masindi District. The district is part of Bunyoro sub-region, which is coterminous with Bunyoro Kingdom.

6.1.3 Demographic Profile of Districts

Oyam district had a population of 268,415 with the density of 99 persons per sq.km, of which 131,658 were males and 136,757 were females in 2002. The population of Oyam is predominantly rural with 95% percent living in rural areas and is facing high poverty level, high level of illiteracy and low level of income. The population of Kiryandongo District according to the 2002 national census was about 187,700 (**Table 6.1**).

Table 6.1: Total Population of districts Kiryandongo and Oyam

District	Population of the district
Kiryandongo	187,700
Oyam	268,415

Source: 2002 Uganda Population and Housing Census

According to the 2002 population and housing census, average household size in Kiryandongo was 5 persons, while in Oyam it was 4.7 persons.

6.1.4 Ethnography

The predominant ethnic group in Oyam District as discussed above is the Langi ethnic group. The origins of the Langi are somewhat obscure but it is believed that they originated from Abyssinia in Ethiopia. They are considered to be part of the Nilo-Hamites (also known as semi-Hamitic) group which includes the Teso, Kumam, Jie and Karamojong tribes. The Langi, in contrast of their fellows, have adopted the simpler Nilotic tongue. It is believed that their move from further North into the present habitat took place between the years 1800-1890 approximately. Apart from times of wars, when some sort of cohesion was achieved under one or two war leaders, the Langi before the advent of British Administration in 1889, were divided into many small groups or clans each with its own leader, i.e. chieftainship. British Administration of the District dates back to year 1900. Administration in the early days was in the hands of Buganda agents. Other ethnic groups present in district are Acholi, Alur, Chope, Palwo and Lugbara (**Figure 6.1**).

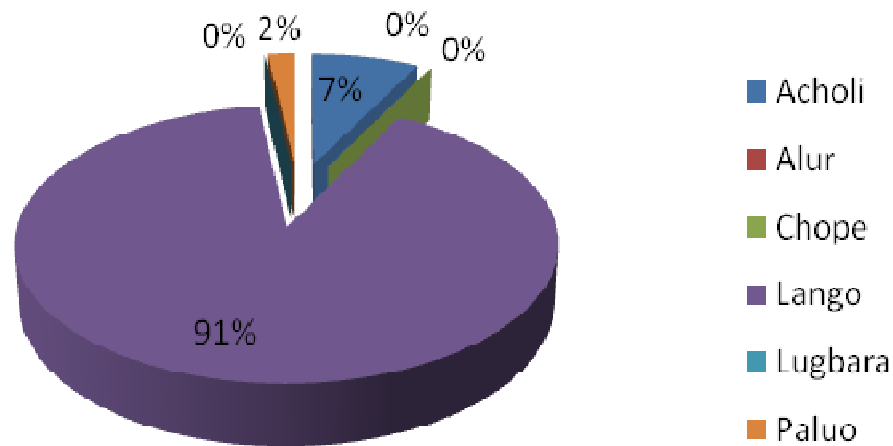


Figure 6.1: Ethnography in Oyam District.

Source: Socio-Economic Survey 2010

The predominant ethnic group in Kiryandongo district is the Acholi ethnic group however they constitute only about 54% of the population. The other ethnic groups are same as found in district Oyam (**Figure 6.2**). In Karuma village also the main ethnic group is Acholi.

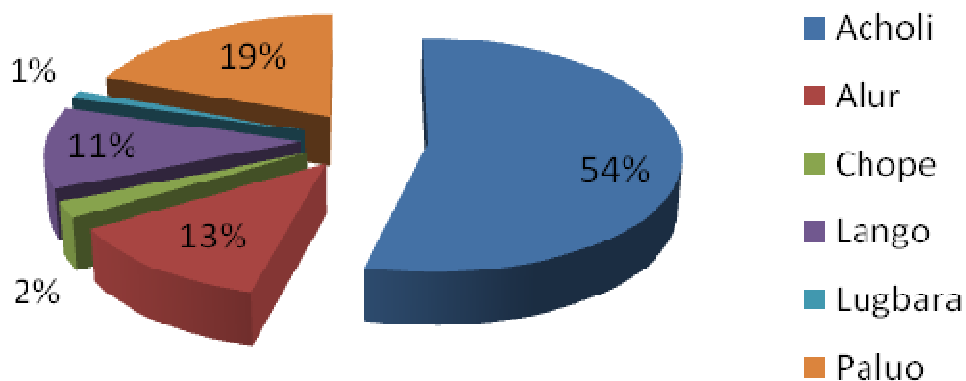


Figure 6.2: Ethnography in Kiryandongo District.

Source: Socio-Economic Survey 2010

6.1.5 Literacy Levels

According to the Population and Housing Census of 2002, the percentage literacy levels of Kiryandongo and Oyam districts were found to be 60% and 68% respectively.

6.1.6 Birth rate and Mortality

At current mortality levels, one in every 13 Ugandan children dies before reaching age of one year, while one in every seven does not survive to the fifth birthday. Mortality is consistently lower in urban areas than in rural areas with rates of 68 and 88 deaths per 1,000 live births, respectively, for infant mortality while 114 and 153 deaths per 1,000 live births for under-five mortality.

In Oyam district and Kiryandongo District Maternal mortality rate is still high at 500 and 402 deaths respectively for every 100,000 birth as compared to the national target of 300. In Oyam district infant mortality rate (per 1000 live birth) is 114 infants while under 5 mortality rate (per 1000 live births) is 191 children.

6.1.7 Occupation

The economy of the area is predominantly agricultural with the majority of the population dependent on subsistence farming and light agro-based industries. Hence most of people earn their livelihoods in the agricultural sector in particular crop farming. Major crops grown in the two districts are Cassava, Maize, G/nuts, Millet, Vegetables & Sun flower.

6.1.8 Gender Issues

In Kiryandongo district, gender issues continue to be of great concern at household level as well as at institutional level. Across the sectors and institutions, gender gap has continued to exist and main gaps between the girl child and women can be sighted in unequal participation in development programmes, low levels of literacy, disparities in employment, high dropout rates, limited ownership, access and control of resources especially land. This implies that women are exploited and lag behind in development.

In Oyam district there is also poor participation of women in technology development and decision making, limited share benefits accruing from the sale of crop products and unequal division of labor in agricultural activities. Traditional culture amongst the farming communities in the district with high illiteracy levels constraints women farmer's ability to access and utilize advantage services; women productivity is also severely constrained by the fragmentation of their time and responsibilities and lack of access to essential inputs including knowledge.

6.1.9 Health Profile

According to the 2002 Population and Housing Census, 81.5% of dwelling units in Kiryandongo and 94.9% in Oyam were found to be in temporary condition. This means that most households are ranked as poor and vulnerable to health risks.

6.1.9.1 Health facilities

In Oyam, there are 24 functional health units of different grades as indicated below in **Table 6.2**. The exact condition of health facilities available in Kiryandongo district as in present scenario is not available.

Table 6.2: Overview of Govt and Private Health facilities in Oyam June 2007

Type	Government	Private	Total
Hospital	0	1	1
Health centre IV	1	0	1
Health centre III	3	2	5
Health centre II	17	0	17
Total	21	3	24

District Health Management Information System (HMIS) data 2007/08

6.1.9.2 Health and Disease

Access to health service remains low in Kiryandongo. The District is yet to achieve the government target of a Health center in every Parish. The existing facilities need extra improvement. There are many health-related problems in the District which are attributed to the inadequate health services and these include malaria, STIs, cholera epidemic among others.

A high prevalence of infectious and communicable diseases and Malnutrition among the general population especially in children under 5 contributes to the heavy burden of disease. **Table 6.3** below gives a view of the major diseases prevalent in the District.

Table 6.3: Major diseases prevalent in Kiryandongo District

Cases	Total No.	Percentage
1. Malaria	93,886	35%
2. Non Pneumonia Cold/cough	64,950	24%
3. Intestinal Worms	14,992	5.6%
4. Skin infection	10,032	3.7%
5. Oral conditions	9,191	3.4%
6. Diarrhoeal Diseases	7,696	2.9%
7. Trauma	6,129	2.3%

Cases	Total No.	Percentage
8. STIs	5,666	2.1%
9. Eye conditions	5,156	1.9%
10. Gastro Intestinal disorders	4,251	1.6%

Source: District HMIS data 2007/08

Apart from the heavy burden of preventable diseases, Oyam District is also simultaneously experiencing marked upsurge in the occurrence of non-communicable disease e.g. mental illnesses (trauma). Malaria remains the predominant disease in the District as shown in the **Table 6.4**.

Table 6.4: Burden of Diseases versus Health Expenditure in Oyam District

No.	Diseases	% of total life yrs lost	Rank of burden of diseases (BOD)	% total BOD	Rank spending
1	Malaria	28.3	1	29.2	1
2	Malnutrition	17.3	2	14.2	10
3	Intestinal worm	14.9	3	14.1	4
4	Skin diseases	11.3	4	16.6	7
5	Diarrhoeal diseases	8.3	5	1.3	3
6	Pneumonia	5.6	6	2.4	6
7	STI/HIV/AIDS	5.1	7	5.1	2
8	Eye infection	2.9	8	1.9	9
9	Tuberculosis	2.8	9	1.2	5
10	Dental/ oral diseases	1.9	10	8.5	9

(HMIS June 2007, Report)

6.1.9.3 HIV/AIDS

Like any other districts in Uganda HIV/AIDS is a development challenge in the Kiryandongo and Oyam District. It has evolved from a health burden to a serious development crisis with visible social and economic effects on the entire community. Mainly it has affected the Youth aged between 15-35 years. However the highly most affected population are the Youth aged between 15-24 years. Socio-economic factors such as poverty, migrant labour, the low status of women including over dependency on men, illiteracy, and lack of formal education, discrimination and substance abuse especially alcoholism also have a big bearing to HIV infection.

6.1.9.4 Access to Safe Drinking Water

In Oyam, the safe water coverage stands at 59% of the population and the potential for protection of more sources is high and only requires funding. Maintenance of most of the sources is poor because the users are not meeting their obligations. In Kiryandongo, the total population with access to safe drinking water is estimated to be 57.8 %. In more detail, the specific water sources are shown in the **Table 6.5** as below.

Table 6.5: Percentage of Total Population with Access to Different Water Sources

Sub County	Percentage of Population				
	Piped Water	Borehole	Protected Well	Gravity Flow	Others
Oyam	0.7%	29.7%	23.2%	1.6%	0.5%
Kiryandongo	2.8%	34.1%	24.3%	2.7%	36.1%

Source: 2002 Uganda Population and Housing Census

6.2 SOCIO- ECONOMIC PROFILE OF PROJECT AFFECTED VILLAGES

For assessing the socio-economic status of the population of project affected villages, randomly 149 households were selected for interview. The comprehensive questionnaire is placed as **Annexure 3.1**; the salient findings based on the full data are discussed subsequently.

6.2.1 Demographic Profile of Affected Villages

According to the socio-economic survey, the average household size is 4 persons per household which is slightly lower than the national average of 5.2 estimated in the Uganda National Household Survey of 2005/06. Although there are maximum of 15 to 20 household members in some households however these are regarded as extreme to the average. Average Household Size among 149 household studied is presented below in **Figure 6.3**.

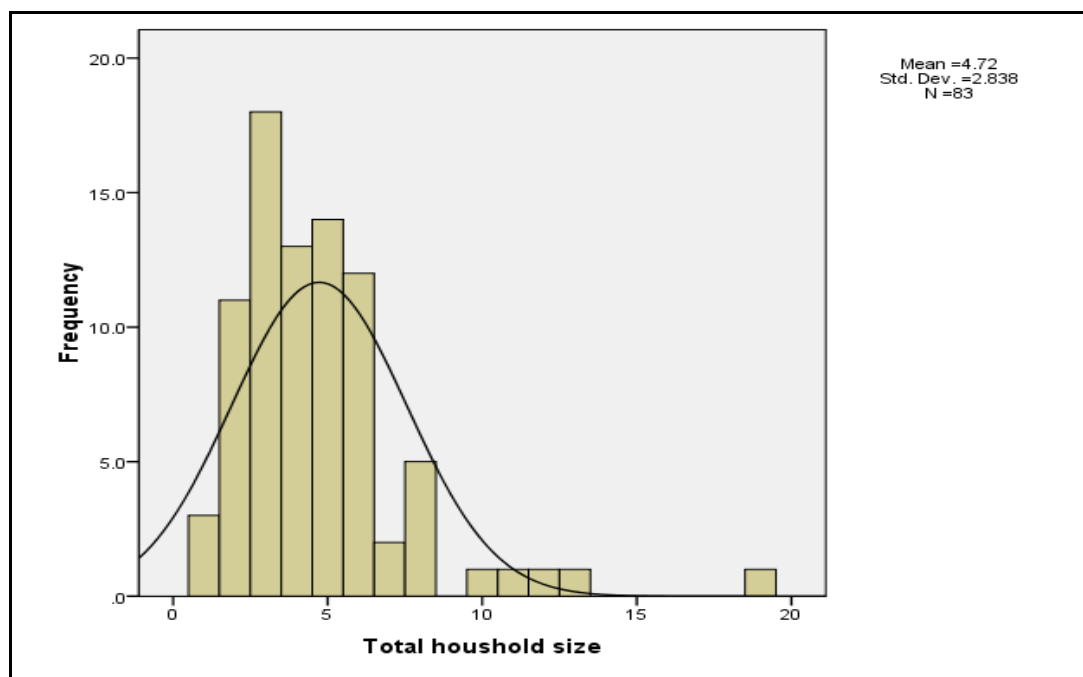


Figure 6.3: Average Household Size in Project Affected Villages of Karuma HPP

6.2.2 Marital Status

Out of the 149 respondents interviewed, nearly 55% were married. Marital status of the population size interviewed is presented below in **Figure 6.4**.

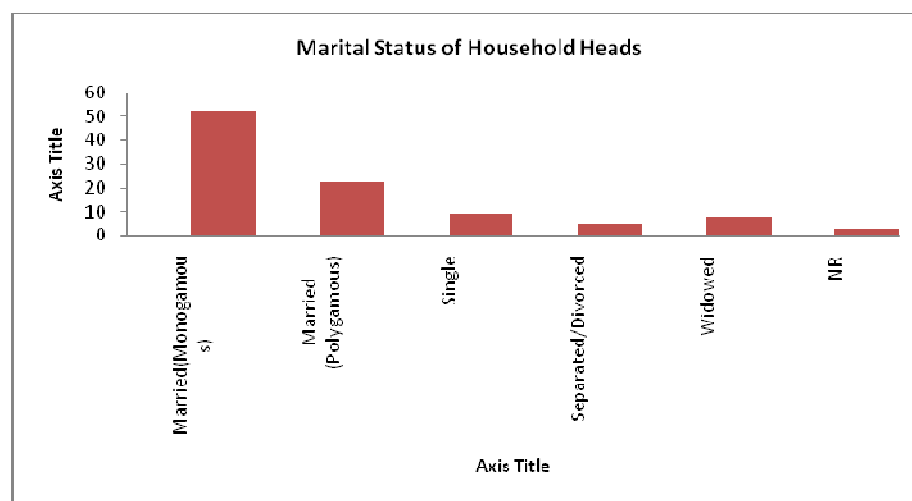


Figure 6.4: Marital Status of Household Heads in villages of Karuma HPP

6.2.3 Literacy Levels

Findings of the socio-economic survey revealed that over 21% of the respondents have no formal education, 16% have attained lower primary education, 40% have attained upper primary education while 17% have attained O - Level Education. **Figure 6.5** gives an impression of the levels of

educational attainment in the project affected household of the two districts. A comparative analysis between the two districts suggests that levels of educational attainment are lower in Oyam district than in Kiryandongo, however, the high levels in Kiryandongo could be reflective of the people within the Karuma area which is less rural than villages within Oyam district.

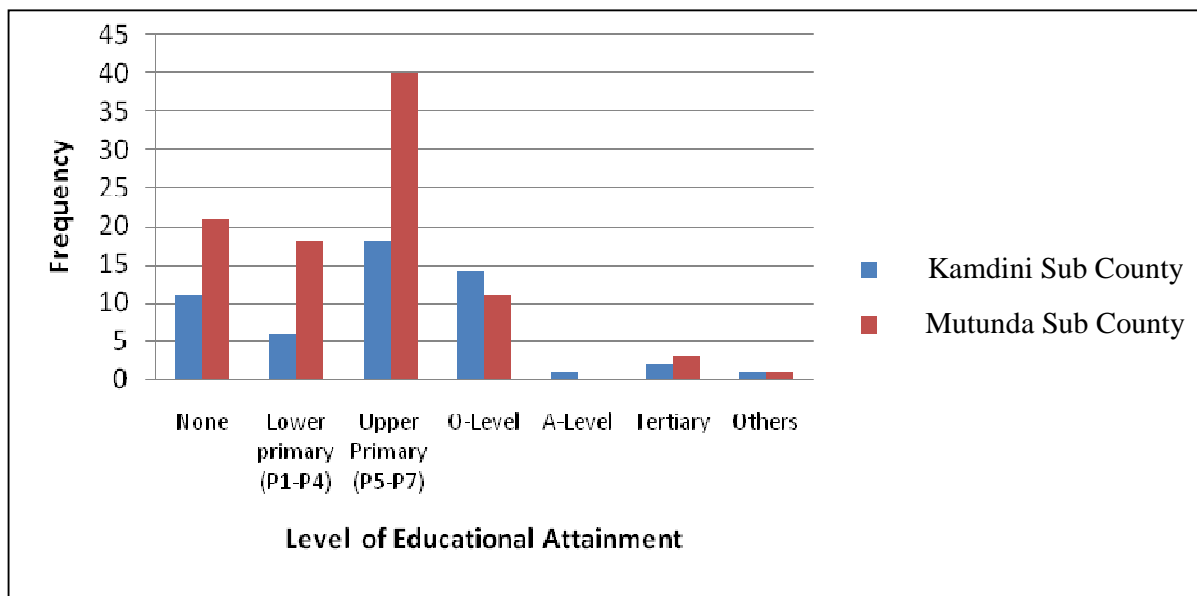


Figure 6.5: Literacy level among Project Affected Villages of Karuma HPP in Kamdini and Mutunda Sub County

6.2.4 Occupations

Within the project area and its surrounding, agricultural production is key to survival of community members. In Mutunda Sub County which is home to Karuma and Awoo villages 98% of total crop farmers use traditional methods of farming including use of local seed and hoes. They can hardly improve food security because they cannot afford improved seeds, fertilisers, tractors, ox-ploughs and other agro-inputs. The findings of socio economic survey suggest that out of the 149 respondents, 73.8% use their land for crop farming.

6.2.4.1 Labor and Employment

As per socio-economic survey 77% of the households interviewed were engaged in subsistence agriculture (**Figure 6.6**), meaning that over reliance on agro-based sector which is the least in terms of economic returns. This is the main reason why there is mass poverty in the affected areas. Benefits from non farm income generating activities can help boost the production and productivity of a household, however due to low levels of education attainment, this is not possible.

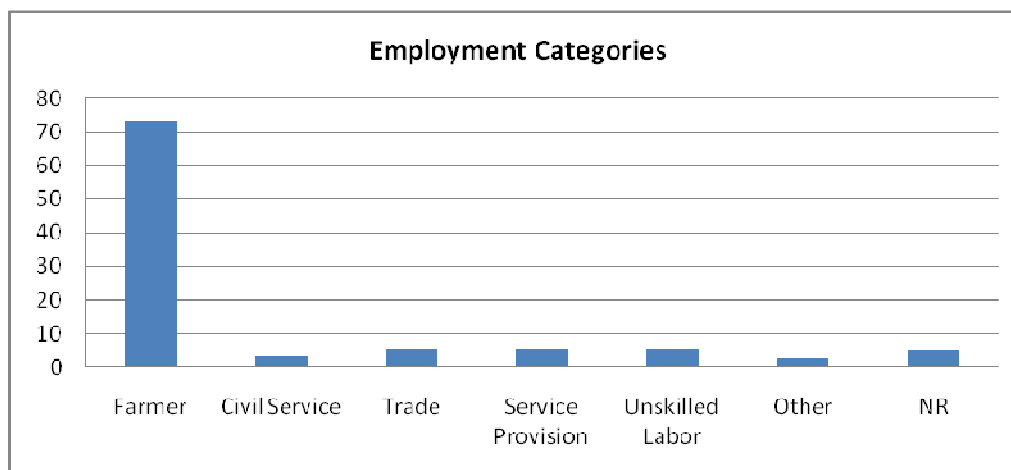


Figure 6.6: Employment categories of household members in the Project Affected Villages of Karuma HPP

The major crop that is grown is maize which is considered as a cashcrop (**Figure 6.7**). The other crops that are grown Foodcrops, casava, Beans, Tobacco, Sim Sim, Ground Nuts and Cotoon.

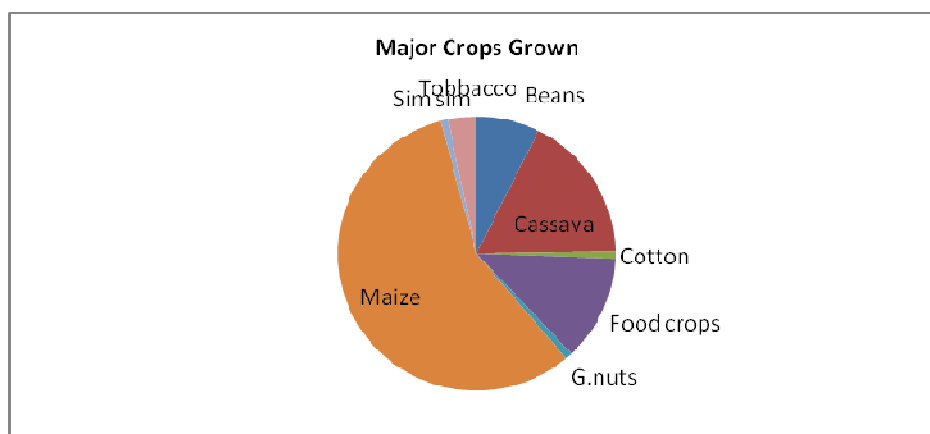


Figure 6.7: Major crops grown at household level in the Project Affected Villages of Karuma HPP

6.2.4.2 Livestock

During the socio-economic survey, respondents were asked whether they were engaged in livestock farming and results suggest that most of the households have small ruminants with 55% of the population saying they have goats followed by poultry (20%). The findings (**Figure 6.8**) suggest that most have adopted alternative approaches to achieve food security.

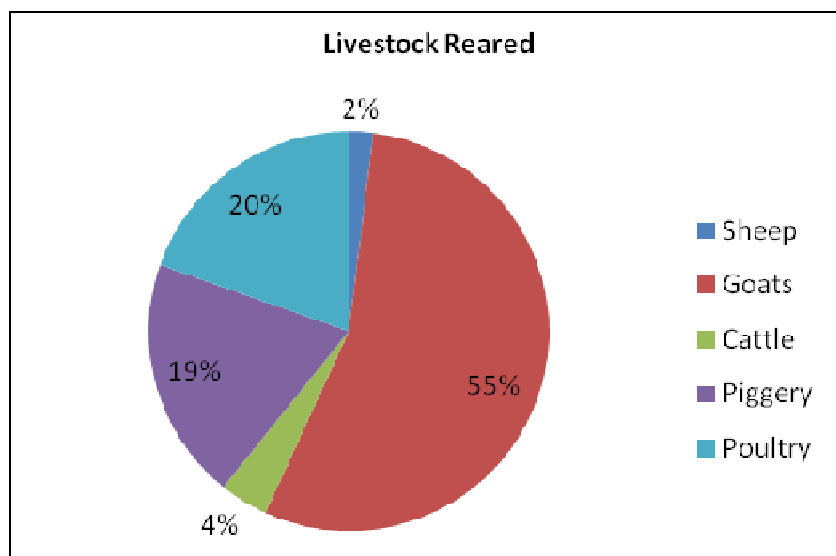


Figure 6.8: Livestock reared in the Project Affected villages of Karuma HPP

6.2.5 Housing and Health Profile

In terms of health and housing conditions, most of the dwellings are temporary in nature (**Figure 6.9**) giving an indication of poverty and associated health related constraints attached to housing infrastructure. The type of material used for the floor may be viewed as an indicator of the quality of housing (a wealth dimension) as well as an indicator for vulnerability to health risk. Some floor materials like earth, sand, and cow dung pose a health problem since they can act as breeding grounds for pests and may be a source of dust. A typical house in the project affected village is shown in **Figure 6.10**.

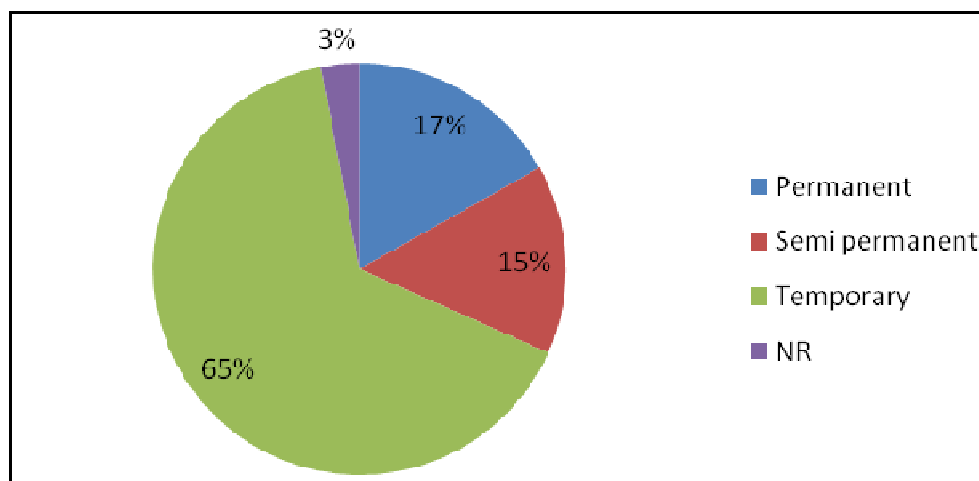


Figure 6.9: Housing Characteristics of Project Affected Villages in the Karuma HPP



Figure 6.10: Typical housing characteristics in Project Affected Villages of Karuma HPP

According to the socio-economic survey, 88.6% families had a member of their household who had fallen sick in the last 12 months. According to the community, poor health is one of the effect of poverty.

6.2.6 Land Holdings

Although most of the people living in the area are former Internally Displaced Persons (IDP) and are those who can buy land have been able to buy land. Accordingly over 60% of household interviewed own land however, most are under the customary arrangement (**Figure 6.11**). This means that most of locals have user rights but cannot sell or use it for collateral. The women and children are the most vulnerable.

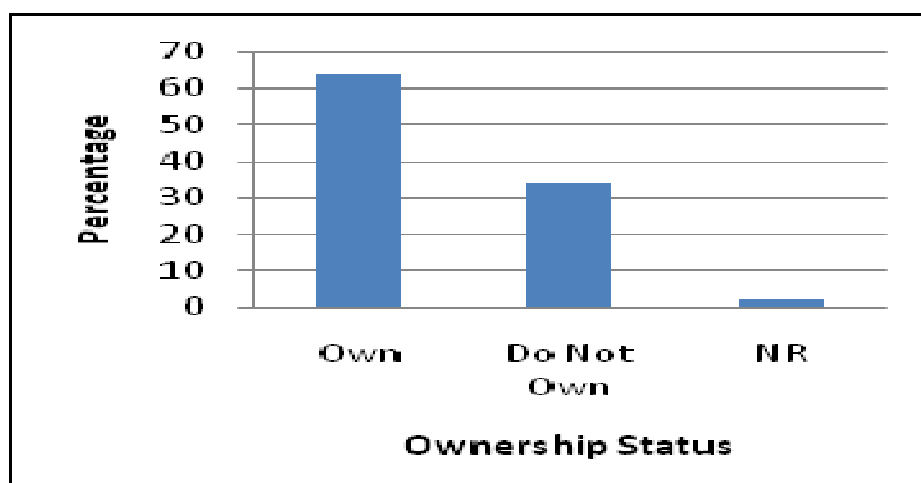


Figure 6.11: Ownership of land in Project Affected Villages of Karuma HPP

6.2.6.1 Land Holdings Size

Out of the 149 households interviewed 31% of them had less than one acre of land (**Figure 6.12**) which means that these community members are chronically poor in terms of space, temporal and magnitude dimensions.

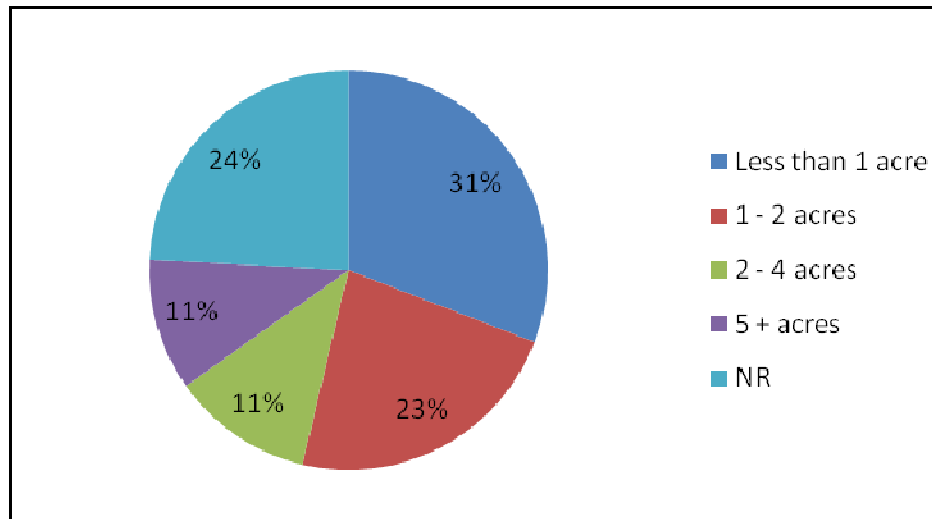


Figure 6.12: Percentage distribution of landholding size in the Project Affected Villages of Karuma HPP

In order to assess whether community members had alternative piece of land which they can utilize in times of need, it is recorded that 53% of the respondents said they had pieces of land elsewhere while 41.6% said they did not have land elsewhere, 11.4% did not respond to this question.

6.2.7 Fishing

Although as a way of regulating the fishing activities that were already taking place within the section falling under UWA, authority has signed a MoU with local community for accessing the Nile River for fishing under the Karuma Permit Fishing Area. Also as a part of the agreement between UWA and local communities, the UWA board has provide a exclusive fishing rights along a 14 mile stretch in Chobe area (seven on either side of Chobe Lodge). However, stakeholder discussions findings from the socio-economic revealed that only a minority group of people are engaged in fishing and that returns to income are not as significant as other activities like crop husbandry.

6.2.8 Trading centres

Most of the people in the Northern Region that have been experiencing war for the last twenty years or so, have not been engaged in economic activities. In the project area, there are a number of tourism activities especially around Chobe Lodge and Karuma Trading Centre which is the main trading point and Chobe Lodge has signed a 30 year agreement with Government to run up-market tourism activities within the Murchison Falls Protected Area. The agreement was entered into on the 27th January 1996.

Karuma town acts as a transit route for vehicles traveling to Southern Sudan with goods. With the implementation of the Peace Recovery and Development Plan for Northern Uganda, a lot of economic activities are emerging as households open up farm land that was previously left idle (**Figure 6.13a**). There are also a number of restaurants and bars (**Figure 6.13b**) which community members are engaged in, though on a small scale basis.



Figure 6.13: Emerging Economic activities in open farm land which was previously left idle

6.2.9 Water use/sources

Results of the socio-economic survey suggests that most of the water is used for domestic purposes and mainly public boreholes are used as a water resource. However some households are also dependent on the natural springs or well for water. **Figure 6.14** shows the proportion that is required to travel distance to assessing resource in the Project Affected Villages.

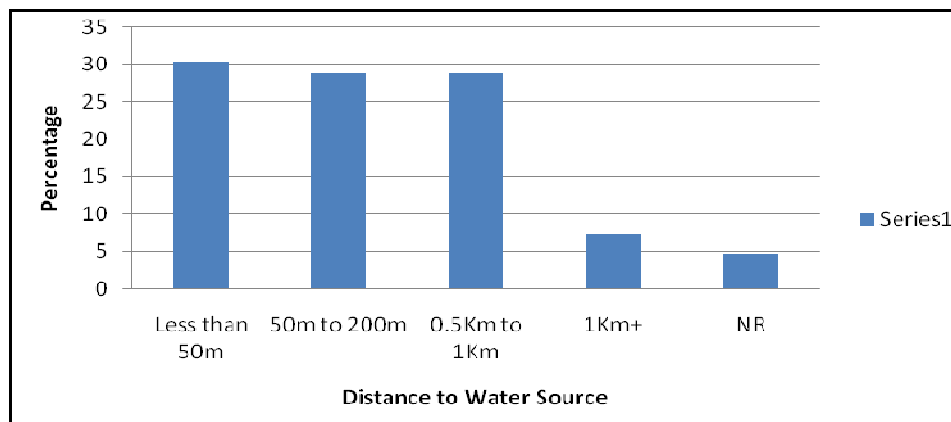


Figure 6.14: Distance of water source for domestic uses in the project affected villages of Karuma HPP

6.2.10 Energy sources

According to the socio-economic survey, 97.8 % of the 149 households interviewed use firewood for cooking and only 1.3% use charcoal. Furthermore, of the 149 respondents, 83% of them use Kerosene for lighting purposes. UWA has signed a MoUs with the communities around the KWR which has provided a right to locals for accessing the conservation area for fire wood collection.

6.2.11 Local Elders Committee

One important structure in the affected area is the Local Councils and Elders' Committee (LEC) that was established in the year 1998 at the time when NORPAK Power Limited was carrying out studies for the then proposed development of Karuma Hydro Power Project. This structure was set up as a link between the Project developers and the local community with the overall aim of increasing opportunities for community participation in the project activities.

The main role of the LEC Committee in the project area was to mobilize and sensitize the villages about the project, and provide translation services in order to ensure that community members participate in the project.

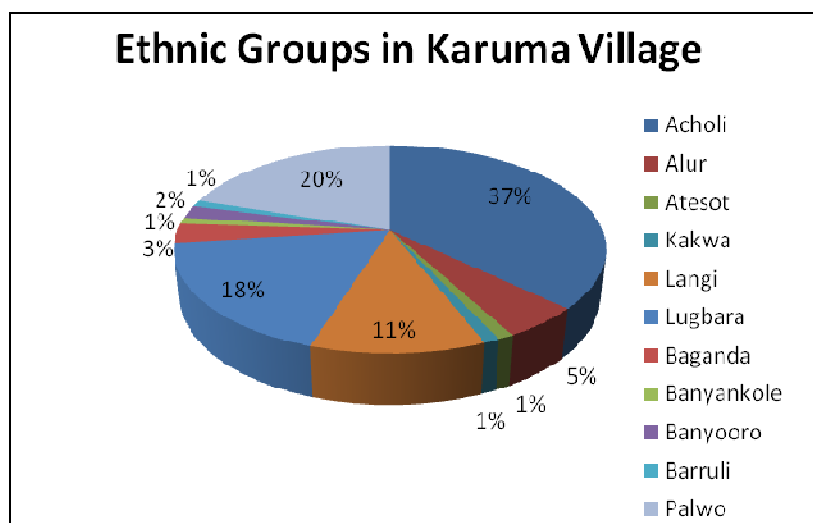
6.3 CULTURAL PROFILE AND ARCHAEOLOGY OF PROJECT AFFECTED VILLAGES

6.3.1 Ethnography

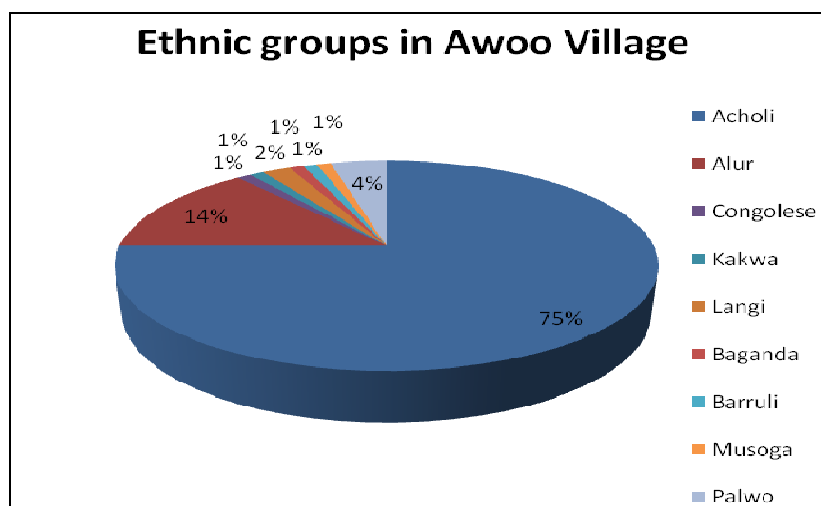
The project area is situated in two districts: Kiryandongo and Oyam. The former is found on the southern bank of the river while the later is found at the northern. The indigenous peoples of these two areas are the Palwo and Langi respectively. However due to an influx of population into this area caused by the insurgency, the ethnography in Acholi and Lango sub regions and nearly all the

major tribes at Uganda are found here now of all the tribes residing in the area there is a higher proportion of a person from the Acholi ethnic group.

Figure 6.15 a, b below summarizes by proportion, the village wise ethnic composition Karuma and Awoo Villages of the Project affected. Considering that the indigenous peoples of these two areas are the Palwo and Langi however the proportion of the ethnic composition in the proposed project area Villages evidently attests to the high proportion of migrant populations.



(a)



(b)

Figure 6.15 (a, b): Ethnic composition of the Project Affected Villages in Karuma HPP

6.3.2 Cultural activities

Traditionally, the Palwo tribesmen who settled in this area were proud hunters and celebrated fishermen. Hunting and fishing was a major source of livelihood. They practiced hunting as an art, made remarkable animal snaring tools and techniques only peculiar to them aided by divine spiritual intervention. They also practiced farming and hand craft activities to a lesser extent. However, the traditional activity of hunting has since dwindled, if not completely faded, following government policy that outlawed poaching around the wildlife reserve. There is also some commerce done at Karuma trading center near the road before the bridge and persons around the area have also resorted to cultivation has mainly growing cassava, maize beans and vegetables for their subsistence.

The communities at the northern bank traditionally practice some cultivation, fishing and pottery along the river bank. On the spiritual cultural front, they had traditional practices that included purification rituals known as Kayo Chogo, and Lamo two.

6.3.3 Cultural values and sites

The cultural heritage in the project area is predominantly that of the Luo ethnic people. The Palwo is a cluster of the Luo ethnicity and is the tribe that settled in the area around 1856 when the Luo ancestors conquered the Chwezi and settled in the area. The Palwo have three outstanding clans (kaka) that is, Pa wi, Awora, Pajab. The three major clans are further subdivided into over 49 other clans.

Traditionally the Palwo were spiritual people and had a great attachment to the river, most communities that settled along the river had particular spots at the river bank that were sacred sites where certain rituals were carried out. The river was and still is so important to the locals since it was the prime source of water for domestic use and fish to supplement their food diet. The cultural rituals included ousting evil spirits, thanks giving and attainment of blessings.

In the past all the clan had shrines referred to as Abila. However spiritual spots along the river is the Manana shrine mapped at elevation of 3505 ft, N 02° 14' 69.8"; E 32° 15' 11.2". The site is characterized by natural features of trees and rocks by the river bank, used by the Manana clan for rain making, spiritual healing and other ritual activities. The other is Pajira located at elevation 3364ft, N 02° 15' 19.6", E 32° 15' 61.7". Then there is another site at the Musurubene at elevation of 3352ft, N 02° 15' 15.8" E 32° 15' 61.3". There is also a site south of the Musurebene known as the Pataka site. At Awoo village Obel Quirino a traditional practioner testified that the Acholi have cultural attachment to rivers and have own shrines in their homes where they conduct their rituals.

On the northern bank in the village of Nora, cultural valued sites were identified to be around the river banks. One of the sites was identified by an elder Mr. Mzee. The other valued spot of cultural significance in the northern bank is known as Buru Lobo. This is a clay mining spot which is evidence of the traditional activity of pottery. These cultural sites bare a historical potent and have

been held with high regard in the traditional setting of the community, the activities carried out in these sites have been passed on to the existing generation by their predecessors. As to the traditional practices, most of them have since faded owing to the massive religious evangelization in the area.



Figure 6.16: Manana site and the caretaker

6.3.4 Burial sites

According to the Local Council Chairman of Karuma villages Mr. Opio Severino, who also doubles as a member of LEC, almost every homestead has grave. In Karuma trading center, there is a cemetery located next to the Catholic Church mapped at N 02°13' 59.8", E 32°14' 53.2". Other burial sites were located at the homestead of Veronica at N 02° 14' 16.7", E 32° 15' 02.7". Another was at N 02° 14' 24.5", E 32° 15' 00.4" at the home of Mr. Okello Rogers. During a meeting with the community in Awoo village, it was noted that there existed graves specifically at the home of Mr. Francis Opio.



Figure 6.17: Burial point at N:02°14'14.7", E:32°15'00.2", next is Veronica at N 02° 14' 16.7", E 32° 15' 02.7"

6.3.5 Archaeology of the Project area

Over 12km of land is covered by the project plan that is 3km from the river to Karuma trading centre and over 9 km in the Karuma Wildlife Reserve. Three test pits were dug in the dam area and seven test pits in the MFNP area (**Figure 6.18**). The test pits measured 1x1m and 50cm deep. The first test pit in the dam area was located at coordinates elevation 3466 ft, N 02°14'84.6",E 32°15'67.8". The pit of 1x1m had a high yield of pot shads amounting to 57 pieces (**Figure 6.19**).



Figure 6.18: Trench analysis and backfilling at Test Pit 1 in Project affected Village of Karuma HPP



Figure 6.19: Findings from Test Pit 1 in Project Affected Village of Karuma HPP

The second pit was located at elevation 3527ft, N 02° 14'59.6" and E 32° 15'45.1". This pit had a low yield of pot shad but plenty of gravel and small pebbles (stones). The third test pit was at elevation 3439 ft, N 02° 14'40.3", E 32°15'00.7". This pit was not productive in terms of archaeological finds as it had neither shads nor worked stones but soils. The fourth test was dug very close to the road in the KWR at elevation of 1047m, N 02°14'11.3", E 32°14'43.4". The pit was characterized by dark humid soil at the top and reddish clay at the lower part of the pit. Apart from recent materials like plastic pages and bottle tops we recovered a few roulette shads at the upper context was covered.

More test pits were sank at N: 02°14'01.5", E: 32°14'22.2", N: 02°13'54.3", E: 32°14'06.7", N: 02°13'48.5", E: 32°13'52.9" and N: 02°13'38.3", E: 32°13'29.5". Most of the finds from the excavations belonged to the late Iron Age period.

Archaeological features of pottery were also found at GPS coordinates N: 02°14'698'', E: 32° 15' 112'', elevation 3505 ft. from the Manana shrine. Pottery site in the school compound of Karuma Primary School was mapped at GPS: elevation: 1053m, N: 02°14'07.5", E: 32°14'57.5". The site was characterized by roulette pottery scatters exposed in the middle of the school compound without grass cover. Another archaeological site was recorded at GPS; N: 02°13'57.7", E: 32°14'13.1". This site was characterized by pottery and a possible tuyere. The team also recorded a fairly significant site at the position; N: 02°14'09.2", E: 32°14'40.3" which was characterized by pottery, smoking pipe pieces. About 14 pieces of pottery was recovered in about 2m radius coming from the ground **(Figure 6.20)**.



Figure 6.20: Findings from the Test Pit at N: 02°14'09.2", E: 032°14'40.3"

6.3.5.1 Significance

The evidence of time and the contributions of all periods should be respected in conservation. The material of a particular period may be obscured or removed if assessment shows that this would not diminish the cultural heritage value of the place. In these circumstances such material should be documented before it is obscured or removed. The roulette pottery types belong to the later Iron Age period and very much still in use in most parts of the area and the country at large, however not much information could be analyzed since they were not in situ. The results of nine test pits in the area at different coordinates yielded only a few pottery shards in very few numbers, apart from the first test pit with about 57 shards. The later Iron Age pottery type dominated most of the recovered find. This means that, archaeological significance of most of the sites is low as the local people still make the above pottery type.

However, it is important to note that, two sites are very useful and significant and need to be investigated further to provide usable information about the Palwo people. Site one which had a very high pottery concentration and the site at coordinate; N: 02°14'09.2, E: 032°14'40.3" which yielded a wide range of archaeological material should be subjected to further investigation to try and recover more data.

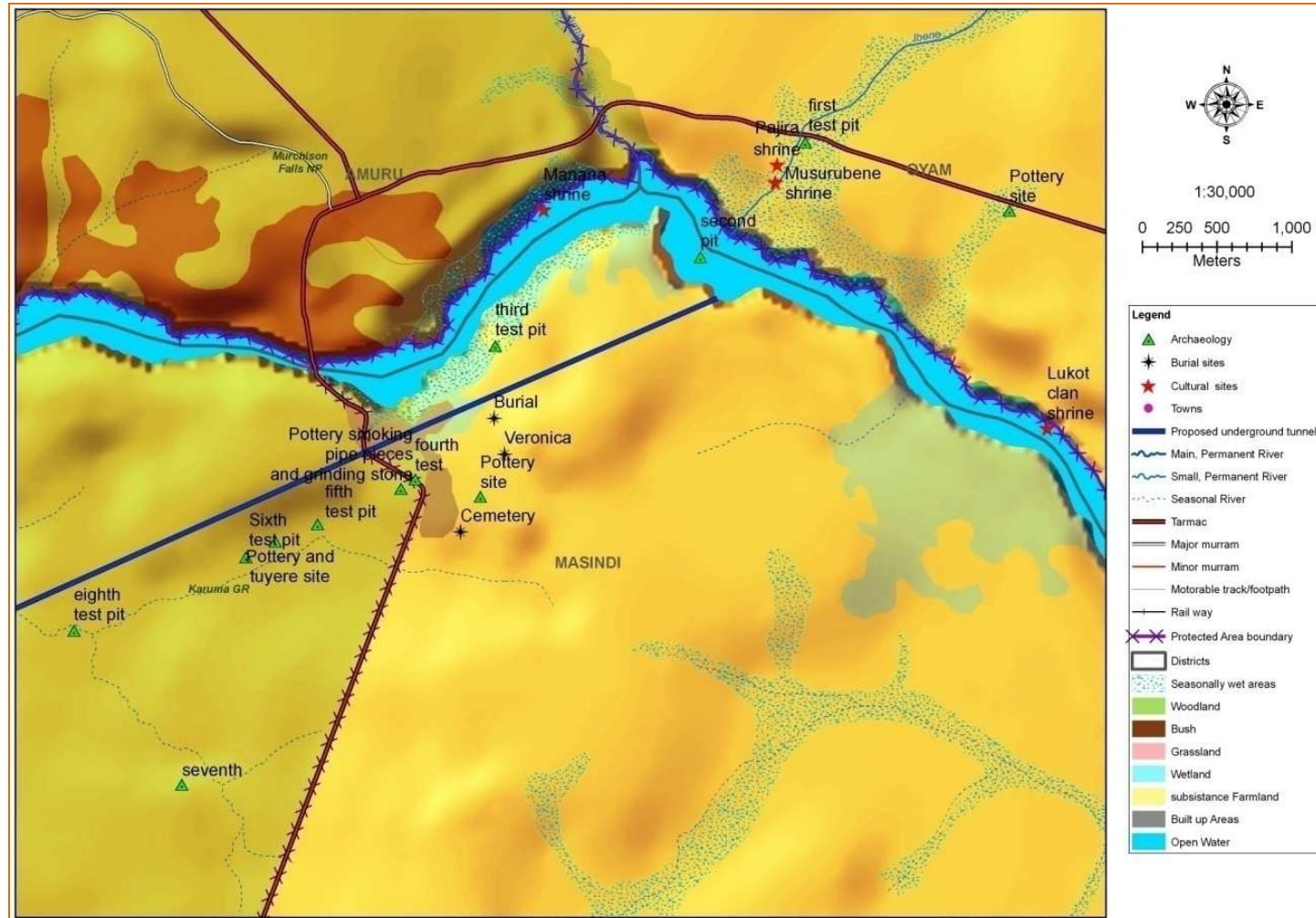


Figure 6.21: Map depicting sampling sites for Archaeological Sampling

6.3.6 Tourism

Karuma Hydro Power project falls within Karuma Wildlife Reserve and in vicinity of Murchison Falls National Park and includes landscapes that are of tourist and cultural value. On the whole, Murchison Falls Protected Area where the Karuma Wildlife Reserve falls is endowed with unique and special features and attributes of local, national and international significance. Notable are Murchison Falls on the River Nile which is an icon of national and exhilarating visitor experience. Murchison Falls Protected Area has a rich cultural heritage manifested by historical stone-age settlements along the Nile and is significant for domestic education and recreation function particularly benefiting school children, university students and wildlife club members. According the Murchison General Management Plan, the protected area has been divided into zones which prescribe priority uses to which various geographical areas of the protected area should be put. The *Falls Zone* is proposed for inscription on the World Heritage site with tourism activities including walking safaris, fly camping and sport fishing. The *Intensive Tourism Zone* comprises of two parts. The Western Tourism Area that will offer boat trips into the Nile Delta from Delta Point, walking safaris along Tanyi and Nyamsika Rivers and the traditional game drives in the Buligi circuit. The second area, the Chobe Tourism Area which accommodate a campsite on the South Bank of the Nile within Karuma Wildlife Reserve close to Gwara Gate and the Chobe Lodge. Chobe Lodge has signed a 30 year agreement with Government to run up-market tourism activities within the Murchison Falls Protected Area. The agreement was entered into on the 27th January 1996. The main tourism opportunities include non-concession sport fishing.

Although Uganda Wildlife Authority (UWA) has incurs significant expenditure in managing KWR and the area is used for fire wood collection by residing communities around the reserve as per MoUs signed with UWA, the Karuma Wildlife Reserve does not currently generate any revenue to UWA. This is because the vegetation inside KWR is often thick, infested with tsetse flies and not conducive to game viewing and also the wildlife populations are low. Thus visitors pass this area en-route to main attractions of the Murchison Falls Protected Area. **Table 6.6** provides the statistics of the tourism in the area.

Table 6.6: Tourism statistics in KWR & MFNP 2010

Month	FNR	FR	LR	STDS	TRANSIT	TOTAL
JANUARY	1717	817	583	75	213	3405
FEBRUARY	1187	422	574	45	252	2480
MARCH	1587	472	749	41	62	2911
APRIL	1194	613	1088	315	315	3525
MAY	848	484	1110	299	115	2856
JUNE	1654	366	1216	454	303	3993
JULY	3429	415	1981	1339	493	7657

Month	FNR	FR	LR	STDS	TRANSIT	TOTAL
AUGUST	3074	513	1807	176	464	6034
SEPTEMBER	1447	238	918	416	527	3546
OCTOBER	1838	489	1478	2216	458	6479
NOVEMBER	1880	437	1211	1088	547	5163
DECEMBER	1797	964	2376	18	256	5411
TOTAL	21652	6230	15091	6482	4005	53460

LR: Local resident-, FR- Foreign resident, FNR- Foreign non resident

6.4 SOCIO- ECONOMIC PROFILE OF PROJECT AFFECTED HOUSEHOLDS

The proposed Karuma Hydropower project will affect pockets of settlement covering 192.75 ha located in Karuma and Awoo villages of Mutunda sub-county (Kiryandongo district) and Nora and Akuridia villages of Kamdini sub county (Oyam district). The Land take demands of the project will affect a total of 414 households within the four affected villages namely Karuma, Awoo, Nora and Akuridia. The proportion of households to be affected by the project are significantly higher in Awoo village (51%) and Karuma (47.1%) implying that the two villages will not only face the main brunt of socio economic impacts arising from the project, but also will be the main focus of resettlement of PAP's activities housing proportionately higher population of households. **Table 6.7** presented below indicates distribution of households that will be affected in the four villages. In October 2010, a survey was conducted within these two districts and a total of 3735 people were found to be affected due to the project.

Of the total households affected, 40% have a combination of land, crops and houses affected; 31% have only land and crops affected; 13 % have only crops affected (do not own land on which the crops are grown); 9% have only land and structures affected (no crops) and 7% have only land affected (no structures or crop cover). The list of affected households and properties showing the households and tenants to be affected respectively are furnished in Volume III Resettlement Action Plan (RAP) report.

Table 6.7: Total number of households affected due to the Karuma HPP

Village	Total No. of Land owners	Total No. of Tenants	Total No. of households	% of Total households affected
Karuma	118	93	211	51%
Awoo	154	41	195	47.1%
Nora	6	0	6	1.4%
Akuridia	2	0	2	0.5%
Total	280	134	414	

6.4.1 Ethnography

The project area is situated in two districts: Kiryandongo and Oyam. The former is found on the left bank of the river while the later is found at the right bank. The indigenous peoples of these two areas are the Palwo and Langi respectively. However, due to an influx of population into this area caused by the insurgency that affected much of the Acholi and Lango sub regions, nearly all the major tribes in Uganda are found here. **Table 6.8** below summarizes by proportion, the ethnic composition of the Project affected households. Considering that the indigenous peoples of these two areas are the Palwo and Langi, the variety and proportion of the ethnic composition in the proposed project area evidently attests to the high proportion of migrant populations. There is a higher proportion of people from the Acholi ethnic group in all the affected.

Table 6.8: Ethnicity in the affected household due to the Karuma HPP

Village	Acholi	Alur	Ateso	Congolese	Kakwa	Lango	Lugbara	Baganda	Munyankole	Munyoro	Muruli	Musoga	Palwo	Maddi
Karuma	45%	10%	1%	1%	1%	8%	13%	2%	1%	2%	1%	0%	14%	1%
Awoo	78%	14%	0%	0%	1%	2%	1%	0%	1%	0%	1%	1%	1%	0%
Nora	67%					33%								
Akuridia	100													

6.4.2 Household Size

Table 6.9 below shows the average household size for 2 of the villages with a greater proportion of project affected household. Amongst the affected household, the average household size ranges from 9 – 10 members.

Table 6.9: Average household size in the most affected villages

Village	Average household size
Karuma	10
Awoo	9

6.4.3 Population Structure by age and gender

A census of PAPs was conducted based on each household and a total of 3735 people were found to be affected both directly and indirectly. **Figure 6.22** describes the population structure of the affected villages whereas; **Figure 6.23** presents the population structure of the two dominant villages Karuma and Awoo with higher number of affected household.

The population pyramids were derived from the census survey information gathered during the RAP Social Survey. Although there are more females than males, the difference in population between males and females is not very significant. Of the population of affected persons, there are 1869 males as against 1866 females.

The population pyramids shown in **Figure 6.22** and **Figure 6.23** indicate a significantly young population. The population of persons 5 years and below and 6-17 years is significantly large. **Table 6.10** provides a summary that highlights the proportion of children youth and adult working and Elderly population in relation to the total population in the four affected villages. The data clearly shows that much of the project area has a significantly large dependent population (children and youth population) placing demands for Child and reproductive health facilities, education and employment opportunities.

Table 6.10: Proportion of children, youth, adults and elderly amongst PAPs

Village	Children (17 years and below)	% Youth population (18 – 29 years)	% Adults (30 - 49 years)	% Elderly (above 50 years)
Karuma	59%	19%	15%	7%
Awoo	56%	20%	16%	8%

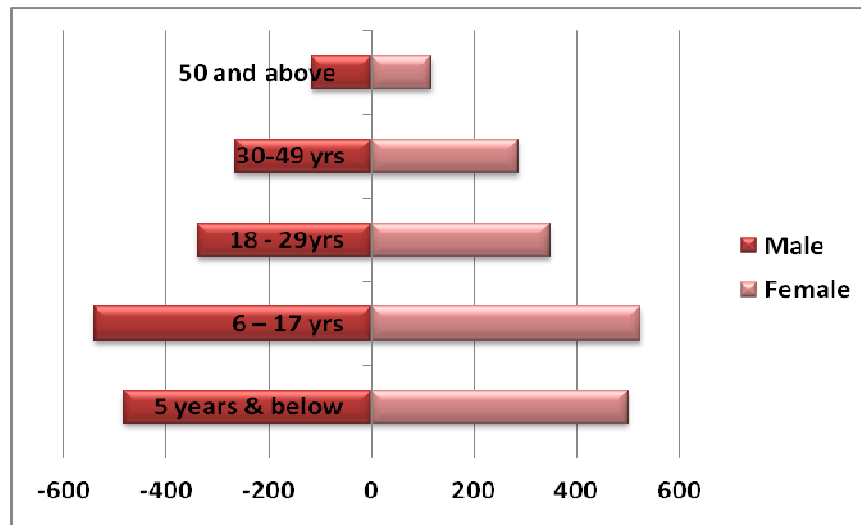


Figure 6.22: Population structure of PAPs within the project affected villages (age & gender)

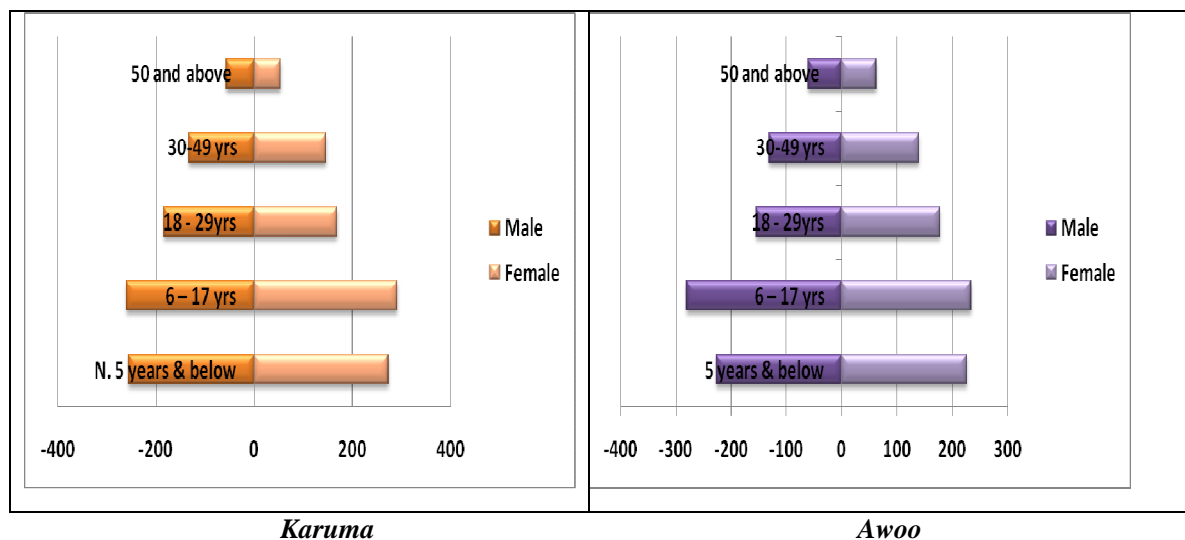


Figure 6.23: Population structure of Karuma and Awoo Villages (age and gender)

6.4.4 Marital Status in the project affected area

The marital Status of the Project affected population was examined as part of the survey. **Figure 6.24 and Figure 6.25** presented below shows the marital status of the two affected villages Karuma and Awoo villages where the household population is proportionately highest. This indicates that at least 70% of households are married. However, the proportion of single household is higher in Karuma which has the beginnings of an urban setting, the proportion of widowed households is higher in Awoo where the setting is more rural and elements of dependence on subsistence farming is higher.

Although resettlement will be met depending on the outcome of the valuation surveys, the marital status statistics indicate that for the villages with the largest proportion of affected households, resettlement efforts must be skewed towards ensuring the development of resettlement/livelihood packages that enhance family and spouse cohesion. The significant incidence of a widowed population in Awoo however, must be taken into account in defining livelihood restoration in the event of involuntary resettlement.

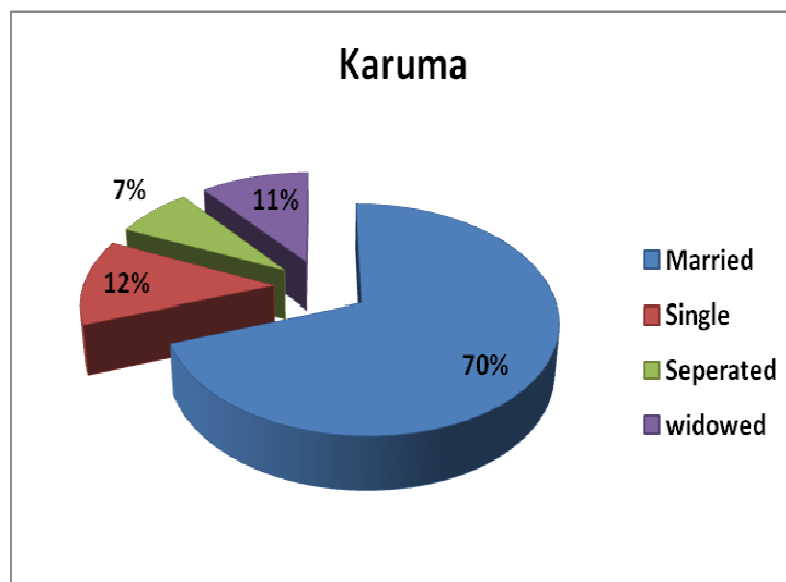


Figure 6.24: Marital Status in Karuma Village

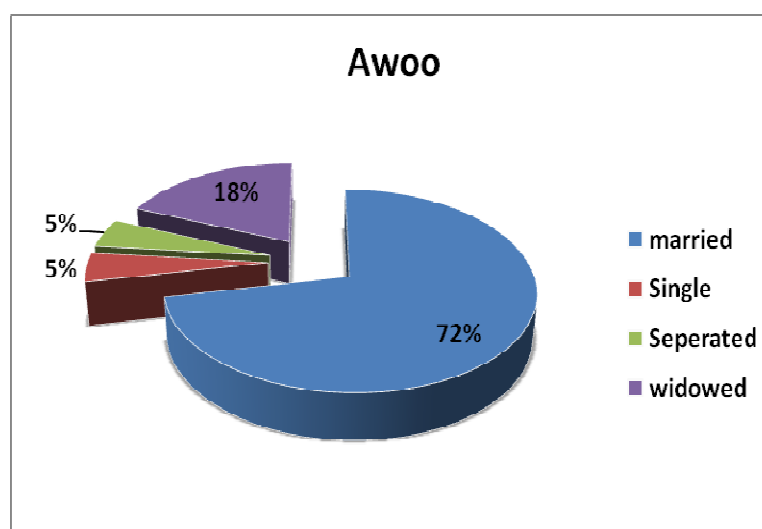


Figure 6.25: Marital Status in Awoo Village

6.4. 5 Culture and Religion of the PAPS

Because of the multi ethnic composition of the people living in the project area, there are no distinct cultural traits characteristic of the project area. Karuma town and village exhibit the characteristic of a rural growth centre with the trading centre attracting modern behaviour. It is rather common to find young people at the trading centre drinking and playing pool like as seen at the outskirts of Kampala city.

The greatest proportion of the population of PAP's is Catholics in Karuma, Awoo and Akuridia having 56%, 72% and 100 % respectively. **Table 6.11** below demonstrates this position.

Only in Nora where the population of PAPs is relatively small, is the population of Protestants higher. However, there is fairly significant proportion of Muslims in Karuma (27%).

Table 6.11: Proportion of PAPs belonging to various Religious denominations.

Village	Protestant	Born again	Catholic	Muslim
Karuma	12%	5%	56%	27%
Awoo	18%	6%	72%	4%
Nora	50%	12%	38%	
Akuridia			100%	

Two structures belonging to the Muslim and Born again (CER Church) religious denominations will be affected by the proposed project. These are shown in the Figure 6.26 below.



Rahima Karuma Mosque in Karuma Center



CER Church in Awoo village



Evangelical revival church mission in Karuma village



Church of Uganda (Jerusalem church) in Karuma village N.B. Note the unfinished block on the right

Figure 6.26: Religious Infrastructure to be affected by proposed project

6.4.6 Male versus female headed households

All the affected households in Nora and Akuridia are male headed households. **Table 6.12** below summarizes the proportion of male to female headed households amongst PAPs interviewed. Over all, there are more male than female headed households within the project area. But the proportion of female headed households including widows is very significant particularly in Awoo and Karuma most of them belongs to Internally Displaced Families coming from the Acholi sub region.

Table 6.12: Female versus male headed households

Village	Male	Female
Karuma	66%	34%
Awoo	60%	40%

6.4.7 Major Sources of Income

Many of the PAPs in four villages practice subsistence farming with exceptional dependence on agriculture as a major factor in their daily livelihoods. From interviews held with PAPs, **Table-6.13** below summarizes the various occupations of affected households

There is a significantly large population of household heads in Karuma depending on trade/business (in household items, run shops, eating/drinking places) as a source of livelihood. Incomes from properties especially house rentals also constitute one source of income particularly in Karuma center. The proportion of PAPs in formal employment compared to the village population of PAPs is only significant in Nora and Akuridia. This constitutes the population of absentee landlords found in Nora and Akuridia. There are also public servants (notably teachers) and private sector/NGO workers who own properties particularly in Awoo village and household heads in Awoo who derive their incomes from retirement benefits and formal employment.

Table 6.13: Occupation of affected household heads

Village	Public Service	Peasants	Business	Others
Karuma	15	98	73	15
Awoo	21	166	6	12
Nora	3	2	1	
Akuridia	2			

It is observed that, over 90% of the land area in Nora and Akuridia are owned by absentee land lords. Most of the land here is underutilized but with traces of evidence of modern developments such as fish farms, orange orchards.

Despite being close to the Nile River, fishing is not a significant occupation amongst PAPs. Even for households who reported engagement in fishing as a source of livelihood; they admit that fishing is not a significant income generating activity compared to crop farming.

6.4.8 Major Sources of Energy

The project area has no supply of electricity. Biomass constitutes the major source of energy for cooking while paraffin is the main source of fuel for lighting. However, Some PAPs especially within Karuma Trading centre use petrol for running generators as well as motor vehicle use.

6.4.9 Water Facilities

Table 6.14 below summarizes the major sources of water and the percentage of PAPs that depend on each source¹. There is no water supply system for the entire project area and the sanitation system is based on pit latrines. The majority of PAPs depend on borehole water. Despite proximity to the river, the river water does not constitute a significant water source even in Awoo village that has a long river bank line.

Table 6.14: Sources of water supply in the project affected area

Village	Borehole	Protected spring	Unprotected spring	River	Tap
Karuma	83%	10%	1%	5%	1%
Awoo	93%	3%	0%	3%	1%

There are three boreholes (two in Awoo village and one in Karuma) that are directly affected by the proposed project. These boreholes are shown in **Figure 6.27** below.



PAPs collecting water from Awoo Community Borehole (Functional & Constructed by Child Fund International)



Community Borehole situated in central Awoo (Not functional by the time of the RAP Studies)

¹ It has been observed elsewhere that over 90% of the land area in Nora and Akuridia are owned by absentee land lords and most of the land here is underutilized. The landlords here have not exhibited dependence on water supply within the area as their families do not reside in the area.



The bore hole belonging to Karuma primary school

Figure 6.27: Boreholes affected in Karuma and Awoo villages by proposed Karuma HPP

6.4.10 Trading Centre & Market

During Socio-economic surveys, some open air market stalls and kiosks were identified especially in Awoo and Karuma. These stalls will be directly affected by the proposed project. These constitute livelihood sources and must be considered in the resettlement process.

6.4.11 Bus and Taxi parking bays

There is a sprawling Bus and taxi parking bay within the Karuma Trading Center. Since the proposed project is likely to affect much of the population, these parking bays will need to be relocated to places more accessible to resettled populations. Considerations for this will need to be incorporated in the Design of the Karuma Trading centre.

6.4.12 Road Network and Communication Infrastructure

There are basically two community access roads (running from Karuma to Awoo village and another running from Karuma to the military barracks) that will be affected by the proposed project. These community access roads form an important link into the depths of Awoo giving access to the Project area as well. Three telecommunication masts will also be affected belonging to Uganda Telecommunication Limited (UTL), Warid and MTN. The UTL and MTN masts are both located on land belonging to one Bogoro Quinto (himself affected and likely to be displaced) in Awoo village. The Warid mast is located close to the borderline between land acquired by NORPAK and the settlement area in Awoo village. The road and telecommunication masts are shown in **Figure 6.28** below



Community access road from Karuma to Awoo

Two telecommunication masts (*UTL and MTN*)

The Warid Telecommunication Mast close to NORPAK area

Figure 6.28: Community access road, telecommunication masts affected by the proposed project

6.4.13 Education Infrastructure

Within the project affected area, there are only three education schools serving the community here.

One school is government aided (Karuma primary school) and the other two are privately owned: Karuma Senior Secondary School (not operational for the entire period of this survey) and Little Angels Nursery & Primary School.

Many of the education facilities comprise of unfinished buildings. These schools are pictured in **Figure 6.29**. About half of the school administration blocks (with classrooms) and compound will be affected by the proposed Karuma.



Little Angels' Primary School (Karuma)



Karuma Primary School



Karuma Senior Secondary School

Figure 6.29: Education infrastructure in the project affected area

6.4.14 Health Infrastructure

The proposed project area does not have an established health centre. The area has only drug shops, of which the major shops are Ot yat Karuma medical centre and Panorama Drug shop shown in **Figure 6.30** below serving mostly Karuma and Awoo. These two drug shops will also be affected by the proposed project. From interviews conducted with household heads, malaria cough, headache, flu and diarrhea are mentioned as the most common health ailments.



Left: Ot yat Karuma medical centre



Right: Panorama Drug shop

Figure 6.30: The two most prominent Drug shops in the project area