LAND DEGRADATION AND INTERNALLY DISPLACED PERSON´S CAMPS IN PADER DISTRICT – NORTHERN UGANDA

Joel Charles Owona
Pader District Local Government,
P.O. Box 1, Pader
E-mail: owonaj@yahoo.com

Supervisors
Mr. Jón Geir Pétursson, The Icelandic Forestry Association
jgp@skog.is
Mr. Jóhann Thorarensen, Soil Conservation Service of Iceland
johann@land.is

ABSTRACT

This study aims to examine the extent to which land and other natural resources around the Internally Displaced Persons' (IDP) camps in Pader district for the last 22 years of wars have been impacted on and suggest possible measures to be taken. Satellite images, people's livelihood strategies, on ground survey data from two IDP camps in Pader district Northern Uganda, were analyzed. The analysis shows that creation of 157 IDP camps has significantly affected the environment in terms of deforestation (138.861km^2 of land devegetated), soil erosion, habitat destruction and pollution. It has also destroyed people's wealth, social and cultural fabric and rendered them poor with no sufficient means of livelihood and self empowerment. This is additional to the fact that at least 20,000 youth have been abducted and forced to join LRA and up to 12,000 people have been killed.

1. INTRODUCTION

Along with the destruction of human lives and livelihoods, war can also destroy croplands, forests, water systems, and other natural resources (Vanasselt, 2003). Acholiland in northern Uganda has suffered from persistent insecurity since the mid-1980s (Opeitum, 2002). For the past 22 years, the Lord's Resistance Army (LRA) and its predecessors have waged a civil war against the Government of Uganda and terrorized the civilian population of Gulu, Kitgum and Pader districts. Neighboring districts have also been affected. The massive disruption, dislocation and displacement and suffering of the people in the region are well-known (Otika, 2008)

As a way of protecting the local people, the government placed most inhabitants of those districts in camps popularly referred to as Internally Displaced Peoples (IDP) camps (Nampindo *et al*., 2005). As a result, land has been abandoned and farming together with other socio-economic activities is only possible near the protected camps but also under a restricted radius not exceeding seven kilometres. War creates refugees, leaves government and environmental agencies handicapped or destroyed, and substitutes short-term survival for longer-term environmental considerations (Vanasselt, 2003). This means that ecosystems continue to suffer even after the fighting has stopped.

While there have been several analyses and publications assessing the impact of this conflict on people's lives (Nampindo *et al*, 2005), to date there has been limited analysis of the impact of the conflict on the land. Given that over 90% of people in Uganda rely directly on land for their livelihoods, and that in Pader District this is likely to approach 100%, it is important that this sector be assessed. It has not been clear, for instance, if the conflict has benefited the environment or been detrimental to it. Recently there has been hope for peace in the region and with that plans are being developed to improve the welfare of the people in the north (Otika, 2008).

There is a need to incorporate environmental issues in the development of these plans to both mitigate any negative impacts but also to identify and address areas where conservation is nationally and globally important and where environmental restoration may be necessary.

1.1. Main aim of the study

The study seeks to examine the extent to which the environment around the IDP camps in Pader district for the last 22 years of war have been impacted on and suggest possible measures to be taken.

1.2. Objectives of this study:

-To find out the extent to which the conflict has impacted on the environment around the IDP camps in Pader district.
-To find out peoples' livelihood strategies in the camps and how that relates to land degradation, using deforestation as a key measure.
-To come out with workable measures of restoring the degraded land

1.3. Problem statement

The concentration of people in IDPs Camps has had its own toll on the surrounding environment. For example, where IDPs were placed, the demand for fuel wood, poles, water, medicinal plants, thatching grass and land for agriculture have affected the integrity of natural resources (Bromwich, 2007). The Uganda Peoples Defense Forces (UPDF) and the rebel forces operating in the area put more pressure on the same resources to supply game meat, forest products and other resources. The

horrific and prolonged consequences of the LRA war have devastated the society, destroyed land, the culture and social fabric of the Acholi society (Otunnu, 2002). The culture of lawlessness engendered by protracted periods of war and civil strife may spill over into peace time, with devastating effects on forests, fisheries, and other marketable forms of natural resources (Dudley *et al* 2002).

During the last 22 years of conflict in the northern Uganda (Fig. 1), very little tree plantation establishment has been done and yet the rate of forest and land degradation is believed to be high around the IDP camps (Fig. 2). How these various impacts have affected the environment is unclear. Some people argue that the displacement of people to the IDP camps had benefited the environment because it had removed people from the countryside while others said it had been detrimental because it had concentrated people in small areas where they could not use the natural resources sustainably any longer. It was expected that woody cover would increase in areas where the Lord Resistance Army rebels were hiding out and in areas vacated by people currently living in the IDPs. I also anticipated high woodland conversion to settlement and agricultural fields in areas where IDP camps were located resulting in a decrease in woodland and forest cover. This debate is one of the reasons this study was commissioned and the work aimed to assess the validity of this general report.

Fig. 1. *Map of Northern Uganda. Source: University of Texas Libraries, 2008.*

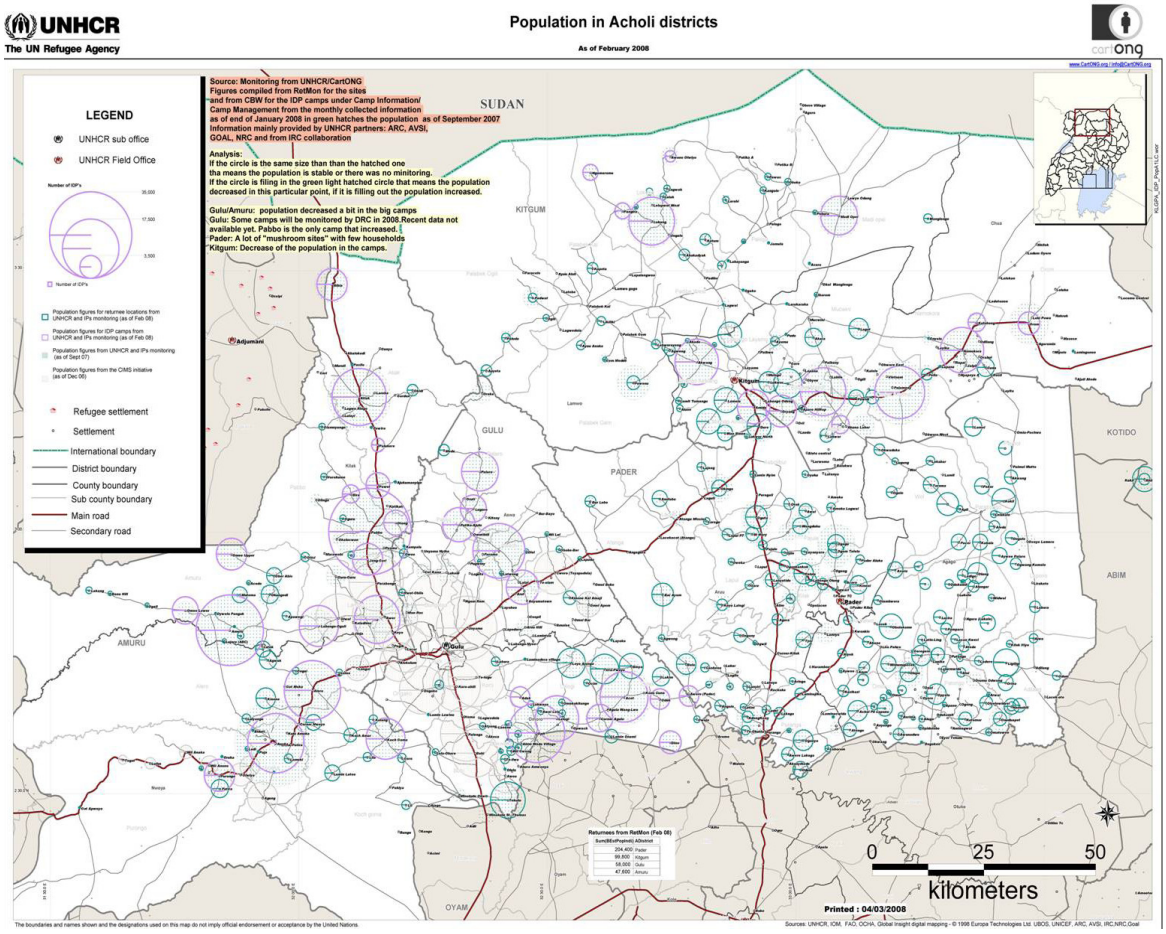

Fig. 2. *Internally displaced persons´ camps (IDP) distribution in Northern Uganda. Source: UNHCR, 2008.*

2. BACKGROUND OF THE CONFLICT IN N-UGANDA

2.1. Brief History of the war in northern Uganda

The war in northern Uganda (Resolve Uganda, 2008), has raged now for 22 years, making it one of Africa's longest running conflict and perhaps world's worst neglected humanitarian crisis.

The war started when the current President Yoweri Museveni and his National Resistance Army (NRA) took power by military coup in 1986 (Otunu, 2002). The Uganda People's Democratic Army (UPDA) was the first rebel group to organize itself in southern Sudan to defend the north against the NRA. The UPDA faded away in the same year and another rebellion of a different nature grew under the leadership of Alice Auma Lakwena. Lakwena founded Holy Spirit Movement (HSM), which was overwhelmingly defeated by the NRA in November 1987. The defeat of UPDA and HSM left a power vacuum in northern Uganda that was immediately filled by Joseph Kony a former UPDA fighter (Otika, 2008).

Kony formed the Uganda People's Democratic Christian Army (UPDCA). The name was later changed to Uganda Christian Democratic Army (UCDA), and finally in late 1991 to the Lord's Resistance Army (LRA), which remains its name to this day. Receiving little support from the war-weary northern population, Kony's group began attacking and killing local civilians and this forced the Government to start a policy of "protected villages," in 1996 moving people from their homes into large camps in an attempt to isolate LRA fighters. However, in these camps, problems of starvation have been great due to over exploitation of farm land, rampant tree cutting, soil erosion and poor sanitation persist on gross levels.

In 2006 the government of South Sudan offered to mediate peace talks between the rebels and the Ugandan government. Negotiations began in July 2006 and are widely believed to be the best opportunity to end the war (IDM report, 2008). However, a significant number of inhabitants of the IDPs might not move back to their land, preferring to live in communities near basic services such as schools and clinics.

2.2. Humanitarian consequences of the war

The 22 year conflict has recorded one of the worst humanitarian crises in the world (Okio, 2007). There have been high levels of human rights abuse which greatly affected women, children and youth. At least 20,000 youths have been abducted and forced to become soldiers in Uganda's notorious rebel force, the Lord's Resistance Army (Annan *et al*., 2006). Up to 12,000 people have been killed, with more dying from disease and malnutrition (UNOCHA, 2004). Northern Uganda has one of the world's highest rates of mental illness that results from horrific experiences (Ocowun, 2008). A survey of 1,210 internally displaced people has found about two thirds, or 67 percent, of the respondents to be depressed and over half, or 54 per cent, to have post-traumatic stress disorder (Muhumuza, 2008).

2.3. The IDP camps

The total number of people in Internally Displaced People's Camps (IDP camps) in the Pader District (Fig. 2 and Fig. 3) has been estimated by the United Nations High Commission for Refugees (UNHCR, 2008) to be 352,862 (172,938 males and 179,928 females).

Many of those living in camps were forcibly moved into these camps by the Ugandan army (Ugandan People's Defense Force, UPDF), on the grounds that the displacement was militarily necessary to combat the LRA and to help distinguish civilians from fighters. In certain districts, up to 95% of the population is internally displaced. The population, formerly well-fed through farming and livestock activities (CSO, 2005), was concentrated in a small number of IDP camps, devoid of animals and unable to access sufficient land to farm within walking distance of the camps. While malnutrition is most noticeable in children, it is also observed in adults.

Fig. 3. *Location of the Pader District in Uganda. Source: University of Texas Libraries, 2008.*

People came to IDP camps for a number of security reasons, including direct targeting by the LRA, shifts in interactions with the rebels, government pressure to move into camps, or traumatic events experienced at the household level.

The UPDF soldiers and LDU militia are meant to provide protection for the camps. The soldiers maintain a security perimeter around the camps, which extends to approximately two kilometres in the daytime, allowing residents to work the surrounding land and collect natural resources in relative safety. All residents must be back inside the camp at the designated curfew or face serious consequences and disciplinary measures.

3. MATERIAL AND METHODS

To understand the drivers behind land degradation related to the establishment of IDP camps in the Pader district and to put a figure on the scale of the land degradation, this study employed several methodological tools.

3.1. The study area

The study was conducted in the Pader district. Pader is one of the newest districts in Uganda, created in December 2001. It was carved out of the Kitgum district and is composed of Agago and Aruu counties. Pader is situated in the northern part of Uganda as shown in Figure 3, between longitudes 330E - 340E and latitudes 200N - 400N. It borders the Kitgum district in the north, Kaabong district in the east, Gulu district in the west, Apac district in the southwest and Lira district in the south.

The Pader district covers an approximate area of 8,282 sq km (District Information Portal-DIP, 2008). It receives an annual average rainfall of 1,330mm and has an average temperature of 29°C. There are two rainy seasons that last from April to June, and August to November. The Pader district has been hit by the Lord's Resistance Army (LRA) rebels' insurgency and thousands of people have lost their lives, while others have been forced to live in the 157 IDPs (UNHCR Report 2008). The Acholi tribe are the main inhabitants of the Pader district (90%). The majority are Christians. There are three spoken languages including Luo (sometimes spelled as Lwo), Swahili, and English (Wikipedia, 2008b).

3.2. Data collected from World Vision and World Food Program in Pader

Key demographic data (population size and gender) alongside food consumption (quantity per household) data were obtained from WFP and World Vision Pader offices Appendix III). Demographic and food consumption data were used to find out how much wood fuel was consumed by households, bearing in mind that all the IDP population depends on wood fuel for cooking, boiling water, local brewing and lighting the houses.

3.3. Assessing environmental impact around the camps

In-depth work was conducted in the following two IDPs within the Pader district: 1) Patongo IDP in Agago county in the eastern part of the district, and 2) Pajule IDP in Aru county in the western part of the district.

At these sites, a random baseline was drawn where we mapped out and counted trees five metres tall along a two metre- wide belt, from the camps' boundaries into the bush. In Patongo we started from Oliga and moved southward for 1000 metres and in Pajule the same distance was taken but westward, starting from the Pajule mission.

In each of the two study sites, we sought to compare the extent of land degradation in IDP camps to those in non-settled villages.

3.4. Remote Sensing and GIS analysis

Landsat 7 Enhanced Thematic Mapper Plus Scan Line Corrector of July 2003 to present and TM (1987-1997) imagery were used to determine the extent of woody cover changes around IDP camps in the Pader district. The data was taken from 1986, the year when the conflict started, and again from 2008. These images were acquired free from the Global Land Cover Facility (http://glovis.usgs.gov/immage).

The images were imported from the downloaded files to ER mapper (ER mapper, 2008) In ER mapper we selected the red, green and blue bands to make the images viewable in Arc view (ESRI, 2008). We then drew polygons round the IDP camps' bases on colour changes to determine the extent of degradation. In doing this, the Geographical Information System (GIS) co-ordinates for the several IDP sites and their locations helped us to locate the IDP sites of interest.

3.5. Livelihood analyses

In this study we also used a livelihood framework for data analysis. This livelihood framework allows for a more complete understanding of the ways in which people's living strategies in the IDPs might have resulted in land degradation around the settled areas compared to the situation before the conflict. The study sought not to quantify people's livelihoods but rather to understand how their livelihoods might have affected the surrounding vegetation and farm lands.

Livelihoods can be thought of as the sum of the means through which people make a living or survive over time (Stites *et al.,* 2006). Livelihood systems are based on assets like land, forest, capital labour and strategies that a household and its members use to manage risk and vulnerability (Otsuka, 1997). Therefore, in the face of little or no access to farmland, a high rate of deforestation and soil erosion, earning less than one US dollar per day and depending on food aid from WFP, we analysed the means by which people in IDP camps in the Pader district maintain themselves and their households, with the aid of the model in Figure 4.

4. RESULTS AND DISCUSSION

4.1. Livelihood strategies of people before and in the IDP camps

4.1.1. Livelihood strategies before camp life

Before the LRA war, Acholiland was endowed with beautiful scenery, lush vegetation, rivers, game animals, birds and above all, abundant fertile land which had been communally owned, cultivated and handed down by Acholi families to their descendants from generation to generation (Onencan, 2006).

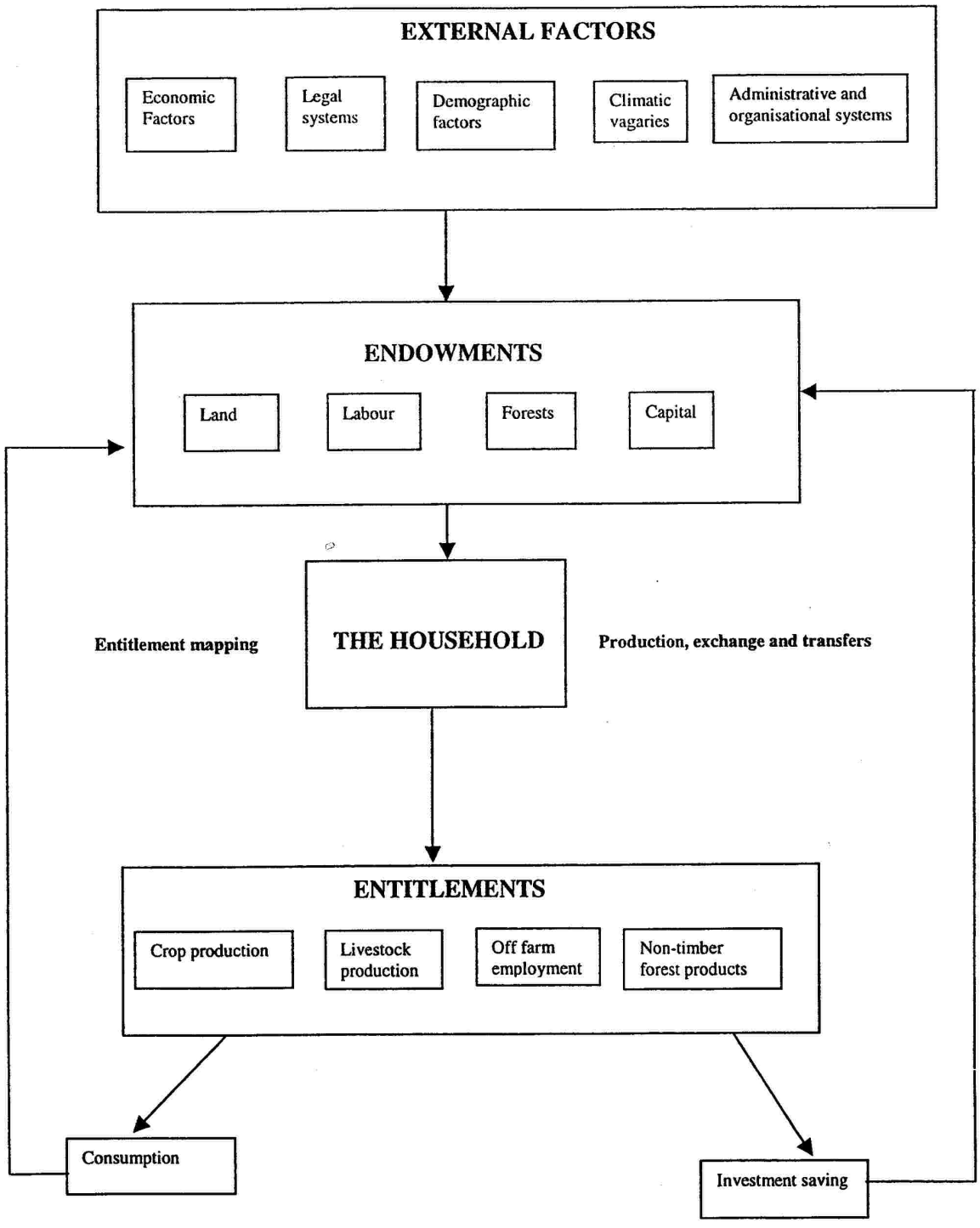

Fig. 4: *A modified household economic model based on Vedeld 1995 (adopted from Tumusiime, 2006).*

The Acholi people, who were prosperous two decades ago, were predominantly agriculturalists practicing subsistence farming alongside animal husbandry as a major source of livelihood. Cotton, tobacco, coffee and maize were among the major cash crops grown by the people. Successful agricultural production was made possible because the sub region had a well linked network of roads and rails that enabled transporting agricultural products to meet the market demand. In addition to marketing infrastructure, processing and storage facilities were also at their disposal (Bromwich, 2007).

Complimenting agricultural production in Acholiland was the wide-scale ownership of short-horned cattle used for ploughing and serving as a source of wealth. Cattle were abundantly owned and would be sold as needed to support family activities. Poverty, famine and drought were unheard of in Acholiland because of the conducive environment for agricultural production, and a tradition of cattle and livestock ownership and being a hard working community. In short the Acholi community was prosperous and self- sufficient.

Aware of the dynamic of a changing world, the Acholi community long realized that economic independence without having an educated community would not sustain development. The Acholi community embraced education with utmost dedication and encouraged their children to enter many professions and those which were supported by their economy. Acholi students in primary, secondary, and vocational schools and institutions of higher learning excelled, as education was seen as important to development of the community. Education is so important in Acholi society that its importance was incorporated in the Acholi anthem (Acholi word 'Lubara pa Acholi').

Education among the Acholi community was not seen in terms of formal education only. Informal education that consists of cultural values was passed from generation to generation through oral tradition that encompassed the entire social setting. Cultural values included respect for humanity, charity, dances, courtship, marriage, hard work, morals, and love of one's community. The Acholi community was always regarded highly for the way it organized its social setting to embrace justice and peace and where reconciliation could be administered by the community.

Environment and land management were always looked at as priorities, including before the conflict; there were traditional norms and settings that respected certain trees that take a long time to grow, e.g. the Shea nut tree (yao), and cutting them was taboo.

4.1.2. Livelihood strategies in the camps

The livelihoods of people living in the Pader district in northern Uganda have undergone significant changes due to armed conflict, insecurity, displacement and the subsequent loss of access to an agrarian-based livelihood system (Stites *et al.,* 2006).

Demand for land is greater than the amount of land available within the security perimeter area in the IDP camps and accessing land usually requires social or familial connections to the land owners and/or the ability to pay steep rents. The IDP population in the Pader District is thus currently food insecure. The majority of households depend on WFP food rations for survival. Incomes, economic activity, access to land and natural resources have been greatly reduced (Table 1). The trends for all aspects of the lives of those in the IDPs -- food production, health and hygiene, income, and social structure- are showing depreciation (Savage, 2007)

Table 1: *Summary of livelihood strategies in the camps*

Entitlements	Before IDP	In the IDP
Land	-Communally owned, cultivated and handed down by families to their descendants -Accessed by everybody -Longer fallow period of more than at least two years	- Land close to the camps is often rented out at prices that people cannot afford -Little or no access -No fallow period
Food production	-Domestic animals and crops like cotton, tobacco, coffee, groundnuts, simsim, potatoes, sunflower, sorghums, maize, etc., were abundantly produced (food basket for Uganda)	-Reduced drastically and people greatly depend on WFP food aid rations
Labour	Farmers and families worked on farm. Casual labour common, reciprocity	-Inadequate labour force (Family labour and reciprocity destroyed)
Capital	-Savings mostly in the form of cattle and land	-Most capital assets lost, cattle raided and land abandoned
Income	-Sale of agricultural products like animals and cash crops -Retail shops business - Formal employment -Moderate income	-sales of charcoal, firewood -Brick-making -Hunting wild animals -Unemployment leading to low income -Rock and sand mining
Natural resources	-Fuel wood collection was controlled and only mature trees would be cut -Wetlands were protected as cultural sites-Local and National forest reserves were protected	-Fuel wood collection is rampant and any tree would be cut down -Wetlands within the camp areas completely degraded-Forest reserves devegetated
Water	Safe water coverage was 15 lt. per person per day (AAH, 2003)	only 3.1l t/per person per day (AAH, 2003)
Education	Low rate of school dropouts	Very high rate of school dropouts

Natural resources like land used for farming and grazing, capital and other assets used by individuals and households in pursuit of livelihood strategies have been radically altered by displacement in the Pader district (Tindifa, 2001). Biomass in the form of firewood, charcoal, agro wastes and cow dung remain the major source of energy for cooking in Uganda (Nassuna, 2007). However the way in which this type of energy is consumed for cooking using three-stone fire devices in households greatly affects the environment and livelihood of people in the IDP camps in the Pader district.

The three-stone fire device transfers only about 5% of the energy of the wood to the pot as heat (Booker *et al.*, 2007). This means that a very large quantity of wood must be burned to generate enough heat for a long enough period of time to cook food, boil water and brew alcohol. The estimated amount of fuel wood consumed per year per household using a 3-stone fire is shown in Table 2. Daily fuel wood consumption in all IDP camps in the Pader district (calculated as: Total household (70390)* Daily fuel wood consumption (5 kg) * Days per year (365) = Total yearly fuel wood consumption) were 28461750 kg. Firewood use data are taken from Booker et al., 2007 who estimated fuel consumption at 5 kg per day per household in a camp. Total yearly fuel wood consumption in the Pader district therefore is estimated to be 128,461,750 kg. To generate this amount of fuel wood for families' consumption, 138.9 km2 of land has been degraded since the internal displacement of people in camps, as shown in section 4.2. (Table 3).

Table 2: *The amount of fuel wood consumed in IDPs in the Pader district*

NO	IDP	HOUSEHOLD	DAILY FUEL WOOD CONSUMPTION PER HOUSEHOLD	TOTAL FUEL WOOD CONSUMPTION PER YEAR PER IDP (kg)
1	Acholibur	3511	17555	6407575
2	Acholpii	161	805	293825
3	Acuru	264	1320	481800
4	Adilang	3085	15425	5630125
5	Agora	185	925	337625
6	Alim	610	3050	1113250
7	Amyel	1876	9380	3423700
8	Angagura	674	3370	1230050
9	Arum	1595	7975	2910875
10	Atanga Main	3977	19885	7258025
11	Atanga Mission	465	2325	848625
12	Awere	1705	8525	3111625
13	Bolo	267	1335	487275
14	Corner Kilak	1802	9010	3288650
15	Dure	565	2825	1031125
16	Geregere	1175	5875	2144375
17	Kalongo	5121	25605	9345825
18	Kokil	683	3415	1246475

19	Kotomor	116	580	211700
20	Kwonkic	583	2915	1063975
21	Lagile	628	3140	1146100
22	Laguti	803	4015	1465475
23	Lakoga	190	950	346750
24	Laminagiko	67	335	122275
25	Lamiyo	357	1785	651525
26	Lapul	2720	13600	4964000
27	Latanya	620	3100	1131500
28	Ligiligi	586	2930	1069450
29	Lirapalwo	2888	14440	5270600
30	Lirakato	1894	9470	3456550
31	Lukole	1578	7890	2879850
32	Muttu	1595	7975	2910875
33	Obolokome	749	3745	1366925
34	Odokomit	721	3605	1315825
35	Ogonyo	431	2155	786575
36	Olung	466	2330	850450
37	Olupe	356	1780	649700
38	Omiya Pacwa	1526	7630	2784950
39	Omot	713	3565	1301225
40	Opyelo	410	2050	748250
41	Pader T.C	3940	24750	9033750
42	Paiula	434	2170	792050
43	Pajule	3128	15640	5708600
44	Patongo	7050	35250	12866250
45	Porogali	699	3495	1275675
46	Puranga	2540	12700	4635500
47	Rackoko	1879	9395	3429175
48	Toroma	629	3145	1147925
49	Tyer	417	2085	761025
50	Wol	1610	8050	2938250
Total		70,390	351,950	128,461,750

Table 3: *Pader district 1986-2008 land cover changes around the IDP camps*

No	IDP	1986(sq km)	2008(sq km)	Changes
1	Acholibur	1.35	7,453	6,108
2	Acholpii	0.54	4,765	4,223
3	Acuru	0.00	0,548	0,548
4	Adilang	1.58	6,982	5,406
5	Agora	0.54	2,093	1,550
6	Alim	0.08	2,348	2,269

7	Amyel	1.85	5,988	4,142
8	Angagura	0.23	3,295	3,060
9	Arum	1.07	4,345	3,276
10	Atanga Main	1.55	6,235	4,688
11	Atanga Mission	0.68	2,910	2,231
12	Awere	1.22	4,986	3,762
13	Bolo	0.40	1,544	1,145
14	Corner Kilak	2.10	4,099	2,000
15	Dure	046	2,322	1,866
16	Geregere	1.43	2,543	1,110
17	Kalongo	3.33	9,987	6,661
18	Kokil	0.12	1,543	1,420
19	Kotomor	0.00	0,654	0,651
20	Kwonkic	0.52	1,313	0,790
21	Lagile	0.94	1,342	0,398
22	Laguti	1.23	3,988	2,756
23	Lakoga	0.35	1,988	1,642
24	Laminagiko	0.03	1,092	1,058
25	Lamiyo	0.02	1,903	1,882
26	Lapul	2.32	5,909	3,588
27	Latanya	0.23	1,777	1,542
28	Ligiligi	0.57	3,891	3,324
29	Lirapalwo	0.53	6,786	6,253
30	Lirakato	0.36	5,577	5,221
31	Lukole	0.20	2,547	2,344
32	Muttu	0.03	1,122	1,088
33	Obolokome	0.04	1,088	1,044
34	Odokomit	0.09	2,094	2,000
35	Ogonyo	0.00	0,988	0,985
36	Olung	0.03	0,899	0,864
37	Olupe	0.00	0,784	0,781
38	Omiya Pacwa	0.42	4,329	3,906
39	Omot	0.05	2,078	2,033
40	Opyelo	0.10	0,289	0,191
41	Pader T.C	0.00	4,989	4,986
42	Paiula	0.00	0,735	0,734
43	Pajule	2.04	7,457	5,413
44	Patongo	2.42	8,346	5,925
45	Porogali	0.01	5,325	5,316
46	Puranga	2.09	6,873	4,780
47	Rackoko	0.17	6,125	5,951
48	Toroma	0.10	0,835	0,737

49	Tyer	0.00	1,990	1,986
50	wol	1.23	4,456	3,225
Total		34.69	173,553	138,861

The availability and quality of human capital in the form of labour, health and education have a direct effect on the pursuit of household livelihood strategies (Sites *et al.*, 2006). The availability of labour and the specificity of labour strategies are particularly important in a society highly dependent upon natural resources. The absence of available labour can greatly decrease the self-sufficiency of households and individuals and can ultimately affect land use and maintenance, thus reducing land fertility and its ability to support production.

Brick-making by youths and the unemployed people for individual art construction and to make some money for school fees and other requirements is a common livelihood strategy which also puts pressure on land

Most people in the camps access water from protected sources within or directly adjacent to the camp, including boreholes drilled by international NGOs and the Directorate of Water Development (DWD). Drilling to some extent has some negative effects on land since vegetation has to be cleared.

The lack of education and the shortage of skilled individuals in Pader IDP Camps constrain livelihood strategies. Many of the schools in and around the camps are in very bad condition with no or very little facilities to support meaningful learning, forcing many pupils out of school. Many of them resort to fire wood collection, charcoal making, hunting, car washing in wetlands and digging sand to earn a living.

4.2. Quantifying environmental degradation around the camps

4.2.1. GIS and satellite images analysis

A district-wide comparison of vegetative cover around the IDP camps from 1986 to 2008 shows that 13886 km2 of land have been degraded, an increase from 3469 km^2 in 1986 to 173,553 km^2 in 2008 as shown in Table 3.

The findings substantiate the conclusion drawn from livelihood analyses that 1825kg of firewood is consumed yearly by a single family.

The concentration of basically rural people in one place can have dramatic effects on the surrounding environmental resources (Dorsey and Opeitum, 2002). Where a rural population, depending on wood resources for firewood and charcoal making, wild greens, seasonal fruits, thatch for roofs and grasses for lighting fires, and wanting to grow crops to supplement their food rations, is concentrated in a small area, dramatic environmental degradation is to be expected.

When there are no alternatives, people mine the soil and loot the environment, abandoning traditional practices and conservation practices promoted by extension staff. The fact is that they have no choice but to act as they do. Assuming that whatever species of trees might be required to reforest this land at a minimal rate (500 trees per km^2 to restore 173,553 km^2) cost no more than pines seedlings (Ush 1000 each), a total of approximately Ush90 million would be required to help this land recover. Additionally, the land would have to be left fallow for two years in the case of less intensively farmed land and 3 years for the land nearest the camps to regenerate natural soil fertility (no fertilizer is used except on tobacco) as it will take a number of years for the land most intensively used to regenerate its fertility. Leaving the land fallow will be an option if peace comes because vast areas now closed to farming by fear of rebel attacks or mistreatment by the army will again become available.

4.2.2. Land degredation differences between camp and non-settled villages

A tree counting survey was conducted at two sites where every tree species 5 metres and more in height were counted. A transect walk in different directions (southward at Patongo and eastward at Pajule) within a distant of one km away from the IDP settlement sites was taken to determine: 1) the number of trees, 2) the tree species (Table 4)

Table 2: *Name and number of trees around the IDP Camps*

Sites	Local name of the tree	Number	Comments
Patongo	Yao	4	Coverage increases as you go away from the camp
	Oduku	10	,,
	Oywelo	01	Constant
	Opogo	11	Coverage increases away from the camps
	Fruits (oranges, mangoes)	20	Constant
	Planted trees (Eucalyptus)	00	There was no tree planting
Pajule	Yao (Shea nut tree)	20	Coverage increases as you go away from the camp
	Oduku	16	,,
	Oywelo	00	
	Opogo	22	Coverage increases away from the camps
	Fruits (oranges, mangoes)	40	Constant
	Planted trees (Eucalyptus)	00	There was no tree planting

This survey showed that one of the greatest needs of all people in the IDP camps in the Pader district is firewood to cook their food, heat their homes and treat water for drinking and food preparation. Therefore trees within a radius of 7 km from the camp have been completely cleared down to meet various families' demands. It has been estimated that 29% of youths in the IDPs are involved in

cutting down trees for making charcoal (Human Rights Uganda, 2005). Because of threats from both the UPDF and LAR, youths could not move beyond 2-3 miles to collect wood resources.

The survey further revealed that Shea nut (Yao) was the most commonly cut tree species because it produces good quality charcoal and therefore earns more money for the charcoal producers (Table 2). The cutting of trees within the security perimeter area was however not controlled and therefore the activity was rampantly and indiscriminately carried out. Most of the environmental degradation in the IDPs is due to the fact that households cut down trees as a form of fuel (Muhumuza, 2008). Households destroy 65 per cent of the trees in the northern district.

Displacement exacerbates environmental degradation through intensive utilization of land, resulting in soil erosion and damage to the tree cover. Subsistence farming is augmented with charcoal production, slash-and-burn land clearing, cattle rustling and other non-sustainable practices (WFP, 2002)

Previously, most land was held under customary tenure (UNDP, 2006). People typically owned land by virtue of the fact that they and their families had always lived on it and therefore were regarded as the 'owners' of their land and they would manage it accordingly. But in the current situation, given the crowded and confined nature of the camps, land has been over-exploited and exposed to degradation.

5. CONCLUSIONS AND FUTURE ACTIONS

Using field data, satellite images and livelihood analyses combined with food consumption and demographic data, we have seen that there is direct relationship between internal displacement caused by the LRA war and land degradation. The war has significantly affected the environment in terms of deforestation, land degradation and habitat destruction in addition to the humanitarian crises.

In a chaotic situation, especially during wartime, everybody tries to secure his personal advantage, without thinking about others or future generations (Westing, 1992).

The future of Pader and Northern Uganda's environment and land resources is highly dependent on the dedication of the national, regional and district, including local community conservation bodies, to protecting natural areas against human pressure by providing alternatives to respond to local needs, guaranteeing the security of national and foreign institutions and individuals that conduct research and conservation work, enforcing the legislation related to land and natural reserves, and encouraging and organizing negotiations with both the LRA and the UPDF.

It is necessary to have a more objective analysis of the situation, not only about conservation purposes but also the national and global problems of the impact on Pader and neighboring districts that have been affected by the war.

Currently, efforts of reconstruction are being undertaken in various sectors. However, the environmental concerns which are key to the well-being of the nation are still being neglected.

The following recommendations are suggested:

- The peace process currently going on in Juba-Sudan should address environmental restoration at the local level, in addition to higher-level political intervention. Support to environmental and land restoration is an important entry point for peace initiatives at the local level involving Parish, Sub-county and District Environment Management Committees together with all the relevant stakeholders.

- Traditional norms that emphasise good environmental governance need to be rebuilt in Pader in particular and Northern Uganda at large since their economy is founded on land and other natural resources. Equitable and sustainable environmental governance at village level needs to be restored as a foundation for economic development in a manner that is sufficiently inclusive to underlie and support the traditional values of environmental resources, e.g. traditionally Acholi communities attached cultural values to certain threatened or distinct plants and animal species like the Shea nut tree.

- Progress has been made in introducing environmental issues in relief programmes in other areas like Darfur-Sudan despite increasingly difficult operating conditions, (Peytermann, 2007). Similarly, humanitarian programmes in the Pader district should address environmental vulnerability. This needs significant expansion in terms of establishing woodlots to restore soil fertility and provide other forest ecosystem functions for people leaving the camps and those still in the camps. Environmental management needs to be integrated into Peace, Recovery and Development Programmes (PRDP) while taking into account bottom-up planning approach.

- A major programme to reverse the rate of land degradation in IDP areas is needed at national and district levels. This should include the increased use of alternative energy technologies in order to slow deforestation in the Pader district. Drawing from the example of Bakeley-Darfur, the cook stove project being implemented by experts such as those with Engineers Without Borders, with local co-ordination and support from an international nongovernmental organization, CHF International, the Pader district could reduce the amount of firewood needed, thus slowing down the rate of deforestation and saving the environment.

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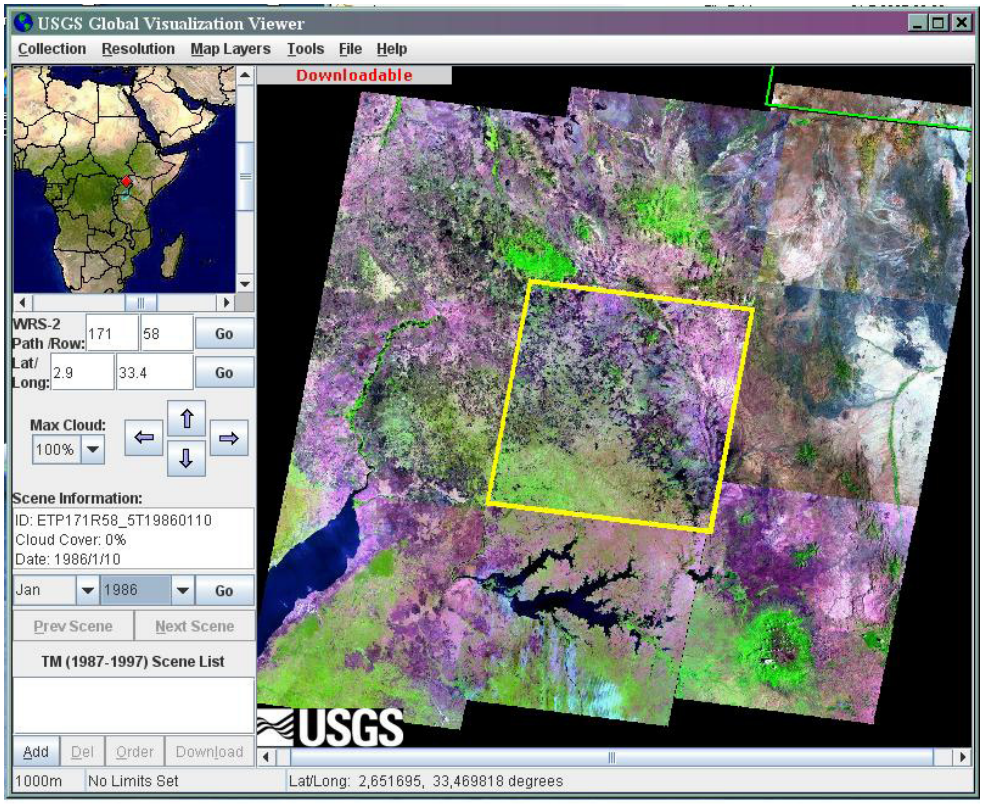
APPENDIX 1-A: The satellite images



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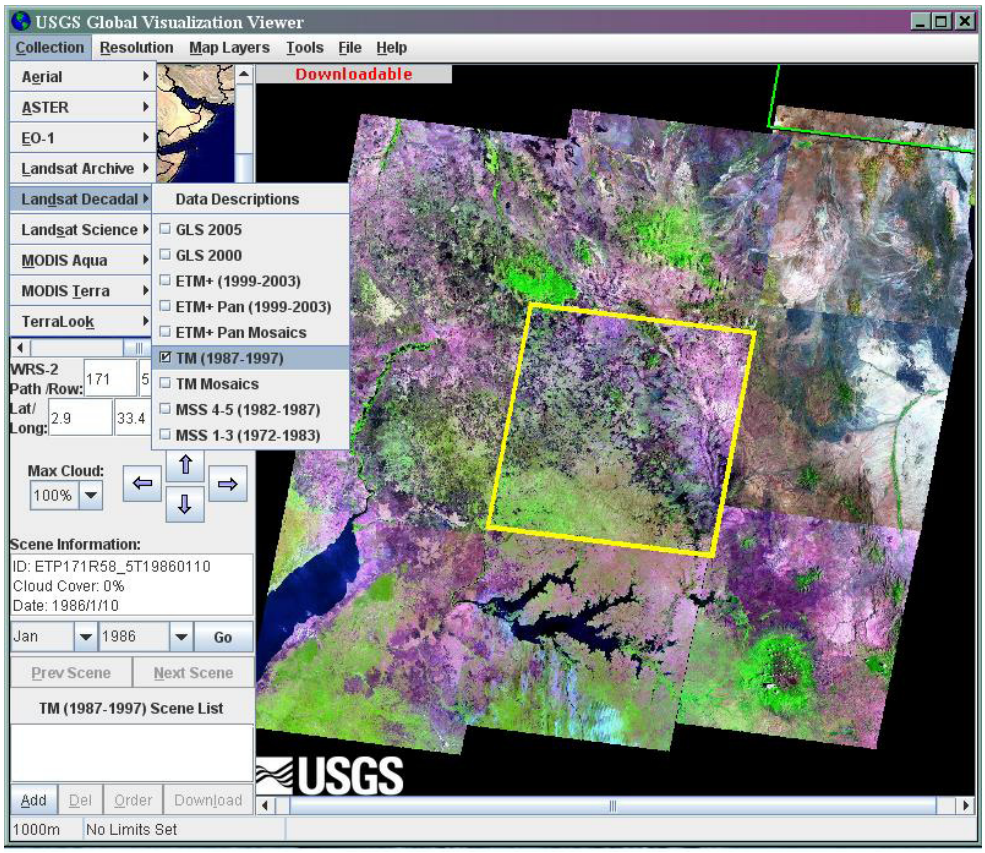
APPENDIX 1-B



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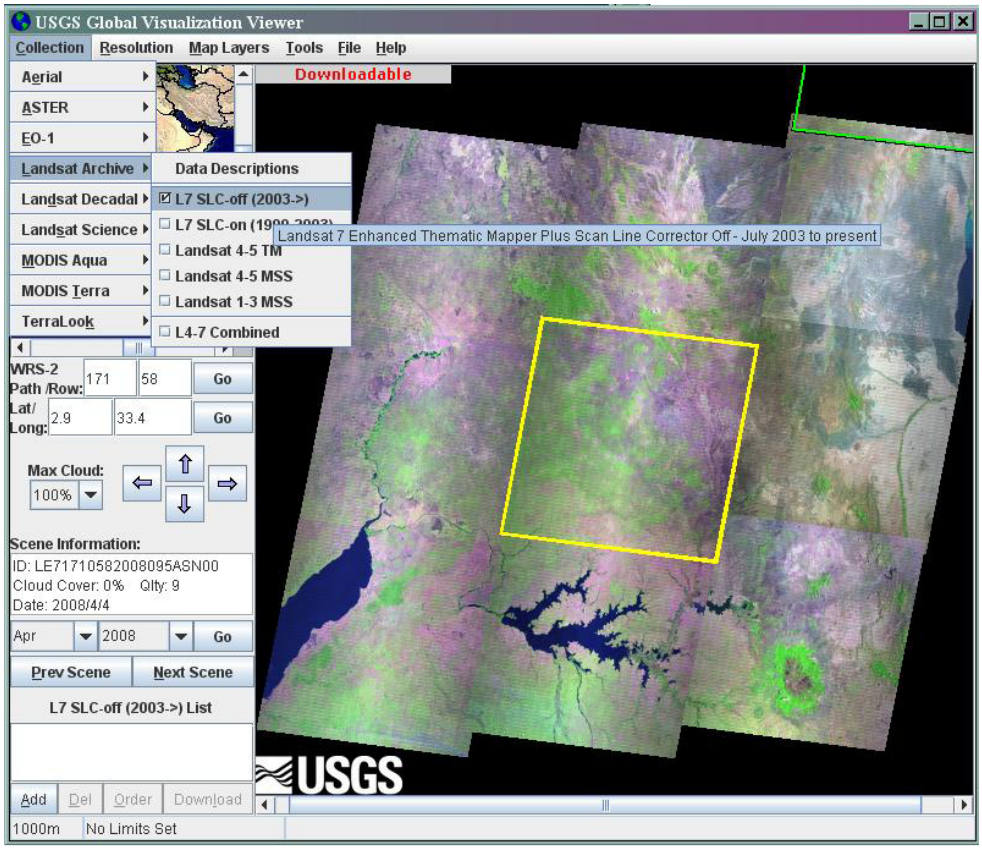
APPENDIX 1-C



Taken on 4/4/2008: Source: www.glovis.usgs.gov/image

APPENDIX 2: GPS location of the IDP camps in Pader district

S/No	CAMP	PARISH	PCODE06	EASTUTM	CLASS
1	Oyuku	Ngekidi	31210104	494219	Returnee Site
2	Puranga	Parwech	31210904	493169	IDP Camp
3	Rackoko	Lagile	31210303	493961	IDP Camp
4	Lagile	Lagile	31210303	484289	IDP Camp
5	Awere (Pader)	Bolo	31210302	481314	IDP Camp
6	Lacekocot (Atanga)	Kal	31210201	468501	IDP Camp
7	Angagura	Pungole	31210204	462411	IDP Camp
8	Alim	Paiula	31210804	495866	IDP Camp
9	Pajule	Palwo	31210806	493187	IDP Camp
10	Lapul	Lukaci	31210603	491054	IDP Camp
11	Porogali	Latigi	31210103	490968	IDP Camp
12	Acholibur	Gem Central	31210101	490358	IDP Camp
13	Latanya	Latigi	31210103	499159	IDP Camp
14	Pader Tc	Acoro	31210701	508638	IDP Camp
15	Corner-Kilak	Kilak	31210401	495656	IDP Camp

16	Laguti	Lapyem	31210501	478503	IDP Camp
17	Omot	Agelec	31220502	521252	IDP Camp
18	Arum	Achol-Pii	31220501	513663	IDP Camp
19	Lukole	Ngudi	31220403	536281	IDP Camp
20	Lira Palwo	Omungo	31220304	518558	IDP Camp
21	Geregere	Tenge	31220504	526055	IDP Camp
22	Kwonkic	Paicam	31220306	512772	IDP Camp
23	Kalongo	Town board	31220705	541465	IDP Camp
24	Wol	Rogo	31221005	521172	IDP Camp
25	Paimol Mutto	Mutto	31220602	548350	IDP Camp
26	Omia-Pachwa	Omia Pachwa	31220603	549072	IDP Camp
27	Adilang	Lalal	31220102	553380	IDP Camp
28	Lirakato	Lapono Omuk	31220203	552909	IDP Camp
29	Amyel	Kaket	31220202	552055	IDP Camp
30	Patongo	Lakwa	31220802	533630	IDP Camp
31	Odokomit	Lukee	31220803	530505	IDP Camp
32	Atanga Mission	Kal	31210201	469949	IDPReturnee Site
33	Ligiligi	Ngekidi	31220103		IDP Camp
34	Orina	Orina	31220104		IDP Returnee Site
35	Lamiyo	Otaka	31220305		IDP Returnee Site
36	Obolokome	Agengo	31220301		IDP Returnee Site
37	Olung	Ngudi	31220403		IDP Camp
38	Achol Pii Lapono	Achol-Pii	31220501		IDP Returnee Site
39	Agelec	Agelec	31220502		IDP Returnee Site
40	Atenge	Achol-Pii	31220501		IDP Returnee Site
41	Olupe	Tenge	31220504		IDP Returnee Site
42	Kokil	Pacabol	31220604		IDP Returnee Site
43	Toroma	Kal-Agum	31221002		IDP Returnee Site
44	Kotomor	Omato wee	31220804		IDP Returnee Site
45	Opyelo	Kal	31220801		IDP Returnee Site
46	Dure	Ngekidi	31210104		IDP Returnee Site
47	Bolo	Bolo	31210302		IDP Camp
48	Lakoga	Aringa	31210902		IDP Returnee Site
49	Acuru	Agengo	31220301		IDP Returnee Site
50	Agora	Kilak	31210401		IDP Returnee Site
51	Tyer	Kilak	31210401		IDP Returnee Site
52	Paiula	Paiula	31210804		IDP Returnee Site
53	Wang lobo	Oret	31210903		IDP Returnee Site
54	Laminajiko	Apwor	31210901		IDP Returnee Site
55	Odum	Oret	31210903		IDP Returnee Site
56	Ogonyo	Apwor	31210901		IDP Returnee Site

57	Awonodwe	Atece	31220503		IDP Returnee Site
58	Loborom	Oret	31210903		IDP Returnee Site
59	Kazikazi	Otaka	31220305		IDP Returnee Site
60	Opota	Tenge	31220504		IDP Returnee Site
61	Te-Okuttu	Parwech	31210904		IDP Returnee Site
62	Adong Kena	Parwech	31210904		IDP Returnee Site
63	Awere Lakoga	Apwor	31210901		IDP Returnee Site
64	Angole	Angole	31210301		IDP Returnee Site
65	Agweng	Bolo	31210302		IDP Returnee Site
66	Laminacwida	Oret	31210903		IDP Returnee Site
67	Moodege	Lukwangole	31220805		IDP Returnee Site
68	Oyere	Atece	31220503		IDP Returnee Site
69	Onuduapet	Omato wee	31220804		IDP Returnee Site
70	Olyelowidyel	Omato wee	31220804		IDP Returnee Site
71	Orumu Odwong	Lukwangole	31220805		IDP Returnee Site
72	Latin-Ling	Tenge	31220504		IDP Returnee Site
73	Corner Gang Aculu	Tenge	31220504		IDP Returnee Site
74	Ogagu	Ogago	31210801		IDP Returnee Site
75	Ogom Telela	Ogom	31210402		IDP Returnee Site
76	Labongo Olung	Otong	31210403		IDP Returnee Site
77	Wimunupecek	Lanyirinyiri	31220302		IDP Returnee Site
78	Amilobo	Paibwor	31210502		IDP Returnee Site
79	Lapul P7	Ato	31210601		IDP Returnee Site
80	Koyo Lalogi	Koyo	31210602		IDP Returnee Site
81	Gore	Koyo	31210602		IDP Returnee Site
82	Wangduku	Palenga	31210805		IDP Returnee Site
83	Oguta	Otok	31210803		IDP Returnee Site
84	St Mary's	Ato	31210601		IDP Returnee Site
85	Ogom Akuyam	Pucota	31210203		IDP Returnee Site
86	Bur Lobo	Pungole	31210204		IDP Returnee Site
87	Lamogi Palenga	Palenga	31210805		IDP Returnee Site
88	Lacani	Ogole	31210604		IDP Returnee Site
89	Lanyatido	Lukaci	31210603		IDP Returnee Site
90	Biwang	Omungo	31220304		IDP Returnee Site
91	Barotiba	Lakwa	31220802		IDP Returnee Site
92	Okinga	Gemonyot	31210102		IDP Returnee Site
93	Kineni	Pukor	31210404		IDP Returnee Site
94	Alyek	Otaka	31220305		IDP Returnee Site
95	Amoko	Ngekidi	31210104		IDP Returnee Site
96	Awal	Oryang	31210802		IDP Returnee Site
97	Loyonyero	Ogago	31210801		IDP Returnee Site

98	Gang Boke	Palwo	31210806		IDP Returnee Site
99	Otok	Otok	31210803		IDP Returnee Site
100	Lajeng	Lapyem	31210501		IDP Returnee Site
101	Ladere	Ngekidi	31220103		IDP Returnee Site
102	Lukole	Ngudi	31220403		IDP Returnee Site
103	Atede	Ajali	31220401		IDP Returnee Site
104	Ajwa	Lalal	31220102		IDP Returnee Site
105	Labora	Lapono Omuk	31220203		IDP Returnee Site
106	Kabala	Pabala	31220701		IDP Returnee Site
107	Pacer	Pacer	31220702		IDP Returnee Site
108	Aywee Gagara	Pacer	31220702		IDP Returnee Site
109	Olambwera	Agengo	31220301		IDP Returnee Site
110	Abone	Paicam	31220306		IDP Returnee Site
111	Pader Aluka	Ogom	31210402		IDP Returnee Site
112	Pagwari	Acoro	31210701		IDP Returnee Site
113	Kiteny	Otong	31210403		IDP Returnee Site
114	Ogankankok	Palwo	31210806		IDP Returnee Site
115	Ominy Kamac	Paiula	31210804		IDP Returnee Site
116	Ongany	Kilak	31210401		IDP Returnee Site
117	Ogwil	Kilak	31210401		IDP Returnee Site
118	Oweka	Ogole	31210604		IDP Returnee Site
119	Laregu	Pakeyo	31210503		IDP Returnee Site
120	Lalira	Paicam	31220306		IDP Returnee Site
121	Ludel	Aringa	31210902		IDP Returnee Site
122	Bar Ayom	Ngoto	31210202		IDP Returnee Site
123	Ocoyo Lamero	Kaket	31220202		IDP Returnee Site
124	Lamin Nyim	Latigi	31210103		IDP Returnee Site
125	Apil	Paluti	31221004		IDP Returnee Site
126	Kilokoitio	Ngekidi	31220103		IDP Returnee Site
127	Abilinino	Lapono Omuk	31220203		IDP Returnee Site
128	Kuywee	Paluti	31221004		IDP Returnee Site
129	Laboye	Lagile	31210303		IDP Returnee Site
130	Lunyiri	Lagile	31210303		IDP Returnee Site
131	Lutini	Angole	31210301		IDP Returnee Site
132	Omatowee	Omato wee	31220804		IDP Returnee Site
133	Odokonyero	Kal	31220801		IDP Returnee Site
134	Aringa	Apwor	31210901		IDP Returnee Site
135	Lwala	Parwech	31210904		IDP Returnee Site
136	Abalokodi	Apwor	31210901		IDP Returnee Site
137	Got Olal	Bolo	31210302		IDP Returnee Site
138	Angole Dam	Lagile	31210303		IDP Returnee Site

139	Laminchila	Lagile	31210303		IDP Returnee Site
140	Lukor	Lagile	31210303		IDP Returnee Site
141	Can Beno	Lagile	31210303		IDP Returnee Site
142	Aloi	Lukwangole	31220805		IDP Returnee Site
143	Opidolobo	Lukee	31220803		IDP Returnee Site
144	Labworemo	Kal	31220801		IDP Returnee Site
145	Apano	Kal	31220801		IDP Returnee Site
146	Lajok	Ngekidi	31210104		IDP Returnee Site
147	Lakabar	Guda	31221001		IDP Returnee Site
148	Lamit	Kal Agum	31221002		IDP Returnee Site
149	Lacek-oto	Labwa	31220101		IDP Returnee Site
150	Ayika	Atece	31220503		IDP Returnee Site
151	Aywee	Otaka	31220305		IDP Returnee Site
152	Awalmon	Ogole	31210604		IDP Returnee Site
153	Wikira	Lukwangole	31220805		IDP Returnee Site
154	Ogole	Ogole	31221003		IDP Returnee Site
155	Lugung	Rogo	31221005		IDP Returnee Site
156	Lelakale	Parumu	31220704		IDP Returnee Site
157	Okwadoko	Rogo	31221005		IDP Returnee Site

Source: UNHCR

APPENDIX 3: Population summary for 2008

S/NO	FOOD DISTRIBUTION CENTRES	MALE	FEMALE	TOTAL POPN	HOUSE HOLD
1	Acholibur	8510	8409	16919	3511
2	Acholpii	352	382	734	161
3	Acuru	653	649	1302	264
4	Adilang	7871	7891	15762	3085
5	Agelec	0	0	0	0
6	Agora	257	350	607	185
7	Alim	1344	1429	2773	610
8	Amyel	5206	5377	10583	1876
9	Angagura	3245	1452	4697	674
10	Arum	4084	4277	8361	1595
11	Atanga Main	8447	9259	17706	3977
12	Atanga Mission	1062	1066	2128	465
13	Awere	4329	4260	8589	1705
14	Bolo	691	741	1432	267
15	Corner Kilak	3928	4375	8303	1802
16	Dure	1422	1595	3017	565

17	Geregere	2248	2507	4755	1175
18	Kalongo	13690	14594	28284	5121
19	Kokil	1798	1616	3414	683
20	Kotomor	267	288	555	116
21	Kwonkic	1489	1525	3014	583
22	Lagile	1376	1484	2860	628
23	Laguti	1824	1687	3511	803
24	Lakoga	347	434	781	190
25	Laminagiko	166	171	337	67
26	Lamiyo	702	759	1461	357
27	Lapul	8193	8680	16873	2720
28	Latanya	1321	1334	2655	620
29	Ligiligi	1602	1648	3250	586
30	Lirapalwo	7599	7907	15506	2888
31	Lirakato	4057	4164	8221	1894
32	Lukole	3912	4210	8122	1578
33	Muttu	4526	4268	8794	1595
34	Obolokome	1665	1683	3348	749
35	Odokomit	2100	2007	4107	721
36	Ogonyo	996	1077	2043	431
37	Olung	1126	1182	2308	466
38	Olupe	782	815	1597	356
39	Omiya Pacwa	4300	4350	8650	1526
40	Omot	1718	1888	3606	713
41	Opyelo	1037	1041	2078	410
42	Pader T.C	8229	8681	16910	3940
43	Paiula	1084	1140	2224	434
44	Pajule	9200	9545	18745	3128
45	Patongo	17937	18342	36279	7050
46	Porogali	1761	1909	3670	699
47	Puranga	6100	6453	12553	2540
48	Rackoko	4116	4500	8616	1879
49	Toroma	1551	1613	3164	629
50	Tyer	900	981	1881	417
51	wol	3694	3929	7623	1610
Total		172938	179924	352862	70390

Source: World Vision- Pader

Acronyms and abbreviations

AAH	Action Against Hunger
CHF	Canadian Hunger Foundation
CSO	Civil Society Organization
DIP	District Information Portal
DWD	Directorate of Water Development
GIS	Geographical Information System
HPG	Humanitarian Police Group
HSM	Holy Spirit Movement
IDM	International Displacement Monitoring
IDP	Internally Displaced Persons
LDU	Local Defense Unit
LRA	Lord Resistance Army
LRT	Land Restoration Training
NEMA	National Environment Management Authority
NGOs	None Governmental Organizations
NRA	National Resistance Army
PRDP	Peace, Recovery and Development Programmes
UCDA	Uganda Christian Democratic Army
UHR	Uganda Human Right
UNDP	United Nation Development Programme
UNEP	United Nations Environment Programme
UNHCR	United Nation High Commission for Refugee
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UPDA	Uganda People's Democratic Army
UPDCA	Uganda People's Democratic Christian Army
UPDF	Uganda Peoples Defense Forces
USAID	United States Agency for International Development
WFP	World Food Programme