THE REPUBLIC OF UGANDA

Kitgum District

Hazard, Risk, and Vulnerability Profile

2016

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Acronyms

ALREP	Agricultural Livelihood and Recovery Programme
BBW	Banana Bacterial Wilt
BW	Bacterial Wilt
CBPP	Bovine Contagious Pleuropneumonia
CBSD	Cassava Brown Streak Disease
DDMC	District Disaster Management Committee
DRM	Disaster Risk Management
FMD	Foot and Mouth Disease
GIS	Geographical Information System
GoU	Government of Uganda
GPS	Global Positioning System
HC	Health Centre
HCII	Health Centre Two
HCIII	Health Centre Three
HCIV	Health Centre Four
IDPCs	Internally Displaced Peoples Camps
LRA	Lord's Resistance Army
NAADs	National Agricultural Advisory Services
NCD	New Castle Disease
NUSAF	Northern Uganda Social Action Fund
S/C	Sub County
T/C	Town Council
UNDP	United Nations Development Programme
UPDF	Uganda Peoples' Defence Force
UTM	Universal Transverse Mercator

Acknowledgment

On behalf of Office of the Prime Minister, I wish to express my sincere appreciation to all of the key stakeholders who provided their valuable inputs and support to this Multi-Hazard, Risk and Vulnerability mapping exercise that led to the production of comprehensive District Hazard, Risk and Vulnerability (HRV) profiles.

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The entire body of stakeholders who in one way or another yielded valuable ideas and time to support the completion of this exercise.

Hon. Hilary O. Onek
Minister for Relief, Disaster Preparedness and Refugees

Executive Summary

This Kitgum District Hazard, Risk and Vulnerability Profile integrates scientific information provided by GoU agencies and hazard and vulnerability knowledge provided by communities on the District base map to contribute to a Ugandan atlas of disaster risk. It will support planning and decision-making processes to manage disaster risk in the District.

The methodology provided for four phases of work:

Phase I:	Requirements analysis, work planning, team building, logistical arrangements
Phase II:	Stakeholder mapping, consultation, spatial data acquisition, secondary data assessment
Phase III:	Data cleaning, analysis and verification
Phase IV:	Dissemination workshop

The report characterizes the District in terms of location, geography, gender demographics by Sub-County and livelihoods.

Kitgum District is situated in Northern Uganda between latitudes 3^0 13'N and Longitudes 32^0 47'E bordered by South Sudan to the North, Kaabong District to the East, Kotido District to the Southeast, Agago District to the South, Pader District to the Southwest and Lamwo District to the Northwest.[1] Kitgum, the largest town in the District, is located approximately 108 kilometres (67 mi), by road, NorthEast of Gulu, the largest city in the sub-region.[2] This location lies approximately 460 kilometres (290 mi), by road, North of North of Uganda's capital, Kampala.

The findings identify 13 endemic hazards comprising of bush fires, internal conflicts, crop pests and diseases, environmental degradation, prolonged dry spell, vermin, invasive species, heavy storms, human epidemics, floods, cattle theft, animal vectors and diseases and landmines and UXO.

The discussion of the nature of each hazard and its geographic extent in terms of Sub-Counties provides a qualitative assessment of the situations that the communities face. Maps corresponding to each hazard show the areas where the hazard is significant, and also hotspots as reported points of incidence of the hazard.

Kitgum District has significant vulnerability to disaster, accumulating risk from these hazards. Like Gulu, Kitgum District does not have any Sub-County in the "red" category. All the Sub-Counties in the District displayed a medium (yellow) level vulnerability to the resident hazards with weighted vulnerability values between 5 and 7. Orom, Labongo Akwang and Labongo Amida Sub-Counties reported the highest vulnerability in Kitgum District with cumulative vulnerability values of 22, 21 and 21 respectively and a weighted vulnerability of 7 each which lies in the middle (yellow) category of the vulnerability scale.

Though still highly vulnerable, Kitgum Town Council and Lagoro Sub-Counties had the lEast vulnerability in the District with a cumulative vulnerability value of 17 and a weighted vulnerability of 6 each.

These Sub-Counties though less vulnerable, should also be fortified against occurrences of new hazards and exacerbation of resident hazards now occurring at lower magnitudes but which may be worsened by climate extremes expected in the near future.

Timely early warning systems and other DRR interventions would enhance the resilience of the people of Kitgum in their hazard and climate change situation.

Definition of Terms

Drought. Drought is the prolonged shortage of water usually caused by lack of rain. Drought and food insecurity are related because crop and livestock productivity suffer in droughts.

Food insecurity. Food Insecurity is the severe shortage of food that may lead to malnutrition and death.

Floods. A flood occurs when large amounts of water cover a place that is meant to be dry. Floods usually occur with high rainfall.

Landslides. These are rapid movements of large mass of mud, rocks, formed from lose soil and water. Landslides occur mainly during the rainy season, but they can also be precipitated by earthquakes. Community settlement on steep slopes and other uncontrolled land use practices increase the probability of landslides.

Epidemics. This is the occurrence of a disease, in a particular community and at a particular period, beyond normal levels and numbers. Epidemics may affect people, crops or livestock.

Human epidemics. The diseases include cholera, meningitis, hepatitis E, marbug, plague, avian influenza, ebola and sleeping sickness among others.

Crop and animal epidemics. Animal epidemics include swine fever, foot and mouth disease, naganan, and bird flu. Crop disease epidemics include coffee wilt, banana bacterial wilt, cassava mosaic and cassava brown streak disease.

Heavy storms. Heavy storms in Uganda are often accompanied by hail, lightning and violent winds. Storms can result in destruction of crops, animals, public facilities and human settlements. Lightning can be deadly and may be mitigated by lightning ground conductors on buildings.

Pest infestation. These are destructive insects, worms, caterpillars or any other animal that attacks crops or livestock. Common pests in Uganda include weevils, locusts and caterpillars.

Vermin. Baboons, chimpanzees, bush pigs and other animals which raid crops cause damage and losses which may significantly diminish agricultural productivity.

Land conflict. These are conflicts arising from ownership and use of land and other land resources.

Cattle rustling. This is when one community raids another to steal livestock.

Environmental Degradation. This results from poor land use and other unsustainable ecosystem exploitation that lead to deterioration of the environment. Overgrazing, cultivation on sloping land, unguided and uncontrolled use of fertilizers and pesticides, bush burning,

overfishing, deforestation, mining, poor wastewater treatment, inappropriate waste disposal and wetlands reclamation are examples of causes of environmental degradation.

Mines and unexploded ordinance. Mines are devices designed to explode with fatal effect when disturbed. Unexploded ordinance are unspent bullets, grenades, rockets, eTown Council., which are discarded or stored.

Bush fires. Fires set deliberately to clear forest or pasture for agricultural purposes may go out of control and consume far more than intended.

Earthquakes. Earthquakes results from sudden violent movements of the earth's surface, sometimes causing massive loss of lives and property due to building collapse.

Invasive Species. A non-native plant or animal that invades a habitat or bioregion with adverse economic, environmental, and/or ecological effects. An example is a grass that is dominating pasture in the Rwenzori sub-region, reducing the grazing capacity of the land.

INTRODUCTION

Kitgum District Local Government and the Department of Relief, Disaster Preparedness and Management in the Office of the Prime Minister (OPM), with the support of the United Nations Development Programme (UNDP), embarked on a process of mapping the hazards and analyzing disaster risks and vulnerabilities in the District. The information contained in this District Hazard, Risk, and Vulnerability Profile will guide the adoption of disaster risk management (DRM) measures in the District and inform the development of the District's contingency and development plans.

Objectives

The objective of the hazard, risk, and vulnerability mapping is to produce a District Profile that will aid planning and decision making processes in addressing disaster threats/risks in Kitgum District.

Methodology

The multi hazard, risk and vulnerability mapping employed a people-centered, multi-sectoral, and multi-stakeholder approach. To capture the required information for production of the District profiles, a team of four led by the Office of the Prime Minister (OPM) visited stakeholders in a field mission to Lango region from 11th to 30th May, 2014. The team had One Disaster Preparedness Officer, One GIS Expert and two GIS Specialists. They worked in each District for an average of two days.

The field team interviewed District, Sub-County and Parish officials, and community members. They acquired secondary data through government sources (relevant Ministries, Departments and Agencies, and District Authorities in the Lango Sub-Region) and data bases from other organizations/NGOS operating in these Districts. The mapping team integrated the field data, secondary data and spatial data and analyzed them to produce hazard and vulnerability maps, interpretation and conclusions in District hazard, risk and vulnerability profiles.

The District profile production process had four phases:

Phase I: Preliminary Activities

Phase II: Field Data Collection and Mapping

Phase III: Data Analysis, Map Production, Report Writing and Verification

Phase IV: Dissemination

Phase I: Preliminary Activities

Before the start of field activity the team undertook a series of planning and preparation activities. These included meetings with relevant stakeholders, mobilization of required resources, acquisition of required equipment and materials, review of relevant literature, establishment of study contacts and preparation of a checklist of activities to be undertaken in Phase II.

The main objectives of Phase One were to allow the mapping team to prepare and undertake a preliminary assessment of the quality and nature of the resources/materials, develop a quick understanding within the team and by stakeholders of the tasks of the multi-hazard, risk, and vulnerability mapping before any detailed field work was undertaken. This phase enabled early choice and scoping of specific mapping content and legends for the thematic maps.

This phase was also useful for preparing the resource deployment plan, and outlining procedural and field work plans. It articulated how various stakeholders would be consulted to ensure maximum participation in locating hazard-prone communities and other information relevant to the mapping exercise.

Phase II: Field Data Collection and Mapping

Stakeholder mapping and local meetings: The team held an entry meeting in each District to facilitate capture of key local issues related to hazard occurrence and trends. The meeting gave an opportunity for the team and stakeholders to identify other key resource persons and support staff for consultation in the local community.

Stakeholder Participation Practices: Stakeholder participation was a key component of the mapping exercise. The team consulted District technical sector heads, usually members of the District Disaster Management Committee (DDMC), and involved them in the ground-truthing exercises to ensure ownership of the data and results by the District leadership. They gave stakeholders, particularly those at District level, the opportunity to validate/update the data and make useful observations and additions of any other information relevant to the mapping process.

Capture of spatial data: Themapping team acquired spatial data and digital base maps at appropriate scales. When necessary they digitized feature layers of paper maps. The base maps contained relevant feature data including terrain, District and Sub-County boundaries, forest reserves, national parks, roads, rivers, streams, water bodies and wetlands, and the locations of infrastructure, services and settlements.

Secondary data and desk research: The team reviewed relevant documents at the District offices and other organizations, assimilating policy and legal documents, and existing maps, development plans, reports and studies to characterize the socioeconomic and geographic nature of the District. They used a checklist which summarized the information required for each of the various risk indicators being mapped.

Critical observation and ground truthing: To critically assess the conditions, nature and location of hazard prone zones, current human activities and settlement patterns in hazard prone areas, the team visited infrastructure elements, observed principal household economic activities and spot-checked the locations of map features. They took the locations of hazard instances, called “hotspots”, using a GPS receiver and used satellite imagery to validate and extend map features.

Main instruments of data collection: The main tools for data collection were methodology guidebooks, key informant guides, notebooks, GPS receivers, digital camera, document scanner, Google Earth, Satellite images and topographic sheets of the mapping areas.

Phase III: Data Analysis, Map Production, Report Writing and Verification

Analysis of collected data: The team and District Local Government officials analyzed the collected data. The mapping team added thematic layers and hazard incident points (hotspots) to the base maps to develop the hazard, risk and vulnerability maps. The main activities in this phase include:

- Data entry, cleaning and coding
- Preparation of base maps and process maps
- Preparation of disaster risk and vulnerability maps

Methods used for data analysis: The following data analysis methods were used:

- Scanning, geo-referencing, digitizing, geo-processing, and data transformation
- Focus group discussions and team discussions
- Drafting, digitizing and GIS overlays
- Compiling data and information

Data editing, cleaning and coding: The mapping team used the various tools mentioned above for editing, cleaning and coding. They transcribed the qualitative and quantitative data obtained from the field into spreadsheet tables using a data entry interface analogous to the field data forms. They cleaned the data by reconciling differences among the perceptions of the various stakeholders and resolving data anomalies as they edited the spreadsheet tables that listed the hazards perceived in each Sub-County. They chose coding schemes to distinguish and represent on the hazard maps the levels of risk perceived by the stakeholders.

Data analysis: After data were collected from the field, the mapping team analysed and represented them using MS Office software (MS Word and MS Excel for Windows). They analysed spatial data using ArcGIS software and mobile GIS applications, systematically overlaying hazard feature (layers) onto base maps to produce the risk and vulnerability maps.

Descriptive statistics: The mapping team investigated trends per given indicator using tables, graphs, charts and frequencies. As processing of data developed, it was integrated for production of thematic maps for the various types of hazards.

Generation and verification of draft maps: The mapping team elaborated a series of hazard risk maps which reflect the severity of each hazard risk in each Sub-County, encoded as high (red), medium (yellow), low (green) , and “not reported” (clear), reflecting the perception of stakeholders. They summarized the vulnerability situation in the District on a single map by colour-coding the Sub-Counties according to the sum of the Sub-County hazard risk scores divided by 3, using the following classification scheme:

Table 1 Vulnerability classification scheme

(Sum of hazard risk severities)/3 in the Sub-County	Vulnerability	Map colour code
0	None	Clear
1 - 4	Low	Green
5 - 7	Moderate	Yellow
8 or more	High	Red

The hazard summary table ranks the hazards according to the ascending order of the values of the sum of Sub-County hazard risk scores for each hazard.

Several weeks later, the team returned to the region to present the draft District Hazard, Risk and Vulnerability Profiles in a verification workshop. They invited stakeholders to assess the maps' accuracy and completeness, identify errors and gaps, and provide correct information to be incorporated in the final map versions.

Phase IV: Dissemination Workshop

After publication of the set of the District hazard, risk, and vulnerability profiles of the region, OPM staff led a final workshop to dissemination them and promote awareness of their usefulness to local partners.

Overview of the District

Location and Administration

The District is in the Northern part of Uganda in Acholi Sub region. It is located between Longitude 32^0E, and 34^0E, Latitude 02^0N and 04^0 N. It is bordered by Southern Sudan to the North, Kaabong District to the East, Kotido to the South East, Agago District to the South, Pader District to the Southwest and Lamwo District to the Northwest.

Kitgum District consists of nine Sub counties and one Town Council, i.e. Orom, Kitgum Matidi, Namokora, Omiya Anyima, Lagoro, Labongo Layamo, Labongo Amida, Mucwini, Labongo Akwang Sub-Counties, and Kitgum Town Council. It made 424 Villages and 52 Parishes constituting the administrative units the local council. It is a one county (that is to say Chua) District. Kitgum District is approximately 460km by road to the North of Uganda's capital Kampala. Figure 1 shows the map of Kitgum District showing Sub counties and Parishes.

Table 2 Administrative Units of the District

County	Sub-County	Land Area (Sq. Km)	Number of parishes	Number of villages
CHUA	Kitgum Town Council	41.3	Alango	28
			Guu	
			Pager	
			Town Parish	
			Pandwong	
			Pongdwongo	
			West Land	
	Labongo Amida	358.4	Akworo	29
			Koch	
			Lamola	
			Lukwor	
			Okidi	
			Oryang A	
	Labongo Layamo	413.5	Pagen	23
			Pamolo	
			Paibwor	
			Ocetoke	
	Labongo Akwang	126.0	Lamit	21
			Lugwar	
			Pajimo	
	Kitgum Matidi	165.4	Ibakara	45
			Lumule	
			Oryang	
			Paibony	
	Lagoro	275.7	Laber	43
			Pawidi	
			Lakwor	
			Lalano	
	Mucwini	482.4	Akara	79
			Bura	
			Okol	
			Pacwa	
			Pubec	
			Pajong	
			Yepa	
			Ogwa-Poke	
			Pudo	
	Orom	1,665.9	Akurumor	87
			Katwotwo	
			Kiteny	
			Lolwa	
			Okuti	
			Lolia	
	Namokora	385.9	Pagwok	28
			Pogoda East	
			Kalabong	
			Pogoda West	
	Omiya-Anyima	373.1	Palwo	54
			Melong	
			Akobi	
			Panyum Pela	
Total.		**4,287.6**	**51**	**437**

Physical Features

The altitude in Kitgum District ranges from 750 metres above sea level in the Western parts of the District, rising to over 2300 meters in the hill ranges streTown Councilhing from Rom in the South East to Lonyili in the North East (Macmillan Uganda Publishers Ltd, 2011). The soils vary with localities but they are generally well-drained sandy, clay, loam and sand clay in some places.

Climate

The District receives average annual rainfall of 1300mm. First rains season which normally starts in late March with peaks in April to May and Second Rains season which runs from July to October with peaks in August and September. The average monthly maximum temperature is 270C and average monthly minimum temperature is 170C. Table 3 shows Rainfall for the years 2003. Based on the amount of rainfall received, the District can be divided into two major climatic Zones.

a) Medium rainfall areas: these are areas with a total amount of rainfall ranging between 800-1000mm per annum. Areas which fall under this zone include: Akwang, Layamo, Kitgum Matidi, Amida, Town Council, Lagoro, Omiya Anyima Sub-Counties.

b) Low rainfall areas: these are areas, which receive less than 800mm rainfall per annum. These include Mucwini, Orom and Namokora Sub-Counties. Table 3 shows rainfall for various years.

Table 3 Average Annual rainfall in Kitgum District

MONTHS	Year									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Jan	25	44.5	24.7	7.4	44.6	20	26.7	7.8	4.2	0
Feb	9.8	35.3	26.7	13.4	57	7	5.2	138.6	16.4	1.2
March	84.1	33.5	97.6	91.9	68	117.1	47.4	77	33.8	0
April	176.8	236.4	100.3	158.2	83.7	164.7	139.9	39.2	39.6	267.6
May	148.8	92.8	124.3	185.5	115.1	121.6	157	210.6	192.6	110
June	131.9	163.2	83.3	59.5	185.1	144	105.5	182.7	82.8	84.2
July	166.2	83.2	104.8	176.1	190.8	107.7	40.5	161.5	157.2	140
August	198.3	137	111.8	69.8	140.1	144.2	186.8	120	163.4	175.6
Sept	74.5	81.4	148.1	128.1	235.7	134.7	193.7	224	109.3	161.6
Oct	66.9	81.3	70.4	142.1	59.1	260.9	157.8	138.8	100.9	220.1
Nov	58.3	149.5	58.8	174	32.2	82.2	42	33.7	159.9	63.1
Dec	37.8	25.8	0	122.7	37.8	0	67.4	1.6	28.6	0
Total	**3181.4**	**3167.9**	**2955.8**	**3334.7**	**3256.2**	**3312.1**	**3178.9**	**3345.5**	**3099.7**	**3235.4**

Brief History

Kitgum is one of the Districts in Acholi Sub-region in Northern Uganda. At independence in 1962, Kitgum was part of Acholi District. In 1974, under the provincial administration the then Acholi District was divided into Districts, West Acholi and East Acholi. The latter became Kitgum District in 1980 (Fountain, 2011).

Environmental issues

The District total land area gazzetted as forest reserves is 75,570Ha which constitutes 20% of its land mass. 98% of the forest resources the population is dependent on is found in natural woodlands. Virtually all our forest products come from these wood lands. 57% of the Households live in less than 3km natural woodlands/gazetted areas implying that these resources are prone to high levels of degradation.

About 97% of the people in the District are involved in agriculture for their livelihoods; farmers always massively cut down natural woodlands for agricultural land with no intention of replacing by way of plantation establishment. The poor farming methods by communities often lead to land degradation thereby affecting production and productivity of the soil. This has led to farmers moving to virgin lands which are often forested, wetlands, riverbanks and streams. This practice has led to destruction of this fragile ecosystem and in extreme situations; their disappearance. 50% of the households admitted that there is a significant reduction in water level, while 20% say their water is filthy.

There is widespread deforestation in the District especially around the former IDP camps with often bare land observed in the radius of 2-4km. Inadequate firewood at household level has become more evident with consumption ranging between 100-199kg/HH/month; yet the distances to access this firewood is ever increasing. The biggest consumers of fuel wood are schools, prisons and hospitals (2-3 tons of fuel wood/month. Fuel wood saving technologies are used by only 6% of the total population in the District and yet only 2% of people are engaged in forestry based IGA (mostly agro-forestry). Other environmental concerns include: Soil degradation and erosion, change in the rain pattern in the District, deterioration of grazing lands, pollution of water bodies and poor waste management

General Land Cover

The natural vegetation in Kitgum District is composed mainly of grasslands, bushland and woodland. The dominant grasses are Hyparrhenia, Panicum, Brachiaria and Seteria spp. Acacias, cambreliums, terminalias,Vitalleria, Bridelia, Bauhinia, Balanites, Tamarinuds spp, are among the tree species which dominate the woodland forests, and are scattered in the bushlands.

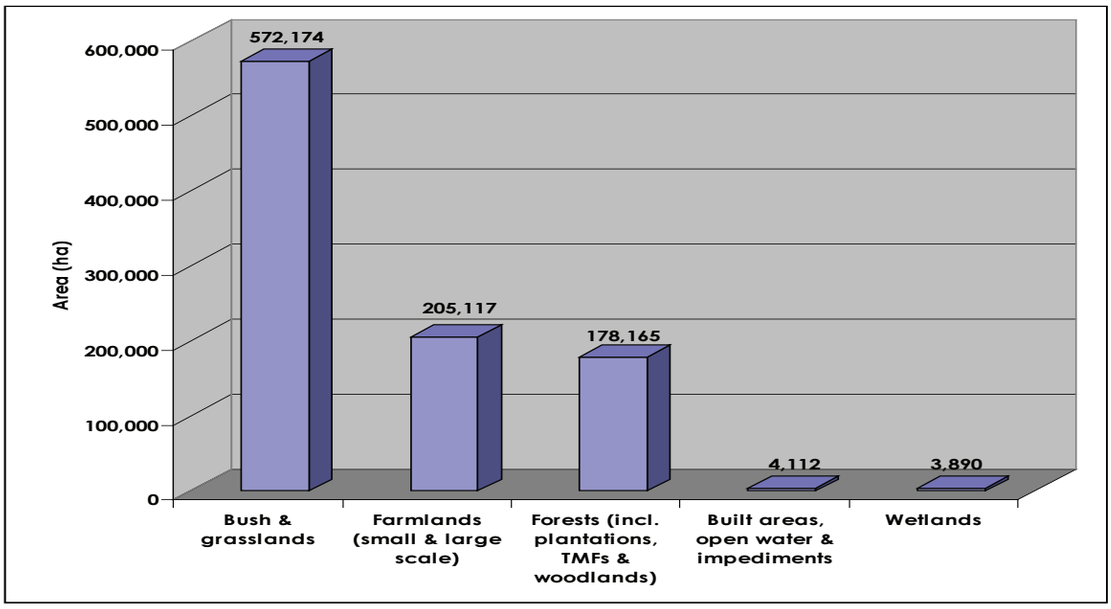

Figure 1: Land use types in Kitgum District
Source: the District Forest Development plan

Demographics

Population

Based on the 2002 population Census, Kitgum District has a projected population of 249,403. There are 121,812 males constituting 48.8% and 127,591 females constituting 51.2% of the District Population. The population density of the District as per the 2002 population and housing census stood at 33.9 persons per km^2. This is an indication that the District is one of those with the low population density in Uganda. The highly populated part of the District is town council with 81 persons per km^2. Increasing population will increasingly put a heavy burden on natural resources as people look for land to settle and carry out livelihood activities.

Population Analysis

The Population of Kitgum District is young; with 48 percent of the population being children aged 0-14. This implies a low level of economically active population hence, a high dependency level. The growth rate is at 4.1% annually which is above the national figure of 3.6%. This high growth rate puts a big strain on the natural environment.

Table 4: Population of the District

COUNTY	LLG	Male	Female	Total
CHUA	Kitgum Town Council	32,146	35,636	67,782
	Kitgum Matidi	9,318	9,590	18,908
	Labongo Akwang	10,911	9,929	20,840
	Labongo Amida	8,289	8,994	17,283
	Labongo Layamo	6,974	7,277	14,251
	Lagoro	10,289	10,825	21,114
	Mucwini	12,263	12,146	24,409
	Namokora	11,577	11,281	22,858
	Omiya Anyima	12,811	14,046	26,857
	Orom	17,645	18,772	36,417
TOTAL		**132,223**	**138,496**	**270,719**

Livelihood activities of the population

According to the 2002 population and housing census, 96 percent of the population depends on subsistence agriculture for livelihood. The literacy rate for females is at 40 percent. This implies that women cannot easily engage in economic activities that are scientific and environmentally friendly. They cannot easily read and understand the content of technologies and initiatives now being advocated by Government, such as responsible management of Natural resources, NAADS, NUSAF, CDD and others; most of them engage in activities such as brewing local liquors, which are detrimental to the environment.

Though Subsistence agriculture constitutes the most economic activity, it has been badly affected by the 20 years of war. Food security is constantly an issue. Other employment is garnered through NGO Work and small businesses such welding, carpentry, cottage industry, tailoring and small shops. Common livestock in the area includes cattle, goats, pigs, pigeons and poultry. Due to its proximity to the Karamoja and South Sudan Region, a number of this livestock particularly are often targets of raids especially the Eastern sub counties of the District.

Over 90% of the farmers are engaged in crop production as their major activity, mostly for home consumption, and similarly, a small percentage is engaged in livestock rearing. The major food crops grown include simsim, rice, beans, groundnuts, sorghum, maize, finger millet, cassava, sweet potatoes, pigeon peas and sunflower. Cotton and tobacco were the major traditional cash crops but other crops such as simsim and sunflower have overtaken the traditional cash crops. Other activities like beekeeping, harvesting of shea nut, growing of fruit trees, and charcoal burning, among others are also being carried out in woodlands. Fish farming is now being practiced at a small by farmers dotted in various parts of the District and making fishing on rivers, streams and ponds the second source of fish supply to that coming from the neighboring Districts of Lango sub region.

Table 5: Types and number of livestock available in Kitgum District August 2014

Kinds of Livestock	Number
Cattle	30,546
Goat	84,520
Sheep	2,506
Pigs	18,628
Rabbits	295
Chicken	276,526

Table 6: Estimated Fish caTown Councilhes (Kitgum)

S/No.	Name of water body	Estimated fish caTown Councilh for 2013 (Tones)
1.	Pager stream	25
2.	Lagwal valley dam	14
3.	Akworo valley dam	15
4.	Wat-ogali valley dam	13
5.	Wangkwokwo valley dam	16
6.	Lalano valley dam	8
7.	Fish ponds	12

Source: District Fisheries 4th quarter 2013/2014 report

Table 7: Kitgum crop production and performance 1st rain season 2014

Crop	Acreage for normal year	Acreage planted this season	Less than normal harvest	Normal harvest	Better than normal harvest
Groundnuts	33,840	22,782	96.5%	-	-
Beans	5,640	3,427	92.3%	-	-
Cowpeas	2,256	1,504	-	-	101.25%
Maize	22,560	16,152	-	-	100.6%
Finger millet	18,048	12,334	86.5%	-	-
Sweet potatoes	5,640	4,198	-	-	102.3%
Cassava	11,280	5,737	-	-	Crop still in the field

Hazards

Hazard	Status	Sub County	Rank
Heavy Storms	Incidences of strong winds, hailstorm and lightning reported. Roofs of classrooms blown off YY Okot, in many schools with cases of death due to lightening on the rise. One child struck dead in Omiya Anyima; crops were destroyed by hailstones as well.	Orom S/C, LabongoAmida S/C, Kitgum Matidi S/C Omiyanyima S/C Mucwini S/C Labongo Akwang Labongo Layamo Namokora, Kitgum T/C	5
Crop Pests and Diseases	Incidences of Aphids reported.	LabongoAmida S/C, Kitgum Matidi S/C Omiyanyima S/C Mucwini S/C Labongo Akwang Labongo Layamo	3
	Incidences of Cassava Brown Streak, G/Nut Rossette, Bean Blight and Anthracnose reported	Widespread in all the sub counties	
	Simsim Gall midge	Wide spread in all sub counties.	
	Citrus canker	Wide spread in all sub counties.	
Animal Vectors and Diseases	Incidences of CBPP, African Swine Fever reported	Labongo Layamo S/C Widespread in all the sub counties	8
	Incidences of Foot and Mouth Disease suspected (not confirmed).		
	Incidences of New Castle Disease among chicken reported		
	Incidences of Tsetse Flies reported along the courses of rivers Aringa and Pager Incidences of Nagana reported	Kitgum Town Council, Labongo Akwang, Pager, Kitgum Matidi and Labongo Amida Sub Counties, Omiyanyima S/C Namokora S/C, Lagoro S/C	
	17 cases of rabies between July 2013 and June 2014reported	Mucwini, Orom, Labongo Amida Sub Counties and Kitgum Town Council.	
	Worms and manges in Goats	Wide spread in all S/Cs	
Environmental Degradation	Incidences of Wetland Encroachment, degradation especially along Pager and Aringa Deforestation (illegal timber cutting, Charcoal burning and large chunks of woodlands cleared for charcoal and agric land, reported. Wetland degradation is in form of encroachment, dumping of non-biodegradable wastes and grazing.	Orom S/C, NamokoraS/C, Lagoro S/C, KitgumMatidi S/C, Mucwini S/C, LabongoAmida S/C, Kitgum T/C Labongo Akwang S/C, Labongo Amida Labongo Layamo S/C	3

Table 8: Prices and market analysis for Kitgum District

S/ No.	Commodity/food item	Price per Kg./unit of measurement	Comments
1.	Maize (flour)	1,800/=	Plenty
2.	Maize (fresh cobs)	500/= per cob	Plenty
3.	Maize (grains)	800/=	Available
4.	Sorghum (flour)	1,500/=	-do-
5.	Sorghum (grains)	700/=	Scarce
6.	Finger millet (grains)	1,300/=	Very scarce
7.	Cassava (flour)	1,000/=	Available
8.	Cassava (fresh tubers)	1,000/= for 3 tubers	Plenty
9.	Sweet potatoes (fresh tubers)	2,000/= for 5 tubers	Very scarce
10.	Irish potatoes	1,800/=	Very scarce
11.	Rice	3,300/=	Scarce
12.	Beans (yellow)	2,000/=	Scarce
13.	Beans (K20/K132/Banja)	2,000/=	Scarce
14.	Beans (local/mixed)	1,700/=	Available
15.	Green grams	1,200/=	Very scarce
16.	Simsim	4,500/=	Very scarce
17.	Sunflowers	-	Out of season
18.	Cattle (beef)	8,000/=	Available
19.	Cattle (hide)	1,000/=	Available
20.	Milk (row/fresh)	1,800/= per lt.	Scarce
21.	Milk (pasteurized)	3,000/= per lt.	Available
22.	Goat(meat)	8,000/=	Available
23.	Goat (skin)	3,000/= per pc.	Available
24.	Goat (live)	50,000/= to 200,000/= per head	Plenty
25.	Honey (processed)	15,000/= per lt.	Very scarce
26.	Groundnuts	4,500/=	Scarce
27.	Fish (smoked and big sizes)	5,000/= to 7,000/= per pc.	Scarce
28.	Fish (mukene)	30,000/= per basin	Available
29.	Tomatoes	1,000/= for 5 fruits	Available
30.	Onions	2,500/=	Available
31.	Cabbages	500/= to 2,000/= per head	Available
32.	Okra (fresh)	200/= for 5 fruits	Plenty
33.	Okra (dry)	1,000/=	Plenty
34.	Soya beans	2,200/=	Scarce
35.	Cowpeas	2,000/=	Scarce
36.	Pigeon peas	2,000/= (gr ain),(5,000/=,processed)	Very scarce
37.	Eggs (try)	9,000/= per tray	Scarce

Source: Direct market survey, Kitgum Town Main Market on 4/9/2014

Table 9: Major Tribes and Languages Spoken in Kitgum District

Tribe	Language spoken
Acholi	Luo
Lango	Langi
Baganda	Luganda
Bagisu	Lugisu
Sudanese	Dinka/lutugu
Congolese	
Itesots	Ateso.

Hazards

Table 10: Hazard status and rank

Internal Conflicts (land conflicts)	Incidences of Land disputes reported. Upto 80% of the 99 government grant aided primary schools have land conflicts. A residential house has been constructed on the compound of Pawidi P/S and is already roofed. Other government institutions and sub county headquarters are also affected. Land wrangles for agricultural lands within the community is rampant, boarder conflicts internal and external is very common.	All Sub Counties affected	2
Prolonged dry spell	This is a common phenomenon in the District leading to failure of the first planting season. The most affected crops are G/nuts, Maize and Beans	Orom S/C, NamokoraS/C, Lagoro S/C, KitgumMatidi S/C, Mucwini S/C, LabongoAmida S/C, Kitgum T/C Labongo Akwang S/C, Labongo Amida Labongo Layamo S/C	3
Human Epidemic	Incidences of Nodding syndrome, Hepatitis B reported Cholera, yellow fever	Orom, Kitgum Matidi S/C, Mucwini S/C, Kitgum T/C, Labongo Akwang S/C and Labongo Amida S/C	6
Floods/water logging	Incidences of flash floods reported in the low lying areas of the District mainly caused by Pager river (it floods every ten years). The floods washed away sections of roads at culvert points as such children would be cut off from schools,(Agoromin, Pacudu P.7, Kumele P/S, Wigweng PS, Ludwar PS, Gwokongwee P/S) teachers on holiday were cut off and therefore schools delayed to open by two weeks	Omiya Anyima S/C, Labongo Akwang S/C, Labongo Amida S/C, Kitgum Matidi S/C, Lagoro S/C, Orom S/C, Kitgum T/C and Namukora S/C Labongo Layamo, Mucwini	7
Bush Fires	Incidences of massive fires reported. The practice is between November and March and lots of mature crops are lost to the fires. These include Simsim, pigeon peas, sorghum and cassava leading to food insecurity; over 100 huts get burnt every dry season; lives were lost in Labongo Amida and the fires compromise soil fertility and productivity.	All sub counties	1
Invasive weed species	Incidences of Striga weed reported	All sub counties except Orom and Omiya Anyima S/ Counties	4
Vermin	Incidences of Velvet Monkeys destroying crops reported	Orom, Namokora, Mucwini Omiya Anyima, Lagoro	3
Cattle theft (by South Sudanese and Karimojong)	Instances of cattle theft were reported	Orom and Namokora Sub Counties	8
Land Mines and Unexploded Devices	Cases of unexploded devices reported	Kitgum Amida, Omiya Anyima, Lagoro and Orom Sub Counties	9

Table 11 displays the status and summarizes the nature of hazards in the District and provides the locations of instances. It also ranks the hazards according to their magnitude.

Table 12 provides another view of the relative significance of hazards. The right most column is ordered by the number of hazards endemic in each Sub-County, and is a measure of compound vulnerability. The bottom row is ordered by the number of Sub-Counties that experience each hazard, giving an indication of its geographic prevalence.

Table 11: Summary of hazards by Sub-County

Sub county	Hazards												
	Heavy Storms	Crop Pests and Diseases	Animal Vectors and Diseases	Environmental Degradation	Internal Conflicts	Prolonged dry spell	Human Epidemic	Floods	Bush Fires	Invasive species	Vermin	Cattle Theft	Land Mines and UXO
Orom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Labongo Akwang	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Labongo Amida	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Kitgum T/C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Labongo Layamo	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mucwini	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Kitgum Matidi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Lagoro	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Omiya Anyima	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Namokora	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Hazard risk assessment

Table 12 expresses the communities' assessment of severity and likelihood of risk in their respective Sub-Counties. Each of the columns in table 12 below translates into respective hazard risk maps in the following section. The colours red, yellow, and green showing the severity of the hazard risk in the table are also reflected in the corresponding maps.

Table 12: Hazard risk assessment

Sub county	Hazards												
	Heavy Storms	Crop Pests and Diseases	Animal Vectors and Diseases	Environmental Degradation	Internal Conflicts	Prolonged dry spell	Human Epidemic	Floods	Bush Fires	Invasive species	Vermin	Cattle Theft	Land Mines and UXO
Orom	M	L	L	L	H	M	M	L	H	L	M	M	L
Labongo Akwang	M	M	L	M	H	L	M	M	H	M	L	N	N
Labongo Amida	M	M	L	M	M	L	M	L	H	M	L	N	M
Kitgum T/C	M	M	L	M	L	M	L	L	L	L	M	L	N
Labongo Layamo	L	M	L	M	M	M	L	L	H	M	L	L	N
Mucwini	L	M	L	M	H	M	L	L	H	M	M	L	N
Kitgum Matidi	L	M	L	M	H	M	L	L	H	M	L	L	N
Lagoro	L	L	L	L	M	L	L	L	H	L	M	L	L
Omiya Anyima	L	L	L	L	H	L	L	L	H	L	M	L	L
Namokora	L	L	L	L	H	M	L	L	H	L	M	M	N
Key: H = High, M = Medium, L = Low, N = Not reported													

Risks

Floods/water logging

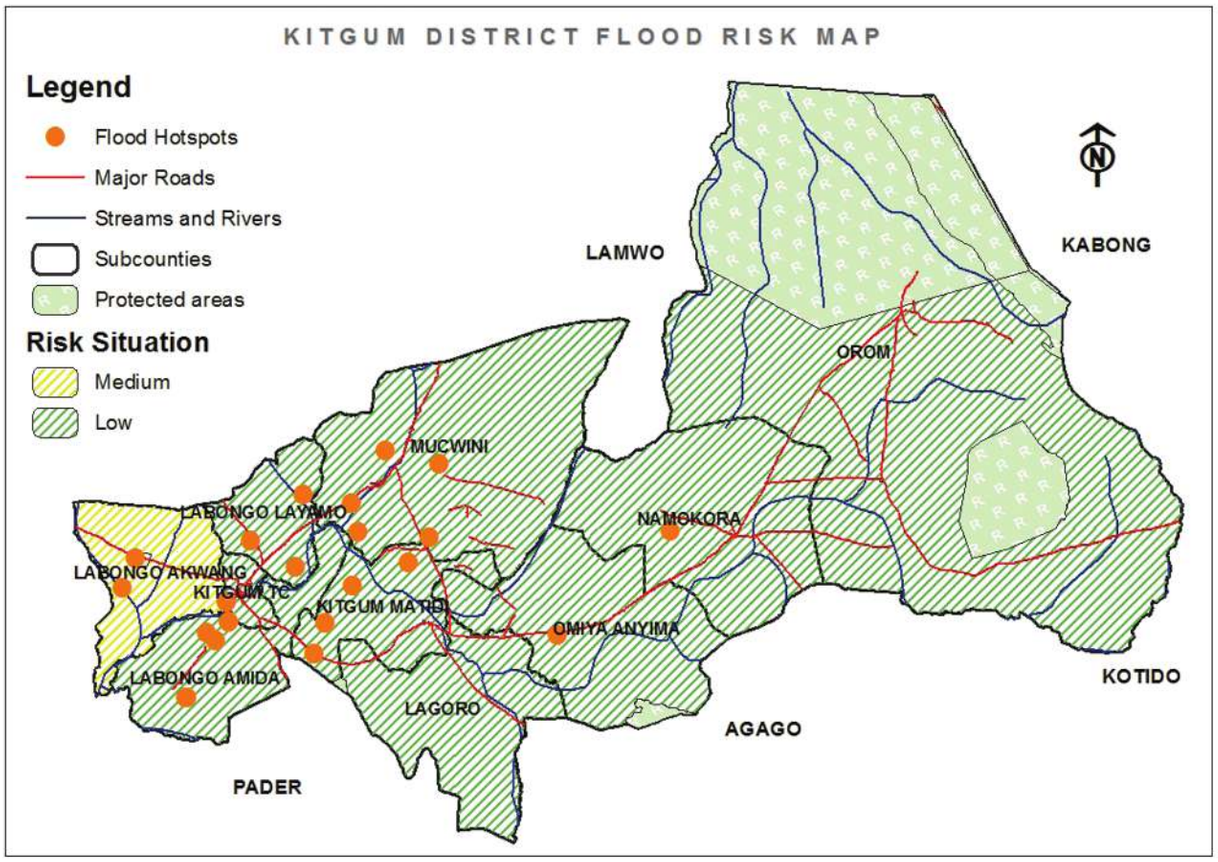

Figure 2: Flood Risk Map
Source: Field Data Collected by OPM (May, 2014)

A flood is a large amount of water covering a place that is meant to be dry, while water logging refers to the saturation of water with soil. Soil may be regarded as water logged when the water table of the ground level is too high to conveniently permit an anticipated activity like agriculture. Floods build up slowly and are seasonal and usually occur in periods of intense rainfall and el-Niño phenomena.

Besides causing death due to drowning, floods destroy public health facilities such as water sources, sanitation facilities. Floods also lead to outbreaks of water borne diseases and malaria, hence compounding community vulnerability to health hazards. They cause physical damage by washing away structures, crops, animals and submerging human settlements. Minimizing of risks of floods/water logging involves forecasting, study of seasonal patterns, construction and maintenance of sufficient drainage systems. Floods could be properly managed through flood plan mapping and surveys by air and land. Kitgum District was among the Districts that were affected by el-Nino floods in 2007. Since then, the District has not experienced a flood of that magnitude. What are most frequent in some parts of the District are flash floods which are common in low lying areas and areas along river banks and close to swamps.

Figure 3: A flash flood in Pager River temporarily disrupts traffic on Pager Bridge in Kitgum Town Council in 2011.

Human Epidemics

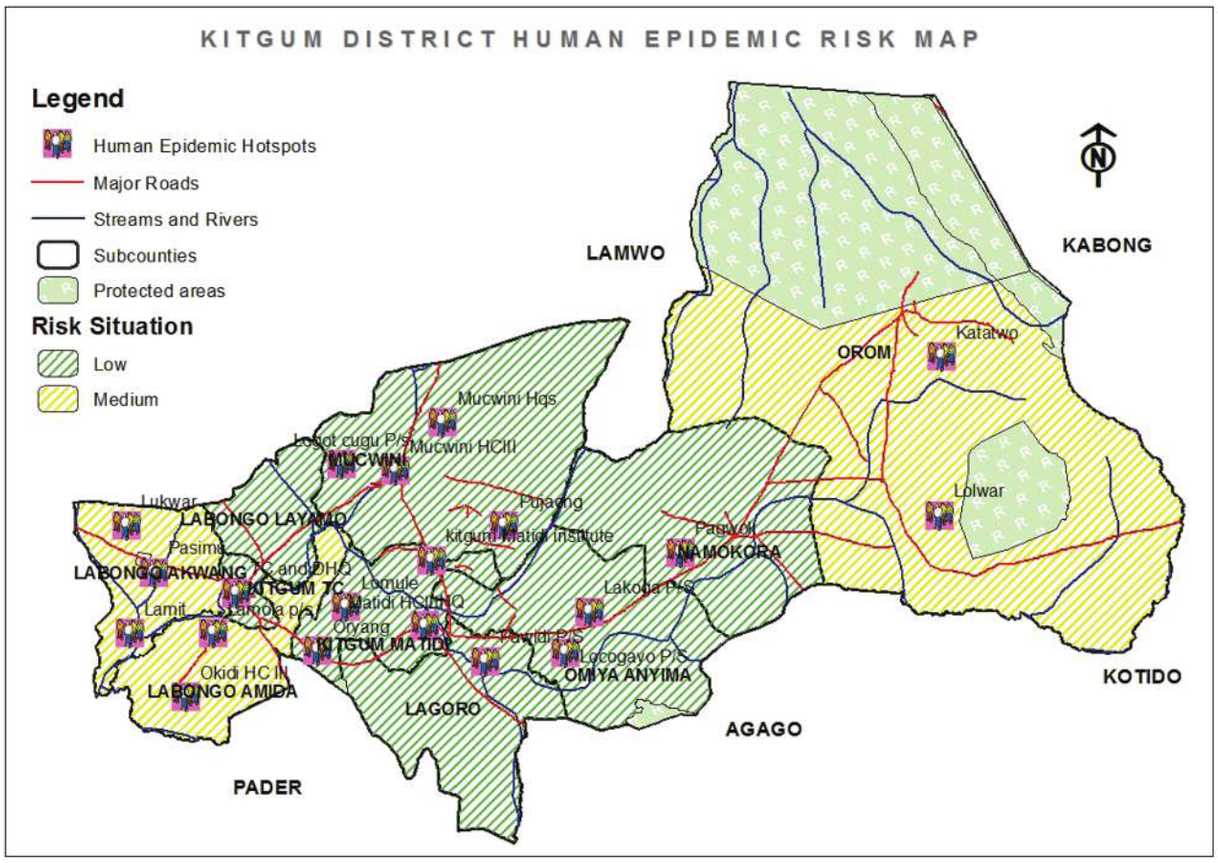

Figure 4: Map of Human Epidemics

Source: Field Data Collected by OPM (May, 2014)

This is the prevalence of an outbreak, in a particular community and at a particular period, of a disease whose magnitude goes beyond normal or expected levels. The diseases include; Cholera, Meningitis, Hepatitis E, Marburg, Plague, Ebola, and sleeping sickness. Others are diseases such as diahorrea dysentery and typhoid. Massive chemical and or alcoholic poisoning may also create a hazardous condition similar to epidemics. Modern epidemics include: avian influenza (bird flu), Ebola Hemorrhagic fever and malaria. In some parts of Uganda, diseases like meningitis, cholera, HIV/AIDS and Ebola, plague and jiggers have constituted hazards. Crop and livestock epidemics are also common in many parts of the country and cause social and economic loss. Other health related hazards come from radiation, strong tropical winds and the increased threat of global warming.

Uncontrollable movements of livestock and plants are some of the chief causes of the associated epidemics. Some diseases are induced by people particularly through laboratory accidents. Kitgum District has a track record of epidemics that hit the District hard; the most recent being Hepatitis E, and the Nodding syndrome. Others that have hit the District in the past include: Ebola Hemorrhagic fever, Cholera, diahorrea dysentery and typhoid. The most hit subcounties are Orom in the areas of Katatwo and Lolwar whileas in Labong Akwang and Labong Amida the most affected areas are Lukwar,Pajimu,Lamit and Okid HCIII.

Other affected areas include: Omiya Anyima S/C; Lakoga and Locogayo p/s,Namokora s/c in Pagwok, Logoro s/c in Pawidi p/s, Matidi s/c in Matidi HC, Oryang and Lomule, Mucwuini HQTS,HCIII,and lagot p/s, Kitgum Town council in Lamola p/s, Town Council and DHQTRS

Epidemics could be addressed through preparing contingency plans and structuring emergency health services. It is also important to establish early warning systems through routine surveillance and training in emergency operations. Success of this will depend on creation of an inventory which requires resources. Policy Actions for epidemics include: Creating public awareness, Improve sanitation and hygiene practices, Ensure vaccination, immunisation of the affected population and treatment of the sick, Distribute mosquito nets and ensure their proper usage, Ensure staffing of all health centers with qualified personnel; Promote research in to modern emerging diseases, Strengthen entomological services and disease surveillance

Table 13: Health Report for Kitgum District as at August 2014

Information available from current nutritional data (most previous surveys, health centre data)	Prevalence rates (%)
Acute malnutrition:	
Global Acute Malnutrition (WFH,-2 Z scores and or bilateral oedema)	4.4%
Severe Acute Malnutrition (WFH,-3 Z scores and or bilateral oedema)	5%
Mid Upper arm circumference (MUAC)	<11.5cm = 0.6%, 11.5-12.5cm = 2.4%, 12.5-13.5cm = 7.7%, >13.5cm = 89.3%
Stunting rate (HFA,-2 Z scores)	30%
Underweight wfa<-2 Scores	15.9%
Crude mortality rates (no. of deaths/ 10,000/day)	(0.22%)
Infant mortality rate (no. of deaths of under-five/10,000/day)	13.6%
Prevalence of Diarrhoea	2%
Malaria prevalence	29%
Acute Respiratory Tract Infection (ARI) or cough	0.08%
HIV	7%

Source: Kitgum District Health Dept report Aug, 2014

Heavy storms and Lightning thunder

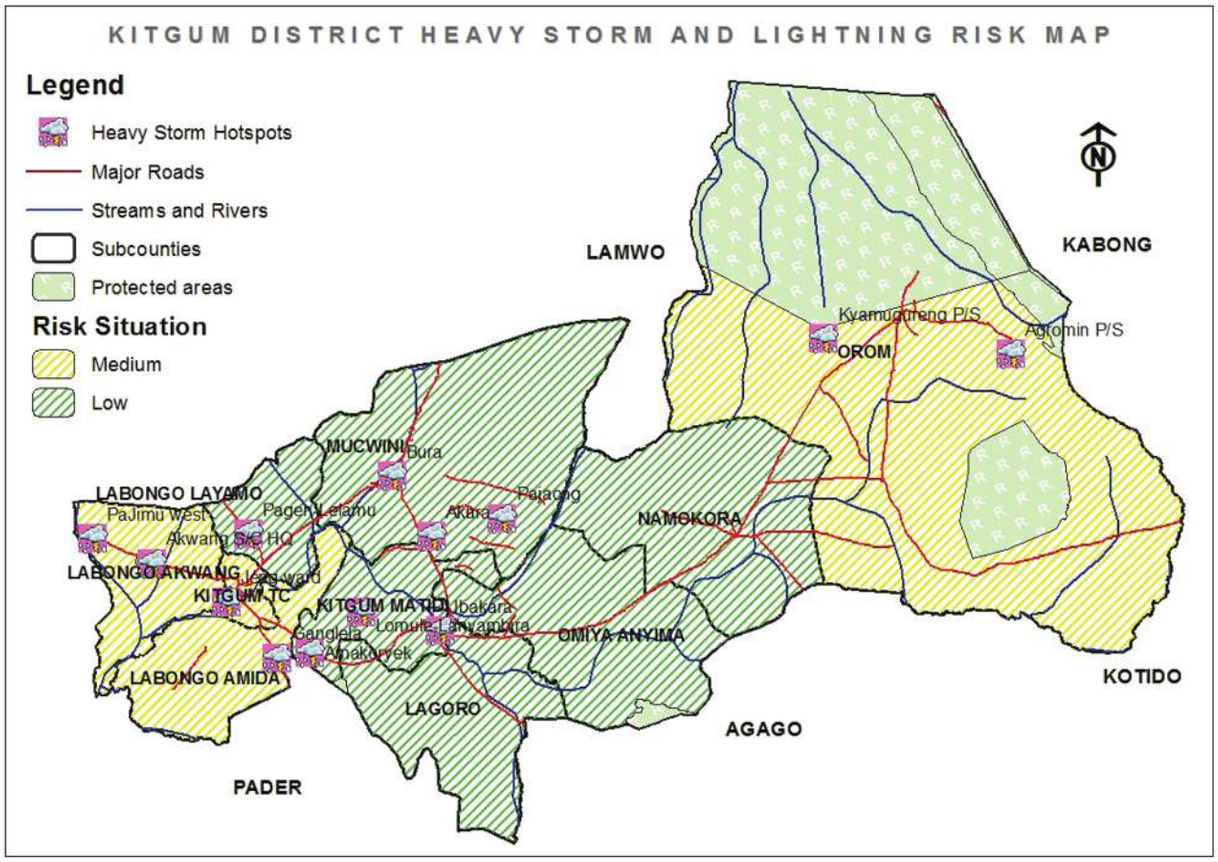

Figure 5: Heavy Storms and Lightning Risk Map
Source: Field Data Collected by OPM (May, 2014)

Heavy storms are associated with hailstorms, thunder storms and violent winds. Hailstorms are associated with flooding and related public health hazards. Various parts of Kitgum District are prone to hailstorms in varying degrees. While in some areas the occurrence and magnitude is low, a number of places are highly susceptible to hail storms characterised by heavy tropical rains, strong and violent winds. Hailstorms and thunderstorms result in immense destruction of crops, animals, public infrastructure and human settlements often leading to deaths and disruption of social services in the District. The most affected Subcounties include among others Orom, Labongo Akwang and Labongo Amida in the areas of Kyamugureng p/s, Agromin p/s, Pajimu west village and Ganglela. The District has suffered from storms destroying structures especially houses. Schools have been the most affected buildings by storms and lightning. Lives have been lost to lightning though the figures can be provided in this report now.

Figure 6: Akworo Primary School classroom block and staff room roof blown off by storm.

Storms and lightning have serious effects on human life and may be reduced through following standard construction codes (with gadgets against lightning).

Prolonged dry spell

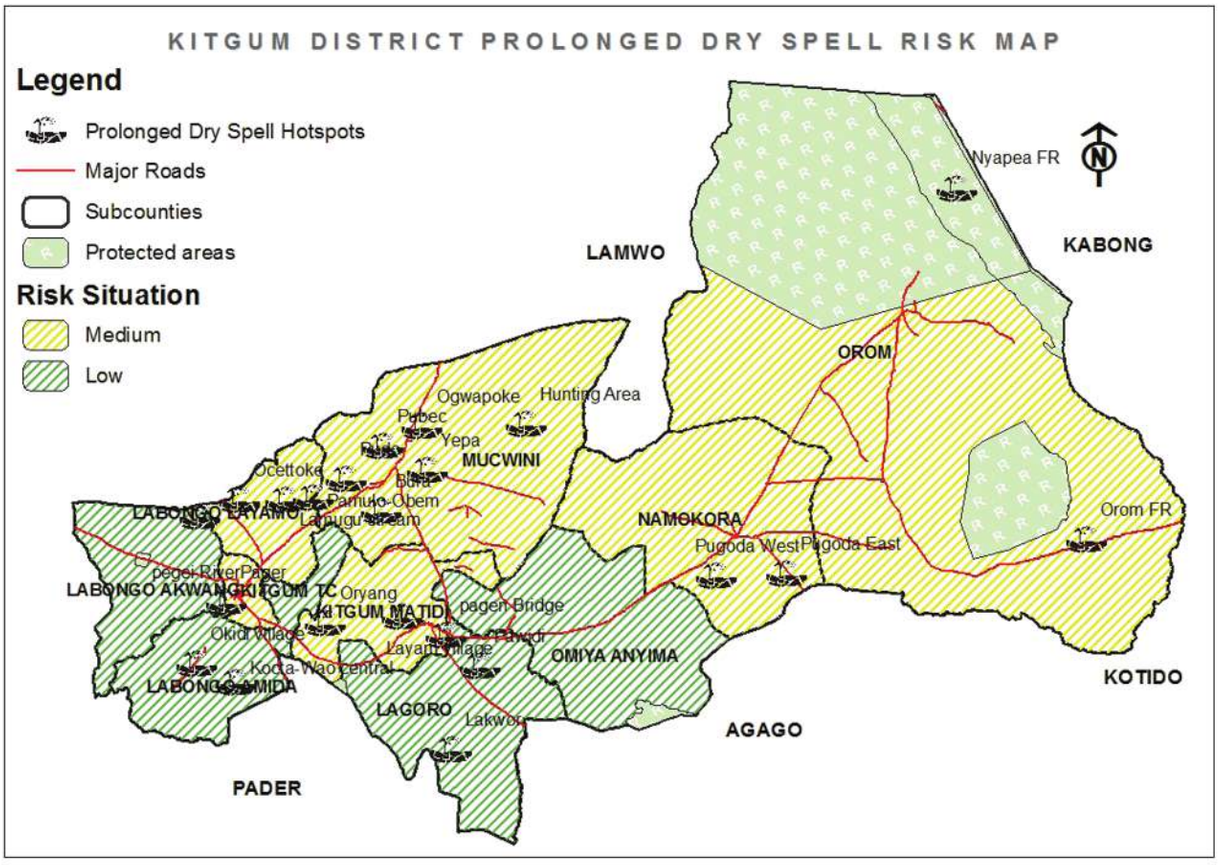

Figure 7: Prolonged Dry Spell Risk Map
Source: Field Data Collected by OPM (May, 2014)

Dry spell is the prolonged shortage of water often caused by dry weather conditions. Kitgum District, like the rest of the other Districts in Northern Region experiences two dry seasons in a year. A short dry spell that begins in June-July and runs up to August. The short dry spell affects majorly first rain crops. The long dry season has vast effects and is marked by High temperatures, desiccating heat from blazing sunshine, strong and destructive winds, high levels of dust in the atmosphere and very low humidity. These factors are associated with many other ouTown Councilomes such as: drying out of water from the common water sources including boreholes; scarcity of feeds for livestock; food shortage due to crop failures, health related illnesses and ailments associated to prolonged dry spells, and wild fires that pollute the environment with heavy smoke.

Many parts of Kitgum like Orom, Mucwini,Matidi and Namukora are continuously receiving less rainfall than before due to global warming and deteriorating regional weather conditions. The most dry-spell prone areas are in the Eastern part of the District bordering Karamoja region which is adjacent to the cattle corridor in Uganda. In extreme cases particularly where dry spells extends into the crop seasons, food shortage occurs, necessitating external intervention.

Wild bush Fires

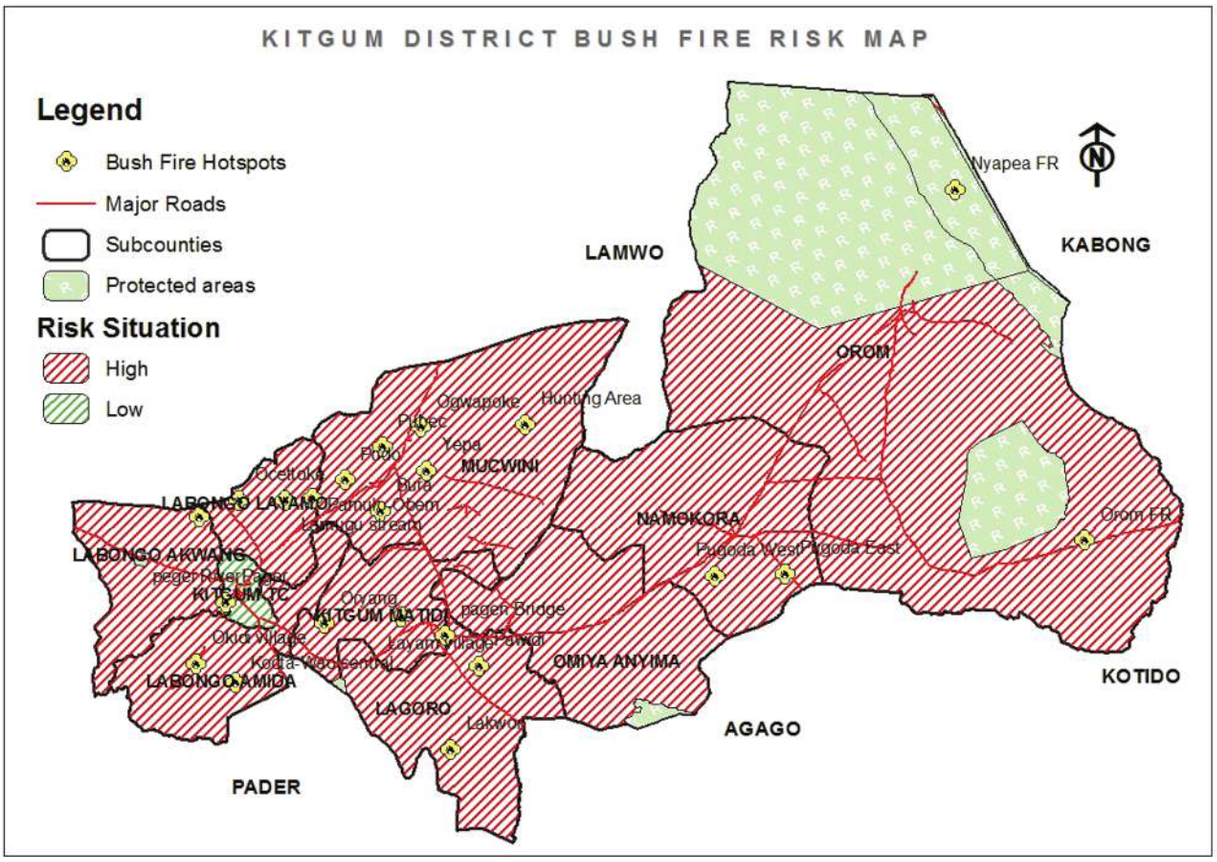

Figure 8: Wild Bush Fires Risk Map
Source: Field Data Collected by OPM (May, 2014)

Wild bush fires are by far a major threat to the livelihood of this community; resulting from long dry season experienced in the District annually. Looking at the expanse of land burnt during this dry season, one can easily with a high degree of confidence assert that over 80 percent of the vegetation in the whole District is consumed by wild bush fires yearly. Visitors to the District during this period have jokingly talked about the high levels of success of the rural electrification program in the District; referring to the well-lit darkness of the District as a result of bush burning. To make matters worse, a significant portion of this area can be burnt even twice or thrice within one dry season. But uncontrolled bush fires pose very serious threats not only to the management of the natural environment (plantations, woodlots, woodland forests, grass lands, wetlands) but also to livelihoods of the over 90 percent people dependant on agriculture for their livelihood in the District.

Figure 9: Wild bush fire.

The fires are lit by members of the community for several reasons. Consultations with the community indicate that fire is lit for reasons such as: hunting Anyeri (mole rats); creating pasture for livestock grazing; land clearance for agriculture; and even for the pleasure of seeing a big fire burning chunks of land. Community groups indicated that lighting fires that move long distances is even a celebrated skill among some local people. Unfortunately, wild bush fires have resulted to destruction of livelihoods. The most affected areas of the livelihood are: the second season crops that are due or nearing harvest from the month December onwards; destruction of housing and property (over 90 percent of the people in rural areas live in grass thaTown Councilh huts); destruction of agricultural produce and household items; loss of even lives have occasionally been reported from such wild bush fires.

Though there is no empirical research that has been carried to quantify the destruction caused by wild bush fires during the dry season, its impacts on the community cannot be underestimated. Therefore, the Prohibition of the Burning of Grass Act (CAP 33) is vital for Kitgum because the District experiences intense and extensive fires, to the extent that some areas are burnt three times in a single year. Unfortunately the Act is not being enforced.

Animal Vectors and Diseases

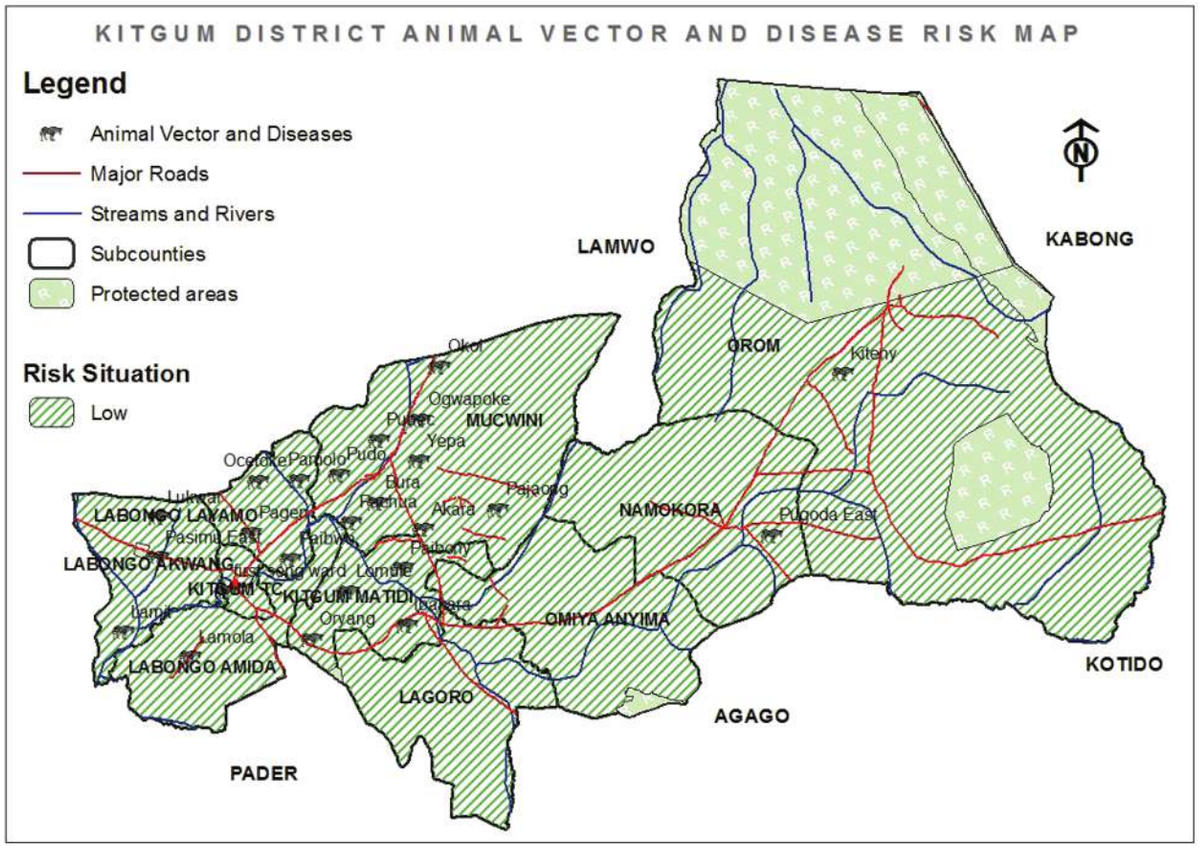

Figure 9: Animal Vectors and Diseases map
Source: Field Data Collected by OPM (May, 2014)

Livestock production is considered the second livelihood activity in the District.

Livestock owned include: goats, poultry, cattle, pigs. The methods of livestock upkeep are generally free range, with a few being tethered with little provision of shelter. Most veterinary service providers focus on curative treatment with little work on prevention. The risk level is low in all the Sub-Counties implying that it's a minor threat. The main challenges cited by households preventing commencement of animal husbandry activities are lack of capital, high cost pets and disease control, and insufficient space. But the opportunities available are: pasture land is in abundance, ready markets, high demand for animal products, in the neighboring Districts, interest at community level, the potential to link the activity to larger livelihood initiatives.

Livestock Diseases in the last six months in Kitgum District July-November 2014.

Table 14: Livestock diseases reported in the District

Type of livestock affected	Name of Pest/ disease	Number of cases reported to Vets	Interventions	Number of livestock that received intervention	No. of deaths reported	Number of Sub-Counties affected
Cattle	Tick born diseases	84	Spraying and treatment	46	12	08
Cattle	FMD/Foot rot	149	Treatment and vaccination	68 treated 7,894 vaccinated	Nil	04
Poultry	ND	479	Vaccination	10,613	297	10
Poultry	Flow pox	45	Vaccination	2,004	94	06
Goats	CCPP	302	Education/public awareness	-	182	02

Internal Conflicts

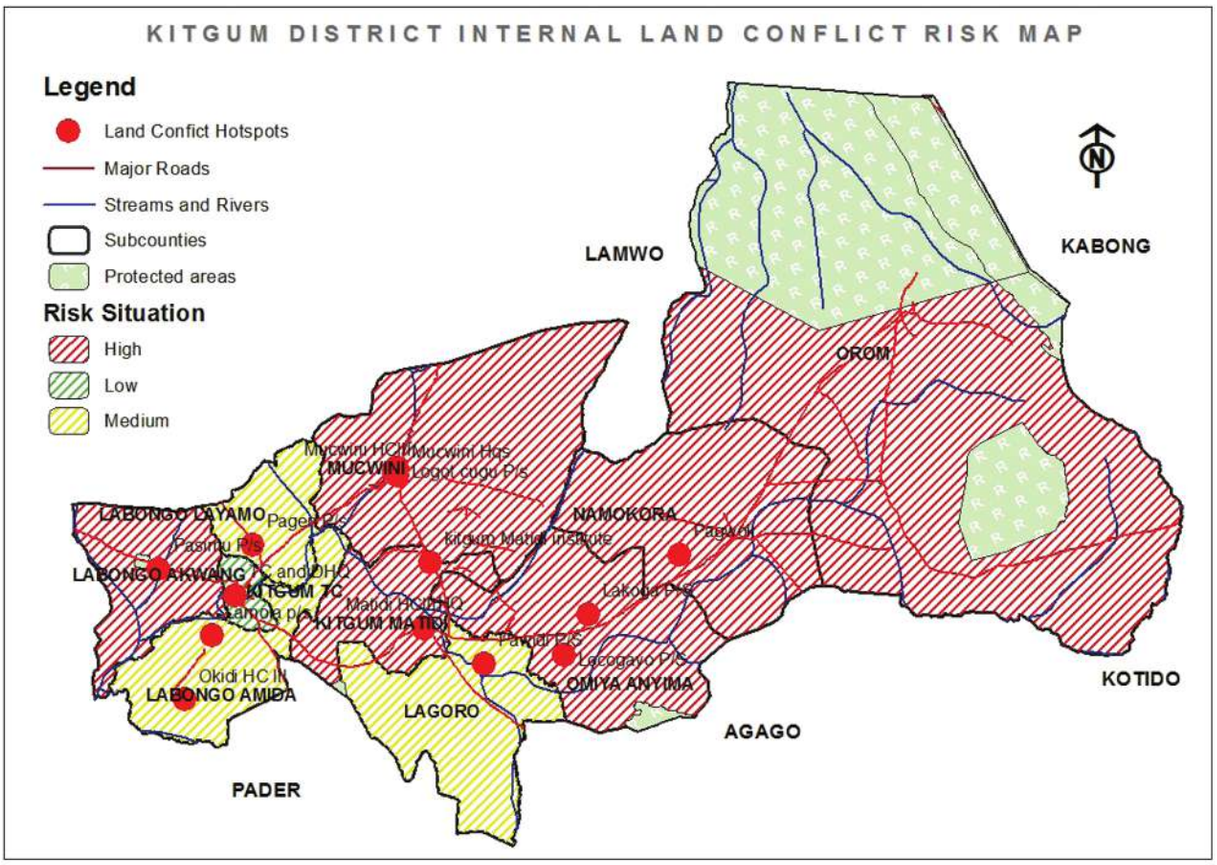

Figure 10: Internal Conflicts Risk Map
Source: Field Data Collected by OPM (May, 2014)

Land disputes/wrangles in the following locations:
Land being central to livelihoods and poverty reduction; it is inevitable that it will always be at the centre of disputes and controversies not only in Kitgum but the country over. In spite the various land regulations and policies existing in Uganda, ignorance of the provisions of these policies and laws amongst our community, has largely led to ineffectiveness of these policies to address these issues including but not limited to: unclear land ownership, absence of a clear understanding of the mandates with regards to land dispute resolution, ownership, land use rights and access, eTown Council. All these scenarios are not exceptional to Kitgum District where the land tenure system is largely customary characterized by unclear land ownership, boundaries, nearly non- existent land documentation system, and weak institutional frameworks to address land issues. These have ultimately led to very serious internal conflicts that are threatening to tear our community cohesion in this post conflict error. These are some of the documented cases in the District.

I. In Mucwini Sub-County Okol clan Vs Pudo, Yepa, Bura, Akara, Pajong, Pubec and Pachwa clans. Okol clan most affected because they were denied use of land for production. Pubec Vs Pajong clan. About 240 people were displaced in Mucwini former IDP camp. Pubec was the cause of the problem.

II. Labongo Akwang Vs Cubu clan in Palabek Gem. 14 H/Hs displaced to Palabek Kal Trading Centre(selective displacement)

III. Omiya Anyima Sub-County in Kitgum District Vs Omiya Pachwa Sub-County in Agago District. The area disputed measures about 200 acres. No displacement yet.

IV. Pagwok clan in Namokora Sub-County Vs Lunganyura Parish in Orom Sub-County. No displacement yet Pugoda East and Pugoda West Villages vs Pagwok clan over hunting ground in Namokora Sub-County

Other sources of conflict are;

- Boarder disputes for example between Labongo Amida Sub count, Labongo Akwang and Palabek Gem Sub counties, Labongo Layamo and Mucwini Sub Counties.
- Interclan reparation Conflicts/ claims Forexample between the Pajong and pubech clans in Mucwini Sub county

Crop Pests and Diseases

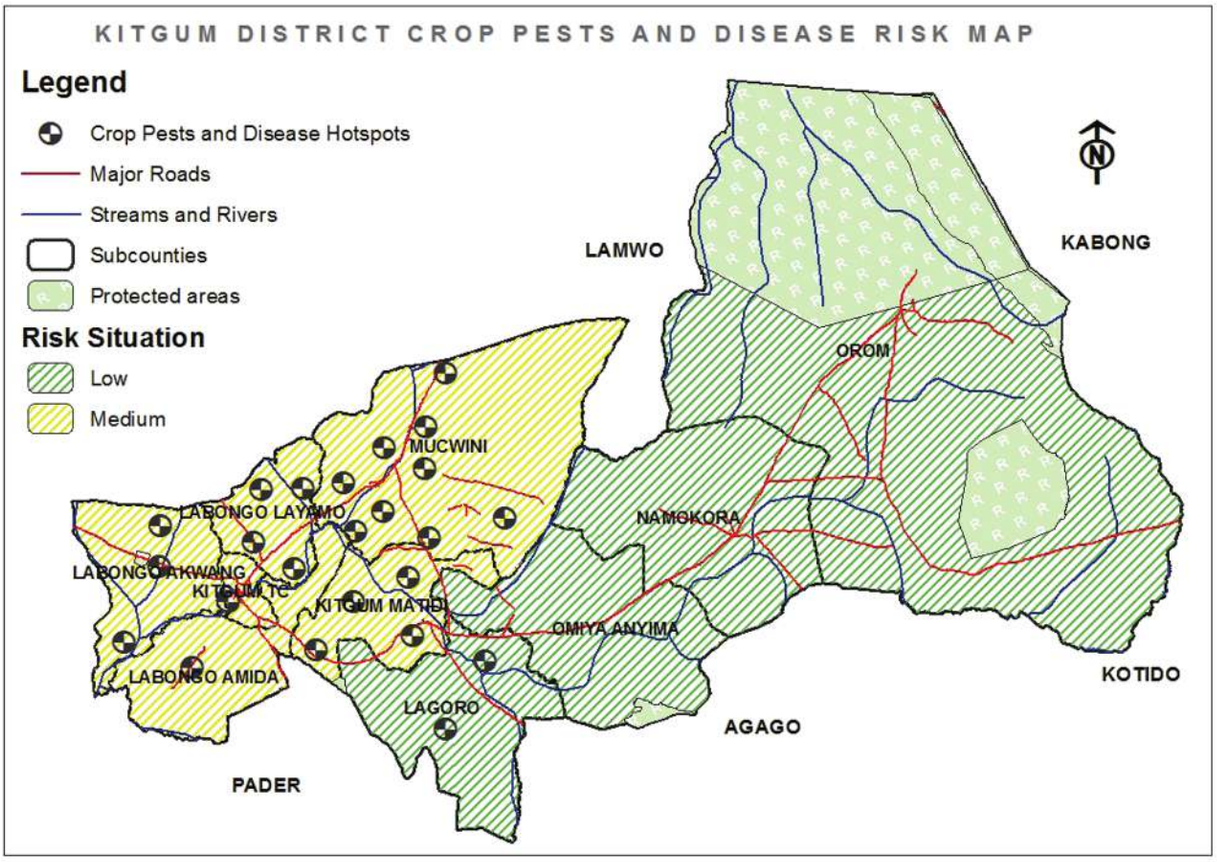

Figure 11: Crop Pests and Diseases Risk Map
Source: Field Data Collected by OPM (May, 2014)

The households in Kitgum District are very vulnerable to impacts of crop pests and diseases by the fact that the local economy is agrarian and therefore livelihoods are mostly through farming. In the recent times, the District has seen an increament in the rgistered number of crop pests and diseases. The Incidences of diseases observed for crops are: Cassava Brown Streak Disease, Groundnut Rosette, bean anthrocknose, citrus canker, tomato bacterial wilt, tomato blight, sorghum smut, eTown Council. The most affected areas are Labong layamo, akwang, Matidi,Mucwini and Town Council.

The notorious crop pests include: elegant grass hopper, aphids, mango fruit fly,sorghum soot fly, scale insects in oranges, cassava mites, simsim gall midge, termites, oranges dogs and orange leaf miners, larger grain borer, weevils, bean bruchids, Interventions to these disease and pest have been through:

- Advocacy and promotion of planting disease tolerant varieties such as (Nase 13 and 14)
- Advocating for planting rosette tolerant varieties of groundnuts e.g. Serenut 2 and 4. Early planting of groundnut and spraying to control the vector (aphids)
- Advocacy to spraying the grasshoppers with insecticides

Environmental Degradation

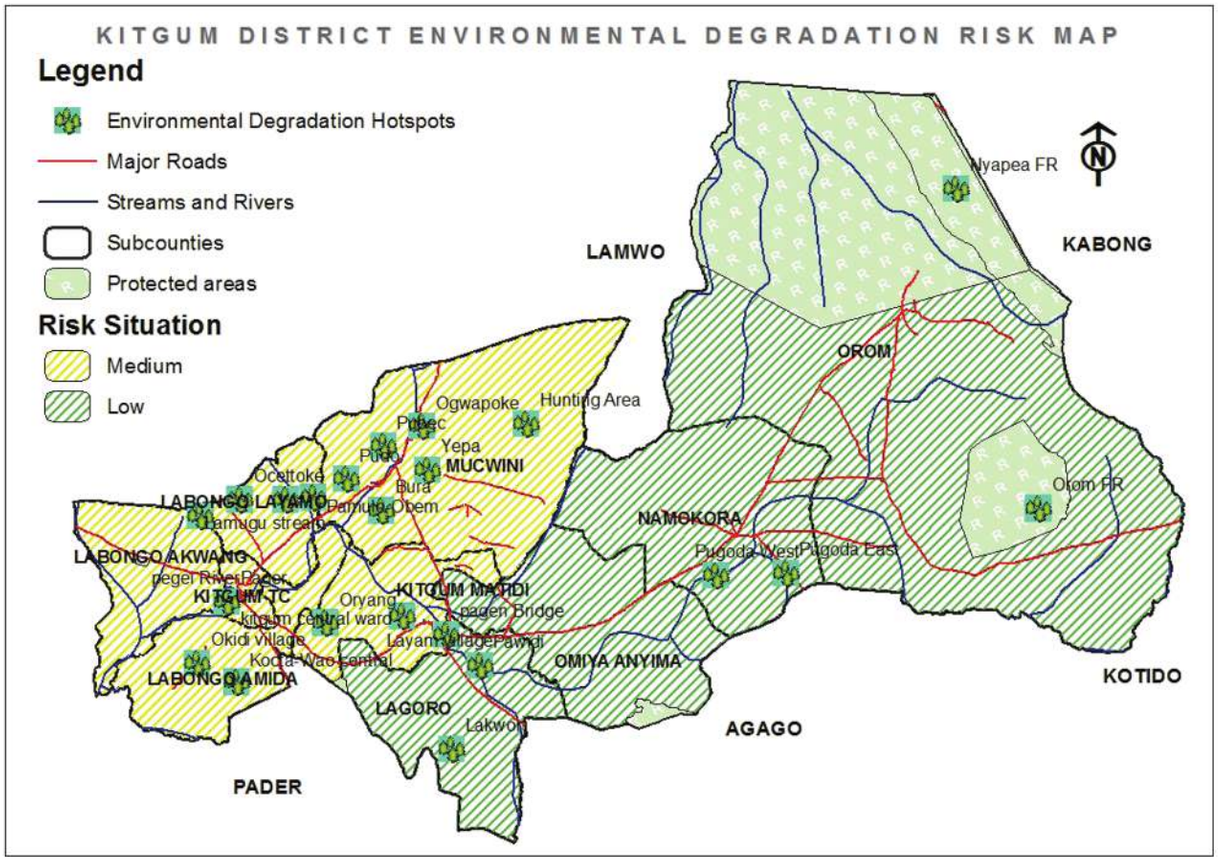

Figure 12: Environmental Degradation Risk Map
Source: Field Data Collected by OPM (May, 2014)

This is a term used to describe a situation in which a part of the natural environment is damaged. In the case of this District, environmental degradation refers to damage to the land, water, the air and loss of biodiversity and natural resources in an area. Environmental degradation is not a new thing in Kitgum, it has been happening but the problem is that it is now occurring at a much faster rate, therefore not leaving enough time for the environment to recover and regenerate. The greater demands placed on the environment by an ever increasing human population is putting a great strain and drain on the District's limited natural resources. Environmental degradation is a serious threat to the lives of people, animals and plants, making it imperative that we stop further degradation from occurring. The most affected areas are Labong Layamo, Akwang, Matidi,Mucwini and Town Council.

Environmental degradation

In Kitgum, forests cover 30,724.6 ha (NFA, 2009). This is approximately 18% of the land area. Wetlands cover only 0.4% of the area. Almost all the forests are woodlands. Only 5 ha is degraded tropical moist forest found especially along river valleys. Of the total forest cover of 178,165 ha in the District, nearly 83% are found in communal/family land holdings and 17% are found in CFRs. Field observations showed that there are hardly any forests

in Local Forest Reserves. The pace of “agriculturalisation” of the countryside is picking up, and therefore, it is expected that more woodland, bushland and grassland areas will be converted into agricultural fields and human settlements. Preliminary findings show that most of the District is covered by grasslands and bushlands, with wooded lands located mainly in Orom, and parts of Omiya Anyima, Namokora and Mucwini Sub-Counties.The Shea tree, a threatened species

Through the middle of Northern Uganda from North to South is a streTown Councilh of habitat dominated by the shea tree (Vitellaria paradoxa). Shea is indigenous to Sub-Saharan Africa and is distributed across an unbroken belt approximately 6000 km long and 500km wide from Senegal to the Northern parts of Uganda. In Uganda the trees are found primarily in the North-Eastern Districts of Lira, Dokolo, Kaberamaido, Gulu, Kitgum, Pader, Agago, Amuru, Abim, Amuria, Katakwi and Soroti. It is also in the West Nile Districts of Nebbi, Arua, Yumbe, Koboko, Moyo and Adjumani, with a small and isolated population in Nakasongola District. The tree is robust and survives in areas of 600-1400 mm rainfall per year and at altitudes of between 100-1200m.a.s.l.

Living for 300 years or more, habitats of shea trees have provided the local people in Kitgum with a livelihood. Its butter (the shear butter) is used as cooking oil as well as an appetizer. The oil has also been used traditionally as massage oil for children and women. The tree produces best charcoal on the market and it is also the best tree for baking bricks. These later uses of the shear tree have led to its rampant felling hence, seriously threatening the shear belt. The Shea tree has significant ecological and economic potential for livelihood improvements that have not been exploited. All parts of the tree can be used, including the fruit, roots, leaves and bark for economic benefits. The shea fruit is of particular importance due to the oil extracted from it, which has enormous nutritional and health benefits besides being a source of income. The shea fruit is an important nutritional resource as it can be harvested during the annual ‘hungry season’ when food stocks are at their lowest and the planting of new crops requires high labour input, and therefore high energy.

In Kitgum and probably in the rest of the country where it exists the fruits are harvested from wild trees between April and September, mainly by women and children. The ecological functions of the shear tree habitats range from biodiversity, ecological stability, to environmental services such as watersheds and carbon sinks.

Traditionally, the shea tree has been protected in this region by Acholi traditional practices, totems and taboos. For example, it was a taboo to cut or climb this tree. In areas where the tree is sparsely populated, the indigenous people would practice agro-forestry without tempering with the tree. But because of the protracted war that has eroded the cultural and moral values of the Acholi people; the young generations have not reciprocated these values. High poverty levels and the need for quick cash have given the local people no option but produce charcoal and bake bricks using the shear tree.

Now, the Global Environment Facility (GEF), in partnership with the government of Uganda through the National Environment Management Authority (NEMA) and United Nations Development Programme (UNDP) are implementing a project “Conservation and

Sustainable Use of the Threatened Savanna Woodland in the Kidepo Critical Landscape in North Eastern Uganda" with a component of conserving the shea tree in some parts of the area of the shea belt. The project scope covers the Districts of Kitgum, Agago, Abim and Otuke.

Their preliminary studies have indicated that, the species has suffered as a result of large-scale cutting for charcoal production and therefore, an urgent need to conserve the trees still standing. Loss of the species contributes to the degradation of fragile savannah ecosystems, loss of wildlife corridors, habitat destruction, and a degraded environment; in turn affecting agricultural production. Already the shea region is experiencing an increased frequency in dry spells, particularly in areas where there has been heavy destruction of shea trees. With increasing drought expected due to climate change, conservation of shea can benefit livelihoods when agriculture loses productivity and becomes unviable source of income.

Types of environmental degradation in Kitgum

Soil erosion

Soil erosion is the gradual wearing a way of soil by either physical breakdown or chemical solution which is then transported away by means of water, or wind to another location. Soil erosion is the leading cause of damage to our soils, leaving them barren and ultimately less productive. Today the rate of erosion has been speeded up by human activities. Consequently making soil erosion an ever-increasing problem. Soil erosion results from the ways that people use the land. Practices such as tree felling cause deforestation, and can lead to soil erosion. The removed trees would usually guard the soil from rain and wind as their roots hold the soil in place. Additionally many land owners cut down trees to create space in which to plant crops and raise animals which eventually can lead to soil erosion.

Deforestation

This is the permanent destruction of indigenous forests and woodlands which results in a loss of natural resources as well as a protective barrier for topsoil. Deforestation is widespread in the whole District, it is happening through indiscriminate felling of trees.

Loss of biodiversity

Loss of biodiversity is a reduction in the variety of plant and animal species. In areas where environmental degradation has occurred there is often a loss of biodiversity as a result of the disruption to the ecosystem. However the loss of biodiversity itself can be considered a form of environmental degradation. The range of genetic make-up (plant and animal varieties) in a particular area can be considered to be a natural resource and is important in maintaining a healthy environment. Sometimes there is a direct reduction in the number of a particular species which itself if being threatened, but more often it is as a result of a disruption in the ecosystem and food chain, which causes a domino effect, affecting a greater number of organism

Vulnerability

Table 12 summarizes the communities' assessment of hazard severity and frequency in the Sub-Counties. Table 15 transforms those qualitative low/medium/high judgements to numerical values 1/2/3 which when summed vertically show the relative risk per hazard. The

horizontal sums show both cumulative and weighted vulnerability

Table 15: Risk and vulnerability analysis

Sub county	Hazards													Cumulative vulnerability (Absolute)	Weighted vulnerability (Cumulative/3)
	Heavy Storms	Crop Pests and Diseases	Animal Vectors and Diseases	Environmental Degradation	Internal Conflicts	Prolonged dry spell	Human Epidemic	Floods	Bush Fires	Invasive species	Vermin	Cattle Theft	Land Mines and UXO		
Orom	2	1	1	1	3	2	2	1	3	1	2	2	1	22	7
Labongo Akwang	2	2	1	2	3	1	2	2	3	2	1	0	0	21	7
Labongo Amida	2	2	1	2	2	1	2	1	3	2	1	0	2	21	7
Kitgum T/C	2	2	1	2	1	2	1	1	1	1	2	1	0	17	6
Labongo Layamo	1	2	1	2	2	2	1	1	3	2	1	1	0	19	6
Mucwini	1	2	1	2	3	2	1	1	3	2	2	1	0	21	7
Kitgum Matidi	1	2	1	2	3	2	1	1	3	2	1	1	0	20	7
Lagoro	1	1	1	1	2	1	1	1	3	1	2	1	1	17	6
Omiya Anyima	1	1	1	1	3	1	1	1	3	1	2	1	1	18	6
Namokora	1	1	1	1	3	2	1	1	3	1	2	2	0	19	6
Total	14	16	10	16	25	16	13	11	28	15	16	10	5	195	
Key: 3 = High, 2 = Medium, 1 = Low, 0 = Not reported															

Vulnerability

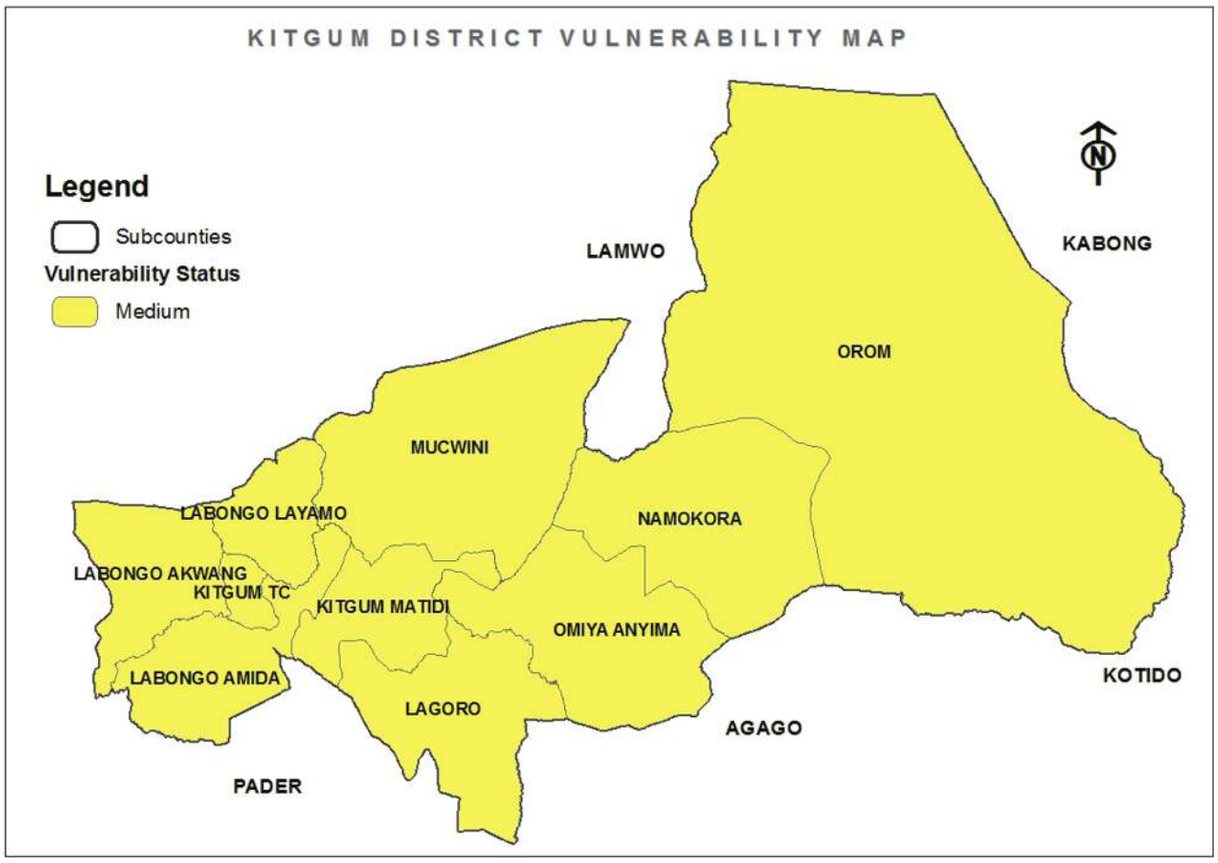

Figure 13: Risk Vulnerability Map
Source: Field Data Collected by OPM (May, 2014)

The vulnerability map in Figure 13 shows the areas of low, medium and high vulnerability according to the risk and vulnerability table (Table 16) above. In this analysis, the cumulative vulnerability of each Sub-County is calculated and then weighted to provide weighted vulnerabilities for individual Sub-Counties. Therefore Sub-Counties with weighted vulnerability values less than 4 are coded “low”, termed low vulnerability areas and are assigned green, those from 5 to 7 are coded “medium”, termed medium vulnerability areas and are assigned yellow while those whose weighted vulnerabilities are 8 or more are coded “high”, termed high vulnerability areas and are represented by red.

Kitgum District is exposed to 13 hazards namely bush fires, internal conflicts, crop pests and diseases, environmental degradation, prolonged dry spell, vermin, invasive species, heavy storms, human epidemics, floods, cattle theft, animal vectors and diseases and landmines and UXO arranged in their order of risk from highest to lowest with total risks of 28, 25, 16, 16, 16, 16, 15, 14, 13, 11, 10, 10 and 5 respectively. This kind of situation is escalated by a number of factors but not limited to hailstorms and thunderstorms that result in immense destruction of crops, animals, public infrastructure and human settlements, High temperatures, desiccating heat from blazing sunshine, strong and destructive winds, high

levels of dust in the atmosphere and very low humidity.
However, these factors are also associated with many other ouTown Councilomes such as: drying out of water from the common water sources including boreholes; scarcity of feeds for livestock; food shortage due to crop failures, health related illnesses and ailments associated to prolonged dry spells, and wild fires that pollute the environment with heavy smoke.

Important to note are the very serious internal conflicts that are threatening to tear the community cohesion and the permanent destruction of indigenous forests and woodlands which result in loss of natural resources coupled with loss of biodiversity.

Like Gulu, Kitgum District does not have any Sub-County in the “red” category as depicted by both the table and the map above. All the Sub-Counties in the District displayed a medium (yellow) level vulnerability to the resident hazards with weighted vulnerability values between 5 and 7. Orom, Labongo Akwang and Labongo Amida Sub-Counties reported the highest vulnerability in Kitgum District with cumulative vulnerability values of 22, 21 and 21 respectively and a weighted vulnerability of 7 each which lies in the middle (yellow) category of the vulnerability scale as shown in the map above. Though still highly vulnerable, Kitgum T/C and Lagoro Sub-Counties had the lEast vulnerability in the District with a cumulative vulnerability value of 17 and a weighted vulnerability of 6 each.

The most vulnerable communities are; women, children and the elderly. Women play a greater role in most the households example gardening, firewood collection, water, cooking and caring for the sick children and the elders.

CONCLUSION

This multi hazard, risk and vulnerability profile for Kitgum District was produced after conducting a rigorous people centred, multi-sectoral, and multi stakeholder field data collection/mapping, analysis, and map production. It is therefore a synthesis of primary data, secondary data and the perception/experiences of the local people, the community leadership at all levels. Thus it portrays how the people of Kitgum perceive each of the hazards based on the past trends and the predicted likelihood of their occurrences and impact on the communities.

The stakeholders perceive that Kitgum District is vulnerable to thirteen hazards, in order of decreasing risk: bush fires, internal conflicts, crop pests and diseases, environmental degradation, prolonged dry spell, vermin, invasive species, heavy storms, human epidemics, floods, cattle theft, animal vectors and diseases and landmines and UXO.

Like Gulu, Kitgum District does not have any Sub-County in the “red” category. All the Sub-Counties in the District displayed a medium (yellow) level vulnerability to the resident hazards with weighted vulnerability values between 5 and 7. Orom, Labongo Akwang and Labongo Amida Sub-Counties reported the highest vulnerability in Kitgum District with cumulative vulnerability values of 22, 21 and 21 respectively and a weighted vulnerability of 7 each which lies in the middle (yellow) category of the vulnerability scale. Though still highly vulnerable, Kitgum Town Council and Lagoro Sub-Counties had the lEast vulnerability in the District with a cumulative vulnerability value of 17 and a weighted vulnerability of 6 each. These Sub-Counties though less vulnerable, should also be fortified against occurrences of new hazards and exacerbation of resident hazards now occurring at lower magnitudes but which may be worsened by climate extremes expected in the near future.

Timely early warning systems and other DRR interventions would be able to enhance the resilience of the people of Kitgum to the effects of climate change.

This profile is therefore a compelling ouTown Councilome of an integration of the spatial information obtained from the mapping exercise and the community perception of the hazards. It should henceforth inform the contingency as well as the District development planning process towards disaster proof plans.

Available online: http://www.necoc-opm.go.ug/

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