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ASSESSING THE EFFECTS OF LAND TENURE SYSTEMS ON LAND RESTORATION IN NORTHERN UGANDA: A GENDER PERSPECTIVE

Mirriam Owino
Alebtong District Local Government
P.O.BOX 316, Lira, Uganda
Owinno88@gmail.com

Supervisor
Dr Jón Geir Pétursson
University of Iceland
jgp@hi.is

ABSTRACT

Land tenure systems are central to understanding land use management options in Africa. Land and associated natural resources are central to social, political, and economical strength in most countries whose economy is dependent upon agriculture. In Uganda, about 80% of the rural population depends on agriculture and, therefore, is reliant upon ecosystem services from the environment. Thus, land tenure is an important factor in administration of land, although cultural factors have been shown to have great impact on it and on gender roles from society.
The objective of this study was to evaluate the impact of land tenure systems on land restoration in Northern Uganda, using the case of the Alebtong and Lira districts and focusing on the importance of gender. The data collection for the study consisted of a literature review on Ugandan land-related policy documents and three sets of questionnaires, administered to a) landowners at household level, b) district agricultural, environmental and land officers of the two districts and c) local council leaders to obtain information on tenure, restoration, and gender. The results confirmed customary land tenure as the main form of administration and that the majority of landowners in the study were males (86.5%) while few women owned land. According to the respondents, most women had only land user rights (87.5%). However, they were highly involved in activities to restore degraded land. Therefore, tenure has impact on restoration practices and gender is important when designing and implementing restoration

projects. The results highlight the gap between documented policy on land ownership and the reality of land administration.

Key words: Land tenure systems, Uganda, land restoration, gender, degradation

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ABBREVIATIONS

UNDP	United Nations Development Programme
MAAIF	Ministry of Agriculture, Animal Industry, and Fisheries
NEMA	National Environment Management Authority
UNIDO	United Nations Industrial Development Organization
UNEP	United Nations Environment Program
FAO	Food and Agricultural Organization
UBOS	Uganda Bureau of Statistics
UWA	Uganda Wildlife Authority
NFA	National Forestry Authority
IDP	Internally Displaced Persons
MLHUD	Ministry of Lands Housing and Urban Development

1. INTRODUCTION

Land tenure systems are central to understanding land use management options. In Africa, land and associated natural resources are at the centre of the social, political, and economical strength of most countries as their economy and people's livelihoods depend greatly on agriculture and other land use activities (Herrick et al. 2019). Land use and its sustainability is therefore a key development issue for most Sub-Saharan African countries where understanding of land tenure arrangements is a central topic.

The subjects of land tenure and user rights in management of natural resources has become of great relevance since unsustainable land-use practices are common in many places (Hendriks et al. 2019). Land tenure is a critical subject in development and agriculture because most people in African regions make a living out of agriculture, at a subsistence level (Fan & Rue 2020). As subsistence production increased, land fragmentation also increased. Land fragmentation is a process in which land is divided into many smaller plots (gardens) for production of different food crops. This has accelerated land degradation because during land preparation, for example tillage, the soil surface is exposed to erosion factors, such as wind and running water (Choudhary et al. 2015). Thus, erosion has depleted ecosystems of both terrestrial and wetland areas of vegetation, soil living organisms, soil structure and resulted in silting of the wetlands (Choudhary et al. 2015). The impact of the loss of vegetation is reduced efficiency of ecosystem functionalities, for example carbon sequestration, thereby contributing to climate change globally with a high impact on developing countries (Koomen et al. 2012).

Land tenure in Africa is complex due to the existence of multiple customary, religious, and statutory settings, also known as legal pluralism (Musinguzi et al. 2021). Legal pluralism is an important determinant of African land tenure systems. Thus, an attempt for the customary tenure reform to accommodate this complexity rather than replacing it, may practically require a modification of land administration. According to Chimhowu (2019), 2.2 million hectares of agricultural land is estimated to be under customary tenure system and small farms occupy 14.7% of land, while medium and large farms occupy about 85.3% of the land in the sub-Saharan region. As the customary land tenure started to weaken due to movement of people from different areas, practices like land sales among users have become popular. This has made it open to suit the land use change and global market to meet population demands but also exposes the land to exploitative use without securing sustainable management practices.

Uganda has a rural agricultural population of about 80%, distributed throughout the country according to the Ministry of Agriculture, Animal industry and Fisheries (2018). Rural people are subject to diverse effects of the land degradation processes and damaging activities (Call & Gray 2020). For example, charcoal burning, deforestation, bush burning and continuous tillage in the different landscapes of Uganda are factors that contribute to degradation at different rates (Call & Gray 2020). The impacts of this are visible in different geographical regions in Uganda in the form of floods, mudslides, soil erosion, which are further compounded by the effects of climate change.

The Northern region of Uganda has a complexity of social and political factors that have affected land use and land management during recent years. The twenty years of insurgency in the region, from 1987 to 2006, had a big impact besides different cultural and gender aspects and as a result, a big percentage of the land was left unused and uncultivated as the people were forced to settle in relatively small, clustered communities called Internally Displaced Person camps (IDP camps) (Rugadya 2008). During the war period, land became vacant, regained its fertility and woodland cover expanded. Once peace was achieved and people could return home from the IDP camps, this land recovery had created conditions for enhanced agricultural production as land was vacant and fertile in the region. It also provided opportunities for big agricultural companies like Mukwano, Afgri Uganda, Amatheon, Victoria and Equator Seeds to acquire some of the land and lease land from the government to produce commercial crops like sunflower and rice (Towo & Mugisha 2013). After the agricultural activities multiplied, soil fertility has started to decline again due to unsustainable land use and management in the area. This has caused increased loss of vegetation cover as the farms expanded and the land was subject to continuous tillage, in turn resulting in loss of biodiversity and thereby accelerating damage of the land resources. This has not been received positively by the local people in the region, particularly in the context of the unclearly defined rights on use and ownership of land which has left many landless and poor (Tseng et al. 2021).

The increasing population has caused further fragmentation of land as people resettled after the insurgency and families are free to share land among household members and relatives (Mwesigye & Barungi 2021). This has led to occupants of the land practicing unsustainable agriculture by converting rangelands to agricultural land and settlements (Gebreselassie et al. 2015). These practices have resulted in loss of vegetation cover and depleted native ecosystems, both terrestrial and wetland (Fan & Rue 2020). As climate change impacts become more visible in Northern Uganda through declines in crop production, extreme weather conditions, e.g. storms and prolonged droughts, floods, and pest infestation and have started to manifest in the region (Call & Gray 2020). It is therefore an emerging need to restore the degraded land to provide communities with ecosystem services like fuel and food that previously supported their livelihoods (Rukundo & Kirumira 2014).

This has come to be a concern for stakeholders with roles in land use management, such as the farmers' National Environmental Authority, the Uganda Wildlife Authority (UWA), National Forest Authority (NFA), Uganda Biodiversity Fund (UBF), and development partners in the environmental sector like the United Nations Environmental Program (UNEP). It has become increasingly important to put forward inclusive control measures to sustain the continuous capacity of the land to support the different ecosystem services through land use management policies. Land tenure systems are also of importance in the process of conservation of wildlife, natural forests, and biodiversity of the environment in Northern Uganda.

Gender roles, with respect to land restoration in this region, are of urgent importance as women are the most affected by the deterioration of the ecosystem services (Rugadya 2008). This is because most of the men tend to move to urban centres for manual labour, leaving the agricultural labour in the hands of the women. In extreme cases, some households are headed

by widows because of the previous war in the region but they have no legal rights to make decisions on land use (Ajala 2017). This is because the majority of land is controlled by sets of administrative laws which can be either traditional or informal but do not support women owning land. Thus, current tenure systems, and ownership and user rights, in relation to gender become a hindering factor for decision making when it comes to restoration.

Land degradation is a process that severely impacts both environment, development, and food systems (Kalabamu 2019). The Ugandan government is facing challenges in establishing effective and legitimate restoration projects because different land tenure systems, often based on culture and tradition, to a large degree determine who has control over the land resources and their use (Ajala 2017). The relevance of land tenure policy is therefore seminal in implementation of restoration projects. In addition, land degradation and climate change has been a silent danger that has triggered multiple changes in land use and farming practices.

It is therefore clear that the land tenure systems are an obstacle, especially the private and customary systems that have hindered many restoration efforts in parts of Uganda. This pinpoints the impact of land ownership rights on the control of environmental challenges (Rukundo & Kirumira 2014). Furthermore, women's efforts to be involved in restoration practices is deterred by their status in society and vague role in decision making on land use.
This study sought to highlight the different gender roles and their contribution towards land use which may affect restoration activities in Northern Uganda. The study aimed at providing a deeper understanding of men's' and women's roles when handling matters of land tenure and to enhance understanding of the roles and capacity of women in respect to land restoration. This understanding will hopefully improve and advance land restoration project implementations in Uganda.

1.1 Main objectives

This study had the overall objective to evaluate the impact of land tenure systems on land restoration in Northern Uganda, through a case study of the Alebtong and Lira districts with a key focus on the importance of gender.

The study had three interlinked research objectives:

- To understand the land tenure system in Northern Uganda and how it operates
- To explore the impact of this land tenure system on land restoration practices
- To examine gender aspects of the land tenure system and how it impacts land restoration practices.

2. BACKGROUND

This chapter presents different aspects of land tenure systems, and land use and its effects on restoration efforts with respect to gender in different areas and aspects.

2.1 Land tenure systems and land use

A land tenure system is an institutional relationship, whether legally or customarily defined by individuals or groups, with respect to land (Cotula 2007). In this regard, "land" is used here to include other natural resources: water, minerals and trees. This system defines rules in societies to regulate land use, i.e., property rights, land allocation, access and control, transfer of land, and responsibilities and restraints associated with land (Ministry of Lands Housing and Urban Development, 2015). Land tenure rights are often classified as "formal" or "informal" in Uganda. One challenge associated with this approach is that informal rights may in reality be quite formal and secure in their own context, as can be observed by the fact that traditional landmarks are honoured in court in Uganda (Cotula 2007).

2.1.1 The land laws and policies in Uganda

In Uganda, the tenure system has been revised over the years through policy and constitution amendments to ensure security. The Ugandan constitution of 1995 recognised four different land tenure systems and their related forms of ownership: customary, leasehold, freehold, and mailo (Musinguzi et al. 2020).

In 2008, a National Land Use Policy was put in place to mitigate land degradation. The development of the Land Strategic Plan of 2001 to 2011. The Land Act National Land Policy was put in place to ensure efficient and sustainable land use in Uganda. The amendments are presented in Table 1 below.

Table 1. The land constitutional amendments of Uganda. (Sources: The constitution of the Republic of Uganda 2005; Amendment, the Land Sector Strategic Plan 2001-2011; MoLHUD 2013; Land Act 2013.)

Law	Content
Law Content 1995. The constitution of the Republic of Uganda (2005)	The government recognizes mainly four forms of land tenure: customary, leasehold, freehold, and mailo. The law offers all lawful landowners and occupiers that are legally defined property rights. The system also decentralizes land administration and established land tribunals to address land disputes. The 2004 land act Amendment improved women's rights and the 2007 Amendments specifically addressed the land evictions on basis of conflicts that arose from ownership. The constitution also mentioned protection and preservation of the environment, land use management and natural resources.
2008 National Land Use Policy (Ministry of Lands Housing and Urban Development (MLHUD) - final draft Uganda 2006)	The policy highlighted that customary tenants can be issued customary certificate to acknowledge his/her rights. It also provides goals i.e.: to adopt improved agricultural- and other land use systems that are beneficial to Ugandans, on effective land use for socio-economic development, and on minimizing land degradation; to reverse and alleviate adverse environmental effects of degradation at local, national, regional, and global levels; and to update and harmonize all land use related policies and laws and strengthen institutional capacity at all levels of Government.
The Land Sector Strategic Plan (2001-2011) (MoLHUD 2013)	The strategic plan was developed to implement the Land Act. A land sector strategy was designed to address the multiple social, cultural, economic, ecological, and political functions of land in Uganda. For example: access to land and transfer of land should be equitable and fair irrespective of gender of parties involved, the management of land resources should improve democracy in the country. By empowering institutions and

	resolving land disputes and conflicts, the management of land resources must regulate environmental degradation, control decline in soil, air, and land quality in the country.
Land Act; National Land Policy (2013) (MoLHUD 2013)(Land Act 2013)	The act was to ensure efficiency and equity through sustainable use of land in Uganda. To also encourage use of land resources to eliminate poverty, increase income and socio-economic status. The act is also to secure land rights of Ugandans and acknowledge the gender roles in land administration.

2.1.2. Land ownership categories

The 1995 Constitution of Uganda recognizes the following different land tenure systems: public, customary, freehold; mailo, leasehold and private which are presented and discussed in Table 2 below. This a direct citation of the description.

Table 2. Land tenure systems in Uganda and their descriptions. (Sources: MoLHUD 2013; Land Act 2013; Mabikke 2015; Musinguzi et al. 2020; Musinguzi et al. 2020.)

Tenure type	Description
Public/Government land	This refers to land owned by the government and is controlled and managed by the Uganda Land Commission and other agencies. For example, forests wetlands and game reserves (MoLHUD 2013). This land can also be rented out and profits are taken by government.
Customary land	Customary land systems are where the land is owned by indigenous communities and is governed by their cultural norms and taboos. The land user and ownership rights are attained through inheritance and membership in a community. Customary tenure in Uganda has been in existence for a long time despite not being recognized legally. About 80% of land in Uganda is under customary tenure, especially in Northern Uganda. The 1998 Land Act recognized customary land system and conveyed its legitimacy without documentary evidence. This later led to introduction of the "certificate of customary ownership". The first certificates were issued in 2011 with legal approval from court (Land Act 2013). Under this system land is passed down from one generation to the next in family linage especially to the males (Mabikke 2016).
Freehold	This system does not involve time limits and user restrictions. The proportion of land under this type of tenure is smaller and mainly located in Kampala, and in former Ankole, Toro, Kigezi, and Bugisu districts and are governed under the Registration of Titles Act. However, only few titles have been issued to mainly large-scale plantations and religious bodies (MoLHUD 2013).
Mailo	This type of tenure was introduced by the British colonial masters in exchange for political power and is common in central and southern Uganda. Just like the freehold it's also registered under the Land Registration Act. The land is also governed by Buganda law and customs put forward by the king and it can only be inherited by men. The land is owned by landlords and worked by tenants, who can be evicted. This system is only open to Ugandans, but an individual can offer tenure to another person who is a non-national. The Buganda land board can also lease the land for up to 49 years.
Leasehold	This system involves temporal ownership and use of land from a landlord. The leasehold is classified into these classes: periodic tenancy, estate at will estate for years, and estate for sufferance. The landowners or the Uganda Land Commission can provide a lease to freehold, customary or mailo land for a period of 49 to 99 years. The owner of the lease is entitled to a "certificate of title". Leases of private land often have conditions of payment of rent, while leases of public land are accompanied by conditions of use (MoLHUD 2013). The system is flexible and allows landless people access and tenants to decrease or increase land based on profits.

Land tenure in Northern Uganda is dominated by the customary system (Chimhowu 2019) and other forms of tenure include state, communal or open access and private/individual. Due to changes in society, private land is preferred by most people in urban areas in recent years, due

to ease to lease or register and use (Bazaara 1992). This is also common elsewhere in Sub-Saharan Africa (Ali et al. 2019). However, most holders of land under the milo, leasehold, customary and communal land tenure may have challenges when dealing with administration in relation to legal use and management of the land in the long run (Rukundo & Kirumira 2014). As land tenure reforms are being put forth by the government, like formalisation of the customary ownership, land use is being made more liberal for the owners while causing threats to rural communities whose livelihoods basically depend on the land (Rukundo & Kirumira 2014).

As a result of the continuous population increase in northern Uganda, the tradition of sharing land among children has increased among rural people (Mwesigye & Barungi 2021). This causes more fragmentation through bush clearing for settlement and farming which may destroy the areas' rich diversity if not regulated. Land degradation and climate variations together with land tenure insecurity also threaten to amplify resource conflicts (Kalabamu 2019). Therefore, there is a need for secure tenure to be taken into consideration for managerial purposes. Tenure security basically means the degree of certainty that one's land rights are recognized by both society and the law, and protected in case of cultural and legal challenges to the landowner (Mwesigye & Barungi 2021). This indicates the importance of understanding land tenure when considering restoration measures in Northern Uganda.

2.1.3 Land tenure and resulting challenges in Alebtong and Lira

The administrative districts of Lira and Alebtong, the focus of this study, have customary land tenure and only a few cases of freehold (Mwesigye & Barungi 2021). Internal conflicts in Alebtong district are mainly about ownership of land and access to and use of communal resources, such as wetlands and water points. Alebtong and Lira have similar tenure practices and are exposed to similar environmental challenges. The issue of the tenure system affecting land administration has been evident. For example, the communities of Aloi, Omoro and Amugu sub counties are prone to risk of internal conflict, based on land administration on most occasions. It is also evident from the encroachment on different natural resources in these two districts, for example on forest reserves and through rock mining, that there is a lack of effective regulations (Roe, Nelson, & Sandbrook 2009). According to environmental offices in the country, the natural forests have been reduced and several species, for instance shea trees, are endangered as deforestation is accelerating (Atalla 2015). This is reflected in the continuous unsustainable land use in the region, such as settlement in land reserves like wetlands and reduction in the forest cover (Mugo et al. 2020) According to Headey and Jayne (2014), there are weaknesses in the land tenure system hindering environmental management, thereby affecting restoration possibilities.

2.2 Degradation and restoration in relation to land tenure

Land tenure and environmental conditions are closely related since land tenure policy can influence land use practices (Place & Otsuka 2000). This has come into focus as climate change is linked to degradation, with land use practices like tree cutting for charcoal and farming in

wetlands affecting the natural functioning of the ecosystems (Choudhary et al. 2015, Mugo et al. 2020). The occurrence of different socio-economic activates contributing to land degradation, such as bush burning, farming, and cutting down trees for charcoal and settlement, has brought a need to restore degraded land (Cooper 2018).

In Uganda, the heavy land fragmentation and encroachment on reserves is depleting abiotic and biotic features, causing degradation. This can be observed in Northern Uganda with siltation of water bodies like Lake Kyoga due to heavy soil runoff from crop fields without regulations and management (Katusiime & Schütt 2020). The degradation in Uganda is statistically confirmed, with about 46% of land degraded, 10% very degraded and the country is losing an estimated cumulative of 17% of its natural land resources (Olson & Berry 2003).

However, the limited legal mandate of the environmental agency and the local governments to intervene in management and restoration in areas that are not under reserves or gazzeted land makes it almost impossible to restore or regulate the use of natural resources (Abwoli, Byakagaba & Russell 2014). This brings a clash with the existing formal law and landowners mismanaging land, which is often already stressed, marginal, rain fed agricultural and pastoral lands, leading to unchecked damages (Muhumuza & Akumu 2020). Moreover, under similar situations in conflict and post-conflict areas, interactions among settled and displaced populations brings great uncertainty as to who has, or should have, control over the land. This has caused increasing degradation with no responsible party for the restoration of the degraded land (Marianne & Oleksandr 2019).

The land degradation taking place in Alebtong and Lira is largely due to managerial gaps and the excessive areas used for agriculture and settlement as a result of the high population density (Olson & Berry 2003). This has resulted in the settlement of people in disaster prone areas like wetlands, which are prone to floods and water erosion (Businge et al. 2017). However, there are as yet no viable actions put forward for the land management and restoration of affected areas due to the stringent tenure system.

2.3 Linking land use, tenure, and gender

Gender is a socially constructed component, reflecting society's ideas regarding role appropriation for men and women (Ajala 2017). This has for a long time shaped the way land and other property is owned, shared, and used in Uganda. According to the Land Policy (2013), Uganda has ratified several international human rights agreements for gender equality and protection of women's rights. The country is known by international agencies for having rich policies, constitutional and legal frameworks regarding gender specific policies in the case of women's lands rights (International Ferderation For Human Rights 2012).

However, although traditions and practices that alienate women from land use and ownership have been outlawed, the actual practices do not mirror the legal changes (FIDH 2012). For example, traditions in many parts of Uganda, including the Northern region, still pass land to males as their inheritance while women are left to the mercy of their relatives (Adoko & Akin

2011). The Domestic Relations Law, which was split into the Marriage and Divorce Bill 2013 and the Administration of the Muslim Personal Bill 2013, has created a heated debate among citizens about women having rights to land and property when marriages are dissolved (FIDH 2012). Moreover, current disputes over land are adding more uncertainty to the vulnerable members of society, like widows being denied their land and property rights (Chimhowu 2019).

There are similar male dominated land ownership patterns across the sub-Saharan region and other West African countries, like Nigeria and Ghana, which also have societal constructions supporting the denial of women's rights to own land (Ajala 2017). However, in these countries most of the farmland work, like weeding, planting, harvesting of field crops and management of land, is done by women, who are more involved in agricultural work to provide for household needs than men are (FAO 2017). This makes them more vulnerable to the effects of degradation since most of these rural women gain a lot of their livelihood from the environment, such as firewood, wild fruits, and clean water for domestic use (FAO 2017).

Just like other parts of country, Lira and Alebtong districts have people who mainly depend on agriculture for their livelihoods. Therefore, the gender roles also have impacts on the environmental management (UNIDO 2015). Driving factors are the low literacy level of the people, and limited economic activities and income sources which further catalyse the exploitation of natural resources (FAO 2017, Graafland 2020). As a result of the decline in the ecosystem services in the area, the poverty level has increased causing many to consider girls for marriage to gain income in the form of dowries and other forms of exploitation with therefore no need to give them land for use (Mass & Khodr 2019, Brown 2020). However, women in rural areas access extension services during social gatherings where they create slots to talk with invited extension workers which makes them a good target group when starting a restoration programme.

3. METHODS

3.1. The study area: Alebtong and Lira districts

In Uganda, local government administration is arranged in five levels. The local government administration consists of the local council chairman at district level (LCV), counties that are currently inactive (LCIV), sub counties with a local council (LCIII), parishes with a local council (LCII), and village local council (LI).

This study focuses on two administrative districts in the Langi region in Northern Uganda, Alebtong and Lira (Figure 1). The districts are composed of 13 and 9 sub counties respectively with leadership jurisdiction at lower local government level under LCII. Most people living in this area are of the ethnic group Langi, who previously kept livestock but due to cattle raids have adopted crop production for food and livelihoods. Cotton as a cash crop was of high value in the region. This is therefore predominantly an agricultural region, and the main crops grown are sunflower, rice, cotton, sesame, and cassava among other crops for food and sale.

This area is also rich in biodiversity, including rich wetland eco-systems. Land degradation in the two districts is stimulated by floods in the wetlands, seasonal bush fires and excessive land use for subsistence production in some parts (Cooper 2018). As the population grows (annual growth rate of 3.2% (Uganda Beraeu Of Statistics 2016)), increased sedimentation and fragmentation of land is expected due to widespread subsistence farming, leading to degradation, with soil erosion being the lead contributor (Karamage et al. 2017).

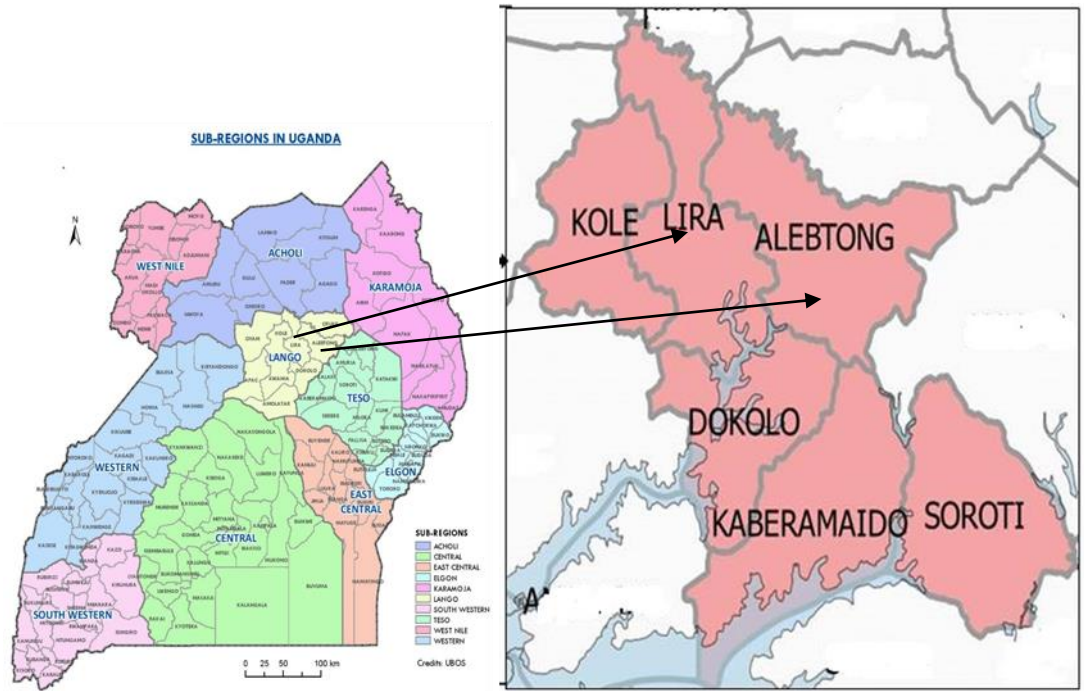

Figure 1. Maps of Uganda showing the regions Lira and Alebtong, targeted for this study. (Source: UBOS 2020).

The study area has several physical and biological factors that affect the micro and macro climate of the area (Table 3). These could affect the environmental response to degradation in the long run or stimulate changes in the environment.

Table 3. The area profile of the two districts, Alebtong and Lira. (Sources: UBOS 2016; Ministry of Disaster Preparedness 2016; FAO 2011; UBOS 2020.)

		Lira	**Alebtong**
Size		1,329 km^2	1,820 km^2
Land under use		1,286 km^2	1,555 km^2
Rainfall	Type	Bimodal	Bimodal
	Volume	1,200-1,600 mm/y	800-1,400 mm/y
Wind speed	Dry season	4-8 m/sec	4-8 m/sec
	Rain season	1-4 m/sec	1-4 m/sec
Population		17,000 people	10,300 people
Main livelihood source		Agriculture	Agriculture

3.2 Study design

The study was based on three key sources of data. The primary data was collected via semi-structured interviews with stakeholders from local governments at two levels, district (LC5) and village (LC1) (qualitative data); by doing household surveys in two administrative districts (qualitative and quantitative data); and from the policy information in Chapter 2.

The interviews were done to gather data on practices (objective one) and socio-economic determinants of restoration at both the household and administrative levels (objectives two and three). Random purposive sampling was applied to select participants for household interviews who were above eighteen years of age (the legal age of decision making) in Alebtong and Lira districts.

3.3.1 Interviews

a) The household interview survey

The household interview survey was conducted by trained enumerators in the Alebtong and Lira. The participants to take part in the household interviews were randomly selected from the parishes and on basis of possessing land. From the two districts, four sub-counties were selected and households from those respective parishes were identified and interviewed using a Likert scale as modified from Dalipagic and Elepu (2014). The members of the household responsible for land administration were visited at home and the interviews took about 15 minutes. The number of respondents from each location are presented in Table 4 and Appendix I shows the household questionnaire.

Table 4. The sample for the household survey.

Districts	Sub counties	Number of respondents interviewed
Alebtong	Aloi	46
	Alebtong town council	
Lira	Weiodyek	50
	Amach	
Total number		*96*

The Socio-demographic characteristics of the 96 household participants who took part in the survey are presented in Table 5. The participants consisted of adult household heads, who owned land and had rights to make decisions on land use and management.

Table 5: Socio-demographic information about the household interview respondents.

Variable	Options	Frequency (n=96)	Percentage
Gender	Male	83	86.5
	female	13	13.5
Marital status	Single	3	3.1
	Married	87	90.6
	Divorced/separated	1	1.0
	Widowed/widower	5	5.2
Educational level	Non formal	7	7.3
	Primary	51	53.1
	Secondary	22	22.9
	Tertiary	16	16.7
Age range	18-30	19	19.8
	31-40	26	27.1
	41-50	33	34.3
	50 and above	18	18.8
Income source (main)	Salary earner	2	2.1
	Business	8	8.3
	Crop Farming	83	86.5
	Animal farming	3	3.1

b) Local government staff and local leaders' interviews

An enumerator conducted semi-structured interviews with district local government officials. The interviewees were purposively selected based on their knowledge, and work roles that give them a mandate to take responsibility in land use matters in their various capacities. There were two sets of semi-structured interviews. One set was directed to technical staff working at the District Local Government level (LC5) in the Alebtong and Lira districts. The other targeted local government leaders at the village level (LC1) ofAloi, Alebtong town council, Weiodyek and Amach villages.

Table 6. The staff from district local government and local leaders that were interviewed.

District	**Staff interviewed**	**Local council (LC1)**
Lira	District land officer Agricultural officer Environment officer	2 leaders: 1 from each village (Alebtong town council and Aloi)
Alebtong	District land officer Agricultural officer Environment officer	2 leaders: 1 from each village (Weiodyek and Amach)

The enumerators conducted the interviews with the local leaders and household representatives in Lango. The interviews were then translated and written in English. The district technical staff filled the written questionnaires in in English and emailed them to the leader of the survey.

The primary survey data was analysed in Microsoft Excel, where responses were categorized, classified, and coded for easy analysis. The responses from the government workers and Local Council and other descriptive responses were put into thematic formats to maintain the details.

3.3 Ethical considerations

The study was carried out after seeking permission from the different district administrations. The respondents consented to participate in the study with a guarantee of anonymity.

4. RESULTS

4.1 The main tenure systems

The respondents in the household survey all had customary land (100%). However, some of them had also opted to buy (29.2%) and rent (6.3%) land to supplement their available land while 64.3% of the respondents depended exclusively on the customary land they possessed (Table 7).

Table 7: The main tenure systems and registration statuses of the study respondents.

Variables	Options	Frequency (n=96)	Percentage (%)
Land tenure system	Customary land	96	100.0
	Rented land	6	6.3
	Bought	28	29.2
Land registration	Registered	1	1.0
	Not registered	94	98.0
	Doesn't know	1	1.0
Consolidation status	Fragmented land	61	63.5
	Consolidated	35	36.5
Average size (acre)		5.1	
Range (acre)		21.5	

Although all the respondents possessed customary land, only 64.5% of them were exclusively using customary land for their livelihood. Most of the respondents' land (98%) was not registered legally while the other 2% of land was either not registered or the owner did not know about the registration status. About 63.5% of the land was fragmented into two or more plots and 35% of the land was consolidated. The majority of the respondents (92.7%) had control over land. They were men and most of them had been given land while some of them had control over bought land. The 7.3% respondents who were women did not have control over the land.

4.2 Land use management and restoration perceptions

4.2.1 Land use management and restoration practices in Alebtong and Lira

The respondents mentioned various land management practices that were being carried out in their areas as summarised in Table 8 below. These results were generated from all three groups of respondents.

Table 8. Restoration practices used in the study area summarised.

Restoration practices	No. of respondents	Percentage (%)
Mulching, planting cover crops	28	29.2
Fallowing and fertilization	16	16.7
Crop rotation, organic manure, plant waste, and grass bans	25	26.0
Tree planting/afforestation, agroforestry, and water channel	23	24.0
Indigenous trees conservation	3	3.1
Doing nothing	1	1.0

4.2.2 Predictions of the environmental status of the area in the next 10 years

The respondents gave their view on future land quality based on the nature of land use and management of the area. The assessment of the perceived status of vegetation, soil quality and productivity, water quality and availability, status of occupancy and status of agroforestry was done on a Likert scale (Figure 3). The respondents' perceptions were rated on a score of 1 to 5: 1=Very good, 2=Good, 3=Neutral, 4=Bad, and 5=Very bad (Figure 3).

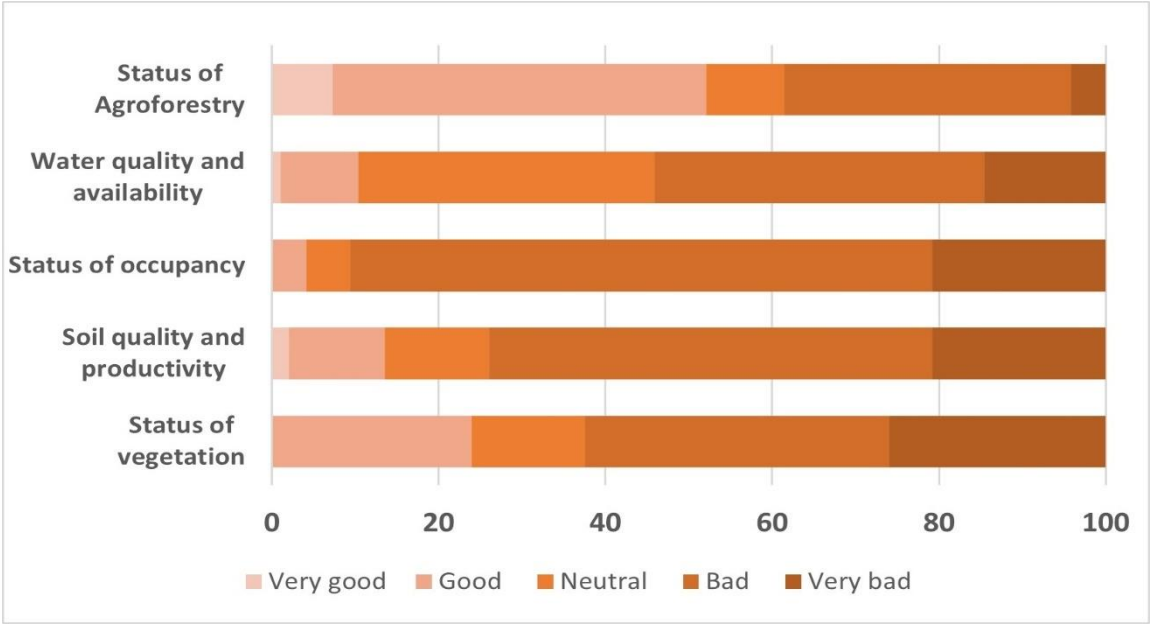

Figure 3. The respondents' perceptions of the status of selected environmental parameters in the next 10 years.

According to the majority of respondents, the vegetation would be depleted as the population increased and the number of people occupying the area was predcited by over 70% of the respondents to be eccessively high. This could eventually affect the soil as more people open land for settlement and production, causing depletion of the soil through lost fertility due to erosion as perceived by more than 70% of the respondents. They believed that this could affect the quality of life in the community and beyond. In an effort to address the projected negative environmental impact, the majority of people are embracing agroforestry by increasing tree planting in the community to provide ecosystem services over time.

4.3 Gender, land use and restoration

The information summarised in this section consists of information about land distribution to women, their involvement in restoration and their decision-making status regarding land management practices. The results presented in Table 9 are a summary from the household responses and statements from the local leaders.

Table 9: Gender and land use management/restoration.

Variables	Frequency (n=96)	Options	Percentages (%)
Distribution of land to women	38	Gave land to women	39.6
	55	Women not given land	57.3
	3	Not sure	3.1
Involvement in restoration	84	Women involved	87.5
	10	Women not involved	10.4
	2	Not sure	2.1
Decision making on land use and land management	24	Involved	25.0
	70	Not involved	72.9
	2	Not sure	2.1

The responses showed that about 90% of the respondents said that, in their opinion, having no land rights does not affect women's participation in land use and land management. Although the land was small, it was still said to be fertile but with limited human capital to improve or manage it.

4.5 Perceptions of the local council leaders

Below are summaries of the responses from the local leaders responding to questions on land use, management, and land sales in their areas. The questionnaire can be seen in Appendix 2

a) The land tenure system

The customary land tenure system is most common in their area, but with people also buying and renting to supplement the land they have. Customary land tenure system is where the land is owned communally by families or clans. Family members cannot dispose of land without

consent from the clan or traditional leaders, thus such land is disposed of under customary regulations. Family and clan heads are instrumental in guiding the tenure administration in rural areas. This tenure can also be converted into a freehold tenure system due to current urban expansion and development. However, the respondents complained of challenges to acquire financial loans from banks using the land as collateral, making it difficult to get the financial input needed to manage the land.

The technical staff therefore confirmed land ownership practice in Alebtong and Lira district to be the customary tenure system. This is a communal land ownership system where land is held according to the customary / family's traditional laws. This confirms the information from both the household respondents and local leaders in the areas.

b) Grazing areas available and livestock numbers

The local leaders were asked to estimate the size of the grazing land and the number of livestock in the villages where they work because they have direct interaction with the people. This information was necessary to assess the impact of land use on the environment. Their responses are presented in Table 10 below.

Table 10. Estimates of livestock numbers and grazing area sizes in the districts.

Village	Grazing areas; number and size	Estimated livestock numbers
Alebtong town council	2 areas estimates at 15 acres	Cattle = 150, sheep = 70, goat = 300
Aloi	1 Swamp estimate at 8 acres	Cattle = 60, sheep = 30, goat = 400
Amach	1area (Estimated to be 10 acres)	Cattle = 120, sheep = 50, goat = 200
Weiodyek	2 grazing areas (100m x 300m)	400

c) Involvement of women in land administration

The leadership structure has women involved on the land committee because it's a government plan to ensure gender balance and female representation. However, at household level women are not involved in decision making concerning land. The women in Alebtong and Lira mostly get access to land through marriage and if the relationship ends, they have the option of going back to their parents or remarrying within the clan to keep their rights to the land. This is because their male kin are the custodians of land, and the community is patrilineal.

d) Future land quality

The leaders also thought that the land is already exhausted, despite land management practices like tree planting, crop rotation etc. They said that the land will deteriorate soon because of overuse for crop production and animal grazing. This is leading to massive erosion as the land is left without cover as the natural forests in the area are being cut down for fuel and farmland. The wetlands are also being drained by farmers, especially for rice and vegetable production to supply urban areas. This could cause the land to lose native plant species and would affect the ecosystem services the people are getting. On efforts to replace the forests, they said that the government and other stakeholders supply non-native tree species like pines to promote

agroforestry. These species might soon take over the native woodlands as people prefer them for fast growth and timber for sales. However, the communities are trying to control tree cutting through fines, especially for cutting protected tress species.

4.6 Perceptions of the government officials at district level

a) Land ownership practices affecting land use in rural areas

The customary system has led to continuous land fragmentation as families keep sharing land with their children. As a result, over exploitation of the land has led to soil erosion as most of the vegetation is cut off to create land for farming and settlement. The customary tenure system makes it difficult for the government and other development partners to implement projects in the area since there are so many people to consult beforehand. This could also have caused the growth of slums in small towns and contributed to poor urban growth management.

The local leaders reported that there are cases of disputes, while other areas with trees planted on borders has fewer wrangles. As the population increases, land is becoming scarce among rural communities thus there is a scramble scramble to secure the little land available. However, the struggle is frequently with more empowered individuals or organizations in terms of finances and power and so the rural community is left at a loss or results to violence.

b) Restoration practices implemented in the district

The by-laws on cutting protected trees (like shea trees), wetland protection and afforestation are also now in place to manage and conserve the environment. There are efforts to diversify livelihoods by the government through business loans to control the number of people exploiting natural resources. The agricultural and environmental departments have been heading most of the campaigns to save the environment.

c) Tree seedlings given to farmers in the district

Raising tree nurseries and distributions of seedlings to farmers (above 10,000,000 on estimate per district) has been a regular programme by the government to restore lost tree cover, provide fuel to save native trees from being cut, and provide raw materials for building. These efforts are also being supported by the central government, the national environmental authority, and non-governmental organisations like the International Union for Conservation of Nature (IUCN) to save forest reserves in the districts.

d) The future of indigenous vegetation species for restoration

Most people in the area are opting for planting of pine and eucalyptus due to their economic benefits of timber for sale and fast growth for fuel. These species are being planted on areas previously covered by native trees and plant species. This is also partly because the development partners are giving the seedlings for free to farmers in the districts as a way of encouraging people to plant more trees. Although the negative impact is not yet pronounced, according to the interviewees, these areas are losing native vegetation, and biodiversity is decreasing at a high rate. As agriculture and agroforestry increases, the level of native species are decreasing drastically since the forests are being cleared to create gardens for food production and timber production, leaving the future of indigenous vegetation species at stake if nothing is done urgently.

e) Estimated size of natural and non-native forest cover

The respondents estimated that the size of natural and non-native forest cover is approximately 15% of the area, but they said that the future of the forests is uncertain. This is because most of the forests are being cut down for agriculture, in particular crop production. Because non-native forests are also grown for timber production mainly these forests may have a short-term rotation existence.

f) Land ownership impact implementation restoration projects

The district staff agreed that land ownership affects decision making regarding project implementation. This tends to delay implementation due to the people involved during consultations for land use. This gets more complicated when the project involves women or is a long-term restoration programme because the men must agree to the activities before they can be carried out. Moreover, in case of death, the new heir must agree to be part of the project for the continuity of the land restoration. The limited number of household members also makes it challenging to acquire labour for the implementation of projects, thereby slowing down the restoration process.

g) Land tenure system and women's roles in environmental management and restoration

The technical staff interviewed believe that women and children are highly affected by the land tenure system in their districts since they are not allowed to own land according to the customary system and yet they directly contribute to land restoration through labour. Participating in agriculture in high numbers makes them a major factor and they are also highly affected by land degradation, since they are dependent on ecosystem services like firewood and water to provide for their households. This makes women important and obvious partners for restoration activities, since they value and require these services for their livelihoods and well-being.

5. DISCUSSION

5.1. The land tenure system in Northern Uganda and how it operates

A customary land tenure system was identified by the respondents to be the most dominant in the two districts. All the respondents possessed land under the customary system, 28% of them opted to buy land to supplement the land they already have. This could be explained by low costs and the flexible modes of land acquisition in the region, such as the option of exchange with livestock or farm produce. The 6% that rented land, mainly to supplement basic crop production, could not carry out long term development on the land in comparison to those who had bought the land and thus achieved more secure tenure.

Customary land tenure has also been observed to operate using norms and taboos from cultural leaders who are responsible for implementing them. In northern Uganda, it's the clan leaders that handle everything, from the matter of land allocation to limited wrangles (Wily 2011). This customary land, according to the respondents, cannot be sold easily to people outside of the clan and it is not easy for unmarried young men to be allocated a portion of land until they

marry. That explains why most of the respondents (83%) were married men (Table 5). This also reveals the patriarchy involved in this system. Furthermore, most of the land is not formally registered, leaving the land users vulnerable when in need of financial support from institutions or when facing legal ownership challenges.

In comparison with other Ugandan tenure systems like mailo, public land and leasehold, the occupants/users in the customary system are more secure from eviction by the owners of the land and thus can use it on a longer-term basis and pass land to future generations. This system is very common in rural areas and agrarian economies across the continent of Africa (Wily 2011). However, this doesn't guarantee legal surety, for example to use as collateral to get financial assistance from banks or other financial institutions to invest in improving the land. This has, therefore, caused limited development of this type of land. The first legal titles to customary land were offered in 2011 by the court but few of the rural landowners can afford or barely know about it. This this could make it difficult to survive economic shocks and poverty (UN 2021).

This study revealed attributes of the land tenure systems in Northern Uganda, confirming customary tenure to be the main type of land administration in rural areas and one which operates under cultural norms and taboos administered by men. While few respondents mentioned buying and renting land, the majority of the landowners had not registered their land with the governmental legal system and thus could have tenure insecurity. That would make it complicated to claim ownership in courts in cases of land grabbing, since the boundaries are not well marked and documented with the land commission. This is in contrast to the situation of the owners of registered land who have documents and their land maps well demarcated.

5.2 The impact of the land tenure system on land restoration practices

Land is viewed to be a cultural and traditional heritage in the Lango culture, and this is why the land is possessed through ancestral linage. Thus, it makes the customary administrators of land very important and powerful actors in tenure systems in the region. The pride of heritage and value attached to land therefore provides the motivation to manage and protect the land since it is the main source of livelihood and heritage to the Lango people. The cultural practicalities have a large impact on decision making. The majority of respondents said, however, that it did not affect their participation in land use and management in their own opinion.

The practices that involved restrictions of land access had an impact on land management in the region by limiting the people who could take part in decision making. This is similar to a case of customary lands in Malawi, where tenure did seem to affect the land use and natural resource management (Hansen et al. 2005).

The responses from the professional staff at district local government brought about concerns of problems like land fragmentation, continuous tillage which stimulated soil erosion, land conflicts/wrangles, growth of slums and poor urban growth management as the youth who are not given land relocate to make a living in towns instead of working to manage land. This could

leave the rural areas short of labour to embark on required land restoration activities, such as manure application and other land management practices.

The land was observed in the survey to be distributed in small plots with an average land size of only 5.1 acres, and 63.5% of the household respondents had fragmented land (Table 7). This can be related to the sizes of the households of about an average of 5 people in relation to the land available and the trend of land sharing. In this situation, parents further share the land with their children, following tradition which can lead to excessive use resulting in degradation.

Regarding the number of non-native tree seedlings being taken into the ecosystem according to the technical staff and the increased interest of the respondents at household level in agroforestry, there is a danger that the area may lose its native forests and rangelands as people choose to plant commercial tree species with hope for improved livelihood and quick returns on sales. The practice of using non-native tree species for agroforestry is also being embraced in other African countries like Malawi, Ghana, Kenya, Ethiopia, and others to mitigate climate change and provide ecosystem services (Azadi et al. 2019). However, this could lead to loss of biodiversity in the region and other parts of the continent were agroforestry using non-native tree species is being practiced. Nevertheless, the non-native tree species can be used for property marking due to their unique features and fast growth, enabling demarcation of boundaries to avoid land wrangles.

The local leaders' (LC1s) estimates of the size of the grazing areas and number of livestock brings to concern the degree to which grazing of the wetlands could cause damage to the ecosystem. According to the local leaders, many households are grazing their animals in communal grazing land with no responsibility to manage it. This could lead to degradation of the rangeland ecosystem due to continuous unsustainable grazing.

The 6% of farmers who rented land (Table 7) are not responsible for what happens to the land after the lease is over. As result, the soil could be heavily depleted of nutrients and vegetation cover due to excessive tillage during their temporary lease, causing erosion due to this unsustainable land use. The land rent trend could be increasing, possibly due to an increase in small towns and youth getting manual jobs in the town, providing them with income and thus to afford to rent land back in the rural areas. This is done to supplement their income with agriculture which is seasonal and generates low prices for the produce. They may, however, not have enough time to manage the rented land. This trend in Uganda is not unique as similar forms of renting land for farming have also been observed in parts of Nigeria and other West African countries (Chimhowu 2019).

In summary, land tenure systems have impact on land restoration practices in the study area since it is the customary land administration that determines who uses and manages the land. This could hinder sustainable land use practices, as in the case of women, who are in the position to provide labour for restoration, being restrained by the male landowners.

5.3 Impact of land tenure systems on different genders and land restoration

Gender roles have for a long time been a key factor in defining and affecting different aspects of the Ugandan society. In this study, there were more male respondents (86.5%) than female (13.5%) (Table 6). This uneven level of male and female respondents was due to the selection criteria that required the respondents to have land in the districts. The large number of males participating in the study therefore shows how patrilineal Alebtong and Lira districts are in terms of land administration. This brings to concern how women in this area can be involved in land management. The fact that only a few women could openly participate in discussions about land also affected the results of this study since most of the opinions came from men. Another approach, for example to have women speak about land administration in focus group discussion exclusively or to interview even numbers of women and men could maybe have given different study results.

The findings showed that most of the respondents perceived that women did not have a big say on land, but it is important to bear in mind that 90.6% of the respondents were married men. The households were seen to have many young married couples which could have resulted from child marriages at Internally Displaced Camps during the recent insurgency (FIDH 2012). Moreover, the females heading households could be widowed with no sole male adult heir in the family. This could explain the limited awareness of land rights and responsibility regarding sustainable land use and management, as well as the lack of legally registered land ownership. This could be because most of the respondents under these circumstances had not been in a position to access information regarding land use and management or could not afford the cost of the registration processes.

The education level in the area is low, with more than half of the respondents stopping at primary education. A few had non-formal education and the highest learners are from tertiary institutions but make up only 22% of respondents (Table 5). This could be a challenge to sustainable development as literacy is low and most of the respondents may find challenges in reading and understanding policies passed by the government. This might explain the low uptake of government policy on land registration, 98.0% not having legal registration for their land, as very few people did not know anything about the land registration (Table 7). The low income of the respondents who heavily depend on seasonal agriculture with low produce prices also makes it impossible to pay the legal fee for registration of land (about 22.000 Uganda shillings) to the government land board.

In respect to land distribution, the largest percentage of households did not give land to women or female children. While most of the respondents' households involved women, few didn't or were not sure of the need to involve women in land restoration (Table 9). A quarter of the male respondents involved women in decision making while most of the other male respondents no to female involvement in land management (Table 8). The high number of women involved in land restoration work is probably because they are responsible for providing food for the household, while the culture makes it clear that men give them instructions.

Regarding the responses about equal distribution of land among children (males and female), most respondents said that girls would leave home so it was only the boys who belong to the clan in their opinion. Therefore, the majority of them preferred to give land to the males. The majority of the women only had the rights to farm and construct residency on the land, which confirms what the Food and Agriculture Organisation (2017) reported about the land rights of women.

The land was controlled by the husband and family. The women only had user rights to the land gained mostly through marriage. The right to access and use this land lasts if the marriage goes on. In case of the husbands' death, his family may choose the heir to be the eldest son or his brother who then decides about the woman's rights. In some cases, women remarry within the family to keep her rights to use the land. In contrast, men make decisions on land use and allocation of plots amongst themselves (Food and Agriculture Organisation 2017). This is because the Lango culture and most of the societies in Northern Uganda consider the primary roles of a woman in a household to be childbearing and to work in the kitchen or garden.

However, the trend is also shifting in Northern Uganda in favour of virilocal households where the man remains on his ancestral land while the wife relocates to her husband's home to start a family. Alternatively, inheritance is for the paternal nephews or children of the couple due to immigration and government policy (Hansen et al. 2005). A great number of women are highly involved in land restoration (Table 9) but due to divorce tendencies as men are free to get another wife as they wish, and the culture supports them, the majority of the women tend to relax on restoration in the belief that the husband can throw them out of the home, and this would cause them to lose their rights to the land. When the husband dies, the elder son or husbands' family can decide if she keeps the land or is sent away. This has brought about tenure insecurity among households in the Northern region.

The tree planting which has greatly increased (Figure 3) is basically considered to be for men as women are barred from doing long term investment on land due to restrictions from their partners and families. This has left the integrity of the environment compromised in some areas since non-native species are almost only introduced for the male dominated timber business.

Therefore, the findings of this study confirm that most women only have user rights but do not control land use in Northern Uganda, making them less empowered. This is common in sub-Saharan African countries (Food & Agriculture Organisation 2017). These results also indicated the important roles women play in land use and management across Northern Uganda despite the hindrances from the land administrative systems.

6. CONCLUSIONS

The study investigated the impact of land tenure systems on land restoration in Northern Uganda, through a case study of Alebtong and Lira districts, focusing on the importance of

gender. This might be the first study on land tenure from a gender perspective and its impact on land restoration practices in these two districts.

The results demonstrated that the household respondents appreciated the customary tenure which is dominant and legally recognized, and they believed it to be good as they have rights to control their own land. However, the study also indicated the low number of men with willingness to give women land, yet women are the ones mostly shown to be involved directly on implementation of restoration activities.

The study revealed that most of the respondents holding land under the customary tenure system are males, and the land plots are getting smaller because of fragmentation as the population increases in the rural areas of Alebtong and Lira. Most of the land was not formally registered with the government legal system, maybe because of low awareness of land laws or lack of money to pay the legal registration fees due to poverty.

In accordance with study results on the impact of the tenure system on land restoration practices from a gender perspective, this study showed that the dominant customary system has impact on land management practices and restoration activities. This is because of the need for the women who carry out land management practices to consult with their husbands or male relatives who control the land. Meanwhile they could all have different interests in the environment and benefits from ecosystem services. Above all, most women were not involved in decision making on land management and use in the districts of Alebtong and Lira.

Based on the findings of this study, the following policy recommendations are suggested:

1. The government should embark on creating more awareness about the customary land tenure system to be used as a legal form of land ownership in rural areas while involving more women in the land tenure system.
2. The government should consider revising land and environmental laws, taking into consideration the relationship between land administration, land use and environment and gender.
3. The environmental and agricultural workers should conduct training to boost land law literacy to enable communities to acknowledge their importance in environmental protection, climate change and the roles of women in these processes.
4. The agricultural extension staff from local governments should sensitize the community through cultural leaders on the values of the land tenure system and its relevancy to protect the native vegetation cover in the local environment for proper functionality of the ecosystem.
5. A further study of these issues could be conducted using other methods like focus group discussions that may encourage more women to come forth and participate in land management and administration discussions.
6. The government should promote more diverse employment opportunities to address the over dependency on agriculture and seek to eradicate poverty to control the excessive exploitation of land resources.

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APPENDICES

Appendix I; Household Questionnaire

Dear Respondent,
I am **Owino Mirriam**, a fellow of GRO LRT programme at the Agricultural university of Iceland. I am carrying out a research to "Assessing the effects of land tenure system on land restoration in Northern Uganda: A gender perspective" in northern Uganda.
Kindly note that it is voluntary to participate in this study and your identity shall be kept anonymous. In addition, we shall not share your response with any person outside of this research, except for the sole academic purpose. I further kindly request you to respond to the questions honestly.
If you consent to participate in the study, please sign below:
Participant……ID…….....Signature……..
Appendix I: Household Questionnaire.
BACKROUND INFORMATION
Part A. General Information

1	Date of interview		
2	Location;	District	
		Sub county	
		Parish	
		Village	
3	Participant number		
4	Contacts (optional)		

Part B: Demographic Information of house head
Please tick in the box that represents your best option. **Tick or write in the Appropriate letter.**

i) What is your sex?
a) Female ☐ b) Male ☐

ii) What is your age range?
a)18-30 ☐ b) 31-40 ☐ c) 41-50 ☐ d) 51-above ☐

iii) What is the educational status?
a) No formal education ☐ b) Primary education ☐ c) Secondary ☐ d) Tertiary ☐ e) university ☐

iv) What is your marital status?
a) Single ☐ (b) Married ☐ (c) Separated/ Divorced. ☐ (d) Widowed ☐

v) What is your source of income?
(a) Salary earner ☐ (b) Business ☐ (c) Pensioner ☐ (d) Crop Farming ☐
(e) Animal farming ☐ f) Reminants ☐ g) SAGE (Social Assistance Grant for Empowerment) ☐

vi) If more than one source of income, can you rate what supports the household most?

Activities	**Response**
Salary earner	
Business	
Pension	
Crop farming	
Animal farming	
Remittances	

vi) What is number of people from your household, (family size)? ☐

Part C: Knowledge and information about land

i) What is the size of your land in acres? ☐
ii) Is the land consolidated?

a) Yes. ☐ b) No. ☐

If **no** (meaning the land is fragmented), please tell us the number of plots and estimated sizes per plot. ……

iii) What type of land ownership type?

a) Customary land. ☐ b) Bought land. ☐ c) Communal land. ☐ e) Rented land. ☐

iv) What is the registration status of the land?

v) Do you have a land title for the land?

vi) Basing on the land ownership type/tenure system, do you think you have full control to manage your land?

a) Yes ☐

explain briefly?.....

b) No ☐

Explain briefly?.....

c) Not sure? ☐

Explain briefly?.....

vii) If yes, do you in future intend to distribute the land you have to your children (both boys and girls) as their inheritance? with same rights to use.

a) Yes ☐

Explain briefly?.....

b) No ☐

Explain briefly?.....

c) Not sure? ☐

Explain briefly?.....

viii) What user rights will your daughters have over your land, if any

……
……

ix) Have ever done any restoration activities (SLM) on your land?

a) Yes ☐

explain briefly?.....

b) No ☐

Explain briefly?.....

c) Not sure? ☐

Explain briefly?.....

x) Are the women involved to make long term decision of restoration practices in the household without consultation (revegetating and agroforestry)

a) Yes ☐

explain briefly?.....

b) No ☐

Explain briefly?.....

c) Not sure? ☐

Explain briefly?.....

xi) How does the land ownership in your area affect your land use choices?

xii) How do you see the status of your land in the next 10 years with respect to current practices you are doing?

Context	**Very good**	**Good**	**Neutral**	**Bad**	**Very bad**
Vegetation cover (tree & grassland)					
Soil quality and productivity					
Occupancy (population)					
Water quality and availability					
Agroforestry					

Appendix II: Questionnaire for local leaders at village level

1. What is the land tenure system in this village?
2. How many people are residing in the village? (estimated)
3. How many households are in the village?
4. How many grazing areas (number and size) are available?
5. How many livestock (cattle, sheep, and goat) are estimated in the village?
6. Does the community have mechanism to deal with land degradation?
7. What is the estimated price of land per acre?
8. Have you had cases of land grabbing/wrangles?
9. How do you involve women in land management?
10. How do you see the land quality in the village in 10 years to come?

Appendix III: Questionnaire for District Government level administration

1. What is your job title?
2. What are your roles with respect to land use and policy?
3. What the most common land ownership practices in the rural communities right now?
4. How are the land ownership practices affecting land use in rural areas according to you?
5. what restoration practices are you implementing in the district? How many tree seedlings do you give to farmers every year?
6. How do you see the future of indigenous vegetation species for restoration?
7. What is size(acres) of natural and artificial forest cover(estimates)?
8. Do your see the land ownership as a challenge when implementing restoration projects?
9. How do you view the land tenure system regarding gender and women's roles in environmental and restoration?

Thank you for accepting to participate in the study.

Mirriam Owino
Owinno88@gmail.com

Thank you!