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Policy Brief

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Land Tenure in South Sudan: Does it Promote Climate Change Resilience?

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Summary

Land tenure systems have implications for food security, access to water, natural resources, pastures and settlement during droughts and flood disasters. Although the South Sudanese Land Act 2009 recognizes both formal and customary land tenure systems, little is known in practice about the extent to which these systems promote climate change resilience in the country. Drawing upon prior work and primary data, we found the following:

- The 2009 Land Act has clauses intended to promote climate resilience. For example, customary land tenure permits communal land rights, customary seasonal access rights and access through social relationships, which allow climate change resilience. In addition, the Act enhances land tenure security through survey, demarcation and registration. However, these articles have barely been implemented. Only about one quarter of the urban areas has been surveyed and registered. In addition, these resilience features are undermined by decreases in social capital linked to large-scale rural-urban migration, abject poverty, and communal conflicts that erode inter-communal relationships that serve to accommodate displaced persons during disasters.*
- Statutory and customary land laws grant women rights to use, control, own, rent, lease and sell, inherit from husbands, and protection (see table 3). However, these legal arrangements limit women to share with the husbands after divorce and to inherit land from paternal family.*
- Climate displaced persons are treated differently from conflict displaced persons because climate induced shocks such as floods are viewed as temporary disasters and the victims often return to their land a few weeks or months after the disaster. However, while climate induced displacements are temporary, they have become more frequent, happening almost every year since 2007 (see table 2).*

The government ought to fully strengthen and implement land tenure laws to ensure (1) land is fully surveyed and registered, (2) communal reciprocal system is enhanced through dialogues, (3) boundaries are properly demarcated, and (4) land management measures are fully deployed, both at the rural and urban levels, to enhance resilience to climate extremes.

1. Introduction

Land was a key driver of the war between Khartoum and Southern Sudan. The Khartoum government had placed the land and its resources under the state's control, while the Sudan People's Liberation Movement/Army (SPLM/A), which represented the South during the war, argued that the "land belongs to the community" and that the government could only regulate its usage and management (Marzatico, 2016, Shanmugaratnam 2008, Pantuliano, 2007). Khartoum utilized the Unregistered Land Act, 1970, to confiscate unregistered land (Marzatico, 2016, Pantuliano, 2007). Consequently, communal land in the Upper Nile, Nuba Mountains, and Darfur regions, was confiscated, which partly encouraged the Nuba people to join the SPLM/A (IBID).

Recent studies on land tenure in South Sudan raise issues of food security, corruption, and ownership and examine company-community engagement in the acquisitions of large-scale land for investments, and women's access to land and land conflicts (Deng 2011, 2013, Mennen, 2012; Pritchard 2013). These, however, do not focus on the relationship between land tenure systems and climate change resilience. Land tenure systems have implications for livelihoods following droughts or floods. In particular, lack of access to land has consequences for food security (crop production), access to water, natural resources (fish, forest resources), pastures and settlement, among others, during drought or flood disasters.

Although the Land Act 2009 recognizes both the formal and customary land tenure systems, little is known in practice about how these systems promote climate change resilience in South Sudan. The absence of a climate change tailored land tenure system¹ can have huge, negative implications not only on collective and individual livelihoods, but also on community relations, particularly in engendering land conflicts. Therefore, this study explores the nature of land tenure in South Sudan, with particular focus on whether it promotes resilience for citizens against climate change induced floods and droughts. The study looks at five main areas, such as (1) Climate change – land tenure nexus conceptual framework, (2) Nature of land tenure system, (3) Climate change and its impacts, (4) Land access-gender dimension, and (5) Adaptive and mitigating responses to climate change induced floods and droughts.

2. Climate Change-Land Tenure Nexus

Climate change has become a global concern, prompting the need to understand its connection with land tenure systems, with the hope to use land tenure as a resilience tool to save people from climate change induced disasters.

More generally, resilience is the ability of a system or a group or a person to recover quickly after a disaster. In the academic sphere, resilience is "the persistence of

¹ Climate change tailored land tenure system is a system which incorporates climate change adaptation and mitigation measures in a manner that allows farmers and agro-pastoralists to become resilient to climate extremes and disasters.

relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist” (Holling, 1973). Within the scope of this paper, we define resilience as the ability of communities and their environment to withstand² or recover quickly from constant disasters.

The South Sudan’s 2009 Land Act defines land tenure as “the way in which ownership of land or rights to land are organized through a system that may be determined by statute, agreed precedent or by customary practices.” According to literature, land tenure is a set of social norms and legal systems that govern rights to own, use, control, rent, lease, sell, and inherit the land and to protect those rights (Small & Mhaga, 1996, Nothale, 1982, FAO, 2002). We define land tenure as a socially and legally binding system of land access. Land access is “opportunities for temporary or permanent use and occupation of land for purposes of shelter, productive activity or the enjoyment of recreation and rest” (Mitchell, 2011). Such an access can be “obtained by direct occupation, by exchange (purchase or rental), through membership of family and kin groups or by allocation by government, other land owners or management authorities” (Mitchell, 2011).

Land tenure encompasses a range of rights (FAO, 2002) namely: (1) use, (2) exclusion, (3) perpetual, (4) control, (5) income, (6) protection, and (7) transfer. These rights are categorized into four main property regimes: state, common/communal, private, and open access (Mitchell, 2011). National parks, legally protected wetlands, forest and public land fall under the category of state property (Mitchell, 2011, FAO, 2002, Charoenkalunyuta, 2011). Under communal or common holding, community members have exclusive right to use the land without restriction (FAO, 2002; Charoenkalunyuta, 2011). Examples of communal property include grazing pastures and fishing and hunting territories. Private property right to land is an exclusive right assigned to individuals, group of people, married couple or corporate persons (Mitchell, 2011, FAO, 2002, Charoenkalunyuta, 2011). Under this ownership, other people are prevented from using the land unless they rent or buy it. Open access land is the one in which no exclusive right has been assigned and in which everybody can gain access (Erdem, 2011; FAO, 2002; Charoenkalunyuta, 2011). Examples of land tenure in which open access rights are assigned include lakes, rivers, forests and territories that are not owned by anybody. Such rights are not absolute. They can be tampered with, depending on the degree of the security of these rights, which in other words is known as land tenure security. Land tenure security is (1) the degree of confidence that one’s land rights won’t be taken away, (2) the recognition of one’s rights to land by others, and (3) government protection against any forced eviction from the land (Mitchell, 2011).

² Resilience is the capacity to withstand or recover quickly from disasters, and to withstand is to prevent, minimize or survive damages or negative impacts from disasters and to recover is to heal quickly and return to original condition before the disaster.

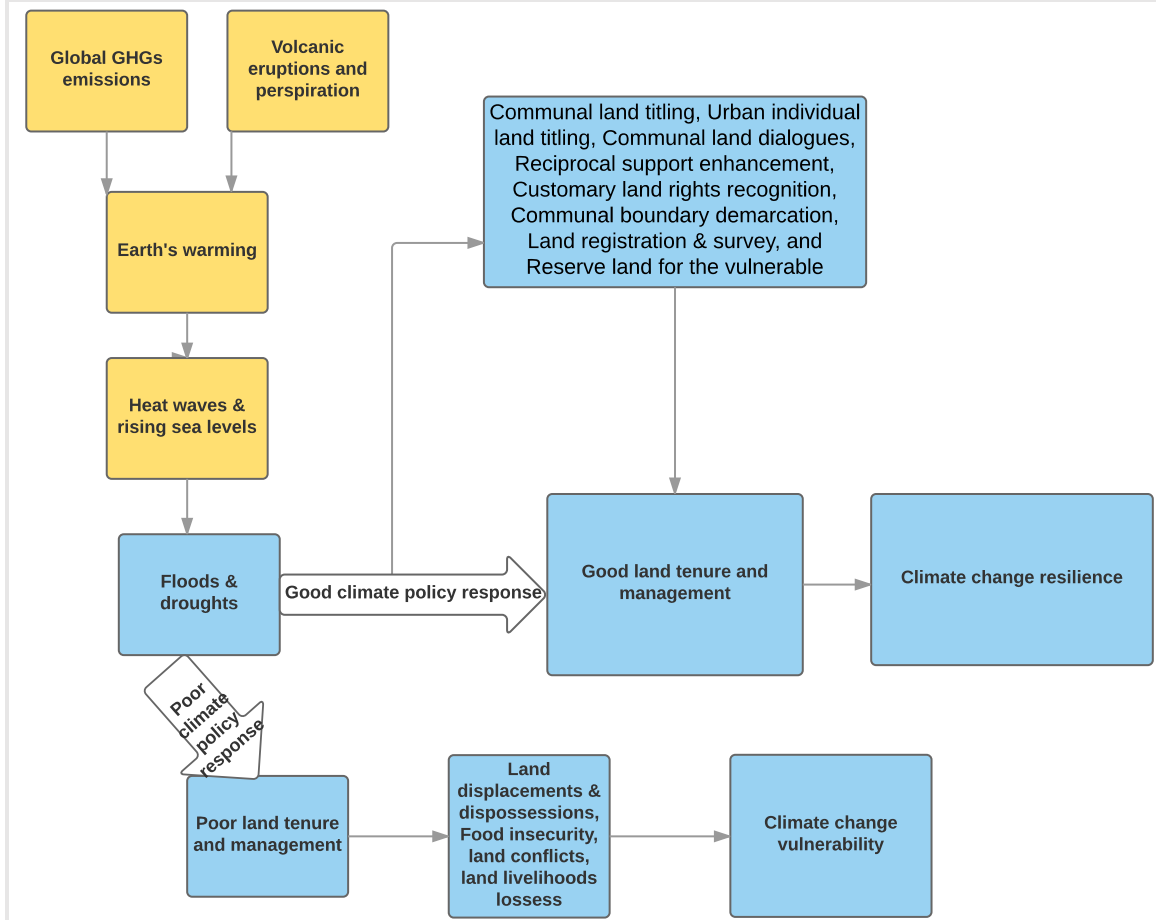
Climate³ change is “a change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere in addition to natural climate variability observed over comparable time periods”(UNFCCC, 1992). Such changes include decrease or increase in rainfall patterns that lead to either increase in frequency of drought or floods for a period of up to 30 years. Climate change is caused by temperature increase due to the burning of fossil fuels and deforestation as well as natural processes such as volcanoes and respiration (NASA, 2016, IPCC, 2013, UNFCCC, 1992). The burning of fossil fuels emits carbon dioxide and other greenhouse gases into the atmosphere and the deforestation reduces the capacity of the earth to absorb the increasing greenhouse gases (NASA, 2016).

Currently, the concentration of carbon dioxide in the atmosphere stands at 403.28 parts per million (PPM) (NASA, 2016; Hansen & Sato, 2016). These gases trap the sun’s heat and radiate it back, causing the warming of the earth’s surface. The warming of the earth’s surface affects weather system in several ways, including a rise in sea level and change in precipitation (see figure 1). A rise in sea level results in floods in low lying zones while high temperatures lead to heat waves and change in precipitation that leads to either drought or flood, depending on the locations (Quan and Dyer, 2008).

Below average rainfalls and droughts have restricted “physical and ecological limits by contributing to land degradation, diminished livelihood opportunities, food insecurity, internal displacement of people, cross-border migrations and civil strife” (Quan & Dyer, 2008). In South Sudan, rainfall starting and ending times used to be from March/April to October/November (Funk et al., 2011). However, this pattern has become increasingly erratic over the years (IBID).

³ Climate is “the ‘average weather’ over a period of time ranging from months to thousands or millions of years” (IPCC, 2007).

Figure 1: Climate Change -Land Tenure Nexus (Source: Authors)



Note: This diagram demonstrates the link between climate change and land tenure. Parts of the diagram shaded yellow represent climate change causes emanating from the global levels (e.g. from industrialized nations) while the parts shaded blue represent impacts and responses at the local levels in South Sudan. In addition, arrows indicate result, influence, impact or response.

What is the link between these climatic impacts and land tenure? About 78% of the households in South Sudan directly subsist on land through pastoralism, farming or a combination of both (USAID, 2013). As illustrated in figure 1 above, these livelihood activities are lost through climate change induced floods and droughts. In various parts of South Sudan, frequency of floods and droughts has increased (Funk et al., 2011) and has

destroyed crops, degraded the land, displaced people, exacerbated communal conflicts and reduced livelihood opportunities. The year 2013, for example, witnessed the heaviest flood, affecting 50,207 people and destroying crops and property and infrastructure in seven out of the country's former ten states (Tiitmamer, 2015). A 2009 National Bureau of Statistics' survey shows floods and droughts increasingly becoming some of the top sources of livelihood vulnerability in the country. Land tenure security, provided through both informal and formal arrangements, is a significant tool for climate change resilience as it "is widely accepted as being crucial for enabling people to make longer-term and forward-looking decisions in the face of uncertainty, such as changing farming practices, farming systems, or even transforming livelihoods" altogether (IPCC, 2014, Bryan et al., 2009; Brown et al., 2010; Romero González et al., 2011).

If a land tenure system is weak or a climate policy response is poor, it worsens displacements, leading to loss of land based livelihood opportunities, exacerbation of land conflicts or eruptions of new ones, food insecurity and vulnerability. A weak land tenure system in this case is that which does not recognize and protect land rights or does not provide land access opportunities in the time of climate disasters. However, if the land tenure is strong, it can contribute to climate change resilience, particularly if it has incorporated measures that enhance communal reciprocal support system, social relations, dialogue and conflict resolution, boundary demarcation and communal land titling, special consideration for the vulnerable groups, protection, and management. Communal reciprocal support system, in particular, is helpful in that a community gives to a disaster-displaced community with the hope that it can receive a similar help in the future. One example of reciprocal support is allowing a drought stricken upland community to gain access to green pastures in the lowland community with the hope that upland community will return the favor in the times of flood.

Clearly, land tenure security is at the heart of climate change resilience. It protects the rights of individuals and communities to have land access opportunities in the events of climate extremes. It is attained through a number of ways, namely:

- Community's recognition of land rights (e.g., community can recognize individual or communal occupancy or use of a parcel of land as legitimate and legal);
- Government's recognition (e.g., government recognizes and makes community's and individual's land rights claims legitimate);
- Legal and administrative recognition of individual's and communal rights to land (e.g., such claims can be affirmed and documented through survey, land registration and issuing of land certificates);
- Enhancement of social relations and communal reciprocal system through communal dialogues and conflict resolutions.

3. Nature of Land Tenure System in South Sudan

3.1. Land Tenure Policy and Legal Framework

In South Sudan, land rights are regulated by the Transitional Constitution of South Sudan (TCSS) 2011, the Land Act 2009 and the Local Government Act 2009. The TCSS 2011 gives ownership of the land to the people of South Sudan and its regulation to the government (Land Act, 2009). Stating that land belongs to South Sudanese implies that all South Sudanese have access rights to land anywhere in the country (Land Act, 2009). The TCSS 2011 also categorizes land tenure into public, community and private land. Public land is “land owned, held or otherwise acquired by any level of government as defined by law” (TCSS, 2011; Land Act, 2009). Community land is a “land traditionally and historically held or used by local communities or their members” (TCSS, 2011). Private land consists of (1) land acquired by individual under leasehold and (2) investment land obtained and held by lease from the government or community (TCSS, 2011, Land Act, 2009). While the TCSS 2011 classifies land tenure into public, community and private lands, it gives the national government the ownership of “all subterranean and other natural resources throughout South Sudan, including petroleum and gas resources and solid minerals.”

The Land Act 2009 provides for acquisition, holding and transaction of land through customary, freehold and leasehold tenure systems. Freehold land tenure provides the owner with perpetual ownership with rights of transfer and disposal while the leasehold restricts the ownership of the land to a maximum of 99 years and a minimum of a year. The customary tenure grants equal rights of ownership and protection as freehold and leasehold. The Act also guarantees and protects customary and historical seasonal rights to land, “provided that these access rights [are] regulated by respective states taking into account the need to protect agricultural production, community peace and harmony, and without unduly interfering with or degrading the primary ownership interest in the land, in accordance with customary law.” This particular provision has positive implications for climate change adaptation in terms of giving seasonal customary access rights to communities affected by floods or droughts. However, the Act is silent in terms of providing land access rights to climate displaced persons in areas that they do not have seasonal access rights.⁴ However, communal reciprocal arrangements and social relations, as will be seen later, provide people with an opportunity to get access to land where they do not have seasonal rights, even though these informal arrangements are affected by conflicts.

The Land Act 2009 calls for demarcation and registration of customary land tenure. It states that “all lands traditionally and historically held or used by local communities or their members shall be defined, held, managed and protected by law in Southern Sudan.” Customary tenure divides the land into agriculture (crop production), residential, grazing, fishing and other resources lands. Under this tenure, members claim ownership of crop

⁴Non-seasonal rights of access are land access rights that are supposed to be created by the law and provided to communities threatened in their normal seasonal migratory areas.

production and residential land. However, pasture and other resource lands are common pool, where any member of the community or the clan that owns that territory can get access. For example, pastures, firewood, thatching grass, timber, fish and hunting, among others, can be accessed freely by members; however, non-members would, in most cases, need permission. The permission is granted based on reciprocal arrangements. This is useful for communities with strong interdependence or ties.

The Local Government Act 2009 gives power to local government authorities to regulate and manage land at local levels. This includes regulation of ownership and rights of access, registration, cadastral administration, acquisition for investment purposes, pastoral activities, use and environmental preservation, unauthorized occupancy, and dispute.

3.2. Land Tenure in Aweil North, Aweil West and Tonj South

Our results show that land tenure systems in the three counties, namely Aweil North, Aweil West and Tonj South, follow both customary and statutory regimes. The customary tenure is dominant in rural areas while the statutory tenure mostly prevails in urban areas, particularly in areas within 7 miles of modern towns. Administered by government institutions instead of traditional authorities, the statutory structure is more recent and it is supposed to ensure tenure security through government legal and administration procedures.⁵ However, these formal processes of providing tenure security remain incomplete. For example, only one –quarter of Tonj Town land has been surveyed and registered.

The customary system mandates community leaderships to regulate land usage in accordance with traditional norms. These norms include open access and communal land property rights exclusive to community members primarily on the basis of clan. While social and informal arrangements are in place, none of the formal processes for ensuring tenure security has been enforced. For example, land held through customary tenure, which is mostly found in rural areas, has not been surveyed and registered, despite stipulations in the Land Act, 2009 and Local Government Act, 2009.

Table 1: Land tenure security in the law and in practice in Aweil North, Aweil West and Tonj South

Aspects	Customary				Statutory			
	Towns		Rural areas		Towns		Rural areas	
	In practice	In the law	In practice	In the law	In practice	In the law	In practice	In the law

⁵ While the Land Act 2009 provides for both the leasehold rights and freehold rights (see the definition in section 3.1. of this paper), most of the surveyed and registered land in the study areas is in form of leasehold.

Land survey	p	√	x	√	p	√	x	√
Communal boundary demarcation	p	√	x	√	p	√	x	√
Communal land title deeds	p	√	x	√	p	√	x	√
Individual land title deeds	p	√	x	√	p	√	x	√
Season rights recognition	p	√	√	√	p	√	√	√
Social norms recognition	p	√	√	√	p	√	√	√
Communal reciprocal support	x	x	√	x	x	x	√	x
Land administration & management approaches	p	P	P	P	p	p	p	p

Key: P= partial, x=no or not existing, √= yes or available.

4. Climate Change and its Impacts in the Study Areas

Respondents in Aweil North, Aweil West and Tonj South reported that floods and droughts are becoming more frequent than usual. Rainfalls used to start in April. However, the starting time has been erratic. Most of the respondents also said the area has been getting hotter than ever experienced. Flood occurred in 1962-1965, 1978-1979, 1988, 1994, 1998, 1999 and 2006; the drought occurred in 1989, 1990, 1997, 1998, and 2000 (UNEP, 2007). Of late the flood's frequency has increased. Documented evidence from the media shows occurrence of episodes of floods every year since 2007 (see table 2). Consequences include displacements, morbidity, food shortage, land dispossession and pronounced reduction of livelihood opportunities (see Table 2).

Displacements and conflicts are prevalent in the study locations. Displacements are partly caused by conflicts, floods, and droughts. Conflict related displacements are considered long-term, compared to climate related, and therefore, tend to guarantee land access. While the two types of displacement have been treated equally in terms of assistance with food items, tents, utensils, mosquito and fishing nets, conflict displaced persons get settled in displaced person camps (e.g., near Wau and Tonj), while the flood displaced persons get temporarily accommodated in schools in Tonj and asked to return home after the floods.

Although the climate-induced displacements are considered temporary, they have become more frequent, striking almost every year since 2007 (see table 2). This requires a shift in attitude and policy for increased resilience against these shocks. This call is quite pertinent in light of the fact that land access difficulties are more pronounced for the

displaced populations in urban areas, due primarily to shrinking land size and inadequate enforcement of land tenure laws and regulations.

In addition, constant climate disasters exacerbate existing land disputes. For example, there has been a land conflict in Tonj between Muok and Thony communities over a territory called Majang Koot. This has led to deaths of over one hundred people on both sides. While both sides have claimed this place for a long time without causing violent conflicts, the floods of the last several years presumably exacerbated disputes. This calls for a dialogue and an arbitration to enhance relations and reduce conflicts.

Table 2: Flood occurrences and impacts in the study areas between 2007 and 2015

Year	Month	Impacts	Location	Source
2007	August and September	Destroyed houses, crops and displaced people	Six states including Northern Bar el Ghazal and Warrap	BBC ⁶
2008	Between August and October	Destroyed houses, crops and displaced people	Northern Bar el Ghazal and Warrap	Prevention web ⁷
2009	Between August and October	Destroyed houses, crops and displaced people	Warrap and Northern Bar el Ghazal	Prevention web ⁸
2010	August and September	57, 000 displaced people, destroyed houses and caused water borne diseases	Northern Bar el Ghazal, Warrap and other states	BBC ⁹

⁶ <http://news.bbc.co.uk/2/hi/africa/6924510.stm>

⁷ http://www.preventionweb.net/files/37784_37784ssdchffloodvulnerabilityandcon.pdf

<http://reliefweb.int/report/sudan/fews-south-sudan-food-security-update-aug-2008-flooding-and-conflict-north-and-east>

⁸ http://www.preventionweb.net/files/37784_37784ssdchffloodvulnerabilityandcon.pdf

⁹ South Sudan's Aweil region swamped by floods: <http://www.bbc.com/news/world-africa-11150357>
<http://www.ifrc.org/docs/appeals/10/MDRSD009EA.pdf>

2011	August, September	Destroyed crops, basic infrastructure and displaced people	Unity, Northern Bar el Ghazal	Sudan Tribune ¹⁰
2012	August and July	Displaced people, destroyed crops and infrastructure including houses	Northern Bar el Ghazal and other states	Radio Tamazuj ¹¹
2013	August, September, October	Displaced people, destroyed houses, crops and affected cattle and caused water borne diseases	Seven states include Warrap and Northern Bar el Ghazal	Sudan Tribune ¹²
2014	August, September, October	About 14 people died, thousands displaced and homes and crops destroyed.	Northern Bar el Ghazal, Warrap and other states	
2015	Between August and September	Displaced people and destroyed crops and basic infrastructure	Warrap, Jonglei	Sudan Tribune ¹³

5. Gender and Land Access

Looking at gender dimension of resilience to climate change from land tenure system perspective, we found that women, in accordance with the Transitional Constitution, 2011, Land Act, 2009 and the customary arrangements, have rights to use, control, own, rent, lease and sell, inherit from husbands, and to have their land protected (see table 3). However, these arrangements do not give them the rights to share the land with husbands

¹⁰ <http://www.sudantribune.com/spip.php?article39874>

<http://www.sudantribune.com/spip.php?article40143>

¹¹ <https://radiotamazuj.org/en/article/rains-flood-hundreds-homes-aweil>

<http://www.sudantribune.com/spip.php?article42639>

<http://reliefweb.int/disaster/fl-2012-000128-ssd>

¹² <http://www.sudantribune.com/spip.php?article48044>

¹³ <http://www.sudantribune.com/spip.php?article56351>

Heavy floods halt classes in Warrap State: <http://www.theniles.org/en/articles/society/20080/>

after divorce and to inherit from fathers. Through open access and communal property rights as per the customary tenure system, women can access land through the community of birth as well as the matrimonial community. Because of open access and communal property rights, women have better land access opportunities in rural areas.

While the statutory tenure and customary norms entitle both women and men to have equal access to land, we find that women find themselves in a disadvantaged position when divorced and when they do not have social support systems. In particular, women do not share the land they own with husbands after divorce. Even though some divorced women are entitled to land in their natal communities or from new husbands, they have more difficulties in towns due to income disparities. While some women can buy land in towns, most women who are heads of households live in poverty, prompting land access difficult in towns.

Widows inherit land from their deceased husbands. For example, a couple of widows we interviewed in Tonj Town said their husbands died and are staying on the land that they left them. Similarly, a woman who is divorced but does not remarry and instead chooses to go back with her children to her natal community becomes a matriarch. As a matriarch, she inherits and become a landowner in her birth family. However, there are instances where resources of widows and matriarchs can be interfered with by relatives and brothers-in-law. This interference, nevertheless, is considered an abuse and not part of the societal norms. Table 3 presents gender access to land rights under customary and statutory laws in the study areas.

Table 3: Gender access to land rights under customary and statutory laws in the study areas

No	Land right category	Customary Law		Statutory Law	
		Male	Female	Male	Female
1	Right to use	√	√	√	√
2	Right to control	√	√	√	√
3	Right to own	√	√	√	√
4	Right to inherit from father	√	X	√	X
5	Right to inherit from spouse	√	√	√	√
6	Right to get a share of the land after divorce	√	X	√	X
7	Rights to rent, lease or sale,	√	√	√	√
8	Residuary right	√	√	√	√
9	Right to protection	√	√	√	√

Key: √= Yes, X= No

6. Adaptive and mitigating responses to climate change-induced floods and droughts

Our results show that communities have been applying a number of adaptation mechanisms to cope with either flood or drought. For example, elders of the affected communities negotiate with elders from other communities for access to land during flood and drought. Communities also preserve and store seeds for use after drought and floods, practice fishing rotation to prevent depletion, carry out shifting grazing for pastures to replenish, shift cultivation, build dykes using traditional tools to prevent water from destroying crops and pastures, cultivate crops on and move livestock to highland areas to avoid floods. Still, some of these adaptation mechanisms have been overwhelmed by the magnitude and frequency of climate disasters.

There is a strong communal reciprocity support system in place, which allows the displaced communities to have free access to land to support their livelihoods. Communities accommodate each other in the times of needs because they believe it may be their turn tomorrow to seek help. However, communal reciprocity support system and social relationships diminish in utility with displacements to urban centers, as access to land in urban areas is shaped by costs, among other factors. Summarily, social relationships formed through intermarriages and other interactions, combined with communal reciprocal support system, allow people to stay resilient to flood or drought.

7. Conclusion and Recommendations

We have explored how the current land tenure system in Aweil and Tonj in particular and South Sudan in general promotes climate change resilience. Overall, we found that land tenure system has several features that can promote this objective. Some of these features include communal land rights, open access rights, social relationships and communal reciprocal support system, land survey, demarcation, titling and registration. However, these features are impeded by a number of factors that include the diminishing social capital due to migration to urban areas, poverty, communal conflicts, and an inadequate enforcement of laws and regulations.

To strengthen land tenure system for climate change resilience, we recommend the following:

1. **Strengthen and implement land tenure laws:** To do this, the government should review the 2009 Land Act, amend it and implement key provisions on land survey, communal boundary demarcation, urban boundary demarcation, urban individual land and communal land titling. This reduces conflict, enhances the value and security of land, and reduces the climate change induced vulnerability. This process should be transparent and carried out by impartial individuals and institutions.

2. **Provide equal rights to marital property:** Currently, women do not share land with husbands when they divorce. Land laws that grant both partners rights in urban settings need introducing and enforcing. In addition, the government should have a targeted intervention for female-headed households to access land during droughts and floods.
3. **Put in place land management resilience measures:** Irrigation in the areas prone to drought can enhance food security and prevent people from being displaced to other lands. This reduces tension over land due to displacements and enhances resilience. Similarly, dykes should be built around villages to protect land from flooding. The present dykes are inadequate, requiring increased intervention to strengthen them.
4. **Enhance communal reciprocal support system through communal dialogues and reconciliations:** There is need to enhance the age-old communal reciprocal support system through dialogue and reconciliation. This reduces communal conflicts that have been preventing communities from accommodating each other or co-existing during disasters. In particular, the government should prioritize a coherent conflict management agenda on land issues in the country.

References

- Charoenkalunyuta, C. (2011). Land tenure in disaster risk management: Case of flooding in Nepal. Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-Information Science and Earth Observation.
- Deng, D. K. (2011). The new frontier: Large-scale land-based investment in Southern Sudan, a baseline survey completed for Norwegian People's Aid (NPA): http://www.npaid.org/en/News_Archive/?module=Articles;action=Article.publicShow;ID=17086.
- Deng, D.K. (2013). Land belongs to the community: Demystifying the 'global land grab' in Southern Sudan. Published by Land Deal Politics Initiative. http://www.iss.nl/fileadmin/ASSETS/iss/Research_and_projects/Research_networks/LDPI/LDPI_WP_04.pdf
- Erdem, E. I. (2011). Land tenure and disaster risk management. Disaster Risk Reduction (DRR) Program. Florida International University.
- FAO. (2002). Land tenure and rural development. FAO.
- Funk, C., Eilerts, G., Verdin, J., Rowland, J. & Marshall, M. (2011). A climate trend analysis of Sudan. US Geological Survey.

- Holling, C.S. (1973). Resilience and Stability of Ecological Systems. *Annual Review of Ecology and Systematics*: Vol. 4, pp. 1-23.
- IPCC. 2007. IPCC Fourth Assessment Report: Climate Change 2007 (AR4).
- IPCC. (2013). IPCC Fifth Assessment Report: Climate Change 2013 (AR5).
- Marzatico, F. (2016). Land and conflicts in south sudan: taking the land question seriously in the peace building process. In *March 14-18, 2016*. Washington DC.
- Mennen, T. 2012. Customary laws and land rights in South Sudan. Information, Counseling and Legal Assistance (ICLA) Project. Norwegian Refugee Council.
- Mitchell, D. (2011). Assessing and responding to land tenure issues in disaster risk management. FAO.
- Nothale, D. W. (1982). The customary system of land tenure and agricultural development in Malawi. African Pamphlet Collection, Retrieved from <http://www.indiana.edu/~afrcol/items/show/15372>.
- Pantuliano, S. (2007). land question: Sudan's peace nemesis. ODI.
- Pritchard, M. 2013. Land tenure reforms for food security in South Sudan. Research to Practice Policy Briefs. PB 2013-12. Institute for the Study of International Development.
- Quan, J., & Dyer, N. (2008). Climate change and land tenure the implications of climate change for land tenure and land policy. Presented at the World Food Security: The Challenges of Climate Change and Bioenergy, University of Greenwich: Natural Resources Institute and International Institute for Environment and Development.
- Shanmugaratnam, N. 2008. Post-war development and the land question in South Sudan. Paper presented at the International Symposium on Resources Under Stress organised by the Afrasian Centre for Peace and Development, Ryukoku University, Kyoto Japan, 23-24 February 2008.
- Small, J., & Mhaga, F. N. (1996). Gender, land tenure and environment, *12*(29), 55–61. <http://doi.org/10.1080/10130950.1996.9675525>
- Tiitmamer, N. (2015). Assessment of policy and institutional responses to climate change and environmental disaster risks in South Sudan (Special report). The Sudd Institute.

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About the Sudd Institute

The Sudd Institute is an independent research organization that conducts and facilitates policy relevant research and training to inform public policy and practice, to create

opportunities for discussion and debate, and to improve analytical capacity in South Sudan. The Sudd Institute's intention is to significantly improve the quality, impact, and accountability of local, national, and international policy- and decision-making in South Sudan in order to promote a more peaceful, just and prosperous society.

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