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Economics of Land Degradation in sub-Saharan Africa

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MAIN FINDINGS

1. Sub-Saharan Africa has the potential to become the world's future breadbasket as it accounts for about 20% of the global total economic value of the major biomes' ecosystem services' endowment.
2. However, sub-Saharan Africa has been experiencing the most severe land degradation in the world over the past decade. The region bears the largest share (22%) of the global annual cost of land degradation, equaling 300 billion USD.
3. Land use and land cover change – in which low value biome replaces a high value biome – accounts for over 90% of the cost of land degradation, mainly caused by converting grassland and forests to cropland. The major driver for this is low livestock productivity and low on-farm benefits drawn from forests. Thus, higher investment in livestock productivity is required, as well as improved access to markets and other services. As the majority of the poor rely on livestock and the sector plays a key role in improving their health and food and nutrition security this investment would pay off enormously.
4. Returns on the investments in restoring degraded lands are very high. For every dollar invested in land restoration, land users get about five USD in return. Yet, only about 5% of national budgets in sub Saharan Africa are allocated to agriculture – which is half of the target set in the "Maputo Declaration on Agriculture and Food Security" as adopted by the African Union in 2003. Thus, public expenditure needs to be increased to reduce poverty and ensure sustainable development.
5. The major drivers for making land users adopt sustainable land management practices include: improved governance, land tenure security and access to markets and other rural services. Since more than half of the benefits of sustainable land management is accrued by off-farm beneficiaries, land users who practice sustainable land management should be rewarded. This study shows that even poor people can practice sustainable land management if governance and rural services improve.
6. The region's potential as future breadbasket of the world and recent global efforts to achieve sustainable development provide new opportunities for restoration of degraded lands and prevention of land degradation in the region.

Introduction

Sub-Saharan Africa faces the worst land degradation in the world. This jeopardizes its efforts to reduce poverty as most rural livelihoods depend heavily on natural resources. Although a number of policies and strategies have been designed to reduce poverty and achieve food security, more has to be done. This study was conducted to help policy makers and other stakeholders design appropriate strategies and investments for the restoration of degraded lands and the prevention of land degradation.

Sub-Saharan Africa accounts for only 16% of the global land area and 13% of the global population. Yet, the region accounts for about 20% of the value

of ecosystem services of the major terrestrial biomes. Recent estimates also show that about 90% of the remaining 1.8 billion ha of global arable land are located in sub-Saharan Africa and Latin America. Underscoring its potential as a future breadbasket, sub-Saharan Africa accounts for the largest share of foreign land investment – popularly known as "land grabbing."

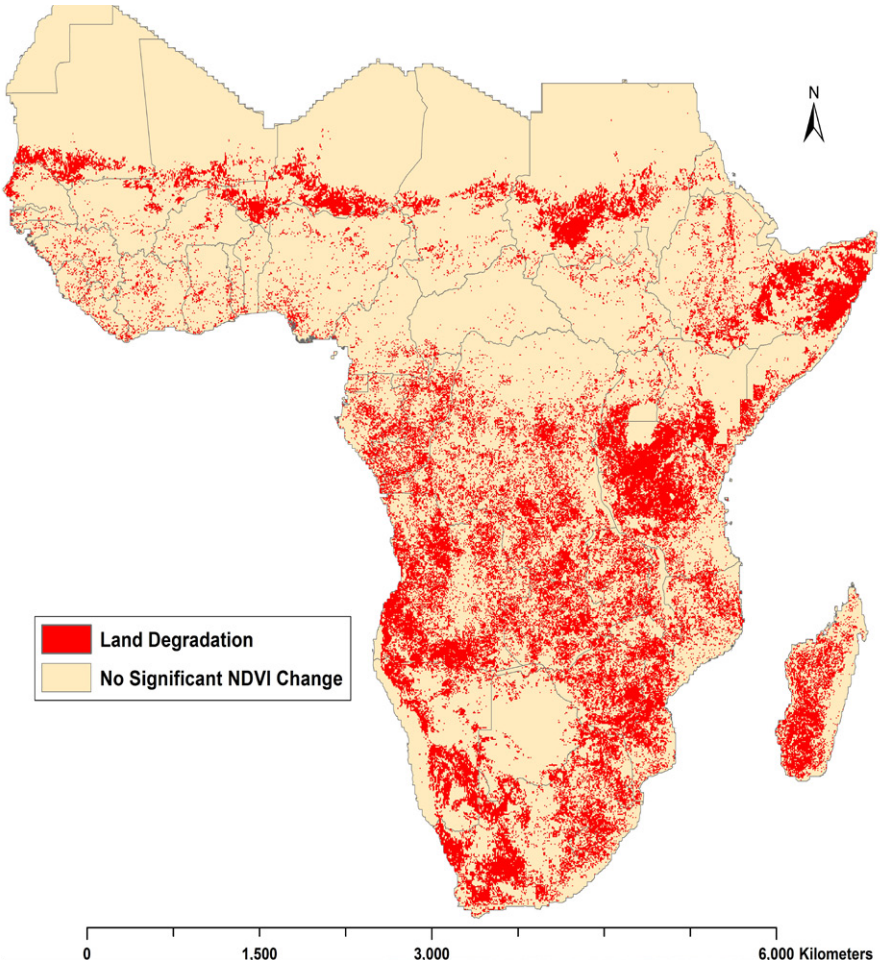
Sub Saharan Africa experiences the most severe land degradation in the world

About 28% of the land area in sub-Saharan Africa experiences degradation and 22% of its population live on degraded lands (Figure 1). We assessed land degradation by dividing its causes into two groups: (1) Land use and land cover change – in which a low value biome replaces a high value biome and (2) Use of land degrading management practices on cropland and grazing land that did not experience land use and land cover change. Conversion of grassland to cropland and deforestation are the major forms of land use and land cover change. Low livestock productivity is the major driver of conversion of grassland to cropland in sub-Saharan Africa. Even though the majority of people living below the international poverty line (1.25 USD per capita per day) in sub-Saharan Africa depends on livestock, adoption of improved pasture management is low – especially among the extremeley poor pastoral communities in the drylands.

Land degradation on static cropland is caused by farmers' low adoption of sustainable land management practices. Even though integrated soil fertility management brings the highest profit and is the most sustainable way of practicing crop production, only 6% of sub-Saharan households apply it.

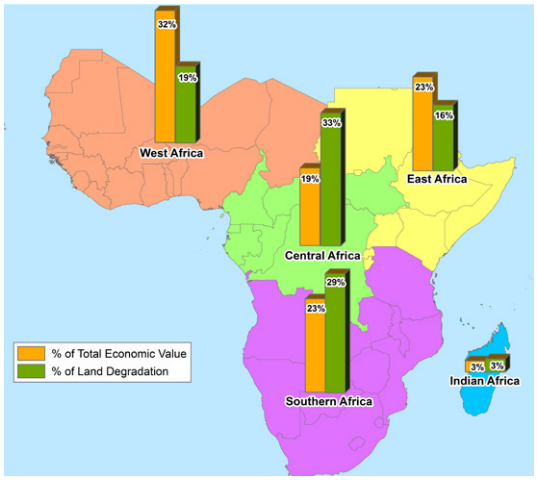
The total economic value of the annual cost of land degradation is about 63 billion USD or 7% of sub-Saharan Africa's total GDP. Land use and land cover change accounts for the largest share (93%) of the cost of land degradation. Central and Southern Africa each account for a third of the total annual cost of land degradation while West Africa accounts for the largest share (33%) of endowment of terrestrial ecosystem services (Figure 2).

Figure 1: Extent of land degradation in SSA



Notes: Loss of vegetation cover – measured by Normalized Difference index (NDVI), which is corrected for rainfall variability and carbon fertilization. Source: Le et al. 2014.

Figure 2: Ecosystem services endowment and cost of land degradation across Sub-Saharan sub-regions



Drivers of adoption of sustainable land management and policy implications

Governance and land tenure security:

Governance plays a key role in addressing the drivers of land degradation. Controlling for other factors, improvement of governance and land tenure security increased the adoption of sustainable land management practices – even in countries with severe poverty such as South Sudan, Chad, Cote D'Ivoire, and Senegal.

Access to markets, agricultural extension services and other rural services:

Improved access to markets and agricultural advisory services reduced land degradation – even in poor sub-Saharan African countries (with good governance.) Unfortunately, only 13% of public agricultural budgets in sub -Saharan Africa is allocated to market infrastructure development compared to 37% required to achieve food security by 2025 (Schmidhuber and Bruinsma 2011).[1]

1 Schmidhuber, J., J. Bruinsma, & A. Prakash. (2011). investing towards a world free of hunger: lowering vulnerability and enhancing resilience. Safeguarding food security in volatile global markets, 543-569.

Policies and investments that ensure sustainable natural resources and environmental management:

Investment in livestock productivity has to be increased and well-researched land-use planning and strict zoning have to be designed in order to control land-degrading land use and land cover change – as low livestock productivity and limited local benefits of forests are among the key causes of widespread replacement of grassland and forests with croplands.

Payments for ecosystem services should be enhanced in order to protect forests. Subsidies could be turned into payments for ecosystem services. For example fertilizer subsidies could be given on the condition that the beneficiary has planted trees.

Public expenditure needs to be increased to reduce poverty. Only about 5% of public expenditure in sub-Saharan Africa is allocated to land-based sectors. This is only half the percentage of the target set in the "Maputo Declaration on Agriculture and Food Security" as adopted by the African Union in 2003.

Donor funding leads to reducing land degradation, as donors contribute to government spending on environment and natural resources. So donor funding could be used as a leverage to enhance sustainable land management practices.

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