BOOK OF ABSTRACT

I. SESSION DESCRIPTION

ID: T13

Economics of land degradation in Africa: managing land for human wellbeing

Hosts:

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Organisation</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hosts:</td>
<td>Mark Schauer</td>
<td>GIZ / ELD Initiative</td>
<td><a href="mailto:mark.schauer@giz.de">mark.schauer@giz.de</a></td>
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<tr>
<td></td>
<td>Lindsay Stringer</td>
<td>University of Leeds</td>
<td><a href="mailto:L.Stringer@leeds.ac.uk">L.Stringer@leeds.ac.uk</a></td>
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<td>Co-host:</td>
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<td>GIZ / ELD Initiative</td>
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Abstract:

Tackling land degradation is an urgent challenge affecting both human development and the environment. The problem is extensive, covering an estimated 23% of the Earth’s terrestrial area, affecting billions of people globally, particularly the poor. Land degradation also comes at considerable economic cost. The Economics of Land Degradation (ELD) Initiative provides important global information on the economic benefits of land and land-based ecosystems, taking into account the costs of action but also the costs of inaction against land degradation. This session presents a joint ELD–ICRAF project, co–financed by the European Commission and the German Federal Ministry for Economic Cooperation and Development, entitled: “Reversing Land Degradation in Africa by Scaling–up EverGreen Agriculture”. The project works across eight African countries (Ethiopia, Ghana, Kenya, Mali, Niger, Rwanda, Senegal and Somalia) and aims to improve livelihoods, food security and resilience to climate change, and restore ecosystem services, particularly through the EverGreen Agriculture approach. Presentations in this session will showcase the diversity of experiences to date in assessing the economic impacts of land degradation across selected case study project countries, presenting emerging findings and the policy opportunities identified to tackle the various land degradation challenges in each study context.

Goals and objectives of the session:

The goals of this session are to: a) raise awareness of the ELD–ICRAF Project to the wider ESP community; b) highlight the importance of addressing land degradation in order to enhance
human wellbeing; c) provide the research team with useful feedback on the approaches and methods used in the project.

**Planned output / Deliverables:**
Video with voices from the session (feedback; what have been learned; take-away messages).

**Related to ESP Working Group/National Network:**
*Thematic Working Groups - TWG 13 – Role of ES in Ecosystem restoration*

### II. SESSION PROGRAM

**Date of session:** Wednesday, 19 June 2019  
**Time of session:** 10:30 – 12:30

**Timetable speakers**

<table>
<thead>
<tr>
<th>Time</th>
<th>First name</th>
<th>Surname</th>
<th>Organization</th>
<th>Title of presentation</th>
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</thead>
<tbody>
<tr>
<td>10:30–10:45</td>
<td>Mark</td>
<td>Schauer</td>
<td>GIZ; ELD Initiative</td>
<td>ELD Initiative and the Regreening Africa Project</td>
</tr>
<tr>
<td>10:45–10:50</td>
<td>Lutta</td>
<td>Alphayo</td>
<td>University of Nairobi; ELD Initiative</td>
<td>ELD Kenya studies at a glance</td>
</tr>
<tr>
<td>10:50–10:55</td>
<td>Ephrem</td>
<td>Imanirareba</td>
<td>International Union for Conservation of Nature (IUCN); ELD Initiative</td>
<td>ELD Rwanda studies at a glance</td>
</tr>
<tr>
<td>10:55–11:00</td>
<td>Beatrice</td>
<td>Dossah</td>
<td>Environmental Protection Agency (EPA) Ghana; ELD Initiative</td>
<td>ELD Ghana study at a glance</td>
</tr>
<tr>
<td>11:00–11:05</td>
<td>Hussein</td>
<td>Iman</td>
<td>Mogadishu University; ELD Initiative</td>
<td>ELD Somalia studies at a glance</td>
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<tr>
<td>11:05–11:10</td>
<td>Tasew</td>
<td>Tadesse</td>
<td>Dilla University; ELD Initiative</td>
<td>ELD Ethiopia studies at a glance</td>
</tr>
<tr>
<td>11:10–11:40</td>
<td>ELD</td>
<td></td>
<td>ELD Initiative; University of Leeds</td>
<td>Poster presentations</td>
</tr>
<tr>
<td>11:40–12:10</td>
<td>Speakers +</td>
<td></td>
<td>ELD Initiative; University of Leeds</td>
<td>Panel Discussion</td>
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<tr>
<td>12:10–12:15</td>
<td>Lindsay</td>
<td>Stringer</td>
<td>University of Leeds</td>
<td>Wrap Up</td>
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<tr>
<td>12:15–12:30</td>
<td>all</td>
<td></td>
<td></td>
<td>Free discussions and video testimonies</td>
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</table>
III. Abstracts

The abstracts appear in alphabetic order based on the last name of the first author. The first author is the presenting author unless indicated otherwise.

1. Type of submission: Invited speaker abstract


Selected sustainable land management interventions to reverse land degradation in the Upper West region of Ghana

First authors: Beatrice Dossah
Other author(s): Stephanie Solf, Thomas Agyei Gyapong, Stephen Owusu, Fred Nimoh, Lawrence Damnyag
Affiliation: Environmental Protection Agency of Ghana
Contact: alewadossah@gmail.com

The Economics of Land Degradation (ELD) initiative in Ghana is aiming to bring economic valuation techniques to stakeholders in Ghana through theoretical and applied training components, resulting in their engagement in a final study. A prior stakeholder consultation identified Northern Ghana, more specifically the Upper West region as the target study area. Among the re–greening strategies currently under consideration are: Farmer Managed Natural Regeneration (FMNR), minimum till and agroforestry.

FMNR is a land restoration technique that involves the regrowth and management of tree and shrubs from felled tree stumps, sprouting roots or seeds. The regenerated trees are integrated into agricultural activities such crops land and grazing fields to help improve the land condition. The FMNR approach leads to increase in soil fertility, biodiversity, crop yields, water infiltration and fuel wood among other benefits.

The purpose of this study is to determine the feasibility of adoption of FMNR, agroforestry and minimum /low till in restoring degraded landscapes in the Upper–west region.

The specific objectives of the study are to:

a. Determine the cost and benefits of the current farming practices (status quo)
b. Apply the 6+1 approach of the ELD to evaluate the cost and benefits of agroforestry, FMNR technologies and minimum till.
c. Recommend socio–economic intervention necessary for the adoption of agroforestry, FMNR technologies and no tillage in the Upper West region of Ghana

The evaluation will employ desk studies using secondary data augmented with limited field
interviews and informal phone calls. A cost and benefit analysis of these farming practices will be evaluated to provide a decision making tool for stakeholders to undertake the right investments in land use systems. Different valuation method will be used to evaluate both marketed and non-marketed goods of ecosystem services provided by the three re-greening strategies under consideration.

**Keywords:** Agroforestry; Farmer Managed Natural Regeneration; Low till, 6+1 approach, Ecosystem services

2. **Type of submission:** Invited speaker abstract


**Economics of Land Degradation in Africa: Managing Land for Human Well being**

*First authors:* Ephrem Imanirareba

*Other author(s):* Lindsay Stringer, Martin Dallimer, Abias Maniragaba, Alain Ndoli, Alex Billy Mugayi, Athanase Mukuralinda, Camille Nyamihana, Fabrice Nkurunziza, Guillaume Nyagatare, Herve Villard Habonimana, Jean Ndamage, Jean Pierre Bizimana, John V. Musemakweri, Marie Claudine Ingabire, Bijou Mukobwa

*Affiliation:* GIZ–ELD

*Contact:* ephrem.imanirareba@gmail.com

The high dependence of the Rwandan population on limited land resources has accelerated land degradation, soil erosion, and loss of biodiversity, with negative consequences to the population’s livelihoods. About 40% of the country’s land is classified by FAO as having high erosion risk with about 37% requiring immediate soil conservation measures before cultivation. Rwanda has been involved in forest landscape restoration activities to respond to the target of having 30% of total land covered by forests as well as the Bonn challenge commitment of restoring 2M hectares by 2020. To consider the impact of human actions and practices on environment, economic valuation for ecosystem services is becoming increasingly important to provide environmental advocates with hard economic numbers that, in theory, can be more influential than qualitative descriptions of nature or non-economic conservation values.

In Rwanda, 3 studies are underway to analyse the Cost–Benefit of land degradation:

- The first study is being conducted in Western province to assess current land management practices and associated effects on ecosystem services of Gishwati and Mukura
corridor,
• The second study is focusing on Mayaga agro-ecological zone (Southern province) that has been vulnerable for soil erosion, soil nutrient depletion and perennial drought,
• The third this study is assessing the current land degradation challenges associated with urbanization and deforestation in Nyagatare District–Eastern province
Results from these studies will make a conservation case and positively influence the decision–making in natural resources management and land–use.

Keywords: ecosystem services, cost–benefit analysis, Agroforestry, land degradation

3. Type of submission: Abstract


Reversing Land Degradation through Scaling–up Evergreen Agriculture: The Economics of Land Degradation in Kenya

First authors: Alphayo Lutta
Affiliation: University of Nairobi
Contact: lutaalpha@gmail.com

Most of the land in Kenya is rangelands with only 22% used for agriculture where about 75% of the population is highly concentrated. An estimated 64% of Kenya's land area is moderately degraded with 22–30% of the land considered severely degraded. Sustainable land management practices have the potential of rehabilitating degraded land, minimizing degradation and enhancing food production. The economics of land degradation initiative in Kenya is aimed at strengthening the national ability to assess costs of land degradation and the economic benefits of investment in Sustainable Land Management. As part of this initiative, national capacity building was undertaken in Kenya through which cases studies were commissioned to further apply the valuation methods learnt in a field set–up. The first study is on the Economic valuation of sustainable rangeland management practices which seeks to undertake a cost–benefit analysis of conservancies and Dedha land use systems in the northern rangelands of Kenya to inform their out–and up–scaling for sustainable rangeland management. The second study is on the Economics of land use changes on ecosystem services in the water towers of Aberdare ecosystem which is the source of 90% of water for the capital city of Kenya. The Aberdare water tower supports livelihoods through an
array of ecosystem services which is now affected by land degradation. The study seeks to assess the costs of land degradation and farmers’ preferences for adoption of different sustainable land management practices to enhance fresh water and soil conservation. The design of the two studies was motivated by the competing priorities for land-use in Kenya that require a strong business case for investments in sustainable land management. These studies will reveal the benefits from particular sustainable land management practices, which will guide policies, decisions on development intervention, as well as resource allocation on SLM.

**Keywords**: Land degradation, Water towers, Economic value, Land use, Rangelands

4. **Type of submission**: *Invited speaker abstract*


**Cost–Benefit Analysis of Borcha Adado Sustainable Watershed Management Interventions in the SNNP Region, Ethiopia – An Economics of Land Degradation Study by Dilla University**

**First authors**: Tasew Tadesse  
**Other author(s)**: Asrat Jorge, Yohannes Alene  
**Affiliation**: Dilla University  
**Contact**: tasewnew@gmail.com

Land degradation in Ethiopia has been vastly detrimental to agricultural ecosystems and crop production and thus an impediment in achieving food security and improving livelihoods. Various SLM measures have been implemented to restore degraded land and reduce the rate of land degradation. In Ethiopia, the SLM practices implemented thus far are designed to decrease erosion and increase agricultural yields in the highlands of Ethiopia, thereby improving rural household welfare. SLM interventions provide a unique opportunity to analyze and quantify the effects of the SLM interventions on a range of ecosystem services (ES) and community wellbeing. The objective of this case study is to quantify the effects and effectiveness of SLM practices on ES in Borcha Adado critical watershed of Southern Ethiopia using cost–benefit analysis framework. A quasi–experimental design will be employed to assess effectiveness of SLM practices. A large group of control watersheds are available in proximity to the SLM watershed. Accordingly, four micro watersheds will be selected (two each from the treated and control watersheds). The study will be guided by the 6+1 ELD methodology for assessing the benefits and costs of sustainable land management intervention and use state of the art ES valuation methods and cost/benefit analysis. We will assess the impact SLM measures on crop productivity of farmers in the treated group relative
to the baseline scenario of no conservation using econometric modeling. The expected outcomes of the study include quantifying the costs of sustainable land management interventions; estimating values of ecosystem services of the watershed interventions; assessing the effectiveness of SLM practices using benefit/cost ratio and net present value of watershed level SLM interventions. In addition, policy implications related to achieving SDGs, especially 15.3 (land degradation neutrality) and lessons to scale-up SLM practices at country level will be drawn.

*Keywords:* Ethiopia, Land degradation, SLM, cost–benefit, ecosystem