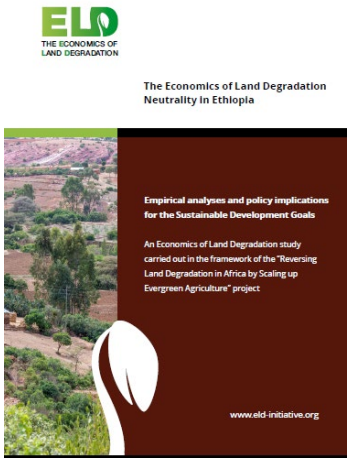
THE ECONOMICS OF LAND DEGRADATION

A GLOBAL INITIATIVE FOR SUSTAINABLE LAND MANAGEMENT



The Economics of Land Degradation Neutrality in Ethiopia:
Empirical analysis and policy implications to SDGs

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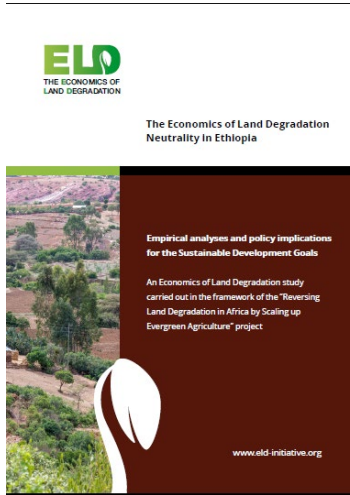
Main objectives of the study

- Assess the **costs of agricultural land degradation** and the **economic viability of alternative land management approaches** in Ethiopia
- Assess agricultural land **degradation patterns over time** (for the period 2003/4 to 2015/16) through developing an **econometric model of agricultural land degradation**
- Assess the **future costs and benefits** of adopting sustainable land management practices
- Undertake a **cost-benefit analysis** **(**to compare NPVs of SLM vs BAU scenarios).
- **Derive policy implications to SDG. 15.3** and related targets and national development goals



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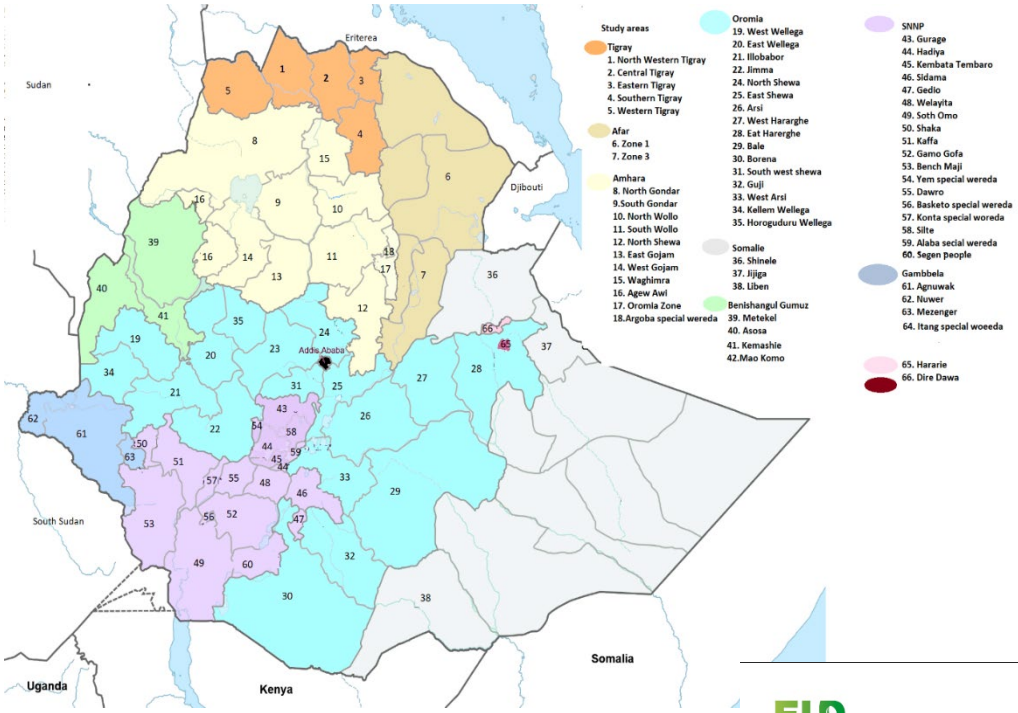
Scope

- This study focuses on **12.77 million ha of cultivated** agricultural land degradation in Ethiopia
- This is because of the fact that **agriculture is the dominant sector in the economy** as well as dominate land cover in the country.
- In terms of **geographical coverage**, the study covers the 9 regional states and 1 city administration of the Ethiopia (**66 administrative zones**).
- Temporal (**2003/4- 2015/16, for modeling, and 2020-2030 and 2020-2040 for CBA)**



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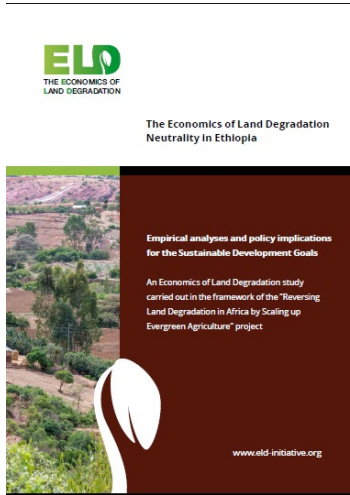
Key results

- The study indicated that there was an **increasing trend in agricultural land degradation** in the country.
  - The average **soil NPK depletion** for the period 2003-2016 was at **768** thousand tons per year (**60.13 kg/ha/yr**) whereas **NPK loss through** erosion, gaseous exchange, and leaching for the same period was **781** thousand tons per year (**61.12 kg/ha/yr**).
  - The soil nutrient depletion and loss from agricultural lands resulted in annual aggregate **crop production loss of 104 million tons** with a market value of **USD 48.35 billion** at 2016 average weighted aggregate crop price.
- To reverse this trend, Ethiopia needs to invest **USD 97 billion** (**USD 7,434/ha**) in the periods 2020-2030 and/or **USD 192 billion** (**USD 15,008/ha**) the periods 2020-2030 to **develop SLM technologies** on its **12.77 million** hectares of agricultural land.



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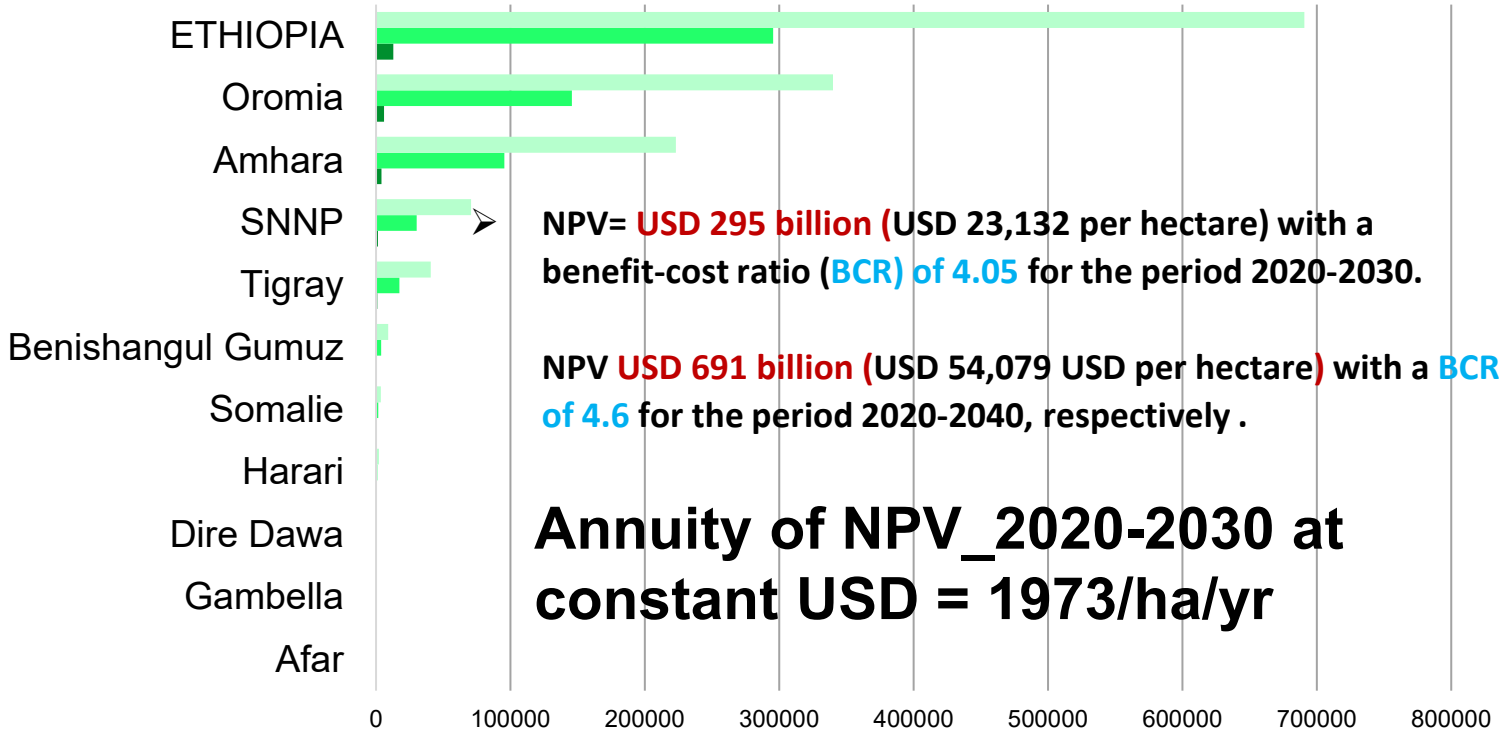
Key results…

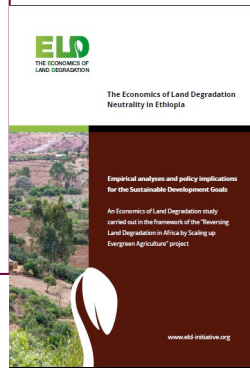


NPV= USD 295 billion (USD 23,132 per hectare) with a benefit-cost ratio (BCR) of 4.05 for the period 2020-2030.

NPV USD 691 billion (USD 54,079 USD per hectare) with a BCR of 4.6 for the period 2020-2040, respectively .

Annuity of NPV_2020-2030 at constant USD = 1973/ha/yr

	Afar	Gambella	Dire Dawa	Harari	Somalie	Benishangul Gumuz	Tigray	SNNP	Amhara	Oromia	ETHIOPIA
NPV in millions of USD_2020-2040	308	465	600	2186	3685	8943	40625	70707	223137	340098	690755
NPV in millions of USD_2020-2030	124	190	256	957	1569	3774	17299	30134	95464	145693	295461
Harvested area in 1000s ha	15	18	12	15	77	222	837	1429	4103	6044	12773



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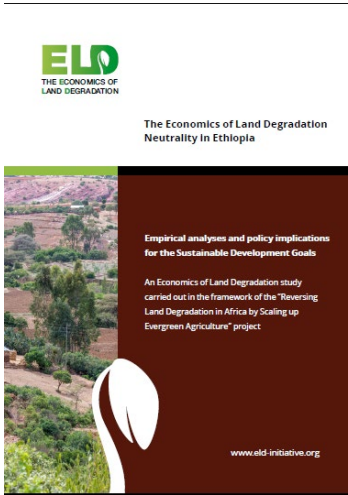
Why are these results relevant? Contributions to the SDGs

- The study indicates that investing in sustainable land management (SLM) technologies and achieving agricultural land degradation neutrality would enable Ethiopia:
  - Reduce the poverty gap to zero (**SDG 1.1 and SDG 1.2**) by 2030.
  - Create up to about 10 million rural job opportunities (**SDG 8.5**) by 2030
  - Increase the total per capita domestic food crop production from 348 kg to 1146 kg (**SDG 2.3 and 2.4**)by 2030 and
  - Has positive result in economic growth (**SDG 8.1**) as well as expansion in the agricultural sector.



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Thank you!

Link to the study:

https://www.eld-initiative.org/fileadmin/Regreening_Africa_publications/ELD-Ethiopia-Report-web-EN.pdf

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