

Findings

Anecdotal evidence on the positive impacts of the SLMP are supported by remote sensing data on greenness anomalies.

Positive effects of the SLMP increase with the number of years involved in the program.

SLMP positively affects an area's capacity to sustain greenness during a period of severe drought.

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Green Impacts of Ethiopia's Sustainable Land Management Program

by Jacob Wiman based on a study by Peter Fisker and Lars Güettler

Ethiopia is facing widespread land degradation as a consequence of the intensification of both climate change impacts and population growth. For a population that is growing by around 2.5 % per year and is highly dependent on agriculture and vulnerable to climate hazards, there is an urgent need to adapt to climate change and improve agricultural productivity to safeguard rural livelihoods.

To counter this, the Government of Ethiopia created a long-term strategy of greening the landscape and economy (CRGE), with the long-term goal of elevating Ethiopia to a lower middle-income status by 2025 while minimizing environmental impact. The Sustainable Land Management Program (SLMP) serves as an integral part of the CRGE and seeks to specifically strengthen sustainable land management practices. The core goals of the national flagship program SLMP are to reduce land degradation, rehabilitate landscapes, boost agricultural productivity, and improve climate resilience. The main activities in the program consist of area closure to reduce free-grazing, seed and seedling provision, erosion rehabilitation, constructing water harvesting structures, treating communal hillside lands, and promoting integrated agro-forestry systems.

This policy brief highlights the main results of the evaluation of the effect of SLMP on greenness anomalies and vegetation resilience during the 2015/16 drought. We use the Normalized Difference Vegetation Index (NDVI) to track vegetation cover changes and implement control areas to measure program intensity and effect, as seen in Figure 2. Control areas were chosen as all regions between 5 to 20 kilometers from treatment watersheds, with a likelihood of similar vegetation types and trends, and policy and institutional developments. In Figure 1 we can see the effect of the SLMP on greenness anomalies over years in treatment, where an additional treatment year is associated with a 0.13 percentage point higher NDVI anomaly and an increased effect of 1.6 % after six years.

Figure 1. The effect of the SLMP on NDVI anomalies by years in treatment

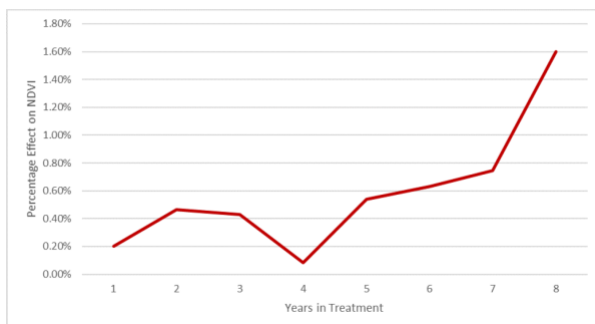
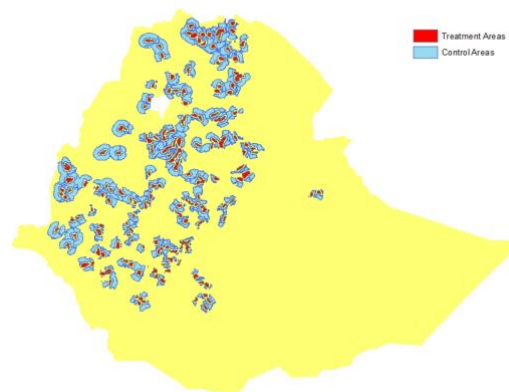


Figure 2. Treatment and control areas



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The evaluation of SLMP effects on greenness and vegetation resilience during the 2015/16 drought also makes use of qualitative data gathered through key informant interviews. These interviews took place across 40 woredas, of which 11 were implementing the SLMP. They involved 160 key informants, including members of kebele administrative committees, development agents, farmer representatives, and women representatives.

A key informant from Godere woreda describes the impact of the SLMP: *"For example, Dubale Mountain completely rehabilitated nowadays. It was degraded and eroded before because of grazing of hilly slopes and SLMP effectively acted on with soil and water conservation program and reforestation. Now, it is completely reforested and they said that the whole community is very happy in seeing that"*. This qualitative evidence is supported by remote sensing data and provides further support to the notions of the positive contributions of the SLMP to achieve its set targets.



Illustration: Rehabilitation of denuded land through land closure (Dubale Mountain)

Overall, the results support the evidence that the SLMP had a positive impact on vegetation development and resilience in the implementation areas. Prior to the SLMP implementation, the NDVI trends were more negative in the SLMP areas compared to the control areas, with these trends being reversed since the SLMP areas have seen positive NDVI developments. Importantly, the positive effect has grown over time since the areas that have been in treatment the longest show higher gains in vegetation. In the face of adverse weather, SLMP areas also increased the ability to sustain vegetation, as shown by different factors. First by comparing vegetation values with predictions of the 2015/16 drought, secondly, by the strength of the effect during months of tough drought conditions, and thirdly, by the lower reduction level of vegetation compared to control areas during adverse weather conditions.

Policy Recommendations

Based on these results, Ethiopia should focus on ensuring the longevity of sustainable land management programs, increase the promotion of SLMP activities and livelihood interventions, and increase investments in similar programs across Ethiopia to reverse the general trend, following the CRGE. Particularly, we recommend the following actions:

1. **Long-term scope of sustainable land management programs** will improve their positive impact on vegetation growth and ability to sustain growth during adverse weather conditions, for instance during droughts. Our results indicate that the effect of the SLMP tends to accumulate over time, which signifies the value of ensuring sustainable land management programs are prolonged.
2. **Promotion of program and livelihood activities** should be a key part of the future sustainable land management programs in Ethiopia. Program activities have a proven positive effect on vegetation and resilience, and combining these activities with for instance income diversification and value chain connections can also further strengthen household livelihoods. Such activities refocus efforts on systemic and transformative conditions to lessen the dependency on livelihoods threatened by climate change impacts in Ethiopia and comprehensively build capacity to mitigate and adapt to climate change.
3. **Increasing the investments** in similar programs across Ethiopia would, at least on a local scale, improve vegetation cover and enhance its ability to sustain during droughts, which will be crucial for improving the resilience of households affected by climate change.