



3.6 Turning degraded land into productive landscapes, Ethiopian highlands

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Background

Can degraded land be turned into productive landscapes? This is what Ethiopia wants to prove. Highland areas in the country face severe land degradation due to inappropriate land use and deforestation, mainly triggered by a growing population, pressure on natural resources and the effects of climate change. In 2008 the Ethiopian Ministry of Agriculture, with the support of various partners, initiated the Sustainable Land Management Program (SLMP) in five regions — Amhara, Oromia, Tigray, Benishangul Gumuz and Gambela — to address these challenges (see also article 3.1 for Oromia). The aim is to reduce land degradation and make agricultural landscapes more productive. This article describes experiences in the highland regions of Amhara, Oromia and Tigray, where *Gesellschaft für Internationale Zusammenarbeit* (GIZ) was a partner.¹ Smallholder farmers are the focus of the programme, which uses a community-based participatory watershed development approach.

The SLMP landscape approach

From the SLMP's perspective, productive landscapes are capable of providing a wide range of products and ecosystem services. They can also meet the social, economic and environmental needs of present and future generations at the local, national and global level. The landscape approach goes beyond a traditional watershed management process, with a stronger focus on and better integration of social development, environmental sustainability and economic development efforts. The landscape approach also seeks to better understand and recognize the connections between different land uses and stakeholders by integrating them into a joint management process. This provides the opportunity to better handle trade-offs and to achieve synergies.²



THE LANDSCAPE APPROACH
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WATERSHED MANAGEMENT
PROCESS.

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The SLMP approach centres on community participation and participatory forest management (PFM). It promotes sustainable forest use, rather than forest protection measures only; it also links soil and water conservation (SWC) measures with income-generating activities (IGAs) and with initiatives to address climate change. The preparation of participatory watershed development plans is an important part of this process. It addresses the need to communicate desired outcomes and the disparate components of landscape functioning, trade-offs and performance to the target communities.

Implementation of SLMP

Through its landscape approach, the SLMP aims at community-based resource management in order to achieve sustainable productive livelihoods. The programme sites are areas in micro-watersheds with severely degraded land. In order to turn these degraded areas into productive land, communities undertake various site-specific soil and water conservation measures. The Ministry of Agriculture is in charge of implementation and operates through a multi-level structure, from federal to regional, *woreda* (district) and *kebele* (village) level. All stakeholders work to create awareness, responsibility and ownership at the community level. Implementation consists of three phases.

Initiation phase: identifying micro-watersheds, organizing communities and planning

Before restoring a degraded watershed MOA's field staff create awareness of soil degradation on the part of community members and the local administration. Local committees and user groups are then established. Watershed management requires a multidisciplinary perspective and multi-stakeholder activities to negotiate goals and priorities and implement actions. The organizing communities must clearly define and agree on the desired objectives and outcomes and assess the current and future factors that will influence the process.

The landscape approach in SLMP watersheds combines natural resource management with environment and livelihood considerations. Optimization of production and resource use is dealt with at the landscape scale rather than at the individual farm level. Community watershed teams are formed to prepare watershed management plans; these plans include reclamation of eroded land, conservation of soil and water resources and intensification and diversification of agricultural production.

User groups then engage in specific economic activities. For physical reasons, watershed rehabilitation starts on the slopes and moves from there to the valleys. The greatest investments are required on the slopes, while the returns are usually highest in the valleys. This means that close cooperation is required by community members and that appropriate incentives must be provided to land-owners on slopes from the beginning. Cooperation is supported by the creation of the community watershed teams for the entire micro-watershed and additional user groups for specific resources. These groups receive regular project support in the form of training. This participatory, bottom-up approach has the potential to make a large-scale impact, since it promotes collective action and ownership by the people involved and can address obstacles in a targeted way.

Rehabilitation phase: implementing soil and water conservation measures

Watershed management starts from the top of the watershed. The first priority is reducing the speed of the run-off and increasing water infiltration into the soil. SWC measures (terraces, trenches, gully structures, etc.) need to be identified that are suitable to specific situations. They need to be combined with biological measures, such as forage planting on embankments. SWC measures should be used so as to improve water retention and soil fertility, while at the same time reducing soil degradation, stocking rate and deforestation.

Better soils and greater water availability enable communities to intensify agricultural production and reduce the pressure on land. One key factor in the success of landscape restoration is increased participation in and ownership of the forest areas by local communities through PFM. Forests and trees are an important part of the watersheds.

Forest areas in Ethiopia's highlands are increasingly threatened. Growing population pressures have led to expansion of agricultural land and high demands for fuel and construction wood. Furthermore, uncontrolled grazing in the forests is common and endangers the SWC activities implemented in the adjacent SLM watersheds. This over-exploitation of forest resources in Ethiopia has left less than three percent of the country's native forests untouched (World Bank 2010).

The Forest Development, Conservation and Utilization Proclamation of 2007³ allows for increasing community participation in forest management⁴ and permits forest areas to be handed over to communities for use and conservation. The sustainable use of wood and non-timber forest products (NTFPs) is considered to be an integral part of the approach to productive landscapes. Besides providing direct benefits to community members, forests have ecological benefits in terms of soil erosion and water-holding capacity.

Economic development phase: activities that generate revenue

Once rehabilitation measures have been implemented there are increased opportunities for direct economic benefits for individual farmers and households. IGAs include production of crops, vegetables and fruits, bee-keeping, various wood products and NTFPs as well as livestock production. When selecting IGAs to pursue, community members should keep in mind that the maximization of economic benefits often depends less on the type of IGA than on the way it is practised. Furthermore, a high production rate does not automatically bring higher economic benefits to the producer.

Marketing and profitability issues are very important to the sustainability of the landscape approach. Successful and lasting market linkages strengthen business opportunities for farmers and subsequently support the successful implementation of IGAs. The landscape approach in the SLMP will be sustainable only if farmers generate tangible profits from IGAs. The profits must be high enough to generate income or support subsistence and to compensate for the labour and inputs for the maintenance of SWC measures. These challenges are being addressed by linking marketing issues to a government programme on agricultural growth that promotes marketing and value chains.

Since climate change is already affecting smallholder agriculture production in the Ethiopian highlands, some IGAs should also address climate concerns. A climate assessment should ideally be done during the process of preparing the micro-watershed development plans. Presently, a screening is being done under the framework of the Global Climate Change Alliance, which was initiated by the European Commission in 2007.

Climate-smart agricultural technologies are supposed to strengthen adaptation and contribute to mitigation of climate change impacts, while at the same time creating financial benefits for the farmers, e.g., through payments for environmental services. Similar to economic benefits, adaptation and mitigation effects depend mainly on the quality rather than the type of activity. A large number of climate-smart measures are available, including composting, mulching, crop rotation, crop diversification and use of crop residue. The frequently proposed use of improved crop varieties should be considered cautiously, since the higher yield often requires higher chemical inputs. Even the resilience of “improved” varieties bears an additional risk element; e.g., a drought-tolerant variety might underperform in a season when the drought does not occur. The selection of climate-smart measures also has to consider the effect on the tasks and benefits of women. Women’s participation is promoted in income-generating activities, and their representation in committees and user groups is strengthened through separate consultation meetings.

Impacts of the SLMP

Around 180,000 hectares (ha) of degraded land have been rehabilitated through SLM measures, benefiting around 194,000 households. These positive results were achieved in a multi-level approach through the provision of capital investment, technical assistance and capacity building for smallholder farmers in the watersheds and government institutions at national and sub-national levels.

Impacts on the constructed slopes are encouraging: embankments with bio-measures have been effective in increasing water infiltration and farmers say that crop productivity has increased. Downstream, more water is available for longer periods; in one micro-watershed, small-scale irrigation has increased from 35 ha to 85 ha, benefiting 60 instead of the original 35 households. Since 2008 the irrigated area has increased to 1,800 ha. Farmers have switched to high-value crops on irrigated fields and organized themselves for marketing.



The planning and implementation capacities of government structures have improved. To date, 678 watershed management plans have been developed and implemented with active community participation. Institutional capacities at the village and individual level are significantly improved. Around 60,000 farmers and producers, who are organized in 500 user groups, manage watersheds with SLM measures. They jointly plan measures, implement them and contribute to monitoring them. Common resources are used in

accordance with local rules that are established by user groups; these user groups also ensure compliance with the rules and fine rule-breakers. Farmers are changing cultivation and husbandry practices to those with better climate adaptation and mitigation effects.

Challenges

Although there is broad consensus among the government and its partners on the types of landscape interventions to pursue, there is a lack of clarity about actual outcomes, and how to achieve and measure them in terms of social, ecological, economic and climate change benefits. This is due to insufficient harmonization of interventions among development partners, especially with regard to watershed and climate indicators.

Several challenges arise from the landscape approach, relating to institutional, human and technical aspects. The holistic landscape approach poses tremendous institutional challenges to the implementation structure, since many different departments and ministries are involved and must coordinate their efforts.

For example, in 2008 the Government of Ethiopia approved the first Ethiopian Sustainable Land Management Investment Framework (ESIF). Its goal is to provide a national-level strategic planning framework for investments in sustainable land management by the public and private sector. Although the ESIF policy document gives some direction it does not sufficiently link the various development partner contributions. To face this challenge the natural resource management sector of the Ministry of Agriculture is working to improve the framework conditions for sustainable land management and is developing a



joint monitoring and evaluation system. Further joint planning of activities and indicators, budgeting and reporting on contributions from all development partners should substantially simplify monitoring and enhance harmonization.

Conclusions

The SLMP approach demands a high number of trained and well qualified staff. At the national level the programme has limited staff (the Programme Coordination Unit, or PCU); it works through existing staff and structures at the

decentralized levels. This includes technical experts as well as development agents in the field, who receive support and training from the development partners. Staff may be well qualified in specific tasks, but may not have a holistic view of a landscape approach. Capacity development focuses on technical issues, but also considers these more holistic needs.

Establishing sustainable user groups is an important element for the operation of productive landscapes. They are crucial to the operation and maintenance of the SWCs and to sustainable watershed management in general. Establishing these groups requires strong community facilitation and development skills at the village (*kebele*) level.

In order to ensure the sustainable maintenance of SWC measures, communities need to receive economic benefits as soon as possible. Since these benefits may take a few years to occur, the transition phase might need special support.

In order to implement PFM, the communities' land-use rights need to be confirmed and legalized. Although national guidelines for PFM are in place, it remains challenging to promote the understanding of forests as a productive resource, including firewood.

The screening, rating and monitoring of climate-smart measures is still a huge task for SLMP. Ultimately, stakeholders will have to find the right site-specific balance between social, ecological and economic aspects in order to achieve sustainable productive landscape management. The experiences of the SLMP will eventually be documented as best practices and it is hoped that these will be utilized by other regions.

Further information

A project description is available on the GIZ home page: www.giz.de/en/worldwide/18912.html. See also the Sustainable Land Management Program Knowledge Base: www.slmethiopia.info.et.

Endnotes

1. Commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ is the major provider of capacity development support to the Natural Resource Management Directorate of the Ethiopian Ministry of Agriculture, its national programme coordination unit and its decentralized structures on regional and district level. The technical contribution of GIZ complements the financial support for SLMP provided by the World Bank, KfW, the European Union and the Canadian, Finnish and Norwegian governments.
2. See the Global Landscapes Forum: www.landscapes.org/global-landscapes-forum-outcome-statement, accessed April 25, 2014.
3. See Proclamation 542/2007, Forest Development, Conservation and Utilization: www.epa.gov.et/Download/Proclamations/Proc%20No.%20542-2004%20Forest%20Development%20Conservation%20and%20Utilization.pdf, accessed May 7, 2014.
4. See Ministry of Agriculture Ethiopia, Scaling-Up Participatory Forest Management: www.moa-redfs.gov.et/forest/index.php/background, accessed May 6, 2014.

Reference

World Bank. 2010. *Turning it around: Greening Ethiopia's Great Rift Valley*. www.worldbank.org/en/news/feature/2010/03/12/greening-ethiopia-rift-valley, accessed April 18, 2014.