POLICY BRIEF

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Economics of FOREST LANDSCAPE RESTORATION

Till Pistorius, Duncan Gromko
UNIQUE forestry and land use GmbH

Key points

- Substantial investments are needed to achieve FLR targets and realize the expected environmental and social benefits
- The toolbox "Economics of FLR" helps estimating investment needs, costs and impacts on relevant ecosystem services, thereby supporting decision-making for FLR programs and investments.
- Outputs can be customized depending on the needs of the decision-maker, e.g. public or private, a pre-feasibility study or an investment decions.

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Comprehensive cost-benefit analyses are crucial for FLR implementation

The global momentum for reversing the estimated 2 billion ha of degraded lands and forests is unprecedented.[i] Forest Landscape Restoration (FLR) successfully aligns their national "green economy" development agendas and the sustainably management of natural resources. Restoration at scale is an imperative to achieving the sustainable development goals (SDGs) and other internationally agreed policy objectives.[ii] Since 2011, more than 45 countries have made ambitious FLR pledges. Many more consider restoration as a key strategy for delivering their Nationally Determined Contributions for the Paris Agreement.[iii]

A main barrier for implementing FLR at scale are the significant up-front investment needs: US$ 36 to 49 billion[iv] are needed annually for reaching the restoration goals. While some investment funds that target FLR investments are already investing, the current scale is far from what would be required for the restoration targets. Most FLR investments require long-term commitment and involve business models that are not yet widely understood neither by public nor by private investors.

Convincing and comprehensive cost-benefit analyses can be a powerful tool to raise interest and create more and on-the-ground demand for FLR. They will include the diverse direct benefits of FLR, e.g. increased agricultural yields. Furthermore, besides a financial analysis of costs and revenues, policy makers and investors also need and wish to understand other impacts such as the values of ecosystem services (ES): carbon sequestration, non-marketable ES as avoided erosion and water runoff, employment effects, tax and Gross Domestic Product (GDP) contributions. While some benefits are easy to monetize, others can only be estimated or described qualitatively.

Study objectives

Many methods have been developed to calculate costs and benefits, to quantify and monetize different ES, and to estimate impacts on a broader scale.[v,vi] However, they seldom fit to the information needs of decision makers and investors. The challenge of credibly valuing ES lies in estimating a realistic value of the benefits that are relevant to those stakeholders who are actually involved in decision-making.

The objective of this study was to elaborate an easily applicable economic framework, which helps stakeholders to carry out a customized analysis for decision-making. Investors interested in FLR tend to have a narrower perspective on selected commodities and higher information needs related to specific impacts, returns and cash-flow profiles than policy makers. The cost-benefit analysis must be customized to meet their individual requirements.

Consisting of standalone modules and methods, the proposed framework offers private and public actors differentiated means of estimating values from FLR. Given the aim of broad applicability and the challenges of large-scale landscape approaches, this universal toolbox follows a focused user-based approach. More focused assessments of different ES and the interactions between them can be aggregated to understand the broader, landscape-level impacts.

The methodology can be used as part of an opportunity assessment or as a stand-alone decision making tool. It is an instrument to analyze in-depth costs and benefits of the opportunities identified during a preliminary assessment, such as the Restoration Opportunities Assessment Methodology (ROAM)[vii], the Restoration Diagnostic[viii] or the Economics of Land Degradation.[ix]

Methodology

The framework consists of a straightforward, four-step process and provides guidelines and tools for each step (figure 1): setting the scene, data collection, modeling costs and benefits based on 1-ha models for different FLR activities, and analysis of results. It is applicable for users with different needs and access to resources. Both, low- and high-cost assessments are possible, depending on the purpose of the analysis and the level of complexity needed.

After defining the scope and purpose of the assessment, the user has to take further decisions: whether to carry out a financial or an economic analysis, which ES are of interest, what degree of accuracy is needed or appropriate in light of available data and resources, and what are realistic FLR scenarios. At this point, the user also needs to consider the specific priorities of decision-makers and decide what elements of a cost-benefit analysis should be in the focus.

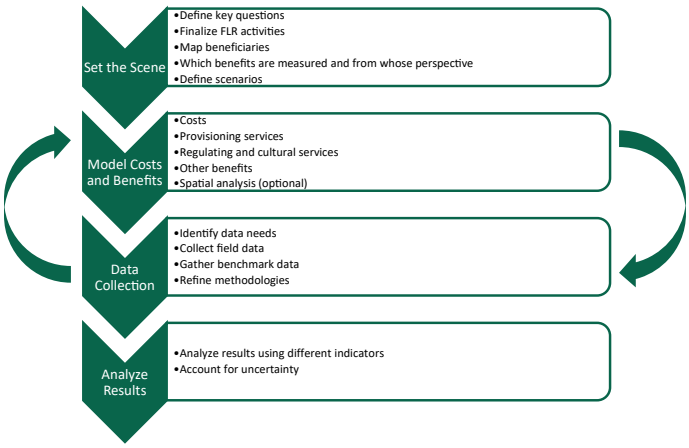
The framework provides methods for calculating costs (capital and operating expenses) and returns from provisioning services. It suggests easily applicable methods and benchmark values for estimating the quantity and value of important regulating ecosystem services, such as carbon sequestration, water runoff and avoided erosion.

The framework also outlines approaches for assessing the impacts of different FLR measures on employment, contributions to national gross domestic products (GDP), tax contributions and opportunity costs. This allows the user of a cost-benefit analysis to compare different investments and understand the full costs and benefits of an investment.

If an FLR investment restricts economic activities in a particular area, then a business as usual scenario should include the forgone revenues or other benefits that actors would have received. A business-as-usual scenario accounts for opportunity costs by estimating all costs and benefits that would accrue without the proposed investment.

In early stages of investment decision-making, estimations with benchmark information are sufficient to provide the user with an adequate level of confidence about the results. In advanced stages, it may be necessary to increase the accuracy of the results by adjusting the one-hectare models depending on local conditions.

Figure 1: Overview of the methodology



Within a large project area, conditions can vary substantially, with significant effects on different ES. For example, in landscapes with steep slopes and differences in precipitation the most appropriate measures to avoid water run-off and erosion would depend where they are implemented. The same holds true for the overall benefits of a landscape. The framework addresses these different needs through a three-tier approach; when discussions move towards concrete planning of FLR programs and general land uses, a resource-intense stratification may be advisable to identify priority areas and appropriate measures.

Once all relevant parameters have been modeled, the costs and future benefits need to be discounted to make them comparable through discounting. The chosen discount rate can greatly affect the analysis of the investment; the methodology guides stakeholders to help select an appropriate rate and the tradeoffs between different approaches.

Lastly, for step 4, the framework presents different indicators useful for the analysis, such as net present value (NPV), internal rate of return (IRR), benefit/cost ratio, return on investment (ROI) and return on equity (ROE), initial investment amount and breakeven point. These indicators reveal to stakeholders the nature of cost and benefits, and can help determining what financial instruments may be appropriate for investment in the project.

Naturally, dealing with uncertainties is a major challenge that can be addressed to a certain extent. Thus, the study briefly discusses options as well as the limitations to cost-benefit analyses that need to be factored in to decision-making.

Conclusions

Successful implementation of FLR activities at a landscape level has significant potential for delivering different economic benefits that accrue to different stakeholders. A full economic analysis tries to capture not only monetary, but also non-monetary values from different ES. On the one hand, simply adding up these figures would result in misleading information; on the other hand, ignoring relevant impacts and values would create an incomplete picture of the benefits.

The proposed compromise is a differentiated assessment, based on the specific purpose and the needs of those requesting it. Public and private investors considering an involvement into FLR also need quick, but reliable information on the financial dimension and other impacts. Independent of purpose and level of detail, any assessment of costs and benefits should be robust and guided by the principles of conservativeness and credibility.

The developed framework helps to fully account for the diverse benefits of FLR and communicate them to a broader audience. The methodology explains new concepts in accessible terms, without overstating the value of potential investments.

The user-based approach may also provide input to the general debate on how to best implement FLR within landscapes or larger territories. In order to not lose the current momentum for aligning with private sector investors, a user-based approach and subsequent aggregation may turn into faster action on the ground and demonstrate progress on the ground.

The modeling and its results furthermore allows for identifying trade-offs between different FLR options and helps prioritizing restoration investments based on different criteria: which ecosystem services are prioritized, who should benefit, and when will benefits be realized? Does the farmer choose improved productivity, to protect water resources, to avoid erosion, or some combination?

Assessing the costs and benefits of land use investments and FLR programs will allow decision-makers to demonstrate that investments in FLR are worth the short-term cost for public entities and result in better economic and environmental outcomes.

Sources and further reading

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UNIQUE forestry and land use GmbH
Schnewlinstraße 10
79098 Freiburg, Allemagne
Tel.: +49 761 208534 0
unique@unique-landuse.de