Application of scaling frameworks to grazing exclosures in Ethiopia

Abstract

Grazing exclosures are a cost-effective means of restoring or enhancing the productivity of communal lands in Ethiopia. An extension of the traditional practice of excluding grazing from communal areas to enable regeneration of vegetation, exclosures provide much needed livelihood and environmental benefits. The success of exclosure approaches faces several challenges to their scaling by government and civil society, including inequity and competition within and among communities, rates of economic return, and individualization of the commons. The status of grazing exclosures is conceptualized within documented scaling processes in drylands in Ethiopia. To identify possible pivots in the scaling process, two scaling frameworks are applied to address constraints and opportunities for sustainable management of grazing exclosures for inclusive and economically sustainable benefits. The past, current and potential roles of the state (district, regional and federal), civil society (local and international), and farming communities are analysed to explore the contributions of various stakeholders to effective scaling. Knowledge gaps and learning opportunities in exclosure management and policy solutions are identified to draw attention to possible 'blind-spots' and 'win-win' solutions that may affect the widespread success of exclosures in Ethiopia and elsewhere. Finally, the roles of scientists and researchers and incentives for their involvement are assessed to illustrate how they can help effectively facilitate the scaling of exclosures and other sustainable land management practices.

Background

- Grazing exclosures are a proven tool for low-cost rehabilitation of degraded communal grazing lands, e.g. controlling erosion and regulating hydrology.
- Grazing is generally prohibited, and community by-laws created by informal institutions regulate wood- and grass-cutting for animals.
- Some exclosures have succeeded in providing benefits to in terms of local livelihoods and incomes, e.g. through provision of bee forage. In other cases such benefits have not materialized. The strength of community institutions for regulating exclosure use are central to the success of the approach.

Figure 1. A hillside restored through grazing exclosure, Tigray, Ethiopia

- Exclosures face several challenges, where vegetation recovery and realization of benefits occur slowly, where community institutions are weak or by-laws for exclosure use are not clearly fitted to the objectives of users, and where benefits are distributed inequitably among users.

Scaling frameworks

- Here, two scaling frameworks, that of Hartmann and Linn (2008), and Reed et al. (2011) and Hessel (2014), respectively abbreviated HL and RH, are applied to analyse the process of scaling grazing exclosures.
- HL is a broad, general, multi-actor framework. Developed for dry areas with volatile rainfall and lagging non-linear management effects, RH suggests analytical steps and provides tools for each step.
- The degree to which the scaling pathway for exclosures follows these frameworks (Fig. 2) provides insights into how the conceptualization of scaling differs from how scaling of exclosures proceeded.

Scaling analysis

- Exclosures originated around the same time in Tigray region and the Hararghe area of Oromia region, with different historical management techniques acting as precursors for the exclosure approach (Fig. 2).
- Initially scaling was regional, especially in Tigray, by local NGOs and the regional government with the support of international donors and partners.
- These successes inspired scaling of exclosures throughout the highlands.
- Supported by a sector-wide approach (SWAp) coordinating resources of multiple international donors, exclosures are currently scaled as 'best practice' applicable throughout the highlands through several federal government programs primarily implemented at district (woreda) level.
- Exclosures have proved an environmental rehabilitation success. Their long-term sustainability may be largely determined by their ability to supply benefits in terms of local livelihoods (e.g. forage, wood) and incomes, since some exclosures may have net costs, rather than net benefits, for farmers.
- Achieving sustainable scaling of exclosures (Fig. 2) is likely to benefit from elements missing from the earlier stages in the scaling process, especially systematic monitoring and evaluation (M&E), linked technical research, and knowledge management (KM), to tailor technical management and community institutional oversight to local conditions.

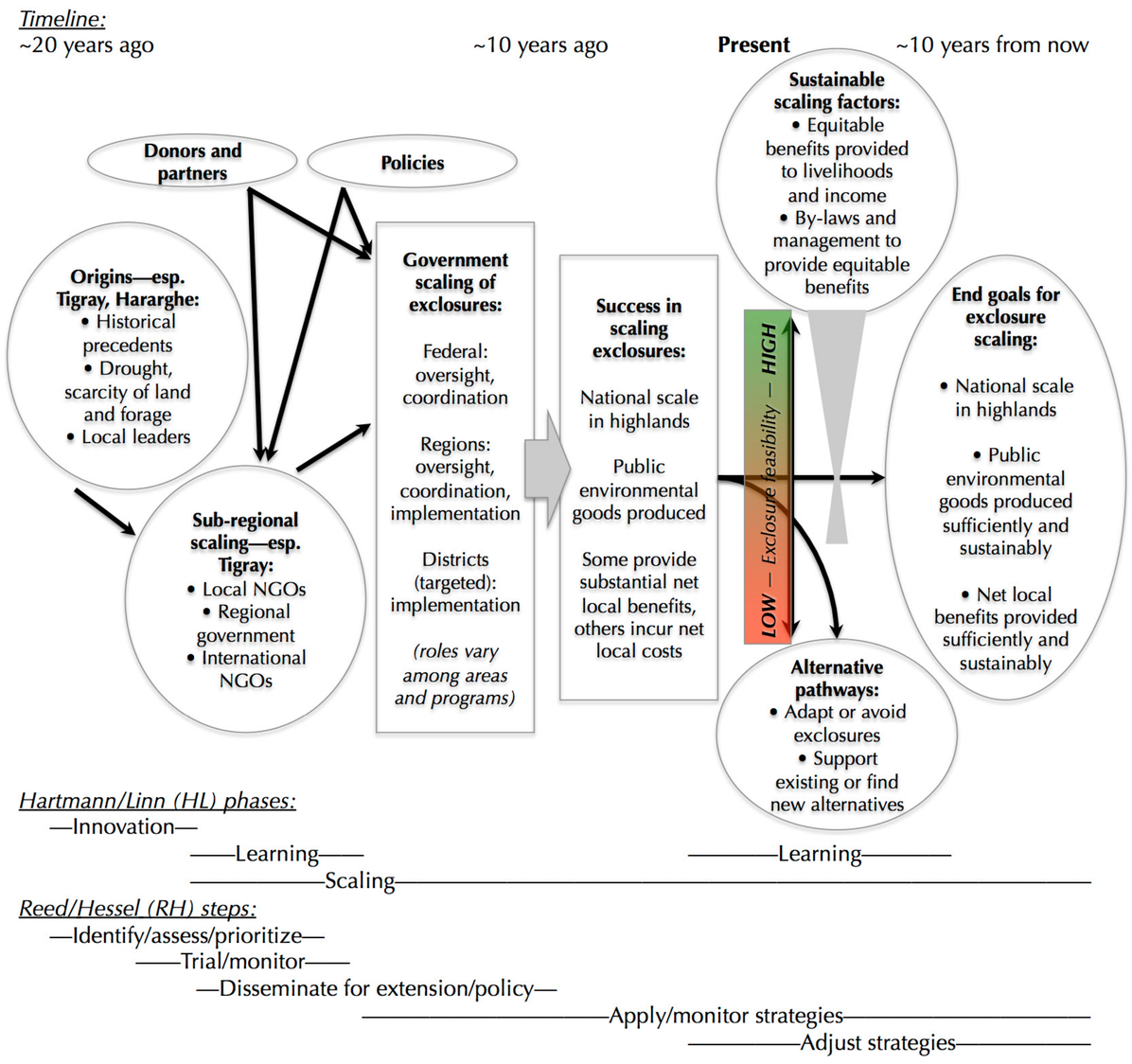

Figure 2. Scaling pathway for grazing exclosures in the Ethiopian highlands

Roles for research

- M&E can provide answers to many questions where simpler monitoring, e.g. by communities, is possible. 'Research-in-development' (Coe et al. 2014) incorporates experimentation into implementation, improving adaptation of SLM options to local contexts.
- More detailed research is needed for guidance on more technical questions, if nested into larger, coarser monitoring systems.
- For example, soil C in exclosures was attributed to the litter quality of woody species in the arid highlands of Tigray (Mekuria 2007), contributing to the higher net present value (NPV) of ecosystem services than under cropping (Mekuria 2011). Yet older, woody-dominated exclosures cannot fully reveal woody vs. herbaceous influences over time. Studying shifts in NPV with trade-offs and synergies among ecosystem services under a grassy state could reduce risk in payments for ecosystem services schemes.
- Research priorities include the abilities of different vegetation to provide public goods, e.g. erosion control and hydrological regulation, alongside local livelihood and economic benefits, and how community by-laws can support local benefits alongside large-scale environmental rehabilitation.

Conclusions

- Scaling of grazing exclosures in Ethiopia has included elements of the HL and RH frameworks, yet has not conformed precisely to either.
- The SLM-focused RH framework provides relatively discrete steps and tools for each, that can benefit scaling; the more expansive and general HL framework incorporates a broader suite of actors and mechanisms.
- Limited M&E and KM led to scaling of 'best practice', rather than 'best-fitting practice', leaving significant opportunities for refinement.
- 'Research-in-development' is one approach for marrying the HL and RH frameworks: M&E data from a variety of socio-ecological contexts can be used to adapt SLM options to improve their effectiveness across scales.
- To achieve complete and sustainable scaling of exclosures in the Ethiopian highlands, more systematic M&E, support from Ethiopian and international researchers, and effective KM and discussion can enable provision of public environmental goods together with local livelihood and economic benefits.

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