



PBL Netherlands Environmental
Assessment Agency

SCALING UP INVESTMENTS IN ECOSYSTEM RESTORATION

THE KEY ISSUES: FINANCING AND COORDINATION

PBL Policy Brief

Scaling up investments in Ecosystem Restoration

The key issues: financing and coordination

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Contents

Introduction 4

The importance and potential of ecosystem restoration 4

Bottlenecks and approaches 6

Financing issues are limiting investments in ecosystem restoration 6

Coordination issues are limiting investments in ecosystem restoration 8

Lessons from practice 10

Recommendations 14

References 16

Introduction

The importance and potential of ecosystem restoration

Land degradation – both a global and a local issue

An estimated 12 million hectares of land are being degraded globally each year (UNCCD, 2015). Currently 1.9 billion of the Earth's total 13 billion hectares are considered degraded, primarily in central Asia, South America and Sub-Saharan Africa, in humid and dryland areas, in cropland, grassland, pasture and forested ecosystems (Gibbs & Salmon, 2015; Nkonya, Mirzabaev, & von Braun, 2016). Degraded lands cannot provide the ecosystem services important for human well-being, and therefore constitute a welfare loss.

Ecosystem restoration has the potential to combine the global policy agendas of biodiversity protection, climate mitigation, and food security

Restoration of degraded ecosystems poses an opportunity to reverse the process of land degradation by undertaking mosaic, wide-scale or landscape scale efforts to re-establish the natural state (ecological restoration) and regain productivity (rehabilitation). Ecosystem restoration (ESR) can, under the right circumstances, not only increase land productivity but also promote economic growth and social cohesion (Caspari et al., 2014). It provides local benefits, in terms of food security and enhanced smallholder resilience, regional benefits, such as improved water provision, and global benefits, including biodiversity conservation and climate change mitigation, making ESR a promising approach for reaching some of the Sustainable Development Goals (SDGs). As such, ESR is increasingly the focus of discussion in the international community and national governments, and particularly by the United Nations Convention to Combat Desertification (UNCCD) regarding Goal 15 — Life on Land. However, while the number of restoration projects is on the rise, alongside national government pledges for restoration — Great Green Wall (2010), Bonn Challenge (2011), New York Declaration on Forests (2014), African Forest Landscape Restoration Initiative (2015) — a significant scaling up of efforts does not seem to be taking place (Wentink, 2015; Ferwerda, 2015).

Financing and coordination issues are limiting the scaling up of investments in ecosystem restoration

Though ESR investments require significant amounts of resources (inputs, labour, organisational capacity), multiple studies indicate that the socio-economic benefits greatly outweigh the costs (de Groot et al., 2013; Holl & Howarth, 2000). Several studies indicate that *financing* is an important bottleneck (Credit Suisse & McKinsey, 2016; Shames, Hill Clarvis, & Kissinger, 2014) and here we argue that *lack of coordination* also plays an important role. The term *coordination* is used to refer to regional, network-based mechanisms to organise and regulate activities between various actors, knowledge platforms and payment mechanisms. As ecosystem restoration requires creating affinity between the local and global levels and aligning public and private interests, it is crucial that financing and coordination issues are jointly addressed. The investment and maintenance costs of restoration can be greatly reduced by efficient organisation, clear land tenure arrangements and strong governance, and by building on existing projects and intrinsic value.

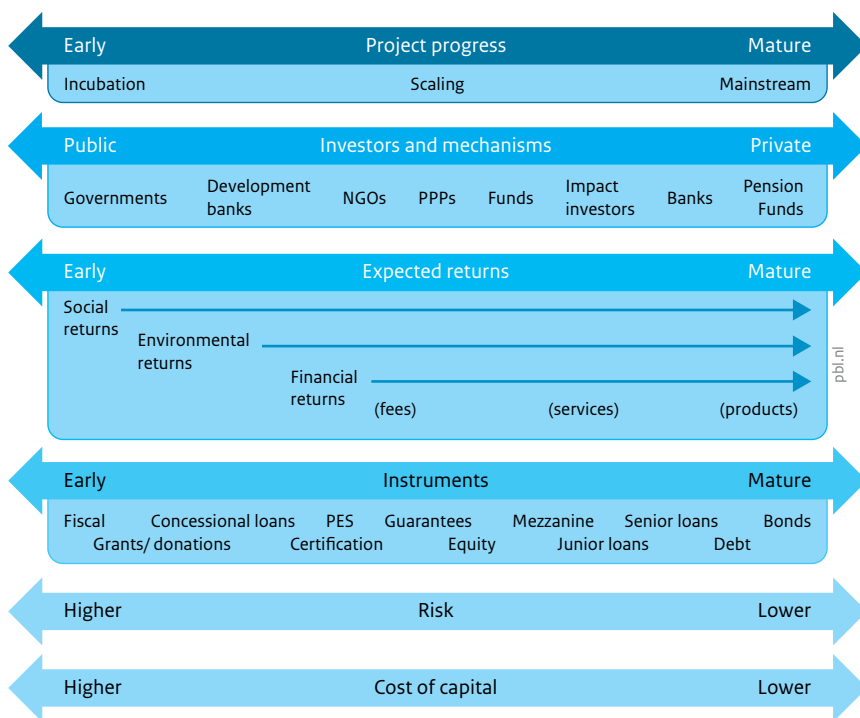
Given the scale of land degradation and its implications for human well-being, there is an urgent need to tap into the potential of restoration as a promising solution, taking advantage of growing support from the international community and national policy makers. In the face of the key bottlenecks, the central question is how investments in ESR can be scaled up. Based on an in-depth background report, this policy brief highlights the main arguments for demanding more attention for financing and coordination to scale up ESR and provides recommendations for policy makers, particularly with regard to the development of a strong enabling environment. We have conducted interviews with key players, collected peer-reviewed and grey literature and attended a series of workshops and conferences to test and confirm the relevance of our focus and our approach.

Bottlenecks and approaches

Financing issues are limiting investments in ecosystem restoration

- **Start-up and maintenance costs.** During the initial years of restoration projects, these expenses are perceived as high, while only few tangible benefits are obtained. Context specificity, lack of standardised costs and the limited level of sharing of best practices add to huge cost variations among projects, resulting in increased investment risk.
- **Investment returns and cost recovery.** Studies have shown that ESR projects can achieve net benefits in many ecosystems. However, estimating returns is often a complex task which depends on many assumptions. The reason being that ESR project returns vary in form (public - private, monetary - non-monetary), location of delivery (local - global) and time frame (short - long term), all of which add to the risk of investment, uncertainty among larger investors about security against loans and concerns with regard to cost recovery and non-monetary returns, such as improved health and restored landscapes.
- **Risks and uncertainty.** The high level of risk and uncertainty in ESR investments is partly caused by the lack of an investment track record, long project timescales, project size, uncertainty in costs and presence of public non-monetary returns. Risks can be grouped into various categories including novelty, externality, longevity, capacity and technical and regulatory risk.

Figure 1
Investors, finance mechanisms, risk and instruments



Source: Several sources; compiled and edited by PBL 2016

Financial instruments for different types of investors, risks and expected benefits

The range of financial instruments to suit various risk profiles, terms of investment and expected returns (Figure 1) can be grouped into three categories. *Enabling instruments* help to link public and private financing by reducing initial costs (grants and technical assistance), opportunity costs and free-riding, by enforcing public good delivery (fiscal incentives and law), supporting the development of market-based instruments such as Payment for Ecosystem Services (PES) and land tenure security (regulation), and lowering the risk of investment (guarantees). *Asset instruments* help to deliver return on public or private investment and include more traditional tools, such as equity and debt. *Market-based instruments* help to align public and private interests (green bonds, PES, offsetting, insurance).

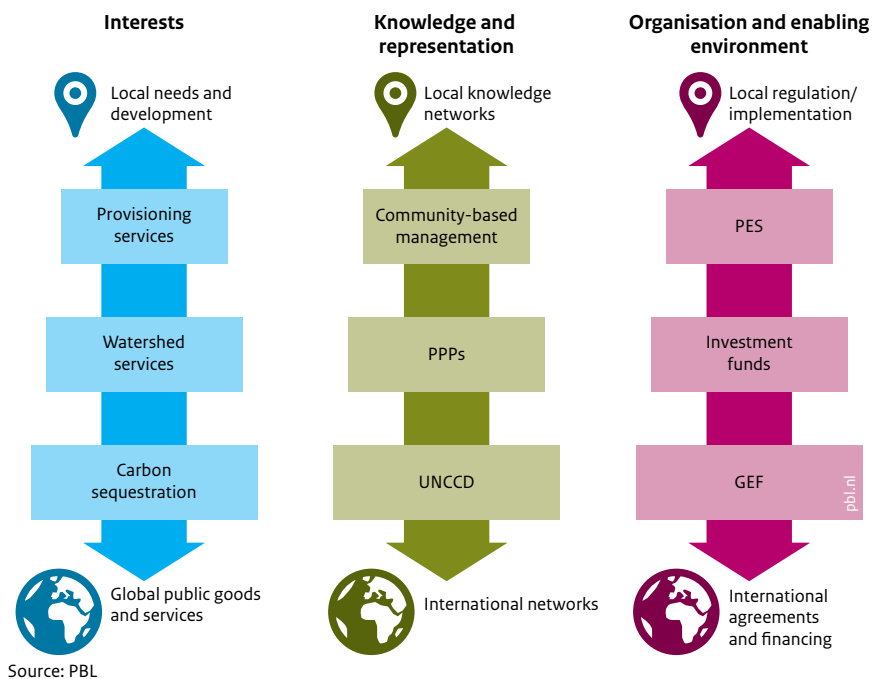
Coordination issues are limiting investments in ecosystem restoration

- **Search and information costs.** Securing sufficient return on investment requires effective project targeting and prioritisation and collecting information on two determining factors: the biophysical characteristics of the ecosystem and its socio-economic conditions. Local participation reduces the costs of optimal targeting, but requires organisation. It is not yet clear to what extent standardised methods could increase efficiency in this regard.
- **Organisation and representation.** Often, the various beneficiaries of ESR are not well-organised, and nor are the actors who make the investments on the ground. Organising multiple stakeholders, ensuring that their interests are well-represented, and setting up effective decision-making and coordination procedures requires substantial investments, particularly when there is a lack of local and regional institutions.
- **Monitoring and enforcement.** There needs to be agreement on how responsibilities are allocated and how the costs and benefits of ESR are shared. To guarantee an ESR project produces returns, monitoring and evaluation systems are required to assess progress, make necessary adjustments, provide data to establish the distribution of benefits and facilitate long-term sustainable resource management.

Coordination mechanisms for linking actors, scales and financing mechanisms

Specific organisations and mechanisms, such as PPPs, Investment Funds and PES schemes, are required to coordinate the various financing instruments available, and represent the range of public-private and local-global stakeholder interests. They must also coordinate knowledge aimed at site prioritisation and targeting, link the available finance to projects on the ground and aid monitoring and enforcement to ensure service delivery along project timelines and bring together buyers and sellers of ecosystem services (Figure 2).

Figure 2
Interaction between scales is necessary



Lessons from practice

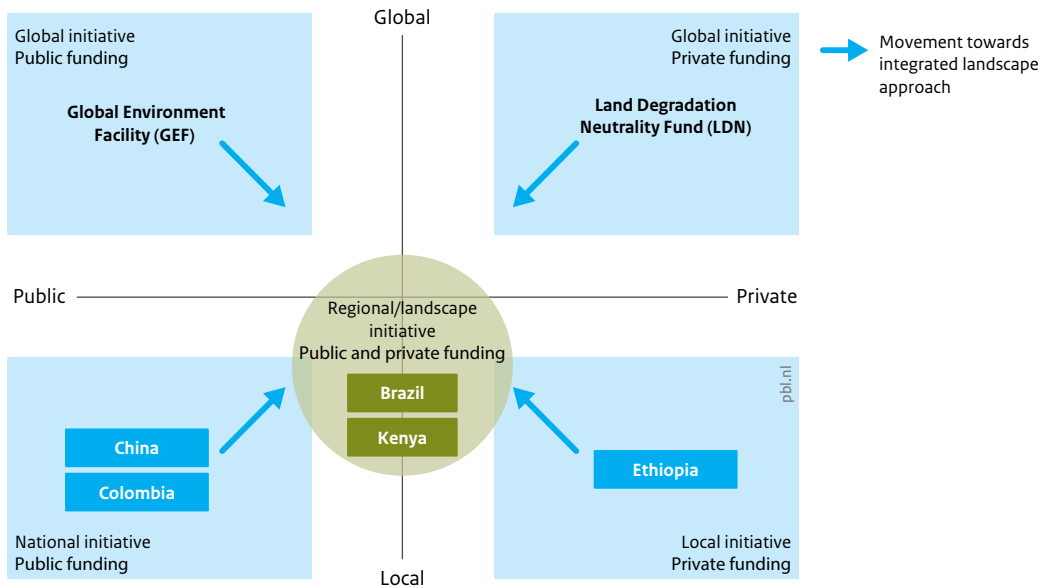
Cases reveal a trend towards a regional approach to ecosystem restoration

To identify financing and coordination issues in practice, we explored the strengths and weaknesses of a specially selected set of cases. Apart from the availability of sufficient project data, projects were chosen on the basis of an analytical framework grounded in relevant literature. The framework focuses specifically on the concept of ecosystem services, since ESR is ultimately about the restoration of ecosystem service provisioning, which requires attention for scales of delivery (local - global) and types of services (private - public) (Figure 3). It is interesting to note that large-scale private financing is mostly absent or still in development (Land Degradation Neutrality Fund), and that at present, most cases fall in the public-local frame (China, Colombia). However, funding is also arriving from the public-global frame (Global Environment Facility), with a general trend towards private sector inclusion at the regional level, where there is a mix of restoration and rehabilitation projects to suit different interests (Brazil, Kenya). What is meant by regional/landscape is an initiative within a country. The regional approach is not necessarily better but seems to address tensions between scales and interests. Our selection of cases comprises China's Loess Plateau, Colombia's watershed restoration, Ethiopia's Tigray region, Brazil's Atlantic Forest, and Kenya's Lake Naivasha.

Strengths observed in the case studies include:

- **A strong enabling environment.** Clear land tenure rights, firm political commitment and on-the-ground support appear to be key ingredients for the mobilisation of financing for wide-scale restoration efforts. Regulation helps to reduce initial costs and increase local stakeholder participation by establishing clear land rights and reducing opportunity costs. For example, the projects in China and Colombia are located in degraded and sloping areas with low opportunity costs and received adequate initial public financing. In China, opportunity costs were further decreased by the 1999 government regulations which introduced a ban on tree felling, grazing and growing crops on slopes. The project in Ethiopia is supported by a government policy which ensures clear land rights and food aid in exchange for 20 to 40 days per year of compulsory restoration work by the local farmers (Denier et al., 2015).
- **Private financing can play a role in ecosystem restoration, given the scale of the restoration challenge.** The tendency to move from national approaches (China, Colombia) towards regional, mosaic and landscape efforts (Kenya, Brazil) produces several ESR benefits which are more marketable and therefore well-suited to a privately financed restoration model, although, once again, clear land

Figure 3
Ecosystem restoration cases



Source: PBL

tenure arrangements are a key requirement. Alternatively, private investors could support ESR through green bonds or specific funds operated by PPPs. The move towards regional-level approaches brings with it a diversification of cost recovery instruments that can help to align public and private interests. Of course there is no 'silver bullet' but an array of instruments that can be combined to address a wide range of project goals, risks, tensions and returns. In Brazil, PACT coordinates public funds in the form of government budget allocations and Official Development Assistance, and also private funds through PES and offset schemes for Brazilian infrastructure mitigation, water user fees, compensation payments for restoration and grants and microloans to promote the creation of alternative sources of income.

- **The number of mechanisms for coordination between public and private stakeholders at local and global levels is increasing (PPPs and investment funds) as a result of the multi-actor, multi-level nature of restoration.** Local knowledge is used for prioritisation and mapping of restoration sites (Brazil), and efforts are being made to pool funds from various sources at the regional level. Coordination mechanisms vary depending on the scale and the goals of a project, and can be used in combination, for example by coupling PES schemes (local) and investment funds (regional) with watershed (public) and offset schemes (private).

- **Addressing coordination issues can help to tackle financing issues.** The investment and maintenance costs of restoration can be greatly reduced by efficient organisation, clear land tenure arrangements and strong governance, and by building on existing projects and intrinsic value. This means that part of the cost will be covered by the landowners themselves, local-level understanding of the business case will help to reduce the risks of larger scale investments and effective monitoring and enforcement on the ground will help build up a good investment track record. This has been observed in the case study from Brazil, where effective coordination facilitated by a multi-stakeholder platform helps to stimulate bottom-up motivation at the local level, resulting in the landowners’ greater willingness to cover a larger proportion of the implementation costs. In addition, search and information costs are greatly reduced by mapping and targeting those areas with the greatest ecological and socio-economic importance and prioritising them for investments.

Weaknesses in the case studies include the following:

- **Lack of financial orchestration at the regional level.** Trade-offs between interests can result in a fragmented approach. In Kenya, the majority of funding is public, despite huge possible benefits for the private sector and the flower industry. Better financial orchestration is needed to pool funding from different sectors and allow for prioritisation of projects. In Brazil there is also scope for a financial orchestrator with the mandate to integrate funds from various sources.
- **Scaling up can be limited by a lack of adequate representation and organisational capacity at the local level.** The Colombia case study shows that local stakeholder involvement has been rather limited and, as a result, local communities do not wholeheartedly adopt ESR or see its benefits, which could limit the long-term economic sustainability of restoration efforts (Casey, 2015). In addition, Colombia does not seem to address multiple ecosystem services and focuses on watershed services alone, which may limit the possibilities for obtaining additional financing. The observations from this case study suggest that local stakeholder involvement can help to prioritise and monitor restoration areas, enforce continued action and provide local capacity, though the effects are still somewhat limited. Knowledge brokering at the regional level (for example Brazil’s Atlantic Forest) is beginning to take off via PPPs but still requires better representation of local stakeholders.
- **Risk is an issue in terms of the conditions at the initial project stages and affects the long-term effectiveness of ecosystem restoration.** The case study of the Loess plateau region in China reveals that in areas with higher opportunity costs, the risk of investments and the uncertainty about returns is likely to affect the long-term success of ESR projects. One survey highlighted that 56% of farmers in this region would return to grain farming once subsidies stop in 2018. These issues are being addressed by initiatives such as the Moringa Fund, Commonland and Initiative 20x20 (Box 1), which utilise guarantees, investment funds, knowledge brokers and a bottom-up approach to build a convincing investment track record.

Box 1

Recent initiatives

Name	Restoration type	Financed by (Public/Private)	Initiated by	Active Project Sites
Initiative for Sustainable Landscapes (ISLA)	Landscape restoration and rehabilitation	Public and private	PPP	Kenya, Ethiopia, Brazil, Côte d'Ivoire, Vietnam, Indonesia, Liberia
Althelia Ecosphere	Mosaic restoration	Public and private	International non-profit	Kenya, Peru, Guatemala, Brazil
Moringa Fund	Mosaic, Landscape restoration	Public and private	Private investment bank, public sector forestry commission	Colombia, Peru, Chile, Brazil, Cameroon, Gabon, Dem. Congo
Livelihoods Fund For Family Farming	Mosaic, Landscape restoration	Private	Private sector food companies (Danone and Mars, Inc.)	Côte d'Ivoire, Kenya, Madagascar, India, Indonesia, Brazil
Commonland	Mosaic, Landscape restoration and rehabilitation	Public and private	International non-profit, university, private foundation	Spain, South Africa, Western Australia, The Netherlands
Living Lands	Landscape restoration	Public and private	Regional non-profit	South Africa
Initiative 20x20	Restoration, rehabilitation, landscape restoration	Public and private	International research organisation and NGOs and national governments	Mexico, Guatemala, Brazil (Matto Grosso, Espírito Santo and São Paulo), Nicaragua, Honduras, Argentina, Peru, El Salvador, Costa Rica, Chile, Colombia and Ecuador
African Forest Landscape Restoration Initiative AFR 100	Restoration, rehabilitation, landscape restoration	Public and private	International NGOs and research organisations, national governments	Central African Republic, Dem. Congo, Ethiopia, Ghana, Togo, Kenya, Liberia, Madagascar, Malawi, Mozambique, Niger, Rwanda, Togo, Uganda

- **Monitoring and enforcement are lacking in top-down approaches, which is often due to lack of clear goals for restoration, indicators to measure success, and local level involvement.** In Colombia, 90% of projects measure short-term goals only, using performance indicators and benchmarks that are often unclear. At the regional and landscape levels this is improving somewhat (in Brazil for example), thanks to the development of specific monitoring committees, tools and investment funds to enforce adherence, but knowledge dissemination, training and the lack of local involvement and capacity building remain an issue. There are very few mechanisms for quantitative evaluation of the impact of restoration on ecology, society and the economy.

Recommendations

Restoration efforts are increasingly moving towards regional/landscape based approaches in order to leverage private financing to scale up projects. To connect the local and the global levels and create affinity between public and private actors, there is a need for competent governance by institutions that pool resources, aggregate projects and organise payment mechanisms, through investment funds, PPPs, and co-financing. It is clear that scaling up ESR requires improvements in financing and, more importantly, coordination.

The trend towards the regional/landscape level approaches increases the difficulty in coordinating projects and financing, given growing numbers of stakeholder interests and benefits at different levels, which increases the complexity of coordinating projects and securing financing. In the cases examined in this research, coordination and financing are almost never addressed in full, whereas it is clear that improved coordination can help to decrease the risks of financing and ensure a long term approach to investments in ESR. To scale up investments in ESR and contribute to international policy goals, attention needs to be given to the following points:

- **Develop a strong enabling environment** in terms of leveraging finance and addressing risk and return issues. This requires providing legal clarity and addressing perverse incentives, developing and supporting mechanisms that address financing and coordination issues, establishing and monitoring safeguards for investments, and providing public financing with the expectation of obtaining public and non-monetary returns.
- **Create a strong track record** to reduce the risk of investments in ESR. This involves developing and supporting institutions and organisations which should become showcases of experience and consistent performance and broker projects and financing, coordinate priorities and support improved reporting of ESR project progress at the local level.

- **Avoid reinventing the wheel** by promoting higher levels of knowledge sharing between sectors through specific events and platforms and supporting and developing green financing schemes for ecological infrastructure, drawing on ideas from other sectors.
- **Build knowledge brokering organisations and networks** by strengthening existing networks and supporting the development of regional and local PPP platforms and coordination institutes.
- **Advance standards for exploring the potential of ESR projects** to reduce the cost and risk of investments by standardising assessments and introducing improved and more consistent monitoring and mapping.

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