Authors: Valerie Nelson and Jan Joost Kessler

Partnerships for Forests. Thematic study

Creating Value through Restoration

9 May 2019

Version Control

Version no.	Purpose/Changes	Author	Date
1	Draft for clients (DFID, BEIS, P4F)	Valerie Nelson and Jan Joost Kessler	28 Feb 2019
2	DFID comments	Valerie Nelson and Jan Joost Kessler	9 May 2019

Executive Summary

There is renewed global interest in restoration in response to growing land scarcity, imperatives to tackle environmental challenges and the resulting new business and investment opportunities arising. This thematic study explores approaches to restoration, the evidence on the effectiveness of different restoration approaches from the literature and an assessment of selected P4F restoration initiatives, to identify potential success factors and recommendations to inform the P4F programme and wider community of practice.

This thematic study relates to the Partnerships for Forests (P4F) strategic intervention area on restoration. P4F provides catalytic finance for sustainable business. The study methodology includes a literature review and expert interviews from which findings were identified and an assessment framework developed. The latter was then applied to 7 selected projects in the Partnerships for Forests (P4F) programme to identify how far the project designs and early implementation addresses priority conditions for success. The set of projects includes 5 Forest Partnerships, covering the three P4F regions (East Africa (EA), South East Asia (SEA) and West and Central Africa (WCA)) and 2 Enabling Conditions (EC) projects (both in EA). Two of the selected FPs have a landscape approach and show close linkages with the produce-protect intervention area. Also, two of the selected projects have a farm level approach, aimed to stimulate improved land management at farm level. Key insights have been derived from the literature review and project assessments and these illustrate the potential of the assessment framework for generating insights and specific recommendations. It is recommended that the programme adopt the assessment framework into its strategic decision-making and Monitoring Evaluation and Learning (MEL) systems.

The literature review shows that globally, as a result of the accelerating global interest in the potential and need for Forest-Landscape Restoration (FLR), new business models are emerging. These include both landscape-based approaches as well as individual smallholder engagement, for example in timber contract production or contingent credit access in return for the adoption of sustainable land management practices. The latter generally avoid transferring land rights from communities to companies, but they are support implementation at scale. Privately held concessions for the restoration of degraded landscapes, involve the facilitation of multiple, high value, low intensity products involving smallholder and community suppliers. Available evidence suggests that restoration can be effective, potentially delivering multiple environmental and social benefits to smallholders, land managers, companies and governments. Despite major national and global commitments, decision-makers still tend not to fully appreciate the multiple economic values which can be derived from avoided land degradation and restoration initiatives, which calls for more communication, education and trade-off analyses.

The conditions for success of FLR initiatives are context dependent, and new practical guidance is emerging to guide decision-makers and investors. Five enabling conditions have been identified, including secure land and tree tenure systems, empowered local and indigenous communities able to fully participate in FLR processes in an equitable manner, effective laws and law enforcement and sustained political support. In terms of design and implementation features, emerging success factors include: i) building in flexibility to governance systems and adaptive monitoring to take account of changing conditions over long-term restoration timescales; ii) planning and implementing restoration on landscape scales, including concrete measures to link incentive and disincentive mechanisms and fair value chain relations, e.g. within contracts; iii) understanding and addressing trade-offs between short term (socio-economic) and long term (environmental) benefits, with a long-term strategy and funding mechanism; iv) facilitation of high quality stakeholder participation processes and attention to multiple plural values; v) selection of ecologically appropriate restoration opportunities, techniques and infrastructure in design; vi) Use of appropriate tree seeds and species and effective restoration advisory and extension services.

The literature review also reveals there are risks for restoration initiatives having undesirable effects. The most important risks are as follows: early and over harvesting of products from restored lands; attraction of migrants into the restoration area thus increasing pressure on scarce natural resources; conflicts at community level if benefits are not shared; and revenues leading to increased pressures on forests. There is an assumption that

restoration of land can reduce pressure on remaining forests, but from the literature there is no evidence that restoration will reduce pressure on remaining forest and thus contribute to protection. On the contrary, there are risks that restoration in one area can create leakages with tree cutting for agricultural production simply moving elsewhere. This suggests the need for strong forest governance and protection systems, including articulated conditional linkages, as well as close monitoring. Thus, participatory landscape planning processes and landscape vision and capabilities are needed, within which these new business models could potentially be implemented. In addition, restoration initiatives face the key challenge of generating short term benefits for communities and land owners who have made investments in sustainable land management practices, while not hampering the build-up of biomass and restoration of ecosystem services. Also, concrete agreements or contracts are required covering the relationships between conditional services or incentives and compliance with protection regulations, and the issue of law enforcement.

In the selected P4F restoration projects that were assessed, the above risks or challenges were not always addressed, and have therefore been flagged as requiring specific attention. Additionally, the assessment of selected P4F projects showed that any producer organizations which are involved in restoration activities, may require support in terms of their governance, their business management capacities and bargaining power. It is also important to note that the P4F programme has been designed to catalyse investment to advance sustainable business models to tackle deforestation and forest degradation in the absence of existing enabling conditions. The programme is intended to demonstrate successful approaches to advance political support.

The Unique Selling Point of business models that engage individual smallholder farmers is that they offer a rapid means of scaling to smallholders who otherwise lack access to inputs, finance and markets, and avoid the potential challenges associated with transfer of community lands to companies in plantation models. However, they do not include capacity building of producer organisations (in terms of governance and bargaining power) and there are associated risks if strict conditions are not in place to prevent increased (rather than reduced) pressure on standing forests. Smallholder timber contract production will need to deliver short term benefits, strong tree tenure, and fair contract relations to be successful. Contingent credit approaches require strong land tenure security for smallholders and good extension services from intermediary organisations tailored to their context, i.e. avoiding blanket prescriptions.

Private Ecosystem Restoration Concessions (ERCs) in Indonesia, represent a business opportunity based upon channelling funds from companies paying for earlier degradation to support restoration on degraded areas, and the business cases relies upon whether combined sets of high value low intensity value chains can be established. Developing value chains takes time and investment in the development of the value chain including capacity strengthening for smallholder organisations, but also capacity strengthening of other value chain actors potentially and ensuring to ensure fair value chain relations. Also, there are similar issues as identified in the HVLI study (risks of new high value, wild products being substituted for cultivated products or synthetic ones, or by larger producers gaining market share. The resource-intensive nature of producer organisational development in contexts of highly dispersed producers and new value chain development and capacity strengthening should not be under-estimated. Monitoring is needed to establish if these initiatives are successful in practice, and the scope for wider scaling. While the land is privately managed, there still may be a need to consider wider landscape governance and incentives for forest conservation.

In sum, the key points emerging from the literature review and project assessment that might require more attention in the design and implementation of P4F restoration initiatives are as follows:

- Attention to financial models and incentives to generate short-term benefits for landowners who have invested in restoration, while not compromising upon the need for long-term forest and land rehabilitation.

- Capacity building of farmers and/or community-based organisations, in terms of governance, management capacities and bargaining power, especially with respect to the new partnerships with companies in which they are involved.

- Attention to the risks associated with restoration activities, especially early and over-harvesting of products from restored lands, attraction of migrants into the restoration area thus increasing pressure on natural resources, conflicts at community level if benefits are not shared, and revenues leading to increased pressures on forests.

- Concrete agreements with landowners benefiting from restoration support to refrain from forest encroachment are an important element to consider.

- Monitoring of restoration initiatives to assess to what extent the expected benefits materialize, and risks are mitigated

- Actions should be considered to strengthen the enabling context, especially on issues of land tenure and law enforcement, and may include efforts to share and communicate successes such as benefits for smallholders, which could build the political and public case for support to restoration.

One main recommendation is the relevance of working with clusters of projects at landscape level, including restoration initiatives, Produce-Protect, High Value, Low Intensity (HVLI) and EC initiatives. This is justified by the fact that restoration activities are often closely associated with value chains (timber, non-timber or agricultural products) in the same landscape, and a mosaic of related landscape initiatives is likely to be most effective in building up incentives and governance systems and achieving desired goals. In addition, the success of restoration activities is often closely related with enabling conditions. As such, a landscape-based theory of change would be relevant, to guide intervention design, as well as monitoring and evaluation, including a combination of Restoration, Produce-Protect and EC initiatives.

There is a significant opportunity for the P4F programme to use the assessment framework developed here to ask appropriate questions at project design stage to consider whether the conditions for success are in place and whether key risks have been addressed, and/or if there is value in supporting such initiatives to anyway to build political support, as well as to design and resource appropriate monitoring, evaluation and learning systems. Without the latter, there is little scope for the interventions to improve their own strategies, and for the wider programme to understand and evidence successes and areas for improvement. A blend is likely of sustainable, private-sector funded data collection, but also public good arguments to fill gaps and synthesize the former to provide a clear picture of progress and impacts. More detailed recommendations can be found in this report.

Table of Contents

Introduction

P4F provides catalytic finance to advance sustainable business in a number of areas including forest restoration. The restoration intervention area is one of 3 strategic intervention areas (Figure 1). The information provided by P4F relates to the information provided in Figure 1 below: *"promoting land and forest restoration through regrowth and plantation, with the aim to increase and create value of forests."* Possible activities to be supported include promoting shade production / mixed agroforestry systems and improving the cost-effectiveness of reforestation schemes, or landscape restoration initiatives. This intervention area has several linkages with the other two intervention areas. For instance, within a landscape there may be areas where communities are motivated to protect the forest by support for marketing forest products (intervention area 1), and/or producers are supported to increase the productivity of their agricultural production system and to protect the standing forest through conditional incentives/disincentives (intervention area 2), and/or there are activities for restoration of degraded forest including products with market value (intervention area 3).

Figure 1: P4F Strategic Intervention Areas
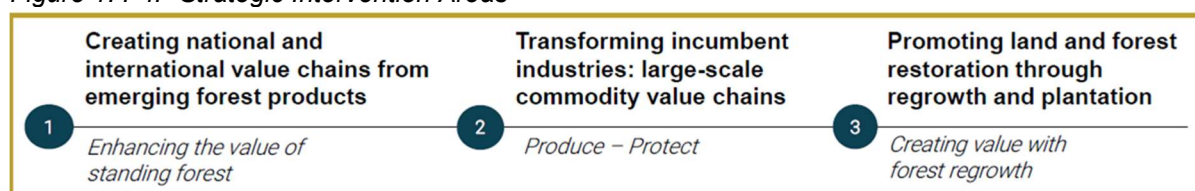
The following five questions were agreed to underpin the study:

1. What does wider evidence tell us about the effectiveness of restoration activities and strategies to create value with forest re-growth?
2. Which reforestation mechanisms are the most effective at creating additional value according to the available evidence? What are the key success factors (or key issues) in terms of enabling conditions (e.g. pre-existing context) and internal design factors?
3. How far do the selected P4F FPs effectively integrate the identified success factors (so far as these are currently known) in terms of project design? To what extent are these success factors addressed by relevant DSM or EC measures?
4. What is the potential of the different restoration activities in terms of scaling?
5. What lessons can be learned from the restoration initiatives, relevant for this P4F intervention area, or relevant for the P4F programme as a whole? What lessons are there for the wider community of practice working to combat deforestation?

The report is structured as follows:

- Chapter 2 explains the approach and process used in the study;

- Chapter 3 summarises the main results of the literature review and project assessments, showing the potential of the assessment framework to generate insights and recommendations;

- Chapter 4 provides recommendations for using the assessment framework and specific tools emerging from this at various places in the project development and management process;

- Annexes present the assessment framework used to undertake the assessment of selected projects.

Study Approach

Figure 2 shows the main steps in undertaking the study, as per the terms of reference. Each step is described in detail below.

Figure 2: Main steps in the study approach
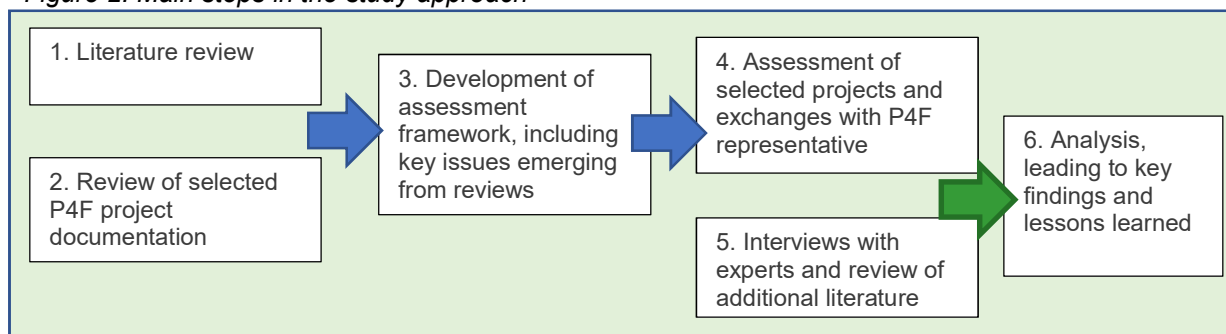
Step 1. Conduct rapid literature review to gather evidence on the extent to which restoration initiatives can lead to regrowth and plantation.

To guide the literature review and to gather evidence from specialist practitioners, the Evaluation Manager (EM) team developed an analytical framework with the following components:

1. Producer support for restoration at farm scale or at landscape scale (active, passive)
2. Improved markets and value chains for restoration
3. Measures for supporting forest landscape restoration (governance innovations, conditional incentives, policies/laws and enforcement, including disincentives, education, capacity strengthening)
4. Mechanisms that create the linkages between restoration and protection through incentives, disincentives or enabling measures.
5. Positive impacts and potentials for scaling

With reference to "producers", the literature review emphasised small-scale and smallholder producers but was not limited to these categories, because in the restoration P4F projects in some cases private sector companies are the concession hold and land manager. The literature review focused upon the selection of key studies, especially meta-studies of available evidence.

Step 2. Select P4F projects in the restoration strategic intervention area. The P4F MEL lead provided a selection of projects for the study which were initially categorized as restoration projects (table 1). All of these projects were reviewed. Based upon our analysis and upon further consultation with P4F it was decided that some do not have restoration as their primary focus, as has been indicated in Table 1.

Project P4F-0269 "Initiative for Sustainable Landscapes in Kenya" (ISLA) was reclassified as a produce-protect initiative. Two other projects (P4F-0273 RLU rubber, and P4F 0225 CEMOI) have close relations with Produce-Protect because the initiatives are basically aimed at increasing productivity of rubber and cocoa. Some other projects also have significant restoration components, including ISLA, Olam cocoa and Touton cocoa. Thus, the following set of projects were included in this review of restoration initiatives, comprising 5 Forest Partnerships (EA, SEA and WCA) and 2

Enabling Conditions projects (both in EA). Two of the selected FPs have a landscape approach and show close linkages with the produce-protect intervention area.

Table 1: Overview of selected P4F restoration projects

P4F number	Title + commodity and indication of possible reclassification	Region
P4F-0266	Tree Fund *(originally FP, now classified EC, specifically supporting farm level restoration)*	EA
P4F-0363	Climate Smart Lending Platform or CSLP *(originally an FP now classified as EC, specifically supporting farm level restoration)*	EA
P4F-0339	Sustainable Charcoal Sales Development	WCA
P4F-0225	CEMOI Preservation of Forest through Farmers' Professionalisation *(has a close relation with produce-protect)*	WCA
P4F-0014	Ecosystem Restoration Concessions and all related ERC FPs	SEA
P4F-0306	Komaza	EA
P4F-0273	RLU Rubber *(has a close relation with produce-protect)*	SEA

Step 3. Review the selected P4F projects' theories of change and develop an assessment framework and theory of change for the strategic intervention area. The EM study team developed an assessment framework, including a three-level rating based on key issues identified in the literature review and a review of the documentation of the selected P4F case studies (see Annex 1 for the assessment framework). A theory of change was developed for the restoration strategic intervention area.

Step 4: Analyse project evidence using the assessment framework. The assessment framework was used to analyse available documentation for the eight selected projects and to discuss the findings (including the ratings) with the P4F representative in the WCA, SEA and EA regions. The P4F representatives, especially the WCA representative, supported the EM review team by providing additional documents and information on several projects; this interaction led to adjustments in the findings and assessment ratings.

Step 5: Interview subject-matter specialists. Interviews were conducted with the following experts in landscape governance and value chains: Verina Ingram, Wageningen University; Sarah Lupberger, Landscape Standard; Cora van Oosten, Wageningen University; Cathy Mackenzie, SFM consultant; and Professor Jeremy Haggar, University of Greenwich. The EM team also attended two events related to landscape management. The authors used their networks to obtain recent documents, including on assessment frameworks.

Step 6: Analyse evidence and lessons to address the MEL questions and support P4F adaptive management. The present report analyses the evidence collected in steps 1-5, summarises the lessons learned, and addresses the five MEL questions in Chapter 1.

Results

Theory of change

To answer the study questions, it is necessary to articulate how restoration mechanisms are expected to work. The EM team developed a theory of change for the restoration strategic intervention area (Figure 3) based on an analysis of key issues in the literature and a review of P4F projects.

The theory of change (Figure 3) captures the key issues and cause-effect chains within this intervention area.

Figure 3: Draft Restoration Theory of Change
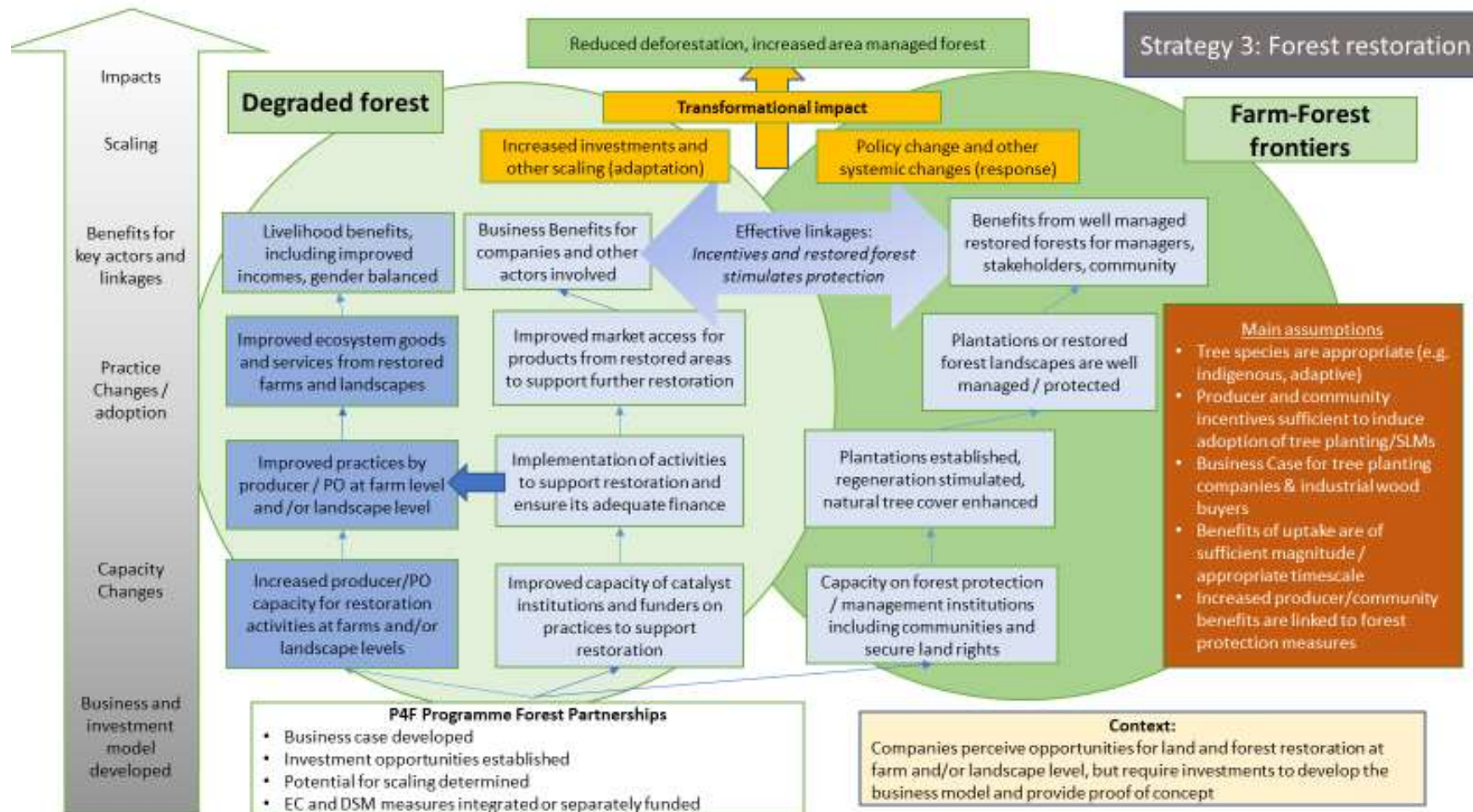
The restoration theory of change comprises the following key aspects:

- There is a growing business case for restoration, as companies respond to governmental incentives and companies create new business models and investment opportunities based on forest ecosystem restoration for provision of forest-related products and services. The business case is emerging due to the increasing scarcity of land and growing demand for food, fodder and fuel. Restoration increases the value of land and makes it more productive. Degraded land has negative side-effects, such as soil erosion, and the undermining of ecosystem services has diverse social, environmental and economic implications for communities, companies and governments.
- Producers are provided with support to improve their capability in tree planting on farms, sustainable land management practices and landscape restoration practices and, in some instances, producer organisation (PO) development. In some cases, producers are given improved access to inputs, markets and finance. Such improved capacity is expected to enable producers to adopt the promoted practices that benefit them and their producer organisations, through benefit sharing schemes channelling funds from improved ecosystem services payments, improved yields (e.g. from planting shade trees in cocoa production), improved sales of timber and premium prices for sustainable forest products.
- Partnerships with private companies unlock finance and disrupt the market. They and other value chain actors may be given capacity strengthening support, enabling them to collaborate with producers and POs, providing the latter with enhanced access to support services (e.g. knowledge, inputs and finance) and facilitation of improved market access for producers. There are diverse models of value chain relationships in restoration projects, between the producers and private sector, with the nature of such relationships influencing the types of benefits generated for producers and companies.
- Support is provided, in some cases, to strengthen forest protection/management institutions, including communities, and to secure land rights, at different scales, ensuring that restored forests and trees are protected by communities and companies. This element is stronger in landscape-based restoration initiatives and is not generally included in pathways promoting smallholder on-farm tree planting and SLM measures. As plantations are established, regeneration stimulated, and natural tree cover is enhanced, this leads to improved management and protection of forest-landscapes generating diverse social, economic and environmental benefits.
- Restoration practices by producers and private companies and the benefits derived are expected to contribute to forest protection and sustainable land management. In forest landscape restoration, agreements may be established with community groups prohibiting expansion into protected areas in return for inputs and agronomic training. As per Produce-Protect approaches, to be effective such incentives need to be linked to strong forest governance systems, company compacts and sourcing traceability and clear disincentives for smallholders who do not comply. Conditional incentives for smallholders' planting trees on farms include access to markets, inputs, and conditional credit for implementation of SLM measures. Channelling of restoration funds to restore degraded land areas incentivizes companies to support the development of (multi-) high value, low intensity value chains to create value via regrowth. Employment at commercial cocoa shade-tree nurseries is a livelihood benefit which is linked to restoration practices.
- Scaling can be achieved in forest-landscape initiatives when other buyers crowd in and support restoration initiatives. However, forest-landscape initiatives need to be tailored to context, so simple replication is not anticipated – rather blended finance business models and application of key principles and practices could be copied in other landscapes. The choice of restoration mechanisms and business models depends upon the pre-existing conditions in each landscape in terms of current land use and state of forest cover/integrity and the scope for restoration. In smallholder on-farm tree planting and SLM measures, scaling is achieved through the business model which avoids transfer of lands from smallholders to companies and increases access to inputs and markets for smallholders via commercial forestry or directly channels finance via intermediaries to smallholder farmers (contingent credit).

Key insights emerging from the Review

This section summarises the key insights arising from the literature review. The detailed analysis of the evidence drawn from secondary literature is presented in Annex 2. The insights answer study questions 1 (effectiveness), 2 (most effective mechanisms and success factors), 4 (scaling potential), and contributes to answering question 5 (lessons for the P4F team). The insights informed the EM review team in developing the assessment framework and applying it to assess the status of selected P4F restoration projects in this strategic intervention area (study question 4).

There is need to enhance policy-maker recognition of the economic value of multi-functional landscapes and of the root causes of deforestation and land degradation as well as strengthening of restoration planning capacity
Governments have often lacked enough appreciation of the land degradation that results from economic development processes and the associated socio-economic costs involved. Further, the root causes of land degradation and resource over-exploitation are not that well understood; Whilst extreme poverty can contribute to these, when there is also a context of resource scarcity and inequality in access to resources, this is in fact rarely the main cause. Root causes tend to include, amongst others: land right disputes, inadequate market access, weak access to financial credit, inadequate research and development investment, single sector development plans which ignore other sectors and weak governance institutions. Local practices which degrade the land and responses should be understood in the context of the national policies and integration into regional and global markets.

Global interest in forest and land restoration is intensifying because of growing land scarcity, rising global demand for food and fuel, and the need to tackle environmental challenges and reduce pressures on remaining standing forests. This enhances business opportunities in restoration enterprise.
Because of growing land scarcity and environmental challenges, there are new business investment opportunities, leading to renewed global interest in restoration. Governments are providing incentives for restoration in many countries worldwide, companies are identifying new business opportunities and investors are seeing new investment opportunities. The potential for private-sector led approaches for improving forest outcomes and delivering multiple socio-economic benefits is firmly on the global agenda. Despite important global and country-level commitments, there is also lack of consensus on definition which is hampering efforts to assess progress on implementation.

Box 1: Global interest in and commitments

Global commitments on restoration are now significant, because of the imperative of responding to sustainability mega-challenges, and of meeting the Sustainable Development Goals, especially SDG 15 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.

Significant global commitments made on restoration are grounded in international treaties and agreements. Aichi Target 15 is the most relevant to restoration: 'By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification'. Targets for 'hectares restored' have been agreed in the Bonn Challenge (2011) and the New York Declaration on Forests, plus the Africa focused AFR100, and the Latin America 20x20 (Stanturf et al, 2017). Aichi Target 15 does not, however, define what is meant by restoration and appropriate approaches and criteria (Chazdon et al (2015) citing Lamb, 2014; Stanturf et al, 2014; Rappaport et al, 2015). Many initiatives lack a clear reference against which progress can be measured (Wortley et al 2013).

A shift of focus has occurred from returning ecosystems to original ecological states to the achievement of multiple social and environmental interests and goals
The focus has generally shifted amongst many practitioners and governments from restoration viewed as returning ecosystems to their original ecological states, to those that seek the enhancement of ecological integrity, combined with social goals. Forest-Landscape Restoration approaches especially, seek to balance multiple and competing interests in different land uses, and pragmatically seek to balance ecological restoration goals with social policy objectives.

There are key challenges in Forest-Landscape Restoration relating to collective action, the availability of long-term financing and sustained political commitment. The accommodation of plural cultural values may also be challenging in market-oriented approaches.
Mobilizing effective collective action amongst stakeholders is one of the key challenges within Forest-Landscape Restoration initiatives, given the behaviour changes required across diverse actors in the landscape system and the institutional and organisational capacity strengthening required. Adequate social networks for collective action at the local requires substantial support from public, private and civic actors, due to land insecurity, poverty, low education levels and limits on empowerment. The slew of landscape approaches underway provides fertile ground for learning about what combinations of interventions may have more success in delivering sustainable land use management and forest protection under what conditions. Comparisons with non-market-based approaches, or those that rely primarily upon community-owned trade which tend to lack investment and can be difficult to scale up are also needed. Other key challenges include the need for sustained political commitment to ensure that government policy levers are sufficiently supportive. There is a continuing lack of stable, long-term finance to support such transitions. In some quarters, the extent to which market-oriented approaches can accommodate the different ways local communities and indigenous groups value the forest is being questioned and merits attention. Additional challenges include the following: weak consensus on the criteria for assessing and selecting priority locations, inadequate measurement of environmental and economic outcomes of different approaches (e.g. natural regeneration compared to tree planting and a lack of quantification of multiple benefits at landscape scale represent additional challenges; capacity weaknesses in spatial prioritization of restoration approaches and outcomes for different landholders.

Restoration approaches are not monolithic; there are distinct approaches to restoration with differing theories of change, influenced by variation in contexts and the initial status of degradation.
Restoration approached differ in terms of immediate objectives and scale of operation (farm or landscape level) and the value chain relations anticipated. There is a spectrum of activities which may be promoted, especially at the landscape scale, from passive restoration, i.e. actions are not taken except for ending agricultural and grazing stressors to allow natural forest regeneration to active regeneration, i.e. measures such as tree seed or seedling planting, as well as sustainable land management practices, such as soil and crop management, soil erosion control, water harvesting techniques and climate smart agriculture. The scale and context of restoration is important: widescale restoration may be selected where there are large areas for forest restoration and often in low population regions, b) areas with a mosaic of different land uses, in which tree density can be increased on farms, and agroforestry systems established, as well as introduction of improved fallow systems, creation of ecological corridors, creation of discrete areas of forests and woodlands. Thirdly, there are measures for protective land and buffers for mangrove restoration, watershed protection and erosion control.

There is evidence of restoration activities creating benefits that outweigh the costs and generating social and livelihood benefits as well as inter-connected environmental benefits. However, there are also trade-offs between social and environmental benefits: restoring ecosystem qualities will take time during which social returns are low or inexistent, which requires specific financial systems innovations to overcome a transition period.
The economic benefits of sustainable land management practices and / or restoration actions have been shown to exceed their costs in many places, but levels of effectiveness are context-dependent. Benefits for local farmers include livelihood improvements, ecosystem services, enhanced food, energy and water security. Companies can benefit from offsetting and compensating environmental impacts, achieving compliance with legal or certification requirements, reputational benefits, more secure and profitable product supply and avoidance of land conflicts. Governments can benefit from more functional and productive degraded lands. Costs include opportunity costs, transaction costs, and implementation costs. The land being restored will likely be unproductive for some time as investments are being made and this requires specific financial systems innovations. Available research suggests positive social outcomes can be achieved, especially where rural households are dependent upon forests for their livelihoods, including farm level benefits, such as enhanced shade or provision of fodder, wider benefits for communities from restored forests, such as an enhanced supply of timber and game, increased jobs in tree nurseries, increased social cohesion from stakeholder engagement processes, and global public goods such as biodiversity conservation, climate protection and improved water and food security etc.

Overall, Sustainable Land Management (SLM) practices, such as grazing pressure management, agroecology, conservation agriculture, and sustainable intensification, have been shown to avoid or reduce the degradation of crop- and grazing lands. Effectiveness depends upon the nature, extent and severity of existing degradation drivers and processes and the biophysical, social, economic and political contexts in question. Evidence shows that local and indigenous knowledge and community-based natural resource management systems have been effective in many regions of the world. Many SLMs generate net climate benefits, but there are risks as well: Poor implementation, such as monoculture plantation establishment in non-forest habitats or net displacement of crop production into forest areas due to rising competition for land between food and bioenergy crops, can amplify the risks of land degradation and biodiversity loss risks.

There are remaining gaps of knowledge on restoration approaches, e.g. the effectiveness of passive and active restoration, and the irreversibility of land degradation.
Evidence from the wider literature on ecological outcomes is fragmented, with geographical biases (e.g. limited study of African restoration initiatives, despite the forest losses experience in the region). Further, many restoration studies only cover two of the three key ecological attributes (ecosystem composition, structure and function), with just a few indicators per attribute included. Standardized measures across projects are needed to allow for an assessment of how far management activities contribute to restoration of ecological complexity and integrity in forest ecosystems and the contribution to global conservation goals. Ecological evidence

comparing active restoration, such as tree planting, versus passive restoration, such as natural restoration, is inconclusive and some authors question whether the former, i.e. tree planting, which tends to be the default approach, should necessarily be chosen over and above the latter, i.e. natural restoration. The capacity of ecosystems to self-restore declines as functionality is progressively impaired and becomes increasingly expensive, ultimately passing a point at which degradation is irreversible. Hence avoiding land degradation in the first place is preferable and cheaper, but the availability of adequate incentives for producers and land / tree tenure security both require attention. Social indicators are particularly under-served in restoration assessments: more data is collected on process indicators, e.g. resource inputs, extent of community participation, but less so on differentiated socio-economic outcomes. More attention to the gendered nature of land use trade-offs and restoration initiatives will be important.

New business models, involving landscape approaches, scaling of smallholder contract timber production or technology-enabled provision of credit to smallholders for uptake of Sustainable Land Management (SLM) measures, have yet to demonstrate their effectiveness in the delivery of multiple benefits. Trade-offs and timescales are an issue for smallholder producers in relation to restored productive services, and there are associated risks of over and early-harvesting.

Sustainable Land Management efforts appear to have positive effects, but there are risks that poorly implemented restoration initiatives could lead to an exacerbation of degradation rather than the reverse. For example, there is considerable variation in the ecological services provided by trees. A Eucalyptus plantation may lead to greater carbon stocks, but also impoverishment of soils and reduced water infiltration to aquifers. Teak can lead to greater erosion. Pine can lead to soil acidification. In certain cases, reforestation of moorlands, can lead to the release of soil carbon and increased run-off and flooding. An increase in tree cover in a landscape will lead to a reduction in water yield for human use at least in the short-term. Single species plantations, especially if based on exotic species such as oil palm or rubber, will likely have no biodiversity benefits and possibly contribute to the loss of biodiversity. The provision of productive services requires action to ensure short-term as well as longer term benefits for sustainability, particularly for resource-poor smallholders. There are risks that smallholders perceive more incentive in cutting trees early for example in timber contract production schemes, thus undermining intended ecological objectives. Bridging finance mechanisms for smallholders with limited resources may be needed. It is essential to firstly define the services that should be restored, and then to select/design the trees species and management systems to deliver them. Practical guidance on restoration design and implementation and trade-off decision tools are emerging which could support new initiatives and projects to reveal trade-offs and support discussion on decision-making. In Forest-Landscape approaches strict conditions need to be instituted to ensure that restoration activities do not simultaneously undermine forest protection and the adoption of sustainable land management, including in neighbouring and more distant localities (leakage). Government policy-makers, especially the need to attend to the risks of leakage, as restoration in one locality can merely displace forest clearances for agriculture and other purposes to other regions, which undermines the overall achievement of global forestry goals, with closer alignment of policy levers necessary.

Given the potential trade-offs between social, economic and environmental benefits and the importance of contextual conditions, restoration initiatives should include robust systems of monitoring to generate data and lessons for strategic decision-making and identify/mitigate risks.

MEL should thus be integrated into project cycles, from the design phase, including testing key assumptions, such as the assumption that short-term benefits for smallholders are of adequate magnitude and tree tenure security is also strong enough such that farmers plant trees and invest in their farms. Another key assumption in Forest-Landscape Restoration initiatives, is that governance systems are sufficiently effective in landscape approaches. Measures to increase agricultural productivity can reduce pressure on remaining areas of native vegetation, but *only if* strict conditions are met, including adoption of SLM practices by farmers and protection of areas of native vegetation to prevent further expansion of agricultural lands occurring (IPBES, 2018). Tracking community participation and empowerment is also vitally important. More attention is needed as to how such systems can be established for real time monitoring of ecological indicators as well as social ones, and how they can be funded over time on a sustainable basis.

New business models are emerging which could potentially facilitate scaling of Sustainable Land Management (SLM) measures, but there are also risks of over- or too early harvesting and disregard of gender issues.

New forest business models are emerging which as seen as a growing investment opportunity for the private sector. They aim to overcome smallholder constraints on adoption, which have been so challenging in sub-Saharan Africa, leading to low adoption levels and scaling up issues. Crucially, these models aim to change behaviour and deliver benefits to smallholders *at scale*. The new business models are not all new, range in scale and have diverse target markets from middle class consumers to large financial institutions. Many use technologies to facilitate restoration, reducing costs and improving efficiency. A proportion sell products based on the origin restoration 'story' to consumers. Beyond traditional commercial forestry involving plantation establishment, a new model being promoted is distributed plantations, in which companies aggregate supply through trees grown by smallholders on farmer's land, as well as other models such as bamboo plantations and mixed species plantations. The extent to which the new approaches will be effective in changing smallholder behaviour and achieving social and environmental outcomes requires attention in design, as well as monitoring and evaluation, because there are potential risks include early cutting of planted trees, as well as potential gender risks, where project designs insufficiently address prevailing gender inequalities, e.g. in household gender division of labour, and access to resources and control of income, particularly where commercialisation processes are occurring in agricultural production.

Potential success factors for Forest-Landscape restoration have been identified from emerging experience, including a set of enabling environment conditions and programme design and implementation features. It is highly relevant to consider restoration initiatives as part of a landscape approach, integrated with Produce-Protect initiatives as well as EC measures, to make the enabling context more conducive, although we note that P4F initiatives are also viewed by the programme as a way of demonstrating success and using this to build political support over time for wider changes in enabling conditions.

Probable success factors which can be distilled from the literature relate to enabling conditions and specific design features, of which the following is a summary - more details are provided in Tables 2A and 2B below, and guidance documentation in Table 3.

- Enabling conditions: supportive policies; clear and secure tenure rights, effective laws and law enforcement; empowered local and indigenous communities; sustained political commitment.
- Design and implementation features: flexibility to cope with changing conditions; working at the landscape scale; long-term strategies, short-term benefits focus and exit strategies; facilitation of high-quality stakeholder participation, strengthening of local governance structures, enhanced efforts to accommodate plural cultural values and strengthening of the capacity of all landscape actors (civic, government, private sector); selection of socially and ecologically appropriate restoration opportunities, techniques and infrastructure; use of appropriate tree seeds and species; recognition of the complementarity of restoration and protection approaches in the landscape; creating effective incentive systems.

Some landscape initiatives seek to improve the enabling conditions as part of the Forest-Landscape Restoration initiative, this includes many of the P4F projects on restoration in landscapes. However, questions remain about how effective interventions are, and in some cases, there are gaps, with respect to issues such as tenure rights and law enforcement. Landscape level forest restoration initiatives are relatively new, and more evidence will be needed on their ecological effectiveness and the extent to which they can deliver equitable outcomes. They involve a complex balancing of diverse land uses in a mosaic arrangement.

It is worth emphasising the complementarity of restoration and Produce-Protect approaches in landscape initiatives. Avoiding the further reduction of natural forest cover should be a goal in FLR, by addressing the on-going loss and conversion of primary and secondary natural forest and ensuring that newly reforested areas and farms will also be sustained. There is a clear linkage here to Produce-Protect approaches, as well as more traditional public and community-based forest protection approaches. Evidence of effectiveness of Produce-

Protect mechanisms is limited and there are risks of exacerbating degradation as a result of increased agricultural intensification.

Table 2A: Supportive Enabling Environment Features for Forest-Landscape Restoration (FLR) initiatives	
Enabling environment	
Supportive Policies	Coordinated use of diverse policy instruments and responses at different levels. Communication of the 'restoration case' and successes at all levels to levels to build support, but also transparent sharing of under-achievements and failures. Coordination between sectors and ministries with responsibility for land and natural resources, including integration of agriculture and environmental policies, and bridge building (e.g. between government functions and stakeholder group). Regional policies also need to be aligned to avoid displacement of land uses where environmental enforcement is weaker.
Clear and secure tenure rights	Land tenure arrangements strongly influence stakeholder incentives for restoration. Recognize the full diversity of stakeholders that may exist in a single landscape and identify divergences in interests and values. Insecure land / tree rights undermine farmers' willingness to invest in restoration, as they cannot be sure they will capture the benefits. FLR under common property regimes is more challenging than in private land title and corporate concession contexts. Restoration initiatives should seek to enhance and regulate community land rights, without changing prevailing customary tenure systems or transferring rights away from communities to companies. The process of strengthening community land rights can also enhance community engagement in FLR.
Effective laws and law enforcement	Effective law enforcement is needed to ensure that areas under restoration are protected. Identify potential avenues for strengthening law enforcement systems.
Local and indigenous communities are empowered	Local and indigenous communities need to be sufficiently organised and empowered to benefit from restoration activities e.g. they have bargaining power to achieve fair value chains with corporate partners, and they can participate and have voice in landscape decision-making, which may require governance innovations and special measures to facilitate representation of the values of indigenous communities, particularly for the most marginal social groups.
Sustained political commitment and champions	Champions are required to inspire politicians and other decision-makers to support restoration approaches. Political commitment must be sustained over the long-term to protect newly restoring and restored forests.

Table 2B: Design & Implementation Features	
Flexibility to respond to changing conditions	Tailor restoration initiatives to local conditions, including ecological, socio-economic, cultural and political context, as conditions change over time. Flexibility in governance arrangements is needed, because climate change many render long-established land management / restoration practices unviable. New land uses, landscape status, restoration needs, and social actors may also emerge over time. Adopt an adaptive management approach: Enabling learning from high quality monitoring and research to identify / implement adjustments as environmental conditions, human knowledge and societal values change. MEL

	systems require sustainable, adequate financing to enable surveillance (identifying undesirable changes so they can be stopped), checking management implementation follows agreed plans and contracts, effectiveness of management implementation in achieving desired goals and social and ecological benefits, trade-offs and unintended consequences. Tree planting initiatives should be monitored, not only for hectares planted and seedling survival rates, but also genetic diversity levels. Remote sensing, mobile applications, open access data and decision-support platforms exist. Decision-support tools tend to focus on biophysical aspects, but more integrated tools are being developed combining socio- ecological dimensions. Baselines are needed to establish progress. Community participation is essential in monitoring, including in knowledge creation/sharing. MEL is also necessary for companies making claims about land investments[1].
Working at the landscape scale with a landscape vision	Consider and restore entire landscapes, not just individual sites, which often entails balancing a mosaic of inter-dependent land uses. Smaller-scale interventions should be coherent with landscape-scale objectives. Landscape vision is an important leading indicator of mindset shifts (part of the capacity changes needed for successful restoration). However, this landscape vision and capabilities also need to be made concrete, for example by including in restoration actor contracts and agreements.
Understand and address key trade-offs. Adopt long-term strategies, but consider short-term benefits and have an exit strategy	Forest-Landscape restoration is inherently a long-term process, requiring long-term commitments and strategies, underpinned by appropriate, long-term financing mechanisms. Successive phases of landscape initiatives can be funded and implemented, building up an initiative into a comprehensive programme. Lead organisations need to ensure short-term benefits to change landscape actor behaviours (smallholders and larger land owners, companies, governments) and longer-term sustainability, including building-in proper exit strategies. Use decision-support tools to identify key trades and to prioritize the key ecosystem services to be restored. This analysis should ensure a clear focus on delivering short term benefits for producers or bridging finance mechanisms and keep in view multiple cultural valuations of forest resources.
Facilitation of high-quality stakeholder participation, strengthening of local governance structures, enhanced efforts to accommodate plural cultural values, and capacity strengthening of all landscape actors	FLR success is predicated upon multi-stakeholder participation in identifying restoration goals and implementation. Local governance systems require strengthening so more stakeholders can participate in decision-making to balance competing interests and values. Capacity strengthening is needed amongst all landscape actors (governmental, civic and private sector). National level decision-makers need a better appreciation of the economic value of multi-functional landscapes. Landscape participatory planning / coordination is needed, but beyond individual and organisational capacity strengthening, new institutional spaces are required for decision-making. Formal multi-stakeholder dialogues and platforms have tended to take centre-stage, but broader trust and social capital building is also important. The extent to which stakeholder processes in landscape initiatives can facilitate dialogue, shared understanding,

---

[1] Possible ecological indicators for FLR monitoring are: Extent of forest cover; Compositional and structural diversity; Carbon storage in various above ground and below ground components; Surface water yield and quality; Groundwater recharge and quality; Groundwater recharge and quality; Biodiversity (flora and fauna); Key flora and fauna habitats; Recreational opportunities; Non-timber forest products; Jobs; Household income; Food security. Ecological indicators are grouped under functional diversity, composition and structural diversity. (ROMA tool, ref).

collaboration and trust, rather than adversarial negotiation and elite capture of benefits in contexts of power asymmetries remains to be seen. Land users, land owners and downstream communities all have a role in landscape governance processes. Customary leaders and local authorities should be fully engaged, but ownership is not always clear and support for *within* community dialogues and bargaining and community legal empowerment may be advisable. Affirmative measures can help ensure the active participation and influence of more marginal actors in FLR processes: Local and indigenous knowledge can be sidelined in negotiation processes by scientific and technical expertise, constraining local land user agency. Such processes can struggle to accommodate the spiritual and cultural importance of forests to local communities, and this requires greater attention in FLR approaches. FLR social outcomes should be explored and evaluated from a development perspective, not only from an instrumental corporate perspective. Freedom of choice and action is relevant in this regard.

Selection of socially and ecologically appropriate restoration opportunities, techniques and infrastructure in design processes.	There is a raft of new, practical guidance available to guide restoration initiatives from guidance for national planning processes and the identification of appropriate, specific restoration landscape opportunities and the development of detailed project designs. FLR initiatives should fit ecological conditions, but also local preferences and consideration of the cost- effectiveness for local land users. In the design process, a wide range of eligible technical strategies for restoring trees in the landscape should be considered, ranging from natural regeneration to tree planting. They should also include education on the negative effects of resource depletion and ecosystem degradation, as well as positive incentive measures for local land users (e.g. to support tree planting and SLM measures), as well as Produce-Protect measures. New decision-tools, such as the SI Toolkit could be helpful[2], as well as dedicated manuals and guidance on FLR: See table 3 below.
Use of appropriate tree seeds and species and effective restoration advisory and extension services	Planting of unsuitable tree seeds or seedlings has undone many previous restoration efforts. Species and seed sources must be suited to local site conditions and sufficiently genetically diverse to be self-sustaining, even as environmental conditions change. As well as the right combination of native species, it is important that well-adapted, diverse seeds sources *within species* are found, i.e. adequate in-species diversity. This requires collecting seed from enough trees per population of each species and measures to avoid loss of diversity in nursery practices, such as retaining slower growing or smaller seedlings. Delivery systems for such diverse, adapted and high-quality tree seeds and planting material are weak and require long-term planning and support for scaling. Key steps for ecological success in restoration initiatives are: a) Defining objectives, identifying planting locations and sources of planting material. For the latter, it is necessary to determine seed collection zones for target species based on ecological classification or field trial results to ensure planting material can be matched to planting sites; b) Collection of seeds from large, healthy, diverse populations of target species must be planned and carried out with ample time to collect when seed production is high and to grow seedlings in local nurseries; c) Setting up tree nurseries (new local nurseries may be needed to produce enough volume of native tree seedlings); d) Managing planting stock, planting, and monitoring. Local specialists generating knowledge on how to restore lands effectively, tailored to local context, are important, as are effective advisory and extension services which can support effective restoration. The latter need to be adequately gender-sensitive. Access

---

[2] https://sitoolkit.com/how-to-use-the-assessment-framework

to strong land tenure is vital for smallholders in encouraging them to invest in sustainable land management practices, including natural regeneration as well as tree planting.

Creating effective governance systems and incentive and disincentive systems	Changing behaviour requires, *inter alia*, appropriate and effective incentives and disincentives for restoration appropriate to different stakeholder groups and outweighing negative incentives. Market-based approaches include credit lines, insurance policies, and future contracts that reward adoption of more sustainable land management practices, payments for ecosystem services and conservation tenders, biodiversity offsets, and farm subsidies. One model sees forest-product value chains motivating restoration and protecting remaining pockets of standing forest, but this requires a sufficiently strong business case both for companies and for smallholders and harvesters (benefits/fair value chain relations). Institutional capacity and context-specific governance mechanisms are needed for these to be successful. Eliminating perverse incentives (e.g. subsidies for unsustainable land use and production) and establishing positive incentives for sustainable land management is very important (e.g. strengthening regulations to internalize the costs of unsustainable land use and production in prices). Policies may be needed that legally oblige landholders to initiate and track restoration on private lands. Non-market-based approaches include joint mitigation and adaptation mechanisms, justice-based initiatives, and ecosystem-based adaptation and integrated water co-management schemes. Effective governance systems will be needed in Forest-Landscape Restoration approaches – see the Produce-Protect Thematic Study for more details. Fair value chain relations are important to ensure that new business models are not exploitative, leading to adverse terms of smallholder and community incorporation into global value chains. New innovations using blockchain for transparent, smart contracts between ethical buyers, forestry companies and producers could be considered.

Table 3: Emerging Forest Landscape Restoration Guidance

FLR Guidance	Description	Target Audience
Restoration Opportunity Assessment Methodology (ROAM) [3]	Primarily to support broad national planning processes, including building a shared understanding of restoration and the value of multi-functional landscapes amongst decision-makers and land managers, and rapid identification of restoration opportunities at national and sub-national levels.	Government policy makers, planners and land managers.
Forest Landscape Assessment Tool (FLAT) [4]	Primarily focused on ecological assessment of baseline conditions and the identification of potential threats to forest ecosystems and restoration needs.	Planners and managers

---

[3] http://www.bonnchallenge.org/content/restoration-opportunities-assessment-methodology-roam) (IUCN/WRI 2014).
[4] https://www.treesearch.fs.fed.us/pubs/53245

Implementing Forest Landscape Restoration: A Practitioner's Guide	Practical guidance on how to deal with the complex realities, account for uncertainties and unexpected changes in the project environment and to develop a consistent strategy for implementation at different scales (From global restoration goal setting, to national level priorities and landscape opportunities and detailed project planning – the latter being the most critical scale for assessing baseline conditions, holding stakeholder consultations on specific objectives, developing operational planning, monitoring progress and adjusting for subsequent project interventions.	Practitioners & facilitators working in a local context to restore a specific landscape. Policymakers / practitioners considering FLR commitments to gain an understanding of the complexities of actual implementation
World Resources Institute analytical framework and landscape restoration diagnostic	Based on a review of historical experience, the WRI have designed a stand-alone tool, as a component of the ROAM methodology. There are 3 key steps in which users define the scope or geographic boundary, conduct an assessment to identify if key success factors are in place. Users identify which policies, incentives, and practices would address the missing factors.	For use by mid-level managers, and analysts supporting such managers. Relevant government agencies are a key user group. NGOs, landowners and companies can use the tool as well. Companies with responsibilities for restoration in post-extraction contexts can use this as a diagnostic tool.

Results from the Assessment of Selected P4F Projects

This section assesses the extent to which P4F projects address relevant challenges and success factors in their design and early implementation (related to MEL questions 3 and 4).

An assessment framework was developed based on the literature review, in line with the overall conceptual framework of the thematic studies (Annex 1). The EM review team used the assessment framework to review the documentation of 6 selected P4F projects and thereby gain insights into the extent to which the identified key issues were covered. Table 1 lists the 7 projects included in the assessment; in addition to the project concept notes, multiple additional documents were available for these projects, including market studies, feasibility and baseline studies and monitoring reports.

Table 4 shows the summary of the project assessments using the assessment framework in Annex 1, applying a four-level rating level. See also Annex 2 for a more detailed analysis of the selected P4F projects under restoration. P4F provides catalytic finance to advance private sector business models which can support the achievement of forest-related goals even in the absence of some of these enabling conditions and the hypothesis is that this can contribute to building political support over time for supportive governance and policy changes. The analysis below is based on project documentation and engagement with project staff. The thematic studies will be followed by evaluative case studies focused on clusters of P4F projects to evaluate the P4F projects' effectiveness and impact using appropriate theories of change and interrogating the underlying assumptions.

Table 4: Summary of Restoration Project Assessments, with rating and comments

Legend of rating	
	Sufficiently addressed in all projects
	Largely addressed in most projects
	Partly addressed in a few projects
	Weakly addressed or unaddressed in all or most projects

Component	Key issues or success factors	Rating of project assessments	
		Rate	Comments
1. Restoration activities at farm and landscape level	1.1 Producers and/or processors are sufficiently organized or aggregated to access markets and support services relevant to restoration & bargaining power		Generally, limited attention paid to farmer organisations, especially with consideration to issues of governance and business management capacity strengthening and bargaining power.
	1.2 Proven effectiveness of the promoted restoration practices and technologies to increase productivity of plantations, improved agroforestry, natural regeneration and SLM measures and create a business case for producers to adopt		Insufficient attention, because there are assumptions that restoration will lead to relatively rapid benefits. There is a tendency to use rapidly growing trees which maximizes early material benefits (e.g. timber) but does not maximize soil restoration. Plus, the risk of over-harvesting to deliver rapid returns exists, which may also undermine the realization of anticipated ecological effects. There is strong experience in cocoa shade tree agroforestry practices in cocoa.
	1.3 Analysis whether the set of incentives (revenues from production increase, as well as other livelihood benefits, e.g. premium, alternative incomes, carbon credits, social services) is enough to generate a living income and outweigh non-sustainable livelihood options.		This is often a weak point because it is uncertain to what extent the results of restoration can generate incomes that will be of adequate scale, and at what time scale these will become available. Multiple revenue streams may be required, but unclear if these will be implemented in the same geographic localities.
	1.4 Business case for landscape managers (for restoration as well as avoided degradation).		Business case analysed for private company concession holders in ERCs, RLU, and charcoal case, and shown to have good potential. Not relevant to smallholders growing trees or conducting SLMs on own farms
	1.5 Established or formalized tree and land rights and management responsibilities for producers		Overall, limited attention is paid to community land or tree ownership. More attention required to establish if there are potential issues of exclusion in situations of overlapping and unclear tenure, including gender issues
2. Markets and value	2.1 Market demand for the products and services targeted for products resulting from restoration		Good market analysis conducted on crops from restoration areas that can potentially be marketed.

chain relations	2.2 Agreements with a service provider to provide necessary inputs, knowledge and finance to support productivity increase	🟩	Service provision is covered in some detail. Limited information available on adaptive quality of tree seedlings and seeds in the light of the changing climate.
3. Sustainable forest restoration at landscape level	3.1 Effective land use planning process including initial assessments of suitability of the forest area for restoration and designs which address root causes	🟩	Overall, except for the Komaza case, land use planning processes appear to be well covered.
	3.2 Effective support for community-based land and forest management organisations	🟧	In several cases community-based management would appear to be relevant, but it does not receive much attention. In other cases, it is less relevant e.g. Komaza, where farmers are planting on own fields.
	3.3 Multi-stakeholder processes and initiatives, including community involvement in forest management platforms.	🟧	Relevant in restoration in landscape-based approaches, where local and indigenous community participation in restoration planning and implementation is important. Often not relevant as the focus is on privately owned lands, such as ERC concessions held by private companies, or individual smallholder plots.
	3.4 Presence of a regional or landscape level territorial or jurisdictional plan and associated governance system for landscape-based restoration initiatives	⬜	Often not relevant as the focus here is on privately owned lands or privately held concessions.
	3.5 Government and civil society role	🟧	Very variable. Not always clear if NGOs involved or not and if so, in what capacity. In several cases NGOs are mentioned, yet there could be issues of dependency when there is no NGO to support local farmers/communities as honest broker and to support fair contracts and value chain relations. Government involvement appears limited except in RLU case.
4. Linkages between forest restoration and protection	4.1 Risk assessment that addresses relevant risks of enhanced restoration and resulting productivity increase.	🟥	An assessment of ecological and community-based risks is often missing. The most important risks identified: over harvesting, attracting migrants into the restoration area, conflicts at community level if benefits are not shared, revenues leading to increased pressures on forests.
	4.2 Well-defined mechanisms on how incentives are conditional on forest conservation requirements, with disincentives (e.g. penalties or costs for non-compliance) or enforceable sanctions for non-compliance.	🟥	Concrete agreements or contracts including the relationship between incentives and compliance with protection regulations, and the issue of law enforcement, should be included. In all reviewed restoration projects these are missing.
	4.3 A robust monitoring or surveillance system to assess the effects of restoration initiatives taking place.	🟧	There are variable efforts to plan and fund such systems. The question is whether the resources are available to carry out the patrolling or monitoring. This could / should be part of the P4F funding.
5. Learning and potential for scaling	5.1 Systems and capacities are in place to draw lessons on the effectiveness of restoration initiatives.	🟥	Generally, there is a lack of attention to learning systems and measures.
	5.2 Scaling mechanisms are defined if there is potential for restoration initiatives within the wider landscape.	🟧	The projects often include a rather simplistic interpretation of scaling, understood as replication, which may not be effective given the variable contexts for restoration.

Main Insights from Overall Study

The following insights and recommendations have emerged from the literature review, expert interviews and the assessment of selected P4F projects, with reference to the MEL questions.

Priority insights and resulting recommendations

1. *A diversity of new business models is emerging that are aimed at catalysing land restoration, triggered by increasing land scarcity and business opportunities. Many of these initiatives form a mosaic with other initiatives at the landscape level, especially Produce-Protect initiatives, to reduce pressure on remaining forests.*

The analysis of the projects finds diverse new sustainable business models being promoted within the restoration theory of change. Each implies a different set of causal steps and assumptions. Theories of change for 'type of restoration approach' can be developed, to inform new project designs, as well as monitoring, evaluation and learning. The main types identified in the P4F programme to date are as follows, although other business models will emerge as P4F-supported investment funds, such as the Tree Fund, come on stream:

   a. **Forest-Landscape Restoration:** In mosaic landscapes, plantation companies restore areas via widescale plantations and/or act as a nucleus giving support to the development of smallholders/community plantations which are supported by companies as part of a produce-protect initiative (outgrower-type schemes, plasma schemes). In these cases, restoration of degraded lands is explicitly meant to reduce pressure from forests. [Protection elements also likely to be part of the integrated landscape approach, e.g. disincentives to prevent encroachment into standing forest, governance innovations for forest management and protection etc.]
   b. **Smallholder timber contract production schemes:** Smallholders are encouraged to plant trees on their own farms at scale. They are facilitated by a commercial forestry company which provides inputs, extension, undertakes monitoring and agrees to be the off-taker**.**
   c. **Contingent credit schemes incentivizing smallholder sustainable land management practices:** Sequenced amounts of credit are provided to smallholders, once each farmer has implemented SLM measures on their own farms, such as Climate Smart Agriculture practices. The system works via an online platform (technology-enabled) and via intermediary organisations.
   d. **Landscape based restoration on degraded lands in private concessions (ERCs):** In some cases, private companies hold land concessions for restoration of degraded lands. Smallholders/harvesters and communities may be involved in terms of harvesting forest products (multiple HVLI). Degraded parts of concession allowed to regrow and/or tree planting and protection measures.

2. *Restoration may have the image of being inherently positive, but the literature shows that positive social and ecological outcomes, as well as business benefits, depend upon several assumptions underpinning each restoration model. There are trade-offs as well as synergies, and both should be clearly identified and addressed at design stage and monitoring during implementation.*

Trade-offs between social, environmental and economic aspects of restoration initiatives should be identified, to reveal synergies and benefits, but also potential trade-offs and risks. Good quality monitoring connected to adaptive management decision-making is also a key element for success. Five

types of risks can be identified, but there may be others: planting inappropriate types of trees; too early or over harvesting to acquire quick monetary returns from restored lands thus hampering land restoration; attracting migrants into the restoration area; conflicts at community level if benefits are not shared; and revenues leading to increased pressures on forests.

3. *Insights on the key elements for success in <u>Forest-Landscape Restoration</u> (type A) are emerging, several of which are associated with enabling conditions. Transformative change can be achieved by addressing the root causes of land degradation which are often found in policy and institutional spheres. All of this emphasizes the relevance of P4F support to enabling conditions as part of the restoration portfolio.*

A review of the literature identifies a set of enabling conditions and design/implementation features which are likely to be required for success. There are key enabling conditions such as supportive policies, strong land and property rights, effective laws and law enforcement, producer and community empowerment and sustained political support. These need to be in place or measures taken if they are absent or weak, but individual developmental initiatives may have limited influence. Actions should be considered to strengthen the enabling context and at least to understand the associated risks and the extent to which they undermine the long-term success of the programme. Building sustained political support, for example, is highly challenging, but efforts could be made to share and communicate successes such as benefits for smallholders, which could build the political and public case for support to restoration.

Each restoration initiative requires its own transformation strategy covering scaling (e.g. adaptation by other smallholders and companies) and systemic changes (e.g. changes in the enabling environment, such as policy reforms, public procurement support, etc) from the outset. This will help identify design features to maximize opportunities for transformational change and reveal to designers and implementers the potential risks that scaling and systemic change may not be the result of the intervention.

4. *Insights on the key elements for success in <u>Forest-Landscape Restoration</u> initiatives are emerging, including design and implementation features, some of which do not appear to receive sufficient attention in the current set of selected P4F restoration projects, such as community-based land management and well governed producer organisations.*

Key design features include developing flexibility in institutions for sustainable forest governance, including robust real-time outcomes and trade-offs monitoring based on community participation, the development of effective incentive systems, especially with attention to short-term benefits for smallholders and access to credit and bridging mechanisms. Ensuring smallholders have access to restoration inputs, such as appropriate adaptive species, especially through effective community nurseries is also important.

Even existing producer organisations often have capacity gaps, e.g. they may not be well governed or provide their members with high-quality services, or they may be unable to cope with the increased revenues and profits arising from P4F support. Effective governance is a key factor: many examples exist in international development of organisations collapsing due to, for example, elite capture, mismanagement and poor service delivery. In contexts, where contract production is effectively the business model, as in the Komaza timber contract production case, attention needs to be paid to how farmers can achieve *fair* contracts, given the inherent dependency they will experience being reliant upon one forestry company buyer.

5. *Restoration projects face the key challenge of generating short term benefits for communities and land owners who have made investments in sustainable land management practices, while not hampering the build-up of biomass and restoration of ecosystem services.*

If farmers cut trees early, then the desired environmental outcomes will not be realised. If a project cannot deliver these, then there are major risks of not achieving the set goals. Access to credit may be

a key issue on accessing services such as finance and extension advice, but also in terms of potential negative impacts, e.g. on women's work (e.g. if they are expected to collect water and tend to new tree seedlings), access to land etc. Financial mechanisms exist that allow land owners to overcome the transition period during which the land should be left for recovery and restoration, with avoidance of early harvesting, such as insurance schemes.

6. *Restoration initiatives can contribute to more sustainable forest management and forest protection but would then require concrete agreements or contracts covering the relationships between conditional services or incentives and compliance with protection regulations. Contracts should also deliver fair trading relationships between individual producers or groups of producers and companies. We have not come across such guidance for companies and producers in the selected P4F projects.*

More analysis is needed at design phase to ensure that there is a strong and plausible theory of change linking project interventions to the interconnected social and environmental outcomes. This is particularly the case in Forest-Landscape Restoration projects, but it is also relevant for ones that are based upon incentivizing large numbers of individual smallholders to act, where the ultimate aims are about ensuring forest protection and avoiding land degradation etc. For example, it is not always sufficiently clear how new incentives for restoration through active tree planting or natural restoration methods, will reduce pressure on remaining forests. In fact, there is a risk that clearance could leak elsewhere, or that producers have higher incomes which enable them to conduct *more* encroachment, undermining the achievement of forest-related goals. To mitigate this, the *conditionality* of incentives and disincentives need to be clearly articulated at the design stage and plans for ensuring adequate law enforcement for remaining standing forests considered. Further, monitoring systems should not only serve to monitor tree growth to assure the company and their investors, but there is also a public good need for social and broader environmental monitoring. Contracts and agreements should also address issues of fair-trading relations to avoid risks of exploitative business models being devised and scaled.

7. *New business models for smallholder engagement in farmland restoration include smallholder timber contract production schemes or contingent credit models. These models should assure that incentives are in place for smallholders to adopt sustainable land management practices, including tree planting, but they certain success factors should be addressed, with tailoring of extension advice to context, capacity strengthening for producers and attention to fair contracts and gender issues.*

Smallholder adoption in Sub-Saharan Africa, and elsewhere, has been hindered in the past by smallholders' limited resources and access to services and inputs, creating weak motivation for uptake. The changing climate can also be a challenge (e.g. dry spells can make it harder for tree seedlings to survive). Newly emerging business models seek to overcome adoption challenges either by: a) the use of technology and contingent credit enabling and incentivizing smallholders to implement climate smart agricultural practices or through b) contract production models for smallholder timber growing which avoid the transfer of land from communities to companies thus avoiding land conflicts in contexts of complex land tenure systems, and ensuring farmers have adequate access to inputs, monitoring and offtake agreements. In the contract timber smallholder production model, more attention should be paid to the following: a) producer organisation and bargaining power and/or measures to ensuring fair contracts and short-term benefits, b) access to credit to avoid early cutting of planted trees, c) a wider landscape vision, including contingent protection measures (incentives, disincentives, governance *systems)* integrated into concrete contracts and agreements. Gender issues should be noted, such as gender division of labour and differential access to resources and control of income.

A scaled-up business model approach such as Contingent Credit works on a highly individualized basis with individual farming households. The proposed model does not envision a linkage to wider, participatory, landscape governance and land use planning processes, but this is likely to be a key factor in ensuring that the cumulative practices of adopting farmers produces desirable outcomes at the wider landscape scale. There are also potential gender issues with respect to labour, access to natural resources and control of agricultural incomes. There are certain risks of approaches being overly prescriptive which may require mitigation.

8. ***Ecosystem Restoration Concession (ERC) approaches to restoration offer the potential to restore degraded lands, with different high value, low intensity products and supported by new financing mechanisms.***

Examples of potential risks associated with ERCs are that benefits may not be of adequate magnitude to incentivize local land owner/manager protection of standing forests and investment in restoration activities. In the Ecosystem Restoration Concession business approach, the model is based on private corporate concessions, but a landscape scale vision is still desirable and attention to whether multiple incentives can be aligned of adequate scale to shift overall behaviours in the landscape. Building new value chains takes time and requires adaptive accompaniment to ensure that there is good chain coordination, and fair value chain contracts and relations. The application of new technologies, such as blockchain, should be explored for direct trade and contract production models in which smart contracts are formed and made transparent.

9. ***Transformative change comprises both scaling measures, such as corporate uptake and 'crowding in', but also response measures by governments. In restoration approaches, governments need to provide the right enabling environments, addressing the root causes of land degradation. But each project should consider its own transformation strategy.***

Forest-Landscape Restoration approaches seek to address root causes by changing the balance of incentives for land users and owners, and these must be clearly linked to forest protection and good forest governance systems. FLRs cannot be simply replicated as they involve the weaving together of new relationships and interests, embedded in changing institutional, political, social and ecological contexts. The design of new Forest Landscape Restoration (FLR) initiatives can build on emerging success factors. Some critics raise the question of the market logic which drives new interest in landscape approaches, suggesting that it necessarily reshapes local community values and ways of seeing the forest into a set of interests for negotiation. This challenge requires attention to participatory, bottom up engagement which could possibly address such issues. Scaling is an inherent feature in the new business models for engaging individual smallholders. They offer the potential to avoid challenges of land rights transfers which have bedevilled so many agri-forest business investments to date, and to harness new technologies to reach dispersed farmers with new access to services, information and inputs. It is important to mitigate the risks that the business models may not be sufficiently attractive to smallholders if they do not generate adequate short-term incomes or deliver fair returns. Each restoration initiative requires its own *transformation strategy* covering scaling (e.g. adaptation by other smallholders and companies) and systemic changes (e.g. changes in the enabling environment, such as policy reforms, public procurement support, etc) from the outset. This will help identify design features to maximize opportunities for transformational change. Note that Forest-Landscape approaches cannot simply be copied and replicated from one location to the next; more, investment is needed that can support a multiplicity of landscape initiatives which build on emerging key principles for success. Integration of strong learning-feedback loops across the landscape system is a key component to allow for course correction, especially as external conditions change and to optimize changes of transformative change.

10. ***Gender and social difference analysis is relevant for restoration initiatives because it should be avoided that restoration initiatives rely upon women's labour, and on the other had women and different social groups should benefit from improved productivity following successful restoration.***

Gender and social difference issues are important cross landscape-based approaches, restoration concession business models, and new business models predicated on reaching and engaging individual smallholders who have limited resources to engage in timber contract production or contingent credit for smallholder uptake of Sustainable Land Management measures. Value chain development particularly in export commodities carries risks of exacerbating women's work and excluding them from access to resources and control of income from newly commercialized crops. Given the risks involved in any business models that seek to change 'farmer' behaviour, it is important

that a more sophisticated analysis is conducted to identify potential risks and mitigation strategies, and potentially to change designs or portfolio investment strategies.

Discussion on Study Questions

What does wider evidence tell us about the effectiveness of restoration activities and strategies to create value with forest re-growth?

The economic benefits of sustainable land management practices and / or restoration actions have been shown to exceed their costs in many places, but levels of effectiveness are context-dependent. There are diverse potential benefits for local farmers, companies, and governments. Available research suggests positive social outcomes can be achieved, especially where rural households are dependent upon forests for their livelihoods, including farm level benefits, such as enhanced shade or provision of fodder, wider benefits for communities from restored forests, such as an enhanced supply of timber and game, increased jobs in tree nurseries, increased social cohesion from stakeholder engagement processes, and global public goods such as biodiversity conservation, climate protection and improved water and food security etc. There is also evidence that Sustainable Land Management (SLM) practices, such as grazing pressure management, agroecology, conservation agriculture, and sustainable intensification, can avoid or reduce the degradation of crop- and grazing lands. Effectiveness depends upon context-specific design, which takes into account the nature, extent and severity of existing degradation drivers and the biophysical, social, economic and political contexts in question. Evidence shows that local and indigenous knowledge and community-based natural resource management systems have been effective in many regions of the world. Many SLMs generate net climate benefits. However, there are also risks: poor implementation can exacerbate land degradation or attract migrants thus enhancing pressure on scarce natural resources, while poor plant selection may incur biodiversity losses. This means that the trade-offs involved can be complex, particularly where interventions are being planned on the landscape rather than farm level scale. The evidence is inconclusive on passive versus natural regeneration approaches.

Which reforestation mechanisms are the most effective at creating additional value according to the available evidence? What are the key success factors (or key issues) in terms of enabling conditions (e.g. pre-existing context) and internal design factors?

There are five key enabling conditions: appropriate policies, local and indigenous community empowerment, good laws and law enforcement, sustained political support, strong and clear land and tree tenure systems. Measures to address and analysis of risks to delivery should consider all five dimensions. There are numerous design and implementation features identified in the literature and which emerge from an analysis of the P4F cases. These include: Each Forest-Landscape Restoration Initiative requires a tailored approach and simple replication is not feasible. However, design and implementation features, which are likely to enhance success are emerging. These include: i) building in flexibility to governance systems and adaptive monitoring to take account of changing conditions over long-term restoration timescales; ii) planning and implementing restoration on landscape scales, including concrete measures on linked incentive and disincentive mechanisms and fair value chain relations, which are integrated into contracts; iii) Understanding and addressing trade-offs, balancing short and long term benefits, with appropriate financial mechanisms to support short-term benefits for landowners; iv) facilitation of high quality stakeholder participation processes and attention to multiple plural values; v) selection of ecologically appropriate restoration opportunities, techniques and infrastructure in design; vi) Use of appropriate tree seeds and species and effective restoration advisory and extension services; viii) create effective governance, and linked incentive and disincentive systems. Other issues arise with respect to the newer business models based upon individualized smallholder engagement in restoration, via commercial forestry companies (contract production schemes for timber) or tech-enabled platforms for conditional credit provision, incentivizing sustainable land management practices. Issues such as the avoidance of overly prescriptive recommendations for smallholders operating in situations of increasing uncertainty, aspects of gender, and women's access to and control

of livelihood assets, including labour, land, credit and income. For Ecosystem Restoration Concessions, the success factors for HVLI, e.g. building strong producer groups, establishing fair value chain relations and contracts, and Forest-Landscape Restoration, e.g. real-time monitoring, linked incentives and disincentives, are relevant.

How far do the selected P4F FPs effectively integrate the identified success factors (so far as these are currently known) in terms of project design? To what extent are these success factors addressed by relevant DSM or EC measures?

A detailed assessment of selected FPs and related EC measures demonstrated that several key issues for effective restoration, as emerging from the literature review are being addressed, such as the development of a strong business cases for participating catalyst companies. However, the assessment also shows that more attention is required for a set of key issues, especially measures to avoid that restoration benefits lead to increased pressure or encroachment on standing forest, rather than reduced pressure. In some cases other development actors may be working on these issues and in some instances the P4F initiative may be effective despite an unfavourable environment. The P4F evaluative case studies will explore which conditions are essential for success. Other issues that require attention are related to producer organisation and fair contracts, and to delivering and balancing short-term benefits with longer-term goals. Analysing trade-offs and using relevant decision-support tools is recommended. In initiatives facilitating cumulative action by multiple smallholders, it is important to ensure that the trade-offs and analysis considers the cumulative impact of their actions at the landscape scale and fits within the wider vision and governance mechanisms for the landscape. In Ecosystem Restoration Concessions, more attention should be paid to certain critical assumptions, such as incentives for smallholders being adequate and fair to incentivize participation in the new value chains developed, and avoiding risks of encroachment from non-participating migrants.

What is the potential of the different restoration activities in terms of scaling?

Forest-Landscape Restoration initiatives cannot be simply replicated. In each landscape, the work must be done to build up the relevant networks, collaborations and institutions for collaboration and multi-stakeholder participation in governance. However, lessons can be learned about what works under different conditions. Each landscape initiative should integrate real time monitoring for adaptive management to ensure success and the entire initiative requires long-term, sustainable financing. In the individualized smallholder engagement business models, scaling is part of the approach, enabled by new technologies. However, it is important to monitor the processes by which different types of companies crowd in, where companies are involved, as in contract production systems, and the nature of farmers' practice changes: Rather than to assume straightforward 'adoption' will be the norm, farmers may, quite rightly, partially adopt, adapt, innovate, reject sustainable land management sets of technologies, because farmers are operating in contexts of uncertainty and change and this will affect the impacts achieved.

What lessons can be learned from the restoration initiatives, relevant for this P4F intervention area, or relevant for the P4F programme as a whole? What lessons are there for the wider community of practice working to combat deforestation?

The lessons on the potential and risks of restoration approaches and the complex trade-offs involved are summarized above and are relevant both for the P4F programme, but also for the wider community of practice working on landscape, ecosystem concession and individual smallholder restoration.

Potential Application of Learning Tools

- The assessment framework can be used by P4F to identify new projects for the pipeline and to make rapid assessments of their suitability.

- In design processes, the assessment framework could enable P4F and Forest Partners to identify key measures to achieve supportive enabling conditions, and effective design and implementation based on good practice principles.

- The assessment framework can be used in informing project and portfolio monitoring and evidence-based learning. The assessment framework could be used to guide data collection and lesson-learning, particularly on early project outcomes on capacity strengthening and behaviour changes among key actors and to test theories of change and associated assumptions. Such data collection and lesson-learning could feed into programme-level monitoring and learning and support the identification of areas where additional interventions may be required in design, resourcing and management. The assessment framework could support P4F as it develops case studies to communicate successes and areas of under-achievement.

- The assessment framework can be used by P4F as it develops cases studies to communicate achievement of results, and to identify lessons on success and failure for sharing externally.

- The assessment framework will also be used by the EM to inform the indicator domain development and evaluative scales to test the theory of change for restoration (including the different sub-theories of change on different kinds of restoration).

Recommendations

The study comprises a literature review and expert interviews and, on this basis, developed an assessment framework and applied it to selected P4F projects. This process generated a wealth of information on key issues that are highly relevant to the P4F programme and its capacity to realise its objectives.

One main recommendation is the relevance of working with clusters of projects at landscape level, including restoration initiatives, Produce-Protect and EC initiatives. This is justified by the fact that restoration activities are often closely associated with value chains (timber, non-timber or agricultural products) in the same landscape, and a mosaic of related landscape initiatives appears to be most effective. In addition, the success of restoration activities is often closely related with enabling conditions. As such, a landscape-based theory of change would be relevant, including a combination of Restoration, Produce-Protect and EC initiatives.

It is recommended that the P4F programme, and potentially other project developers, use the assessment framework developed in previous and the current thematic study to:

1. **Identify projects for the pipeline, especially clusters of projects at landscape level including restoration initiatives in combination with PP and EC initiatives.** The assessment framework constitutes an initial guide to the conditions, success factors and issues to consider and can therefore help in the early identification and review of potential projects. For example, gap analyses on specific identified key issues can help determine the potential for a given type of project focus, partnership or EC measure. The EM review team, in close collaboration with P4F, could develop specific tools (e.g. checklists, gap analysis frameworks, opportunity and risk assessments) to support tailor-made designs. Existing internal assessment tools (e.g. T05) could be replaced or improved. The role of the EM review team would be to collaborate in developing effective tools and validating whether these work in practice, and possibly to provide regional teams with training on these tools.

2. **Support project design.** The P4F and other project developers could use the assessment framework to support the design of new project ideas, such as by providing checklists for design, and in the development of baseline studies. Specific tools could be developed to develop clusters of initiatives at landscape level, especially PP, restoration and EC oriented initiatives. Specific activities appear to be required for strengthening the governance capacity of producer organisations, landscape governance institutions and mechanisms to ensure linkages between restoration, protection and law enforcement objectives. The role of the EM review team would be to collaborate in developing effective tools and validating whether these work in practice, and possibly to provide regional teams with training on these tools.

3. **Conduct evaluative case studies.** The EM review team can use the results when designing evaluative case studies on selected clusters of projects to validate the theory of change of each strategic intervention area and to obtain an in-depth understanding of underlying mechanisms. Case studies will be selected among P4F projects and associated measures to address enabling conditions. Indicators, tools and frameworks will be developed for these studies and may include the use of scales and associated indicators for evaluating the performance, progress and contributions of the P4F programme. The evaluative case studies will generate evidence on key issues and assumptions in the restoration and wider landscape intervention area to inform P4F, DFID and the wider community of practice.

4. **Inform project and portfolio monitoring and evidence-based learning.** The assessment framework could be used to inform and advise the P4F MEL unit on data collection and lesson-learning, particularly for case studies and for monitoring of early outcomes (capacity

and behaviour changes of key actors). The collected data could feed into programme-level monitoring and learning and support the identification of areas where additional interventions may be required in design, resourcing and management. The EM review team could play a role in informing or facilitating communities of practice within the P4F programme and at a broader scale on specific key issues or themes, such as landscape governance.

Bibliography

Besseau, P., S. Graham, T. Christophersen (eds. 2018) *'Restoring forests and landscapes: the key to a sustainable future'.* Global Partnership on Forest and Landscape Restoration, Vienna, Austria. ISBN No: 978-3-902762-97-9

Biodiversity International (2015) *'Safeguarding investments in forest ecosystem restoration: Policy Brief'.*
https://www.bioversityinternational.org/fileadmin/user_upload/Policy_Brief_Restoration_Safeguarding_investments_2017.pdf

Chazdon, R. L., P. H.S. Brancalion, D. Lamb, L. Laestadius, M. Calmon, C. Kumar (2015) '*A Policy-Driven Knowledge Agenda for Global Forest and Landscape Restoration*' Conservation Letters, 10, 125-132.

Chazdon and Uriarte (2016) '*Incorporating natural regeneration in forest landscape restoration in tropical regions: synthesis and key research gaps.'* Biotropioca 48 (6); 915-924.

Cheyns, e., P.M. Aubert and L. Castanada-Silva (2019) 'Missing the forest for the data? Conflicting valuations of the forest and cultivable lands.'. Land Use Policy. 10.1016/j.landusepol.2018.08.042

Ciecko, L., D. Kimmett, J. Saunders, R. Katz**;** K.L. Wolf; O. Bazinet; J. Richardson; W. Brinkley**;** D.J. Blahna (2016) 'Forest Landscape Assessment Tool or FLAT'.
https://www.treesearch.fs.fed.us/pubs/53245.

Crouzeilles, R., M. S. Ferreira, R. L. Chazdon, D. B. Lindenmayer, J. B.B. Sansevero, L. Monteiro, A. Iribarrem, A. E. Latawiec, B. B.N. Strassburg (2017) *'Ecological restoration success is higher for natural regeneration than for active restoration in tropical forests*. Applied Ecology, Sci. Adv. 2017;3: e1701345

De Graaf et al, (2018) 'Factors influencing adoption and continued use of long-term soil and water conservation measures in five developing countries.' J. de Graaff, A. Amsalu, F. Bodna, A. Kessler, H. Posthumus, A. Tenge. Applied Geography 28 (2008) 271 – 280.

Ding, H., S. Faruqi, A. Wu, J.C. Altamirano, A. Anchondo Ortega, M. Verdone, R. Zamora Cristales, R. Chazdon and W. Vergara (x) 'Roots of Prosperity. The economics and finance of restoring land'. World Resources Institute.

Djenontin, I.A., S. Foli, L. Zulu (2018) 'Revising the Factors Shaping Outcomes for Forset and Landscape Restoration in Sub-Saharan Africa: A Way Forward for Policy, Practice and Research'. Sustainbility. 10 (4): 906.

Faruqi, S., A. Wu, E. Brolis, A. Anchondo Ortega, A. Batista (2018) 'The Business of Planting Trees: A Growing Investment Opportunity'. World Resources Institute and the Nature Conservancy.

FAO and UNCCD (2015) 'Sustainable financing for forest landscape restoration: Opportunities, Challenges and the Way Forward'.

Farugi, S. and F. Landsberg (2017) 'Attracting private investment to landscape restoration: A roadmap'. WRI 2017.
FSC's Contribution to Forest Restoration (2017).

Gatica-Saveedra P, C. Echeverria, C. R. Nelson *et al*, (2017) 'Ecological indicators for assessing ecological success of forest restoration: A world review'. Vol. 25, No. 6, pp. 850–857

Hanson, C. K. Buckingham, S. Dewitt, L. Laestadius (2015) *'The restoration diagnostic: A method for developing forest-landscape restoration strategies by rapidly assessing the status of key success factors.'* IUCN. World Resources Institute.

Hutto, R.L. and R. T. Belote (2013) 'Distinguishing four types of monitoring based on the questions they address'.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services (IPBES) (2018) *'Summary for policymakers of the thematic assessment report on land degradation and restoration'.*

IUCN/WRI (2014) 'Restoration Opportunity Assessment Methodology or ROAM'. Available at: http://www.bonnchallenge.org/content/restoration-opportunities-assessment-methodology-roam

IUCN/WRI (2014) *'Restoration Opportunity Assessment Methodology'* (ROAM) http://www.bonnchallenge.org/content/restoration-opportunities-assessment-methodology-roam)

Mansourian, S. and N. Dudley (2017) *'Challenges for Forest Landscape Restoration Based on WWF's experience to date'.*

Mansourian, S., A. Razafimahatratra, D. Vallauri (2018) 'Experiences in Forest Landscape Restoration: Lessons learnt from 13 years in restoration of a moist tropical forest: The Fandriana-Marolambo Landscape in Madagascar'. WWF.

McLain, R., M. R. Guariguata, S. Lawry (2017) 'Implementing Forest Landscape Restoration Initiatives: Tenure, Governance and Equity Considerations'.

Morrison, E.B., and C.A. Lindell (2010) 'Active or Passive Forest Restoration? Assessing Restoration Alternatives with Avian Foraging Behavior'.

Newton, A.C., R.F. del Castillo, C. Echeverria, D. Geneletti, M. Gonzalez-Espinosa, L.R. Malizia, A.C. Premoli, J.M. Rey Benayas, C. Smith-Ramirez, and G. Williams-Linera (2012) 'Forest Landscape Restoration in the drylands of Latin America' (2012) *Ecology and Society* 17 (1): 21. http://dx.doi.org/10.5751/ES-04572-170121

Reid, J.L., M.E. Fagan, R.A. Zahawi, (2018) *'Positive site selection bias in meta-analyses comparing natural regeneration to active forest restoration'.* Applied Ecology. Scientific Adv. 2018: 4.

Reji, C. and R. Winterbottom (2015) 'Scaling Up Regreening: Six Steps to Success: A Practical Approach to Forest and Landscape'.

Stanturf, J., S. Mansourian, M. Kleine, eds. (2017) 'Implementing Forest Landscape Restoration, A Practitioner's Guide'. International Union of Forest Research Organizations, Special Programme for Development of Capacities (IUFRO-SPDC). Vienna, Austria. 128 p

Stickler, C., A. Duchelle, J. P. Ardila, D. Nepstad, O. David, C. Chan, J. G. Rojas, R. Vargas, T. Bezerra, L. Pritchard, J. Simmons, J. Durbin, G. Simonet, S. Peteru, M. Komalasari, M. DiGiana, M. Warren (2018) 'The state of jurisdictional sustainability: Synthesis for practitioners and policy-makers'.

Vergara, W., L. Gallardo Lomeli, A. R. Rios, P. Isbell, S. Prager, R. De Camino (2016) 'The Economic Case for Landscape Restoration in Latin America'. World Resources Institute.

Wortley, L., J.M. Hero and M. Howes (2013) 'Evaluating Ecological Restoration Success: A Review of the Literature'.
Restoration Ecology. Vol. 21, No. 5, pp. 537-543.

'

Annex 1: Assessment framework

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
Component 1. Restoration Activities at farm and landscape scale				
1.1 Producers and/or processors are sufficiently organized or aggregated to access markets and support services relevant to restoration & bargaining power	• Producers are not organized or aggregated, were brought together recently and/or lack capacity • Producer organisation (PO) exists but does not have a governance structure	In between	• Producer organization (PO) exists, or are aggregated in another way and can receive inputs, incentives and have bargaining power in contract development and value chains • PO benefits from knowledge, input supply, finance, processing, transportation, and/or marketing to increase productivity	• Cooperatives represent one form of producer organization but there are alternative organizational forms.
1.2 Proven effectiveness of the promoted restoration practices and technologies to increase productivity of plantations, improved agroforestry, natural regeneration and SLM measures and create a business case for producers to adopt	• Restoration practices not tested for targeted producers / smallholders and their context (i.e. their capacity to adopt) • No clear business case for smallholder/community adoption.		• Restoration practices shown to be effective for targeted producers & producers have capacity to adopt • Evidence of increased productivity & resilience, and fair share of value, plus equitable benefit sharing agreements	• Included may be practices such as improved tree planting in plantations, agroforestry, SLM measures and natural regeneration techniques • Business case is derived from sale of tree products, restored / improved productivity of farm and benefit sharing agreements from wide-scale restoration
1.3 Analysis whether the set of incentives (revenues from production increase, as well as other livelihood benefits, e.g. premium, alternative incomes, carbon credits, social services) is sufficient to generate a living income and outweigh non-sustainable livelihood options.	• Not clear what will be additional revenues from restoration activities • Not clear what are additional incentives • Not clear whether the total set of incentives adds up to a living income		• Well defined additional revenues from restoration activities and additional incentives • Evidence that the proposed incentives will be provided to the producers	• Incentives could include price premium, access to markets, carbon credits, buyer arrangements, alternative livelihood incomes, social services • To determine whether incentives and disincentives outweigh the

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
	• No indication whether the set of incentives will outweigh non-sustainable livelihood options • Assumptions not considered.		• Demonstrated that total set of incentives adds up to a living income • Consideration that the set of incentives will outweigh non-sustainable livelihood options • Assumptions considered.	expected revenues of the 'default' (forest degradation or clearing) option, there is need to analyse opportunity costs of both options.
1.4 Business case for landscape managers (for restoration as well as avoided degradation).	• No clear business case for landscape managers (e.g. local and indigenous communities)		• Strong business case. Benefits clearly outweighing costs for differentiated landscape managers	•
1.5 Established or formalized tree and land rights and management responsibilities for producers	• Land titles for producers are uncertain. • No land mapping / documentation. • No support for negotiations with companies. • No participatory land use planning and FPIC processes. • No national policy reforms *in advance* of individual land investments,		• Land and tree titles for producers are well established and supported by legal documents. • Land and tree tenure rights have been established *in advance* of restoration interventions. • Trade-offs of cumulative smallholder and landscape-actor land use changes considered in participatory land use planning	• Complex land or forest tenure systems • Local resource management systems • Guidance of VGGT
Component 2. Markets and value chain relations				
2.1 Market demand for the products and services targeted for products resulting from restoration.	• Market demand not established • Market does not differentiate sustainably produced (including restoration-based) products • Access to markets for the producers uncertain	In between	• Market demand is well established • Market differentiates for more sustainably produced (including restoration-based) products • Establishment of benefit-sharing agreements	• Perceived and actual risks of restoration investments – is return on investment attractive? • Capacities and support needed for companies will vary depending on type of restoration targeted • Potential role for certification systems or standards

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
			• Access to markets for the targeted producers is established • Market-oriented incentives such as long-term and fair buying commitments, access to services, premium prices for restoration-based products.	
2.2 Agreements with a service provider to provide necessary inputs, knowledge and finance to support restoration activities and subsequent productivity increase	• Services are either non-existent, of low quality and/or not responding to the needs of producers. • Specifically, tree seeds are not adaptive and indigenous. • Services do not meet requirements for producers to be able to meet private sector demand for restoration e.g. for locally appropriate, diverse species • No attention for services to ensure access to finance		• Services tailored to the need of different categories of producers /restorers • Services aligned with requirements for producers to be able to meet private sector demand for restoration e.g. for locally appropriate, diverse species • Access to finance that is affordable to all producers	• Remote or inaccessible areas influencing service delivery • High levels of risk for producers • High levels of poverty • Capacities to engage in tree planting and processing of tree products
Component 3. Sustainable forest restoration at landscape scale				
3.1 Effective land use planning process including initial assessments of suitability of the forest area for restoration and designs which address root causes	• No information on the suitability of area for restoration • No information on trends of forest conversion or degradation • Poor analysis of current and future trade-offs in land use decisions for individual farming households and communities. No scenario planning. No consideration of gender and social difference issues in land use decisions.	In between	• Good information on the suitability of area for restoration • Up to date information on trends of forest conversion or degradation • Good understanding of potential trade-offs involved for farmers and landscape communities. Scenario exploration in participatory processes with farmers with	• Risks of established tree or forest restorations not being adequately protected in the long-term or of tree species being insufficiently adaptive to changing climate. Risk of insufficient attention to natural regeneration options as well as active tree planting. • Risks that land use trade-offs not adequately recognized for differentiated social groups.

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
	• No information on existing root causes of deforestation		local communities. Attention to gender and social difference issues in land use decision-making. • Good understanding of root causes of deforestation and design addresses these	• Lower risks of deforestation or forest degradation for remote or inaccessible areas, and areas with socio-cultural values by local and indigenous peoples
3.2 Effective support for community-based land and forest management organisations	• No information on community-based land or forest management organisations or no justification if missing. • Top-down monitoring and surveillance systems without community involvement • No support to communities for legal empowerment • No observance of FPIC		• Community-based structures involved in land or forest management including restoration well understood and supported. • Co-management structures established with public agencies • Community involved in restored forest areas management surveillance • Observance of FPIC	• Preference for community-based or co-management land or forest management systems • Agroforestry and SLM measures on natural regeneration involving smallholder producers
3.3 Multi-stakeholder processes and initiatives, including community involvement in forest management platforms.	• No information on multi-stakeholder processes / initiatives • If existent, no information on their effectiveness to sustainable land and forest restoration and management • No support to existing multi-stakeholder processes and initiatives or no initiatives to establish these		• Support to existing multi-stakeholder processes focused upon restoration and forest protection • Support is aimed to increase the effectiveness and equity of existing multi-stakeholder processes • If missing, initiatives are taken to engage relevant stakeholders in forest management	• Importance of multi-stakeholder processes where public governance systems are less effective • Importance of multi-stakeholder initiatives to be effective and equitable /inclusive
3.4 Presence of a regional or landscape level territorial or jurisdictional plan and associated governance system	• No information on regional or landscape level territorial or jurisdictional plans		• Information on regional or landscape level territorial or jurisdictional plans	• Quality criteria for land or forest management plans include:

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
for landscape-based restoration initiatives	• If present, no linkages established with existing regional or landscape level territorial or jurisdictional plans and associated regulations		• Support provided to establish or improve regional or landscape level territorial or jurisdictional plans and associated regulations • Alignment with sustainability objectives in regional or landscape level territorial or jurisdictional plans	• spatial land use zoning (including appropriate areas for restoration) • command and control measures • promotion of sustainable practices • real-time satellite-based monitoring
3.5 Government and civil society role	• Government does not value ecosystem services, poor policy coherence, no process for identifying restoration options, inadequate regulations and monitoring and enforcement capacity.		• Government values ecosystem services, policy coherence, process for identifying restoration options, appropriate regulations and monitoring, enforcement capacity. • Civil society including community role in monitoring of restoration-landscape initiatives	•
Component 4. Linkages between forest restoration & protection				
4.1 Risk assessment that addresses relevant risks of enhanced restoration and resulting productivity increase.	• No risk assessment done of restoration increase leading to enhanced deforestation or degradation	In between	• Risk assessment of restoration leading to enhanced deforestation or degradation • Risk assessment looks at different possible processes (three in total) • Risk assessment leads to mitigation measures being included in project design • Risk assessment process has included stakeholder consultation	• There are three risk categories: • Expansion of land or forest use by targeted producers, • Displacement of production to neighbouring areas and jurisdictions (leakage), • Crowding in by non-targeted producers

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
4.2 Well-defined mechanisms on how incentives are conditional on forest conservation requirements, with enforceable sanctions for non-compliance	• Incentives not well defined / do not outweigh alternative options • No or weak market based *conditional* incentives made available and attractive to producers and companies • Unclear disincentives (e.g. loss of the above) and no or lack of additional rules (e.g. fines) and their enforcement		• Clear incentives and disincentives to enhance forest restoration • Evidence that the proposed incentives and disincentives are complementary (consistent) • Clear benefits for companies to make and sustain investments and change purchasing practices • The conditionality of receiving incentives is well defined and included in agreements with producers & communicated. • Clear and enforced disincentives	• Incentives: access to credit and inputs for smallholders to plant trees on farms and revenues from sale of timber; HVLI products in degraded areas providing revenues & reducing pressure on standing forests, improved yields from shade trade planting in cocoa production, financial payments from PES schemes, premiums for 'restored' forest products
4.3 A robust monitoring or surveillance system to assess the effects of restoration initiatives taking place.	• There is no robust monitoring or surveillance system of forest condition • It is not possible to demonstrate whether the project will achieve forest protection objectives.		• There is a robust monitoring or surveillance system of forest condition (including on farm trees) • It is possible to demonstrate whether the project will achieve forest protection objectives.	• The focus of monitoring would be on relevant forest margins and other locations where forest encroachment is most at risk • Use of real-time satellite images
Component 5. Learning and potential for scaling				
5.1 Systems and capacities are in place to draw lessons on the effectiveness of restoration initiatives.	• There are no systems or resources in place to draw lessons from the restoration initiative, and assess its effectiveness	In between	• There are systems and resources in place to draw lessons from the restoration initiative, and assess its effectiveness	• Lessons should support conclusion on effectiveness of restoration initiative before scaling is promoted

Component and criteria	Rating 1 (low, red) [issues for evidence of rating]	Rate 2 (orange)	Rating 3 (high, green) [issues for evidence of rating]	Key issues for restoration initiatives
			• Learning is based on the results from robust M&E systems	
5.2 Scaling mechanisms are defined if there is potential for restoration initiatives within the wider landscape.	• No specific measures defined for scaling • Scaling not discussed in partnership model		• Mechanisms for scaling defined • Multi-stakeholder platforms or national industry platforms supported to enhance scaling where appropriate • Strategic partnerships for scaling (e.g. with sector organisations) • Financial mechanisms to support scaling (e.g. online finance platforms)	• Possible scaling mechanisms include Jurisdictional-sourcing standards and certification, multi-stakeholder initiatives, Financial mechanisms to enhance further scaling.