



IMPACT IN THE FORESTS

The potential for business solutions to combat deforestation in large forest landscapes in Asia: a progress report



FOREWORD

The authors of this innovative report remind us that for sustainable forest management to work in the long term it must make business sense as well as ecological sense.

But looking at entrepreneurs on the ground in three Asian countries they note that with the exception of the Forest Stewardship Council (FSC), most innovations are small-scale, low impact and donor-driven. They make the observation (which is painful for us in the forest sector) that there is more innovation in the energy sector. It's clear that there is no lack of committed and innovative entrepreneurs, NGOs and community and indigenous organizations on the ground. The challenge is that the alternative economic approach they promote has traditionally been at cross-purposes with the large-scale development plans of estate crops. We see some hope that this situation is now changing. In the palm oil industry in Indonesia for example, a number of larger companies have made commitments to “zero deforestation, zero social conflict and zero peat”. The sustainability commitments from plantation and forestry sectors have been supported by international buyers and the Indonesian government.

The industry also wants to work with smallholders who provide 40% of Indonesia's palm oil and who urgently need technical assistance to improve planting stock, agricultural methods and business practices. Cooperatives need to be strengthened and access to capital facilitated. This is fertile ground for the entrepreneurial approaches explored by the actors of “Impact In the Forests”. It would have the potential to bring impact at scale that the actors correctly note has been missing to date, to make a real impact on deforestation for the benefit of the forests, people, economies and environment.

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WWF staff working in a natural bamboo forest, Eastern Plain Landscape, Cambodia.

EXECUTIVE SUMMARY



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Stripping Cinnamon Bark. Jambi Province, Sumatra, Indonesia.

The “Impact In the Forests” report explores pathways to **unlock business solutions for deforestation-free** trade chains in Asia.

The UN’s 2015 Sustainable Development Goals aim to halt deforestation by 2020. This is unlikely to be achieved by action by the public or civic sector alone.

This report is based on the assumption that developing successful businesses that actively or incidentally help to maintain natural forest cover is a key step to eliminating deforestation. Such businesses will often also contribute positively to address other environmental, social and economic needs. We define deforestation-free business models as any for-profit business enterprise that can *operate without directly or indirectly causing deforestation or forest degradation and/or contribute to forest and land restoration*. Working to kick-start sustainable and scalable business models, which are successful enough to make a significant reduction in deforestation, requires a new approach.

This report is the product of collaboration between four organizations from very different sectors – **WWF** on the environment, **Ennovent** on business innovation, the **Impact Hub** on development of local entrepreneurial ecosystems and **Clarmondial** (in association with GreenWorksAsia) on financing for sustainable development.

It focuses on three key biodiverse countries and landscapes as cases that represent the range of conditions across Asia. These include:

- **Vietnam:** particularly the Central Truong Son area around the Annamite Mountains.
- **Indonesia:** focusing on inland Kalimantan on the island of Borneo, and on the island of Sumatra.
- **Nepal:** particularly in the lowland area that forms part of the transboundary Terai Arc region.

The report provides a situation analysis of the environmental, social and political conditions in each of the landscapes, along with the policy and entrepreneurial context. It discusses the potential for innovative approaches in these landscapes and explores enterprises and sectors that might contribute positively to addressing deforestation. Finally, it looks at the various actors (innovators, investors and connectors) who might be involved. Real-life examples are cited throughout.

The **key findings** are as follows:

1. Across the three focal countries and landscapes, the proportion of enterprises found that directly contribute to reducing pressure on deforestation is very low; and these do not tend to have impact at large scale. Business incentives remain much stronger for promoting deforestation than preventing it.

A range of case studies demonstrate that deforestation-free business solutions do exist and can have impact including:

- Biogas production to replace woodfuel in Vietnam and inclusive business accelerators linked to this

- Sale of water filters to improve health and reduce woodfuel use in Cambodia
- Sustainable rattan production in Lao PDR
- Peatland restoration in Kalimantan
- Harapan forest restoration enterprises in Sumatra
- Sustainable travel enterprises in forest regions in Nepal
- Sale of locally produced herbal products in Nepal

However these tend to be isolated cases and struggle against business incentives that promote deforestation such as the high price of oil palm, the profitability of non-indigenous timber plantations and limited business infrastructure. While efforts to address environmental issues through social enterprise are developing rapidly in the region, specific links to deforestation are less common.

2. While challenges remain, there is a strong foundation of forest related enterprises in all three countries and opportunities exist for building and/or scaling to deforestation-free. Incentives are needed to accelerate them.

Nepal for instance has over 40,000 micro-enterprises, two-thirds of which are linked to timber, non-timber forest products (NTFPs), ecosystem services and ecotourism. Many of these are run by women. But these are frequently donor-driven, rarely gain any scale, and social enterprise is just starting to gain momentum.

Vietnam has a strong forestry and agriculture sector but it also has continuing high rates of negative impacts on the few remaining natural forests. Limited value adding of products is undertaken. Investment is emerging from the private sector (increasingly conservation led), donors, and state-owned banks. However there is poor market readiness, a focus on small projects and restrictive policies on foreign investment.

In Indonesia, innovators face similar barriers, such as a lack of alternative business models and connections to markets, few scalable projects and limited access to start-up capital. Investors exist, including some impact funds, and many donors are active. Local banks are conservative and generally reluctant to fund micro-enterprises. Investments are actually declining, though new regulations may change this.

While there are challenges (limited deal flow, regulations and enforcement), opportunities do exist and can be identified and developed by stakeholders that are operational on the ground and understand the local context. The seeming increase in interest from impact oriented investors and donors / philanthropists to support such initiatives is a positive signal and may facilitate development of these businesses by providing concessional capital to get them started and achieve investment readiness.

3. A number of pathways for business scaling and aggregation were identified from the cases. Some of these are restricted to specific sectors but all deserve more concentrated attention. Sectors with greatest potential include rubber, cocoa, rattan, essential oils, medicinal plants and low carbon technologies.

The success of the model proposed by the IIF project depends on the ability to identify and scale new or hitherto small ventures into operations that make a landscape-scale impact. Scaling up routes could be, for instance:

40,000

MICRO-ENTERPRISES

Nepal has over 40,000 micro-enterprises, two-thirds of which are linked to timber, non-timber forest products (NTFPs), ecosystem services and ecotourism. Many of these are run by women.

- Across **geographies**, bringing many different small-scale operations into a single sustainability-oriented supply chain as is being discussed for rubber in Sumatra;
- Along **trade chains**, for instance with cocoa, building added financial value for products from plantations that do not contribute to deforestation;
- Through **cross-industry coordination**, as with certified timber and wood products;
- By adding a **technological component** to boost efficiency, such as introducing electronic surveillance methods to prevent illegal logging and land use monitoring;
- By **innovation**, developing new supply chains etc., such as building demand for high quality chocolate products, or new pharmaceutical and cosmetic products from certified essential oils;
- Through creating **new markets**, e.g. for certified produce (protecting high carbon stocks, supporting biodiversity corridors, ensuring zero deforestation in the production);
- By providing **access to new markets**, both in the context of products (e.g. supporting links to new buyers) and financiers (e.g. connecting with impact investors).

4. Equally valuable is the provision of support services for business model development, connections with investors, and innovation exercises that link large markets and companies with smaller operators who can generate scalable solutions to the challenge of deforestation.

There is local interest and potential for developing innovative solutions tackling deforestation and some successful models do exist. However solutions fail to reach scale due to lack of support for business innovation, and investment readiness. Equally, demand-side interest in financing such solutions fails to translate into investment because of insufficient “quality” deal flow and poor product structuring.

An end-to-end, comprehensive approach will overcome obstacles that more narrowly focused initiatives face by covering the entire innovation funnel, identifying effective models, and advancing impact metrics to measure progress and facilitate adaptive management.

5. These services are provided by a limited number of incubators, connectors, innovation agents and business development services. Very few of these exist in Asia and most are found in urban areas. Efforts to build deforestation-free supply chains and green businesses must focus on extending and equipping this ecosystem of services and connecting the range of non-monetary services.

Four types of services are identified and explored:

- **Innovators:** entrepreneurs who develop a deeper understanding of social and environmental issues, and design, develop and scale solutions to tackle these challenges and their root causes with innovative approaches. Innovators can come from any sector, industry, educational background and social context.
- **Incubators:** companies that help new and start-up companies to develop by providing services such as management training or office space.
- **Connectors:** organizations or skilled individuals, often seconded from business, working with start-up companies to help them build partnerships to maximize their effectiveness.

- **Investors:** In the context of this report, investors include any organization that provides capital to a business working towards generating financial, environmental and social returns, with the expectation of both future financial and measurable non-financial returns (impact) to the investor.

While each of these is individually important, our hypothesis is that the combination of the four in a coordinated ecosystem of support is most likely to produce long-term results. However this depends on a comprehensive and sustained programme that builds a linked ecosystem of services. Sustainability can be attainable through a strong community platform (with a sustainable business model), programming that recovers costs, investment vehicles that generate return on investment and enduring changes to the policy framework.

An end-to-end, comprehensive approach will overcome obstacles that more narrowly focused initiatives face by covering the entire innovation funnel, identifying effective models, and advancing impact metrics to measure progress and facilitate adaptive management.

6. Public sector investments for business development, emissions reductions, restoration and sustainable development have a role to play in this process by financing new products and services, entrepreneurial support systems and innovation processes. However this will require a more positive and proactive attitude and policies towards private sector engagement.

Public financing for climate and land use has risen to US\$20-30 billion (through mechanisms such as the World Bank Carbon Fund, Green Climate Fund) and over US\$100 billion is expected to flow annually by 2020. For the first time, there is a real opportunity for landscape approaches to conservation being put into practice at scale, with public funds available to help them get established. The three focal landscapes in this report are the subject of the first landscape scale forest and climate (REDD+) programmes in Asia covering over 20 million hectares of land and aiming to reduce emissions by over 60 million tonnes CO₂e. Over US\$260 million has been allocated to these efforts.

However, public sector financing tends to benefit public sector solutions and there is a limited focus on private sector needs or approaches. While this is changing, only a few of the world's largest companies are likely to be able to access these funds in the short term and there is currently effectively no attention to SMEs and entrepreneurs. A change in the structuring of public investment policies is needed to address this gap and stimulate entrepreneurial solutions. This in turn requires a change in mindset from public and multilateral institutions.

There is a deep cultural and understanding divide between the public and private sector. These are two worlds that operate very differently, with deeply different languages and processes. This report aims at core to begin to build bridges across this gap and to foster the process of translating between these "tribes". Much more fundamental cross-learning is needed.

7. Private sector investment is already available for "green" business. However it struggles to find investable opportunities at a scale equivalent to fiscal supply and is hampered by a diversity of understandings of what is "green". Clearer standards, monitoring systems and aggregation services are required.

The private sector is also moving rapidly to take up the challenge of climate and land use change with initiatives in the labelled green and climate bond market (valued globally at US\$597.7 billion in July 2015); internal carbon pricing; investor concern with carbon-intensive stranded assets; and insurance companies scaling up to respond to anticipated climate impacts. But financiers still struggle because of the opportunity costs of these deals and the risk-return profiles, so blended

capital is needed to make them investable. In the report we present a number of small-scale businesses that have benefitted from public finance that allows them eventually to operate as independent businesses.

Across all countries it is easier to find funds than it is to find robust projects in which to invest them. Although the focus is on business, collaboration with the government is essential, including at local level to ensure development of project ideas.

8. The creation of forest friendly business at large or small scale is an undertaking that has barely begun. An initiative is now needed to build an evidence base for effective solutions and processes and to foster an ecosystem approach to linking services, policies and incentives.

Positive progress depends on:

- **Identifying** potentially suitable business models and innovators
- **Accelerating** innovative solutions to achieve significant scale
- **Facilitating** an integrated and beneficial combination of public and private financing
- **Measuring impact** and ensuring that businesses deliver promised environmental and social benefits
- **Promoting success stories** to users, entrepreneurs, innovators, businesses and donors
- **Connecting** top-down actors (institutions, policy makers, funds, etc.) and bottom-up innovators
- **Providing** input to policy making that encourages green business models
- **Ensuring buy-in** for green approaches from businesses engaged in the landscape
- **Replicating** successful models in other places impacted by deforestation

Achieving zero net deforestation will not be easy. A surprising number of the projects considered, whilst often providing excellent social and/or environmental impacts nonetheless had little direct impact on deforestation. And the number of businesses with potential environmental returns is a small fraction of the overall marketplace. Developing deforestation-free social enterprises remains in its infancy. But there is also a rapid and very encouraging growth of interest in the possibilities of business models that reduce deforestation, a new generation of entrepreneurs ready to take risks and build successful business models, and a global policy framework that supports such efforts. Events are likely to move quickly in the next few years. There is a huge amount yet to learn and much focused work ahead to build an effective system for achieving Impact In the Forests.

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Woman carrying fuelwood Kerinci area Sumatra, Indonesia.

PARTNER PROFILES



Clarmondial is an independent investment advisory company that focuses on practical, profitable and creative solutions for social and environmental businesses and their funders. Established in Switzerland in 2010, Clarmondial delivers tailored advice, including investment structuring, strategy and business development support.



Ennovent is a global innovation company for low-income markets. We work with our clients, partners and community to jointly develop, fund and implement customized innovation solutions that create a sustainable impact and fair profits. These solutions discover, start-up, finance and scale the best innovations for sustainability in developing countries. Since 2008, Ennovent has accelerated over 250 innovations in 15 countries through around 60 solutions.



GreenWorksAsia (GWA) is a private company providing comprehensive sustainability services, ranging from environmental and social risk assessment to business planning and project finance advisory services. GWA advises public and private sector stakeholders in key sectors such as Renewable Energy, Agriculture and Land-Use, Infrastructure and Climate Finance.



Impact Hub is a global network of entrepreneurial communities, workspaces and programmes that inspire, connect and catalyze social and environmental impact. Developing local entrepreneurial ecosystems and supporting ventures from idea to operations and scale, Impact Hub hosts a diverse community of 12,000 members in more than 80 cities around the world.



WWF is one of the world's leading nature conservation organizations with over 5 million supporters and a global network active in more than 100 countries. WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

INTRODUCTION

The UN's Sustainable Development Goals (SDGs), agreed in 2015, aim to halt deforestation by 2020¹ (like WWF's goal of Zero Net Deforestation and Degradation by 2020²).

127-170 MILLION HA

WWF estimates that under a business as usual scenario 127-170 million ha will be lost from 2010 to 2030.

The Global Commission on the Economy and Climate (*New Climate Economy Report*) says that action on agriculture, forests and land use change can reduce greenhouse gas emissions by up to 10.4 gigatonnes carbon dioxide equivalent (GtCO₂e) per year by 2030.³ It estimates that achieving the Bonn Challenge goal of restoring 150 million hectares (ha) of degraded land could generate additional agricultural incomes of US\$36 billion, feed up to 200 million people and store about 1 billion tonnes of CO₂e per year by 2030. Global goals are increasingly matched by national government policies, and commitments from globally important consumer goods companies. Yet deforestation continues and government pledges are often not followed through in practice. WWF estimates that under a business as usual scenario 127-170 million ha will be lost from 2010 to 2030, primarily from 11 major deforestation fronts.⁴ Halting deforestation needs responses from governments, donors, NGOs and businesses: addressing the drivers of deforestation such as agricultural supply chains and woodfuel use, expanding and effectively managing protected area networks, sustainably managing the remaining forest estate and restoring forests that have been degraded or destroyed.⁵

For sustainable forest management to work in the long term, it should make business sense as well as ecological sense. It is unrealistic to maintain forests by indefinite grant funding. Businesses have to choose whether they embrace efforts to tackle deforestation and climate change in their business models⁶ and whether to engage with the new low carbon economy model emerging from the international climate negotiations in Paris in 2015. Scientists and innovators have demonstrated viable for-profit business models that address deforestation. But so far, with the exception of voluntary forest certification schemes like the Forest Stewardship Council (FSC), most innovations remain small-scale, donor-driven and make little impact on overall deforestation. Most private finance initiatives addressing climate change focus on energy production rather than on land use change, deforestation and carbon sequestration and storage, due to the risks attached.⁷

This is likely to change: major policy initiatives such as REDD+ and new public and private funding streams address land use change under climate change. Public financing for climate and land use has risen to an estimated US\$20-30 billion through initiatives such as the World Bank Carbon Finance Unit and the Green Climate Fund. A recent analysis identified 21 multilateral funds and initiatives supplying climate finance, along with seven bilateral funds aimed explicitly at climate finance, involving 29 implementing agencies.⁸ While many fund energy initiatives, a growing number cover land use. Countries have committed to increasing climate finance to US\$100 billion per year from public and private sources by 2020. There are also many national or regional

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make business sense as well as ecological sense.



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East Kalimantan (K. Timur), Kalimantan (Indonesian Borneo), Indonesia.

commitments, for instance by the billion dollar Amazon Fund and a major growth in investments at the jurisdictional or landscape scale (BioCarbon Fund). For the first time in history, the landscape approaches that conservation organizations have advocated for years have a real opportunity of being put into practice, with larger public funds available to help them get established.

The private sector is also moving rapidly to take up the challenge of climate and land use change. Six key trends can be identified: (i) financial commitments building on the 2015 UN Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) in Paris; (ii) the emergence of the labelled (green and climate) bond market; (iii) companies adopting internal carbon pricing; (iv) investor concern with carbon-intensive stranded assets; (v) the emergence of company commitments to deforestation-free supply chains; and (vi) insurance companies scaling up product development and asset management efforts to respond to anticipated climate impacts.⁹ For example, as of July 2015, climate-aligned bonds total US\$597.7 billion, including US\$65.9 billion in the Labelled Green Bond Universe.¹⁰

The Impact In the Forests initiative is based around the overall hypothesis that developing successful businesses based near a permanent natural forest estate is a key part of any strategy to eliminate net deforestation. Furthermore, such businesses need to fulfil environmental, social and economic needs: in other words not only reduce deforestation but also be pro-poor, guided at least to some extent by local communities and address social, cultural and gender inequities. To make a significant impact, these businesses need to be quite large, although this can either be through a collective or co-operative approach between many small businesses or new policies from an existing large business concern.

The Impact In the Forests (IIF) initiative involves collaboration between four very different organizations, all seeking to support innovative solutions at scale to address climate change, deforestation and land degradation. It is the first step in a journey combining the perspectives of these organizations and their networks to identify and develop business-oriented options to control deforestation. The overall aim is to define viable business models to enable innovators to scale through public and private finance, and to access non-financial resources such as incubators, accelerators and business development service providers. It explores pathways to enable deforestation-free business solutions with measurable impact at the scale of millions of hectares of forest and millions of dollars of traded goods.

This report defines deforestation-free business models as enterprises that can *operate without directly or indirectly causing deforestation or forest degradation and/or contribute to forest and land restoration*. They might include local businesses that can be scaled up, groups of different small businesses working in partnership and new innovations from large corporations. Working to kick-start sustainable and scalable business models requires a radically different approach from conventional conservation models. In the long term, the IIF initiative aims to:

- **Identify** high-potential local business models and innovators
- **Accelerate** innovative solutions to achieve scale
- **Facilitate** an integrated and beneficial combination of public and private (blended) financing
- **Measure impact** and ensure that businesses are delivering the promised environmental and social benefits
- **Promote success stories** to make forest-focused innovation attractive to relevant stakeholders
- **Connect** top-down actors (institutions, policy makers, financiers, etc.) and bottom-up innovators and coordinate trade and financial chains in a landscape approach
- **Provide** holistic input for policy making
- **Ensure buy-in** for green approaches at every level of businesses engaged in the landscape
- **Replicate** successful models in other places impacted by deforestation

Sustainability will be encouraged by focusing on business opportunities that have the **potential to generate appropriate Return on Investment** as well as tangible ecological impact.

The longer-term vision is a comprehensive business facilitation approach supporting solutions addressing deforestation throughout the innovation process. Specific business ideas and innovation approaches will be tested initially within selected landscapes, with the assumption that these landscapes are representative of the wider set of circumstances across Asia that would need to be addressed to support deforestation-free production. A focus is taken first on specific commodities and sectors with high impact potential on ecologically important forest landscapes and thus the potential to provide a demonstration of success. These landscapes are among the highest priorities for biodiversity protection and all exist in places with long-term political commitment to addressing deforestation. Locally-driven business development support will be linked to programmes that cover start-up costs. Sustainability will be encouraged by focusing on business opportunities that have the potential to generate appropriate Return on Investment (ROI) as well as tangible ecological impact. In the future, the process may be scaled up further by replicating the best aspects of these landscape approaches in other sectors and geographies. The use of positive business models needs to be applied alongside supportive policies and good governance models to provide a framework within which social enterprises can compete with short-term high profit deforesting approaches.



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Girls collecting wood in Ban Don in Vietnam's Central Highlands in buffer zone of Yok Don National Park near the Cambodian border.

METHODOLOGY

The potential for green business innovation to reduce deforestation was explored in three forest landscapes in Asia, as models for the region as a whole.

These were chosen because (1) they are all very large landscapes in countries that have made significant national commitments to addressing forest loss and climate change; (2) they are landscapes in which WWF has existing programmes; and (3) there are other competent local partners operating, providing opportunities for developing multi-stakeholder platforms. The landscapes are:

- **Vietnam:** particularly the Central Truong Son area around the Annamite Mountains;
- **Indonesia:** focusing on inland Kalimantan on the island of Borneo, plus Sumatra and Sulawesi;
- **Nepal:** particularly in the lowland area that forms part of the transboundary Terai Arc region, which also covers other parts of Nepal, India and Bhutan.

1%

Estimates suggest that if private sector driven innovations can reduce deforestation rates in the three target landscapes by just 1 per cent, there will be **emission reductions in the order of 100 MtCO₂ between 2010 and 2030.**

All three landscapes have received significant climate change funding: Indonesia is the top recipient in Asia, while Vietnam and Nepal are both in the top ten in Asia.¹¹ Estimates suggest that if private sector driven innovations can reduce deforestation rates in the three target landscapes by just 1 per cent, there will be emission reductions in the order of 100 MtCO₂ between 2010 and 2030.

Once selected, background research was carried out in each, following a similar pattern:

- A literature review covering issues relating to policy and regulations, business, start-up, climate finance, forestry, Agriculture, Forestry and Other Land Use (AFOLU) interventions, Non-Timber Forest Products (NTFPs) and forest products;
- Interviews with entrepreneurs, innovators, incubation platforms where they exist, potential financiers, donor organizations, and the local business community;
- Initial scoping of existing and potential business innovations with the potential to operate at a large enough scale to make significant differences in forest cover and carbon budgets.

As a first step towards scoping the potential opportunities, each landscape was analyzed by experts to identify the extent and drivers of deforestation, the policy context and opportunities, and the various elements needed to develop green business solutions to deforestation. Some case studies also emerged in neighbouring countries. The information is drawn together to develop a strategy for further developing business innovation for climate and environment benefits into the future.



Focus landscapes including intact forest landscapes (large remaining blocks of undisturbed contiguous forests).

Key

- intact forest landscapes
- focal landscapes
- country boundary



Indonesia East Kalimantan Province



Nepal Terai arc landscape



Vietnam Annamite range landscape

CASE STUDY

Katingan Peatland Restoration and Conservation Project, Kalimantan, Indonesia

Using carbon credits to preserve fragile peat habitat while maintaining local livelihoods

Logs being rafted, East Kalimantan, Borneo.



© Simon Rawles / WWF-Canon

Business model: the Katingan Project¹² is managed by an Indonesian company, PT. Rimba Makmur Utama, through an Ecosystem Restoration Concession granted by the Indonesian Ministry of Forestry. This is one of the first REDD+ projects for voluntary investment in Indonesia. It is a Verified Carbon Standard (VCS) accredited project. Funding is based on precise calculations of carbon stored in the ecosystem and is performance-based; payments depend on peat remaining intact. The project aims to restore 149,800 ha of peatland. Direct partners include Permian Global investors, which is a major funder, the Puter Foundation based in Bogor, Wetlands International, Starling Resources, an Indonesian-based consulting group, the Orangutan Tropical Peatland Project and Emily Readett-Bayley, a designer who uses NTFPs from the area.

Environmental model: the area is home to many threatened species including orang-utan and proboscis monkey; the project aims to promote enhanced natural habitats and ecological integrity. Restoration of the area is expected to result in avoidance of an average of 7.5 million tons of greenhouse gas emissions annually, along with stabilizing water flows and producing clean water.¹³

Social model: efforts are made to build jobs and value for the 34 villages in the buffer zone.¹⁴ Emily Readett-Bayley has set up workshops to provide alternative employment for illegal loggers who cultivate rattan in the forest.¹⁵ The project aims to provide improved quality of life and reduced poverty of the project-zone communities through the creation of sustainable livelihood options and economic opportunities; stronger community resilience through increased capacity to cope with socio-ecological risks; and enhanced ecosystem services for the overall well-being of the project-zone communities through ecosystem restoration.



Women with new yield of rice in Ky Thuong village not far from Ho Ke Go in Central Vietnam.

CONTEXT AND OPPORTUNITIES

Research began by assembling strategic information on the challenges and opportunities in the three landscapes.

Problem and situation analysis

Asia is experiencing rapid economic growth, albeit in a political and economic climate that has often failed to build good governance or to address widespread corruption. Economic growth is also contributing to net deforestation; the high profitability of palm oil, and other plantation crops such as *Acacia mangium* and *Eucalyptus* makes it hard to find sustainable businesses that can compete. Although Vietnam and parts of China are now increasing the total area under trees, this is still often at the expense of forest quality (plantations replace natural forests) and relies on high levels of imports from neighbours.¹⁶ General conditions are illustrated by the example landscapes. Each faces acute problems of natural forest loss, but their causes, trends and historical trajectory are different.

Vietnam: need to protect remaining natural forest fragments, encourage restoration and add value to secondary forest and plantation timber. In Vietnam, much deforestation is historical, due to the American War (including by defoliant spray¹⁷) and subsequent rapid development. Almost all primary forest has gone; 43 per cent was lost from 1973 to 2009,¹⁸ including over 100,000 ha of mangroves.¹⁹ Area under trees is now increasing, by 129,000 ha/year from 2010-2015,²⁰ mainly as timber plantations (*Eucalyptus* and *Acacia*) and regenerating secondary forest. Natural forest continues to decline in area, quality and by fragmentation. Restrictions on logging natural forests coupled with rapid economic growth (land being switched to agriculture output such as coffee) have made Vietnam a major importer from Lao PDR, Cambodia and Myanmar, importing an estimated 49 million cubic metres of timber a year,²¹ increasing regional deforestation. Much plantation timber is felled young, for low-grade uses like wood chips; a situation made worse by government support that has encouraged new planting rather than management. A major challenge is how to add value to an existing timber and non-timber forest product chain.

Indonesia: need to find sustainable forest uses that compete with palm oil, which is still driving forest loss; some islands are virtually deforested, others still being opened up. Indonesian forests are extremely rich in biodiversity but under huge pressure, particularly from palm oil,²² but also pulp,²³ mining and smallholder agriculture.²⁴ Logging²⁵ and fire-setting²⁶ open forests for plantations. Conditions vary between islands. Kalimantan in Borneo has 3.7 million ha of forests, with supposedly a third conserved, 60 per cent as production forest and 8 per cent of convertible area.²⁷ But weak governance and lack of enforcement of regulations and laws allows clearing of “permanent” forests and with potential to lose up to 45 per cent of peat forest by 2030,²⁸ leading to huge carbon emissions. WWF projects that Borneo as a whole could lose 22 million ha more forests by 2030.²⁹ Locally policy makers, including in Sumatra, and especially Riau province, have become concerned about the dominance of the palm oil industry. By 2014 the island had lost 55 per cent of its natural forests, particularly in the lowlands.³⁰ Deforestation follows a pattern: selective logging, further illegal logging and then official rezoning or migrant

43%
PRIMARY FOREST

Lost in Vietnam from 1973 to 2009 during the American War.

settlement. All forests in Sumatra are in danger and WWF projects that 5 million ha more could go by 2030.³¹ The major challenge for sustainable forest enterprise is to compete with highly lucrative international commodities such as palm oil, particularly where smallholders live in areas where there appear to be few economic alternatives.

Forest losses are caused by high population growth, poverty, migration from the uplands, prolonged political insecurity and weak institutional capacity.

Nepal: need to create a socio-economic culture that scales up sustainable forest enterprises to generate enough value to provide strong incentives against deforestation. The Terai in Nepal is low, flat land in the south covering a fifth of the country, with forest cover just over 40 per cent (14 million ha), varying from dense rainforest to drier, open forests. Acute deforestation continues, with forest cover falling 1.1 per cent a year from 1990-2015³² and forests increasingly fragmented. Seventy per cent of the Terai population practise agriculture, mostly on less than one hectare. Forest losses are caused by high population growth, poverty, migration from the uplands, prolonged political insecurity and weak institutional capacity. Community forestry is successful in maintaining forest cover in places³³ but only accounts for a small part of both National Forests and other public land. There are thousands of small, informal, household-level or group-led enterprises, often donor-supported. The challenge is to scale up local forest enterprises to provide concrete incentives for maintaining forest cover, whilst ensuring that forests perform multiple functions including biodiversity conservation and provision of ecosystem services.

Policy and entrepreneurial context

All the landscapes are undergoing rapid economic growth and political change. Governments vary in the extent to which they are democratic and centralized. None of the countries as yet has an explicit, vibrant social enterprise culture, but interest and initial stirrings occur in all three.

Vietnam: forest enterprises are state-owned and focus on fast-growing plantations; recognition of climate change is making the government more open to green product development. The country is mountainous with a coastal plain. Remaining natural forests are confined mainly to uplands. Government is centralized but provincial authorities have considerable power; there are many state-owned banks and enterprises (e.g. plantations and mining). Forests come under the Ministry of Agriculture and Rural Development rather than the Ministry of Natural Resources and Environment. There is a tendency to focus on intensive plantations. The country is vulnerable to climate change, particularly in deltas and from water stress in the central highlands. The government is aware of climate risks and supports developing sustainable forest products. There are many climate change policies and commitments, e.g. the UNFCCC Clean Development Mechanism (CDM), various green growth and sustainable development initiatives including Climate Smart Agriculture, REDD+ preparedness, and a payments for ecosystem services (PES) sector³⁴ along with a new social enterprise law. It is too early to see how well these will be applied in practice.

Vietnam also has a young, highly entrepreneurial population and interest in green production is growing fast. Despite a strong centralized government, entrepreneurship is deeply rooted in Vietnamese culture. Half the population is under 30 and there is a rapid increase in start-up enterprises. There is already

interest in cleaner production and some voluntary certification (e.g. of organic food). This is still largely but no longer exclusively NGO-driven and does not really impact deforestation and forest loss. Investment is emerging from the private sector (mainly from outside the country for conservation led investment), donors linked to both business and agriculture, and state-owned banks, if instructed by the government. Efforts are hampered by poor market readiness, a focus on small projects and restrictive policies on foreign investment. Other problems identified include lack of a landscape-scale monitoring framework for sustainable forest products and difficulties accessing finance for green enterprise. Nonetheless, experience suggests it is easier to find funds than bankable projects and collaboration with the government is essential, including at local level.

Efforts to develop green business models exist but these often struggle to compete with existing industry without continuous reliance on donor funds or subsidies.

Indonesia: *has decentralized governance of variable quality; although policies exist to support sustainable forest management, implementation is generally poor.*

Indonesia has a decentralized, fragmented government with strong regional variation. Deforestation is a major regional political issue because of transboundary and local smog pollution; the 2015 burning season was acute. The regulatory environment is complex; instruments are in place for forest protection, prevention of plantation licences on indigenous people's territories and legality of timber, with support from donors such as Norway, but implementation remains patchy. Conversely, some policies, such as a ban on exporting unprocessed rattan, have depressed alternatives to palm oil and the law still allows a certain amount of slash and burn, causing further deforestation. The existing infrastructure and business environment supports mainstream crops such as palm oil and rubber, and business brokers tend to be village leaders or politicians, making it difficult for others to take an initiative.

Efforts to develop green business models exist but these often struggle to compete with existing industry without continuous reliance on donor funds or subsidies.

There has been some success with certification of wood legality in community projects and with community forest certification, such as an FSC scheme in Sulawesi.³⁵ Other sustainable forestry schemes exist, such as the Katingan Peatland Restoration and Conservation Project in Kalimantan, producing rattan, furniture, honey and possibly grass for biomass.³⁶ Innovators face many barriers, including lack of knowledge about alternative business models and connections to markets, experience of good governance, lack of scalable projects and limited access to start-up capital. Investors exist, including some impact funds. Many donors are active. Local banks are conservative and generally reluctant to fund micro-enterprises, with investment actually declining; but regulations now state that banks must channel at least 20 per cent of their credit portfolio to the micro and SME sector until 2018. Crowd funding is growing. No formal business incubators were found in Kalimantan although NGOs and universities do provide some forms of incubation support. There are many technology incubators in Jakarta, but with a limited interest in agriculture. There are a number of concessional funds focused on micro-enterprise development, but a lack of high-quality investable projects. Investment opportunities require risk capital and development support to be profitable enough to compete with palm oil.

Nepal: *political turmoil and centralized government have hampered social enterprise, although recent new laws and policy initiatives give grounds for hope that this could change.*

Years of political instability linked first to a Maoist insurgency and then to a Madhesi uprising in the Terai, unofficial border blockades, and a centralized but weak government, have hindered policy-making. The government forestry department is often in conflict with local communities. Many migrants from hill regions have settled

in the Terai. India continues to exercise a strong influence on development and attracts many young migrants from Nepal. Changeable and sometimes unsuitable economic and industrial policies and powerful, poorly coordinated state agencies hamper micro-enterprise. There are high regulatory barriers and businesses face demands for both legal and illegal payments. Around 17 per cent of the Terai is in protected areas and this is likely to expand, along with a strong government focus on climate change and carbon. Green growth policies are highlighted in the National Adaptation Action Plan, proposals for the Clean Development Mechanism and policies on rural energy, wetlands, forestry and biodiversity. Protected area buffer zones offer many opportunities for ecotourism. A national REDD+ strategy is being developed. There is no established legislative framework for PES but this could emerge through REDD+ or similar. Stakeholder roundtables and think tanks address climate issues.

Many micro-enterprises exist but these are frequently donor-driven and social enterprise is just starting to gain momentum; few support structures exist. There are over 40,000 forest based micro-enterprises.

Two thirds are linked to timber and others to NTFPs, ecosystem services and ecotourism; there are 35 bioenergy projects and two forest carbon initiatives. These community forestry projects have been shown to boost rural incomes and improve forest condition. Many actual or potential support structures exist including NGO, market-based, multilateral agencies, schools and universities, governments, incubators and accelerators. However, the social enterprise concept is quite new; of about 50 social innovators roughly half are for-profit ventures, focusing on medicinal/non-medicinal herbs, tea/coffee and alternative energy. Other partners include green business initiatives and forums, but most are based in Kathmandu. Years of large donor inputs have created a dependency culture. Impact investing is limited and problems remain with start-up capital. Many donors focus on agriculture although some private investors and local banks support micro-enterprises. Success in innovative businesses is further hampered by lack of business skills, poor transport infrastructure, problems linking products to markets, strong competition from India and China, and lack of monitoring and evaluation.

Landscape programmes

The Paris Agreement has committed all signatory governments of the world to reducing emissions sufficient to limit global temperature increase to a maximum of 2 and if possible 1.5 degrees Celsius.

As a primary means of implementing the agreement, the Intended Nationally Determined Contributions (INDCs) of Nepal, Vietnam and Indonesia have all identified landscape approaches – generally at a jurisdictional scale – for reducing emissions and promoting low carbon economies.³⁷ These signal government commitment to improving forest and agricultural management across large areas of land and establishing enabling conditions for investment in sustainable resource production.

Vietnam's largest climate programme aims to achieve improved land use planning, sustainable forestry and biodiversity protection in the six provinces of Lao Cai, Bac Kan, Ha Tinh, Binh Thuan, Lam Dong and Ca Mau; some of these provinces include the biodiversity rich mountains of the Central Truong Son area around the Annamite Mountains.³⁸

Indonesia's target to reduce emissions by 26 per cent (and 41 per cent with international assistance) by 2020 is to be achieved in part through Province-level green economy programmes. A US\$144 million jurisdictional programme is planned for East Kalimantan, building on the provincial low carbon development strategy and transforming forestry and agricultural production as well as strengthening existing licensing and enforcement systems.³⁹

Nepal has initiated a programme to restore forests across 12 Districts of the Terai Arc. The programme tackles drivers by improving the supply of forest products (through improved forest management), reducing demand (by expanding biogas and improved cook stove programmes) and dependency on forests (through creating alternative livelihoods). It will deliver major biodiversity benefits, through protecting critical tiger and rhino habitat and investing in tourism.⁴⁰

	Land area M ha	Forest area M ha	Population M	Estimated reductions 2025 MtCO ₂ e
Indonesia (East Kalimantan)	12.7	8.6	3.5	34.2
Vietnam (Central Annamites)	5.1	2.3	11.0	12.04
Nepal (Terai Arc)	2.3	1.2	7.6	14.0
Subtotal	20.1	12.1	22.1	60.24

Table 1: Summary of landscape programmes (from ERPINS in each landscape)

These jurisdictional REDD+ programmes are becoming one of the most common strategies for implementing national climate agreements and in most cases are being rebranded by governments as green development or green economy platforms. The core element of each is a plan to reduce deforestation against an agreed baseline, with payments made to actors based on performance in achieving emission reductions. Importantly these are all intended to be embedded within local administrations and driven in partnership with local government, corporate and civil society stakeholders. Requiring agreement at all levels of government and across the range of stakeholders working in the region, they aim to create a stable policy environment that reduces risks and creates incentives for investments into sustainable land and forest use.

The World Bank and UNREDD have been catalysts in most of these programmes with the Forest Carbon Partnership Facility Carbon Fund currently the leader in jurisdictional REDD+ investments. However a range of new investment funds, not least the Green Climate Fund (see Annex 1), are coming on line following the UNFCCC Paris COP to support landscape scale and sectoral actions for low carbon economies. The Impact In the Forests initiative has chosen to investigate impact investment opportunities within landscapes that are the focus of these earliest investments in order to examine how these climate and sustainable land use programmes will support impact investment and to investigate the mechanisms for blending public and private finance

REDD+ programmes are becoming one of the most common strategies for implementing national climate agreements.



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Field observer equipment lined up ready for early morning collection (including GPS and smart phones), Chitwan National Park, Nepal.

OPPORTUNITIES FOR INNOVATION

Opportunities for innovation were explored, both theoretically by constructing hypotheses, theory of change and taxonomy of innovation actors; and practically by identifying potential sectors, investors, innovators and connectors.

Innovation analysis: Hypotheses

The Impact In the Forests initiative rests on five fundamental hypotheses, the first three of which were investigated during the research phase and the last two will be explored through applying innovation case studies within the landscapes in the next phase:

1. There is local interest and potential for developing innovative solutions tackling deforestation that goes un-nurtured due to lack of supportive infrastructure and entrepreneurial community.
2. Impactful solutions exist but do not reach scale due to lack of innovation systems to support acceleration, scaling and investment readiness.
3. There is demand-side interest in financing such solutions but this fails to translate into investment because of insufficient “quality” deal flow and poor product structuring.
4. An end-to-end, comprehensive approach will overcome obstacles that more narrowly focused initiatives face by covering the entire innovation funnel, identifying effective models, and advancing impact metrics.
5. Sustainability of the overall initiative will be attainable through a strong community platform (with a sustainable business model), programming that recovers costs, investment vehicles that generate return on investment and enduring changes to the policy framework.

Building interest and creating incentives in the specific issue of deforestation within the local business communities will therefore be an early task of any project.

Interest and potential: there is some evidence that businesses can play a positive role in addressing deforestation, but these ideas are still in the early stages of development. In many instances, while there was an active start-up scene in technology that had positive impacts on health and other aspects of the environment, this apparently had little relevance to addressing deforestation. That said, some relevant projects were found in each country and there is growing interest among local business communities. Building interest and creating incentives in the specific issue of deforestation within the local business communities will therefore be an early task of any project.

Scale of innovative solutions: there was agreement amongst experts in all the countries that there was little focus on how innovation and entrepreneurialism can be harnessed for forest and agricultural issues. The more general concepts of social enterprise and impact investing were beginning to be recognized, to an extent that varied between countries; support was needed in accelerating innovative solutions. In Indonesia, the main analysis focused on Kalimantan, although there seemed to be some more positive examples in other parts of the country (e.g. Java and Sulawesi).

Financing options: various general and country specific financing options were identified: from climate finance in Vietnam (although it is still unclear exactly how these funds will be accessed); through concessional funding available to support new businesses in Indonesia; and through donor-supported programmes in Nepal. In all the countries lack of funding was identified as a constraint in that projects were heavily reliant on donors, with commercial financiers generally being wary of “green” and “innovative” businesses. Financing for conservation seems to be predominantly from sources external to the country, particularly the donor community, although there is gradual development of domestic sources. In Vietnam, returnees (i.e. Vietnamese raised abroad) are investing in innovations and start-ups. Greater involvement is needed from mainstream finance such as impact investment and commercial finance to have impact at scale.

Towards a conceptual model for scaling green enterprises: an initial conceptual model is proposed for testing, describing how such opportunities could be used to build successful social enterprises that address deforestation, at a landscape scale. First steps include identification, filtering and selection of projects within a landscape, including both existing projects that could be scaled up and new project opportunities. As part of the process it is important to create a community of actors prepared to collaborate and support such activities; identify investment opportunities and set relevant metrics. Next, appropriate partners should be brought in, including, where suitable, business support services in the form of accelerators, to help ensure that projects become economically viable and can be scaled up to have a major impact on reducing deforestation. Impacts are measured, lessons learned and where necessary new approaches tried. Once successful, the model can be replicated in other parts of the landscape and in other geographies.

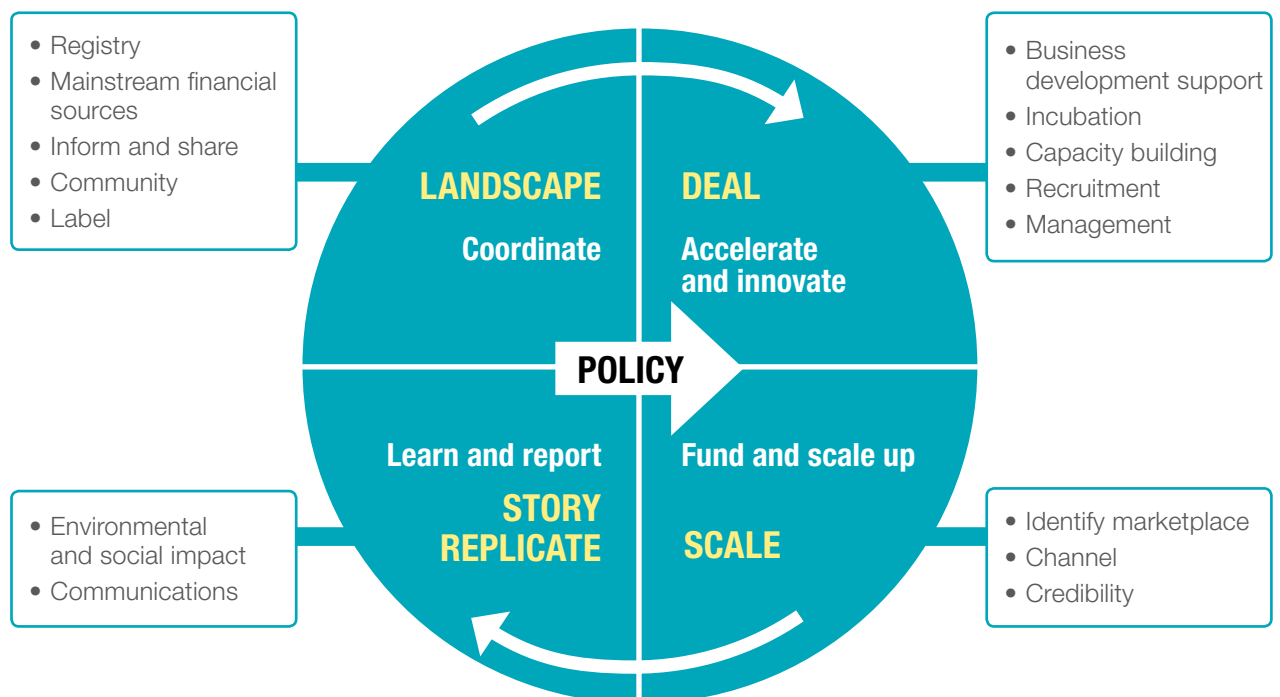


Figure 1: A conceptual model for Impact In the Forests

The success of the model depends on the ability to identify and scale new or hitherto small ventures into operations that make a landscape-scale impact. Scaling up routes could be, for instance:

- Across **geographies**, bringing many different small-scale operations into a single sustainability-oriented supply chain as is being discussed for rubber in Sumatra;
- Along **trade chains** and **value chains** for instance with cocoa, building added value for products from plantations that do not contribute to deforestation;
- Through **cross-industry coordination**, as with certified timber and wood products;
- By adding a **technological component** to boost efficiency, such as introducing electronic surveillance methods to prevent illegal logging and land use monitoring;
- By **innovation**, developing new supply chains etc., such as building demand for high quality chocolate products, or new pharmaceutical and cosmetic products from certified essential oils (white label / own brand);
- Through creating **new markets**, e.g. for certified produce (protecting high carbon stocks, supporting biodiversity corridors, ensuring zero deforestation in the production);
- By providing **access to new markets**, both in the context of products (e.g. supporting links to new buyers) and financiers (e.g. connecting with impact investors).

Social enterprises face the challenge that some commercial activities that cause deforestation, such as palm oil, are more profitable than competing sustainable enterprises. Here, national and landscape planning are needed, that take account of wider societal needs such as ecosystem services; social enterprises then play a key role in maintaining livelihoods in these regions. Different regions will have different solutions. Financial incentives may be needed to cover some of the risks that the private sector is still unwilling to take.

CASE STUDY

MAP – Sustainable travel enterprise, Nepal

Encouraging sustainable tourism as an alternative to deforesting activities

Girl working at her house in the biogas village that lies in the buffer zone of Chitwan National Park. Nearly 90% of the village has installed biogas (methane produced from cow dung and human waste), funded by WWF, replacing firewood for all their cooking.



© Simon de TREY-WHITE / WWF-Carnon

Business model: a sustainable travel social enterprise, founded in 2013 with support from Traveler’s Map in Korea. Start-up funds came from the Korean government. The enterprise is based around community-based tourism, providing support for villagers to provide good quality home stays in six villages. The company provides training for guides on sustainable tourism, and helps to establish sustainable travel packages in Nepal, along with campaigns and field trips to promote sustainable tourism. It is part of the Social Enterprise Activation (SEA) Centre and is mainly focused on Korean visitors. The enterprise was working well before the 2015 earthquake but is currently struggling due to a general downturn in tourism. In December 2015, MAP and SEA agreed to keep working together and are currently developing plans to restart the business model.

Environmental model: encouraging tourism that relies on a healthy ecosystem, and does not degrade natural forests.

Social model: provides regular income for villagers through homestay enterprises, along with training for a proportion as guides.

Taxonomy of innovation actors

Innovators are all those who help generate and implement new business ideas and can include entrepreneurs, academics, and visionary community leaders. In this case, innovation is aimed at finding business models that reduce deforestation.

Figure 2 illustrates a taxonomy of innovation actors. The overarching laws and policies that shape the nature of innovation in any country are set by governments, which are in turn influenced by international binding and non-binding agreements including under bilateral and multilateral processes such as the UNFCCC and the Convention on Biological Diversity (CBD). Innovation is heavily influenced by the opinions and capacity of existing institutions and major programmes such as those associated with addressing climate change. These require financial resources to implement, which can be mobilized through local and international private sources including banks, Foreign Direct Investment (FDI) and, depending on the country status, from multilateral or bilateral donors. Where they exist, entrepreneurs can also draw on a support structure such as incubators, government supported innovation facilities, and academic institutions. When innovators attempt to tackle issues such as deforestation, it is particularly important that they interact with other stakeholders.

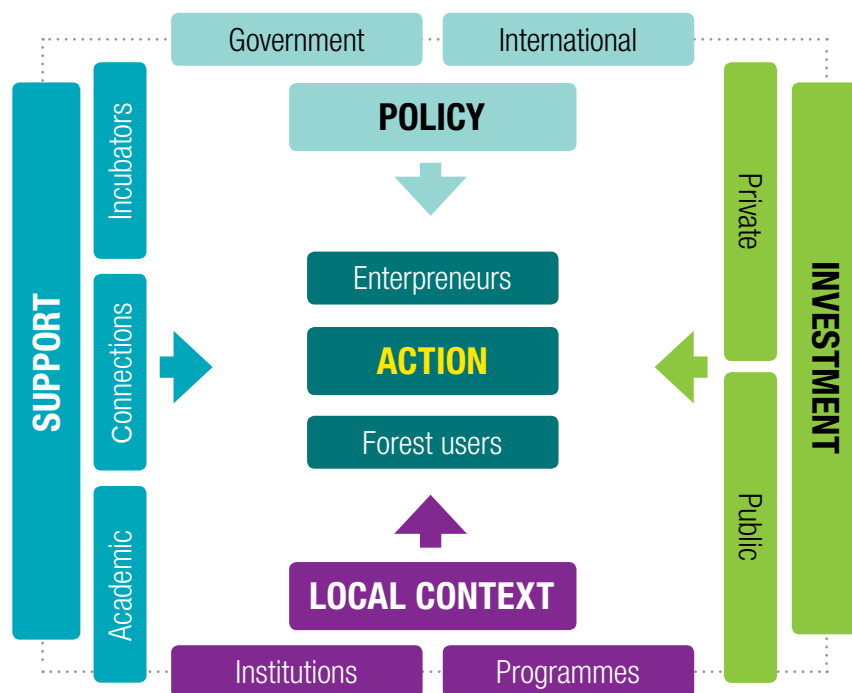


Figure 2: Taxonomy of innovation actors (these may not be mutually exclusive)

When innovators attempt to tackle **issues such as deforestation**, it is particularly important that they interact with other stakeholders.



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Coastal landscape in Meru Betiri National Park. East Java, Indonesia.

Innovation analysis: sectoral analysis

Researchers identified a range of actual and potential business opportunities in the three landscapes, which are summarized in Table 2 below.

Sector	Vietnam	Indonesia	Nepal
NTFP unprocessed	Honey, rattan, bamboo, resin, medicinal herbs ⁴¹ , major income source for some rural families ⁴²	Sustainable forest products including rattan and sugar palm ⁴³	Herbs: medicinal, aromatic Bamboo, honey ⁴⁴
Processed forest products	Export value of products from rattan, bamboo and rush almost US \$200 million in 2004 ⁴⁵	Cosmetics, essential oils ⁴⁶	Hand crafted paper, handicrafts, furniture
Food production	Agroforestry ⁴⁷ , agriculture: coffee, bamboo, organic rice, pepper Aquaculture	Mixed agroforestry for local community livelihood needs: e.g. a project in Kalimantan. ⁴⁸	Agroforestry ⁴⁹ Coffee
Tourism	Ecotourism is a growing part of the tourism industry in Vietnam ⁵⁰	Ecotourism operations exist through Indonesia ⁵¹	Ecotourism ⁵²
Ecosystem services	PES schemes for water already exist both in pilot phase ⁵³ and some larger scale schemes	PES schemes exist in several parts of Indonesia, options being assessed in Kalimantan ⁵⁴	10 existing PES schemes in Nepal, 5 covering water ⁵⁵
Energy	Energy efficiency Renewable: biogas, solar	Biogas and other household energy projects ⁵⁶ are being run throughout Kalimantan and the government has plans to increase these ⁵⁷	Energy efficiency Renewable: biogas, solar ICS ⁵⁸
Materials	Pressed bricks	Pressed bricks ⁵⁹	Pressed bricks throughout Nepal (but large social questions associated ⁶⁰)

Table 2: Sectoral analysis of the landscapes in *Impact In the Forests*

While all these present opportunities, not all will be capable of scaling up to the level that will create significant impacts in addressing forest loss. Handicrafts such as hand-made paper fall into this category: important for individual households or villages but not capable of generating a volume of trade to be scalable. Others might in theory be sufficiently scalable from a business perspective but doing so would impact on their sustainability and on the ecological quality of forests: many non-timber forest products fall into this category.⁶¹

Key business filters were introduced to focus down onto the most useful sectors: involving potential for at least a million hectares of forest involved and at least a million dollars of traded goods; other possible filters include a million tonnes of CO₂ emissions reduced, 1 million tonnes of commodities certified as sustainable, or a million forest users impacted.

Using these filters, a short list of sectors was identified that had potential for significant scale (alone and in combination):

- **Rattan:** particularly in Vietnam and Cambodia through a new FSC certification scheme for rattan⁶²
- **Medicinal plants:** particularly in the Nepal Terai⁶³ where there is already a major trade
- **Cocoa:** focusing on Indonesia and coordinating along trade chains
- **Rubber:** a potentially very large scheme in Sumatra (Indonesia), based around sustainability standards⁶⁴
- **Essential oils:** in Indonesia
- **Low carbon technology solutions:** such as cook stoves, biogas and water purifiers in the lower Mekong region and Nepal.

The short list now needs to be further assessed to judge the likely social and environmental impacts and thus the suitability for being scaled up. A number of corporate partners were identified including IKEA and Michelin. In addition to WWF, Impact Hub, Ennovent and Clarmondial, potential local partners have been identified in each landscape and will hopefully be included in the initiative.



© Raphaelle Deau

Woman harvesting latex, Eastern Plain Landscape, Cambodia.

CASE STUDY

AHP Herbal products, Nepal

Sustainable products that increase natural forest value and reduce forest degradation

Rice field terraces, Himalaya, Nepal.



© Raphaële Deau

Business model: A Corporate Social Responsibility (CSR) venture, started in 1998 to sell herbs and organic products, mainly from small traders. Products include cultivated crops and species collected from the wild on a sustainable basis: coffee, basil, citronella, anthopogon oil (*Rhododendron anthopogon*), bael nut (*Aegle marmelos*), chiuri or the butter tree of Nepal (*Diploknema butyracea*), etc. The company provides technical backstopping and marketing expertise.

Environmental model: a combination of sustainable harvesting and cultivation reduce pressure on the forest, while simultaneously increasing incentives to keep natural forests in place.

Social model: by providing marketing advice, AHP helps community producers to move from mainly production for domestic consumption to regular trade and increased income.

Innovation analysis: Innovators

The extent to which the three landscapes already possess a large enough reservoir of innovators to create major projects remains largely untested.

Vietnam has a naturally entrepreneurial culture, despite decades of centralized government, although little of the resulting effort is currently aimed at deforestation issues. Institutions such as the Climate Innovation Centre, Lotus, Vietnam Clean Production Centre and the Vietnam Silicon Valley are all hosts to strong innovators within the country.

Indonesia has a number of businesses that have become locally successful launched by entrepreneurs (including several in the palm oil industry). There are also a number of Indonesian-based entrepreneurs focusing on social and environmental impact initiatives such as Kakoa, a local chocolate company, and East Bali Cashews. However, communities in the forest landscapes are disadvantaged when it comes to building impactful innovative businesses, due to their geographical isolation and market access.

In **Nepal**, there is a recent history of innovation in the management of natural resources and in ecotourism, and the community forestry model has gained global recognition. But in a wider sense innovation and entrepreneurship are new to Nepal, and development in this domain only started recently. There are a few recognized social innovators: for example, Hampaal Allo Tatha Kapada Bunai Udyog, Alpine Coffee Estate Pvt. Ltd. and Alternative Herbal Products Pvt. Ltd. Innovators can also receive support from donor-funded programmes, such as MSFP's (Multi Stakeholder Forestry Program) Innovation fund. Further research is needed to judge how successful these innovators are in building green businesses.

CASE STUDY

Sustainable rattan production in Lao PDR

FSC certification encourages forest protection and high value for rattan products

Middleman purchasing rattan products made by local villager and supply to local market at Kampot province, Cambodia.



© Eng Mengey / WWF-Canon

Rattan resources are declining rapidly in all countries for which information is available, due to loss of its forest habitat. Concurrently, imports and profits from rattan products are also both declining. Stronger legal frameworks and credible certification systems were both identified as important steps towards redressing this situation.⁶⁵

In Lao PDR, rattan-rich forests are declining due to illegal logging. Starting in 2007, WWF worked initially with four villages to develop a sustainable rattan harvest and to introduce the concept of sustainable forest management. IKEA supplied a market for certified rattan products. In the absence of existing standards, the *Smartwood Generic NTFP Addendum* and *Lao Sustainable Forest Management Standards* were both used to develop a rattan FSC standard. The Lao Department of Forestry assessed the standards in 2011 and brought the villages into the FSC – Department of Forestry group FSC certificate, pending audit. In addition, one company developed Chain of Custody certification for rattan, a world first.⁶⁶ Initially 1,504 ha were certified;⁶⁷ by July 2014 some 33,392 ha of forest had been certified in the country, with rattan associated with around a quarter of that total.⁶⁸ Villagers reported an increase in both rattan and wild animals in certified forests.⁶⁹ WWF is now building on this experience to develop similar systems in Cambodia.⁷⁰

Innovation analysis: Investors and revenue models

There are a growing number of investors in all three countries, although few appear to be focusing on deforestation issues specifically, and enterprises linked to social impacts and impact investments are not common.

The majority of labelled sustainability-focused investment originates from outside the country, and Foreign Direct Investment (FDI) flows are important in all three countries. For example, investment in Nepal was around US\$17.3 million up to April 2015, through a wide variety of sources but principally as direct foreign investment (US\$16.1 million); this is expected to rise to US\$54 million in the near future.⁷¹ All three countries have at least one private social investment company or impact fund that focuses on environmental issues. Multilateral donors are present in force including the World Bank, Asian Development Bank and European Union. Bilateral aid, much of it directed to the agricultural and forestry sectors, is also common and often includes a focus on building sustainable businesses. Over time new funding options such as the Green Climate Fund may become relevant.

Local banks and microfinance institutions (MFIs) are generally conservative and apparently less willing to loan money to small, socially-driven start-up initiatives. State banks in Vietnam will support projects but only if instructed to by the government. Banks in Indonesia have an obligation to loan a certain proportion of money to agricultural enterprises but are reported to be failing to meet targets in this regard. Nepal has a very large number of banks, a proportion of which will make loans to microfinance projects, but lack of finance was identified as a major barrier to innovation. Like Indonesia, the Central Bank of Nepal has made it mandatory for banks to lend to the agriculture sector, but many have still been unable to meet targets and remain wary of lending.

The overall picture seems to be one in which private financing of such activities is in theory present but in reality has accompanying criteria that few start-up deforestation-free initiatives would meet: including return on investment expectations, collateral/security requirements to access finance, track record, management capability and demonstrable impact value with credible monitoring and evaluation. Foreign investors are often put off by complex and changeable regulatory environments, which hamper potential exit strategies; relatively poor local corporate governance and lack of transparency; by the generally small size of the markets and lack of liquidity, and by a lack of investment readiness in terms of management competence, capitalization and in some cases few properly constituted companies. However, some impact-first investors, already active in social sectors, are increasingly considering environmental issues. These may be more suited to the types of initiatives identified through IIF, as they may have a specific mandate to support impactful activities. Potentially relevant investors identified in the three landscapes are listed in Table 3.

Investor	Vietnam	Indonesia	Nepal
Private	Lotus Impact Unitus Insitor Impact Investment Exchange Asia (IIX) Emerging Market Investors (part of EMC)	LGT Venture Philanthropy, Grassroots Business Fund, Unitus Impact, TriLinc Global Impact Fund, Lundin Foundation	Dolma Impact Fund One to Watch Tara Management Beeds Investment Business Oxygen Biruwa Ventures Platinum Ventures, etc.
Donors and NGOs largely funded by donors	VCBF (DFID and SNV) Green Credit (funded by Swiss Dev. Corp.) LGT Global Alliance for Clean Cook stoves (GACC) EnDev REEEP	All bilateral donors and large NGOs exist in the country	DFID GIZ ADB
Donors on AFOLU: multilateral	World Bank (InfoDev and FCPF) European Union FAO IFAD ADB	World Bank including IFC Asian Development Bank European Union IFAD	Asia Development Bank (projects on raising income, high mountains farming) World Bank European Union IFAD
Donors on AFOLU: bilateral	USAID (United States) GIZ/KfW (Germany) AFD/FFEM (France) SDC (Switzerland) JICA (Japan) Finland Norway	DANIDA (Denmark) GIZ (Germany) AFD (France) Green Prosperity Fund MP3 (UK)	Multi Stakeholder Forestry Prog. (Finland, Norway, UK) USAID Hariyo Ban project (United States) AusAid Food security project (Australia)
Donors on AFOLU: private and NGO	SNV (Netherlands)	IDH	High Value Agriculture Product: SNV (Netherlands)
Banks	Techcom Asia Commercial Bank Vietnam International Bank Agribank	Bank Mandiri, Bank CIMB Negara, Bank Rakyat Indonesia, Bank Central Asia, Bank Permata, among others Microfinance institutions: VisionFund Indonesia, Amarta Microfinance, KOMIDA, PT BDR Dana Mandiri Bogor, PT Dana Mandiri Sejahtera, TLM, among others	Banks mainly interested in hydroelectric projects but some also loan to small businesses, e.g. NMB Bank, Sanatha, Bank of Kathmandu Mega Bank, Bank Nepal Laxmi Laghubitta Bittiya Agricultural Development Nepal Bank Limited Sunrise Bank Also microfinance loans: Mahila Udhyamshil Karja, Krishi Karja, Civil Bank

Table 3: Analysis of investors in the three landscapes

Innovation analysis: connectors

Connectors are individuals, organizations and networks that can help start-up companies throughout their journey from idea and prototype to running operations at scale.

Potential connectors were identified in each country, but analysis differed between the three landscapes and it was also clear that there was generally a concentration in the capital cities or other major centres, with less expertise in the three landscapes under consideration, which are all largely rural.

In **Vietnam** a range of NGO-based connectors were identified including Inclusive Business Accelerator by SNV, Vietnam Business Challenge Fund by SNV and DFID, CSIP and Nexus for Development; some multilateral institutions, including the World Bank's Climate Innovation Center;⁷² and some market-based options including Lotus Venture, the Hatch Programme and Impact Hub Phnom Penh.

Vietnam also has an emerging innovator market and some domestic connectors such as the Vietnam Clean Production Centre and the Vietnam Silicon Valley.

Indonesia identified a similar range of NGOs, and additionally pointed to the IDH sustainable trade initiative, GIZ, SNV and the Ford Foundation as potential connectors.

Nepal currently has only a handful of connectors trying to address on the ground issues, with most of the effort still occurring in Kathmandu. It also lags behind in the availability of business development service providers. Nonetheless, a range of innovator-based connectors exist, including the Surya Nepal Asha Social Entrepreneurship Awards (Change Fusion), Foundation Nepal, The Schwab Foundation, Nepalese Young Entrepreneurs Forum, Federation of Women Entrepreneurs' Associations Of Nepal (FWEAN), Sarbodaya Fund, and Entrepreneurs for Nepal. Additionally, a range of forestry-based institutions were thought to be possible connectors, such as the Federation of Community Forestry Users (FECOFUN), Nepal Foresters' Association, Jadibuti Association of Nepal (JABAN), Federation of Forest Based Industry and Trade, Nepal Herbs and Herbal Product Association.

A number of these organizations are identified as valuable potential implement partners.

CASE STUDY

Hydrologic, Cambodia

Providing filters to clean drinking water, replacing fuelwood and boosting health

Woman producing the clay container of Tonsai water filter, Cambodia.



© Nexus for Development

Business model: Hydrologic is a for-profit company manufacturing and distributing water filters to low income families in Cambodia. Originally set up in 2001 by the NGO iDE on a cost recovery basis, it began transitioning to a private social enterprise in 2008, registering in 2010. Production and sales were scaled up with support from a private investor, a micro-credit scheme, and carbon finance facilitated by Nexus for Development based in Phnom Penh (Gold Standard carbon credits sold on the voluntary market). The business became profitable in 2012, remaining so today.

Environmental model: filters replace the practice of boiling water, often using charcoal or fuelwood, the first driver of deforestation in Cambodia. Hydrologic estimates that its filters replace 49,000 tonnes of wood/year, equivalent to 230 hectares of mixed woodland, and avoiding 95,000 tonnes of CO₂ emissions/year.⁷³

Social and cultural model: 400,000 filters have been sold until 2015, affecting around 2 million people, with over half the customers earning less than US\$2.50 a day and buying on credit. Reduction in fuel costs, time spent collecting fuelwood, improved air quality and the health and financial costs of avoided diarrhoea save households on average US\$73/year.⁷⁴ 78 per cent of those who previously boiled water report less exposure to smoke.⁷⁵ Women play a strong role in the company, particularly in marketing.

Futures: the Hydrologic experience is now being replicated by TerraClear in Lao PDR; another stage in scaling up, this time across national borders. Hydrologic aims to have filters in a million households by 2020.



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Villagers thatching a roof with local grass cut in the buffer zone of the Royal Chitwan National Park, Nepal.

NEXT STEPS

In the next phase of the IIF initiative (to be started in 2016), different approaches to value generation will be tested, to see if and how value could be generated and captured at a level that provides a viable alternative to business models that promote deforestation.

The Impact In the Forests project aims for three interconnected results:

- Reducing deforestation and restoring degraded land
- Growing environmentally-responsible businesses
- Encouraging sustainable local communities

It envisages working with two kinds of clients: (1) small companies and entrepreneurs with an interest in innovative business solutions to deforestation that can operate as a collective or network to achieve scale and (2) organizations that can have a large impact on forest cover at a landscape scale. Clients will vary with location and opportunity; one potential type of relationship combining both approaches would be a larger corporation supporting start-ups to foster innovation.

Development in this sector is driven by a range of value propositions:

- Business solutions at scale – helping locally-successful green business models to grow large enough to make a significant impact in terms of reducing deforestation
- Capacity building and decision support for start-ups – providing advice at all stages, from choosing suitable projects through to business know-how and monitoring of impacts
- Preparing and connecting green business to appropriate finance – guiding local innovators on appropriate financing strategies, supporting financing preparedness and facilitating introductions to potential financiers

Expected outcomes over the next 3-5 years

The partners in *Impact In the Forests* have identified a number of targets for their future work:

- Testing innovative projects, with perhaps half of these carried forward and a smaller number built to scale
- Developing a typology of deforestation-free business models
- Identifying a set of economic, political and cultural conditions necessary for scaling up businesses that reduce or eliminate deforestation
- Supporting local innovators in each landscape actively developing business solutions to deforestation
- Developing and testing selection and monitoring systems to ensure positive conservation impact
- Developing metrics for deforestation-free businesses
- Reaching a clear understanding of how seed funds could work to scale business models
- Developing and proving a methodology to grow the pipeline
- Agreeing a set of best practice guidelines for developing deforestation-free business models

The IIF business model identifies two pathways, which may in some cases need to be combined:

- **Scenario 1:** an umbrella organization or initiative compiles and coordinates all existing and proposed projects and develops a comprehensive monitoring and evaluation framework to account for their environmental and social impacts; the best of these will be scaled up using appropriate local and international resources as needed.
- **Scenario 2:** new business models will be initiated, in partnership with businesses and where relevant, other local and international partners, including accelerators and investors.

CASE STUDY

Harapan Forest in Sumatra, Indonesia

A restoration concession turning back deforestation in a critically endangered ecosystem

Royal Chitwan National Park, Terai Arc Landscape, Nepal.



© Michel Gunther / WWF-Canon

Business model: a multi-product approach along with voluntary offset contributions. Harapan forest exists in the highly threatened lowland forest region of Sumatra. The whole area has been logged and degraded. Burung Indonesia (an affiliate of BirdLife International) applied for what was then a unique restoration licence on a logging concession, creating a change in Indonesian law. The concession is restoring forests, and utilizes carbon credits to promote sustainable forest management. The project will focus first on generating NTFPs and may also produce certified timber once the forest is restored. Uses include for instance cultivation of medicinal and ornamental plants, mushrooms, swiftlets (for soup), bees and livestock; and collection of rattan, sago, palm bamboo, agar wood and sap.

Environmental model: four restoration strategies are in place: natural regeneration; assisted regeneration through selective cutting to allow desired species to grow; selective planting in natural forest; and planting framework species in severely degraded sites to foster regeneration. Considerable research into restoration is taking place.⁷⁶ The area contains 728 tree species, 305 birds, 64 mammals including the Sumatran tiger, 56 reptiles and 38 amphibians. Important ecosystem services include water and carbon storage.

Social model: the forest contains eight family groups of the Batin Sembilan people who rely on the ecosystem for their lifestyle. Management is in collaboration with these people and six surrounding villages.

Futures: the model is currently thought to be too dependent on donor commitments to be sustainable with an estimated US\$45.5 million needed in the next 50 years. A trust fund is being established and several businesses are ready to invest but are hampered by lack of incentives, difficulties in pursuing alternative business streams, and continuing policy barriers.⁷⁷

Next steps: Developing effective sustainable businesses

From the in-country findings and respective discussions, a number of common next steps emerge:

1. Agree and apply a set of **filters** to: (i) identify industries where the margins are high enough to compete with existing concerns such as unsustainable production of palm oil, *Acacia*, *Eucalyptus* and agriculture, and support the scaling up of appropriate for-profit innovations to address deforestation; (ii) confirm that initiatives will actually reduce deforestation without additional environmental impacts (“safeguards”); and (iii) check that they also have positive social benefits.
2. Agree a set of **metrics** for deforestation-free businesses at a landscape scale, linked to REDD+ and green economy programmes, to ensure best practice and avoid perverse results.
3. Identify locally **appropriate core partners** including local companies, entrepreneurs, research and NGO partners, financiers and government agencies who have an actionable interest in promoting innovative solutions that can address deforestation in the specific landscape. Agree a common vision and objective. This may draw on members of a multi-stakeholder platform at landscape scale.
4. Identify **revenue streams to support further scaling and a next round of initiatives** this may include payments for research, impacts, and concessional funding to develop a financially self-sustaining model tied to the generation of successful outcomes.
5. Build awareness, **capacity and skills** (i) of local groups and individuals to stimulate development, testing and implementation of green business opportunities; (ii) to help established industry to understand new opportunities linked to additional reduced deforestation, and to facilitate their access to these opportunities; and (iii) work with appropriate public (government and donor) development partners to integrate private and public finance effectively.
6. Provide a common **monitoring and evaluation system** linked to the metrics for social and environmental impacts, leveraging existing best practice, including climate and carbon accounting; hectares of forest saved, sustainable forest management and legality of timber trade; other environmental impacts; and social impacts, equality of distribution, condition of workers etc.
7. Develop **local, regional and international support** to mobilize financial and non-financial support for the identified initiatives and their champions.
8. Build a **pipeline** of investable and scalable projects in an incubation model, focusing on access to market etc., as an outcome of the activities outlined above.

Next steps: Developing filters

Success will lie in identifying and implementing business models that really do deliver the range of benefits required.

A set of filters will need to be identified or developed that allow clear judgements about the suitability of projects; covering environmental and social aspects as well as business suitability. Application of filters is illustrated in Figure 3 below.

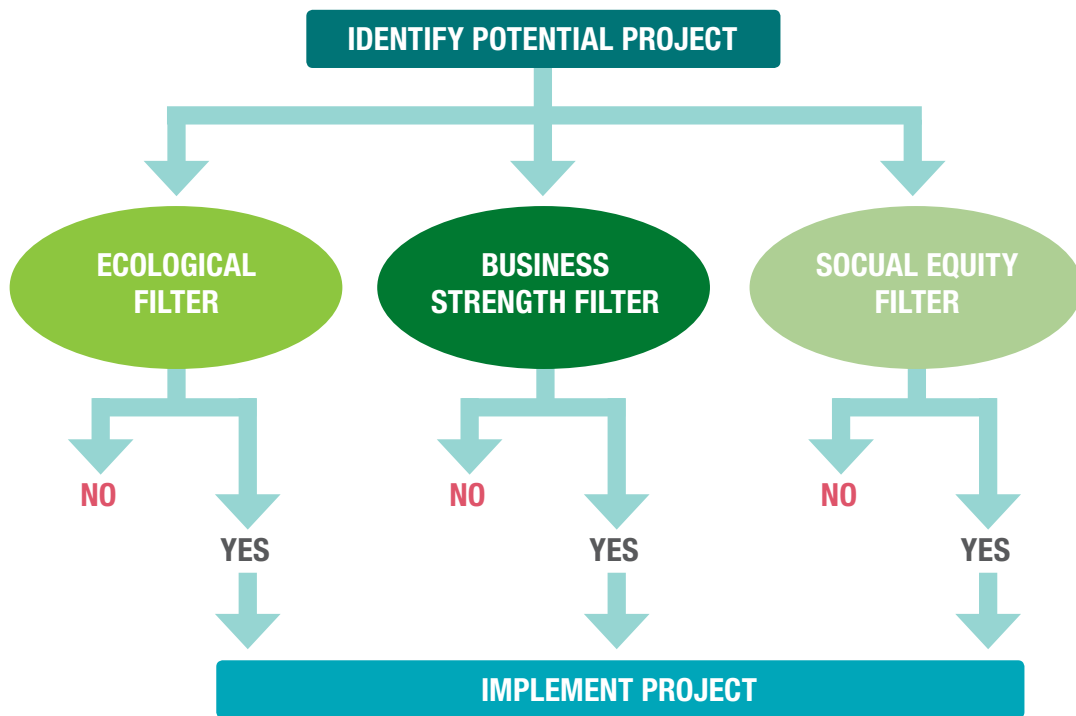


Figure 3: Filters for *Impact In the Forests* projects

Criteria for social equity and for business suitability already exist; these will need to be selected and applied with respect to the particular context. New ecological filters will also need to be developed, focusing primarily (but not exclusively) on reducing deforestation, which is quite a new aspect, and applicable at a landscape scale. Existing site-level criteria, such as those of the Forest Stewardship Council, will be a component of the ecological filters but will not provide all necessary information. In Table 4 some draft criteria and indicators are suggested as filters for IIF-supported projects.

Topic	Criteria	Indicators
Suitability of the business	Business model	Legal status Source of funding Service/product offered Innovation of the project Provision of market intelligence Status of the project Barriers and risks Unique selling propositions Revenue model Enabling or restricting regulatory framework
	Management team profile	Relevant knowledge Track record Future hiring plans
	Potential to reach scale	>US\$1 million/year >1 million people affected >1 million ha involved
	Sustainability	Business not reliant on continuous donations Revenue generating with the potential to become profitable within 3 years
Ecological impacts	Forest cover	Reduction in deforestation rate in a landscape Replacement of a cause of deforestation
	Sustainability of Natural Resource Management (NRM)	Keeping within sustainable yield of any natural product Collection methods without harmful side effects
	Additional site-specific impacts	To be determined per site but may include reduced pollution
	Alignment with existing policies	Alignment with forest policies Alignment with climate policies
Social, economic and cultural impacts	Economic benefits	Increase in average income among directly involved communities Job creation Retention of rural communities Alignment with national economic policies Evidence of pro-poor policies
	Social equitability	Gender equality indicators Youth involvement indicators
	Community involvement / control	Participatory decision-making on key issues Evidence of support from local communities

Table 4: Examples of criteria and indicators for IIF filters

CASE STUDY

Biogas Programme for the Animal Husbandry Sector, Vietnam

Massive expansion of biogas use reducing fuelwood use, benefitting health and providing crop fertilizers

Masons training to build biodigesters, Vietnam.



© Nexus for Development

Business model: a hybrid business model, started and driven by an NGO, the Netherlands-based SNV, which applies a for-profit business model and works with Nexus for Development to scale up and drive investment. It operated as a start-up from 2003-2006, with a grant from the Netherlands government, and scaled up after that. It has been registered with a voluntary carbon credit scheme since 2012. To date, 145,000 biogas digesters have been built and installed in Vietnam, benefitting 650,000 people, and the programme is already operating in over half the provinces.

Environmental model: the biogas generators replace an estimated 25,000 kg of fuelwood a year, equivalent to 18,000 ha over the lifetime of the project.⁷⁸ In addition to energy production, use of biogas generators reduces pollution from livestock and produces slurry that can be used as crop fertilizer. Replacement of food and fossil fuels saves an estimated 480,000 t CO₂ equivalent per year for Vietnam.

Social model: installing a biogas generator reduces working time for women by an average of 14 hours per week otherwise spent fuelwood collecting and lighting and cleaning stoves, and 2,600 local people have been trained as masons and technicians.⁷⁹ The increasing practice of installing a toilet with the biogas generator also increases hygiene and has positive health benefits. Payback period for the generator is usually two and a half years, quickly bringing money savings.

Futures: the programme has two long-term aims: to improve the livelihood and quality of life of rural farmers in Vietnam through exploiting the economic and non-economic benefits of domestic biogas and to develop a commercially viable domestic biogas sector.⁸⁰ However, the business is not yet self-financing. Currently, in anticipation of less or zero donor funding in the future, there is a switch to a Results Based Financing model, households will no longer receive an investment subsidy. Biogas enterprises will find their own customers, provide and pay for end user training and quality control, provide a high quality biogas digester and give households a warranty and biogas appliance discount. In return for this they will receive an incentive of VND1.2 million.⁸¹



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Illegal logging, Eastern Plain Landscape, Cambodia.

Next steps: Monitoring

Projects and businesses require monitoring to ensure that business, social and environmental objectives are met.

While some landscape assessment systems have been developed and applied,⁸² including participatory processes,⁸³ it is unlikely that these will be an exact fit for the kind of business model being developed and further conceptual thinking is needed. There is consensus that monitoring the success of any particular social enterprise needs to be tailored closely to the aims of the business;⁸⁴ there is no one-size-fits-all system. While there are standard indicators of business success (turnover, profitability, sustainability), social success is influenced by individual situations, and can include for instance profitability, number of workers, gender equity, wage equity, poverty reduction and representation of minorities. Environmental monitoring will vary depending on objectives: always addressing forest cover and where necessary sustainability of natural resource management and potential environmental side effects.

Measuring landscape-scale changes in forest cover and deforestation rate presents a number of methodological challenges. First the landscape needs to be identified; where actions are displacing deforestation at a distance (for example if sustainably harvested timber in Vietnam is displacing illegal logging in Cambodia) the landscape may be very large. Next, action needs to be measured in terms of deforestation avoided. This is also complex: for instance increasing fuel efficiency may not actually have a major impact on the amount of timber collected but instead allow people to have warmer houses, adopt different cooking methods and so on. A change that removes the need for fuelwood might also remove the incentive to keep a forest in place, creating a perverse incentive. Even if the parameters are clear there are challenges in measurement; satellite imagery will likely only give a general idea of the status of a forest for instance. A significant number of these elements are contained in the monitoring systems for REDD+. Since these must be applied at both national level and at jurisdictional scale in the three landscapes, there is the potential to use them to establish a more coherent approach to monitoring environmental, social and economic/business performance. Developing convincing and credible monitoring systems is an important priority.

Each project needs to be judged on its own merits

Management metrics: for-profit approaches to tackling deforestation need to ensure that they deliver what they promise, without being so rule-bound as to be unmanageable. As we learn more about selecting, managing and monitoring projects, emerging best practices could be systematized into a set of **metrics for deforestation-free businesses:** one potential useful outcome of IIF.

Many potential solutions to deforestation can act either positively or negatively depending on the context, management and external factors. A survey of 55 NTFP projects around the world found that commercial extraction from the wild, without management, tends to deplete the resource; and higher livelihood outcomes are associated with lower environmental outcomes.⁸⁵

Unconsidered NTFP commercialization creates ecological risks⁸⁶ and may have an anti-poor bias by increasing inequality within communities.⁸⁷ While successful models exist,⁸⁸ along with principles for best practice,⁸⁹ sustainability should not be assumed. Similarly improved cook stoves have not invariably led to reduced firewood demand in Nepal.⁹⁰ Shrimp fisheries have been a major cause of mangrove loss,⁹¹ although shrimp harvesting can also be improved by mangrove restoration under different circumstances.⁹² Rattan harvesting is frequently unsustainable.⁹³ Natural resource management is therefore only sustainable if it is carefully planned, managed and monitored. Developing effective filtering mechanisms and planning and implementing both monitoring and adaptive management are all key factors in success.

CASE STUDY

Inclusive business accelerator, Vietnam

Scaling up social enterprises including cook stoves and biogas generators

Young boy holding a Bagrid catfish (*small Bagarius sp.*), Tonle Sap River, Cambodia.



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The IBA partnership aims to scale up private sector engagement in low-income markets by incubating projects that initially receive donor funding. IBA is managed by SNV Vietnam as part of a wider global partnership; it is thus a hybrid being an NGO giving advice to the business community. IBA is involved in many market based approaches, some of which impact on forests. For example, Truong Giang cook stoves, based in northern Vietnam, reduce wood fuel use by 50 per cent and their double burning action reduces emissions harmful to human health. Approved by the Global Alliance for Clean Cook Stoves and already selling locally, the company is now looking for investment to scale up throughout the country.

MTX uses composite and recycled materials to build biogas tanks and related equipment, currently selling around 9,000 a year and targeting low-income farmers. With 2.7 million livestock farmers in Vietnam there is room for a huge level of expansion and MTX is also seeking investors to help it scale up its operations. Both these enterprises have the potential to directly reduce deforestation, by increasing fuel efficiency or providing viable alternatives.

Conclusions

Recent global developments, such as the Sustainable Development Goal for halting deforestation by 2020, and decisions by signatories of the UN Framework Convention on Climate Change, have focused attention on the need to prioritize efforts to halt net deforestation. Building businesses that support a deforestation-free future is a critical step towards achieving the ambitious SDG goals.

IIF has been investigating how to build an innovation ecosystem around forest-related businesses, including identifying the roles that different actors can play including innovators, connectors, governments, Impact Hubs, entrepreneurs, platforms, large companies, and NGOs. It focuses on the opportunities for local businesses to be supported in order to reduce deforestation, with an emphasis on sustainable landscape approaches to ensure scale.⁹⁴ IIF takes a commercially informed approach in that it aims to identify and test how consortia of local and external partners can add tangible value to promising local enterprises, thus setting the stage for the programme itself to become financially self-sustaining tied to successful service delivery. Building as a business from the start avoids the dependency culture that can evolve around entirely donation-financed programmes. And it utilizes the potential of private sector innovation to drive positive solutions at scale.

Transparency is a fundamental requirement of this new system of working, along with lesson learning and investment in sharing experience with partners. The approach is based on inclusivity, for instance considering the smallest producers as key actors in the supply chain and aiming for collaboration rather than duplication.

This report has summarized progress to date, laid out plans for the future and also hopefully provided some inspiration and advice for others seeking to follow similar trajectories. We hope this will mobilize international and local partners to join us in the next phase of this journey.

Key messages to date include the need to build a **deforestation-free logic** into the process of identifying suitable projects and monitoring their success or failure: this emphasis creates some methodological challenges that the consortium hopes to explore in the next phase of IIF. Linked to this is clear recognition of the need and opportunity for **supporting local enterprises in scaling** to the level at which they can make a serious impact in halting and reverting forest loss (including through awareness-raising, financial and human resource mobilization).

Achieving zero net deforestation will not be easy. A surprising number of the projects considered, whilst often providing excellent social and/or environmental impacts nonetheless had little direct impact on deforestation. And the number of businesses with potential environmental returns is a small fraction of the overall marketplace. Developing deforestation-free social enterprises remains in its infancy. But there is also a rapid and very encouraging growth of interest in the possibilities of business models that reduce deforestation, a new generation of entrepreneurs ready to take risks and build successful business models, and a global policy framework that supports such efforts. Events are likely to move quickly in the next few years. There is a huge amount yet to learn and much focused work ahead to build an effective system for achieving Impact In the Forests.



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Clearing forest on a drained peat swamp near Sembuluh for a palm oil plantation. Central Kalimantan, Indonesia.

Glossary and acronyms

AFOLU: Agriculture, Forestry and Other Land Uses.

CBD: Convention on Biological Diversity.

CDM: Clean Development Mechanism of the UN Framework Convention on Climate Change.

Connector: a skilled individual, often seconded from business, working with start-up companies to help them build partnerships to maximize their effectiveness.

COP: Conference of Parties; periodic meeting of convention or similar.

Deal flow: a term used by finance professionals for the rate at which they receive business proposals or investment offers. The term may also refer to the stream of offers or opportunities as a collective whole.

Deforestation: conversion of forest to another land use or the long-term reduction of the tree canopy cover; Deforestation implies the long-term or permanent loss of forest cover and transformation into another land use. It includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas and specifically excludes areas where trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures. Plantations are not equated with natural forests as many values are diminished when a plantation replaces a natural forest.

Ecosystem services: the benefits people obtain from nature. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other non-material benefits.

ERPIN: Emission Reduction Project Idea Note.

FCPF: Forest Carbon Partnership Fund linked to the World Bank.

FDI: Foreign direct investment.

FSC: Forest Stewardship Council.

GtCO₂e: gigatonnes carbon dioxide equivalent, standard measure of greenhouse gases used by the Intergovernmental Panel on Climate Change.

Ha: hectares.

IIF: Impact In the Forests initiative.

Impact investment fund: impact investing refers to investments that aim to generate a measurable, beneficial social or environmental impact alongside a financial return.

Incubator: a company that helps new and start-up companies to develop by providing services such as management training or office space.

INDC: Intended Nationally Determined Contributions.

Innovation funnel: a process by which multiple innovatory ideas are filtered through a series of steps to select one or a few for development.

Innovation system: a concept that stresses that the flow of technology and information among people, enterprises and institutions is critical to a successful innovative process.

Investment vehicle: any method by which individuals or businesses can invest and, ideally, grow their money. There is a wide variety of investment vehicles and many investors choose to hold at least several types in their portfolios.

Landscape approach: a landscape approach outlines a process for land use negotiations (and trade-offs) among a wide range of environmental, social and economic stakeholders. Within a conservation context, the landscape approach reflects the priorities defined in a larger-scale biodiversity vision. It establishes targets for maintaining/enhancing biodiversity and ecosystem functions and services.

Landscape: A socio-ecological system that consists of natural and/or human-modified ecosystems, and which is influenced by distinct ecological, historical, economic and socio-cultural processes and activities.

MFI: Micro-Finance Institutions.

MtCO₂e: million tonnes carbon dioxide equivalent, standard measure of greenhouse gases used by the Intergovernmental Panel on Climate Change.

NTFP: Non-timber forest products.

Payments for ecosystem services (PES), are incentives offered to farmers, landowners or those with traditional rights over natural resources in exchange for managing their land and / or water to provide some sort of ecological service (e.g. uncontaminated water or erosion control).

PES: payment for ecosystem services.

Pipeline: the development process between starting and finishing point. The pipeline needs to be long enough – i.e. sufficient time and resources available – to produce a satisfactory end result.

REDD+: Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. “REDD+” goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks within REDD schemes.

ROI: Return On Investment

SDG: Sustainable Development Goals.

Sustainable landscape: A sustainable landscape helps to meet the principles of sustainable development as defined in the UN Sustainable Development Goals. These are landscapes that can meet the needs of the present, without compromising the ability of future generations to meet their own needs.

UNFCCC: United Nations Framework Convention on Climate Change.

VCS: Verified Carbon Standard.

Vietnam Business Challenge Fund (VBCF): a specialized fund initiated and capitalized by the UK Department for International Development. It is designed to help the private sector in Vietnam to develop innovative business models that deliver both commercial benefits for a company and social impact for the low income population. It uses Inclusive Business models to bring low income populations into the company as employees, producers, distributors and/or consumers.

Zero Net Deforestation and Degradation: *“no net forest loss through deforestation and no net decline in forest quality through degradation”*. ZNDD is not quite the same as no forest clearing anywhere, under any circumstances. For instance, it recognizes peoples’ right to clear some forests for agriculture, or the value in occasionally “trading off” degraded forests to free up other land to restore important biological corridors, provided that biodiversity values and net quantity and quality of forests are maintained. In advocating ZNDD by 2020, WWF stresses that: (a) the annual rate of loss of natural or semi-natural forests should be reduced to near zero; and (b) any gross loss or degradation of pristine natural forests would need to be offset by an equivalent area of socially and environmentally sound forest restoration.

This report has summarized progress to date, laid out plans for the future and also hopefully provided some inspiration and advice for others seeking to follow similar trajectories.

We hope this will mobilize international and local partners to join us in the next phase of this journey.



Wood-cutter harvesting mangroves in Camau Peninsula, Mekong.

Annex 1: Non exclusive list of Public investment funds for forest, climate and sustainable development.

Fund Name	Donor / Investor Name
Carbon Fund	World Bank FCPF
Amazon Fund	Public bank/private fund: Brazilian Development Bank
Initiative for Sustainable Forests Landscapes	BioCarbon Fund- World Bank
Forest Investment Program	World Bank
Green Climate Fund	Green Climate Fund / Asian Development Bank
Norway's International Climate and Forest Initiative	Government of Norway
Land Degradation Neutrality Fund (from Paris COP 2015)	UNCCD
Landscape Fund	UNEP / CIFOR
GEF 4-6	Global Environment Facility
Althelia Climate Fund	Althelia Climate Fund
International Climate Fund	UK Government
The International Climate Initiative	The German Federal Ministry (BMU)
African Climate Change Fund	African Development Bank
Congo Basin Forest Fund	African Development Bank
Climate Change Fund (fund may be expired or renewed)	Asian Development Bank
Canadian Climate Fund (C2F)	Asian Development Bank
Canadian Climate Fund (C2F)	Inter-American Development Bank (IDB)
Adaptation for Smallholder Agriculture Programme	International Fund for Agricultural Development (IFAD)
WCS Climate Adaptation Fund	Doris Duke Charitable Foundation, WCS Wildlife Action Opportunities Fund
International Forest Carbon Initiative	Australian Department of Climate Change and Energy Efficiency and AusAID
Livelihoods Carbon Fund/ Fund for Family Farming	Danone, Schneider Electric, Crédit Agricole S.A., Michelin, Hermès, SAP, CDC Climat, La Poste, Firmenich, Voyageurs du Monde
Natural Capital Financing Facility	EIB financing and EC funding under LIFE Programme
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A villager watering crops that she grows in an area of the Mekong wetlands close to the Cambodia-Laos Border

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ABSTRACT

The UN's 2015 Sustainable Development Goals aim to halt deforestation by 2020. This will not be achieved by donations or volunteer efforts alone. The Impact In the Forests initiative believes that developing successful businesses in or near permanent natural forests is a key step to eliminating deforestation. Such businesses need to fulfil environmental, social and economic needs: pro-poor, guided by local communities and addressing social, cultural and gender inequities. Businesses need to create a substantial impact, often through a collective or co-operative approach of many small businesses or new policies from large businesses. We define deforestation-free business models as enterprises that can *operate without directly or indirectly causing deforestation or forest degradation and/or contribute to forest and land restoration*. Working to kick-start sustainable and scalable business models requires a new approach. Impact In the Forests aims to:

- **Identify** potential suitable business models and innovators
- **Accelerate** innovative solutions to achieve significant scale
- **Facilitate** an integrated and beneficial combination of public and private financing
- **Measure impact** and ensure that businesses deliver promised environmental and social benefits
- **Promote success stories** to users, entrepreneurs, innovators, businesses and donors
- **Connect** top-down actors (institutions, policy makers, funds, etc.) and bottom-up innovators
- **Provide** holistic input for policy making
- **Ensure buy-in** for green approaches at every level of businesses engaged in the landscape
- **Replicate** successful models in other places impacted by deforestation

The ideas are being tested out in three landscapes in Asia:

- **Vietnam:** particularly the Central Truong Son area around the Annamite Mountains
- **Indonesia:** focusing on inland Kalimantan on the island of Borneo, plus Sumatra and Sulawesi
- **Nepal:** particularly in the lowland area that forms part of the transboundary Terai Arc region

The report provides a situation analysis of the environmental, social and political situation in each of the landscapes, along with the policy and entrepreneurial context. It discusses the potential for innovative approaches in the landscapes and provides a sectoral analysis of the kinds of enterprises that might contribute positively to addressing deforestation. Finally, it looks at the various actors (innovators, investors and connectors) who might be involved. Real-life examples are cited throughout. Next steps for the project are outlined in a final section.
