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Reducing Deforestation, Increasing Profits: The Business Case for Indonesian Palm Oil Companies

Authors: Anna Creed and Jonathan Gheysens

Key messages:

- Increases in the production of agricultural commodities such as palm oil will continue to lead to tropical deforestation and hamper the achievement of REDD+ objectives if there are no significant changes to production practices and modes, to the structure of supply chains, and to public policy and regulation.
- Evidence is emerging that ongoing engagement in deforestation by palm oil producers is already negatively impacting their financial returns due to a variety of biophysical, market and commercial factors associated with these practices. However, this evidence is not yet well collated or shared and so is not well understood, and is not driving change at scale within the private sector or governments.
- Governments could strengthen the case for companies to reduce deforestation by improved enforcement of existing policy and regulations.
- Palm oil producers will face significant challenges to decouple palm oil production from deforestation in the current regulatory and market environment. Economic and regulatory policy changes are needed to facilitate change and to make sure that solutions can be inclusive and successfully adopted across the industry. Such policy changes will have to focus on increasing the production of palm oil on existing land and/or using degraded land instead of pristine forests.

The private sector is critical to the success of REDD+

Forest conversion provides land for commodity production, resource extraction and infrastructure development. It, therefore, enables economic development and growth locally, nationally and globally. However, extensive clearing of forests also results in the degradation and destruction of essential ecosystem services. This not only undermines the climate targets set by countries in their Nationally Determined Contributions (NDCs)¹, but may also ultimately threaten food and resource security and economic growth.

To balance climate, food, water, employment and income goals, a new model of land and forest use is needed - one that decouples production from deforestation. This is no easy task. It requires effective sustainable land-use policies and legislation. It requires upfront investment in technical research, stakeholder engagement, policy development and the implementation and dissemination of new technologies and operating practices. It requires new incentives for economic actors.

This transformation has already begun. Brazil has reduced deforestation in the Brazilian Amazon and Cerrado by 80 per cent and two thirds, respectively, since peaks in deforestation in both biomes in 2004. Even more impressively, this has happened during a period of rapid agricultural growth, with Brazil producing and exporting large amounts of beef and soy, despite the world recession.²

Across tropical forest countries, many national and sub-national governments are developing and implementing capabilities and policy reforms that advance sustainable land-use objectives. Upwards of 50 countries have identified emissions' reductions from land use, agriculture and/or forests as among their main mitigation activities in their NDCs³. The inclusion of "REDD+" (reducing emissions from deforestation and forest degradation) in the international Paris Agreement of December 2015 for the first time recognized the importance of forests in the fight against climate change and gave rise to the prospect of significant international funding for forests.⁴ In anticipation of this, countries are at various stages of developing and implementing REDD+ strategies, policies and measures that identify and address the drivers of deforestation and forest degradation. These will only be appropriately targeted and successful if they recognize and address the importance of the private sector.

Most deforestation or forest degradation is carried out in order to supply commodities to domestic or international markets. Therefore, a vast number and variety of private sector operators are linked to deforestation and forest degradation through their involvement in supply chains⁵ built around the financing, production, processing, trade, distribution and retail of those commodities and their derivative products. This includes local and foreign-owned operators across the agricultural, mining, timber, and charcoal sectors, for example, varying in size from smallholders to multinational corporations.

Acceptance of this is reflected in the New York Declaration on Forests – a political declaration in which governments, companies and civil society jointly endorsed a global timeline to cut natural forest loss in half by 2020, and strive to end it by 2030. More specifically, the Declaration supported

the goal of eliminating deforestation from the production of agricultural commodities such as palm oil, soy, paper and beef products by no later than 2020⁶.

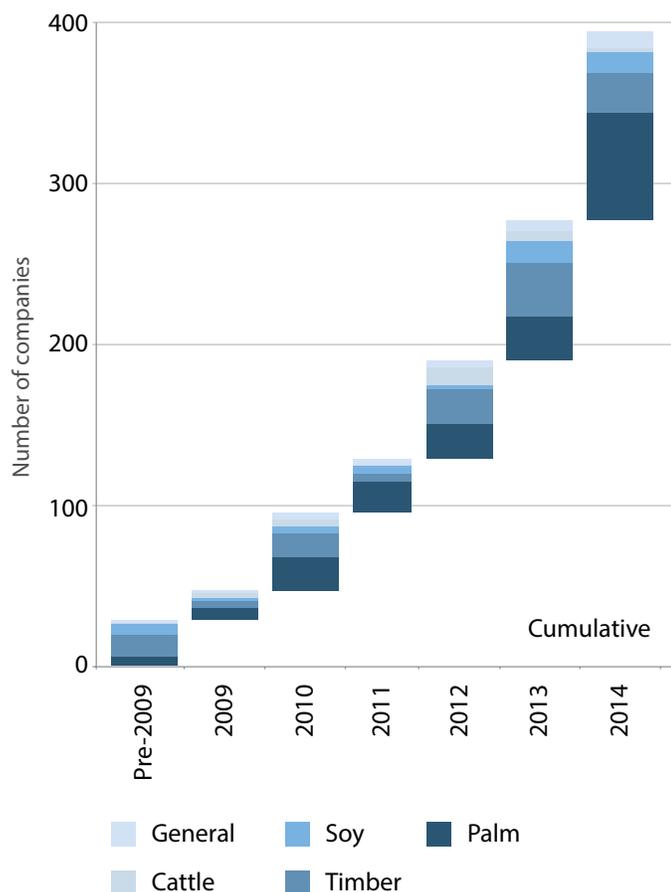
A number of private sector actors are already working towards the removal of deforestation from their respective supply chains. Across a variety of geographies and sectors, there have been increasing commitments from companies to produce or source zero-deforestation commodities. One of the most important elements of this trend has been the commitment by the Consumer Goods Forum (CGF) – a collaboration of 400 retailers, manufacturers, and service providers with combined annual sales of over US\$3 trillion – to move towards a goal of zero net deforestation in member supply chains by 2020 (through the Tropical Forest Alliance, or TFA2020).

To turn these commitments into action, a number of companies have been instrumental in developing international standard and certification systems for the sustainable production and supply of many commodities⁷. A number are actively engaged in tracing their suppliers and working with them to establish alternative production and sourcing practices, and rolling out certification and crediting schemes. Some are sending strong signals to governments that they are looking for 'preferred sourcing' locations in which public and private sector collaborations can build operating environments conducive to, and compatible with, REDD+ and zero deforestation supply chain outcomes.

However, while momentum is building and these efforts are showing signs that they can be a powerful catalyst for global forest conservation, the pace of change is slow and global deforestation continues to increase.

The challenge for national and sub-national governments is to redirect the capabilities and resources of all private sector operators towards activities that lead to the same company, national production, employment and income targets, but without the associated deforestation and forest degradation. Business-as-usual will continue in many respects, but it needs to be under a revised mode of legislation and operation that addresses urgent environmental needs, and is pro-poor and pro-development.

Figure 1: Commitments of the private sector: Growth in zero deforestation pledges for the main agricultural commodities



Removing deforestation from commodity supply chains – a business case analysis

REDD+ national strategies and subsequent policies and measures can only be effectively designed and targeted to promote a rapid and equitable transition towards deforestation-free production and supply chains if they correctly anticipate and shape the broader evolution of the sector.

To achieve this, governments need to address the economic and financial drivers of all those participating in those supply chains – from domestic smallholders to multinational corporations. Only with a good understanding of the risks and opportunities faced by these operators can governments deliver the most appropriate combination of carrots and sticks to incentivize change and remove barriers to change, through measures which might include, but are not limited to, policy and regulatory change.

One approach that can provide useful insight on this is to work on understanding these trade-offs from the bottom up – looking at the economic and financial implications of a transition to deforestation-free production for a private sector company, taking into account their objectives, and their competitive and legislative environment. This offers insights into the decision-making processes of the private sector, an improved understanding of which should enable a more appropriate targeting of policies and measures to change their deforestation behaviour.

This Information Brief explains in more detail this “business case” methodology and summarizes the highlights of its application to the case of a representative, mid-large scale palm oil grower in Indonesia. These highlights include insights into:

- The extent to which ongoing deforestation puts into risk the profits and financial returns of palm oil producer companies engaged in deforestation, and therefore, the extent to which those companies are self-motivated to reduce their deforestation footprint and under what conditions.
- The extent to which those companies can feasibly reduce their deforestation footprint in the current regulatory and market environment.
- The manner in which private sector-led initiatives to reduce deforestation are currently shaping the market and the decisions of others in those supply chains.
- Which government policies and measures might best incentivize and accelerate change by those companies to reduce their deforestation footprint while continuing to deliver national growth and development targets.

Prevailing wisdom holds that the environmental and social costs associated with forest clearing are to a large extent externalized to local society (e.g. through soil erosion, biodiversity loss, water regulation, etc.) and global society (e.g. through greenhouse gas emissions). However, evidence is emerging that some of these costs are increasingly filtering through to impact on the financial returns of some of those companies engaged in deforestation. If so, and if this can be evidenced and disseminated, there will be a stronger case for private sector actors to change their behaviour purely based on self-interested financial factors.⁸ However, where limitations to this financial self-interest argument exist, and/or where moving to zero deforestation production is not feasible or viable in the

current operating environment, a deeper understanding of private sector barriers and levers in terms of the metrics they set themselves is essential to guide the design and implementation of effective REDD+ policies and measures.

For instance, the design of effective and efficient fiscal policies and fiscal instruments that can advance REDD+ objectives is dependent on the precise comprehension of the targeted companies' cost structure and anticipated reaction to changes in their profit margins.⁹ Without this knowledge, the design of fiscal policies, for example, will remain tentative and exploratory, with the risk of missing their intended targets.

Likewise, government enforcement of legislation and regulation subjecting all those responsible for deforestation to prohibitive fines and or prison sentences may well cut deforestation, but it may also reduce production volumes, employment and income if pursued in isolation. A nuanced understanding of private sector levers and barriers is needed to develop a balanced portfolio of interventions.

Similarly, identifying interactions and roles between and across different supply chain actors makes it easier to identify the most vulnerable stakeholders and to design policies and measures that can positively target them and strengthen poverty reduction efforts. Transitioning to a green production model cannot be conceptualized without including a strong social dimension: smallholders are often the main agents of production but lack sufficient resources to undertake the necessary transformations to production practices. There is a clear case for an inclusive process that would lift smallholders out of poverty while giving them the means to produce more effectively, profitably and sustainably. Larger scale operators who have most contact with smallholders will be critical to this.

The "business case" methodology

Commodity supply chains are complex systems¹⁰ built on numerous interconnections between economic agents of different size, power, sophistication and motivation. They are subject to sudden changes in regional and global demand and supply markets. As such they are notoriously difficult to transform.

Analysis starts at the level of the individual company and lists the set of business constraints, opportunities and challenges that can influence their decision to remove deforestation from their operations. This is similar to a traditional business case exercise in which a business model - its strengths, weaknesses, opportunities and threats - are evaluated.

This business case, in its most schematic form, sequences the analysis around three stages:

- 1. Baseline assessment:** A detailed assessment of the economic, financial, legal and regulatory environments in which companies currently operate, and how these factors do, or might, impact a company's decision to deforest or degrade forest. This assessment uses a novel "Deforestation Value at Risk" model (D-VaR) to calculate the extent to which the company's financial performance is put at risk by the company's ongoing connection with deforestation.
- 2. Strategic options assessment:** A detailed assessment of the measures that a company can deploy to transition to a deforestation-free supply chain. This assessment uses an analytical framework to map out the feasibility of these options in the current regulatory and market environment, the cost of rolling them out, the extent to which they might mitigate the costs of deforestation, and any new risks or opportunities they might entail, noting the possibility of trade-offs between "zero deforestation" goals and other social and environmental goals of the company.
- 3. Business case assessment:** A comprehensive assessment of the baseline and strategic options assessment to determine whether it is in the company's best financial interests to remove deforestation from their supply chains, and whether it is feasible in the current regulatory and market environment. If it can be demonstrated that the company's financial performance is being put at high risk, and the alternative modes of operation are viable, it is more likely that the company will seek to change its behaviour. If not, then further assessment is needed into the possible policies, measures and financial instruments that would stimulate private sector activities to remove deforestation from agricultural supply chains.

This final stage ultimately informs the design of the REDD+ policies and measures (PAMs) and as such needs to be connected to other PAM-related activities to ensure a high degree of coherence and consistency in formulated REDD+ policies.

Impact of deforestation on palm oil production: taking stock of the existing body of evidence

While a large body of scientific literature has been published on the conceptual relations interlinking economic performance and environmental stewardship, only a few academic papers have addressed, albeit tangentially, the causal relation linking deforestation to lower than expected agriculture production levels, especially in the context of palm oil production. Most of these papers highlight the importance of thriving ecosystems to deliver goods and services that are necessary inputs to high performing agricultural systems. L.P Koh¹¹ indicates that a healthy bird population, in size, density and variety, can significantly decrease herbivory damage to oil palms, suggesting that the presence of insectivorous birds populating forested ecosystems can deliver a natural pest control service for oil palm agriculture. P. Kalidas¹² points to the importance of biodiversity to provide natural pest control services against highly damaging pest populations, including the rhinoceros

beetle, the leaf web worm and slug caterpillar. The paper is not explicit on the link between deforestation and the disappearance of the biodiversity supporting the existence of these pest control species, but indicates that their survival depends on the availability of shelter and food sources, provided by a certain variety of beneficial plants that cannot be found in oil palm monoculture. Finally, T. Garg¹³ finds that periods of deforestation in Indonesia can statistically explain a significant number of additional malaria infections. This is because deforestation alters the disease ecology of malaria: first, cleared lands receive more sunlight and are more susceptible to the formation of puddles with a more neutral pH that favours anopheline larvae development (the vector of malaria) and second, deforestation adversely affects biodiversity and reduces the population of species that prey on these larvae.

Baseline assessment: A risk model to value the financial implications of deforestation for the supply chain operators

The impacts of agriculture on deforestation have been extensively documented. However, the impacts of deforestation on agriculture production and financial returns remain relatively unexplored.

Deforestation, if left unchecked, however, may cause substantial losses and disrupt a company's operations for a significant period of time. This is because deforestation may create a number of risks for a company – with different frequencies and impacts, individually and in combination. Not all risks have been captured in the risk model to reflect the importance of the materiality dimension to the private sector. The analysis can focus on those risks that are deemed to result directly from the company's own activities, and/or impact directly on their financial and economic performance. These are the risks that the company is motivated to address, and has the ability to limit the magnitude of, and their exposure to.

The frequency, intensity and materiality¹¹ of these risks will vary by company and by commodity and by supply chain structure, depending on a number of factors, including its geographic location, exposure to different markets, the country in which it is registered, and the extent of its deforestation. However, what can be reasonably concluded

at this stage is that moving to “zero deforestation” is an increasingly important mitigating strategy for companies to protect and enhance their value from losses resulting from extensive clearing of forest.

From this risk analysis, it is possible to infer the company's value-at-risk from pursuing deforestation, i.e. the extent to which continuing deforestation can impact the company's future financial performance. The analysis in turn informs whether companies (and by extension, whole industries) might or might not be self-motivated to change their production and/or procurement practices, and how this might impact the palm oil production base in the country as a whole.

Table 1 gives a high-level example of the types of common deforestation-related risks to which a company can be exposed.

Table 1: Risks to financial performance linked to deforestation

Risk family	Examples	Frequency & Impact
Biophysical	Peat risk: Reduced productivity due to deforestation-linked soil erosion or flooding Pest and disease risk: Reduced productivity due to increases in crop pests and diseases as a result of deforestation or potential crop failure Fire risk: Reduced production due to asset/land loss	High frequency Low impact
Stranded asset	New regulations leading to stranded unconverted land banks	Low frequency High impact
Social	Correlation between deforestation and poor engagement with communities, leading to conflicts and disruptions in production	Mid frequency Mid-high impact
Health	Reduced productivity due to negative health impact on workers to illnesses such as malaria or Ebola exacerbated by deforestation	Low frequency Medium impact
Legal	Fines if illegal deforestation in protected areas or areas under moratorium. Fines under Singapore Haze Act if deforestation due to fire.	Low frequency High impact
Commercial	Cancellation of purchasing contracts and/or reduction in consumer demand as a result of reputational damage from being a deforesting company.	Low frequency High impact
Market	Increased cost of capital as reductions in production and/or increased operating risks (caused by any of the above factors) reduce the attractiveness of investment in the palm oil company	Low frequency Low impact

**Strategic options assessment:
Assessing the company's options for removing
deforestation from operations**

This part of the analysis aims to identify the range of measures a company might consider to remove deforestation from their production, and their associated costs, risks and benefits. This is important for understanding the feasibility and likelihood that a company changes its behaviour in the current regulatory and market environment, and for identifying where public policy and resources may need to be reshaped or redirected to enable such a transition. In essence, these measures represent the strategies a company might adopt to comply with the REDD+ agenda of reduced emissions from deforestation and forest degradation supported and enforced by national governments.

A three-pronged approach is likely to be needed:

1. First, the company will need to take action to limit or eradicate its deforestation footprint. This might include setting aside forested land within granted concessions, or simply avoiding all concessions with any area of forested land within them. Successfully implemented, these strategies should result in the reduction of the company's value at risk related to biophysical, social and health risks.
2. In addition, the company also needs to take action to prove to its consumers or trading partners, regulatory

authorities, lenders, local communities and civil society that it is, indeed, deforestation-free or has reduced its deforestation footprint, whichever is required by those stakeholders. Without this, it remains exposed to the reputational, social, legal, market and commercial risks outlined above. Another category of strategies may therefore be needed to prove this impact. To achieve this it might obtain independent certification and verification over its production sites.

3. Lastly, as the implementation of the actions and measures to remove deforestation from operations are not cost-free or risk-free, the company may also seek to deploy a number of compensating strategies, for example, intensifying production on existing productive land.

Determining the most appropriate combination of measures to take to deliver deforestation-free commodity production will require the company to undertake a comprehensive and iterative strategic, financial and risk assessment process. In this process, the types of questions the company will be asking itself are:

- If these measures were fully implemented – what is the estimated impact on actual and perceived deforestation? To what extent would this reduce exposure to, and to which elements of, deforestation risk, and protect value-at-risk?
- To what extent can the effects be measured, verified and communicated to the relevant stakeholders to prove

the relevance and impact of the strategy to remove deforestation?

- What additional environmental, social or financial risks might be created for the company as a result of the implementation of these actions, and how can these risks be mitigated? What other co-benefits such as improved labour or community relations can be created from the implementation of these measures and what is the value of those co-benefits?
- How feasible is it for the company to implement these actions in the current competitive, regulatory, economic and social environment? How can implementation potential be increased? Can the company 'go it alone', or is it advisable to move only as part of wider industry initiatives?
- What are the costs of these measures? Who would, could or should bear that cost? Is it possible to pass on the costs to the consumer or supply chain partners?

The resulting combination of measures will, of course, vary from company to company, according to such factors as their trading relationships and ultimate markets, the policy frameworks in the areas in which they operate, their risk appetite, the size and complexity of their operations, and their ability to invest.

Business case assessment:

A role for REDD+ policies and measures to support private sector transformation

The business case for zero deforestation agriculture hinges on a central question for supply chain companies: Does moving away from deforestation improve a company's financial performance, once the complete risk exposure profile and costs and benefits are factored in? This is important to understand the full picture of the value at risk for companies seeking to move to zero deforestation palm oil production, the trade-offs they face, and the precise nature and scale of public investment and support needed to facilitate an efficient and sustainable transition industry-wide.

For an individual company, the existence of a business case for removing deforestation from commodity production depends on the net value created through the transition to zero deforestation production or procurement. This net value can be calculated by adding the net "value at risk" from the ongoing practice of deforestation that would be avoided with a transition to deforestation-free operations, to the net cost of measures to make and sustain that change in operating practices.

As noted above, hard data to quantify a business case, even at the generic level, is limited. However, two things can be reasonably concluded at this stage:

- Moving to zero-deforestation for growers and mills is increasingly of interest for companies looking to protect and enhance their value. As noted above, companies of all sizes and at all stages of the supply chain are facing increasing exposure to a number of deforestation-related risks, particularly legal, market and reputational risks, especially for export companies with strong commercial ties to western markets.
- The frameworks and resources needed for companies to make the transition to zero-deforestation palm oil production are less clear.

For governments, understanding the overall economic impact of the current business model and its deforestation-free alternative is the type of critical information on which effective planning and development strategies can be developed. It helps appreciate what is at stake for the national economy and the economic, social and political implications of maintaining the status quo.

The value of the business case methodology lies in its capacity to offer a microeconomic analysis that, when aggregated at the regional or national level, offers useful macroeconomic insights into the types of green growth pathways a country can aspire to.

Being a practical, "bottom-up" approach, the methodology can also be used to identify high-performing areas of intervention, areas that would either leverage existing private sector initiatives, or elements of the supply chains most susceptible to react positively to specific policies. It allows a clear delineation between efforts that can be absorbed by the private sector (possibly with some support from the public sector), efforts that will require coordinated public-private interventions, and efforts that can only be achieved by public interventions. It will also help identify important policy "gaps", i.e. missing or inadequate policies identified as critical to the success of the REDD+ activities.

As such, it can be a central element of the body of analysis constituting a country's REDD+ readiness package, informing the development of REDD+ policies and measures that target the agricultural drivers of deforestation, especially if these drivers are linked to commodities produced by agribusiness supply chains.

Case study – The case of Indonesian palm oil production¹²

Palm oil, a key export commodity for the country

Today, Indonesia supplies more than 30 million tons of crude palm oil¹³ – meeting over half of global demand. Looking forward, the Indonesian Government aims for production to increase to 40 million tons by 2020¹⁴, to service both growing domestic and international demand, and particularly domestic biofuel mandates. This increase in Indonesia's palm oil production takes place in the context of the country's National Medium Term Development Plan (RPJMN) 2015-2019, which centres around stimulating economic growth; reducing poverty; and reducing greenhouse gas emissions including through reducing rates of deforestation. Palm oil production is a key element in this vision, due to its importance in the development agenda of the country, unfortunately at the cost of large GHG emissions.

Without changes to modes of production and supply, there is a risk that this increase may come at the expense of Indonesia's remaining forests. Indonesia has one of the highest deforestation rates in the world. At present, legal concession areas often include forested areas, and protected forest areas continue to be illegally encroached upon. It is estimated that over the last 10 years, 8.2 million hectares of Indonesian forest have been lost to make way for expanding palm oil plantations.¹⁵ Continuing deforestation at this scale would endanger the government's REDD+ goals and its target of a 29 per cent reduction in national emissions by 2030¹⁶.

Further, it may even put at risk the future of the palm oil industry in Indonesia. For example, with demands from a growing population in Java, farmers are pushing cultivation upland and on to forest slopes, which is giving rise to high rates of soil erosion, which in turn results in siltation of water bodies downstream, reduces reservoir capacity, and causes extensive land degradation.¹⁷ At the same time, market trends are evolving. Conscious of the potential environmental, social and economic damage resulting from unchecked deforestation, many companies along supply chains have pledged to produce or source only "zero deforestation" palm oil. The scale of these pledges has significant implications: These companies represent over 80% of palm oil refined in Indonesia and 96% of internationally traded palm oil¹⁸. It is yet to be seen what might follow if they cannot source "zero deforestation" palm oil from Indonesia

and how this might impact procurement choices.

Many companies do not as yet have a clear understanding of how these pledges will be achieved, how long it will take, nor how much it will cost and how much value it can create or protect. That is, there is not a clear argument to take to ministers, company executives, shareholders and external stakeholders (at the company level) to attain the necessary support for the proposed production and supply chain changes. Connected to this, there is not yet a fully articulated bottom-up argument to support the growing calls from the private sector for public policy changes and finance provision to enable a successful transition to "zero-deforestation" palm oil production. This lack of insight and shared understanding delays any potential collaboration and transformative change.

Given the wide range of private sector operators engaged in and linked to palm oil supply chains in Indonesia, it is difficult and perhaps unhelpful to deliver a generic business case analysis. Therefore, to enable greater insight, we have elected to apply the business case approach within the context of a representative, mid-large scale palm oil estate that incorporates a nucleus plantation and a vertically integrated mill which sources additional fresh fruit bunches from a variety of plasma and independent smallholders. Our observations from this are summarized below.

Baseline assessment:
Indonesian palm oil operators are exposed to many significant risks associated with their deforestation footprint.

Based on an initial risk mapping exercise, our risk analysis reveals that legal and stranded asset risks are the largest risks companies are exposed to.

Legal risks in the context of palm oil cover a wide range of different realities, from legal pursuits initiated by communities over land tenure, incomplete and unsatisfactory application of environmental regulations (AMDAL),¹⁹ or conversion of unsuitable forestland (HK, HL and HP).²⁰ In general, indiscriminate deforestation can both trigger and intensify these risks, and the frequent lack of understanding of the legal implications related to land use and deforestation greatly compounds those risks. In addition, recent

regulatory changes amplify the risk exposure of an already exposed industry: As Indonesia experiences extensive forest fires associated with oil palm production, significant negative effects are being felt not just by its own citizens and economy, but also other countries in the region. As a result, the risk of both national and international regulatory pushback, and the imposition of financial penalties against the companies using fire to clear forests and land, is growing, as indicated by the Transboundary Haze Act passed by Singapore in 2014²¹.

The stranded asset risk is a special type of legal risk. It reflects the significant loss potential of new regulatory measures designed to curb CO₂ emissions at the national level in an effort to mitigate climate change effects. With oil palm production accounting for 10-15 per cent²² of Indonesian emissions, any attempt to reduce the carbon footprint will oblige growers and plantation owners to keep some parts of their existing landbanks intact, forgoing land conversion, plantation expansion and ultimately anticipated revenues.

While these risks have relatively a very low probability of occurring in the current regulatory context, they would have very significant impacts if realized.

Reputation also appears as a major risk. It can be defined as a risk of loss resulting from damages to a company's reputation in lost revenue; increased operating, capital or regulatory costs; or lowered shareholder value. This risk is especially material to those companies who have pledged a zero-deforestation transition and announced publicly their intended milestones and deadlines to achieve it. In doing so, these companies internalized and therefore increased their exposure to deforestation risk, and consequently their "value at risk". Making these pledges has increased expectations (and scrutiny) on them, from consumers, civil society, supply chain partners and others.

Connected to reputation risk, commercial risks are important and refer to potential losses arising from trading partners cancelling their contracts or worsening the terms of the deal. For trading firms and consumer goods companies exposed to US and European markets, the risk of indirect reputational damage has motivated them to cancel multiple contracts with deforestation-linked companies, resulting in the largest financial impacts to date. Commercial risks are not limited to reputation spillovers. They also include the damaging changes to the supply chain structure: The pyramid structure of the industry and pledges of key

companies in the bottleneck is changing market conditions for those lower down the chain and increasing their market risks. For example, the bottleneck at the trading stage for Indonesian palm oil allows for only a few companies to influence the nature and quality of a significant proportion of crude palm oil (CPO) produced. Fulfilling their commitments to "no deforestation" palm oil therefore hinges on their capacity to push the required changes down their supply chains and onto their suppliers. This "spill down effect" is already in evidence throughout the industry, with evidence of tightening market access for operators of all sizes who are connected to the supply chains of these 'bottleneck companies'. This includes mid- to large-scale growers and independent smallholders.

Biophysical risks are more limited as a result of relatively lower risk intensity and more easily actionable mitigation measures.

Likewise, market risk is currently low. Much of the financing for palm oil in Indonesia is from Asian sources which are sensitive to the overall performance of their borrowers, but not overly sensitive to western market pressure regarding deforestation unless this poses a significant stranded asset or market access risk. In this highly competitive finance market, even "zero deforestation" supporting banks have only weak policies "encouraging" sustainable practices, but not requiring them. In addition, very few banks are offering differential products²³ to incentivize best practice, which suggests that this is the result of some existing market failure to properly price the risks of deforestation and the opportunities of "zero-deforestation" in the palm oil industry.

The government can be instrumental in addressing this market failure by strengthening the legal, regulatory and policy environment in which companies and their lenders operate. Efforts by the Government to set up credible threats targeting unsustainable agriculture production can reinforce the notion that some of the risks linked to deforestation (especially the identified legal and stranded asset risks) are real and significant. By increasing the value at risk for the entire supply chain, appropriate policies and measures might nudge corporations away from their most damaging practices and motivate the adoption of greener practices. This is why the identification and selection of the most effective REDD+ policies and measures (PAMs) is critical to the success of this agricultural transition.

Strategic options assessment: Solutions exist for growers to reduce or eliminate deforestation but some challenges remain

The assessment of the Indonesian palm oil market showed that a range of concrete options are available to the growers and supply chain actors who are keen to remove deforestation from their operations.

Almost all the strategies to reduce deforestation will have to be built around a three-pronged approach by which

companies first implement actions to reduce their deforestation footprint, complement them with disclosure activities to prove the impacts of these actions, and finally engage in an effort to offset the costs and risks associated with these new strategies.

Table 2 briefly summarizes the key identified strategies and connects them to financial and risk factors from the company's point of view.

Table 2: Analysing measures a company might take to address their deforestation risk

	Measure	Current viability	Relative net cost ²⁷	Deforestation risk mitigation potential	New risks and benefits	Other notes
Reducing deforestation footprint	Set aside of forested land within granted concession areas (HGU)	High: High Conservation Value (HCV) and High Conservation Stock (HCS) assessment methodologies and processes exist/ are being developed that encompass measures to assess forested and high carbon content areas	High net cost due to opportunity cost/ foregone profit of setting aside forested land which is not put into productive use	Medium to high, depending on assessment methodology used. HCS would identify greater areas of forest for set-aside. HCV criteria may not identify all forest.	Additional legal risks: concessionaires are legally required to convert all land under concession to oil palm, not set it aside. Additional social risk: setting aside land for conservation delays and reduces local communities palm oil production and income opportunities. Can lead to increased social conflict as communities seek to encroach into 'idle' set-aside areas.	
	Exclude non-compliant suppliers	Low. Although this measure is increasingly being adopted by companies, at present, they have little or no visibility over most independent suppliers; so it cannot be implemented in the near term at scale, though this will change as traceability initiatives advance	Variable – low relative cost to trace suppliers (though time consuming) but costs may rise if seek to support those suppliers in a transition to no deforestation practices	High	Additional social and reputational risk (with consumers and government) if start to exclude suppliers (particularly poor smallholders) from supply chains	

Proving impact	Certification	Known challenges of rolling out certification to smallholders. Plus, existing certification standards are often weak on forest protection – RSPO is the most commonly adopted and requested, but this cannot be taken as verification of “no deforestation”	Relatively low for larger enterprises, but high for smallholders. However, overall it is believed to be a financially beneficial activity due to various non-deforestation related factors incorporated in certification schemes such as improvements in social and labour relations and general business practices (for larger operators) and yield and productivity improvements through the required GAP (for smallholders)	Third order	Potential reputational risks (and financial risks) if certification scheme adopted is discredited	Questions over whether certification at industry-wide scales is viable or cost-effective
	Book & Claim and Mass Balance ²⁸	High	Low	Neither allows companies to claim “no deforestation”, (hence not supported by many pledged companies)	-	How can current tension between a company’s need to say “there’s no palm oil in my product” be reconciled with development of B&C and MB as key transitional strategies?
	Segmentation	Low: establishing two sets of infrastructure for physical segmentation is unlikely. Variable: Establishing catchment areas for no-deforestation palm oil will require comprehensive support from many stakeholders – the potential of this will vary by location	Believed to be high if running dual processing & transportation facilities. Hence preliminary moves towards supply shed and jurisdictional approaches		Risks that may need to exclude non-conforming suppliers in a catchment area approach, increasing social and political risks	Cost and efficiency savings can be pursued through developing and sharing common toolkits, such as monitoring capabilities and tracing databases

Offsetting Costs	Land swap	Low: while administrative processes exist which should permit land swaps, in practice these processes are prohibitively slow and cumbersome ²⁹	High net revenue potential for relatively low additional cost	Second order	Seeking to expand into additional areas increases the extent of community engagement required to establish the necessary permissions	
	Earn carbon revenue on set aside forest land	Low: no indication that palm oil growers will be able to access REDD+ revenue	Low net revenue potential. Although carbon payments for dense primary forest might be substantial, it is questionable how accessible such payments would be to palm oil growers, and under what terms. Further, income would be offset by potentially high MRV and administrative costs	Second order	-	
	Earn price premiums on “no deforestation” palm oil	Low: little consumer or industry appetite to pay premiums	Low net revenue potential	Second order	-	
	Intensify production (particularly of smallholder suppliers)	Challenging due to large and fragmented network of independent smallholder suppliers and their limited access to finance and resources	Net gain – upfront costs to trace and engage with smallholders, but should be offset by increased supply to sell on	Second order	Yet to be seen how or whether this can be done without leading to additional deforestation	

While Table 2 looks at each potential measure separately, it is important to remember that through the appropriate selection of a *package of measures*, companies can both maximize the value added by these measures, and minimize their net cost. For example, although setting aside forest land under concession is likely to represent significant foregone production and profit, this could largely be offset through a ‘land swap’ for an equivalent area of non-forested productive land elsewhere, were appropriate alternative land elsewhere available. The net cost of these two activities would be the relatively low additional legal, land assessment and local engagement costs required on the secondary, compensatory land area.

It is also worth highlighting the trade-offs that exist in the deployment of some of these measures, which will complicate the decision-making process for companies. It may also put them in no-win scenarios if due care and consideration is not taken in respect of the requirements placed on them – both by themselves and external parties.

For example, the highly fragmented supply base of many mills, particularly those drawing fresh fruit bunches (FFB)

from independent suppliers, is a significant challenge. To address this, many growers and their buyers along the supply chain are working to trace all suppliers to each mill, and then work with all of these suppliers to ensure that all supplies meet determined standards. This tracing component alone is time consuming – already some deadlines for “zero deforestation” supply have been missed.

Further, working with the huge number of independent, disorganized, poorly resourced independent smallholders to introduce and apply sustainability concepts and practices can prove to be very challenging, and costly. In this scenario, companies face unwinnable social and environmental trade-offs: In the best case, pledging companies are at high risk of missing existing time-bound “zero deforestation” targets, in which case they will lose credibility with buyers, lenders and consumers. In the worst case, they may have to decide whether to exclude smallholders from their supply chains, exposing themselves to high social and political risk, or to back-track from their deforestation pledges – exposing them to significant commercial and market risks.

Creating a business case: a deforestation-free and sustainable supply chain made possible by the concerted efforts of the public and private sectors

As underlined above, a key challenge for an individual company is that many of these measures are difficult to implement in the current regulatory environment. They would greatly benefit from policy changes that might include:

- Identifying and reclassifying forested land currently demarcated as APL²⁴ in order to take it out of the production category, and indeed, remove the legal requirement that it should be set to production once under concession.
- Reforming the legal land classifications in Indonesian law. The World Resources Institute, in a recent issue brief,²⁵ highlighted three types of methods for legally reclassifying land: single reclassification in a single area, reclassification on multiple areas simultaneously, and local/special designations to change the allowable land uses in a designated local area without changing the land-use classifications. The WRI report on reclassification found that effective reclassification could free up to 5.3 million hectares of suitable land, or approximately 10 years of palm oil expansion at the current rate.
- Enforcing regulations that would make it illegal to deforest non-convertible production forest, such as protection forest and conservation forest and/or make it difficult to finance such activities through a strengthening of the environmental and social legal safeguards regulating the approval of commercial loans (AMDAL).

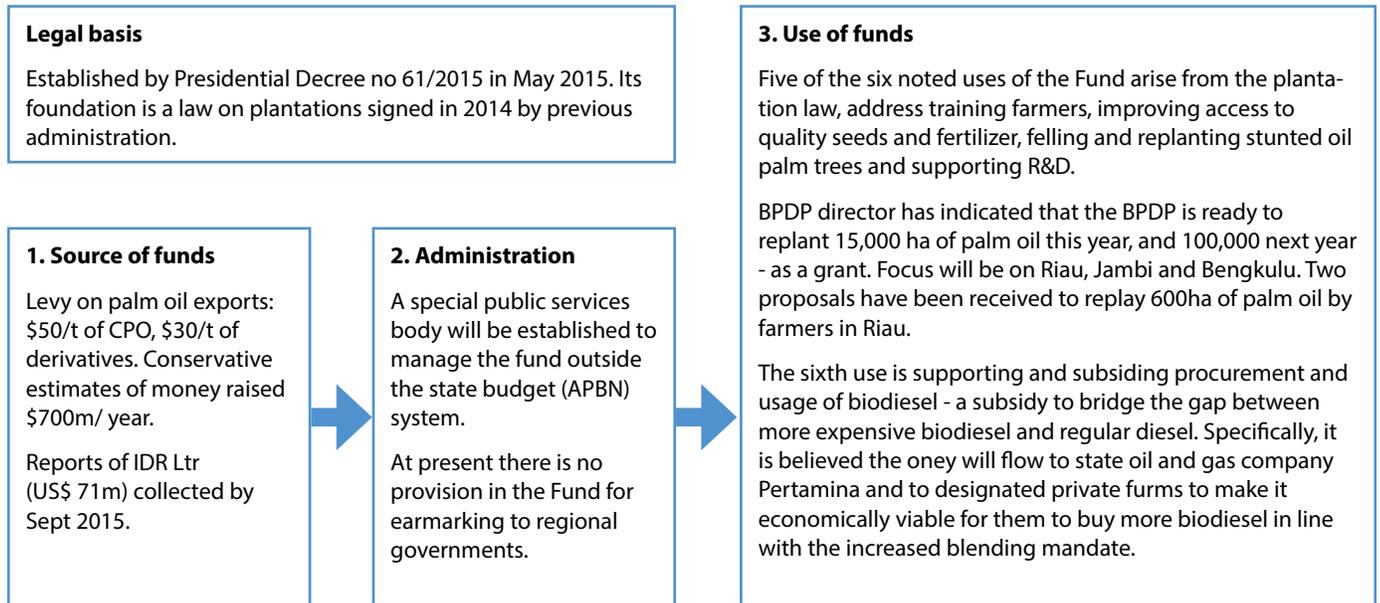
Governments can do more than providing the right regulatory and legal environment by offering financial support to the growers engaged in reducing their deforestation footprint. Blended finance products can be engineered by combining public sector support (direct public finance contribution, better aligned legal and regulatory environment, improved governance) and private sector technical expertise and access to capital to finance projects that would otherwise be very difficult to fund.

These investments can target and facilitate a number of activities, including:

- Investment in R&D to develop better genetic and crop material that would achieve improved oil palm yield.
- Investment to facilitate commercial lending to smallholders for certification and replanting with better yielding varieties to minimize the need for land expansion.
- Investment in extension services to promote sustainable land-use practices or subsidies for high quality seeds and fertilizers.
- Support to efforts to increase the number and effectiveness of farmer cooperatives to aggregate and effectively engage with a larger numbers of smallholders.
- Smallholder identification and engagement process.

Effective collaboration between public and private sectors on funding resources will be paramount to the success of the targeted activities at scale. Innovative funding strategies might have to be considered and carefully assessed, including potential adjustment to fiscal strategies and incentives.²⁶ The recently launched crude palm oil fund is one example of recent innovations in the realm of fiscal policy to change private sector incentive structures. See

Figure 2 below for further information on this Fund.

Figure 2: Overview of the Indonesian Crude Palm Oil Fund

Paving the way for a transition to deforestation-free palm oil in Indonesia

A critical first step for the Indonesian Government will be to further examine deforestation risks and risk mitigation analyses at the plantation (including smallholders), company and the industry level – in order that company strategies can be aligned internally, that external alliances based on shared value generation can be built, and ultimately “zero deforestation” measures can be implemented across the industry as efficiently and speedily as possible, based on the common goal of protecting and creating value for all.

To address these questions and issues, coordinated, collaborative action is needed from governments at all levels, the private sector and civil society. Ongoing perceptions of environmentally damaging practices by some have the potential to tarnish the whole Indonesian palm oil brand – with financial implications for all. For example, the aforementioned fires have prompted international calls for a consumer boycott of all Indonesian palm oil.²⁷ If implemented and sustained, this would increase stranded

asset risk and commercial risk for all palm oil operators in Indonesia, not just those responsible for the fires, and adversely affect government revenues. Likewise, there is potential for a “split market” to occur in Indonesian palm oil production, where a significant proportion of growers maintain business-as-usual and continue large-scale forest loss, while at the same time there is a tightening of market access across other supply chains seeking “no deforestation” palm oil. This scenario is perfectly possible due to the scale of domestic demand – currently at 30% of Indonesian production, and forecast to rise to 50% by 2025, in part due to the rise in demand for biofuel. If this occurs, it is possible that, again, consumers and end buyers in some countries may choose to move away from Indonesian palm oil altogether.

Avoiding this outcome requires companies and governments to work collectively to address a number of contributory factors. These include sub-optimal burden sharing arrangements which do not currently properly reflect the gains and losses for different parties, moves by companies to exclude “non-conforming” suppliers from their own supply chains, and the lack of an enabling regulatory environment.

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End notes

1. NDCs are countries' public statements of their post-2020 climate actions and targets which form part of the new international agreement under the U.N. Framework Convention on Climate Change (UNFCCC).
2. 'Why Now? Brazil has shown deforestation can be slowed'; Busch J. & Seymour F., Centre for Global Development, 2015 (<http://www.cgdev.org/publication/ft/why-forests-why-now-preview-science-economics-politics-tropical-forests-climate-change>)
3. Comparison Table of Submitted INDCs, Center for Climate and Energy Solutions (<http://www.c2es.org/indc-comparison>)
4. REDD+ under the UNFCCC is a mechanism whereby financial incentives will be available to developing countries who reduce their carbon emissions from deforestation and forest degradation ("REDD") and conserve and sustainably manage their forests and enhance their forest carbon stocks ("+") (<http://www.un-redd.org/aboutredd>).
5. A supply chain is a system of organizations, people, activities, information and resources involved in producing and moving a product or service from supplier to customer. In the context of agriculture, commodity supply chains are systems dedicated to production, harvest, transport and commercialization of agricultural produce, involving local and international actors.
6. <https://www.tfa2020.org/>
7. Examples of "companies" and "standards and certification systems"
8. Since most companies are driven by a commercial motivation of enhancing, or at least maintaining, their financial performance and competitiveness (within the boundaries of their regulatory and legal environment), they will only move to sustainable, low-deforestation or zero net deforestation supply chains if their financial performance is not negatively impacted or if their performance is enhanced. So look to understand where opportunities and levers are for voluntary change is, and where supportive policies and measures are to enable positive change.
9. Levying a tax on operating income is likely to yield very different results than a tax on capital gains, because it will change the company's available operating cash flows that can be reinvested in its operations, including investments in a transition to a deforestation-free operating model.
10. UNEP, SustainAbility and Global Compact, *Unchaining Value, Innovative Approaches to Sustainable Supply*, 2008 (<http://www.unep.org/resourceefficiency/Portals/24147/scp/unchaining/publications/Unchaining-Value-Final-Report.pdf>)
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14. Materiality in the context of auditing and risk management refers to the relevance of a risk factor to a company's economic and financial performances, based on the size or magnitude of this risk. It is a quantitative measure. (<http://pcaobus.org/Standards/Auditing/pages/au312.aspx>)
15. The analysis presented here is based on a literature review and discussions with a number of representatives of companies linked to Indonesian palm oil, and representatives of those working to address deforestation within the Indonesian palm oil industry, including UN agencies and a variety of non-governmental agencies, researchers and independent consultancies. In total, 15 representatives of the palm oil sector were interviewed, 3 representatives of UN agencies, 4 representatives of Indonesian ministries, 9 representatives of civil society, 10 researchers, and 8 others.
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21. Chain Reaction Research: <http://chainreactionresearch.com/2014/12/08/the-chain-musim-mas-no-deforestation-policy>
22. Certain business activities in Indonesia which impact the environment require an environmental licence. The approval process for such a licence requires three stages, the first of which is the drafting of an Environmental Impact Analysis (AMDAL).
23. All land in Indonesia is classified as either forest estate (*kawasan hutan*) or non-forest estate (*areal penggunaan lain*). Forest estate is further classified into three functional categories that determine allowable land uses. HK stands for Conservation Forest (*Hutan Konservasi*), the most restrictive category. HL stands for Production Forest (*Hutan Lindung*), which allows use of forest products. HP stands for Production Forest (*Hutan Produksi*), which allows commercial timber harvesting. Source: *How to Change Legal Land Use Classification to Support More Sustainable Palm Oil In Indonesia*, WRI 2013
24. The Transboundary Haze Act passed by Singapore in 2014 allows regulators to prosecute companies and individuals that cause severe pollution in Singapore by burning forests and peatland in neighbouring countries.
25. Source: S. Abood, J. Ser Huay Lee, Z. Burivalova, J. Garcia-Ulloa, L. Pin Koh, *Relative Contributions of the Logging, Fiber, Oil Palm, and Mining Industries to Forest Loss in Indonesia*, *Conservation Letters*, 2015
26. Bank Negara Indonesia (BNI) has implemented environmental and social safeguards in its credit scoring methodology that allows clients with outstanding ESG track records to benefit from a lower cost of capital as a result of a higher credit score.
27. At this time, it remains difficult to estimate the precise cost of implementation of these measures. Publicly available information is limited. Further, evidence suggests that few companies have undertaken detailed financial assessments of their risks, costs and benefits.
28. These two approaches remove the requirement for physical traceability through the palm oil supply chain, and as such are designed to drive market uptake of certified sustainable material. Under 'book & claim', palm oil producers obtain certification over their production. The FFB is sold into supply chains and not marked or sold as certified. However, the producer sells their certificates to palm oil end users who wish to support the certification process but cannot physically obtain guaranteed 100% certified palm oil. Under 'mass balance', certified palm oil is mixed with uncertified palm oil, but the proportions of each are known and ideally reflected in the prices paid.
29. For more information, see World Resources Institute's Issue Brief by Rosenbarger A., Gingold B., Prasodjo R., Alisjahbana A., Putraditama A., Tresya D., 'How to Change Legal Land Use Classifications to Support More Sustainable Palm Oil In Indonesia' October 2013. WFI found multiple methods for changing legal land classifications in Indonesian law; however, their experience in practice stalled because of the complexity and cost of the legal process.
30. The Forestry Law of 1999, divides all land in Indonesia into either Forest Estate (Kawasan Hutan) or Non Forest Estate (Areal Penggunaan Lain, or APL).
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UN-REDD Programme Secretariat

International Environment House,
11-13 Chemin des Anémones,
CH-1219 Châtelaine, Geneva, Switzerland.

un-redd@un-redd.org

www.un-redd.org



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