



DECADE OF PROGRESS

REDUCING COMMODITY DRIVEN
DEFORESTATION IN INDONESIA AND MALAYSIA

Areas of Progress, Drivers and Future Priorities

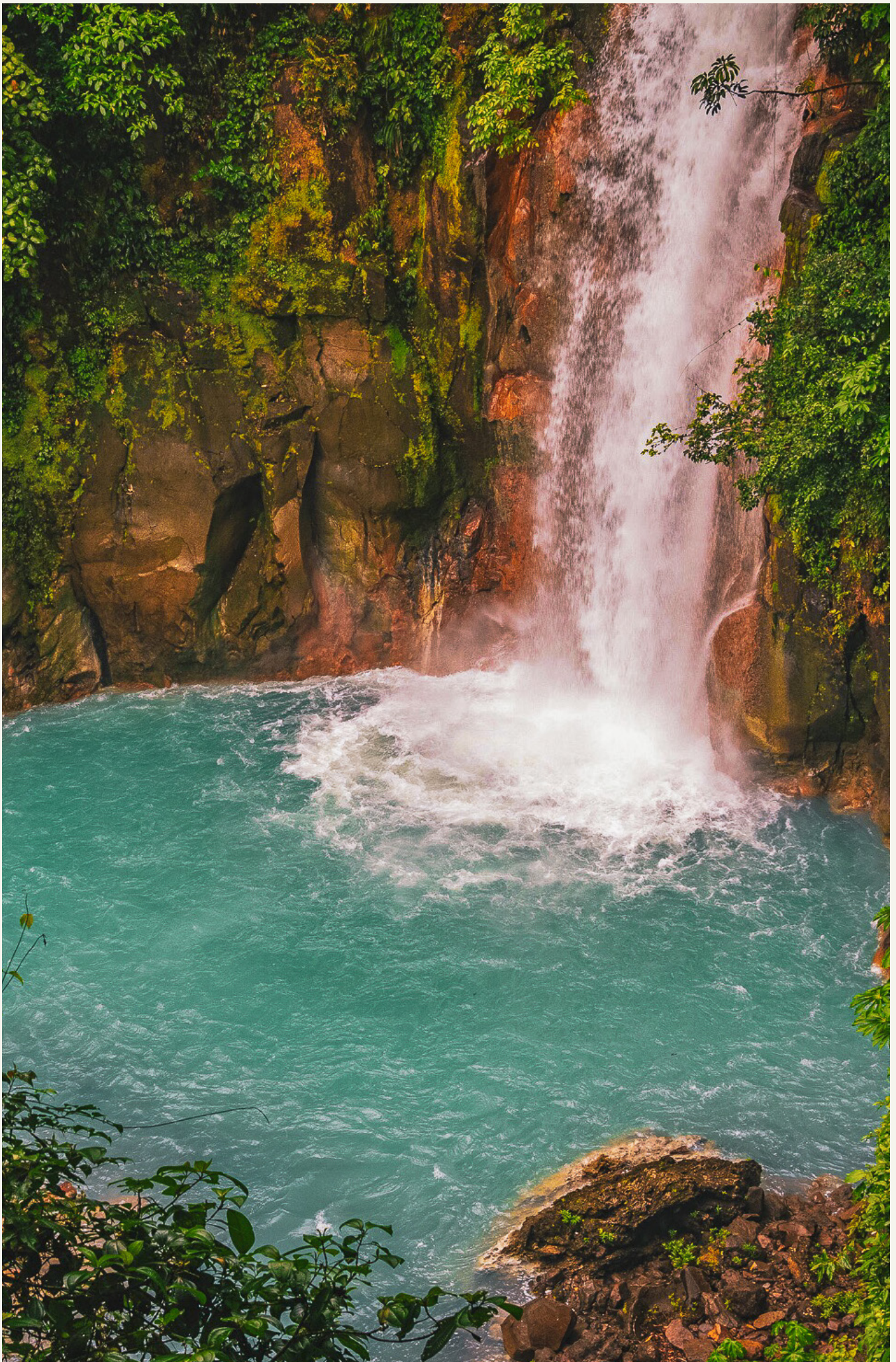


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PREFACE

The evidence since 2010 shows that deforestation and peat and forest fires has been reduced significantly in the two countries.

This report, as its title clearly indicates, showcases the significant progress in the last decade that Indonesia and Malaysia have made in slowing the rate of deforestation.

Undertaken during May-December 2020 by the Tropical Forest Alliance (TFA) in partnership with Daemeter Consulting, the report provides analysis and examples of sustainable interventions that have reduced deforestation, most of it through collaborative efforts and collective actions. A major goal of the study was to highlight how such collective efforts could promote sustainable development and strengthen land use governance. The report provides evidence to show where these collaborative efforts are succeeding. It also highlights opportunities to build on the progress to continue into the next decade.

The research for the report combined interviews, on-line surveys, virtual convenings, literature review and geospatial data collection and analysis. It covers palm oil and pulp & paper in Indonesia and Malaysia, but emphasizes Indonesia and on palm oil, because of greater availability of data in Indonesia than Malaysia, and of the larger public interest in palm oil than in pulp & paper.

The evidence since 2010 shows that deforestation and peat and forest fires has been reduced significantly in the two countries. In addition, recognition of customary forest and community-based forest management has increased while the palm oil sector is gradually transitioning toward intensification growth models.

The main driver has been the government's enactment of policies and programs that have advanced sustainable development in the forestry sector. Other factors include corporate action and transformation towards No Deforestation, No Peat, No Exploitation (NDPE) policies, growth of the trade of sustainable palm oil, civil society role as a sustainability partner, a renewed focus on smallholder oil palm farmers, and a general expansion of information and knowledge on sustainability.

Government policies over the past decade have opened up opportunities for cooperation among stakeholder groups – at national, provincial and district levels – to pursue more coherent sustainable development and embark on collective action strategies. This community of purpose shows the important roles of

actors who influence the environment, such as NGOs, civil society, smallholders, business and national and sub-national government. The cooperation and synergy from these communities of purpose were critical in the achievements on deforestation, fires, social forestry and land rights.

Nonetheless, the report does recognize that more work must be done to continued progress toward reducing deforestation. Furthermore, more urgency is needed in undertaking the work. Underlining the urgency, President Joko Widodo, at the 2021 Climate Adaptation Summit called for “extraordinary measures” that can multiply global climate action through solidarity, collaboration and global collective leadership. It is our hope that this report can contribute to make those extraordinary measures possible.

Rizal Algamar
Regional Director
Tropical Forest Alliance Southeast Asia

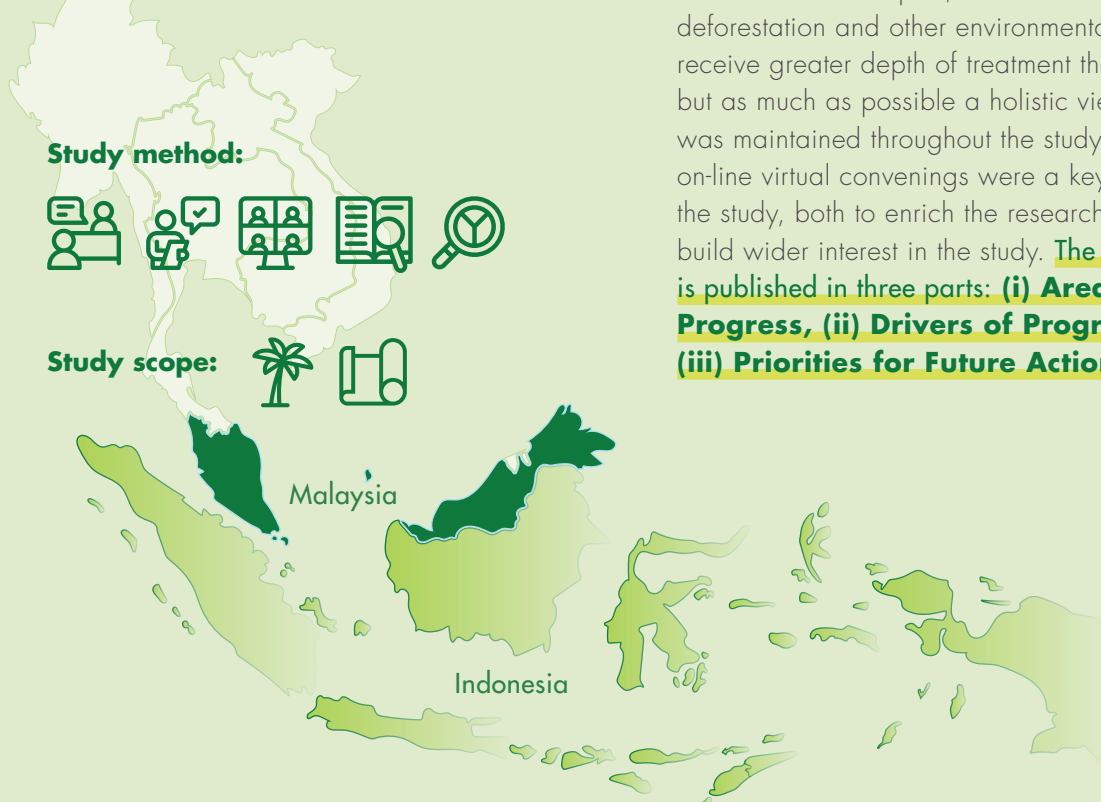
EXECUTIVE SUMMARY

Background

This report highlights findings of a study by the Tropical Forest Alliance and Daemeter to understand progress over the past decade in reducing commodity driven deforestation and promoting wider sustainability in Indonesia and Malaysia. **One major goal of the study is to showcase the outcome of collective efforts to promote sustainable development and strengthen land use governance.** Significant effort has been made by public and private sector to affect change directly and to create enabling conditions for efforts by other sectors of society to advance sustainability. We provide evidence to show where these collaborative efforts are paying off, and highlight opportunities for building upon this work to continue progress into the next decade.

The study was conducted from May–Dec 2020, combining interviews, on-line survey, virtual convenings, literature review and various forms of geospatial data collection and analysis. The study scope includes Indonesia and Malaysia, covering palm oil and pulp & paper, but with much greater emphasis placed on Indonesia and on palm oil. This prioritization reflects greater availability of data in Indonesia than Malaysia, and larger interest among the public in palm oil than pulp & paper.

The study describes success from a holistic point of view, examining a variety of environmental and social factors associated with commodity production and land use governance. Because data availability is uneven across topics, reduction of deforestation and other environmental aspects receive greater depth of treatment than social, but as much as possible a holistic viewpoint was maintained throughout the study. Five on-line virtual convenings were a key part of the study, both to enrich the research and to build wider interest in the study. **The full report is published in three parts: (i) Areas of Progress, (ii) Drivers of Progress, and (iii) Priorities for Future Action.**



Areas of Progress

Over the decade, significant progress has been made on several fronts, including deforestation, fire reduction, promotion of social forestry and transitioning of the palm oil sector toward intensification based growth models. We highlight **12 areas of progress** in two parts: **Impact Measures of Progress** toward eliminating deforestation and achieving wider sustainability, and **Critical Enablers of Progress** that contributed to impact and will support continued progress in the coming decade. Impact Measures are the ultimate judge of progress, and Critical Enabling Factors are building blocks that must be in place to continue driving progress. The 12 main areas of progress include:

6 IMPACT MEASURES OF PROGRESS



- ✓ **Deforestation** in Southeast Asia has **declined markedly, especially** since 2015
- ✓ **Commodity-driven deforestation declined by >50%** over the decade
- ✓ **Fires** remain a threat, but their frequency and severity has **declined markedly**
- ✓ **Most jurisdictions across Southeast Asia** have become **'cool spots'** for deforestation and fires
- ✓ **Social Forestry** expanded **9-fold** since 2014, **with >4.2 M ha** managed by communities
- ✓ **The palm oil sector** is transitioning towards **intensification** and **productivity is rising**

6 CRITICAL ENABLERS OF PROGRESS



- ✓ **Government in Southeast Asia** has expanded policies & programs to **advance Green Growth**
- ✓ **Corporate action** toward building no deforestation, sustainable supply chains **has surged**
- ✓ **Trade in sustainable products** is **growing**, strengthening the business case for sustainability
- ✓ **Civil society** has emerged as an **effective partner in achieving sustainability.**
- ✓ **Smallholder farming** is becoming a **major focus** of research, outreach and support
- ✓ **Tools, knowledge and expertise** on sustainable commodities **has expanded markedly**

Drivers of Progress

What factors were most important in driving progress?

Numerous actors have been operating individually and in synergy, through iterative cycles of interaction over many years, to influence decisions on sustainability. The result is a “causal web of factors” affecting producer decisions, making it hard to isolate the impact of single drivers. Yet, the relative impact of different actors and actions within this web can be assessed. Based on interviews, surveys and wider analysis, we found actions taken by producer governments was a critical driver of change by setting the policy direction and taking direct action. Alongside government, private sector and CSOs leveraged the policy environment to achieve impact on the ground. **All three of these actors functioned as primary drivers of progress.** The impact of consumer country governments, the financial sector, and trends in the commodity market were secondary drivers that reinforced changes instigated by government, private sector and CSO action.

(1) Government policy, especially in Indonesia, directly influenced producer decisions and created the enabling environment to leverage impact by other stakeholders. The Government of Indonesia (GOI) has played a critical role in driving change. The GOI imposition of a ban on new licenses in primary forest and peat (made permanent in 2019), followed by a 3-year ban on new licenses for oil palm enacted in 2018, together slowed the pace of licensing and new development; it also signalled a policy shift away from expansion-oriented growth toward yield enhancement for the sector. GOI also took steps to improve (i) local governance through

partial recentralization of authorities in 2014; (ii) intensive fire prevention, mitigation and enforcement efforts, including restoration of degraded and at-risk peatlands coordinated by the Peatland Restoration Agency formed in 2016; and (iii) nurtured a positive tone and direction of international dialogues related to performance-based REDD+ and EU market access. In addition, growing numbers of sub-national governments have established strong leadership to mainstream Green Growth via inclusive, multi-stakeholder, multi-sectoral models for priority setting, action planning and attraction of responsible investment.

(2) The private sector responded to government regulation and market demand by establishing new norms of responsible production and sourcing. Different segments of the supply chain played different roles, but together, business actors were critical agents driving change. Buyers and refiners leveraged their direct relationship with producers to demand action on forests, peatlands and communities. Producers responded to changing market demands (especially large producers) by avoiding forests and peat development, and working toward certification. In addition, downstream actors engaged actively with buyers/refiners supplying them, encouraging further expansion of the buyer/refiner role in driving sustainability on the ground. This helped to accelerate the adoption of more sustainable practices among producers. Alongside pressure, buyers/refiners and downstream brands also applied “pull forces” through the purchase of sustainable materials at premium prices, including from smallholders, alongside non-price rewards for progress.

This strengthened the business case for sustainability. The private sector also helped motivate pro-sustainability government policy action.

(3) CSOs emerged as an effective partner in achieving sustainability over the past decade. Science-based study informed advocacy that encouraged private sector action and reinforced shifts in government policy. CSOs had direct and indirect influence on producer decisions, through assessment of specific producer groups and outreach that helped shape sustainability expectations in the marketplace. CSOs provided active monitoring of corporate policy implementation, raised grievances, and encouraged transparency, accelerating the pace of policy implementation throughout the supply chain. CSOs are seen by many stakeholders as important contributors to the overall change process, reinforcing government leadership and action.

Three secondary drivers reinforced the impact of primary drivers affecting change. For some producers, action taken by **consumer country governments** such as the EU introduced important push (demand) and pull (reward) forces that encouraged change, but others cautioned that consumer government action at times polarized discourse around sustainability, slowing transformation. The policies of **banks & investors** also sent a reinforcing signal that capital markets, too, are demanding more sustainable practices. Companies report that financial sector demands strengthened the business case for sustainability internally and reinforced their motivation to pursue sustainability, including joining the RSPO or committing to NDPE. Finally, **global market developments** further encouraged change in at least two ways. Weakened global markets lead to low prices that diminished pressure to expand plantations, and surging global demand in certified materials rewarded companies that produced them.



Priorities for action towards a Forest Positive Future

Significant progress has been made over the past decade through government leadership in setting a clear policy direction, and committed action by non-state actors who leveraged these enabling conditions to affect change.

This collective action brought achievements on deforestation, fires, social forestry and land rights, and fostered the rise of sub-national jurisdictional leadership for sustainability. These achievements are recognized, but more work must be done to continued progress toward reducing deforestation and fires further, toward recognizing and protecting land and labor rights more fully and toward achieving lasting, inclusive rural development.

In the final section of the report, we highlight six priority areas for future action. For each, we discuss main areas of concern highlighted by study participants and specific actions to be taken and approaches to be pursued to address them. Most areas of concern present not only challenges but also clear opportunities for breaking through bottlenecks and achieving real progress. Illustrative priority areas of action include:

- **Government leadership** – Continued action by government at national and sub-national jurisdictions is critical to build upon achievements and drive further progress post 2020.
- **Multi-stakeholder partnerships** – Partnership-based approaches to address shared problems must be expanded, including pre-competitive collaboration among peer companies, and larger collaborations among CSOs, communities, business and government at landscape or jurisdictional scales.
- **Building constituencies for sustainability in Asia** – Expanded outreach is needed in Asia, home to the largest and fastest growing markets in the world, to strengthen demand for sustainability among consumers and investors.
- **Mainstreaming smallholder sustainability** – Building more productive, profitable, and sustainable smallholder supply chains is a lynchpin to achieving wider goals in sustainability over the coming decade.
- **Building Scalable Solutions** – Tailored, smart technologies are needed to provide wider access to information and scalable solutions for agriculture, social forestry, and fire prevention.
- **Fostering producer-consumer country cooperation** – Open and constructive engagements between producer and consumer country actors must be fostered to maximize the impact of regulatory, market and diplomatic actions to deliver lasting impact.



Driving deforestation & fires toward zero



Expanding support to smallholders



Continued government actions



Accelerating progress on social performance



Anticipating global market trends



Reaching small & medium producers



Part 1.

OPENING



Context

The production of palm oil underpins global food systems and provides livelihoods for millions of people across Southeast Asia. Global production of palm oil is dominated by Indonesia and Malaysia, accounting for >90% of global output in 2020 from nearly 2000 mills owned by hundreds of companies in both countries. Companies range >10-fold in size, with individual companies controlling far less than 1% of production. Export of palm oil, its derivatives and residues are an important source of foreign exchange for Indonesia and Malaysia, with global market dynamics influencing macro-economic performance of the two largest economies of ASEAN.

The production of pulp and paper is critical to packaging and consumable wood-based material supply chains worldwide, and also contributes to livelihoods, infrastructure and regional economies in Southeast Asia, especially Indonesia. Like palm oil, pulp & paper exports are an important source

of foreign exchange for Indonesia, with key markets in Asia, Europe and the US. In contrast to palm oil, Indonesia and Malaysia account for a small part of pulp & paper output globally, and production is highly concentrated in just a few companies.

As regional economic importance of the two sectors grew over the past two decades, so too did controversy surrounding their social, environmental and climate impacts. Since 2010, local, national and international campaigns grew sharply in number and profile, drawing attention not only to specific producers and impacts in specific places, but also to aggregate impacts of the sectors as a whole. Impacts on forests, biodiversity, peatlands and wild fires topped the list of environmental complaints, with encroachment into customary lands, lack of Free Prior Informed Consent (FPIC) and labor and human rights abuses drawing attention as social impacts.



Controversy around these impacts arose for several reasons. The sectors expanded rapidly post 2000 in response to surging demand in consumer countries. Additionally, public policy and private sector investment were aligned behind agri-business and forestry expansion to meet global demand. Market expectations around sustainability were less progressive and less coherent than today, so market disincentives for unsustainable practice were few. The socio-political context was also fraught, with Indonesia in the midst of an economic recovery and rapid social and political changes of the post New Order era, marked by generally poor land use governance, especially at regional levels, and weak law enforcement overall. At the same time, civil society organizations were burgeoning, with an increasingly pro-planet, pro-people and anti-corruption set of agendas. Liberalized social policies enabled CSOs to become more active in documenting and taking action to mitigate negative impacts of industry, including through increasingly bold, adaptive approaches to advocacy and outreach in local, national and international settings.

The emerging sustainability debate during this period was fraught with tension and conflict. Producer governments and industry were at frequent loggerheads with CSOs, buyers and consumer country governments, especially when market access was placed at risk. Over time, tensions lessened and the dynamic evolved. The emergence of voluntary, membership-based sustainability associations, such as the Roundtable on Sustainable Palm Oil (RSPO) and the Forest Stewardship Council (FSC), helped ease tensions by creating platforms for solutions-oriented multi-stakeholder debate, and where progressive business could begin to differentiate itself in the marketplace through certification. Gradually, the discourse shifted from claims, allegations and counterclaims, toward a more nuanced acceptance that improvements were needed, and that all parties had a role to play in making this happen in the most fair, inclusive manner possible.

By the end of 2010, the decade of campaigning to raise awareness about an urgent problem drew to a close, and the onset of a decade to address it was begun. The next ten years would be marked by re-orientation toward a new direction of travel, where sustainability would become mainstream in public and private sector policy. Once unthinkable commitments to action would become the norm, including alignment around a bold commitment to eliminate deforestation, peat development and all forms of exploitation from commodity supply chains.

Stakeholders stopped debating whether or not we should eliminate deforestation, and began debating how best to achieve it by 2020.

Ten years onward, the questions we need to ask ourselves now are: Just how much progress have we made? What interventions taken by whom have been effective in driving change? And how does this help shape the agenda for action in the coming decade?

The Tropical Forest Alliance (TFA) and Daemeter conducted a study to begin answering these questions. While some hold the view that little progress has been made, others argue that it's "mission accomplished". Neither view is truthful or helpful. Rather, the full story lies somewhere in between, and the aim of our study is to identify and describe this middle ground.

Since 2010, meaningful progress has been made. Deforestation and fires have been reduced significantly, resulting in most jurisdictions in Indonesia representing 'cool spots' for deforestation and fires. Recognition of customary forest and community-based forest management has surged, and the palm oil sector appears to be transitioning toward intensification-based growth models.

Main drivers behind progress are three. First is the Government of Indonesia's consolidation of policies and programs to advance sustainable development. Second is corporate action towards No Deforestation, No Peat, No Exploitation (NDPE) policies, and corresponding growth in trade of sustainable palm oil to reward this. Third is emergence of civil society as an effective partner in achieving sustainability. Additional supporting factors include a renewed focus on smallholder oil palm farmers, deepening sustainability expectations of banks and investors, and a massive expansion of information, knowledge and tools for promoting sustainable commodities.

Aims of the Study

The overarching goals of the study are: (1) to provide an evidence-based assessment of progress over the past decade toward eliminating commodity driven deforestation and promoting wider sustainability in Indonesia and Malaysia, and (2) draw lessons from the apparent drivers of progress to help shape priorities for future action in the coming decade. We do this by examining three related questions:

1. In what impact areas has progress been made and does this vary within and between Indonesia and Malaysia?
2. What interventions or actions by different stakeholder groups appear to have been more important drivers of progress?
3. What are the main challenges anticipated in the decade ahead and what priority actions can be taken by which stakeholder groups to address them?

The research aims to support informed and effective decision-making and to help inform priorities for collective action to advance

sustainable commodities, and to inform post-COVID green recovery strategies in Indonesia and Malaysia. In addition, we hope the findings will support efforts to advance sustainable commodity production as a pillar of global effort to address the climate change crisis. This includes the European Commission's plans to strengthen policy on imported deforestation, the Consumer Goods Forum's Forest Positive Coalition of Action, and the 26th United Nations Climate Change Conference of the Parties (COP26) Presidency led Forest, Agriculture and Commodity Trade (FACT) Dialogue.

Scope of the Study

The study examines both palm oil and pulp & paper production in Indonesia and Malaysia, with distinct emphasis placed on (i) palm oil over pulp and paper, and (ii) Indonesia over Malaysia. This sectoral prioritization reflects the higher profile of palm oil compared to pulp and paper over the past decade, and the perceived greater importance of palm oil as a commodity driver of deforestation. The prioritization of Indonesia over Malaysia reflects much greater availability of qualitative and quantitative data for Indonesia, and a larger interest among the public on the impacts of commodity production in Indonesia, where land use change has been more pronounced than in Malaysia.

In assessing progress of sustainable commodity production, we examine success from a holistic point of view, considering a variety of environmental and social factors associated with commodity production and especially deforestation. In addition to examining changes in forest loss, factors such as fire, sector wide productivity, smallholder inclusion, the rights of local and indigenous

communities, and livelihood opportunities are also considered. In the end, data availability allowed for deeper consideration of environmental issues, notably deforestation, fires and environmental impacts compared to other aspects. Accordingly, it receives more attention in the report.

Approach

The research approach was built around a series of Working Hypotheses developed through a semi-structured process of internal discussion and consultations. The hypotheses were not presumed to be true, but rather offered a structure for inquiry that (i) helped to decompose a complex, multi-faceted question into discrete sub-questions that could be examined separately, and (ii) encouraged a question driven approach from the outset of our data gathering. We remained open to and introduced new hypotheses throughout the research process.

The research was carried out using quantitative and qualitative methods, integrating information drawn from:

- Literature, policy and media research
- Sectoral data
- Geospatial data and analyses
- Interviews with key stakeholders
- On-line digital survey
- Virtual convenings ²
- Discussions with TFA and its Regional Steering Committee
- Daemeter team knowledge, data and experience

² On-line working sessions held with multiple constituents

Literature and media research were carried out as appropriate for providing background information, data to address specific questions, and to examine lines of inquiry suggested by others during the study. **Policy research** was a specific focus, including review of primary material (laws and regulations) and published commentary. **Sectoral data** were compiled from various sources, as cited in the report. **Geospatial data and analyses** were carried out using data acquired from third parties (e.g. government sources, World Resources Institute) or generated by Daemeter (cited throughout).

Interviews were carried out with ~80 people representing 54 entities, as semi-structured 60-120 minute discussions, sometimes with post-interview follow up if needed. Interviews were held in confidence, with names or entities represented not to be disclosed, to promote honest discussion. Entities interviewed included representatives of: Indonesian central government (multiple ministries and agencies); Indonesian regional government; palm oil producers (including small, medium, and large); pulp & paper producers; palm oil buyers/refiners (including vertically integrated companies); downstream palm oil processors and FMCGs; members of the financial community (banks, investors, service providers); donor organizations; technical service organizations; academic researchers; and a wide range of civil society organizations (CSO) including local, national and international groups, with focus in social or environmental aspects.

An **on-line digital survey** was conducted as a structured 24 question survey, targeting local, national and international stakeholders from the major groups listed above. The purpose was to augment interview based learnings with structured survey responses to questions regarding perceptions about areas of progress, perspectives on main drivers of progress, and priority actors and/or actions to address future concerns. Survey data were obtained from 96 respondents.



*We examine data from
a holistic point of view*





A series of five **virtual convenings** were held between June to Dec 2020, covering four thematic topics and a final event to obtain inputs on study findings. Twin objectives of the convenings were to enrich the research itself through content contributions and critical feedback from sources outside the research team, and to nurture TFA community involvement in shaping post 2020 implications of the research. Meeting participation (approximately 90 persons in total) was managed over the series to ensure a mix of subject matter expertise and a measure of continuity across meetings. The convenings covered:

- The evidence base for declining deforestation
- Contributions of government action to reducing deforestation
- Maximizing livelihood impacts of palm oil for farmers, labor and local economy
- Waking the sleeping giants of consumers and capital
- Presentation and critique of study findings

Discussions with TFA global and regional teams

were held throughout the study, including periodic meetings with members of the TFA Regional Steering Committee. Research approach, interpretation of results, and recommendations for future action were discussed as inputs to the study.

Finally, the study also drew upon **Daemeter's organizational knowledge, resources and experience** from work in Indonesia and Malaysia on the subject matter of the study over the past 13 years. Nine Daemeter team members worked on the study, with consultations of the wider team as needed. This knowledge provided a foundation for developing the original working hypotheses and enriched the study over time.

Report Structure

The findings are presented in three parts.

- **The evidence base for progress** -
Where have we made progress?
- **The drivers of progress** -
What interventions contributed to achieving progress?
- **Priorities for the coming decade** -
What are the main challenges and opportunities for driving progress in the decade ahead?



A study by Daemeter and the Tropical Forest Alliance



Part 2.

EVIDENCE FOR PROGRESS



We begin by highlighting **12 areas** where progress has been made in (a) reducing deforestation linked to commodity production, and (b) promoting wider sustainability in palm oil and pulp and paper supply chains. We describe two forms of progress measure: (i) Six Impact Measures of Progress, and (ii) Six Critical Enabling Factors.

Impact Measures of Progress provide information on measurable progress in the journey toward eliminating deforestation and promoting wider sustainability. They address questions such as:

- Has the overall rate of deforestation and fires declined?
- Have we reduced or eliminated deforestation driven by oil palm and pulp & paper?
- How does this vary within Indonesia and between Indonesia and Malaysia?
- Is progress being made promoting inclusive, community based approaches to conservation?
- As a sector, is palm oil shifting away from 'expansion' towards 'intensification' models of growth?

Critical Enabling Factors for success provide information on whether we have in place the critical information, tools, knowledge, capacity and market incentives to maintain progress toward eliminating deforestation over the coming decade. They address questions such as:

- What is government and corporate policy orientation toward sustainability?
- Is the market demanding and valuing sustainably produced materials?
- Are CSOs sufficient in number and capacity to be an effective partner in sustainability?
- Are smallholder issues being addressed effectively?
- Do we have the knowledge and data we need to address bottlenecks to progress?

Impact Measures of Progress are the ultimate judge of success, but Critical Enabling Factors must be in place to continue on a productive pathway over the next decade. Both help to identify priorities for future action, but in different ways. The twelve areas of progress we address are:

Six Impact Measures of Progress

Deforestation has been reduced significantly, especially in the past five years

Deforestation linked to commodity production has declined by more than half

Peat and forest fires have been reduced in frequency and severity

Most jurisdictions in Indonesia are 'cool spots' for deforestation and fires

Recognition of customary forest and community based forest management has surged

The palm oil sector appears to be transitioning toward intensification growth models

Six Critical Enablers of Progress

Government of Indonesia enacted policies and programs to advance sustainable development

Corporate action toward NDPE supply chains set new standards for sustainable commodities

Trade of sustainable palm oil has surged, strengthening the business case for change

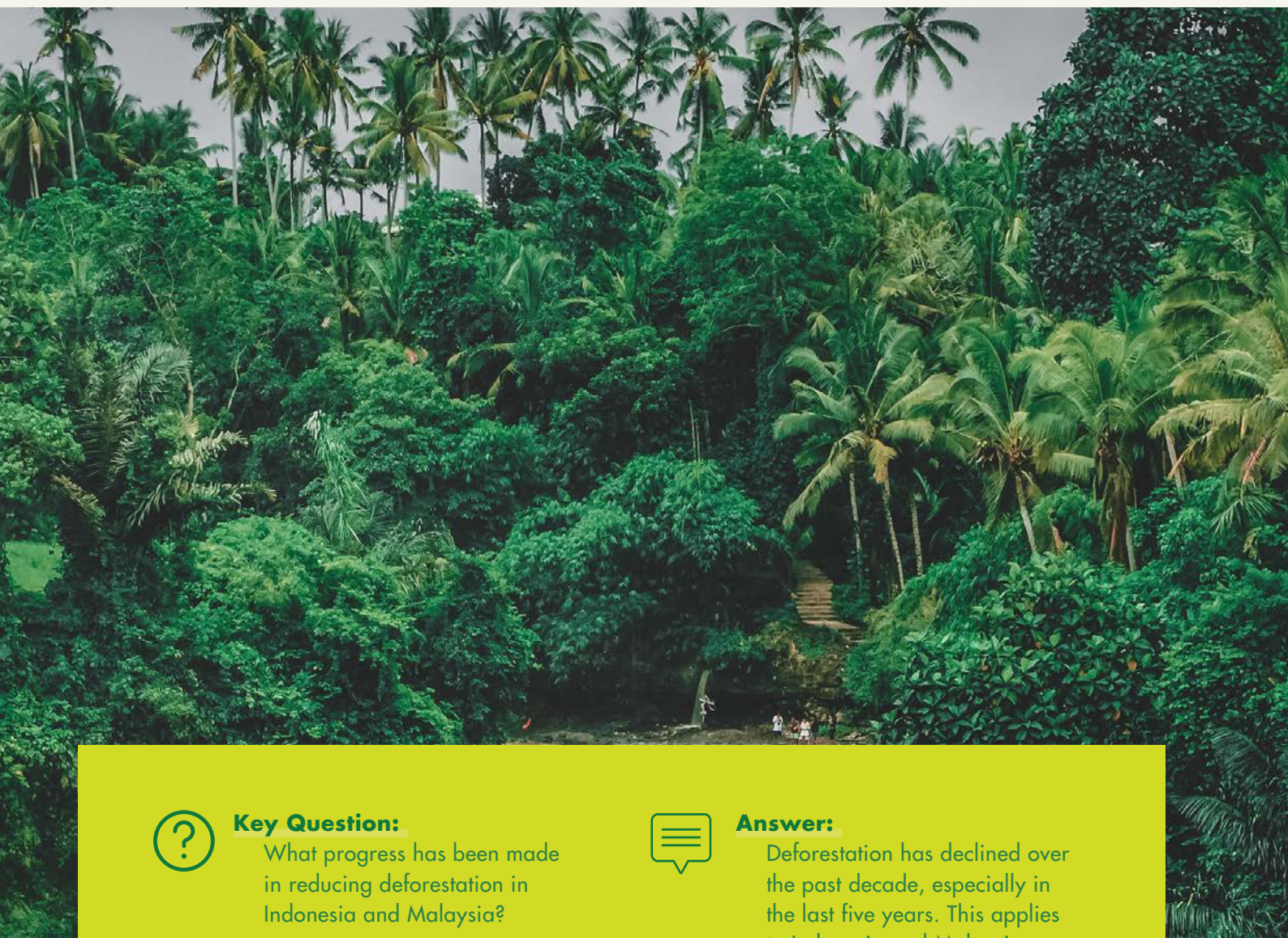
Civil society has grown into a positive force for change, especially in Indonesia

Smallholder farmers are a renewed focus of research, support and investment

Information, knowledge, tools and expertise on sustainability expanded massively since 2010

Progress Area #1

DEFORESTATION HAS BEEN REDUCED SIGNIFICANTLY, ESPECIALLY IN THE PAST FIVE YEARS.



Key Question:

What progress has been made in reducing deforestation in Indonesia and Malaysia?



Answer:

Deforestation has declined over the past decade, especially in the last five years. This applies to Indonesia and Malaysia, noting lower levels of recent deforestation in Malaysia overall.

Deforestation in Indonesia and Malaysia has been a focus of intensified global attention for more than three decades. Throughout the 1980-90s, observers were most concerned about the impacts of industrial logging and the road building and fragmentation this caused. As the logging industry began to decline leading into the 2000s, this brought a shift in focus toward more extreme drivers of forest loss: the establishment of large-scale plantations for wood fiber and palm oil. Plantations expanded steadily throughout the late 1990s into the 2000s, as processing capacity for these industries grew, with widespread attention drawn to impacts on forests, biodiversity and communities. Both industries came under extreme public pressure to mitigate impacts and to eliminate deforestation from their supply chains. The past decade was marked by focus on palm oil in particular, as the plantation base for this crop expanded at pace.

In Progress Areas #1 and #2 we ask whether deforestation has declined over the past decade, and we consider the role of commodity drivers such as oil palm and fiber plantations in explaining observed patterns.

We examine this in two parts: (a) what is the trend over the last decade for deforestation as a whole (Area #1), and (b) what is the trend for commodities as a component driver of total losses (Area #2)?

We make use of three datasets from (i) the Government of Indonesia (GOI) published annually by the Ministry of Environment and Forestry (MOEF), the (ii) World Resources Institute (WRI), and (iii) Daemeter (see caption to Figure 1). These are supplemented by published studies.

All three data sets provide corroborating evidence that deforestation in Indonesia and

Malaysia has declined markedly since 2015. Quantitative details differ among data sets, but all show the same pattern: deforestation in Indonesia and Malaysia climbed steadily from 2000-10, peaked between 2012-15, and has fallen markedly since 2015. (Fig 1).

Looking more closely at changes over the past decade, we can compare the three most recent years of available data (2018-20) with three years preceding it (2015-17), and ask how recent deforestation changed. (Fig 1).

Average deforestation in Indonesia per annum



Data show that average deforestation in Indonesia has fallen by:

- **~53%** according to GOI data, from ~734,000 to 339,000 ha per annum.
- **>55%** according to WRI data, from ~775,000 to 346,000 ha per annum
- **>52%** according to Daemeter data, from ~1.2M to 569,000 ha per annum

Of note, according to GOI (Fig. 1), average deforestation in the closing three years of the decade (2017-20) is 40% lower than the opening three years (2010-12; 339,000 vs 543,000 ha per annum). This further illustrates the extent of progress made since 2015.

It is instructive to sub-divide deforestation in Indonesia into that which occurs inside versus outside Indonesia's legally defined Forest Zone

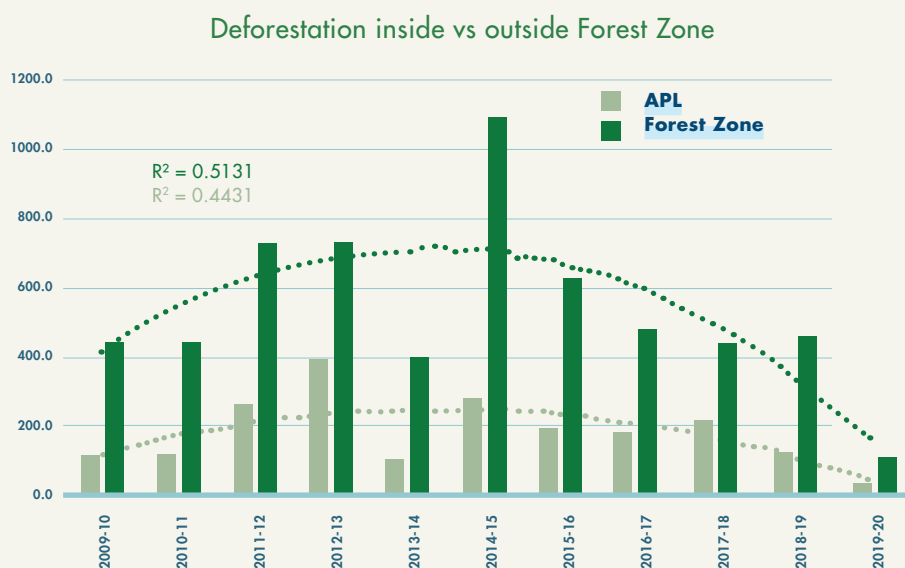
(Kawasan Hutan), which is largely intended to remain under permanent cover of natural or planted forest. Areas outside the Forest Zone, typically referred to as Other Use Areas (Areal Penggunaan Lain, APL), are intended for conversion to non-forest uses, including oil palm. In Indonesia, the legally established Forest Zone covers approximately **126M hectares**, or 66% of land area.

Separating deforestation in this way reveals two striking patterns (Inset 1). First, **much more deforestation takes place inside the Forest Zone than outside in all years**. If deforestation occurred at equal rates across the two zones, we'd expect roughly two-thirds of all losses taking place inside the Forest Zone. This is exactly what's observed over the period 2010 to present, with 67.8% of all losses occurring inside the Forest Zone (5.35 of 7.89 M hectares). This is true despite the fact that APL is zoned for non-forest uses, where one might expect proportionally higher losses. Second, as with total forest loss, **we see that deforestation in both zones suggests a unimodal pattern, with losses peaking in the middle part of the decade**.

Deforestation in the Forest Zone, where oil palm is prohibited but rubber and tree plantations are allowed, averaged ~285,000 ha per annum from 2017-20, **>2.5 times** the amount observed in APL (~110,000 ha). This is partly explained by the much larger area of Forest Zone, but it also emphasizes the need for more work to understand drivers of deforestation in the Forest Zone and the potential to reduce it further. How much of this is linked to licensed commodity crops, such as rubber and fiber forestry, versus fire versus mining or other land uses? These questions must be addressed to set priorities for action in the coming decade.

The 1.5-fold range in estimates of recent deforestation in Figure 1 – from ~345,000 to ~570,000 ha per annum – should not be surprising. It reflects differences in remote sensing data, classification techniques and definitions of forest.

For example, GOI data maps both natural forest and mature tree plantations as forest, and thus harvesting of the latter as deforestation; mapping by WRI and Daemeter does not. WRI's forest mapping (and thus deforestation) emphasizes predominantly tall



Inset 1. Annual Forest loss in the Forest Zone and outside.

stature natural forest, a more conservative forest definition than used by either GOI or Daemeter. Daemeter's forest/deforestation product is different again. It includes not only natural intact forest but also as tall statured secondary forest and mature, mixed-species, tree-based agroforestry (a closer approximation of High Carbon Stock areas). This explains why Daemeter's estimate of recent deforestation is higher than that of WRI or GOI. Nevertheless, all three data sources show the same overall pattern of markedly reduced deforestation in the past five years.

This pattern of declining deforestation post 2016 also holds for Malaysia as well (Figure 1). According to data generated by WRI and

Daemeter, deforestation in Malaysia rose steadily throughout the first decade of the 2000s, peaked between 2009-2012 with losses of 150,000-400,000 ha per annum (depending on the dataset), then declined steadily. Recent deforestation (2017-19) is estimated at levels ranging from 140,000 ha (WRI) to 200,000 ha (Daemeter) per year.

Results show that in Indonesia and Malaysia, deforestation has declined markedly since 2015.

Declines are being sustained year on year, with recent losses post 2016 now approximating those which occurred 20 years ago at the onset of the millennium (Figure 1). Regional variation within Indonesia is discussed more fully under Progress Area #4.

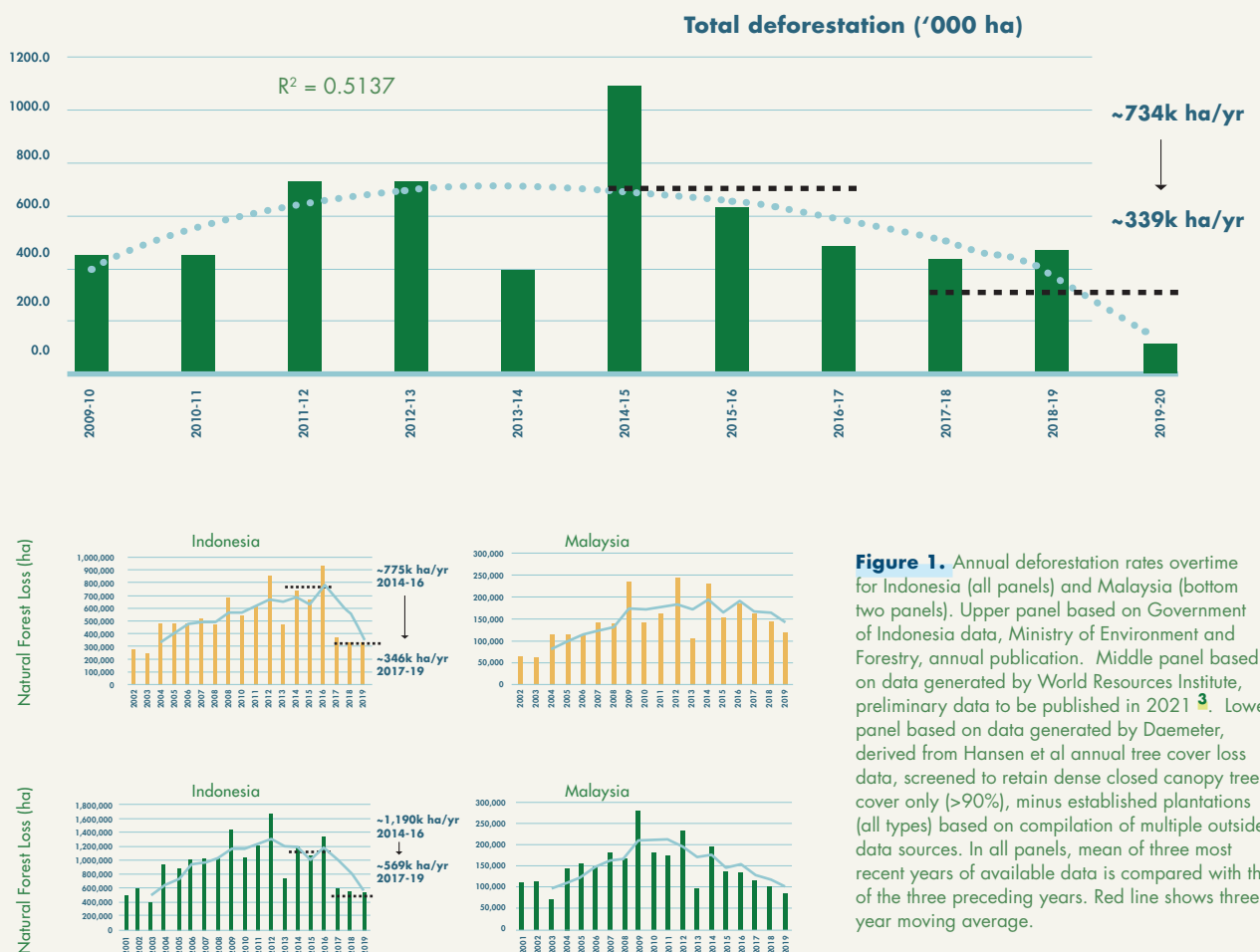
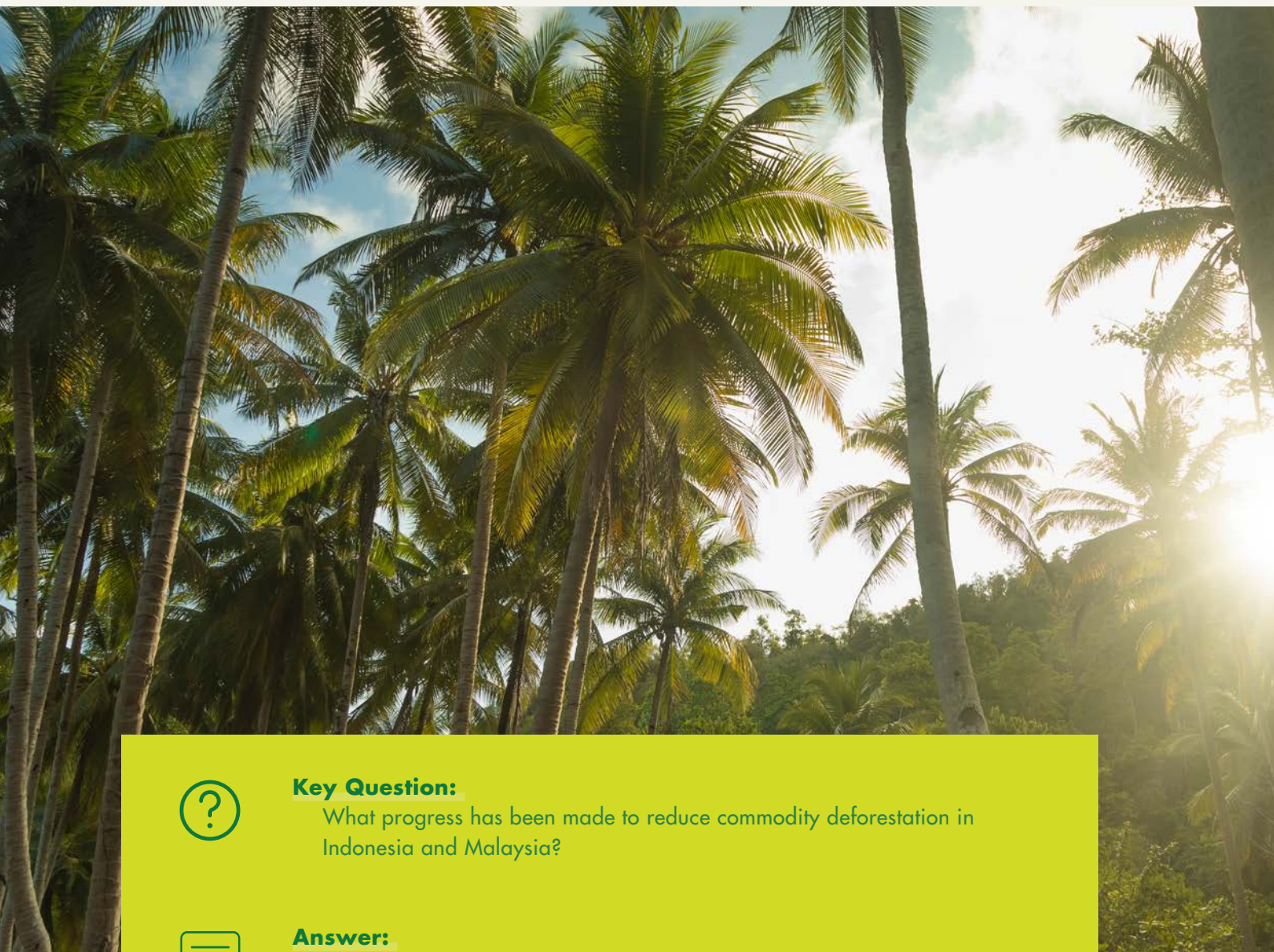


Figure 1. Annual deforestation rates overtime for Indonesia (all panels) and Malaysia (bottom two panels). Upper panel based on Government of Indonesia data, Ministry of Environment and Forestry, annual publication. Middle panel based on data generated by World Resources Institute, preliminary data to be published in 2021³. Lower panel based on data generated by Daemeter, derived from Hansen et al annual tree cover loss data, screened to retain dense closed canopy tree cover only (>90%), minus established plantations (all types) based on compilation of multiple outside data sources. In all panels, mean of three most recent years of available data is compared with that of the three preceding years. Red line shows three year moving average.

³ Generated following Forest Cover methodology described in: Turubanova, et al. 2018. Ongoing primary forest loss in Brazil, Democratic Republic of the Congo, and Indonesia. Environmental Research Letters, 13.

Progress Area #2

DEFORESTATION LINKED TO COMMODITY PRODUCTION HAS DECLINED MARKEDLY.



Key Question:

What progress has been made to reduce commodity deforestation in Indonesia and Malaysia?



Answer:

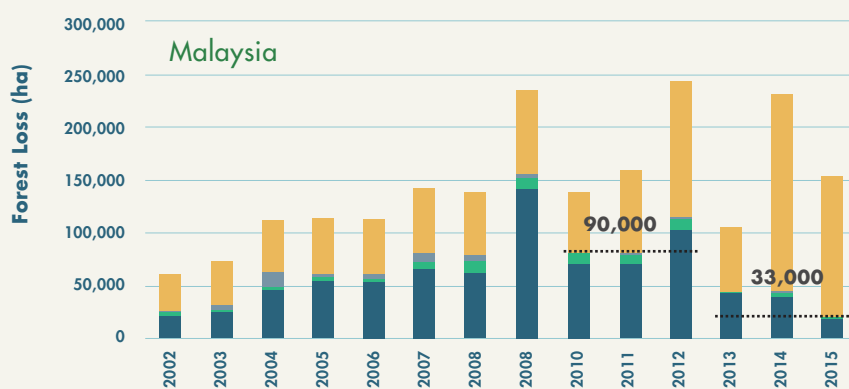
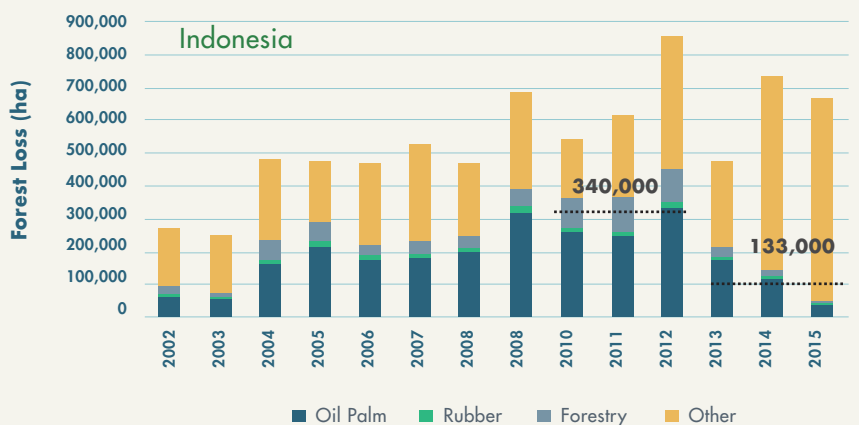
Data show that by 2015 commodity driven deforestation declined by at least 50% and has continued to decline since then. Data are limited due to time lags between commission and detection of commodity driven deforestation, especially small scale conversion. Yet, multiple data sources affirm that commodity driven deforestation is declining, while losses due to 'other sources' is increasing.

To what extent does declining recent deforestation reflect falling deforestation driven by commodities?

To address this, we combine data made available by WRI, reports by technical support organizations, and published scientific research.

Data provided by WRI covering 2001-2015 show that deforestation caused by the expansion of three major commodities (rubber, pulp & paper, oil palm) peaked during the period 2009-2012, then fell dramatically from 2016 onward (**Inset 2**). Comparing the 3-year period 2010-12 vs 2013-15, deforestation driven by these three commodities fell by >60% from 340,000 ha per annum to ~130,000 ha.

The same general pattern is observed for Malaysia, with peak losses in 2009, followed by steady decline. Annual commodity driven deforestation fell by >60% from 2010-12 averages of ~90,000 ha per annum to 33,000 ha during 2013-15. Of note, levels of commodity driven deforestation in Malaysia were roughly one-quarter those of Indonesia throughout this period.



Inset 2. Annual deforestation linked to different sources

These data have three notable features.

First is **the predominance of oil palm as a commodity driver compared to forestry and rubber over the decade, especially since 2012 (blue bars)**. According to WRI data, oil palm is responsible for at least two-thirds of commodity driven losses in Indonesia post 2010, with ~200,000 ha per year linked to oil palm vs ~60,000 ha to forestry. Post 2012, the predominance of oil palm is even more striking, with forestry accounting for ~20,000 ha per year of deforestation, compared to ~115,000 ha for oil palm. That deforestation related to oil palm peaked in 2009 and that of forestry in 2010-12 is consistent with temporal patterns reported by Austin et al. (2019) and Trase (2021). While estimates of oil palm driven deforestation post 2010 by Austin et al. (2019) are comparable to those presented here, their estimates for forestry are much higher (~160,000 vs ~97,000 ha per annum). This suggests data of **Inset 2** might underestimate forestry related deforestation during this period, and thus overstate the relative contributions of oil palm. This merits more study.

A second feature of note is **the sharp decline in deforestation linked to both forestry and oil palm in the period 2013-15 compared to years preceding this**. In WRI data, forestry accounted for ~97,000 ha of loss per year in 2010-12, but only ~20,000 per year in 2013-15, a >75% decline. Oil palm driven deforestation fell by nearly two-thirds from ~285,000 ha per year 2010-12 to ~95,000 ha per year afterward. Again, this sharp decline post 2013 is broadly consistent with patterns reported by Austin et al (2017, 2019) through 2016, and by Trase (2021) for forestry through 2019. In addition, monitoring on oil palm driven deforestation within oil palm concessions by Chain Reaction Research indicates declines continued through 2020, with losses reaching a new low of ~38,000 ha across Indonesia in 2020. Available data therefore indicate that commodity driven deforestation has declined steadily since 2012, and the trend has continued throughout 2020.

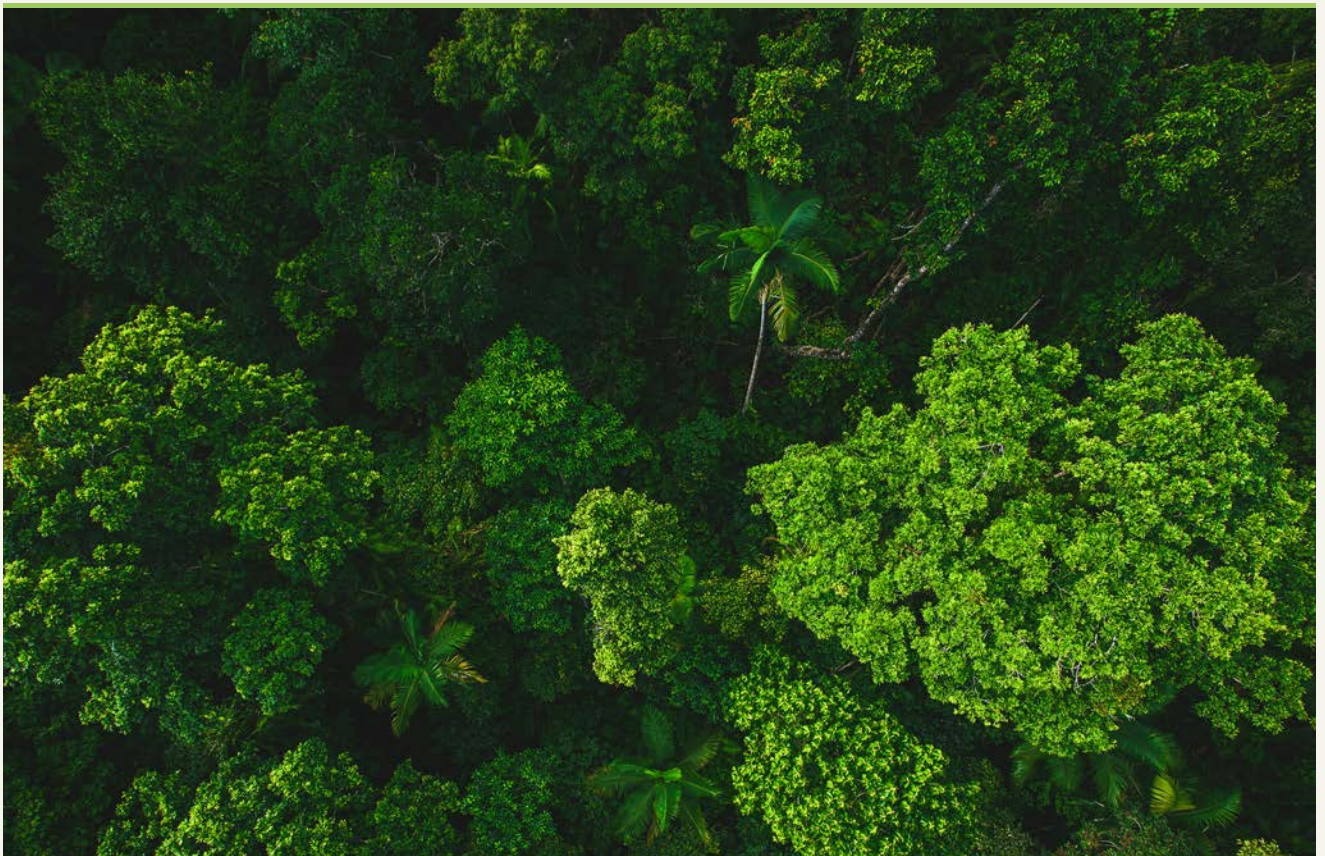
Finally, the data show **a massive increase over time in so-called 'other drivers' of deforestation as a proportion of total forest losses.** (yellow bar in Inset 1)

This pattern could be partly an artefact of delays in attributing portions of deforestation

post-2012 to a particular commodity driver, due to detection challenges and time lags. However, other studies have drawn attention to the same phenomenon. Austin et al. (2019) report increasing levels of deforestation attributed to fire and mixed, small scale agriculture, as well as surging non-commodity drivers, including roads, mining, settlements, and aquaculture and other developments. Their data also highlight geographic variation among major islands that we did not examine here, but should be considered in the context of post-2020 interventions. For example, they find that forestry and agriculture remain more important drivers of deforestation in Kalimantan than Sumatra, especially for oil palm, suggesting that supply chain approaches to NDPE production models (discussed below) may hold greater potential to reduce future losses in Kalimantan than Sumatra.

Data presented here and published elsewhere indicate:

- Deforestation caused by forestry and agriculture in Indonesia and Malaysia have declined markedly over the decade, but they have not yet been eliminated.
- Data suggest oil palm is a more important deforestation driver than forestry or rubber, especially in Indonesia, and most especially in Kalimantan.
- The rise of “other deforestation drivers”, especially fire and non-commodity drivers, is a cause of concern that merits attention.
- Further examination of data to understand apparent ‘other’ drivers of deforestation should be a priority, especially outside concessions. Possible time-lag linkages to commodities requires more investigation.



Progress Area #3

PEAT AND FOREST FIRES HAVE BEEN REDUCED IN FREQUENCY AND SEVERITY BUT NOT YET ELIMINATED.



Key Question:

What progress has been made in reducing the frequency and severity of fires?



Answer:

In both Indonesia and Malaysia, forest and peat fires have been markedly reduced in number and severity, especially over the past five years, but they have not yet been eliminated.

The megafire event of 1998 in Indonesia brought global attention to wild fires in the region, a problem that had begun to emerge much earlier in the decade. Fires are understood to be a result of synergies among climatic and human factors, tracing back to the onset of rapidly expanding logging road networks in the 1970-80s into remote, intact forests and peatland areas (Curran et al 1999). Logging was followed by expansion of largescale plantation forestry and agriculture, which introduced industrial scale draining of peat swamps for cultivation. Changing land use interacted with periodic extreme drought caused by El Niño Southern Oscillation (ENSO) events, creating severe risk of fire. This set the stage for largescale wild fires linked to peatland drainage, use of fire in plantation development, land clearance by opportunists, and weak law enforcement during the early 2000s.

Fires in 2015 were especially severe, causing widespread local, national and international impacts. In response, Indonesia made significant investments through public, private and civil society channels to assert a measure of control over the problem. This included investments in reorganization and capacity building within government; expanding research and monitoring; systematic outreach and organization at regional and village levels, targeting fire prone areas; comprehensive prevention, suppression and mitigation measures; and strengthened law enforcement.

Efforts have begun to yield results. In both Indonesia and Malaysia, forest and peat fires have been reduced in number and severity over the past five years. But they have not yet been eliminated.

Looking at the past 10 years, fire hotspot data obtained from NASA's FRIM archive shows that mean annual fire occurrence in the first part of the decade (2011-15) compared to the second (2016 to present) declined by ~65%, and by more than two-thirds on peat (Figure 2).

Over the period 2011-20, annual fire occurrence fell below the 10-year average for the preceding decade (2001-10) in 7 out of 10 years (Figure 2), implying declining frequency over the last decade compared to 2000-10.

Comparing the two most severe events of the past decade (2015 vs 2019) is also revealing.

Fires in 2015 affected an estimated 2.6M hectares, with economic costs exceeding US\$16B, nearly 2% of GDP that year. Air pollution from 2015 fires was the most severe since the mega fires of 1997, comparable in severity to the disastrous fires in 1991 and 1994. Fire number in 2015 was the highest over the past 20 years, nearly 3-fold above the 20 year average (139,272 vs 52,071).

By comparison, severe fires triggered by ENSO drought in 2019 affected an estimated 858,000 hectares, less than one-third the area of 2015, with economic costs of US\$5.2B, or 0.5% of GDP. Fire number in 2019 exceeded the 20-year average by 20% (66,578 vs 52,071), much less than in 2015. According to CIFOR, 76% of 2019 fires occurred on unmanaged, degraded land that had burned previously (e.g. in 2015), and supported grassland or shrub vegetation, not forest.

Fires in Indonesia remain a challenge, and steps to mitigate fires further must be taken. Yet, it is important to acknowledge that actions taken by government since 2015 have measurably reduced the frequency and severity of fires. Experts suggest that were it not for actions taken since 2015, impacts of the 2019 fires could have been more severe than observed, given extreme drought conditions in 2019. This is an encouraging sign of progress.

Eliminating fire in Indonesia will require long-term effort across multiple fronts. This will include reforms to land use and land tenure, enhanced fire-fighting capacity and stronger enforcement. In the near term, early warning systems can play an important role. Field et al (2016) report that recent fire events in Indonesia show a strong non-linear sensitivity to prolonged drought incidents of <4mm rain per day. They also show this sensitivity is increasing over time, especially in Kalimantan. Drought triggered fires will remain a serious, possibly worsening threat, as the frequency and severity of ENSO triggered drought appears to be increasing with climate change. Field et al (2016) argue that being able to anticipate extended periods of <4 mm rain per day will be key, tying short-term weather forecasting to early warning alerts. Such warnings can alert the public and local agencies of elevated risk in order to prepare for mobilizing resources to detect and mitigate fires swiftly.

Fire events in Malaysia also show declining prevalence over the past decade, especially since 2015 (Figure 2), but with three differences compared to Indonesia. To begin, the annual occurrence of fires in Malaysia (20-

year average) is an order of magnitude lower than Indonesia (3,976 per annum vs 52,071). This is partly explained by Malaysia's smaller size (one-sixth the land area of Indonesia). Second, peak fire years in Malaysia do not always align with those in Indonesia, possibly reflecting regional climatic differences. Third, during peak fires in Malaysia, the increase in fire incidence is less than peak years in Indonesia, with a ~50% increase over the long term average in Malaysia, compared to >2-fold increase in peak years for Indonesia.

Significant progress is being made to reduce the occurrence and severity of fires in Indonesia and Malaysia. This holds for longer term decadal patterns (2001-2010 vs 2011-20) as well as shorter term 5-year comparisons (2011-15 vs 2016-20). Fires remain a chronic concern, especially in Indonesia, most especially on peat that has been degraded by past fire and/or other human impacts. The climatic drivers of fire risk are expected to worsen in the years ahead, due to impacts of climate change on frequency and severity of ENSO linked droughts. This will present continued challenges that must be addressed systematically through cross-sectoral, multi-level, multi-stakeholder approaches, including improvements to advance warning as well as scaled up interventions on prevention, detection, suppression and mitigation (see Part 4).

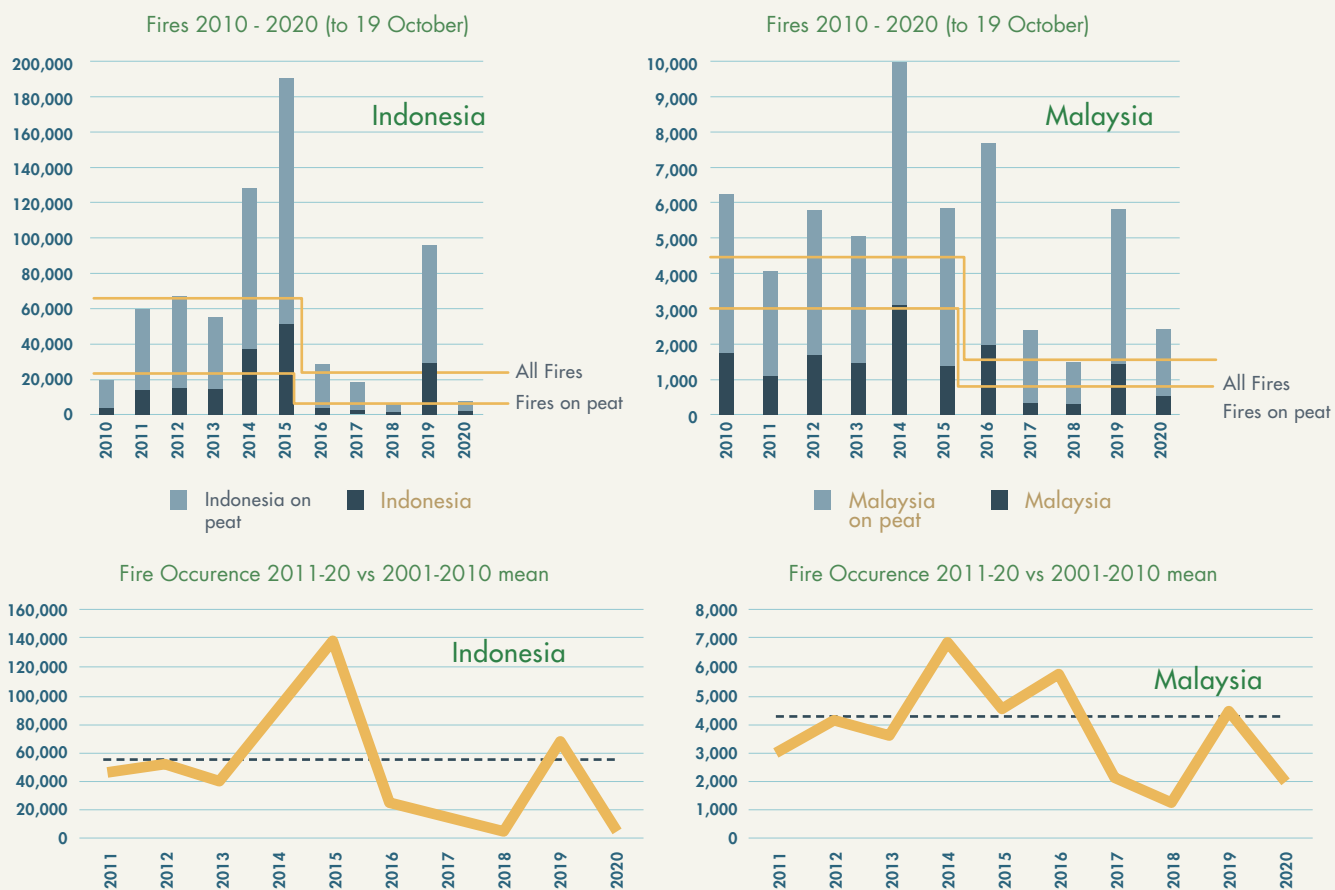


Figure 2. Patterns of annual fire occurrence in Indonesia (left panels) and Malaysia (right panels) since 2010. Upper panels show annual fires on peat (light shading) and non-peat from 2010 to present, with horizontal “step down” lines indicating mean from 2010-15 compared to 2016-2020. Lower panels show annual fire number 2011-20 (orange line) vs the mean number fires per year over previous decade (2000-10). Data from fire hotspot archive in NASA’s FRIM.

Progress Area #4

MOST JURISDICTIONS IN INDONESIA ARE 'COOL SPOTS' FOR DEFORESTATION AND FIRES; 'HOT SPOT' JURISDICTIONS CAN BE IDENTIFIED AND PRIORITIZED FOR ACTION.



Key Question:

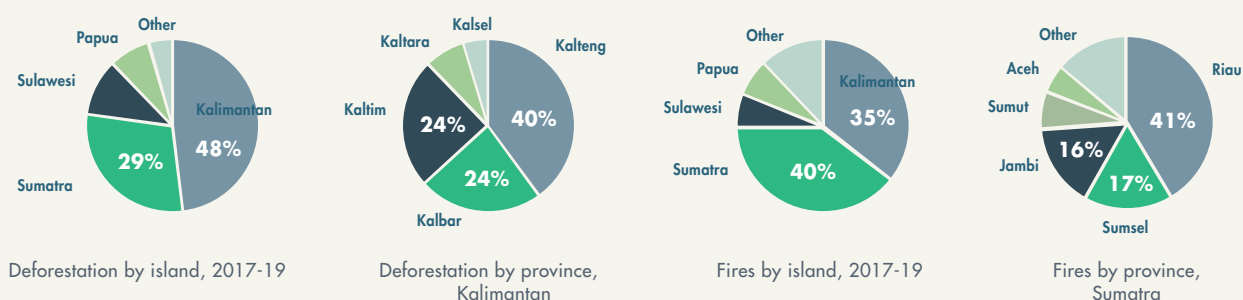
How does recent deforestation and fires vary across jurisdictions in Indonesia?



Answer:

Rates of deforestation in Indonesia post 2016 vary among the major islands and provinces. Nearly half of recent deforestation is taking place in Kalimantan, with Central Kalimantan accounting for most, followed by West and East Kalimantan. Sumatra is most critical for fires, with Riau alone accounting for 41% of all fires on the island, followed by Jambi and South Sumatra. Most jurisdictions are 'cool spots' for deforestation and fire, but 'hot spot' jurisdictions can be identified at the district level, helping to prioritize targeted action.

We see that deforestation and fires in Indonesia and Malaysia have declined over the past decade, especially since 2015. How does this vary geographically and at what scale? Can we differentiate jurisdictions that are low risk for deforestation or fires from those which account for the majority of recent losses?



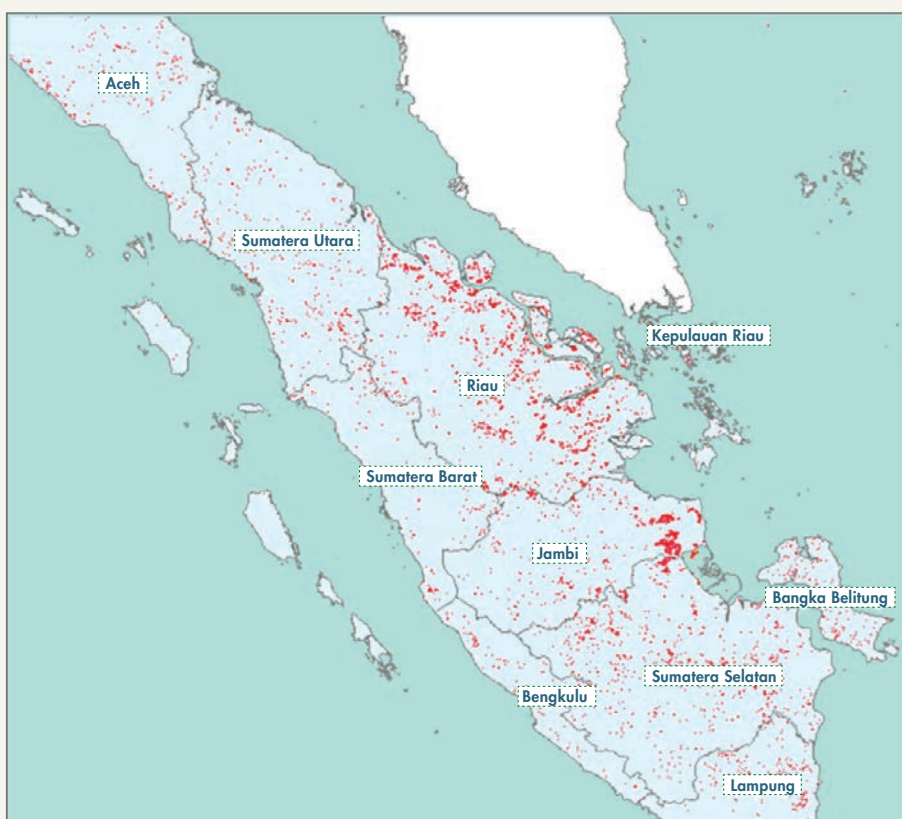
Inset 3. Deforestation and fires by island and province in Indonesia, 2016-20



To examine this question, we utilize deforestation data generated by Daemeter (**Fig. 1**) and the fire hotspot data (**Fig. 2**) above, focusing on the period 2016-20. Deforestation and fires in Indonesia vary widely among major islands and provinces (**Inset 3**). Nearly half of recent deforestation occurred in Kalimantan (48%), with Central Kalimantan accounting for 40% of this amount, followed by West and East Kalimantan (24% each). Sumatra accounts for 29% of recent losses, followed by Sulawesi and Papua at roughly 10% each. Papua carries much greater potential risk than other provinces, given differences in forest cover.

Recent fires also vary geographically, with **40% taking place in Sumatra** and **35% in Kalimantan** (**Inset 3**). In Sumatra, nearly 75% of fires occur in just three adjacent provinces of central eastern Sumatra – Riau, Jambi and South Sumatra – – indicating these provinces should be a priority for action (**Inset 4**).

We examined patterns at a more granular level to see how fire frequency and deforestation vary across districts in Sumatra and Kalimantan, where continued deforestation and fires are concentrated. We test for ‘hot spot’ jurisdictions where fires and deforestation are concentrated, separately and in combination. **We define hotspots for deforestation and/or fire as districts that together account for >75% of all deforestation and/or fires across the islands.** We define cool spots as those which are ‘hot’ for neither fires nor deforestation. Classification results are summarized below, and depicted graphically in Figure 3.



Inset 4. Fires across Sumatra, 2016 - 20

Of the 154 districts in Sumatra, fully two-thirds (105) are cool spots for both deforestation and fires. Only 20 districts are hotspots for both (Figure 2). These are concentrated mainly in the provinces of Riau, Jambi and South Sumatra. Districts of note include Pelalawan, Rokan Hilir, Bengkalis and Indragiri Hilir in Riau; Muara Jambi in Jambi; and Musi Banyuasin in South Sumatra.

The remaining 29 districts in Sumatra are high for deforestation or fires but not both.

The picture is similar in Kalimantan, where 33 of the 56 districts on the island are cool spots for both deforestation and fires. Only 14 districts are hotspots for both (Figure 3).

A tier of ‘super-hotspots’ can be identified in Kalimantan, where the **Top 6 districts for fires account for 42% of all fires across the island**, and the **Top 6 for deforestation account for 35% of all losses**. Ketapang in West Kalimantan is an extreme example in this context, very high in both fires and deforestation (Figure 3). Other examples include Berau and Kutai Timur in East Kalimantan; and Kapuas, Katingan and Pulang Pisau in Central Kalimantan.

Results indicate two-thirds of districts in Sumatra and Kalimantan are cool spots for fires and deforestation. This does not mean these districts are free of deforestation and fires, but it suggests they should be viewed as lesser priorities for near term action than other jurisdictions. Conversely, hotspots can readily be identified in Sumatra and Kalimantan where more urgent action is needed to address more immediate threats.

These findings, and similar analyses to assess jurisdictional performance, can help to identify where progress is being made to mitigate fires and deforestation, and where more work is most urgently needed.

We conducted a less granular analysis for Malaysia, comparing deforestation and fires among the three states of Malaysian. Recent deforestation in Malaysia (post 2016) averages roughly 215,000 ha per annum, according to data from Daemeter, with much higher rates in Sarawak (105,000 ha) and Peninsular Malaysia (88,000) than Sabah (22,000 ha). This same pattern holds according to data from WRI, but with lower numbers of 140,000 ha deforestation per annum. WRI likewise estimates higher rates in Sarawak (73,000 ha), intermediate in Peninsular Malaysia (55,000) and lowest in Sabah (14,600 ha), suggesting continued losses in Sarawak merit higher attention, followed by those of Peninsular Malaysia.

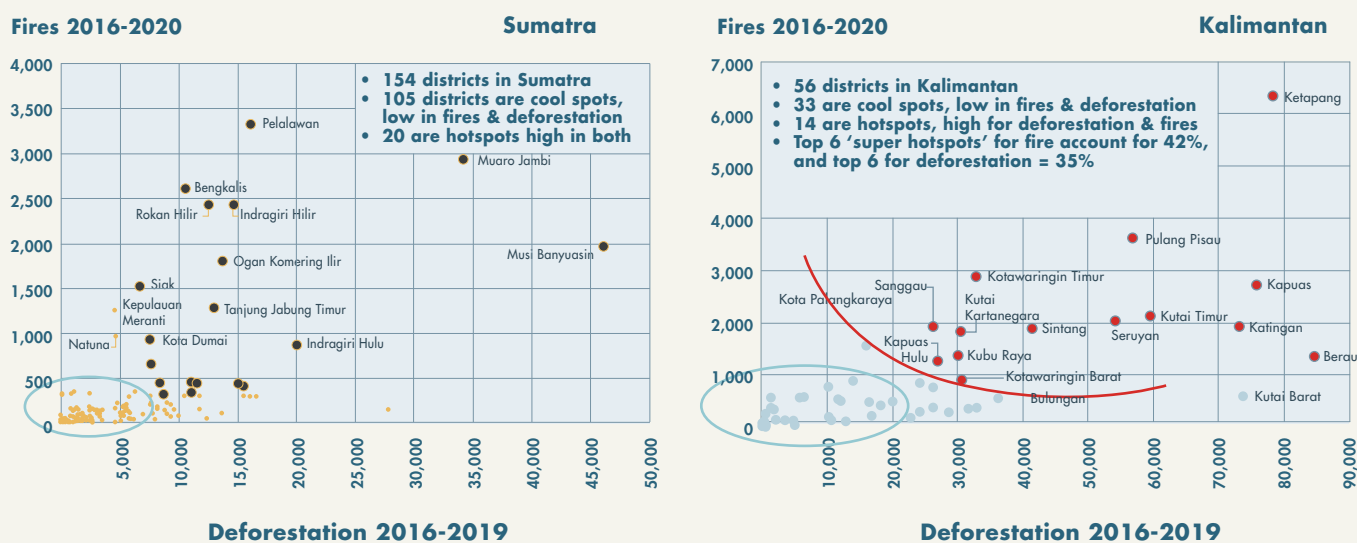


Figure 3. Graphical depiction of the occurrence of deforestation (x-axis) and fires (y-axes) over the period 2016 to present, among districts in Sumatra (upper panel) and Kalimantan (lower panel). Following methods described in the text, districts classified as hotspots for both fire and deforestation are highlighted; those which are cool spots for both are delineated in lower left quadrant of the graph. In both Sumatra and Kalimantan, fully two-thirds of districts are cool spots and present lower urgency for action. Note the outliers of Musi Banyuasin, Muaro Jambi and Pelalawan in Sumatra, and Ketapang in Kalimantan as priorities for action to address impacts.

Progress Area #5

LEGAL RECOGNITION OF LAND RIGHTS, CUSTOMARY FOREST AND THE PROMOTION OF COMMUNITY FOREST MANAGEMENT HAS SURGED.



Key Question:

What progress has been made in recognizing community land rights and promoting inclusive, rights-based approaches to forest conservation?



Answer:

Under the government's Social Forestry programs, Indonesia has established >4.2M hectares of community forestry management units and customary forests, more than three-quarters of this in the last five years. This is a big step forward recognizing community rights and promoting inclusive forest conservation models.

In Indonesia, Social Forestry (SF) was initiated as a program in 1999, under articles of the Law on Forestry

(UU No. 49/1999). The law laid out a vision for establishment of village forests (hutan desa) as a locally inclusive model of forest management. Two major goals of the SF program were: (i) improving the welfare of local communities within and surrounding forest areas and (ii) creating effective, inclusive, community-based forest conservation models to be scaled up through SF programs. Fifteen years later, by 2014 a total of only 449,104 hectares were successfully established under the government's village forest scheme.

Lack of progress on SF triggered a thorough revision of the approach in 2014, following President Jokowi's announcement in 2015 to establish 12.7M hectares of social forestry during his Presidency.

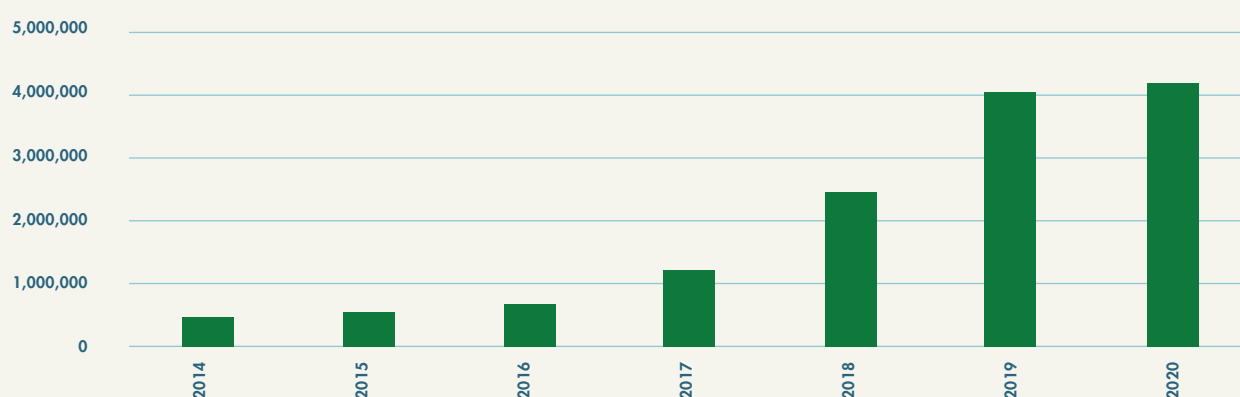
Over the two years that followed, a series of process reforms were implemented by the Ministry of Environment and Forestry (MOEF) to (i) clarify and streamline processes for issuing licenses, permits and titles, (ii) grow the human resource capacity, both inside and

outside the Ministry, required to administer the program at scale, and (iii) resource the program more fully.

A centerpiece of the Jokowi administration's renewal of the SF program was to embrace wider multi-stakeholder involvement, including cooperation with CSO lead programs, bilateral or multi-lateral partnerships, and better coordination with other Ministries or institutions. This collaborative approach included launch of the National SF Festival (PeSoNa) to assess joint benchmarks with diverse stakeholders for acceleration and corrective action of SF implementation, and to nominate champions of SF welfare, recognizing local communities that have become economically independent through SF enterprise.

This revised approach to SF under the Jokowi administration generated results (Inset 5). **In just five years (2015-19), the total area under SF expanded more than 7-fold to >4.2M hectares, representing 6,673 licenses in 34 provinces.** In total, this benefits 871,000 households throughout Indonesia (or ~1.3% of the total population).⁴

Total Area of Social Forestry



Inset 5. Total area licensed under Social Forestry

⁴ Based on conservative assumption of four persons per household on average

Nearly 14M hectares of land have been mapped indicatively for licensing under SF, offering potential to scale the program significantly to meet or exceed Jokowi’s target of 12.7M hectares during his second term (Inset 6). **Key to delivery will be overcoming bottlenecks, especially those related to land status, land tenure and community readiness.**

Province	Established Area (ha)	Indicative Area (ha)
Top 10 largest area of established social forestry		
West Kalimantan	477,039	1,500,923
North Kalimantan	394,022	258,776
South Sulawesi	295,345	347,427
Central Kalimantan	258,376	1,100,745
West Sumatra	227,658	676,473
Lampung	215,202	383,594
Aceh	208,834	466,267
Jambi	201,102	367,294
Central Sulawesi	200,797	399,616
East Kalimantan	191,269	423,704
Top 3 largest area of indicative mapping		
Papua	96,556	2,365,708
Riau	121,631	1,311,840
West Papua	63,002	650,476
Total area across all provinces		
	4,208,330	13,911,867

Inset 6. Total area of social forestry that is formally established or that has been mapped with indicative boundaries, by province.

The Top 10 provinces with largest areas of SF established is shown in the table above, alongside Top 3 provinces with largest areas of indicative mapping, where SF could proceed to licensing.

Many of these provinces where SF holds greatest potential based on indicative numbers were highlighted above in Progress Area #4 as provinces where deforestation and fire continues to be a problem. For example, West Kalimantan has the largest area of established SF (477,000 ha) and second largest indicative area (1,500,000 ha) behind Papua (2,365,000). SF might hold special promise in West Kalimantan as a means of mitigating future deforestation and fire risk. The same applies to Central Kalimantan, also a jurisdiction with higher levels of recent deforestation and fire. Riau has extremely large areas of indicative SF (>1.3M ha), more than 10-fold larger than established SF (~120,000 ha). The lack of progress in progressing from indicative to established SF in Riau reflects challenges related to land status, legality and land tenure.

Progress Area #6

**THE PALM OIL SECTOR IS
TRANSITIONING TOWARDS
INTENSIFICATION AND EFFICIENCY
BASED GROWTH MODELS.
PLANTING RATES ARE DECLINING,
PRODUCTIVITY IS RISING.**



Key Question:

Is there evidence that the palm oil industry as a whole is transitioning from 'expansion oriented' strategies of growth to more 'intensification' based models?



Answer:

Preliminary data indicate that the palm oil sector as a whole is gradually transitioning away from expansion oriented models of growth toward intensification and efficiency. CPO yields per hectare are rising, enabling continued growth in palm oil production despite declining rates of new planting.

It is widely observed that Indonesia's crude palm oil (CPO) yield is low, averaging at least one ton per hectare below that of Malaysia

(USDA 2012; 2015; 2019).

Yield varies annually in Indonesia due to weather, management and other factors, but generally approximates 3-3.5 Mt CPO per hectare per year. This is far below yields of 5-6 tons per ha achieved in numerous commercial plantations in Indonesia, where established yield improvement techniques are being implemented (Fairhurst and McLaughlin, 2011; Daemeter 2015). The Government of Indonesia's Ministry of Agriculture suggested recently that CPO yields of more than 8 tons per hectare could be attained with proper cultivation of high yield planting material. These data indicate that yield intensification offers real opportunities to expand palm oil production without increasing the plantation base⁵. This is especially true considering smallholder farmer productivity, which often reaches only 50% that of corporate plantations.

The yield gap between current and potential production in Indonesia reflects low productivity of fresh fruit bunches (FFB) compared to attainable yields as well as low oil extraction rates (OER) from processed fruit. This arises partly from inferior genetics and improper planting, which can't be addressed without replanting, but often it's a result of poor agricultural practices, sub-optimal harvesting and inefficient transportation and processing logistics. These latter limitations on yield can be readily overcome through application of established best management practices (BMPs) and optimized harvesting, transportation and processing. Historically, the main impediments to adoption have been a lack of urgency, as

⁵ We acknowledge that intensification can bring other forms of environmental or social problems, e.g. from excessive use of chemicals without proper safety precautions or waste treatment. This potential downside must also be addressed.

the sector was expanding the plantation base, as well as a lack of knowledge, commitment and incentives.

This appears to be changing.

The past five years has seen a shift in government and corporate policy orientation away from expansion toward yield intensification and efficiency. This reflects recognition of the need to expand palm oil output while mitigating impacts of production, as part of a larger strategy to improve perceptions of palm oil in the marketplace.

Three examples of the Indonesian government policy re-orientation toward intensification include: (i) the Moratorium on new licenses in primary forest and peat, enacted in 2011 and made permanent in 2019; (ii) the three-year Moratorium on new plantation development in forested areas of Indonesia's state managed Forest Zone, enacted in 2018; and (iii) the establishment in 2015 of the Badan Pengelola Dana Perkebunan Kelapa Sawit (BPDPKS), which collects CPO export levies to fund investments in replanting and other yield enhancement programs, among other uses.⁶

On the corporate side, re-orientation towards intensification arises from two factors. One is that by 2015, many companies had established plantation bases sufficient to supply much of their own raw material demand, and this reduced the urgency to expand. A second factor is that around this same time, companies were coming under pressure to eliminate deforestation from production, and began committing to NDPE. This affected their treatment of undeveloped concessions, with many companies opting not to plant concessions that were on peat or that contained forests.

⁶ This role of public and private sector policy in promoting intensification is discussed more in Part 3 on Drivers

Together, these public and private sector policies have encouraged companies to develop new plantations in non-forested, non-peat areas only; to consolidate existing operations in search of efficiency gains and cost cutting measures; and to invest in yield enhancement. It seems likely this policy environment will continue into the years ahead. GOI has reaffirmed its commitment to green growth at national and sub-national levels, and palm oil companies throughout the value chain are maintaining their commitments to NDPE post 2020. Future growth in production and profit are therefore likely to be increasingly tied to gains in productivity and efficiency, especially among industry's larger integrated players.

Given these factors, is there evidence of a sector-wide shift toward intensification?

We address this in two parts: first, are rates of new oil palm planting declining, and second, are yields per hectare increasing? For Indonesia, we examine data on growth of new planting over the past 10+ years, area harvested, national CPO production and CPO yields. The findings are encouraging, despite data limitations.

Figure 4 (upper panel) shows significant growth in planted area occurred over the period 2008-2019, with a near doubling of planted area (mature and immature combined) to roughly 12.7M ha in 2019 (projected). Over the period 2008-15, area of immature palm (<4yrs old) hovered at 1.8-2.2M ha, indicative of steady planting rates of approximately 450-550,000 ha per year.⁷ Immature palm then peaked in 2015 and declined by half to approximately 1M ha (projected) for 2019. This pattern of declining

new planting is also consistent with temporal patterns of seed sales over this period (blue line in upper panel, Fig. 4). Seed sales were very high from 2008-12, averaging ~150M seeds per year, then declined steadily through 2016/17 to nearly half this level (70-80M seeds per year), indicating declining planting rates.

Together, these data strongly suggest planting rates peaked during the period 2012-15, then declined steadily over the next four years.

Data in Figure 4 (middle panel) on growth of new harvested area (newly mature palms) reinforce this interpretation. Figure 4 shows average annual growth of new harvested area of 575,000 ha per year from 2008-14, followed by a 40% decline to ~350,000 ha per year 2016-19. Projections for growth of new harvested area in 2020 are ~200,000 ha, the lowest since 2002. Growth in new harvested area has therefore declined steadily since 2010, consistent with lower planting rates.

As planting rates are declining, palm oil production has grown steadily over the full 20 year period (Figure 4, lower panel). Notwithstanding temporary dips in 2015 and 2019 arising from ENSO drought and fires in these years, average annual growth in CPO production from 2016-19 was much higher than the four years preceding, 2012-15 (growth of 2.62 vs 1.45M Mt per year). This indicates accelerating growth in production.

⁷ Derived as average area of immature oil palm divided by four years (the time from planting to maturity)



Together, data in Figure 4 show:

- Rates of new planting declined over the past decade, especially since 2015
- Rates in growth of new harvested area also declined
- CPO production steadily increased

We now consider yields. Figure 5 combines annual production data with estimated harvested area each year (extracted from **Figure 4**) to compute estimated CPO yield per ha, over the period 2001-19 (Mt CPO per ha per year). The graph shows steadily increasing yields from 2.78 to 3.64 Mt per ha over the period. This equates to an implied yield increase of 1.2% per year through 2019.

Available data therefore offer a picture consistent with a sector wide transition toward intensification growth models, with reduced rates of planting and increased yields. This pattern is encouraging, but underlying causes

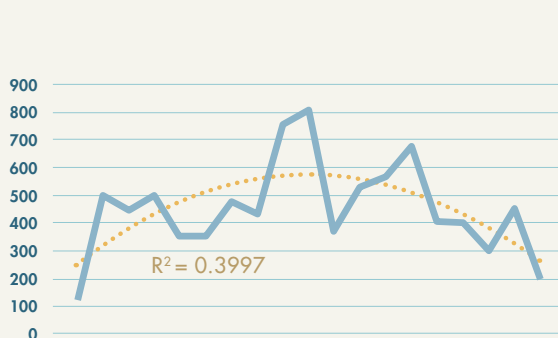
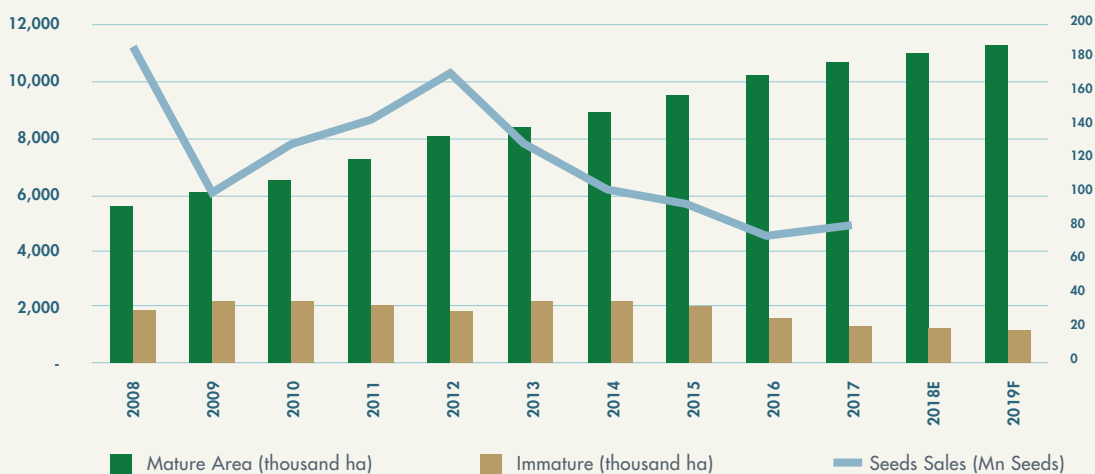
must be interpreted cautiously.

For example, public and private sector policies will need to be maintained in order for this process to continue. In addition, it's possible that weak palm oil prices over the last four years reinforced public and private sector drivers toward intensification. Will trends reverse if markets continue to strengthen? This is discussed further in Part 3 on Drivers.

Finally, it is possible that changing demographic profiles of planted oil palm in Indonesia also explains increased yields, with larger proportions moving into the more productive phase of their lifecycle. If true, this implies yield increase could be temporary.

More research is needed to explore this question fully, but interim patterns are encouraging.

Indonesia palm oil seed sales, mature area and immature area of oil palm



CPO Production (Mt)

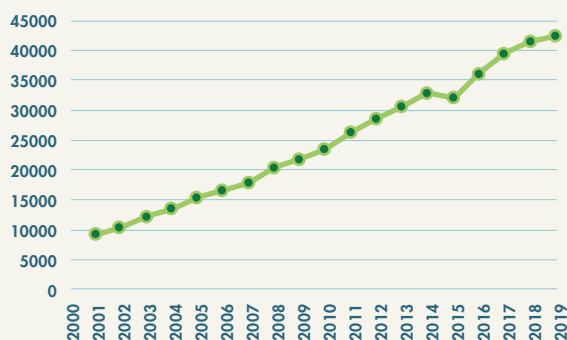


Figure 4. Growth in (upper panel) area of mature oil palm (fruit bearing), immature oil palm (non fruit bearing) and annual seed sales (proxy for area of new planting); (bottom left panel) growth in new harvested area (i.e. productive palms), yellow dash line is best-fit regression, polynomial curve; and (bottom right panel) annual CPO production. Data from US Department of Agriculture Commodity Statistics 2020, downloaded from IndexMundi in Sept 2020.

CPO yield (Mt per ha per yr)

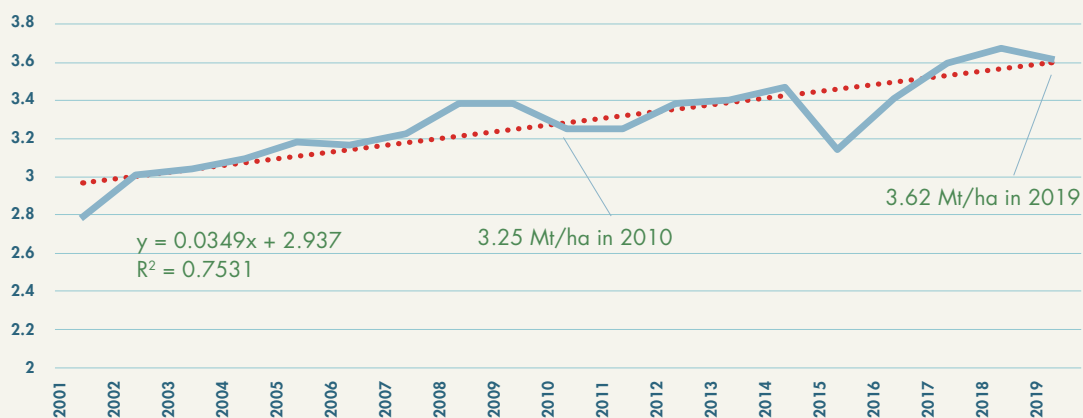


Figure 5. CPO yield in Indonesia over the period 2001-19, derived from data published in US Department of Agriculture Commodity Statistics 2020, downloaded from IndexMundi in Sept 2020.

Progress Area #7

GOVERNMENT OF INDONESIA HAS ENACTED POLICIES AND PROGRAMS TO ADVANCE SUSTAINABLE DEVELOPMENT.



Key Question:

What is the Government of Indonesia's policy orientation toward sustainability, deforestation free commodities, and mitigation of GHG emissions from deforestation or other land based sources?



Answer:

The policy orientation of the Government of Indonesia at central and sub-national levels over the past decade has been broadly supportive of efforts to promote sustainable commodity production, providing the enabling conditions necessary for other sectors of society to impact change on the ground.

Progress Areas 1-6 show that significant progress been made over the past decade to curb deforestation linked to commodities, mitigate fires and strengthen community rights to manage forests. This progress was enabled by government action at central and sub-national levels to build enabling conditions for change.

At central levels, the Indonesian government demonstrated its commitment to sustainable land-use and community rights through a series of regulatory breakthroughs, including: moratoria on deforestation and new palm oil licenses across tens of millions of hectares;⁸ an ambitious, revitalized social forestry program, paired with recognition by the constitutional court of inalienable rights of indigenous communities to customary land;⁹ formation of the REDD+ Taskforce in 2011, paired with numerous institutional reforms, regulatory changes and technical programs to reduce, monitor and report forest and land-based emissions; formation of the Peatland Restoration Agency in 2016 to coordinate peatland rehabilitation and fire mitigation; and formation of the National Action Plan for Sustainable Palm Oil.¹⁰ Central government has also mainstreamed the High Conservation Value framework within several forest use regulations, and in 2020 issued a regulation on forest rehabilitation as a framework for planning and implementation of critical land rehabilitation.¹¹ These policies are described more fully in Part 3.

Sub-national governments in Indonesia have also taken significant action, leveraging the impact of central government policy. Partial recentralization of licensing authorities in 2014 to higher levels of government brought sharper focus on the need for strengthening sub-national governance. This triggered a surge in collaborative, multi-stakeholder efforts to mainstream sustainability and bring more transparency to land-use governance, especially forestry and agriculture. This has led to significant improvements in numerous jurisdictions throughout Sumatra, Kalimantan, Sulawesi and Papua, where district and/or provincial governments are working with

diverse local stakeholder groups and private sector partners to advance Jurisdictional Approaches to sustainable land use. This includes issuance of new district and provincial regulations covering sustainable forestry and agriculture, as well as recognition of customary land rights and promotion of community forestry. Coordination has also improved, with emergence of integrated provincial and district level programs in South Sumatra, North Sumatra, Riau, East and Central Kalimantan and Central Sulawesi. Government-lead sub-national programming under Jurisdictional Approaches is even being considered as a formal implementation mechanism under Indonesia's Medium-Term National Development Plan.

These efforts at national and sub-national levels have paid off. Indonesia's first results-based payment from Norway was approved in late 2020, for emissions reductions in 2017 compared to the 2006-2016 baseline.

Government action over the past decade to enact policies and put in place regulatory frameworks to promote more inclusive development has laid foundations for a paradigm shift toward more transparent, more sustainable land-use and commodity supply chains. This created a supportive policy environment to leverage action taken by other stakeholder groups to advance Indonesia's sustainable development agenda (see Part 3).

⁸ Presidential Instruction No. 5/2019 and No. 8/2018

⁹ Putusan No. 35/PUU-X/2012

¹⁰ Instruksi Presiden (INPRES) tentang Rencana Aksi Nasional Perkebunan Kelapa Sawit Berkelanjutan Tahun 2019-2024

¹¹ Government Regulation No 26/2020

Progress Area #8

MEANINGFUL CORPORATE ACTION TOWARD BUILDING NDPE SUPPLY CHAINS HAS SURGED, SETTING NEW STANDARDS FOR TRANSPARENCY AND ENGAGEMENT IN THE SOFT COMMODITY SECTOR.



Key Question:

What is the policy orientation of private sector to eliminate deforestation from palm oil and pulp and paper supply chains? What resources are being mobilized and approaches pursued?



Answer:

Private sector orientation toward sustainability in the palm oil and pulp and paper sectors has changed fundamentally over the past decade. NDPE commitments cover an ever growing segment of the market for both commodities, and are being pursued more robustly, with growing transparency in reporting. Gaps remain in the coverage and implementation of commitments necessary to eliminate deforestation completely, but enabling conditions are in place.

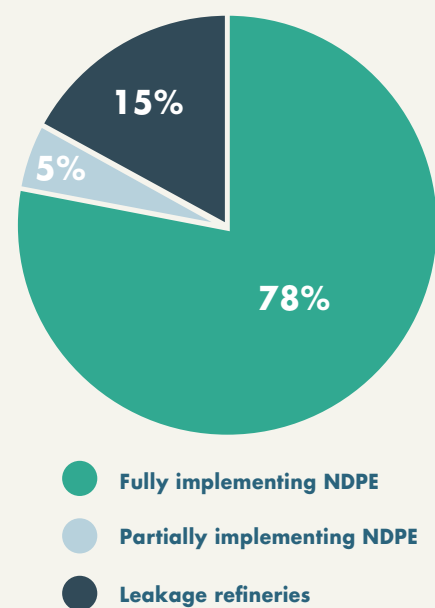
Private sector orientation toward sustainability in the palm oil and pulp and paper sectors has changed fundamentally over the past decade. Whereas in 2010 companies were reactive, often reluctant participants in sustainability, today's industry leaders are proactive and committed, competing to differentiate their company in ever discriminating markets. Whereas in 2010 most pressure for change was aimed at producers, today, the supply chain as a whole accepts a shared responsibility to drive change.

Since 2013, pursuit of sustainability has taken the form of committing to No deforestation, No peat, and No exploitation (NDPE) objectives. Today, commitments cover an ever growing segment of the palm oil market, and are being pursued more robustly, with more transparency in reporting than ever before. Yet, important gaps remain in the coverage and implementation of commitments for private sector action to deliver on its full potential for eliminating deforestation from production. Broadly speaking this applies to pulp and paper as well, with some distinctions.

Industry coverage. The adoption of NDPE commitments by companies throughout the palm oil supply chain grew sharply over the decade. In 2013, Wilmar became the first palm oil company to enact what became known as NDPE policy, applicable to its entire supply chain. By 2020, over 300 companies in the palm oil supply chain had some form of a commitment to sustainable palm oil, accounting for the vast majority of the palm oil market. Currently, 83% of all refining capacity in Indonesia and Malaysia is owned or managed by 21 companies with NDPE commitments (**Inset 7**). One year ago,

coverage stood at 74%, indicating continued growth of commitments. Similarly high coverage is found among palm oil growers, with 76% of large palm oil growers operating under NDPE.

Commitment coverage. In assessments of the coverage of NDPE commitments, the Forest 500 found in 2017 that over half of companies committed to NDPE met 100% of requirements for a comprehensive policy, a significant improvement from 65% of companies in 2014. Yet, some companies continue to omit key criteria from their policies. For example, analysis by SPOTT in August 2020, utilizing a more demanding framework than Forest 500, found that under 40% of the 77 palm oil companies they assessed (palm kernel crushers) specified a cut-off date for deforestation; <50% extended their NDPE commitment to all third party suppliers; and only 15% had a commitment to restoration for non-compliant conversion by suppliers. This indicates more work can be done to strengthen coverage of policy commitments further, especially in relation to third party suppliers.



Inset 7. Percentage of refinery capacity in Indonesia and Malaysia committed to NDPE. Source: CCR (2020)

Implementation. Measures of how effectively companies are implementing these policies vary among published sources. Utilizing a five-part framework (**Inset 8**), Chain Reaction Research found that 18 of the 21 companies committed to NDPE had active implementation programs covering supplier engagement and support, supply chain transparency, functioning grievance mechanisms, suspension and re-entry criteria, and (at least) annual progress reporting.

Other sources suggest wider room for improvement. For example, SPOTT reports 3% of palm kernel crushers and refiners they assessed report full traceability to plantation (TTP) for at least one processor. In addition, 3% of companies report engagement with high risk mills on an annual basis. While progress is being made on implementation, more can be done.

Leakage market. Despite growing coverage of NDPE commitments, many companies have yet to adopt NDPE. At least 17% of the largest refiners in Indonesia and

Five pillars of full NDPE implementation

- Supply chain transparency
- Systematic supplier engagement
- Operational grievance system
- Protocols for supplier suspension & re-entry
- Regular reporting & evidence of progress

Inset 8. The key components of NDPE implementation.



Malaysia have no NDPE commitment and contribute to the so-called 'leakage market' for palm oil. Similarly, as noted above, many companies with commitments do not extend these to all of their suppliers, diluting pressure to adopt NDPE in the upstream.

Another factor potentially contributing to future growth in leakage markets relates to palm-based biodiesel in Indonesia. Since 2015, the Indonesian government has promoted palm-based biodiesel as part of a larger program to expand renewable energies and reduce reliance on fossil fuel imports. Many palm-based biodiesel producers have NDPE policies, but not all, potentially contributing to leakage markets.

Transparency & engagement.

The NDPE policies and programs outlined above, and progress toward implementing them, are active works in progress. Yet, taken together, these efforts have made the palm oil industry as a whole more open, transparent and collaborative than any other globally traded soft commodities, especially soy. This shift since 2010 has created opportunities for accountability and collaboration to accelerate change that did not exist ten years ago.

TODAY:

- >75% of industry is reporting on their supply chain (including individual supplier mills), status of grievances, levels of supplier engagement to comply with NDPE, and supplier suspension and reengagement. Such reporting happens minimum 1x per annum, on-line, often using interactive mapping with downloadable lists and other data. Ten years ago, this level of transparency did not exist. Today, it is the norm.
- Concession maps for RSPO members based in Malaysia are now available to the public. Unofficial concession maps are also in circulation for Indonesia.
- Palm oil company participation in diverse multi-stakeholder bodies has surged, focused on tools, guidelines, standards of assessment & reporting, digital monitoring and reporting platforms, and certification systems, among other purposes.
- Likewise, corporate participation in multi-stakeholder jurisdictional programs has surged, contributing funding and resources on the ground. Examples include: the Aceh Tamiang and Aceh Timur sustainable landscape programs in Aceh; the Siak-Pelalawan Landscape Program in Riau; and the Coalition for Sustainable Livelihoods program in North Sumatra.



Observations on Pulp & Paper:

Similar progress has been made in the pulp and paper sector over the past decade. Public exposure, demands for reform, and economic pressure from buyers as well as banks led to ground breaking NDPE commitments from Indonesia's two largest pulp and paper conglomerates: Asia Pulp and Paper (APP) and Asia Pacific Resources International Limited (APRIL), as well as APRIL's affiliate Toba Pulp Lestari (TPL).

Together, these conglomerates produce >80% of pulp and paper in Indonesia. Both companies have committed to eliminate deforestation, new peat development and exploitation from their own operations, as well as their third party suppliers. APP also committed to conserving or restoring 1M hectares of forest and peatland, an area equivalent to the total plantation area from which it sourced pulp in 2013. In 2015, APRIL committed to invest \$100M over ten years in forest and peatland protection, including 150,000ha of active peatland protection. Protection areas equal in size to APRIL's plantation areas will be established, of a size, shape, connectivity, and representativeness to protect ecosystem functions and to conserve native biodiversity. Both companies are occasionally the subject of grievances in relation to forest clearance in their supply chains, and/or featured in reports highlighting labor challenges or social issues that must be addressed. Yet, progress is being made, and both companies remain committed to progress, setting the stage for NDPE to become the norm in pulp and paper as well.

Progress Area #9

THE PRODUCTION AND TRADE OF SUSTAINABLE PALM OIL CONTINUES TO GROW, SIGNALING MARKET TRANSFORMATION SUPPORTED BY CERTIFICATION.



Key Question:

What progress has been made in expanding the production and trade of sustainable products, as a means of rewarding more sustainable production models in palm oil?



Answer:

RSPO certified palm oil production increased 6-fold and sales increased 5-fold since 2010, including a doubling in 2019 alone of certified smallholder production. ISCC certification system users increased >6-fold since 2010, facilitating access to EU biofuels markets. This progress was enabled by massively expanded outreach and marketing to promote sustainable products by companies, CSOs, and trade associations in western markets such as the EU and US, and expanding markets of India, China and Indonesia. Markets are transforming.

Growth in market recognition and reward of sustainable products is a critical part of reinforcing producer efforts to eliminate deforestation, and to make high-yield, low-impact production models the norm. It strengthens the business case for sustainability.

Certification systems for palm oil, such as the RSPO and ISCC, and the FSC for wood products, address the challenges of building markets for sustainable products by providing assurance on origins, legality and compliance with sustainability criteria. Market penetration of certification systems rarely exceeds 20-30%, but expanded trade in certified materials lays the foundations for growth of market demand for sustainability in general. It does so by increasing the confidence of buyers/consumers to reward good practice, and the confidence of producers to make investments in performance that will be valued by the market.

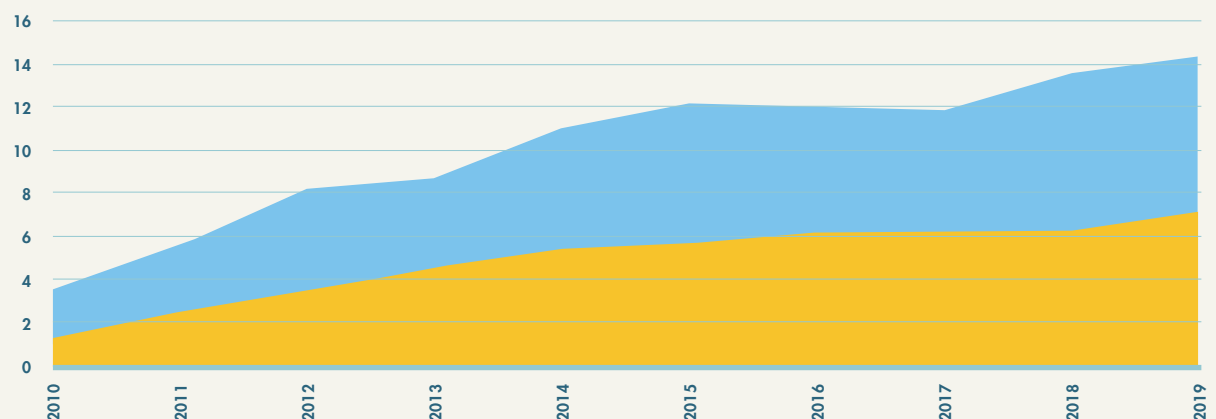
Data over the past ten years show clearly that market transformation is happening. The pace of change has been slower than many hoped, but demand for sustainable products is

steadily growing. This viewpoint is supported by multiple strands of data.

Trade of sustainable materials is growing. RSPO certified palm oil production increased 6-fold and sales increased 5-fold since 2010 (Inset 9). This includes a doubling in 2019 alone of certified smallholder production (see Progress Area #10 below). Recent annual growth in sales of RSPO certified materials exceeded that of production for the first time in 2019 (13% vs 5%), indicating outreach and promotion of sustainable materials is increasing market demand.

Alongside positive trends in RSPO production and sales, ISCC certification system users have increased >6-fold since 2010, providing access to the EU regulated biofuels market by ensuring RED compliance. Similarly, the number of ISCC Plus certificates issued for the circular and bio-economy, which includes palm oil amongst other materials, has also surged, with 70% growth per annum over the past three years (2018-20). ISCC does not publish sales data, but steady growth in demand for ISCC assurance certificates strongly suggests growth in demand for sustainable materials.

RSPO CSPO Sales (Yellow) and Production (blue)



Inset 9. Production and sales of RSPO certified oils. Source: Compilation of RSPO annual impact reports.

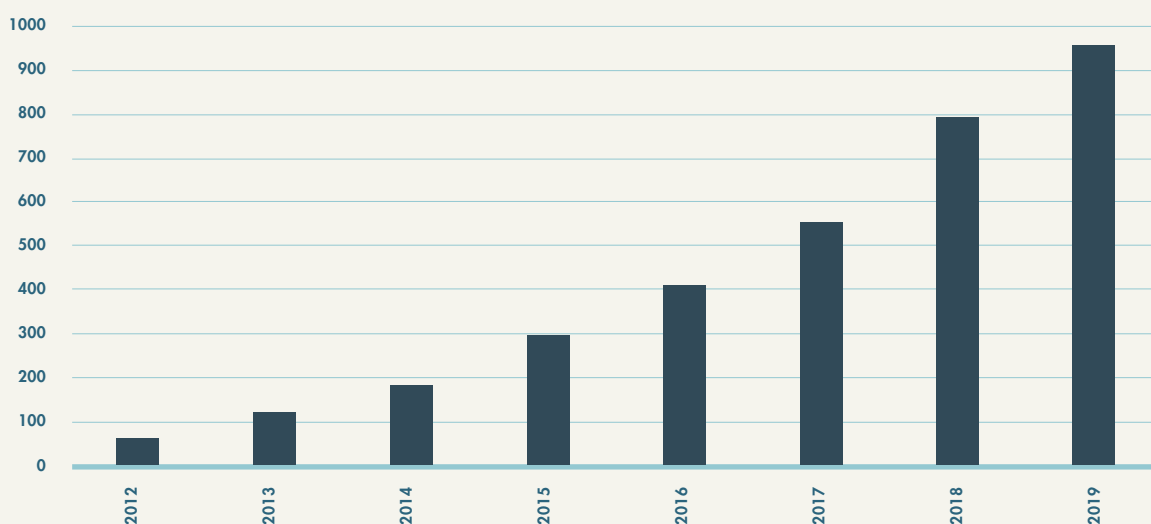
Surging outreach in consumer

markets. Growth in sales of sustainable materials reflects expanding efforts to promote consumption of certified materials in both established and emerging markets. Such outreach has been undertaken by companies, CSOs, trade associations, and even on-line shopping platforms. For example, over the past five years, in partnership with its members the RSPO launched multiple programs to raise awareness and promote trade of RSPO certified materials, not only in established markets of Europe and the United States, but also in emerging markets of India, China and Indonesia. As a result, the number of RSPO trademark holders has grown 15-fold since its

launch in 2012, and now appears on >400 products in 60 countries (**Inset 10**).

In parallel, CSOs involved in certification programs, such as the Rainforest Alliance (RA), have launched online consumer outreach and marketing tools, e.g. RAs on-line Find Certified Products portal, and its social media based #followthefrog initiative. Conventional on-line trade platforms such as Amazon are offering a promotional marketplace for products that meet verified sustainability criteria, called Climate Pledge Friendly. RA certified palm oil is among them.

Growth in RSPO trademark holders



Inset 10. Number of RSPO trademark holders.

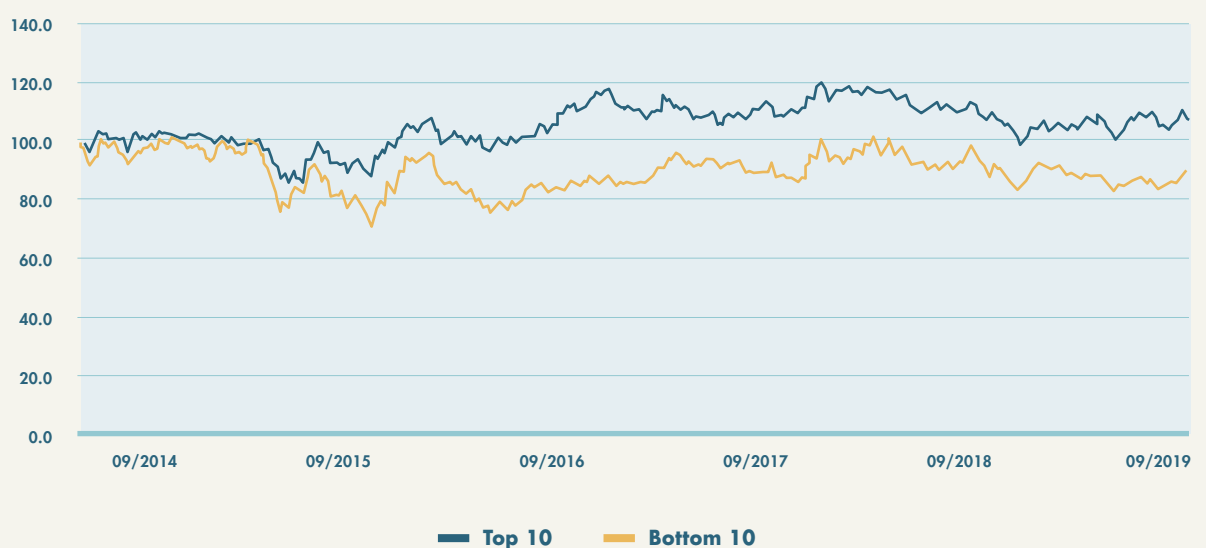
Positive investment returns. A third line of evidence for market transformation is found in above average investment returns of palm oil companies producing and trading in sustainable materials. The Zoological Society of London’s SPOTT program (Sustainability Policy Transparency Toolkit) rates the sustainability performance of commodity producing companies. SPOTT published a report comparing the investment returns of publicly traded palm oil companies and showed the Top 10 Highest rated on SPOTT outperformed the Bottom 10 Lowest rated over the period 2014-19, on a total return basis (**Inset 11**). The study also found that on an individual company basis, high-scoring companies had more above average years and fewer below average years than low-scoring companies, potentially linked to lower volatility and more stable returns.

Separately, Climate Advisers formed a palm oil producer equity index called the Climate Advisers Better Palm Oil Index (ticker CABPLM), comprising globally traded stocks of RSPO members. They found CABPLM

outperformed the FTSE Bursa Malaysia Asian Palm Oil Plantation Index by 6% over a five year period (FTSE does not differentiate companies based on sustainability performance), and outperformed non-RSPO members by nearly 25% from 2012 to 2019. These findings are also supported by a Chain Reaction Research report published in 2019, which showed that four palm oil companies suspended by multiple buyers due to deforestation incidents underperformed compared to benchmark indices.

Continued growth in demand for sustainable materials in the marketplace, combined with above average investment returns for producers committed to sustainability, strongly suggests markets are transforming. This strengthens the business case for sustainability.

Continuation of this trend in the decade ahead will reinforce, and potentially accelerate, adoption of more sustainable practices among upstream producers, leading to further reductions in deforestation.



Inset 11. Average investment returns among palm oil companies rated in the Top 10 versus Bottom 10 according to SPOTT.

Progress Area #10

CIVIL SOCIETY HAS GROWN IN SCOPE AND SOPHISTICATION TO BECOME AN EFFECTIVE PARTNER IN ACHIEVING SUSTAINABILITY, ESPECIALLY IN INDONESIA.



Key Question:

What is the status of civil society in the region, its breadth and depth of activity across issue areas that affect commodity production, and how are they functioning as agents of change?



Answer:

In the last decade, local and national CSOs, especially in Indonesia, have expanded in number, sophistication and capacity to deliver impact. Today, they are a critical stakeholder mobilizing action to support problem solving related to sustainability.

Asia is home to ~60% of the global population but only 16% of its CSOs. This is less than one-third the number expected based on population.

Indonesia, however, is an outlier for Asia. The number of registered CSOs in Indonesia totals >420,000 organizations across the country, increasing by >60% from 2016-19. Today, per capita occurrence of CSOs in Indonesia is approaching 40% that of the United States, which has a much longer tradition of promoting civil society organizations (1.9 CSOs per 1,000 people in Indonesia vs 4.5 in the United States).

In the last decade, local and national CSOs, especially in Indonesia, have expanded not only in number but also capacity to deliver impact. This includes organizations that specialize in advocacy and outreach to mainstream sustainability in the marketplace; policy analysis and advice to improve public and private governance; legal assistance to defend community and labor rights; organizing, outreach and training to build local capacity; technical studies, research and outreach to monitor and report on deforestation and fires; training and organizational support to farmers; convening multi-stakeholder engagement platforms for inclusive sub-national development planning and governance; and practical solutions in the field; among many others.

Growth in number of CSOs and scope of issues they address is also accompanied by growth in professionalism, ethics, and accountability, as well as willingness to form alliances to pursue shared objectives and

resolve complex problems on the ground. For example, growing numbers of network based organizations, such as the Indonesian Civil Society Coalition, the Indonesian CSO Alliance, and the Asia Pacific Solidarity Network, operate to facilitate cooperation and alignment among independent organizations to yield stronger collective impact. The Indonesian NGO Council is a member-based organization promoting standards of ethical behavior and accountability, with >100 members in all major provinces of Indonesia.

The emergence of CSOs in Indonesia as effective partners in achieving sustainability is increasingly acknowledged by the global community as well the Indonesian government itself. Over the past decade, dozens of Indonesian CSO members have received prestigious international awards for excellence in leadership, action and innovation, including honorees of the prestigious Whitley Award for Excellence in Environmental Leadership (eight since 2010); the Goldman Environmental Prize, honoring six grassroots environmental heroes for their sustained efforts to protect and enhance nature; the UNDP Equator Award (13 indigenous initiatives over the past 15 years);¹³ the prestigious Schwab Foundation Social Entrepreneur of the Year Award (twice awarded to Indonesian entrepreneurs advancing long term, community and market based solutions for sustainable development; as well as recipients of the Skoll Foundation Award for Social Innovation, UN Young Champion's of the Earth award, Ashoka Fellowship, Ashden Award for Climate and the Global Peace Award.

¹³ For example, in 2020 Forum Musyawarah Masyarakat Adat Taman Nasional Kayan Mentarang (FoMMA) was honored for its work advancing the rights of communities living within customary forest land in North Kalimantan.



Alongside international awards, both the Government of Indonesia and other domestic institutions have drawn attention to the achievements of Indonesian civil society in advancing sustainability across a wide range of issues over the past decade. Two prominent examples include the Ministry of Environmental and Forestry's annual Kalpataru awards, which honor at least 10 people each year for their achievements in protecting and restoring nature and advancing social aspects of sustainability, and the Kehati Foundation's annual KEHATI Award, which honors inspiring efforts made by citizens from all walks of life to foster, encourage and advance love for and protection of Indonesia's biodiversity.

Over the past decade, CSOs have consolidated and strengthened a foundation to support delivery of change at scale, at multiple levels of society, and through diverse pathways of influence. Their role in contributing to declining deforestation over the past decade is described more fully in Part 3.

Moving forward, key questions include how and where CSOs deploy resources most effectively; what bottlenecks can be addressed to expand capacity where it is most needed; and how to ensure civil society maintains its independence while continuing to work constructively with public and private sector to co-deliver solutions in the decade ahead.

Progress Area #11

SMALLHOLDER OIL PALM FARMERS ARE A MAJOR FOCUS OF RESEARCH, SUPPORT AND INVESTMENT BY DIVERSE ACTORS, CONTRIBUTING TO BUILDING MORE INCLUSIVE SUPPLY CHAINS.



Key Question:

What progress has been made in better understanding challenges and opportunities for building more inclusive supply chains that motivate and reward smallholder farmers to adopt more responsible production models?



Answer:

Smallholders are becoming a major focus of direct support, research and investment by diverse actors to improve legality, access the value chain, motivate and reward good practice. Much work remains to be done, but early progress is encouraging.

Smallholder oil palm producers are increasingly recognized as a critical opportunity to mainstream sustainability and eliminate deforestation from palm oil supply chains over the coming decade.

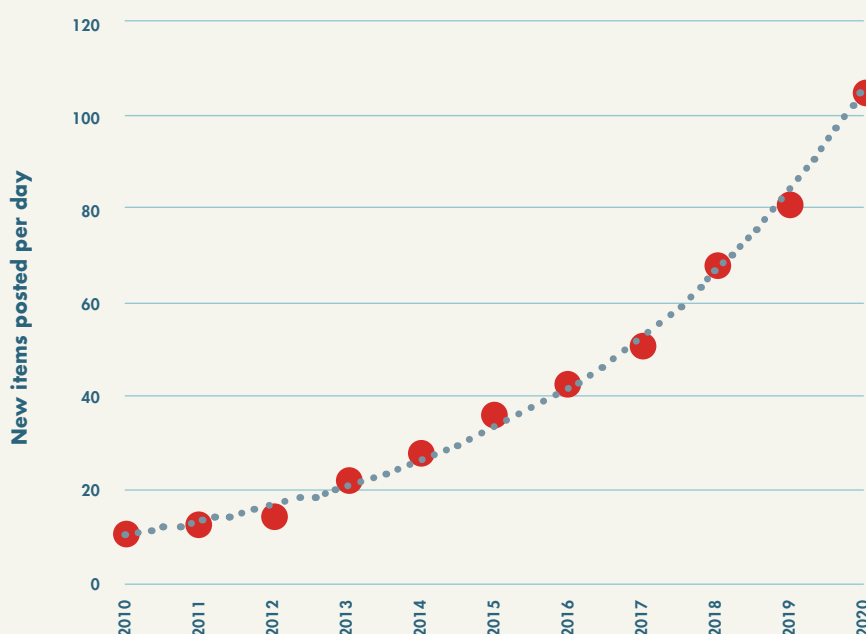
Farmers are a significant part of the palm oil production base throughout Indonesia and Malaysia, managing 60% of planted area in some regions. Yet, yields frequently average 50% (or less) those of company-owned plantations. In this context, farmers are viewed in a sympathetic light, highlighting the many ways they could (and should) be supported to enhance yields and improve livelihoods.

Sometimes, farmers are portrayed in a more critical light. Progress made in reducing largescale deforestation by companies has shifted attention toward addressing the problem of rising deforestation outside concessions. This has raised concerns that growth in smallholder expansion in the

future could become a major contributor to deforestation.

Both of these viewpoints are valid, but context matters. The challenge we face is how to invest in farmers to improve yields and livelihoods, while mitigating the risk of future deforestation and fire linked to expansion. Both of these issues are widely recognized and have become a major focus of research, support and investment over the past decade, especially since 2015. Several lines of evidence support this assessment.

Ten years ago, smallholder farmers were a niche topic in the sustainability debate; today, they're a prominent topic of discussion and research among a widening variety of stakeholders. For example, a Google archive analysis shows exponential growth of online material related to the keyword search "smallholders and oil palm" [Inset 12](#). The rate of appearance of new online content nearly tripled in the last five years alone.

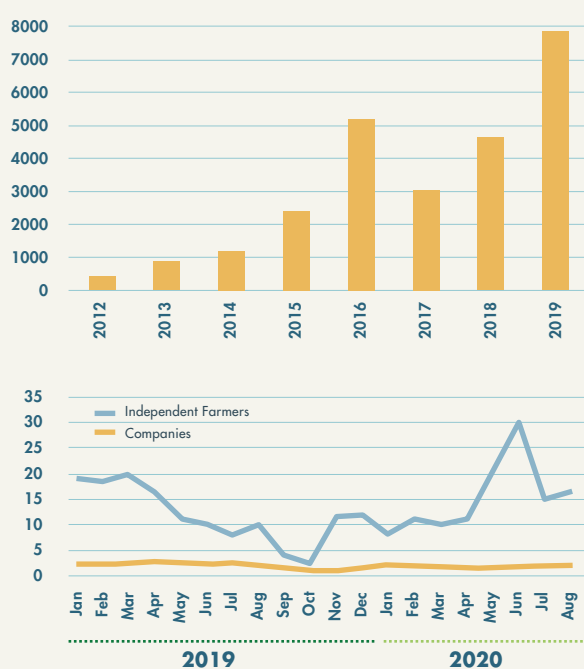


Inset 12. Google Archive search engine materials available on-line using keywords: smallholders and oil palm.

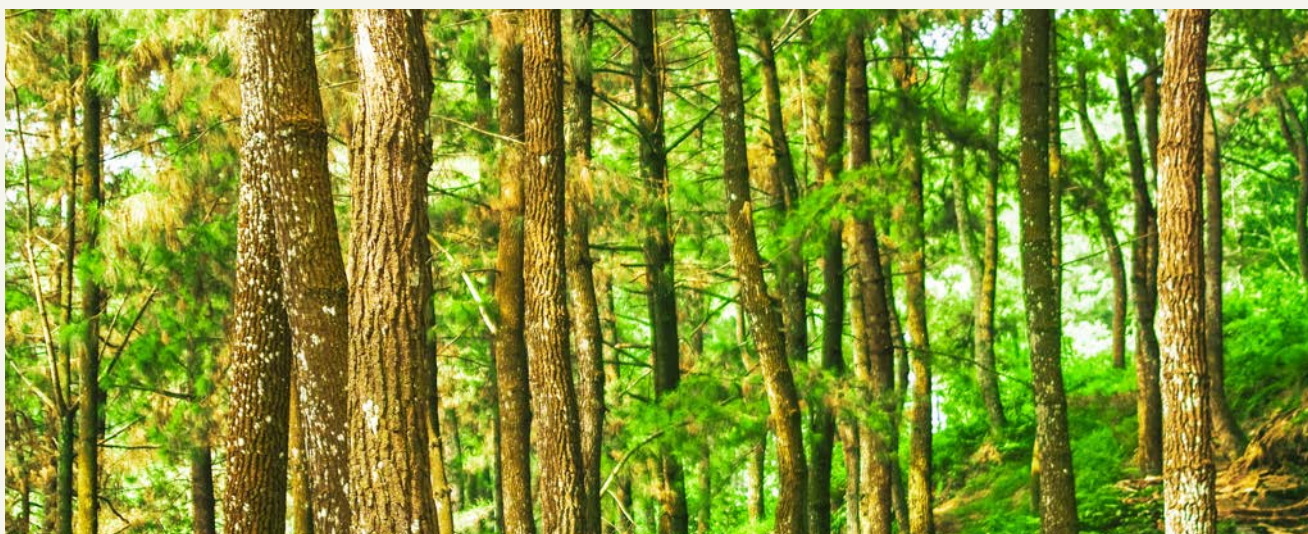
Second, sustainability associations are making concerted efforts to mobilize resources to support smallholder farming. The RSPO, for example, has made smallholder inclusion a top priority in their programming through: (1) roll out of a dedicated investment support facility (RSPO Smallholder Support Fund), which over the past five years deployed nearly US\$5M across 37 smallholder projects in 12 countries, involving >29,000 farmers across ~164,000 ha of farms; (2) launch of the on-line RSPO Smallholder Engagement Platform, which links smallholder support projects with technical partners and outside funding; (3) the launch in 2019 of the Smallholder Training Academy, which aims to support oil palm smallholders worldwide through building their capacity – and that of organizations supporting them – through access to quality training guides and materials, and growth of a qualified trainer community; and (4) a complete rework to its smallholder engagement strategy in 2017, culminating in revision of its approach to independent smallholder certification in 2019.

As a result of these investments, the number of RSPO certified independent smallholder farms has increased 3-fold over the last five years to >7,800 farmers, covering ~30,000 ha (**Inset 13, upper**). The total number of all farmers certified (including associated farmers) exceeded 146,000 by end 2019, covering ~402,000 ha worldwide. This number nearly tripled in 2019 compared to 2018, suggesting training and support programs are accelerating smallholder inclusion in sustainable supply chains.

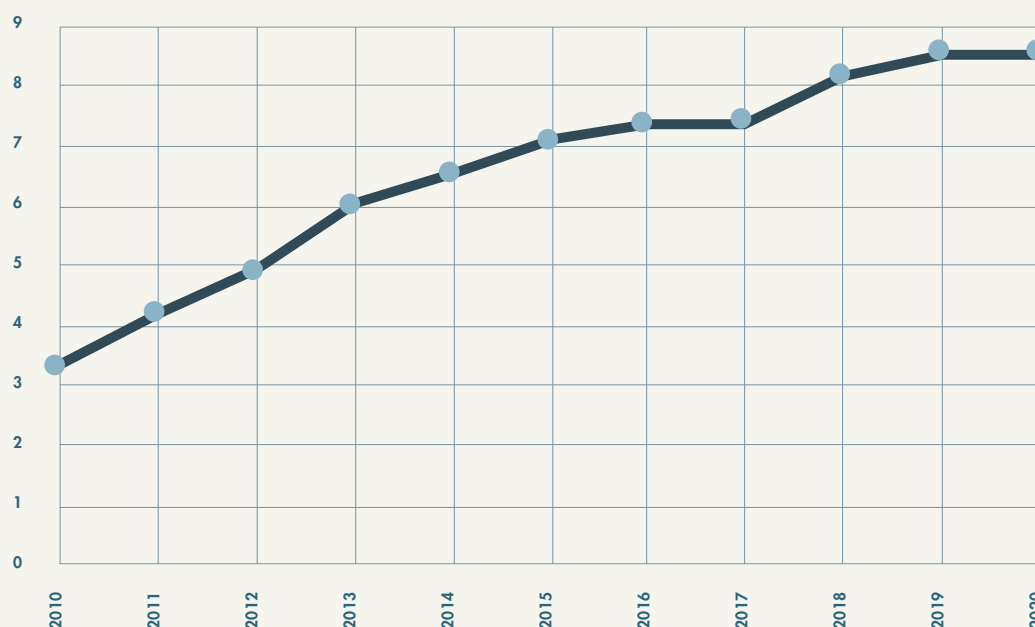
A third sign of progress is growing demand to reward smallholder sustainability in the marketplace. Market purchase of RSPO credits for sustainable smallholder palm oil has surged on PalmTrace, with independent smallholder certificates purchased at a premium much higher than certificates of corporate producers (**Inset 13, lower**). Over the period Jan 2019 to present, farmer certificates sold at 7-fold higher prices on average than non-farmer certificates: \$13.34 vs \$2.04 per ton. In June 2020, the price differential was >15-fold. Large US and European companies with recognizable brands (e.g. Unilever, L’Oreal, Ikea, Target) are among the larger buyers of certificates, but the variety of buyers, and their countries of origin, has grown steadily over the decade to more than 100 distinct entities. More than one-third of buyers purchased credits in three or more of the past five years, demonstrating stable demand to reward sustainable smallholder production in the marketplace. This is a big deal. It indicates readiness in the marketplace to mobilize financial rewards when farmers adopt more sustainable production models.



Inset 13. Number RSPO certified independent farmers (above), and credit prices on Palm Trace for RSPO certified oil.



Finally, the past decade has seen massive elevation in the profile of smallholder oil palm research. Results of a Google Scholar search of the publication record 2010 to present¹⁵ shows that the frequency of publications addressing sustainability aspects of smallholder oil palm has increased >2.5-fold, on pace to exceed 3,200 new publications in 2020 (~9 per day; **Inset 14**). As a result, the knowledge base to address social, environmental, livelihood and conservation challenges for smallholder oil palm has expanded massively over the past decade.



Inset 14. Publications on smallholder oil palm farming.

¹⁵ Using search terms “oil palm, smallholder farmer” in Google Scholar search engine, performed 14 Oct 2020

Progress Area #12

LEVEL OF INFORMATION, KNOWLEDGE, RESEARCH AND EXPERTISE ON SUSTAINABLE PALM OIL AND PULP & PAPER HAS EXPANDED MASSIVELY OVER THE PAST DECADE.



Key Question:

As a community of practice, do we have the data, knowledge and tools we need to drive deforestation towards zero in the coming decade?



Answer:

In 2010, limitations of knowledge and access to information were a serious impediment to making progress on sustainability in palm oil and pulp and paper supply chains. This is no longer the case in 2020. Information, reporting and expertise have expanded massively over the last 10 years, providing the knowledge and tools needed to develop more strategic, effective approaches for driving change, to track progress, and to promote greater accountability.

Ten years ago, stakeholders lacked basic information about palm oil and pulp and paper supply chains.

We also lacked access to the data sources, tools and expertise needed to analyze systematically and comprehensively the performance and risk of companies producing, processing and trading these commodities.

As a result, we had limited understanding of how supply chains are structured, where processing facilities and concessions are located, who sources what from whom, who owns what, what are their policies and performance, what is the status of grievances and what is needed to resolve them. This situation fostered an unproductive “argument by anecdote” style of reporting, with critics using examples of egregious bad practice to characterize industry as a whole, and proponents countering this narrative by using industry leading examples of best practice to undermine their critics.

Today, the situation is very different.

In 2020, we have orders of magnitude more knowledge, data, tools and reporting frameworks. This allows us to understand more fully the progress and challenges related to production and trade of sustainable palm oil and pulp and paper. We can now establish facts, conduct transparent analyses and plot a shared course of action. This knowledge comes in the form of supply chain data, tools and platforms for geospatial monitoring, academic literature, investigative reporting and exposes, and industry-wide performance reporting supported by reporting frameworks and guidance – most of which is now in the public domain. Using AI-powered network visualizations also brings unprecedented transparency to company ownership, minority holdings, loan exposures, joint ventures

and common directorships, revealing previously hidden ownership connections. The publication of information by external stakeholders viewing these sectors through a critical, constructive lens has also triggered increased transparency and reporting from companies in these sectors, setting new standards for transparency and engagement among globally traded soft commodities.

Here, we highlight a selection of breakthroughs in knowledge and information over the past decade.

Supply chain, investment and financing data.

Information on palm oil and pulp and paper producers, traders, investors and financiers has become much more widely available. Public domain databases allowing access to palm oil, pulp and paper concession information, as well as palm oil mill and refinery information, has been made possible through company disclosure, certification audit reports, NGO reports, and NGO and financier disclosure. This supply chain information has enabled leveraging of other technologies, such as geospatial monitoring and mapping tools, to identify corporate actors and financiers linked to deforestation, fires, development on peat, and to promote wider forms of accountability.

For example, in the past decade, the RSPO has made the concessions of RSPO members (excepting Indonesia) available for download on GeoRSPO. Global Forest Watch (GFW) Commodities now publishes the RSPO concessions alongside locations of mills and government-provided oil palm concession information, along with the Universal Mill List, a standardized identification system for global palm oil mills. TRASE publishes data on palm oil trade flows, highlighting top exporter and importer groups, top producing regions and mills, as well as profiles on major supply chain actors detailing risk exposure. TRASE

Finance provides data on interconnections within corporate ownership structures, bringing transparency to the direct and indirect financing of commodity producers and traders potentially linked to deforestation.

Data and platforms for geospatial monitoring of deforestation, fires and peat. Some of the largest knowledge gains of the past decade are related to data, tools and platforms tracking deforestation, development on peat and fires. This, combined with more transparency in supply chains, has allowed the public to track and evaluate the sustainability performance of producers, buyers, downstream brands, lenders and investors more fully.

Readily accessible public datasets that allow for geospatial analyses and understanding can be found online at Global Forest Watch, providing downloadable data and analysis linked to fires, deforestation, and peat development. Private sector actors like Planet, MapHubs, Satelligence, and Starling offer similar data and bespoke analyses, mostly on a fee for service basis, but often as part of what become public domain reports. Perhaps most significantly, in September 2020, the Norwegian Government announced plans to provide public access to \$40 million worth of Planet's high-resolution satellite imagery of tropical forests, to be integrated into existing tools like GFW or accessed for direct downloads.

These datasets have given more power to stakeholders to monitor the performance of producers and establish links to downstream buyers. Aidenvironment and its spin-off Earth Equalizer have utilized datasets to conduct fee for service analysis for corporate actors to monitor their own supply chains. Results of some of these analyses are made public as part of the reporting series Chain Reaction

Research. Mighty Earth (via its Rapid Response program) monitors palm oil companies for deforestation and peat development and publishes case studies in the public domain, which has contributed to a culture of transparency about grievance reporting linked to NDPE commitments. This, in turn, has fostered more comprehensive, proactive company grievance reporting.

Reports, exposes and blogs. The body of publications by NGOs, Technical Service Organization (TSOs) and journalists on pulp and paper and palm oil sustainability has expanded significantly in the past decade.

Regional NGOs like Sawit Watch, Auriga and Telapak, as well as global NGOs like Forest Peoples Programme, Greenpeace, Oxfam, Aidenvironment and RAN have published investigative exposes and reports spotlighting producers as well as commodity buyers. For example, RAN's Snack Food 20 consistently evaluates the performance of the biggest snack food companies purchasing palm oil products, and Greenpeace's series of reports like The Final Countdown and Moment of Truth highlighted the policies and actions, or lack of actions, from major palm oil traders and consumer products manufacturers. This activity helps to promote greater transparency and accountability in relation to policy commitments and targets.

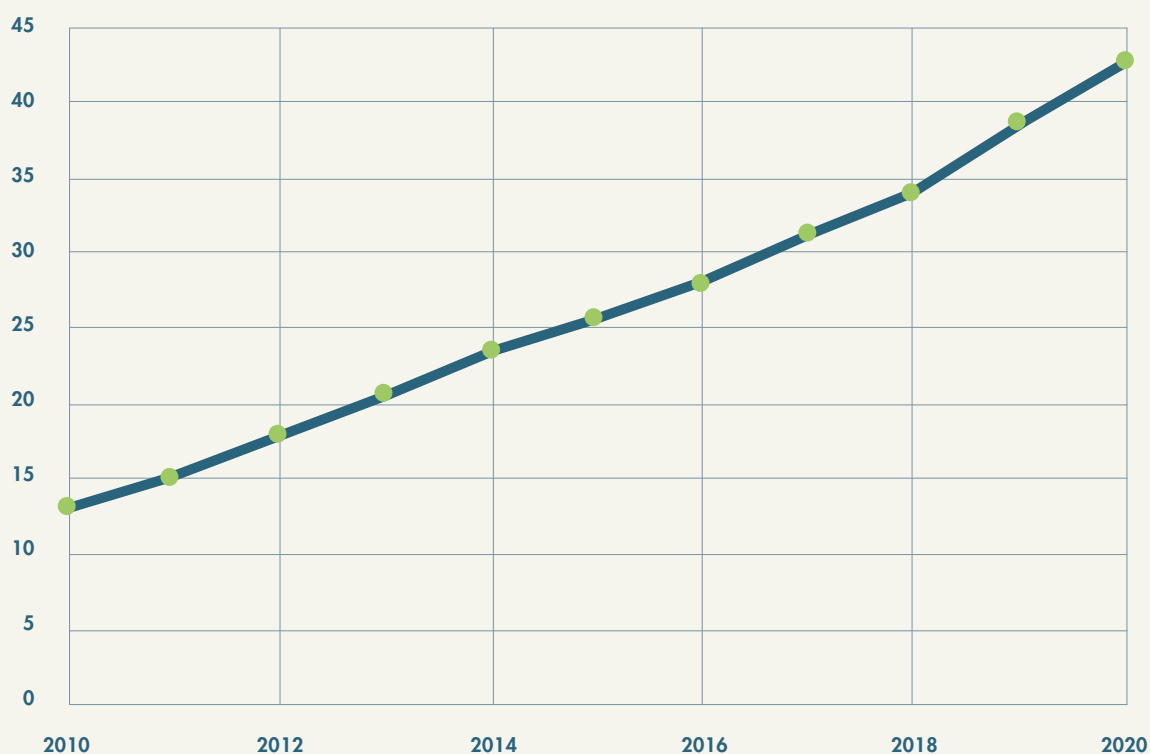
A number of tools have also emerged, focused on providing information for financiers and investors, detailing financial risks and impacts related to the sector. Engage the Chain initiative by CERES publishes briefers on palm oil, fiber packaging and other commodities for investors. Chain Reaction Research has issued a series of regular reports on market and credit risk linked to corporate actors producing and trading palm oil.

Other technical organizations, such as World Resources Institute (WRI), the Sustainable Trade Initiative (IDH), and Auriga – as well as technical agencies within the Indonesian government – have released publications and regular blogs focused on reporting progress to advance sustainability in the pulp and paper and palm oil sectors, including on policy developments, jurisdictional approaches, smallholder inclusion and wider partnership innovations.

Journalism & Scientific Research.

The scientific community is mobilizing ever increasing resources and expertise to understand and promote sustainability, especially in palm oil. Since 2010, there has

been a three-fold increase in the number of scientific publications on palm oil, with nearly 15,000 new publications projected for 2020 (Inset 15)¹⁶. Journalistic interest in these sectors has shown similar growth. A search for “palm oil” on the tropical forest website Mongabay shows over 3800 hits, alongside 980 plus for “pulp and paper”. A similar search “palm oil sustainability” on Reuters shows 770 hits (113 in the last year), and 2,970 hits on the Guardian website. The surge in journalism focused on these sectors is enabled by growth in funding for dedicated deep-dive journalism. The Gecko Project is one example, presenting in-depth, on-the-ground investigative reporting in palm oil.



Inset 15. New publication per day on palm oil & sustainability

¹⁶ Data generated by Daemeter via GoogleScholar portal (Oct 2020).

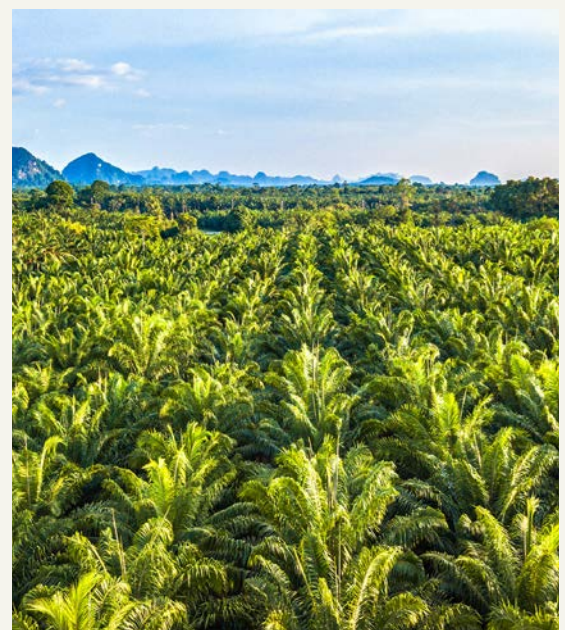


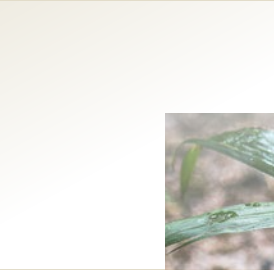
Performance reporting.

Performance reporting is also on the rise, by external stakeholders and companies themselves. Annual and bi-annual sustainability performance scorecards have become commonplace, e.g. the SPOTT tool (covering rubber, timber and pulp, and palm oil), and WWF's Palm Oil Buyers Scorecard, Timber Scorecard and Environmental Paper Company Index.

In addition, downstream and upstream companies within the oil palm sector in particular are providing more transparent self-reporting on their own progress and challenges, via annual sustainability reports or regular progress update briefs, websites and dashboards. Other examples include investor communications, and standardized questionnaires like the RSPO's Annual Communication of Progress (ACOP) and the CDP Forests Questionnaire. As mentioned above and discussed more fully under Progress Area #8 – Corporate Action, most companies are also publishing supply chain lists with supplying mills or refineries, bringing further transparency to their operations.

Guidance documents and new protocols are also shaping public reporting for the palm oil sector, contributing to broader alignment and thus effectiveness of external reporting. Examples include the Reporting Guidance for Responsible Palm Oil and the NDPE Implementation Reporting Framework (IRF). Other guidance tools, such as the Accountability Framework initiative, inform cross-commodity reporting.





A study by Daemeter and the Tropical Forest Alliance



Part 3.

DRIVERS OF PROGRESS

A web of causal factors contributed to progress

In our assessment of drivers contributing to progress, we examine actions taken by 11 actors. These actors are shown here.



All of these actors have been operating in synergy over many years, through iterative cycles of action and reaction, to influence decisions on the ground. The result is a “causal web of factors” affecting producer behavior to adopt more sustainable practices, rather than distinct cause and effect relationships. This makes it difficult to isolate the impact of single drivers. Yet, we can still assess the relative impact of different action pathways within this web to draw lessons about what types of intervention have worked to inform future priorities for action.

Toward this end, we developed a simple model describing how these actors potentially influence producer decisions in relation to sustainability.

In this model, we place producers (of all sizes) at the center. This is because eliminating deforestation from commodity supply chains is, fundamentally, about influencing the decisions taken by producers concerning how they develop and manage plantations. In the model, producers are conceptualized as positioned along a spectrum of low to high levels of sustainability performance, and the goal is to encourage/support their progression along this gradient toward higher levels of performance (Figure 6). We then ask how actors potentially affect the performance of producers, differentiating between actors who exert **direct** vs **indirect** influence on producers, and whether they do so via **“push forces”** (demands/requirements), “pull forces” (incentives/rewards) or both. Push forces are necessary to change established norms of behavior, yet we know from experience that push forces are more effective at driving change when coupled with pull forces that reward change when it occurs.

In applying this model to understand drivers of progress, we consider direct pathways of influence to be stronger than indirect, push forces to be stronger than pull forces, and combinations of push/pull forces to be stronger than either one alone. Under this logic, actors who apply both push and pull forces through direct pathways of influence are viewed as having strongest influence, whereas those wielding only push or pull forces through indirect pathways are viewed as comparatively less strong. The model is a simplification of reality, but it’s useful as a framework for analyzing a highly complex network of actors and interactions among them.

Using this model, we distinguish three levels of actors, with actors in each level setting influence pathways. **Considering push forces initially, we first distinguish a set of five Level 1 actors with direct influence on producer decisions** (black arrows, Figure 6):

1. **Producer country governments** who set and enforce laws governing licensing and management of plantations and mills, among other matters.
2. **Palm oil buyers/refiners** who set sustainability requirements for doing business, e.g. NDPE policy commitments and implementation requirements.
3. **Financial community** including both lenders and investors, who set sustainability requirements for accessing credit or investment finance.
4. **Civil society organizations** who advocate for and support sustainability improvements on the ground.
5. **Sustainability Associations** such as the RSPO who set requirements for their members, especially producers, via multi-stakeholder processes and certification based assurance.

Each of these actors has direct interaction with and influence on producers through either legal authority (government), business-to-business interactions (buyers, finance community), setting performance standards for its members (voluntary associations) or advocacy for sustainability improvements (CSOs). Producer country governments merit special note in this context as they have legal authority both to enact and enforce sustainability requirements.

We build upon the five pathways established by Level 1 actors by introducing a set of Level 2 actors, one step removed from producers (Figure 6). Level 2 actors influence producer decisions indirectly via actions taken by a third party with whom they interact directly (red arrows, Figure 6).

Level 2 actors include:

1. **Downstream supply chain actors (brands)** who source materials from buyers/refiners and influence sustainability requirements they demand of their suppliers.
2. **Civil Society Organizations (CSOs)** who interact with all five Level 1 actors, supporting how they interact with producers.
3. **Consumer country governments** who engage directly with producer country governments on regulations; with buyers/refiners on consumer market requirements; and the financial community through regulatory measures.
4. **Donors** who support training and capacity building, and who enable a diversity of programs aimed at advancing sustainability.

This rendering of Level 2 actors is not exhaustive¹⁷ but it complicates the picture considerably (Figure 6). It increases the number of influence pathways affecting producers from five to 18, and illustrates how “network dynamics” predominate the system, rather

than linear cause-effect relationships. It also highlights that certain Level 1 actors, such as producer governments and buyers/refiners, function as lynchpins, leveraging multiple forms of influence on them by Level 2 actors to affect producers directly. Finally, it captures the dual role of CSOs in affecting producers through both direct (Level 1) and indirect (Level 2) pathways, and the diverse roles played by consumer country governments.



We complete the “push side” of the model by drawing attention to two **Level 3 actors**, one step further removed from producers. Level 3 actors interact directly with Level 2 actors, potentially shaping the priorities they bring to bear on Level 1 actors with whom they interact (blue arrows, [Figure 5](#)).

Two main Level 3 actors include:

1. **Civil society organizations** who interact directly with brands, helping shape the demands they place on buyers/refiners to address issues in their supply chains (among other priorities), and with consumer country governments, potentially shaping their priorities
2. **Donors** operate in Level 3 capacity via their interactions with a much wider set of CSOs than at Level 2, financing CSO activities including direct on-the-ground programs, capacity building and networking, and in some cases shaping their priorities for engagement with other parties

On the pull side of the model, we draw attention to a few main actors and the positive rewards/incentives they provide.

1. Of greatest importance are the pull forces provided by **buyers/refiners** and **downstream brands**, offering rewards for meeting sustainability requirements in the form of financial (e.g. premiums) and non-financial (e.g. terms of contracting) benefits, directly to the producer and/or to the buyer/refiner for supplying sustainable materials. These parties also offer less well known incentives to strategic suppliers, such as co-funding capacity building, consultancy services, or other direct costs for making sustainability improvements.

2. The **financial community** also has the capacity to offer significant pull forces, in the form of discounted credit or access to more desirable investment programs, provided sustainability requirements can be met. While not yet widespread, it is a benefit noted by producers.
3. **Sustainability associations** offer benefits to their producer members, especially those who become certified (where applicable) in the form of assurance, access to markets or credit, process support for resolving grievances, and various forms of outreach and awareness raising.
4. **CSOs** can also offer pull forces through co-delivery of sustainability projects with progressive corporate partners to address specific challenges where CSOs excel.

The model is a simplification of reality that does not capture all possible actions and interactions among parties considered. Even so, it is useful for isolating critical roles played by different parties. It illustrates which actors have direct influence on producers and who interacts with these parties to influence how they prioritize engagements with producers. It also highlights which parties potentially apply both push and pull forces in tandem to accelerate change (e.g. buyers/refiners and brands) and the unique role played by CSOs, who affect producer decisions directly and indirectly through diverse pathways.

Based on interviews, surveys and wider analysis of the 11 actors featured in this model, we found actions taken by producer governments were key to driving progress, and that private sector and CSOs were

¹⁷ For example, omitted from Level 2 actors (for convenience due to graphical reasons) are the influence pathways of buyers and the financial community on sustainability associations they join. It also omits interactions between sustainability associations and producer governments, at national or subnational levels.

critical partners in leveraging policy reform to achieve impact. Together, these parties functioned as primary drivers of progress over the past decade. The impact of consumer country governments, sustainability associations, the financial sector, and a weakening commodity market are viewed as secondary drivers that reinforced changes instigated by government, private sector and CSOs. Donors also played a positive role, working with local partners to enable collective action with sub-national governments, companies and communities to advance sustainability. Media did not have a direct impact in itself, but was a ‘force multiplier’ for actions taken by others.

Below we highlight actions taken by producer country governments, private sector and CSOs as primary drivers of positive change. We then mention briefly the role played by consumer county governments, the financial sector, sustainability associations and commodity markets as secondary drivers.

Progress resulted from causal network of ‘push’ and ‘pull’ drivers

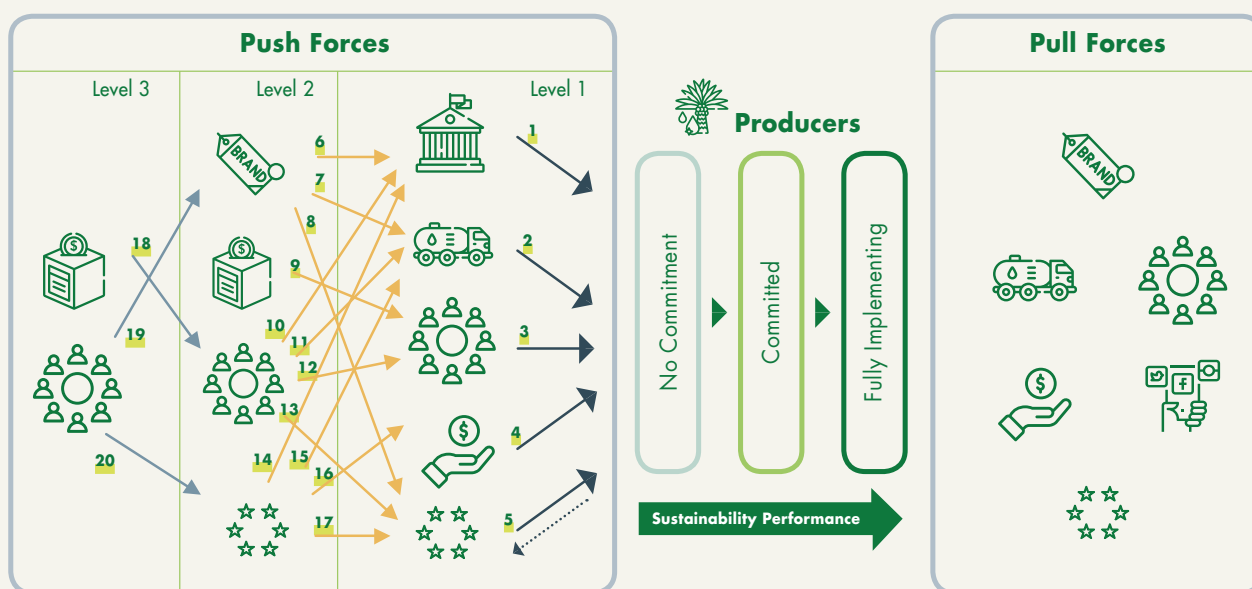


Figure 6. A conceptual model describing how different actors potentially influence the sustainability decisions of producer and drive progress toward sustainable, deforestation free commodity supply chains. Producers are at the center of the model, and our aim is to drive progress in sustainability performance toward deforestation free production. Two forms of influence on producers are distinguished: push forces (demands/requirements) and pull forces (rewards/incentives). Actors who apply push forces are classified based on whether they interact directly with producers (Level 1, black arrows) or indirectly via third parties (Level 2 and 3, red and blue arrows). The numbers associated with arrows indicate a new interaction pathway. The simplified model illustrates the system of drivers affecting change is predominated by network dynamics rather than linear cause-effect relationships among actors.

Government Action

Over the past decade, the Government of Indonesia (GOI) enacted a series of legal and regulatory reforms to improve land use governance and promote more inclusive, more sustainable development. This laid foundations for a paradigm shift toward stronger protection of forests and peatlands, greater recognition of community rights, and more sustainable commodity supply chains. **These actions contributed directly to reducing deforestation overall, and created an enabling environment that encouraged multi-stakeholder action to promote deforestation-free commodity production.**

In Figure 7 we show the timeline for enacting a selection of key interventions over the decade, overlaid on annual deforestation over the past two decades. In highlight:

- GOI's imposition in 2011 of a ban on new licenses in primary forest and peat (made permanent in 2019), followed by a 3-year ban on new licenses for oil palm enacted in 2018, together decelerated the pace of licensing and new development. It also signaled a policy shift away from expansion oriented growth models for the sector toward intensification.
- GOI took steps to improve local governance through partial recentralization of licensing and other authorities in 2014, and promote emerging multi-stakeholder Jurisdictional Approaches to sub-national Green development.
- Following devastating fires in 2015, GOI strengthened fire prevention, mitigation and enforcement efforts, including restoration of degraded and at-risk peatlands coordinated by the Peatland Restoration Agency (BRG) formed in 2016.
- A complete overhaul to social forestry programs and promotion of community-based forest management in 2014 signaled a shift toward rights-based approaches to forest conservation.
- GOI participated actively and constructively in international dialogues related to performance-based REDD+, sustainable commodities and maintenance of EU market access.

Consistent, step-wise central government action, combined with a surge in sub-national jurisdictions committing to inclusive, multi-stakeholder models for development, strengthened forest protection, fire prevention and community-based approaches to forest conservation.

We describe some of these interventions in more detail, under five main sub-headings:

1. **Moratorium on licensing & action to prevent fires and improve peat management.**
2. **Recentralization of land use authorities & strengthening of local governance.**
3. **Revitalization of programs on social forestry, customary rights and land reform.**
4. **Promotion of sustainable palm oil.**
5. **Environment Law & innovations in transparency in spatial and development planning.**



Moratorium, fire prevention and peat management & restoration

In May 2011, then President Susilo Bambang Yudhoyono issued a two-year moratorium on new licenses in primary forests and peatlands to review licenses and move towards resolution of mounting tenurial conflicts. The Moratorium covered >66 million hectares, and became a centerpiece of Indonesia's emerging program to reduce emissions from deforestation and forest degradation (REDD+). It formed a key part of the landmark agreement for bilateral cooperation with Norway in 2010, which committed up to US\$1 billion for Indonesia under emerging REDD+ schemes.

Government Regulation No 71/2014, revised through regulation No 57/2016, provides the legal basis for the establishment of Peat Hydrological Areas (Kawasan Hidrologis Gambut/KHG) aimed at supporting the Gol's efforts to improve peatland management and prevent fires. Within the KHG, Peat Protection Areas (Kawasan Lindung Gambut/KLG) shall be established, comprising the peat dome and buffer area, while Peat Utilization Areas (Kawasan Budidaya Gambut/KBG) are delineated to cover shallow peat areas (<3m), suitable for production. Companies holding permit on KLG areas must develop and submit a peat restoration/conservation plan to be reviewed and validated by KLHK. KLG areas in existing concessions that have not been cleared and converted into palm oil plantation need to be protected by license holders. If the license holder fails to conserve undeveloped peat areas or restore them within two years, its license shall be revoked. In KLG areas where palm oil has already been planted, license holders are allowed to maintain palm oil production until their permits expire but are liable to restore/rewet peat. In practical terms, this means that licensed areas can be re-designated as protected areas if they are included in KLG areas, and that revoked permits can be reclassified for protection.

The 2011 Moratorium stopped all issuance of new licenses and provided legal basis for review of all existing licenses for regulatory compliance. License restrictions on peat were further strengthened by Government Regulations on protection and management of peat ecosystems, issued in 2014 and 2016 (see Box). Stakeholders generally welcomed the Moratorium as a positive intervention, although some criticized its narrow focus on protection of primary forests and peatlands (omitting secondary/logged forests), exemptions for pre-existing licenses, and the fact that much of the Moratorium area already enjoyed some form of protected status. In 2013 the moratorium was extended for another two years by then President Yudhoyono, and then again by President Jokowi in 2015 and 2017, until it was made permanent in 2019.

Following the devastating wild fires of 2015, Indonesia confronted its most severe environmental crisis with redoubled effort to address fires. Through a series of measures taken at central, regional and village levels, GOI strengthened fire prevention, mitigation and enforcement efforts. This included formation of the Peatland Restoration Agency (BRG), reporting directly to President Jokowi, and charged with coordinating restoration of degraded and at-risk peatlands to mitigate fire risk, and supporting stronger enforcement of peatland management regulations. Scope of BRG priorities is broad, encompassing policy & regulatory strengthening to institutional and technical capacity building to direct on-the-ground activities. These include canal blocking & backfilling, deep well construction for rewetting and revegetation of peatlands, and direct engagement with implementation partners at local levels from government and communities to CSOs and universities to establish pilots and build local capacity for sustainable community livelihoods in peat

dominated villages. Priority jurisdictions of BRG work are those where at risk peat is concentrated (e.g. Riau, South Sumatra, Central Kalimantan), and significant investment has been made in building local institutional capacity in local agencies and among communities in villages in these provinces, laying foundations for scaling implementation of BRG supported activities during the coming decade. The BRG's initial five-year mandate was recently renewed for another five years and scope expanded to include mangroves.

While there are criticisms of the effectiveness of the Moratorium in reducing deforestation and mitigating fires, the consensus view from interviews, convenings and survey is that combined actions of the Moratorium and peatland regulation contributed to reducing deforestation and fires. As implied in Figure 6 and reported elsewhere, however, the impact become apparent only years later in 2016, when deforestation began to decline sharply. Challenges in the license review permit process and delays in spatial planning revision and consolidation likely contributed to this delay in causal effects.



Recentralization & strengthening of local governance

In late 2014, the Indonesian parliament passed two laws reshaping the balance of authority between central and regional government: the Regional Elections Law (UU No. 22/2014 tentang Pilkada) and the Regional Governments Law (UU No. 23/2014 tentang Pemda). Public attention focused mainly on the new Elections Law, which was urgently needed to improve integrity of local elections. Yet, the Regional Government Law markedly changed the division of responsibilities between various levels of government related to decision making that affects forests, peatlands and commodity production. These reforms were deemed necessary to improve regional governance, which has become rapidly decentralized in the early 2000s, but lacked capacity as a result of 32 years of highly centralized governance under Soeharto's New Order regime.

Among the most significant implications of the law for natural resource governance was the recentralization of authorities from districts to provincial agencies in relation to forestry, marine affairs, energy and mineral resources. Most notable was the transfer of authorities for issuing mining permits from district to provincial levels, for which the pace of licensing by district leaders far exceeded capacity of local authorities to enforce regulations. For example, data from the Ministry of Energy and Mineral Resources showed that in 2011, nearly 10,000 permits were issued for small-scale coal mining by district governments, of which only one third were free of outstanding legal issues. Local governments retained authority over oil palm licensing and enforcement under the law, but with a higher degree of supervision by provincial and central authorities.

Importantly, the law provided for much stronger oversight of district governments by provincial governors, with authority to review specified by-laws before passage (e.g. on district medium and long term development plans, budgets, and various financial matters); curtailing authorities of underperforming district governments; canceling district by-laws inconsistent with guidance from central government; and enacting sanctions on district heads. While few of these provincial authorities appear to have been used, they signaled a profound shift in orientation toward greater accountability for local political elite who mismanage natural resources.

Following legal reforms in 2014, an encouraging trend began to emerge, with growing numbers of sub-national governments committing to more inclusive and accountable, multi-stakeholder models of development under the banner of so-called Jurisdictional Approaches, or JA (see Figure 6). The origin of these programs are diverse (discussed below under CSO Action), but recently they have begun to coalesce around a set of shared principles including greater transparency in governance, pro-active involvement of local stakeholders in development planning and prioritization, stronger community-based approaches to natural resource governance, and partnership-based, cross-sectoral approaches to building deforestation free commodity supply chains. One factor contributing to harmonization of JA efforts in Indonesia is the emergence of *Lingkar Temu Kabupaten Lestari (LTKL)* in 2017, a platform to promote and support district governments pursuing implementation of jurisdiction-wide sustainable development. Today, formal membership in the LTKL includes 12 districts in eight provinces across Sumatra, Kalimantan and Sulawesi. In addition, there are numerous JA being pursued in many provinces and districts, with one of the longest running in

Berau district, as part of a larger provincial effort in East Kalimantan, in partnership with The Nature Conservancy.

Together, legal reforms in 2014 to improve regional governance, combined with a “good governance” ethos fostered by Jurisdictional Approaches, reinforced policy measures to reduce deforestation.

Revitalization of social forestry, customary rights and land reform

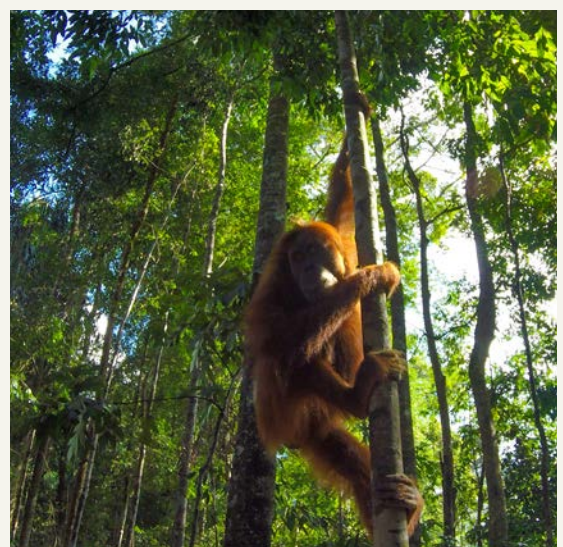
A distinctive feature of the Jokowi administration’s renewal of the SF program in 2015 was to embrace multi-stakeholder involvement, including cooperation with diverse CSO programs, bi-lateral or multi-lateral partnerships, and better coordination with other Ministries or institutions. As noted, this revised approach generated results. In just five years (2015-19), the total area under SF expanded 9-fold to ~4.2M hectares. At least three factors contributed to success.

First, MOEF made it a clear priority to translate the President Jokowi’s SF vision into action. Institutional reorganization and strengthening was undertaken; regulatory changes were made where needed, including clear decentralization of authorities to district and provincial governments; appropriate budget allocations were made; and capacity needs were addressed, both internally and among partners.

Second, under MOEF’s collaborative approach, CSOs played an important support role. This included CSO participation in formal working groups; helping to identify and overcome bottlenecks; and working directly with communities to support mapping, mentoring and organizational strengthening.

Finally, technical and human resource needs were put in place for scaling the Indicative Map of Social Forestry Areas (PIAPS), as a reference for determining potential locations for SF, and preparing the mapping products and land surveys required for licensing. PIAPS is revised every 6 months to keep it current. By the end of 2019, 13.9 million ha of forest areas were identified in PIAPS, enabling rapid growth in licensing, and laying foundations for significant growth in the future.

Measures taken to expand Social Forestry contributed to reduced deforestation in three ways. First, communities are protecting forest effectively. Recent studies in Indonesia show reduced deforestation within Village Forest areas, across a wide range of ecological and administrative conditions. Second, prioritization of community-based forest management over concession development reduced the pressure for planned, industrial-scale conversion. Third, more secure forest tenure has enabled communities to make more informed, longer term decisions when they face opportunities to sell or lease land for industrial purposes that would entail deforestation.



Promotion of sustainable palm oil

That producer country governments view palm oil as a strategic commodity is justified. Palm oil is a major driver of economic development in rural areas, directly employing over 3.2 million people in Indonesia. In many areas it has boosted infrastructure development and improved connectivity by leveraging private investment in roads, electricity, and telecommunication networks. It is also important at a macro-economic level, as Indonesia's third largest export-earning commodity, with potential for downstream industry development to open new opportunities for export growth.

Given this, it is not surprising that during the period of rapid expansion up to the first half of this decade, producer governments such as Indonesia adopted a defensive posture when the industry came under attack in media or the marketplace. The tone and tenor of dialogue during this period was frequently tense and unproductive, especially as the deforestation free movement began to take root in the market. Attitudes have changed markedly over the past five years, however, and the policy orientation of government reflects this. GOI has undertaken to reform governance of the plantation sector as a whole, promoting intensification over expansion, and seeking to prevent growth of palm oil into primary forest and peatland. This forms part of a larger strategy to rebrand Indonesian palm oil as sustainable, and to continue growing the industry through expansion of downstream processing and value chain capture.

Four examples of the policy re-orientation toward sustainability include:

1. **Moratorium on new licenses in primary forest and peat, made permanent in 2019.**
2. **Three-year Moratorium on new plantation development in forested areas, enacted in 2018.**
3. **Establishment in 2015 of the CPO Fund (Badan Pengelola Dana Perkebunan Kelapa Sawit, BPDPKS).**
4. **Continued role out of Indonesian Sustainable Palm Oil certification system as an assurance tool.**

Such reform was initiated in 2011 with the first moratorium, made permanent in 2019, and launch of the Indonesian Sustainable Palm Oil (ISPO) certification system. ISPO has since been revised and strengthened twice, in 2015 and 2019, making legality of land use and permits, Free Prior and Informed consent (FPIC), High Conservation Value (HCV) management, and knowledge about third party raw material sourcing mainstream legal requirements.

The CPO fund (Badan Pengelola Dana Perkebunan Kelapa Sawit, BPDPKS), was set up in 2015, to support downstream production of biodiesel, and promote intensification of palm oil production, through provision of funding for replanting of smallholder farms. The Fund collects CPO export levies, deploying them for investments in replanting and other yield enhancement programs. Replanting is a key priority in order to increase smallholder productivity and reduce pressure for expansion into the forest estate. While replanting has lagged behind targets, the government remains committed to expanding the program.

The three-year Moratorium on new licenses enacted in 2018 worked in synergy with earlier policy measures to reduce palm oil

driven deforestation, especially in Papua and West Papua. GOI recently reported that less 0.2% of forest (~2,500 ha) within 1.26M ha of concession areas in the two provinces had been deforested since the 2018 Moratorium was enacted.

Inter-agency coordination has been an impediment to timely and effective implementation of ISPO since its launch. In 2016, the Indonesia Forum for Sustainable Palm Oil (Forum Kelapa Sawit Berkelanjutan Indonesia or FOKSBI) was established to facilitate greater coordination and cooperation between government agencies (16 line ministries), and also to offer non-state actors a platform to provide input and feedback on sustainability standards to be applied in Indonesia. This resulted in the development a National Action Plan for Sustainable Palm Oil, signed by President Jokowi in mid 2019. The process leading to finalization of this inter-ministerial, coordinated action plan is an achievement in itself. It is expected to greatly facilitate mobilization of support and resources towards country-wide implementation of national sustainability standards.

Together these measures to promote sustainable palm oil contributed to the decline in palm oil driven deforestation and the gradual increase in yields reported in Part 2.

Environment Law & transparency in spatial and development planning

A final area of government action that contributed to progress is the introduction in 2009 of Law No. 32 on Environmental Protection. It was a major step forward to mainstream sustainability in development planning throughout Indonesia, making environmental considerations an integral part of development planning. It promotes

a longer-term approach focused not only on investment and economic growth but also sustainable management of environmental capital to preserve vital ecosystem services. To support implementation, KLHK developed three regulations, discussed briefly below:

- **Guidelines for Strategic Environmental Assessment (SEA)**
- **Regulation on Carrying Capacity Mapping**
- **Regulation on Environmental Protection, Management Planning and Economic Instruments.**

Strategic Environmental Assessments (SEAs) address the root cause of environmental risks that must be addressed in spatial plans and development programs (Government Regulation No. 46/2016). SEAs are changing the development paradigm by mainstreaming environmental sustainability into development planning as a strategic planning issue, making it a dynamic, iterative process rather than a procedural exercise to validate planning documents. SEAs allow for integrating science and participation into development planning, to project and quantify the social and economic impacts of targeted policy, and to develop, in participatory manner, adequate mitigation strategies and alternative scenarios. By law, the recommendations of SEA must be integrated into planning documents. Spatial (RTRW) and development plans (RPJMD) must demonstrate that strategic issues and recommendations articulated in the SEA have been addressed. **If not, they will be ordered by the courts to make revisions.** This opens opportunities to institutionalize participative policy development processes, integrating both scientific analysis and public input into development plans and policymaking.

Carrying capacity, as defined in Ministerial regulation No. 17/2009, has become a key variable in spatial and development planning to prevent erosion of key ecosystem services. Alongside this, mapping of ecosystems services and carrying capacity to preserve them feeds into a long-term Environmental Protection and Management Plan (RPPLH), as a baseline reference document in the design of spatial and development plans for a jurisdiction. This legal framework contributes to strengthening spatial planning governance and prevent expansion of large-scale agriculture or infrastructure projects into high conservation value areas, and to secure forest integrity in protected areas.

As stronger safeguards are being implemented and enforced under the Environment Law, the Indonesian government laid foundations for a comprehensive incentive scheme covering ecological fiscal transfers and REDD+ related results-based payments. Several fiscal instruments defined under Government Regulation No. 46/2017 on Economic Instruments in Environmental Matters are being developed to incentivize jurisdictions to protect important ecosystems and high carbon stock areas, consolidated under the Environmental Fund.

For example, Ecological fiscal transfer from central to provincial (Transfer Anggaran Nasional berbasis Ekologi/TANE) and from provincial to districts governments (Transfer Anggaran Provinsi berbasis Ekologi/TAPE & TAKE) are being deployed to incentivize local governments to strengthen spatial and environmental governance. The local incentive fund (Dana Insentif Daerah) for example, and its IDR 10 Trillion in resources,

is already operational to transfer resources from central to provincial governments, and could be made conditional in key environmental and governance indicators. At local level, the Provincial Aid Fund (Bantuan Keuangan Provinsi) can also be used to incentivize districts to strengthen environmental governance, notably through better alignment and compliance with Provincial Spatial Plans. Such models have been developed in several provinces, notably North Kalimantan, Papua, and West Papua.

Developments related to REDD+ and other result-based payment mechanisms also make a strong case for provincial and district governments to invest in environmental data management and monitoring.

As a proactive step in building mechanisms for channeling results-based payments under REDD+ or other programs, Indonesia's Environmental Fund Management Agency (BPD LH) is developing a mechanism for distributing RBP funds to local jurisdictions for three different purposes: (1) for national programs related to rehabilitation and NDC, (2) emission reduction performance, and (3) enabling conditions, to reward provinces that build up their capacity. The incentive component of Indonesia's environmental governance framework is expected to complement stronger safeguards and incentivize jurisdictions to further invest in governance reform and forest conservation and restoration.

To summarize, governance reform instigated by the Environmental Protection Law has contributed to strengthening environmental safeguards and shifted the paradigm of environmental governance from impact assessment to strategic planning. It has resulted in mainstreaming environmental safeguards into iterative, participatory

planning processes. Such reform contributed to ensure that high conservation value and high carbon stock areas be protected and better mitigate adverse impacts of large scale investment in the land-use sector.

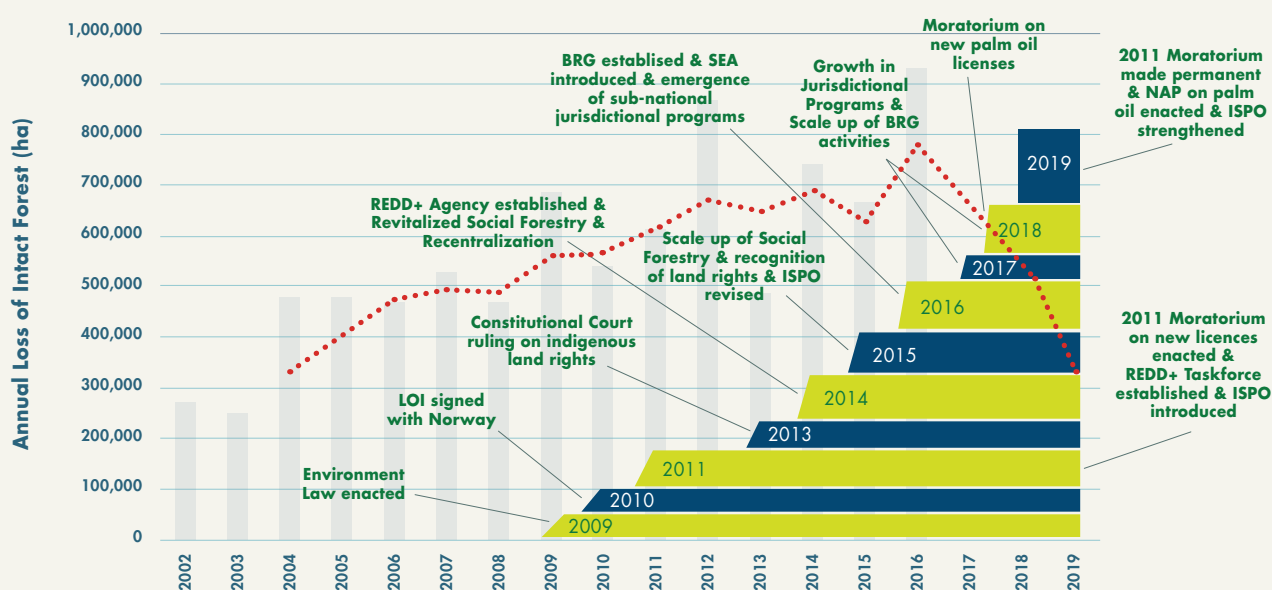
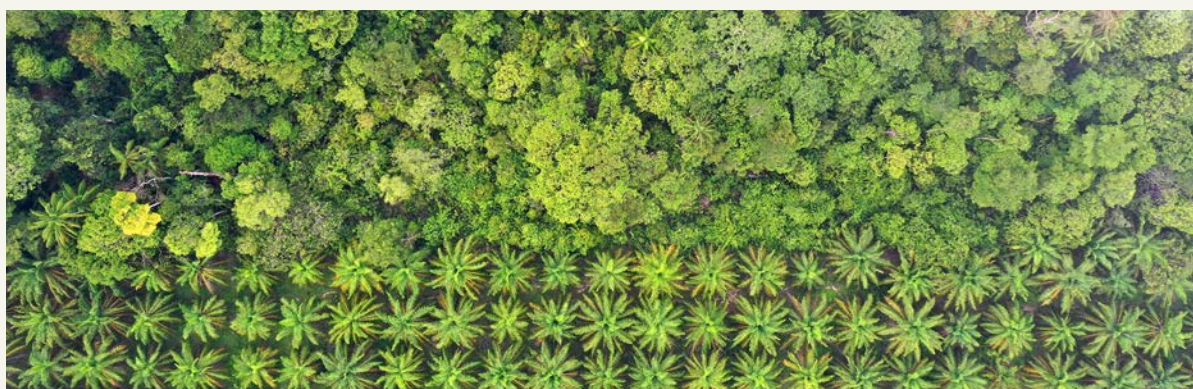


Figure 7. Timeline for a selection of key policy developments undertaken by the Government of Indonesia over the past decade that contributed to improved land use governance and reduced deforestation. Height of green and blue bars in each year is indicative of the number of initiatives/interventions enacted in that year. Backdrop shows annual loss of intact forest, using data published by WRI (see Part 2), with dotted red line showing 3-year moving average. Graphic illustrates the steady accumulation of incremental policy changes contributing to an overall re-orientation toward more transparent, inclusive, sustainable land use over the last 10 years. A significant number of policy changes were in place, with programs more actively implemented and enforced, at the time sustained declines in deforestation began 2016 to present.



Private Sector Action

Private sector action contributed enormously to reducing deforestation linked to palm oil and pulp and paper production. We first offer a brief overview of how eliminating deforestation became industry norm in both sectors, then highlight actions taken by private sector that reduced deforestation and supported peatland protection. Consistent with our model, we structure the analysis around actions taken by producers, whose actions reduced deforestation directly, and by buyers/refiners and downstream brands, whose actions motivate, influence and reward producer decisions.

The timeline for NDPE commitments in palm oil and pulp and paper

As of 2020, nearly all large companies in the global palm oil supply chain have NDPE commitments, while many large upstream actors and numerous downstream brands have done the same for pulp and paper. Details of their policies differ, but all have made commitments to produce and source legal, sustainable materials free of deforestation, peat development and exploitation.

The most widely referenced milestone in the development of NDPE commitments in palm oil occurred in December 2013, when the world's largest palm oil trader Wilmar International became the first integrated palm oil producer and buyer/refiner to launch an NDPE policy. This was a landmark moment because Wilmar's policy applied not only to its upstream operations, but also its third-party suppliers, representing ~40% of global palm oil trade. For pulp & paper, the breakthrough came earlier that same year, in

February 2013, when Asia Pulp & Paper (APP) announced its Forest Conservation Policy.

Roots of NDPE policies took hold much earlier than this, however. Downstream brands played a significant role in laying foundations for NDPE by creating market demand for deforestation free materials. In May 2010, Nestlé launched the world's first ever No Deforestation Responsible Sourcing Guidelines, which applied across commodities. For palm oil, this represented a breakaway from conventional certification under the Roundtable on Sustainable Palm Oil (RSPO) and set the stage for others to follow. In December 2010, the Consumer Goods Forum (CGF) pledged to work towards achieving zero net deforestation by 2020 for palm oil, soy, beef, and paper and pulp supply chains, further mainstreaming notions of NDPE. In 2011, Golden-Agri Resources (GAR) released its Forest Conservation Policy and became the first major palm oil producer committed to ending deforestation in its operations.

Other buyers contributed to building momentum in April 2013, when the biodiesel producer Neste released its No Deforestation Sourcing Guidelines for their suppliers, followed by other brands. Later in March 2014, when GAR joined Wilmar and extended its NDPE commitment to its entire supply chain, over half of the global palm oil trade became subject to NDPE. Other major palm oil producers and buyers such as Asian Agri, Cargill, Apical, Bunge and IOI followed Wilmar's and GAR's lead in the months that followed.

Throughout 2014, leading commodity producers, traders, manufacturers, and retailers released their own time-bound, zero-deforestation commitments for 2020,

often across multiple commodities, especially palm oil and pulp and paper. Private sector NDPE commitments accelerated in the lead-up to September 2014 with the New York Declaration on Forests, at the UN Climate Summit, pledging to end natural forest loss by 2030, with 50% reduction by 2020. At the summit, the Indonesian Palm Oil Pledge (IPOP) was also signed by Wilmar, GAR, Cargill, and Asian Agri, a collaborative platform to advance NDPE industry wide¹⁸. IPOP disbanded 18 months later, in June 2016, but it signaled a positive shift among leading Indonesian palm oil producers to respond proactively to hanging market demands for more sustainability.

Parallel to developments in palm oil, NDPE continued to gain steam throughout the pulp and paper sector. In June 2015, one of the largest pulp and paper companies in the world – Asia Pacific Resources International Ltd (APRIL) – and its parent company, Royal Golden Eagle (RGE), made a commitment to NDPE. Together with APP, this covered >80% of the industry in Indonesia.

The widespread adoption of voluntary NDPE commitments also put pressure on the RSPO, as the most widely adopted voluntary standard for sustainability in palm oil. In November 2018, RSPO members voted for adoption of NDPE requirements as part of the RSPO's new Principles and Criteria for sustainable palm oil. NDPE and RSPO thus became very closely aligned.

We now discuss specific contributions made by upstream producers, mid-stream buyers & refiners, and downstream brands. For clarity we discuss them separately, but emphasize that their actions worked in synergy.

¹⁸ Musim Mas and Astra Ago Lestari later joined IPOP in 2015 and 2016, respectively

Action by producers

The two most important ways producer action reduced deforestation is through: (1) conscious decisions over time to avoid establishing new plantations in forested areas or on peat, and (2) the industry wide re-orientation toward intensification, resulting in slowed rates of new planting. Main drivers of the behavior change include consideration of HCV and HCS areas under RSPO and NDPE commitments, stronger enforcement of legal requirements, and voluntary avoidance of peat and forest areas as part of strategic positioning within a competitive marketplace that increasingly values sustainability.

Decisions to protect HCS and HCV forests from new development is a central part of producer contributions to reducing deforestation. This is a reflection of surging numbers of large, medium and even small producers adopting voluntary commitments through RSPO or NDPE to protect HCV and HCS forests within their landbank. For example, grower membership in the RSPO has surged. Currently, there are 188 grower members, 86 of which have one or more RSPO certification. This is more than double the number from 10 years ago (81), with only 12 certified at that time. According to Zoological Society of London's recent SPOTT assessment, 18 of the 20 largest palm oil producers by global landbank are RSPO members (excepting FELCRA and Kencana Agri). Two other large producers in Indonesia (Astra Agro Lestari and Indofod Agri) are not RSPO members but have NDPE policies committing to HCV and HCS protection. In addition to RSPO membership, of the 21 largest oil palm growers in Indonesia, 18 have either formally adopted NDPE policies (16) or stopped clearing forests and development on peat (2), in accordance with NDPE norms.

This suite of commitments and actions by producers, encouraged and reinforced by buyers/refiners and brands, has led to significant areas of forest protected from development as intentional conservation set-asides or as de-facto conservation areas within stranded assets in Papua and Kalimantan.

In 2020, the RSPO reported more than 230,000 ha of managed conservation areas are maintained within certified plantations, conserving biodiversity and contributing up to 1.4M tons of avoided GHG emissions. Beyond conservation areas within certified plantations, leading producers have set aside several hundred thousand hectares of forest areas, some of which is concentrated in high forest cover regions. For example, GAR has set aside ~12.5% of its landbank in conservation (72,000 ha in conservation vs ~500,000 ha planted area). Wilmar has 31,375 ha of conservation area, roughly 10% of its plant area. Musim Mas has placed 19,228 ha of its 194,204 hectare concession area (9.9%) in conservation. In Gabon, Olam has placed 99,000 ha of HCV forest into conservation (~50% of its overall concession area of 202,000 ha). ANJ has allocated 27% of its overall landbank – largely in West Papua – to conservation areas (58,390 ha of its total 215,802 ha landbank).

In addition to these intentional set asides within concessions, it is estimated that concession areas containing forest and/or peat ineligible for development under NDPE covers ~6.4 million ha, or ~28% of total concession area across Indonesia. Most of this occurs on concessions in Kalimantan (3.2M ha) and Papua (2.5M ha), under license to large, integrated companies such as Musim Mas, Golden-Agri Resources and Astra Agro Lestari; medium size companies such as Austindo Nusantara Jaya, Genting

and Gama; and numerous smaller entities. Most of these areas could be developed once required permits are obtained, but they are not being developed due in part to voluntary commitments to avoid forested and peat areas.

Decisions taken by producers to slow rates of new expansion and to avoid forested or peat areas worked in tandem with government action described in 3.2 to slow deforestation directly. These decisions were driven in part by actions taken by buyers and brands, and leveraged by CSOs, described next.

Action by midstream buyers & refiners

As noted in Part 2, the rise in grower adoption of NDPE policies mirrored commitments made by buyers and refiners, with 83% of refining capacity in Indonesia and Malaysia owned or managed by companies with NDPE commitments. These companies have taken responsibility to monitor their palm oil supply chains for compliance, driving awareness raising, training, engagement, monitoring and corrective action by suppliers where cases of non-compliance are made known. Through a combination of market demands for improvement and rewards-based incentives for change, buyers/refiners contributed directly to reducing deforestation through their impact on producers.

The supply chain transparency adopted by buyers/refiners described in Part 2 became a key part of the implementation programs they pursued. It placed buyers/refiners at the forefront of driving corrective action of producers, by making it possible for downstream brands (their customers) and CSOs to assist in monitoring their supply chains for non-compliant producers, and

raising grievances at a mill or plantation level when detected. This placed buyers/refiners at the forefront of driving corrective action programs due to their direct business relationship with producers, and made them accountable to brands, CSOs and others to improve supplier performance. Details of the engagement approaches differed among companies, but generally emphasized engagement over exclusion, in order to maintain leverage to affect change rather than end business relationships. Instances of alleged deforestation would be investigated and if verified would trigger request for stop work orders and meetings to formulate solutions. Buyers/refiners addressed non-compliances seriously, but generally took a decision to suspend or exclude a supplier only in cases where they proved resistant to change. This continued until 2018, when Wilmar, Aidenvironment, Unilever, and Mondelez issued a Joint Statement in 2018 to address non-compliances more severely. Under this multi-party approach (buyers/refiner, CSO, brand) proven cases of deforestation and/or peat development triggered immediate suspension, followed by engagement and development of a recovery plan before re-entry into Wilmar's supply chain. The 2018 agreement upped the stakes for non-compliance and led to similar, more severe measures for third-party non-compliance from Cargill, Sime Darby, and many others.

These actions began to transform the business case for expanding into forested or peatland area under increasing pressure. For RSPO members, developing HCS or HCV areas triggers a remediation and compensation protocol, with significant associated costs. In the context of NDPE, since 2015 buyers/refiners have repeatedly suspended oil palm growers due to deforestation or other egregious non-compliance, often on a company group level. This means that a

supplier with non-compliance at only one of its 10 mills may see all their sales suspended, even from mills without grievances, until the lone problem is addressed.

Today, suspensions function as a strong economic deterrent against unsustainable practices, motivating producers to comply with NDPE to maintain market access. In 2019, CRR analyzed the financial impact of suspension of four suspended growers and concluded that annual net profits of those growers declined by USD 122 million (69 percent), since the first suspension events in 2015.

Alongside these push forces, buyers/refiners also facilitated change through application of pull forces that motivated and rewarded change. These include: (i) direct support to suppliers for obtaining certification and commitments to buy certified materials at premium price, (ii) direct technical support to suppliers to close out gaps in NDPE performance, and (iii) longer term, larger volume purchasing contracts with favourable payment terms to strategic suppliers, provided NDPE commitments are being met.

Action by downstream brands

Downstream brands contributed to reduced deforestation from palm oil in three major ways: (i) commitment to NDPE in their own supply chains and working with suppliers to resolve grievances of non-compliance when they occur, (ii) commitment and willingness to pay for certified volumes, reinforcing the business case for sustainability, and (iii) forging alliances for sector-wide change and contributing to on-the-ground initiatives, as well as landscape and jurisdictional programs.

Mainstreaming NDPE. The widespread adoption of NDPE policies by producers and buyers/refiners was accelerated by shifting market demand signaled by downstream brands. The first NDPE policy in palm oil, adopted by GAR in 2011, was driven in part by Nestlé, an important customer for GAR, who itself had become a focus of campaigns by Greenpeace. Numerous NDPE policies to follow in the midstream were, in part, a response to campaigns directed at brands (e.g. Unilever), the brands' own adoption of NDPE policies, and increasing expectations by the brands' for their suppliers to take action. In this way, brands helped establish NDPE as a new requirement for doing business and contributed to redefining sustainable palm oil.

Alongside pressure to adopt NDPE policies, brands also pushed for adoption of non-compliance protocols by their supplying buyers/refineries, including on-line mechanisms for reporting transparently on non-compliances within their supply chain. Companies such as Unilever, Nestlé, and Mondelez launched palm oil grievance trackers to report transparently, including publication of when suppliers were suspended due to chronic non-compliance. Not long after, grievance trackers became the norm among buyers/refiners with robust implementation programs (e.g. Wilmar, GAR, Cargill, Musim

Mas and others). These same brands are increasingly using satellite technology to monitor their own supply chains for instances of deforestation, and communicate these directly to their supplying buyers/refiners, rather than relying on CSOs or other external parties. Examples include the case of Nestlé and Starling as well as Unilever and Aidenvironment. While NDPE policies, non-compliance protocols and grievance trackers are not yet adopted by all buyers/refiners, nor implemented with the same rigor, actions taken by downstream brands has accelerated their adoption throughout the midstream.

Rewarding sustainability in the marketplace.

A second major contribution by brands is their growing willingness to pay premiums for certified material. It is generally underappreciated how much brands are spending on certified material, due to limited transparency on business-to-business transactions, and the premiums they include. Brands have increased demand for certified materials, through a combination of larger volume purchases and more companies demanding them. In 2020, there were 888 consumer goods members of the RSPO, fueling accelerated growth in CSPO consumption (see Area #9, Part 2). WWF's Palm Oil Buyers Scorecard reported in 2020 that 117 of 132 companies that responded had made a public commitment to source 100% CSPO by 2020, and as of 2018, nearly one-half of them had reached their goal. ISCC sales also continue to grow, providing access to the EU market, but specific volumes are not reported publicly (see Part 2).

Supporting sector-wide initiatives and landscape programs. A third contribution made by downstream brands is their direct support to initiatives for sector-wide change, landscape collaborations and impact programs on the ground. The Consumer

Goods Forum's (CGF) Forest Positive Coalition of Action released its first Palm Oil Roadmap in September 2020, setting shared goals and outcomes to eliminate deforestation and promote wider sustainability, which all members will work to address and report against individually and collectively. Downstream brands will play a key role in implementing the Road Map. With a more European focus, the European Palm Oil Alliance (EPOA) is a collaboration among palm oil refiners and downstream brands supporting initiatives to promote sustainable palm oil.

As collaborative approaches to addressing shared challenges takes root, downstream brands have played a key role in supporting and facilitating a diversity of working groups within multi-stakeholder initiatives, such as the RSPO, the HCSA, the EPOA, the Palm Oil Collaboration Group (POCG), among others. For example, PepsiCo facilitates meetings of the POCG, which includes membership throughout the supply chain, with active working groups on social issues, deforestation outside concessions, the NDPE Implementation Reporting Framework (IRF) and independent verification. Through these working groups, brands have contributed to facilitating supply chain wide alignment on key issues, defined guidance, and helped foster innovations for monitoring, verification, supplier due diligence, and management systems, among other issues.

Finally, downstream brands have become a major private sector supporter of the rise in sub-national jurisdictional and landscape programs described above. This includes direct financial support, active participation in the design of program priorities and approaches, in-kind contributions where they have opportunities on the ground and liaising with local authorities to build out the business case for sustainable land use. Continued

participation by brands in these efforts will be a key determinant of their long term success.

Though brands mainly influence producers indirectly via the action of others, they've utilized their scale and influence effectively to contribute to reduced deforestation through a combination of push and pull forces to affect change. **Examples include direct support to producers for achieving certification, support for development of forest monitoring platforms, co-funding of farmer sustainability programs on the ground for suppliers, and technical support for resolution of grievances**

CSO Action

Alongside producer governments and private sector, CSOs are also viewed as critical partners in achieving reduced commodity-driven deforestation and wider sustainability gains. This includes (i) their widely recognized role as leading advocates for change, through campaigns to raise awareness and foster alignment around NDPE, and (ii) their role in promoting accountability to ensure progress toward public and private sector commitments toward sustainability. CSOs played this role at local, national and international levels, often collaborating across levels, to influence producers directly, and to leverage the actions taken by other, especially producers governments, buyers/refiners, downstream brands and members of the financial community.

The role played by Indonesian CSOs evolved over the past decade, and was shaped by key issues that emerged, opportunities to address them, and pathways available to work toward change. Prior to political and legal reforms of 1998, Indonesian NGOs

had limited opportunity to engage with policy development, so they focused largely on programs at the grassroots level. The main focus was on rural development, biodiversity and forestry, the main economic sector that impacted communities, indigenous people and the environment.

Political and legal reforms of 1998 opened up new opportunities to engage in policy development, at national and regional levels. Initially, NGOs focused on driving policy reform, e.g. for protection of the environment, recognition of indigenous people and advocating for greater participation by communities in development planning processes and decision making. As policy reform was progressing during 2000-10, CSOs became aware that the economic boom of mining, oil palm, and industrial timber plantations was causing significant environmental and social impacts (despite the improved legal framework). This triggered a pivot toward addressing realities on the ground. One way of doing this was to increase pressure on the private sector to improve operating standards, work that laid the foundations for dramatic progress from 2010 to present.

CSOs contributed to progress over the past decade in four main areas: (i) advocacy campaigns to strengthen policy and promote NDPE, (ii) monitoring the sustainability performance of companies and governments, to accelerate progress toward meeting their commitments, (iii) creating practical solutions (e.g., tools, guidance, data sources) for building sustainable supply chains, and (iv) convening multi-stakeholder initiatives for collective action. The diversity of contributions made by CSOs reflects a degree of specialization among them, with some focusing on advocacy aimed at public or private sector change, and others oriented

more toward engagement and support for on the ground implementation of legal reforms and voluntary commitments.

In contrast, engagement CSOs work to facilitate implementation of new policies, standards, and commitments. While opportunities to support and facilitate policy implementation are fewer at the national level (but see discussion on Social Forestry above as an exception), they are numerous at regional levels. Here, CSOs have played an extremely important role building local government understanding of and interest to implement new legislation properly, and helping to meet needs for increasing skills and capacity for implementation. The division between advocacy vs. engagement CSOs has diminished slightly over time, especially as some advocacy groups respond to calls for providing solutions alongside their advocacy work. Even so, specialization remains a feature.

Below, we describe more fully each of the four main ways that CSOs contributed to progress.

Advocacy campaigns aimed at mainstreaming NDPE

In 2012, Indonesia overtook Brazil as the leading source of tropical deforestation. CSOs increasingly profiled rising rates of deforestation in Indonesia and the perceived culprits behind it: palm oil and pulp and paper. International CSOs played out this message in the press, in global climate negotiations, and in campaigns. Over time, Indonesian CSOs reinforced this message locally.

The global discourse on climate emphasized the need for Indonesia to set ambitious emissions reduction targets within the

commodity sectors linked to land use change. CSOs emphasized the need for government to take direct action against specific companies and to create enabling conditions to help drive corporate reform. NGOs focused their energy increasingly on the palm oil and pulp and paper sectors directly – first by launching educational campaigns to socialize the concepts of harm and responsibility tied to the sectors, and later with markets-based campaigns targeting specific actors for direct impacts.

Early CSO campaigns aimed at scandalizing the sectors – and specific actors – in the minds of the public, downstream brands and investors. Awareness was extremely low. For example, the general public knew very little about palm oil and its ubiquity as an ingredient in consumer products, and even less about its impacts on people and the planet when cultivated irresponsibly. Simply put, the goal of advocacy was to delegitimize select upstream producers and, by extension, the sectors as a whole to create an urgency for action. Nuance was sacrificed for impact, but the campaigns were effective at raising profile of a legitimate concern at a time when the sector was rapidly expanding.

Historically, campaigns focused on producers, but these upstream actors proved relatively indifferent to pressure. CSOs therefore shifted their campaign model to a focus on buyers and downstream users. As more attention was drawn to the issues, international advocacy groups such as Greenpeace, Forest Heroes, Environmental Investigation Agency, Rainforest Action Network, Forest People Program, Oxfam International (and others) became more sophisticated in their supply chain analysis, linking brands to impacts on the ground, in order to translate attention into action.

Downstream buyers were increasingly portrayed as complicit in the impacts caused

by upstream producers in their supply chain. This markets-based approach allowed for a focus on a relatively small number of downstream brands that had leverage over a much greater number of upstream producers. While international CSOs were instrumental in this pressure campaign, much of the content in reports they published was gathered initially by Indonesian CSOs. This reflects a trend of increased collaboration between Indonesian and international CSOs, to conduct more thorough data collection and gather proof of social and environmental impacts on the ground.

In parallel, CSOs also tried complementary strategies, including outreach to investors and financiers, as well as launching targeted campaigns on banks or investors, such as Greenpeace's "Dirty Bankers" or Friends of the Earth's "Doubling Down on Deforestation".

The impact of advocacy campaigns has been dramatic¹⁹. It was achieved through expanded forms of collaboration among CSOs at local, national and international levels, pursuing multiple pathways of influence to impact producer behaviour. This included targeting producers directly, as well as their buyers and downstream brands linked to them, who in turn pursued engagement or called for suspension of the producer. Downstream brands became especially vulnerable through association with non-compliant producers, placing them at risk of negative media, calls for boycotts, and protracted and resource-intensive negotiations with CSOs, investors or lenders to address grievances. Though suspensions were not common, they did occur, with negative economic impacts arising from restricted market access, lower quarterly earnings, and reduced share prices. Financial misfortunes suffered by some companies were amplified as a cautionary tale through reporting from Chain Reaction Research and Profundo, detailing the financial ramifications

of disregarding NDPE market norms, further reinforcing the potency of advocacy campaigns.

Tracking the sustainability performance of companies

CSOs have also proven effective at driving accountability for implementation of private sector commitments. As supply chain data and geospatial monitoring technology became more widely available in the public domain (discussed more fully below), this enabled CSOs to track performance of producers, and link them directly to supply chains of buyers/refiners as well as downstream brands. This enabled them to draw public attention to instances of non-compliance and register grievances for relevant parties to take action. Some CSOs have adopted use of these technologies as a means to help the private sector improve their operations and sourcing; others have used them as tools to expose and highlight bad practice. In all cases, CSOs have markedly increased rates of information flow surrounding performance, maintaining pressure for continued progress.

As part of this effort, CSOs developed an ever expanding set of scorecards, rankings and disclosure frameworks, as a basis for tracking implementation progress. These transparency efforts serve as both push and pull forces, allowing for progressive companies to differentiate themselves in a competitive marketplace, with positive benefit this brings, and shining a light on corporate actors who lag behind their peers, creating pressure for more action.

While public reporting is undoubtedly a good thing, numerous interviewees and respondents did flag a concern that reporting across so many public tools is, at times, a draw on finite resources better utilized for implementation. With this in mind, there are efforts underway to integrate reporting approaches, notable examples include the Accountability Framework, launched in 2019, in approaches over time merits consideration, as well as the Implementation Reporting Framework (IRF)

Contributing to build sustainable supply chains

Once companies announced NDPE policies, they typically partnered with one or more technical service-based organizations (TSOs) to support implementation of their commitments on supply chain transformation. This included building supply chain databases and designing technical approaches for measuring and improving traceability, conducting supplier assessments, on-the-ground mill assessments, deforestation monitoring, and grievance management. In order to facilitate a more transparent approach to implementation, CSOs became active in developing tools to support this work, often made available freely in the public domain.

Examples include WRI's GFW platform, and the Universal Mill List integrated within it, Mighty Earth's Rapid Response series, and the Chain Reaction Research report series. Increasingly sophisticated technologies such as Trase, allow for mapping regional level of supply chain transparency and performance, linking producer and consumer regions via

¹⁹ See commitments described above under Private Sector Action

specific traders. CSOs making available the technologies, data and analytical tools required for policy implementation helped to reduce data bottlenecks to progress. It placed technology in the hands of advocacy CSOs to raise grievances with confidence in their ability to substantiate claims, and to monitor progress in addressing grievances. For companies, it enabled them to develop in-house capabilities for building supplier databases, monitoring performance and responding more effectively to grievances. It also enabled them to defend themselves more effectively from spurious allegations. Thus, it has been good for transparency as well as credibility on all sides.

Beyond geospatial and monitoring tools, social CSOs have also contributed practical guidance tools on a wide range of social issues. Examples include Free & Fair Labor in Palm Oil Production, and diverse resources to support implementation of Free, Prior & Informed Consent (FPIC).

Convening multi-stakeholder initiatives for collective action

CSOs have long served as members of multi-stakeholder initiatives for collective action. More recently, they've begun taking on leadership roles to convene collaborative initiatives aimed at providing long term solutions to complex challenges to sustainable land use. Some of these are CSO-only initiatives, designed to align approaches and build consensus to advance a shared agenda, but more often they are broadly multi-stakeholder in their posture. This trend holds not only for CSOs with a tradition of

collaborative problem solving (e.g. with the private sector), but also advocacy CSOs that began shifting some resources toward solutions-oriented approaches.

One high profile example of this is the role CSOs are playing as proponents for landscape or jurisdictional programs aimed at mainstreaming sustainable commodity production models. CSOs such as: The Nature Conservancy and Climate Policy Initiative have played a central role in facilitating jurisdictional programs in East Kalimantan province and Berau district. The same holds for INOBU in Central Kalimantan and Seruyan and Kotawaringin Barat districts; Conservation International in North Sumatra; ZSL in South Sumatra; IDH in Aceh Tamiang; among many others. At a higher level, as noted under regional government action, the CSO LTKL is playing a central role in forging alignment across jurisdictional initiatives, to promote coherency and consistency to the approach.

Traditionally campaign oriented CSOs such as Greenpeace and RAN have also shown increasing willingness to contribute actively to multi-stakeholder solutions, through e.g. the creation of new standards and verification protocols for sustainability under Palm Oil Innovation Group (POIG) and the High Carbon Stock Approach (HCSA).

Finally, CSOs have also played an important collaborative role in strengthening standards and processes of established, multi-stakeholder certification frameworks, such as FSC and the RSPO. In the past five years, growing numbers of advocacy CSOs joined as members, especially in the RSPO. Using their platforms

to lobby from within, they built alliances to reshape the concept of “responsible” commodity production to align more closely with emerging norms in the marketplace. Whereas historically international CSOs had paid greater attention to ecosystem protection than to communities, labor protections or smallholder inclusion, a growing number of CSOs began to challenge this bifurcation of people versus planet. They brought more allies into the space to focus on social

issues, ranging from the protection of human rights defenders, to embracing new labor rights norms, to resolution of emerging and longstanding land use conflicts. The result was an update to the RSPO P&C in 2018 that much more closely reflects the new norms of “responsible” production emerging from adoption of NDPE policies. This has served to boost acceptance of the RSPO in the marketplace.



SECONDARY ACTORS

Results of interviews, on-line survey, convenings and other research highlighted four main secondary factors that contributed to declining commodity deforestation. Three of these highlight actors and actions they’ve taken, one is a marketplace phenomenon.

These factors include:



Consumer country governments



Financial community



Declining commodity market prices



Sustainability associations such as the RSPO

Consumer Country Governments

Trade policies enacted by consumer country governments are viewed as a secondary driver that reinforced actions taken by producer governments, private sector and CSOs. Most notable in this context is policy enacted by the European Union (EU) governing sustainability requirements for accessing the EU biofuels market. The EU Renewable Energy Directive 2008 (also known as EU RED 2008/RED1) was adopted in 2009, and provided regulatory certainty that laid foundations for emergence of what became for years the world's largest market for sustainable palm oil. RED1 was adopted shortly after the RSPO launched its own certification program in 2007, sharing many similarities with it, with additions that RED1 (i) set limits for maximum allowable GHG emissions embodied in biofuel feedstocks, including emissions from direct land use change, and (ii) excluded feedstocks produced on plantations established on peat or that caused deforestation post 2008.

Compliance with RED1 became mandatory for accessing the EU biofuels market. Germany was the first among EU member states to enact a mandate for biofuels in 2007. The International Sustainability and Carbon Certification (ISCC) was launched to demonstrate compliance to EU RED1, a verification system sponsored by the German government. Shortly afterward, in 2010 Neste began operation of the largest biodiesel production facility in the world, with palm oil as a major feedstock. EU market for ISCC certified oils grew rapidly, with imports for biofuels reaching ~2M tons by 2012 and >4M tons by 2018. Producers were rewarded handsomely for compliance, with premiums of US\$50-100 per ton at the time ISCC was launched, far greater

than premiums offered for RSPO certified oil at that time. This was a result of regulatory certainty fueling strong demand within a compliance market, paired with clear systems to verify compliance. It helped strengthen the business case for sustainability at a crucial time, by demonstrating market rewards for sustainability.

EU policy also stimulated collaborative corporate action to expand ISCC certified production, and to adopt wider sustainability commitments. This expanded potential impact of EU RED1 on business practices up and down the supply chain. For example, Neste, the world's largest biodiesel producer at the time and for many years the largest buyer of ISCC oils, supported outreach and training to promote ISCC certification, and supported producers in their journey. It also required suppliers not only to become ISCC certified but also to join the RSPO, and eventually to commit to NDPE. Many Neste suppliers became (or are becoming) both RSPO and ISCC certified, for all their operations, and have begun implementing programs for NDPE. This phenomenon multiplied the impact of EU policy beyond ISCC compliance for market access, to promote sector-wide improvements. Diplomatic relations between the EU and producer countries have been fraught at times, linked to concerns that EU policy discriminated against palm oil. Yet, viewed from a decadal perspective, EU policy contributed to mainstreaming sustainability and reducing deforestation, in several ways:

- 1. Reduced clearing of forests and expansion onto peat. Strict limitations on deforestation and peat under RED1 meant that plantations that caused deforestation or peat conversion post 2008 could not supply into EU markets. This reinforced emerging narratives early in the decade about commercial**

- demand for deforestation free products. It also reinforced Indonesian government policies enacted later in the decade to reduce deforestation and protect peat from conversion.
2. Improved supply chain management systems. Companies seeking ISCC certification were required to put in place more comprehensive, organized systems of supply chain management. This improved overall management and control systems, increased efficiency, and made it easier to become ISPO or RSPO certified.
 3. Traceability to point of origin is required under EU RED1 (and later also RED2). This motivated companies to increase visibility on their supply chain, as a precursor to expanding their certified base. This has reinforced growth of investment in systems to improve traceability to plantation (TTP), including for outside third parties.
 4. Roll-out of ISCC compliance to neighboring producers. Because some certified producers struggled to meet the minimum volume requirements of some ISCC buyers, they began to engage neighboring mills to become certified as well, thereby increasing their combined volumes. This was often done together with the buyer's support, and entailed working with smaller, less progressive producers motivated by the business case for certification. This 'spread effect' multiplied the impact of EU RED1 and promoted wider sustainability.
 5. GHG reduction activities. Few mills were capable of meeting RED1 limitations on GHG emissions under business as usual conditions. Mills seeking certification therefore implemented GHG reduction activities in their supply chain, such as using renewable energy (palm waste fibers to fuel their boilers), optimized fertilizer use, composting, and palm oil waste reduction. This also contributed to stimulating a 4-fold increase in the number of methane capture installations since 2009. This EU requirement, coupled with B-to-B incentives established later to reward higher GHG savings, helped bring GHG footprint calculation, reduction and reporting into the mainstream.
 6. Newer biofuel producers are adopting established supplier due diligence tools. There is evidence that more recent entrants into the biodiesel market are modelling their sustainable sourcing policies and procedures on established earlier by industry leading players, such as Neste. This appears to be driven by desire to preserve the option of selling into the EU market. This implies a decade of effort by early players to comply with EU requirements has contributed to establishing industry norms for at least some of the more recent entrants.

Global Commodity Markets

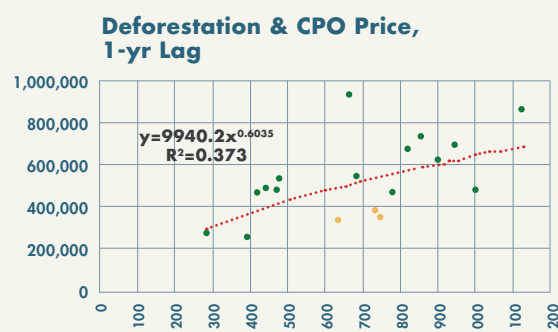
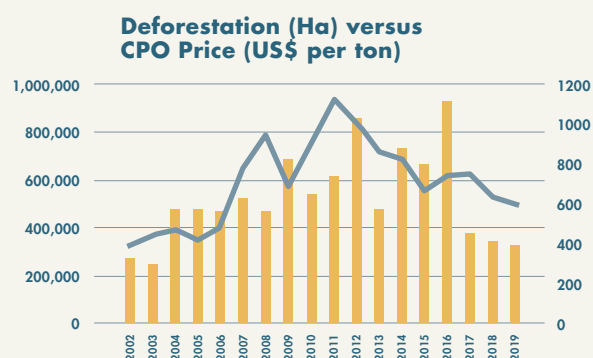
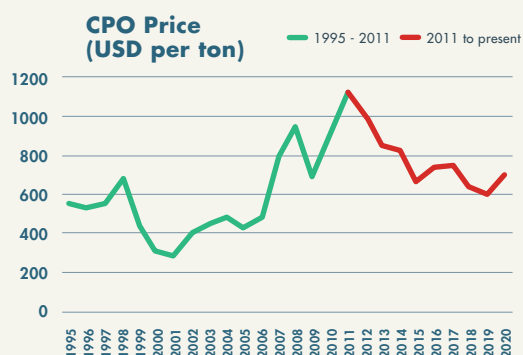
Declining commodity market prices over the past decade are often suggested as another contributing driver to declining deforestation. Views on the strength of market impacts are mixed, but it is useful to question how market dynamics might have influenced sectoral growth in the past to understand the role it could play in the coming decade.

It is reasonable to suggest market dynamics influence deforestation, because decision-making to establish new plantations is influenced by the expectation for profit. Rising palm oil prices improve returns to investment, thereby fueling a drive to establish new plantations, possibly even into forested areas. When prices decline, the reverse might be expected hold.

We examined the evidence that reduced commodity prices contributed to reduced deforestation, as a basis for understanding how it might affect future deforestation should prices rise again. We find there is evidence that markets might have contributed to reduced deforestation rates but caution against drawing conclusions about causality.

During the first ten years of the 2000s, average CPO prices soared from \$310 in 2000 to a peak of \$1125 per ton in 2011 (Inset 16, upper).²⁰ Prices declined steadily in years that followed and remained low until 2019 when they reached a low of \$601 per ton, nearly half peak prices of 2011. Prices began recovering in 2020 and are forecasted by most to rise modestly over the coming decade.

Over this 20-year period, CPO prices are correlated with annual deforestation across Indonesia.²¹ We can see this qualitatively (Inset 16, middle) and statistically (Inset 16, lower), with 37% of variation in deforestation linked to CPO prices. We apply a 1-year time lag, accounting for the lag between price signal in one year and decisions to plant (or not) in the next.²²



Inset 16. CPO price and deforestation over the period 2002-2019.

Looking at this more carefully for a causal signal, is there evidence that declining prices lead to declining rates of planting? As noted in Part 2, this question is difficult to address, due to limitations on data for annual planting. Published data from satellite mapping typically cover one or two points in time only, not time series (e.g. Koh et al. 2011; Miettinen et al 2012). The Indonesian Ministry of Agriculture publishes annual figures on oil palm area based on compilation of data from multiple agencies and jurisdictions. One could infer annual planting from these data, but since methods applied varied over the period, there are data outliers that raise concerns. We therefore used a combination of methods to ask how planting rates are correlated with CPO price.

²⁰ Data obtained from <https://www.indexmundi.com/commodities/?commodity=palm-oil&months=300>

²¹ Here we use the natural forest loss data from WRI presented in Progress Area #1, Part 2 of the report.

²² It's interesting to note deforestation during 2017-19 (red points) fall notably below what is expected based on price alone, corresponding to the period when government, private sector and CSO action surged.

First, we examined how oil palm seed sales co-vary with CPO price. Seed sales are an indication of decisions to invest in future planting. We find that seed sales rise and fall with CPO price (Fig. 8, upper left).

We then tested how annual planting varies with CPO price, drawing upon multiple data sources on planting. We find some evidence that planting rates goes up or down with CPO price, but the relationship is not strong (Fig. 8, lower left).

Finally, we examined the relationship between CPO price and growth in harvested area (i.e., mature plantations at least 3-4 years old), using data published by USDA, as featured in Progress Area #6 in Part 2. We find a weak positive impact of price on harvested area (after accounting for time lags between planting and harvesting).

Together, these correlations imply a moderate effect of CPO price on the rate of new plantings. This correlation does not prove causality, however, nor does it offer proof that deforestation will rise again should prices increase dramatically in the years ahead.

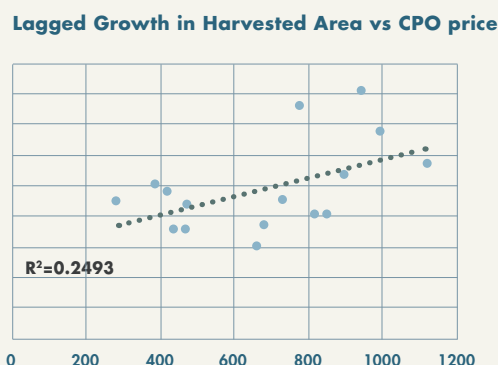
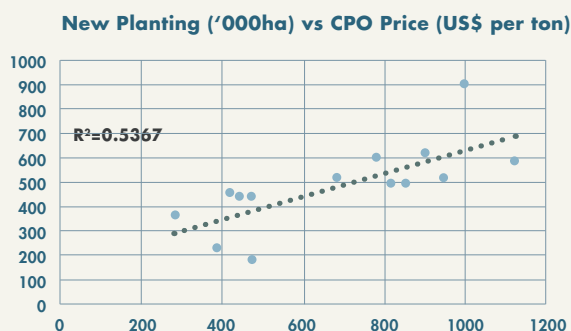
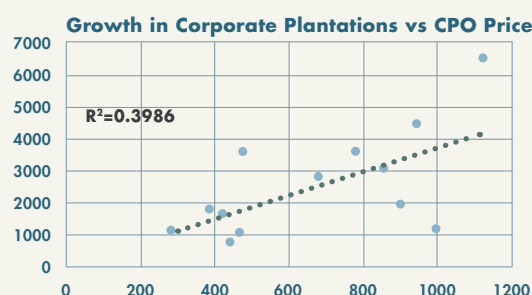
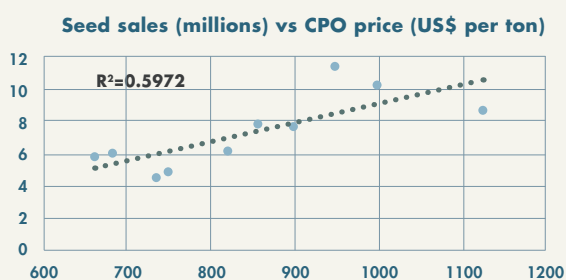


Figure 8. Examination of relationships between CPO price and measures related to new planting over the past 12-18 years.

One reason we caution against concluding rising future prices will increase oil palm driven deforestation is that the policy and economic fundamentals of today are very different from ten years ago.

As shown above, current government policy is much more forest positive, favoring intensification and efficiency based growth models over expansion, especially among small producers. In addition, NDPE demands are firmly established in the marketplace, making expansion into forest more costly from a market access point of view. Tools for detecting deforestation are now widely available, supply chains are more transparent, and CSOs (and companies) are actively monitoring for deforestation and fires. Finally, underlying cost structures of new planting are much higher today than they were ten years ago, reducing investment returns and thus appeal for new entrants.

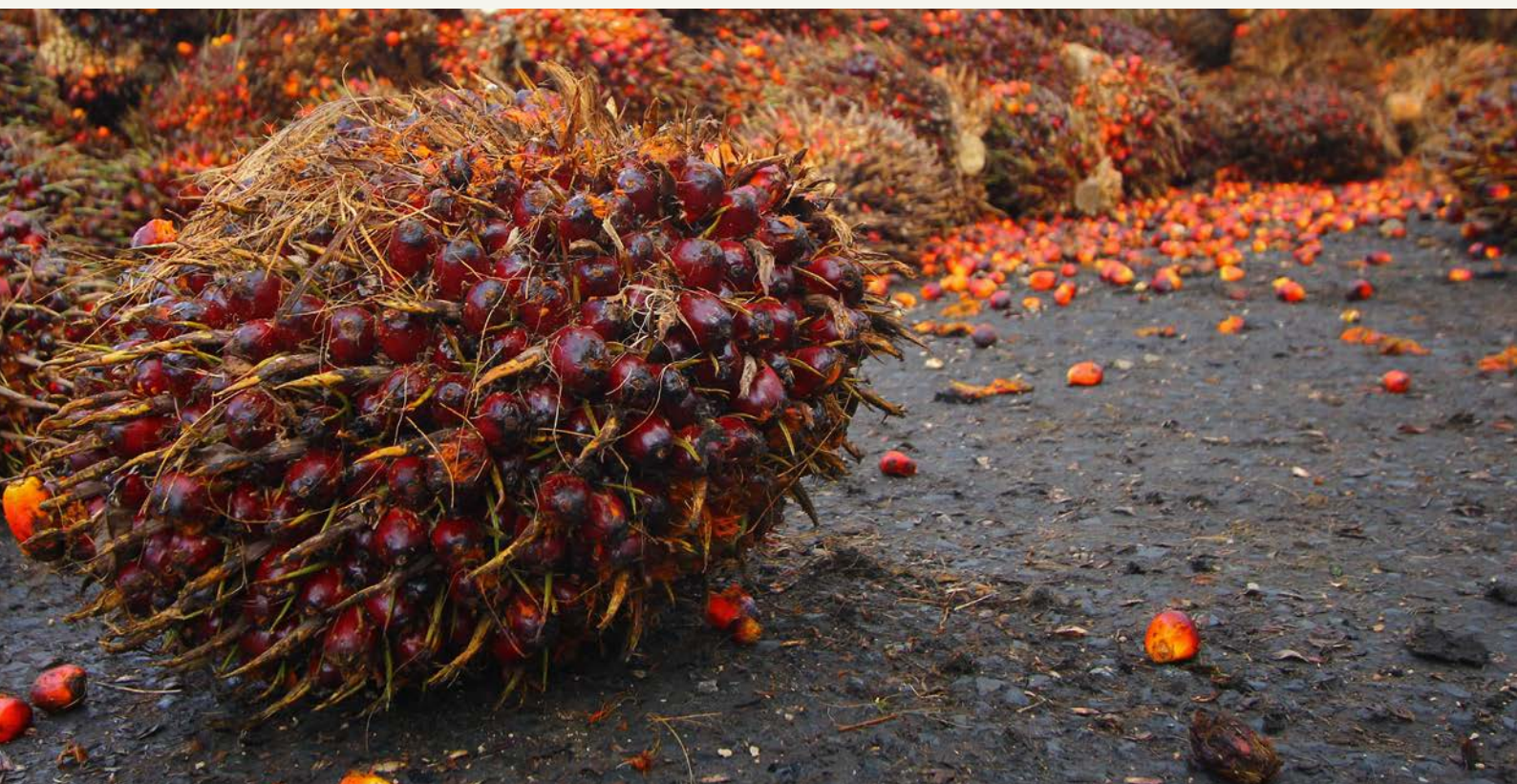
Offsetting this optimism, however, respondents do acknowledge that increased prices could attract new, smaller players into the sector, especially regionally connected players. Such actors could be attracted by price signals alone and less responsive to NDPE pressures. This merits attention.

We conclude that historically, high rates of oil palm driven deforestation were partly affected by strong CPO prices, which worked in synergy with pro-expansion government policy and investor enthusiasm to grow the industry. The transition toward sustainability that began post 2011 was facilitated by falling prices, which reduced investor pressure to expand, but this was not a leading driver. Looking forward, fundamentals have changed in a way that dampens the impact of price, but we must be mindful of its impact, especially on smaller producers, as prices are expected to rise in the years ahead.

Financial Community

Actions taken by the financial services community over the past decade also played a supporting role in promoting wider sustainability and contributing to reduced deforestation. Study participants did not consider it a primary driver of change, and evidence supports that view. Yet, they highlight that banks and investors are reinforcing direct interventions by primary drivers, and contributing to the business case for sustainability by making access to finance or investment from reputable sources, and on desirable terms, increasingly dependent on sustainability performance. Producers also report that while banks and/or investor demands were not the main driver behind becoming RSPO members and/or adopting NDPE policies, B-to-B discussions with them were a contributing factor.

The financial services industry, particularly in Indonesia and Malaysia, have been critical enablers of growth in the agri-commodities industry for the past two decades. As industry norms reorient towards more progressive standards that uphold sustainability as a driver of value creation, the financial services industry has increasingly accepted its role in shaping and supporting this process. Shareholders are increasingly vocal in their demands for sustainability in agri-business, and global institutional investors are calling for stronger focus on the impacts arising from provision of financial services they enable. This has stimulated growing numbers of Board-level commitments toward sustainable finance amongst regional players. Individually and collectively, lenders and investors have begun pursuing new ways to ensure customers and clients are responding positively to local, national and global stakeholder demands. Central to the action agenda emerging from



this is diverse efforts to drive progress on more effective Environmental and Social Governance (ESG) standards. This has been pursued through collective and individual pathways of action.

Collectively, the financial services industry has begun showing leadership to establish membership based organizations that promote responsible finance through awareness raising, policy adoption and capacity building to implement best practice in due diligence and sustainability risk management. For example, in 2018, the Indonesian Sustainable Finance Initiative (ISFI) was launched, with eight founding banks totaling 46% of Indonesia's total banking assets, including major financiers of palm oil. ISFI aims to promote and implement inclusive sustainable finance practices, in support of Indonesia's Financial Services Authority's (OJK) Sustainable Finance Roadmap. ISFI functions as a platform for learning exchange, to forge common understanding of sustainable finance principles

and practices, and to mainstream established ESG procedures throughout Indonesia's financial services industry.

Another example is the UNEP Finance Initiative (UNEP FI)'s Principles for Responsible Banking (PRB), a global, signatory-based initiative where more than 200 banks have now committed towards responsible and sustainable banking and finance. The PRB aims to support the adoption and implementation of ESG practices into banking products and services and financing decisions taken by its signatories. PRB signatories include many global banks, with significant exposure in forestry and agri-business in the region; Malaysian CIMB the first signatory from ASEAN.

Operating in partnership with PRB is Principles in Responsible Investment (PRI) initiative, a global, signatory based initiative with >3,000 organizations committing to pursue responsible investment. PRI works to support the adoption



and implementation of ESG practices into investment and ownership decisions taken by its signatories, complementing PRBs work focused on lenders. PRI signatories include dozens of asset owners, managers and service providers in Indonesia, Malaysia, Singapore and throughout ASEAN, including many with holdings in forestry and agri-business. It offers another platform for promoting and mainstreaming best practice within the financial community.

Finally, the financial services community has also become more active in larger, established multi-stakeholder initiatives, including certification bodies. As of end 2019, banks and investor membership in the RSPO had grown to 17, including some of the world's largest financial institutions. As RSPO members, they've become active participants in shaping the standards and processes for sustainability assurance, leveraging their influence to bring in new producer members to join the RSPO.

Alongside these collective actions, individual members of the financial services industry in the region are also taking direct action to promote sustainability through improved due diligence of customers, introduction of sector-specific guidelines and the adoption of data-driven, scientific approaches towards risk identification and mitigation. One example of a regional mover is CIMB, a Malaysian bank with agri-business and forestry interests in Indonesia and Malaysia. CIMB is helping drive local initiatives to mainstream ESGs, including strengthening the Malaysian Sustainable Palm Oil (MSPO) standards and Bank Negara Malaysia (BNM) Value-based Intermediation palm oil sector guidelines. At a global level, CIMB supported development of Trase Finance, a breakthrough, public-domain database of trade and financial flows linked to environmental risks, as well as studies on the role of deploying responsible capital to address climate transition risks and opportunities linked to palm oil.

Complementing these examples of individual and collective action by the financial community, regulators and central banks in the region have begun putting in place the enabling environment to help ensure regional banks move together on strengthening ESG controls. Accelerating alignment of the regulatory framework with business action will be key in the years ahead, to avoid segmentation in the lending market. There is already some evidence that banks holding stronger ESG programs are lending preferentially, sometimes exclusively, to progressive companies, while less progressive banks are lending to all the rest. Individual action is encouraging but will not be sufficient the power of finance to drive industry wide change if this trend continues.

Moving forward, as financial services players converge on a shared understanding of risks and opportunities in agri-commodities, more informed decisions and interventions are expected from them. ESG aligned lending and investment decisions will be central to delivering impact, but it should also include specific areas where banks could offer unique, tangible impact, e.g. in assessing asset valuations, market risk linked to sustainability performance, and addressing climate transition risks in line with Taskforce for Climate-Related Financial Disclosures (TCFD) commitments.

RSPO as a leading Sustainability Association

The actions taken or enabled by the RSPO, as a leading, membership-based sustainability association, is a fourth and final secondary driver of change highlighted in the study. Five main actions are emphasized.

First, RSPO has provided a critically important multi-stakeholder platform to facilitate dialogue and debate around a vision for palm oil sustainability and the role of different stakeholders in pursuing it. RSPO offers a structured forum to channel outcomes of debate, which take place continuously, into new processes and forms of assurance to drive and reward progress. The vision and processes created in the forum has shown an ability to evolve in response to changing norms and expectations, always in the spirit of striving to achieve consensus, accepting the compromise this entails. This has helped to foster a constructive, solutions oriented mindset, rather than combative disagreement, which has been a key part of enabling progress over time.

Second, RSPO has provided a level of assurance and accountability for its membership, despite its imperfections. This applies most obviously to grower members, but over time has come to embody and promote a wider acceptance of shared responsibility throughout the supply chain. This is helping not only to promote market uptake of certified oils, but also a more collaborative, partnership based approach to supply chain wide investments in sector wide change.



Third, RSPO has offered an entry point for producers opting to join the sustainability movement formally, especially for small and medium size producers re-orienting toward sustainability to position themselves in the marketplace. RSPO membership has brought them a level recognition and allowed time for gaining confidence and preparing internal changes, while at the same time requiring action to ensure progress is being made. This made new entrants accountable to a code of conduct (COC), minimum public reporting and grievance resolution procedures should they violate terms of the COC or fail to make progress towards certification.

Fourth, the RSPO has played a critically important role in expanding market based rewards for responsible production, strengthening the business case for sustainability. As discussed in Part 2, this has been achieved through promoting uptake of certified oils within established markets of Europe and the US, expanded outreach in the emerging markets of Asia, and expanding smallholder inclusion through tailored approaches to farmer certification and related support programs.

Fifth, RSPO has played a critical role in countering anti-palm oil campaigns, effectively promoting a view that mainstreaming sustainability is the solution, not boycotts. This has helped to motivate industry as a whole to improve, and producer county governments to demonstrate that sustainable commodities are the solution not the problem.



A study by Daemeter and the Tropical Forest Alliance



Part 4.

PRIORITIES FOR FUTURE ACTION



In the closing Part of the report we discuss priorities for future action. During the study we obtained a tremendous breadth, depth and variety of inputs on future priorities through interviews, convenings, online survey and wider discussion. Here, we distill and organize these into a more concise set of issues and priorities for action, while trying to capture the essence of inputs obtained through different modes of engagement.

We divide this section into two parts. The first describes six major areas of concern highlighted by the study. The second describes the goal of actions that could be taken to address these concerns, some of which present clear opportunities to advance progress, and briefly outline some key recommendations for a selection of actors viewed as holding critical roles to play.

A recurring theme throughout is the importance of both individual and collective action to drive continued progress on sustainability in the decade ahead. Individual action is needed and must continue, especially in relation to

government policy and enforcement, corporate responsibility for supply chains, growth in application of more stringent ESG programs by the financial community, and continued willingness by CSOs to work toward solutions alongside advocacy campaigns. Yet, some challenges are too multi-faceted, or operate at too large a scale for action by any one actor to solve them alone. Such problems require collective action through creative, durable forms of partnership to leverage the skills of different parties, each addressing components of a problem in ways that allow for collective progress greater than the sum of the parts. We make note throughout where collective action seems most appropriate to advance progress.

Leading Areas of Concern

Six topics are highlighted as areas for priority action in the coming decade. Each presents challenges and opportunities to drive progress. They include:

 <p>Accelerating progress toward reducing deforestation and fires</p>	 <p>Building upon successes of government action on sustainability</p>	 <p>Anticipating trends in regional and global markets</p>
<p>Smallholder inclusion, productivity and sustainability</p> 	<p>Advancing social aspects of sustainability</p> 	<p>Accelerating progress among small and medium producers</p> 



Number 1. Accelerating progress toward reducing deforestation and fires

Significant progress has been made in reducing deforestation and fires (Part 2). In Indonesia, overall deforestation has declined by one-third to one-half, depending on the dataset and time period, and even larger reductions occurred in commodity driven losses, especially palm oil. Similar patterns hold for Malaysia. Fires also declined in number and severity, due to actions taken by government, with support from private sector, CSOs and communities. Yet, neither has been eliminated, and continued progress requires addressing four areas of concern linked to this.

First is the growing importance of “other drivers” as sources of deforestation, relative to largescale palm oil and fiber plantations. This is evident in Figure 1 and has been highlighted by others (e.g. Austin et al. 2017,

2018). It includes deforestation caused by wild fires, smallscale forestry and agriculture (which might be linked partly to oil palm or rubber), as well as mining, infrastructure, settlements and coastal developments including aquaculture. Accelerated progress in reducing fires, combined with expanded farmer level engagement (below), will partly address “other drivers”, but new approaches will be required, particularly to address impacts of mining and infrastructure. **Second** is the persistence of Hotspot Jurisdictions highlighted in Figure 2, where recent deforestation and fires continue at much higher levels than elsewhere. On the one hand, that continued impacts are concentrated in a minority of districts in a handful of provinces presents an opportunity for geographically clustered interventions to achieve meaningful impacts overall, but on the other hand, higher deforestation and fires in these jurisdictions could be evidence of drivers that will be particularly hard to address. Targeting these jurisdictions for tailored interventions will

need to be a priority for future action. **Third**, two-thirds of continued deforestation takes place in the Forest Zone, which is intended to remain under permanent forest cover (see Area #1 in Part 2). Partly this reflects the impact of wildfires, which have been extensive in the Forest Zone, both inside and outside concessions, but it also reflects other drivers, such as mining and small-scale agriculture, that need to be addressed systematically through more equitable access to land, governance improvements and stronger enforcement. Finally, the 2018 moratorium on palm oil licenses is widely viewed as a policy intervention that contributed directly to recent declines in commodity driven deforestation, especially in High Forest jurisdictions such as Papua and West Papua. The three-year suspension is scheduled to lapse in September 2021, raising concerns about what will happen afterward.



Number 2. Building upon successes of government action on sustainability

Two consensus views from the study are that government action was a major contributor to progress over the past decade, and it will become even more important in the decade ahead. Government action is considered especially crucial to address emerging 'other drivers' of deforestation, further progress in controlling wildfires, improved management of peatlands, expanding social forestry, and delivering smallholder support at scale. Looking ahead, four main areas of concern and opportunity are highlighted. **First** is a desire to scale implementation of the legal and regulatory frameworks for more inclusive, transparent development planning and land use governance embodied in the landmark 2009 Environment Law. The implementing framework for the law was built out firmly over the past decade, placing environmental

sustainability on equal footing with investment and economic objectives in development planning. Its application has been tested in diverse jurisdictions, including piloting innovative performance based fiscal transfers. Scaling up the application of these processes should be a central goal of the coming decade and will require effective capacity building. **Second** is hope for delivering on the potential for Jurisdictional Approaches (JA) as a collaborative, multi-stakeholder framework to leverage government, private sector, CSO and community lead action to advance a shared sustainability agenda. **The JA is seen to hold massive potential, but there is concern over a limited window for JA to deliver tangible benefits to jurisdictions that commit to the effort.** A component of this which could be supported through central government action is the roll out of nested benefit sharing under Results Based Payment mechanisms for international climate finance. **Third** is the need and opportunity for massively scaled up licensing and especially capacity building in social forestry. The ~4.2M ha of areas established to date achieves one-third to President Jokowi's goal of 12.7M ha by 2025, so accelerated licensing will be key. Alongside accelerated licensing, however, is a widely recognized need for effective, scalable models of capacity building in business development and enterprise management. The 2021-25 plan announced by KLHK provides an implementation framework to guide this. Innovative models for localized, cost effective capacity building will be key, possibly in collaboration with local Forest Management Units (KPH). **Finally**, study participants expressed a hope for expanded multi-stakeholder support to scale restoration and rehabilitation programs lead or supported by the BRG. Of note in this context is the newly expanded remit of BRG to include mangrove restoration, which will place further resource demands on the agency.



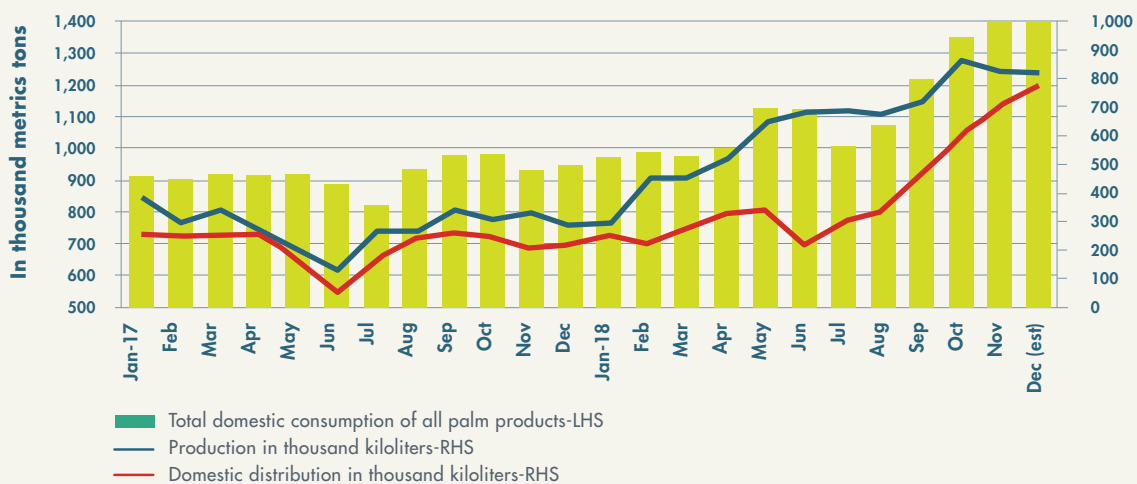
Number 3. Anticipating how trends in regional and global markets will impact sustainability

A third area of concern highlighted in the study centers on the impact of regional and global market trends on sustainability over the coming decade. Three issues are highlighted in this context. **First** is a general concern over long term impacts of rising global demand, and the risk that surging prices could trigger a second wave of plantation expansion into forests. Historically, palm oil prices are correlated with planting rates and deforestation in Indonesia, as shown in Part 3. This correlation is not proof that future price increases will trigger oil palm expansion that causes deforestation, but it could motivate a segment of price-sensitive producers (especially small to medium growers) to expand production. This potential risk should be kept in mind as market dynamics evolve. **Second** is the impact of future growth in palm oil consumption in Asian markets, where demand for sustainable products is generally low. Currently, Asian countries are responsible for ~60% of palm oil consumption globally, with Indonesia, India and China together amounting to 31M tons in 2020 (45% of

global consumption). Indonesia alone is by far the largest consumer, at just over 15M tons in 2020, and is growing at 4-5% per annum, while India (8.8M) and China (6.9M) are growing at even faster rates (6.5% and 7.6%, respectively). Continued growth in these markets is a positive sign for the sector, but it could expand the size of so-called “leakage markets” where for unsustainably produced palm oil can be sold, unless steps are taken to foster growth in sustainability expectations of consumers in these markets. **Third** is concern related to growth in usage of palm-based biodiesel in Indonesia. Since 2015, GOI has used subsidies to promote growth in palm-based biodiesel as part of a larger program to expand renewable energies and reduce reliance on fossil fuel imports. Production and consumption of biofuels increased by more than 50% in just two years from 2017-19 (see inset) and continues growing. Domestic consumption is projected to reach 9.6B liters in 2020, equivalent to 8.8M tons CPO, or roughly one-fifth of expected palm oil production for Indonesia. Unlike the EU market for biofuels, sustainability criteria are not yet formally applied in Indonesia’s domestic biofuels market, raising concern that continued growth in biofuel demand could expand markets for unsustainable palm oil. This merits attention in the decade ahead.

Indonesia domestic palm oil consumption

Biodiesel production snapped to fall but consumption keeps chugging along for fifth successive month. Biodiesel production is expected to see another round of slowdown in December (source: GAPKI & Aprobi)





Number 4. Smallholder inclusion, productivity and sustainability

A fourth area of concern highlighted in the study centers on the need for significant scale up in targeted, tailored investment programs for smallholder inclusion, productivity and sustainability. To many, making progress on a complex of smallholder needs over the next decade is a lynchpin for success in most of the priority impact areas highlighted in this section. Farmers are projected to represent up to 60% of the production base in Indonesia by 2030, indicating their practices will, to a growing extent, define the sector as a whole. Four leading areas of concern are highlighted. **First** is the urgent need to improve farmer yields, which average 30-50% less than corporate producers. This reflects a well-studied mix of causes, from poor management practices, limited access to quality fertilizers, and suboptimal harvesting practices, to poor planting material, aged trees in need of replanting and the fact that even low productivity farms are an effective means of asserting land ownership. Failure to improve farmer yields will make it impossible for Indonesia to meet production growth targets for supplying rising domestic and global demand without significant plantation expansion. Massively scaled up training programs will be part of the solution to increase yields, but not sufficient on its own. **Second** is the urgent need for increasing access to finance. Farmer investments that affect productivity are frequently limited by access to short-term operational credit and long-term investment finance. In the short term, management practices are impacted by FFB prices, with low prices leading to under-investment in labor and inputs, which in turn triggers a cycle of low yields and productivity. Access to operational capital

could address this. On longer timescales, an estimated 30% of current smallholder farmers will require replanting by 2025, at an estimated cost of \$US5-6B, yet very few farmers have access to long term finance at terms that are feasible. Failure to replant will put further downward pressure on yields and livelihoods and increase risk of smallholder driven deforestation in the future.

Third is the need for effective, scalable programs for strengthening the social and digital infrastructure of smallholder farming as a rural enterprise. Social infrastructure takes many forms, including availability of technical, marketing, and labour support made available through the community, farmer groups, cooperatives, collaborating CSOs, or government. Digital tools that are tailored to the social and technological milieu of rural Indonesian supply chains will help to accelerate formalization of the sector, bringing wide access to finance and the value chain. **Finally**, action to address these three issues must also be coupled with a conservation agenda, so that increased yields and improved livelihoods do not have the undesirable consequence of stimulating farm expansion into forests, protected areas or other sensitive areas. This could be achieved through more structured approaches to village level planning, ensuring farmer integration within sustainable supply chains, and through certification or other means that rewards sustainability. This also cross-links with concerns over legality and land tenure, with many smallholder farms on land classified as Forest Zone, which prohibits agriculture. Solutions to this longstanding problem are needed, taking into account past, present and future considerations, as well as stronger enforcement to reduce future encroachment into Forest Zone areas.



Number 5. Advancing social aspects of sustainability

A fifth area of concern highlighted in the study centers on the slower pace of progress improving social aspects of sustainable commodities compared to environmental impacts. Study participants generally agree that progress made on social forestry and in reducing the pace of deforestation overall has helped to improve social performance of commodity sectors indirectly by lowering the risk of new conflicts taking place. Yet, reported impacts on labor, livelihoods, human rights, gender and customary land rights continue, a fact acknowledged by private sector itself. Action is being taken, and improvements are being made, but social performance must be strengthened in the decade ahead.

The slower pace of change for social impact reflects at least four factors that must be addressed. **First** is that more work is needed to raise the profile of social impacts as part of creating more pressure to address them. Increasingly widespread use of near real time, affordable remote sensing technologies means deforestation and fire can be detected from thousands of miles away, verified using remote imagery, and shared instantly with a global audience to pressure for action. In contrast, social impacts are intrinsically local and immediately visible only to parties directly affected. Work is needed to increase the detection and visibility of social impacts. **Second** is that while years of climate change campaigning has effectively elevated “local” impacts of deforestation and fires to a “global” concern, the same cannot yet be said for social impacts. For much of the public, social impacts remain a local problem, making it more difficult to mobilize global consumer pressure even when incidents are made known. Work is needed to deepen

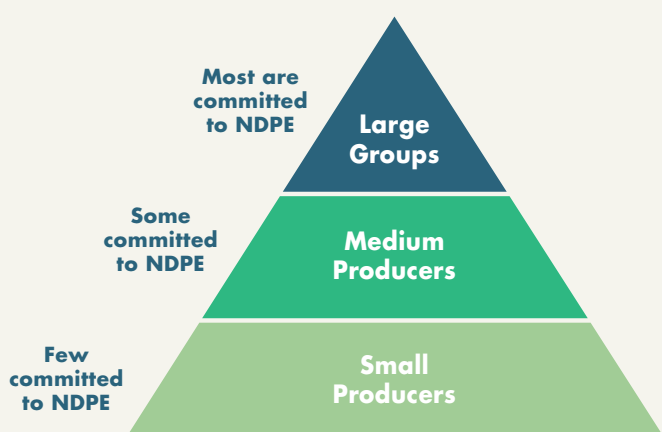
the sense of urgency for change among the wider public. **Third** is that more investment is needed to strengthen regulatory and voluntary certification requirements to ensure negative social impacts are minimized and positive ones are promoted. To date, larger investments are being made to address the symptoms of poor social performance than its underlying causes, such as conflict resolution systems lead by business, or dispute mediation facilities within the RPSO or FSC. **Fourth** is the fact that further improvements are needed to enforcement of the regulatory framework and wider business ethos toward social performance in order for agribusiness and forestry to achieve positive social outcomes at scale. This applies especially in regions dominated by informal land tenure, as throughout much of Indonesia.



Number 6. Accelerating progress among small and medium producers

A sixth main area of concern flagged in the study relates to the need for more work to accelerate outreach, awareness raising and progress among small and medium size palm oil producers. Unlike the pulp & paper industry in Indonesia and Malaysia, which is highly concentrated in a small number of producers, the palm oil upstream has a more diffuse, segmented ownership structure comprising thousands of distinct legal entities. The full picture is complex and opaque, since ownership relationships amongst entities are not readily discerned beyond those which are disclosed by the small number of publicly listed conglomerates and/or larger producer groups that have committed to transparency. Yet, as a first approximation based on multiple data resources, we estimate that in Indonesia and Malaysia roughly 30% of mills are owned by large producer groups with 10 or more mills, 30-35% by medium producers

with typically 3-10 mills, and approximately 30-35% are small independent producers with 1-2 mills. There is an even larger (and growing) number of plantation companies that produce FFB but do not own mills. Most large groups are fully committed to sustainability and actively pursue implementation programs. Among medium producers the story is mixed, with small numbers fully committed, others early in the journey, and most with limited understanding, much less a commitment to sustainability. Small producers on the whole tend to have limited levels of awareness or commitment. Together with medium producers, they're also the industry segment where cases of social or environmental impact are gaining in profile. Over the past two years, known cases of ongoing deforestation tied to large producers are declining, and those linked to small or medium producers, often without mills, are rising. Review of regional media and interviews by Daemeter also highlight a growing frequency of community conflicts and labor disputes linked to small and medium size producers.



This reflects the fact that supply chain pressure has been effective at motivating large producers to improve practices, with NDPE norms becoming more deeply embedded in their operations. Yet, there is growing concern that supply chain pressure will not be sufficient to transform small and medium producers in the decade ahead.

First, while engagement, training and support programs offered to mills by leading NDPE buyers/refiners are generating results with key supplier groups, these programs can't be scaled quickly enough to reach all producers. This is true, even as demands for Group wide compliance of suppliers becomes the norm among leading buyers. **Second**, beyond practical limits of how quickly these programs can be scaled, there is evidence that some small to medium producers (and even some large ones) are proving less responsive to supply chain forms of outreach, engagement and pressure. **Finally**, some leading supply chain companies are reorienting their sourcing strategies toward supply chain consolidation, sourcing from a smaller number of best performing producers. If this trend continues, supply chain lead outreach efforts will decline, with fewer NDPE buyers engaging with lesser performing companies, slowing progress further.

Together, these observations raise concerns that supply chain pressure alone won't be sufficient to reach the majority of small and medium producers, thus failing to transform the sector as a whole. Novel approaches will be needed to reach this segment of industry at scale.

Goals & Recommendations of an Action Agenda

For each of the six priority areas highlighted above, we outline the overarching goals of future action and suggest specific actions that could be taken by different parties.²⁴

 <p>Accelerating progress toward eliminating deforestation and fires</p>	 <p>Building upon successes of government action on sustainability</p>	 <p>Anticipating trends in regional and global markets</p>
<p>Smallholder inclusion, productivity and sustainability</p> 	<p>Advancing social aspects of sustainability</p> 	<p>Accelerating progress among small and medium producers</p> 

Deforestation & Fires

Further progress on reducing deforestation and fires will be achieved both through (a) direct action, to influence the decisions of parties responsible for it (legal and illegal) and (b) indirect actions, to lessen the drivers and enabling conditions leading to deforestation and fires. Direct action is needed to address the immediate **proximal** causes (e.g. influencing the parties or development plans causing impacts), whereas indirect action will, over time, affect the **ultimate** causes of impact (e.g. changing the incentives, social or economic conditions encouraging actions that cause impact). Three components of an action agenda for doing so include: **(i) deploying technology**, to allow for better detection, reporting, attribution, advance warning and mobilization of action, as well as providing feasible alternatives to use of fire by farmers

for land clearing; **(ii) encouraging behavior change**, through policies, programs and marketplace developments that shift incentive structures to discourage deforestation and fire, e.g. by delivering conditional rewards (or penalties); and **(iii) building durable models for cooperation** to pursue diverse forms of partnership-based approaches for mitigating fire and reducing deforestation.

Further reducing fire and deforestation in Indonesia will require long-term effort across multiple fronts. This will include continued government-lead reforms to land use governance (especially implementation of peatland management regulations), land tenure, enhanced fire-fighting capacity and improved law enforcement. Expanded peatland restoration activities under BRGM leadership will be key, via combinations of central government action and the

²⁴ The main stakeholder groups we consider include: Producer governments, (ii) Consumer governments, (iii) Producers, buyers, downstream brands, (iv) CSOs, (iv) Financial institutions, (v) Sustainability associations, (vi) Entrepreneurs, (vii) Donors.

implementation frameworks developed for cooperation with villages and regional authorities in priority jurisdictions. As part of this, improved coordination between BRGM and local forestry agencies, especially KPHs, will be key given their role in preventing fires (water table monitoring, patrols) and responding to them (firefighting). Effective peat management and fire prevention will require multi-stakeholder coordination from provincial to village levels. Continued policy support of entrepreneurial, partnership-based approaches to wetland restoration will complement these public sector investments, extending impact further. In the near term, early warning systems can play an extremely important role to support fire control efforts. Field et al (2016) report that recent fire events in Indonesia show a strong non-linear sensitivity to prolonged drought incidents of <4mm rain per day. They also show this sensitivity is increasing over time, especially in Kalimantan. This means drought triggered fires will remain a serious, likely worsening threat, as the frequency and severity of ENSO triggered drought appears to be increasing with climate change. Such warnings, disseminated through smart communications technology, can alert the public and local agencies of elevated risk, enabling them to exercise caution and prepare for mobilizing resources to detect and respond to mitigate fires swiftly²⁵. This would seem an area well suited to partnerships between government and academia, as well as digital entrepreneurs.

Alongside government action, the private sector can continue to drive meaningful gains by maintaining its focus on supply chain management throughout their entire supply chain. Such action post 2015 contributed to sharp declines in oil palm driven deforestation, yet cases continue to be highlighted, including by producers linked to supply

chains of prominent NDPE buyers. Buyers and brands must maintain focus on supply chain management, including improved monitoring of their suppliers for deforestation and peat development (possibly using shared platforms), increases in traceability to plantation (as a basis for targeted, proactive engagement), and continued offering carrot-and-stick measures (push and pull forces) to shift the practices of non-compliant actors. Restricting market access for non-compliant actors will continue to shrink the market demand for unsustainable production. It is a less preferred pathway of action but one that must be pursued in some cases.

Fires within concessions remain a challenge. There is debate about the numerical importance of fires occurring inside vs outside concessions, and the role of companies (who hold the concessions) versus third parties (who encroach within them), but it is imperative that action be taken to reduce sources of fire within concessions. Building upon existing regulations and punishments for non-compliance, this must include stricter enforcement; increased investment by concession holders in fire detection, prevention and response; and new models for proactive engagement with communities nearby concessions to mitigate risk of fire and mobilize coordinated response.

Finally, Hotspot Jurisdictions for fire and deforestation identified in Figure 2 would seem a logical geographic priority for action to reduce fires and deforestation. A list of priority jurisdictions is provided in Appendix 1. Some of these jurisdictions already have landscape or jurisdictional programs underway, offering existing platforms for engagement (e.g. Ketapang, Musi Banyuasin, Pelalawan, Berau). Others will require assessments to understand key drivers of fires and forest loss and especially to identify entry points for engagement with a coalition of actors.

The medium term goal should be to build out a multi-party approach in these jurisdictions that blends different, complementary forms of public and private sector action tailored to addressing the main drivers of impact in each jurisdiction. For such efforts to succeed, clear incentive mechanisms are needed to encourage investment in restoration and conservation and to reward success.

Building upon government action on sustainability

Central and regional governments will play a leading role in the decade ahead setting the direction of travel through policy and regulation; the pace of travel through budgets, incentives and support; and collective adherence to these directives through enforcement. Simply put, the goal of action by government over the coming decade is to extend, strengthen, and consolidate the policy reform efforts of the past decade that contributed to reducing deforestation and fires, accelerated recognition of community rights, and promoted wider sustainability in commodity sectors. Four critical areas for action to build upon recent progress include: acceleration of social forestry, both the formality of licensing and especially the scale up of capacity building for social, ecological and business enterprise management; growing the palm oil industry through intensification rather than expansion, by extending and strengthening moratoria on new licensing, expanding replanting support programs, and placing smallholder support at center stage; integrated, multi-layered support to Jurisdictional Approaches, to motivate and reward the build out of effective, accountable

structures for inclusive, multi-stakeholder approaches to governance, including conditional transfer mechanisms that reward progress at policy, program and impact levels in sustainability performance; and fostering growth in market demand for sustainability within domestic markets, including for palm based biodiesel.

Some recommended priorities for **action emerging from consultation** include:

- Continued pursuit of mechanisms to deepen cooperation among ministries, such as Ministry for Cooperatives and SME, Ministry of Agriculture, Ministry of Home Affairs, and Ministry of Villages, Development of Disadvantaged Regions, and Transmigration. This can support not only accelerated licensing but also various capacity building support initiatives
- Growth in recruitment and mobilization of technical experts to support business development of established Social Forestry Business Groups (Kelompok Usaha Perhutanan Sosial). This could be in the form of expert pools at the provincial level, available to support both SF and REDD+ related needs. Success stories should be promoted and replicated.
- Design, test and scale models for integrating sustainable commodities from SF enterprise into sustainable supply chains, facilitating size-appropriate private sector investment where feasible and desirable.
- Strengthen the existing Management Information Systems supporting SF and develop a network of regional Knowledge Centers to provide more accurate information, and to build out local centers of support.

²⁵ Field et al (2016) argue that being able to anticipate extended periods of <4 mm rain per day will be key, tying short-term weather forecasting to early warning alerts.

Some priorities to continue **promoting palm oil production growth through intensification** include:

- Maintaining established policy orientation toward (a) promotion of higher yields, and (b) restricting new development to areas where no impact is caused on forests, peat or HCV
- Facilitating cross ministerial cooperation to enable planting on degraded areas where reclassification of land use zonation might be required, including boundaries of Forest Zone
- Widening farmer access to government funded smallholder replanting support programs. Part of this could potentially be advanced through establishing a smallholder department/sub-directorate within the CPO fund to coordinate replanting efforts.
- Supporting the design, piloting and scaling of legal mechanisms by which so-called 'stranded assets' oil palm and forestry concessions could be converted to other revenue-generating, concession-based forest conservation enterprises, in coordination with local stakeholders. Where appropriate, this should include partial redistribution of land to communities to enable them to develop farms, especially where land has become limited near settlements.

Jurisdictional programs offer real promise for pursuing green growth objectives by removing bottlenecks that impede the flow of long term, responsible investment. Central government should offer **integrated, multi-layered support to promote JAs** in general, and to reward achievement where they're successful, including:

- Fiscal transfers and other result-based payments to jurisdictions via the TANE/TAPE/TAKE mechanism will play a critically important role incentivizing local governments to prioritize sustainable natural resources management and green investment.
- Highly forested provinces such as Papua and West Papua merit special attention in this context. They will need to be drawn into investing in forest conservation and compensated for the opportunity cost of foregoing large-scale investment in the land-use sector. This could include revision of the calculation of regional budgets to include forest cover as an additional factor, with highly forested provinces and districts getting additional development budget based on the forest cover they maintain.
- Central government should take advantage of the platforms offered by existing jurisdictional programs for delivery of the diverse forms of capacity building urgently needed to advance multiple sustainability objectives (e.g. village level planning, social forestry business management, smallholder training and inclusion, resolution of social conflict). This will support accelerated outreach and improve odds for success in the jurisdiction.

- **Essential Ecosystem Areas (Kawasan Ekosistem Esensial/KEE)²⁶** offer a pathway to widen conservation efforts outside of protected forest areas and facilitate integration of production forest and other land-use areas within integrated landscape conservation programs. This approach has been tested successfully in three jurisdictions to protect HCV areas and wildlife corridors, notably in the Wehea-Lesan landscape in East Kalimantan; Sungai Putri Corridor in Ketapang, West Kalimantan; and KEE Tambun to protect Maleo bird nesting grounds in Maleo, North Sualwesi. These initiatives followed a draft KLHK regulation on KEE and provide valuable experience and jurisprudence of the legal feasibility of KEE development. Finalisation and socialization of the legal framework for KEE could be a major breakthrough in supporting conservation and restoration as part of jurisdictional programs.

Priority steps that could be taken to foster growth in domestic market demand for sustainability are discussed more fully in the section that follows.

Finally, while continued policy action is, by definition, lead by government, the private sector should continue to engage proactively with government to adopt and expand policies and incentives that help make forest conservation and ecosystem restoration the norm within production landscapes. This advocacy needs to be directed in at least two areas. Private sector actors with their own conservation areas and stranded landbanks will need to advocate for legal mechanisms to ensure long-term protection of the remaining forested areas within their concessions. Where possible, this could include cooperation with

communities under social forestry schemes, which currently are not allowed outside the Forest Zone, where palm oil concessions are issued. The second is for continued promotion of policies that support private sector and community based investments to produce ecosystem service outcomes that are valued in the marketplace. This will help ensure long term business sustainability of social forestry and encourage continued private sector investments in ecosystem restoration, with projects contributing to jurisdiction wide performance targets.

Trends in regional and global markets

The concerns raised over market trends center mainly on the impact of growth in segments of market demand that do not require sustainability, and how this will affect decisions by producers to invest in expansion and/or wider sustainability. The goal of actions to address this should not be to discourage growth in palm oil demand, as some have argued. It has been shown that the land area required to meet future global demand for vegetable oil would be much smaller were it met through growth in palm oil production than other vegetable oils. Rather, our goal should be to encourage faster relative growth in market segments that encourage and reward sustainability, compared to those that do not. Two major areas of focus should be (i) shaping the demand growth and sustainability requirements for palm-based biodiesel, especially in Indonesia but also in the EU, and (ii) fostering growth in demand for sustainable products in the fast growing markets of Indonesia, China and India, through long term investments in building constituencies for sustainability in these countries.

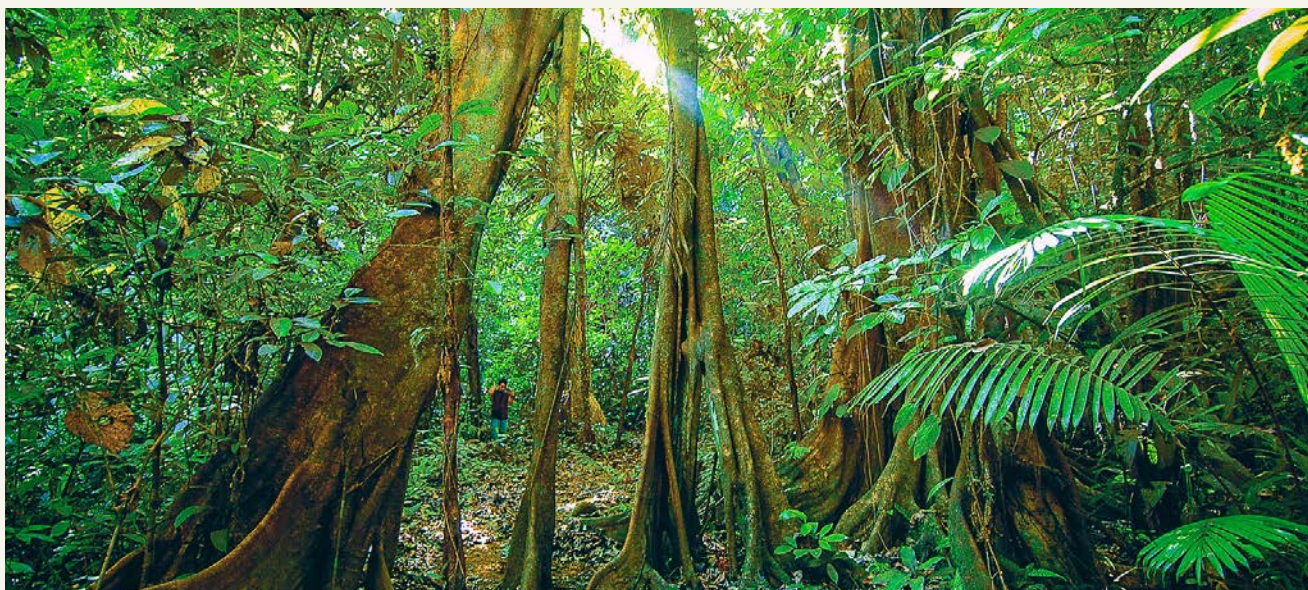
²⁶ A KEE is an ecosystem located outside of Conservation or Protected forest, possessing high ecological value to sustain biodiversity and support local communities' welfare and living conditions, which is established as a protected area. KEEs are defined in a series of regulations, notably Government Regulation No 11/2011 and Directorate General for Forest Protection and Nature Conservation (Perlindungan Hutan dan Konservasi Alam/PHKA) Decree No SK.151/IV/SET-3/2007

Expansion of palm oil-based biodiesel is a major policy objective for GOI over the coming decade, central to advancing a mix of macro-economic, energy and environmental policy objectives. Subsidies for production are being combined with mandates governing biodiesel blending in diesel fuels, which increased from 20% in September 2018 to 30% in January 2020, and planned increases to at least 40% in 2022. Promotion of palm oil-based biodiesel is also a key pillar of the National Action Plan (NAP) for sustainable palm oil, enacted by President Jokowi in 2019. At present, there are no explicit sustainability requirements for biodiesel producers to access subsidies. This presents a challenge but also an opportunity for advancing sustainability by creating a domestic compliance market. For example, requirements for responsible sourcing could be phased in over time, where: (i) by end of Year 2 producers must verify sourcing CPO from fully traceable and legal sources (with FFB traceable to origins), (ii) then by Year 3 fully ISPO certified sources, (iii) then by Year 5 only sources that are legal, ISPO certified and deforestation free and/or meet specified net GHG reduction levels. This would help stimulate domestic demand for

fully traceable, legal, ISPO certified materials, creating a market incentive (pull force) for ISPO certification, which has been lacking. In addition, one could imagine such a compliance market process in Indonesia being brought into the larger, multilateral EU-ASEAN Joint Working Group on Palm Oil, which was launched in January and will address a broad suite of issues linked to vegetable oil sustainability and EU market access for palm oil-based biodiesel under the EU Renewable Energy Directive II.

A second priority area of action relates to promoting growth in demand for sustainability in the rapidly growing markets of Indonesia, China and India. Building constituencies for sustainability in these consumers markets is a long term endeavor, but could deliver lasting, long term impact. There are several pathways for pursuing this.

Launched in 2018, the China Sustainable Palm Oil Alliance (CSPOA) is a partnership amongst RSPO, WWF, the China Chamber of Commerce of Foodstuffs and Native Produce (CFNA) and several brands, working to raise awareness among stakeholders about the RSPO and the value of driving



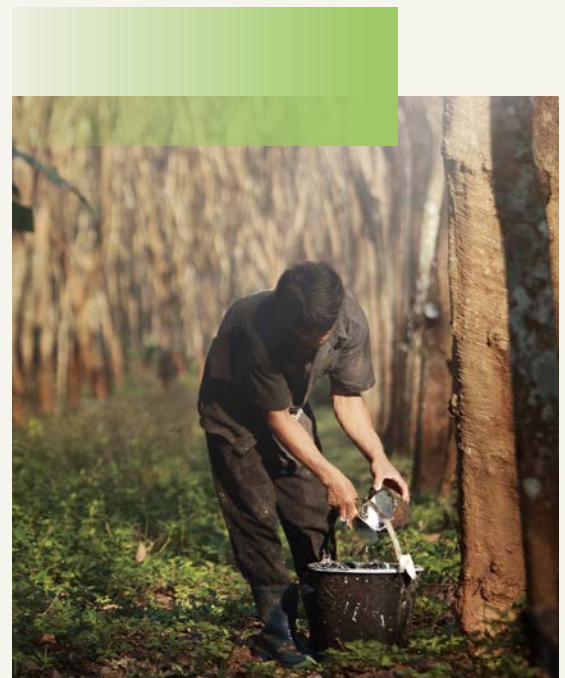
sustainability in the palm oil industry. CSPOA also encourages more Chinese companies to participate in transforming global markets to make sustainable palm oil the norm. Alongside CSPOA, the China Council for International Cooperation on Environment & Development (CCICED) launched in 2020 a policy study outlining objectives, approaches and investments required for greening soft commodity supply chains, including palm oil. The engagement platform offered by CSPOA and guidance for market transformation outlined in CCICED provide a foundation to build upon for promoting demand for sustainable commodities in China. These efforts should be supported and could potentially be expanded to include G-to-G engagement with producer countries.

In India, the Indian Sustainable Palm Oil Coalition (I-SPOC) was launched in 2019 to mobilize industry collaboration to promote sustainable consumption and trade of palm oil and its derivatives in India. Membership is multi-stakeholder, including the RSPO, brands, processors & traders, CSOs and members of the financial community. I-SPOC conducts outreach and awareness raising with industry, academics, government, civil society, consumers and youth organizations. It also promotes growth in production and consumption of RSPO certified oils. The I-SPOC platform offers an existing engagement platform to expand and diversify outreach for building consumer demand for sustainability in India.

In Indonesia, there are multiple initiatives encouraging growth in a domestic constituency for sustainability. For example, Hutan Itu Indonesia is a youth oriented initiative to deepen appreciation of the value of Indonesia's forests, by raising awareness through creative campaigns integrating music, visual and performance arts, including tailored outreach to Indonesia's urban youth. WWF

Indonesia's Beli Yang Baik initiative works to raise awareness and generate consumer demand for sustainable commodities, including palm oil. It is a wide ranging program to promote sustainable production and consumption, with increasingly sophisticated marketing campaigns active in a variety of sub-sectors from food to furniture to packaging. Finally, the RSPO is working in collaboration with diverse partners in Indonesia to build consumer demand for sustainability, as well as with RSPO member consumer goods manufacturers such as Super Indo, preparing to launch a series of food products that contain 100% certified sustainable palm oil.

These efforts, and others like them, are complementary, working to raise awareness and change perceptions, convert improved awareness into consumer demand in the marketplace, and then bringing products to market that give consumers a choice. Changes in consumer demand will be long term in coming, but the process is underway. Direct contributions to these initiatives and others will enable scaling of the efforts.



Smallholder inclusion, productivity and sustainability

Addressing livelihood and sustainability concerns for oil palm smallholders is a top priority for the coming decade. Goals of an action agenda can be stated clearly:

- **Increase farmer productivity & incomes.**
- **Professionalize farmer enterprise management.**
- **Help build social infrastructure for agribusiness success & value chain access.**
- **Expand formal access to finance.**
- **Integrate farmers more fully into sustainable supply chains.**
- **Mitigate the risk of undesirable social or environmental outcomes.**

Achieving these goals requires a multifaceted approach to address a complex of inter-related challenges. Smallholder farmers are the most diverse, most numerous, and least understood segment of the supply chain, making the design of programs to address their needs a complicated task. Advancing these goals will therefore require experimentation to determine how best to support and incentivize smallholders in ways that achieve livelihood goals while ensuring sustainability. Perhaps more than any other action agenda we highlight, progress on smallholders will depend critically on partnership based approaches. The good news is that experimentation and partnerships are underway, and momentum behind them is growing. Government will play a key role, at national and sub-national levels, and is preparing for this under Program B (Smallholder Capacity) and Program E (ISPO) of the National Action Plan. In addition, the palm oil supply chain, CSOs, financial institutions, sustainability associations, and entrepreneurs all have key roles to play. Progress will require every major stakeholder group, including farmers themselves, to make

targeted investments, individually and in partnership with others.

Training and capacity building in better agricultural practices, financial literacy and farmer organization will be absolutely critical to increasing farmer yields and incomes, professionalizing their operations, and strengthening the social infrastructure of farming. Training activities have expanded massively throughout Indonesia and Malaysia in programs lead by local government agencies, by palm oil producers, by CSOs or social enterprises, as well as collaborative programs between CSOs and government, upstream and downstream members of the supply chain, and donors, CSOs and producers. The RSPO actively supports training efforts through its smallholder training academies as well as farmer support facilities which emphasize farmer training and capacity building. Support for these activities must be continued and scaled up as rapidly and effectively as possible, ideally through place-based, partnership approaches that leverage the contributions of multiple local parties to achieve larger collective impact. Especially promising are programs designed to build local human and organizational capacity, as well as local enthusiasm to continue training activities post project funding. This will enable training programs to be sustained for longer periods, enabling knowledge to spread through locally rooted peer-to-peer learning networks.

Capacity building and training will improve yields and incomes, help professionalize operations, and strengthen the social infrastructure for sustainable farming, but to maximize the positive impact of these efforts, farmer access to finance must be expanded. The single most important role of the financial community in supporting farmers over the coming decade is therefore to increase access

to formal short term operational credit and long term capital for replanting. Much has been written on this subject already, making the challenges to accessing finance well understood. Solutions are what's needed in the coming decade. Short term operational credit can be made more widely available through regional banks working in collaboration with farmer cooperatives or in partnership with local traders and aggregators, who can leverage regular interaction with smallholders to reduce costs and share risks of lending. Innovative credit distribution mechanisms are emerging and some hold promise, e.g. through mobile agent-based branchless banking, or digital peer-2-peer lending tailored to farmers in Indonesia's rural economies. These innovative approaches hold immense promise for achieving financial inclusion at scale, especially short term credit, and can be expanded by supportive public sector policy, private sector investment and continued digital infrastructure for rural communities. Social entrepreneurs in this space should be actively supported.

Increasing access to long term capital for replanting presents bigger challenges, but options exist and can be tailored to local circumstances. All require the financial community to recognize that not all farmers are high risk borrowers. Proving this can be aided by wider adoption of digital transaction tools to generate documented income histories, or wider adoption of existing non-traditional credit risk assessment tools tailored to exactly this purpose. In addition, public-private partnerships will remain important to help de-risk investments during the initial 4-5 years following replanting until farms are generating significant revenues, and after which the risk of loan default falls sharply. Examples might include loan guarantees to de-risk years 1-5

of the loan, after which outstanding loan balances for groups of farmers could be repackaged and refinanced on more favorable terms. Government facilities such as partial grants made available via the CPO Fund could also be paired with commercial loans to subsidize loan interest rates, reduce loan amounts and/or as partial loan guarantees. Palm oil producers themselves can also play a role as guarantor of farmer loans, and can lead to positive outcomes for all parties involved, but this won't be the case in all places. Progress made in strengthening farmer organization to form groups, associations or cooperatives will facilitate access to long term finance by markedly lowering cost, mitigating risk and helping to meet minimum loan size requirements of conventional lenders.

Integrating farmers more fully into sustainable supply chains can be advanced along two parallel pathways. One is via certification under RSPO and, over time, ISPO as support facilities for the latter expand²⁷. The other is integration within NDPE supply chains operating outside certification. As noted in Part 2, RSPO's approach to small holder certification was thoroughly restructured in 2018, in ways that promote inclusivity, encourage step-wise progress toward full certification, with associated increases in rewards. Direct investments by the supply chain to support farmer certification will be key to enable certification based approaches to deliver on their potential for integrating farmers formally into sustainable supply chains. However, this must also be paired with action by government to address land certification and legality for farms developed in the Forest Zone where oil palm is prohibited. Failure to address this will inhibit progress on both ISPO and RSPO certification of farmers. Mindful that certification will not be feasible (or desirable)

²⁷ Under the new ISPO regulation, all farmers must become certified by 2025.

in all cases, farmers can still be integrated into sustainable supply chains through action by progressive palm oil companies and governments to engage farmers proactively in all of the training, capacity building, awareness raising and professionalization interventions described above, whether or not to certification is the ultimate goal. This will promote better practice and contribute to mitigating risk at larger scales, outside the scope of specific supply chains.

Finally, much of the work outlined above would be facilitated by bringing greater transparency to the informal, hyper-dynamic nature of third party FFB supply chains. Progress on TTP will help to unlock supply chain investment in farmers, by making clear which farmers/communities are linked to which supply chains. It will also lay groundwork for introducing accountability into the supply chain, indicating where mills are sourcing third party fruits and associated risks. It could also enable innovative ways for mills to communicate with, invest in and reward supplying farmers, integrating them into their supply chains more fully. Advancing TTP at scale will require stronger regulatory pressure on the upstream to know their third party supply chain (currently lacking), combined with robust technological solutions appropriate to the rural milieu.

Advancing social aspects of sustainability

The overarching goals of an action agenda to improve social accountability are to build a combination of push and pull forces that (i) increase the sources, forms and intensity of pressure to improve social performance and report publicly on this progress, (ii) facilitate and support improvements through provision of tools, approaches and technologies that

elevate visibility on the issues, mitigate risk of conflict and support resolution of conflicts that occur, and (iii) reward improvements.

This is another impact area where partnership approaches will be key, especially collaboration among peer companies to pursue coordinated approaches to improve social performance in the upstream, and to support government lead efforts to maximize the social benefits of expanded commodity production in a post COVID environment. Central and regional governments will be key drivers of change in social performance over the coming decade, much as they were for environmental impacts over the past decade. Two key channels for government leadership will be (i) to set the tone through clear messaging that draws attention to social performance as a co-equal priority alongside environmental and financial aspects of sustainable commodities, and (ii) to drive change directly, by creating pressure through regulatory and enforcement actions that demand action, alongside support facilities to help resolve conflict when it arises, especially in relation to land. The importance of prevention and resolution of land conflicts, in particular, is recognized by government, and was made one of five key pillars of the National Action Plan, indicating government support can and should be expected at central and regional levels.

CSOs, especially local and national organizations, will continue to play a wide and varied role to drive improvements in social performance. One role for CSOs will be to continue monitoring and reporting incidents when they occur, to elevate profile and create pressure for fair and timely resolution. In the decade ahead, the ability of labor, farmers or community members to report social incidents could be revolutionized by emerging digital technologies for networked communications

between an aggrieved party, companies and outside parties (e.g. government or CSOs) to report social incidents when they occur. Pilot application of these technologies to augment vital on-the-ground work by CSOs should be a priority. A second key role of CSOs will be to continue work on raising awareness among labor, farmers and wider communities about their rights and options for redress or restitution when incidents take place. This work could also be scaled significantly through use of digital technologies. A third area highlighted in the study is for CSOs, especially local ones, to become more active in local partnership based approaches among communities, government and companies to build local social capital proactively, especially where CSOs bring capacity that is lacking in other stakeholder groups. Examples include promotion of diversified livelihood programs in areas where pressure on forests is increasing, community organizing for collective engagement in land mapping and village land use planning, especially at the interface with concessions, and integrated farm and fire management programs, to name a few examples. Such activities are viewed as holding potential to shift the tone of interactions between CSOs and companies away from ad hoc conflict resolution dynamics toward more proactive, partnership based approaches to co-delivering positive local impacts.

Buyers/refiners and brands must continue their work elevating the profile of grievances within their supply chain, maintaining pressure on suppliers to resolve grievances that arise, and reporting transparently on the progress of efforts to resolve them. Placing social non-compliance on co-equal footing with incidents of deforestation, peat development or fires will be key to driving progress by intensifying the push force for change originating from the supply chain.

Continued strengthening of the RSPO grievance resolution mechanism will further intensify pressure for improvements in social performance among RSPO members, which is not uniformly good. The impact of this measure would be vastly improved if the grievance mechanism were broadened to include conflict within operations linked to RSPO members through related party, beneficiary ownership.

Finally, we strongly encourage the financial community as a whole to place elevated importance on social performance expectations through: (i) enhanced ESG programs for lending or investment, including more thorough use of social auditing, (ii) expanded use of conditional lending through SLL mechanisms, with loan terms contingent on verified social compliance with agreed targets, and (iii) applying more rigorous use of strict, timebound corrective action requirements for their clients when failures in social performance are made known. This is best pursued through both collective action, to pool resources and co-develop shared tools and approaches that can be applied uniformly by the sector as a whole, and individual action, to ensure more robust social accountability programs are integrated into standard lending and investment practices of individual companies. Opportunities for integration of such actions within relevant work programs of the Indonesian Sustainable Finance Initiative should also be pursued, as a platform for achieving wider adoption across Indonesia's financial community.

Accelerating progress among small and medium producers

Like above, the overarching goals of an action agenda to accelerate progress among small and medium producers is to strengthen a combination of push and pull forces that (i) increase sources and forms pressure to

improve sustainability performance, (ii) elevate visibility on cases of non-compliance, and (iii) reward improvements when they occur. We view the financial community, central and regional governments, and buyers/refiners as playing important roles, with CSOs and brands in important support roles.

Actions taken by the financial community will be key. Upstream development in the palm oil sector is highly capital intensive, with plantation establishment ranging from \$3,500-5000 per hectare depending on conditions, and mills from US\$8-12M or more depending on size. Total capex for a typical mill (30 ton per hour capacity) and supplying plantation (~6,000 ha) typically reaches US\$30-35M. This makes the upstream highly dependent on outside finance, and thus responsive to sustainability demands for accessing it, especially smaller producers with fewer internal finance options than large producers. Regional banks in Indonesia and Malaysia are especially important sources of finance for small and medium producers. These banks need to be encouraged to move as a whole toward strengthening ESG controls, leveraging the enabling environment created by regulators and central banks to promote more responsible lending practices. This should include improved due diligence, ideally applied at a group level where applicable, and time bound requirements for improvement to issue finance. Alongside more robust ESG procedures, increasing use of performance-based Sustainability Linked Loans (SLL) offer a tool that could be deployed more widely. Conventional SSL are designed to motivate change by rewarding agreed upon improvements to sustainability with declining interest rates, but a novel one uses a more stringent compliance-based approach, with continuation of the lending facility itself contingent on the borrower meeting

sustainability targets. A combined carrot-stick approach to SLLs could be especially promising to drive progress among small and medium producers.

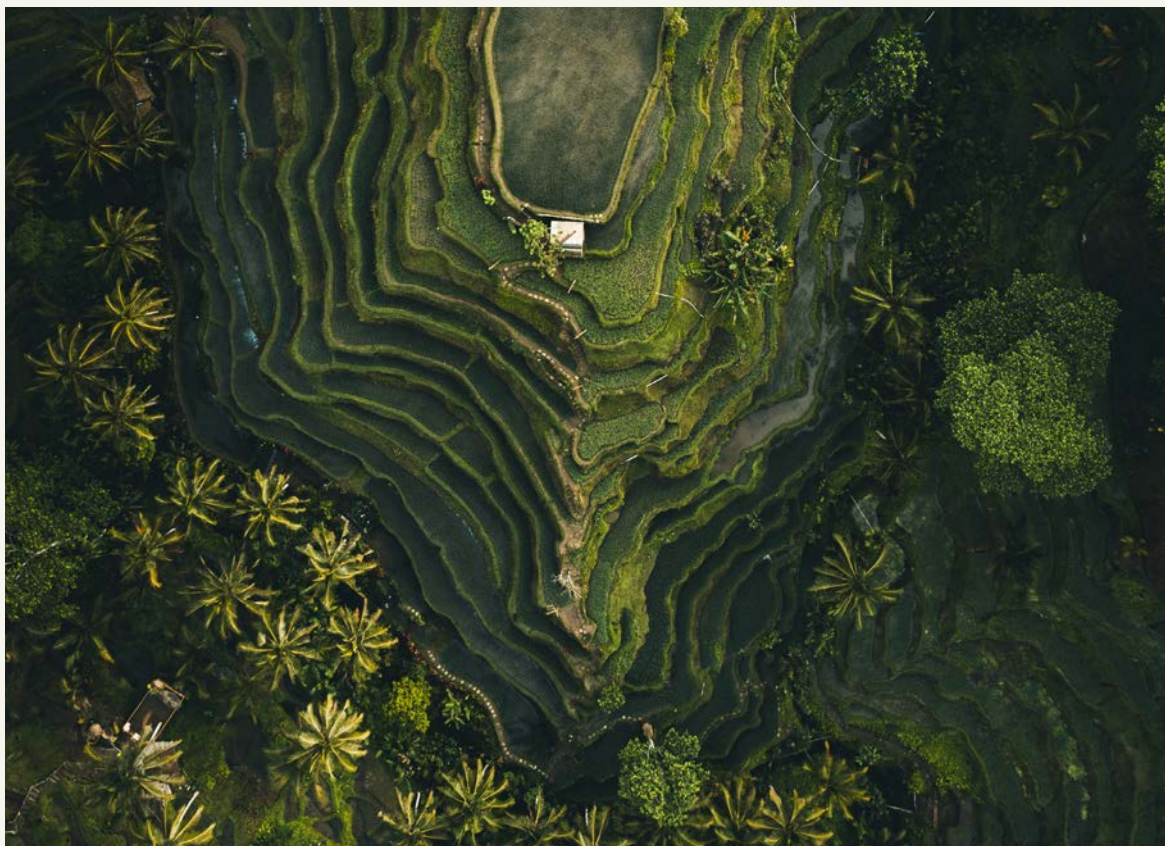
On the investment side, Indonesia, Malaysia and Singapore based members of Principles in Responsible Investment (PRI) initiative should work collaboratively to support meaningful adoption and implementation of ESG practices among wider segments of the investment community. Such cooperation could take the form of growing PRI membership, peer-to-peer partnerships, or collaborative approaches with regional CSOs and other organizations, such as under the Indonesian Sustainable Finance Initiative. Regional institutional investors active in the sector, such as Malaysia's Kumpulan Wang Persaraan (KWAP), can also work more proactively with global investors holding regional investments to deepen their understanding and awareness of sustainability issues and how to leverage their influence to drive change.

Alongside private sector action, intensified efforts by central and regional governments to scale the impact of regulatory approaches to sector wide improvements can drive performance improvements by producers of all sizes. One leading opportunity is for government to take a robust approach to implementation of the revised ISPO requirements, which now apply to all producers. ISPO is one of five pillars of Indonesia's National Action Plan for Sustainable Palm Oil which will offer new channels for support and enforcement of ISPO requirements. Such channels enabled by NAP should be utilized to their maximum potential by central and regional authorities. One promising opportunity created by NAP is the planned cascading approach to implementation through District Action Plans (DAP), such as those being implemented by Sintang district in West Kalimantan, and in

development for Pelalawan district in Riau, among other jurisdictions. DAP are designed locally through participative mechanisms allowing for implementation plans tailored to local conditions, priorities and modes of enforcement, while still advancing all major pillars of the NAP. Under DAP, local officials take leadership for implementation, yet remain accountable to central authorities to demonstrate progress. This should motivate local authorities to be more proactive about driving progress among producers in their jurisdictions, especially if jurisdiction wide certification could be rewarded through conditional fiscal transfer mechanisms described above.

Finally, buyers and refiners, as well as downstream brands, must maintain their commitment to proactive engagement with suppliers of all sizes to build capacity and require timebound, verifiable improvements.

Supply chain consolidation being adopted by some companies makes sense for individual supply chains, but it's most likely impact will be to elevate the bar further for top performers, not raise the floor for industry as a whole. We urge buyers retain their commitments to wider supply chain interventions but begin approaching it through a collective lens. This could include utilizing common tools for monitoring and information sharing, aligning their requests to laggard performers, or more ambitiously, it could entail multiple companies identifying supplier groups and/or geographies of shared priority, then co-developing and implementing engagement programs to drive progress together. This approach might be most suitable for collaboration between midstream buyers and their downstream customers, but over time should also be adopted by peers competing at the same point in the supply chain in order to be more effective.



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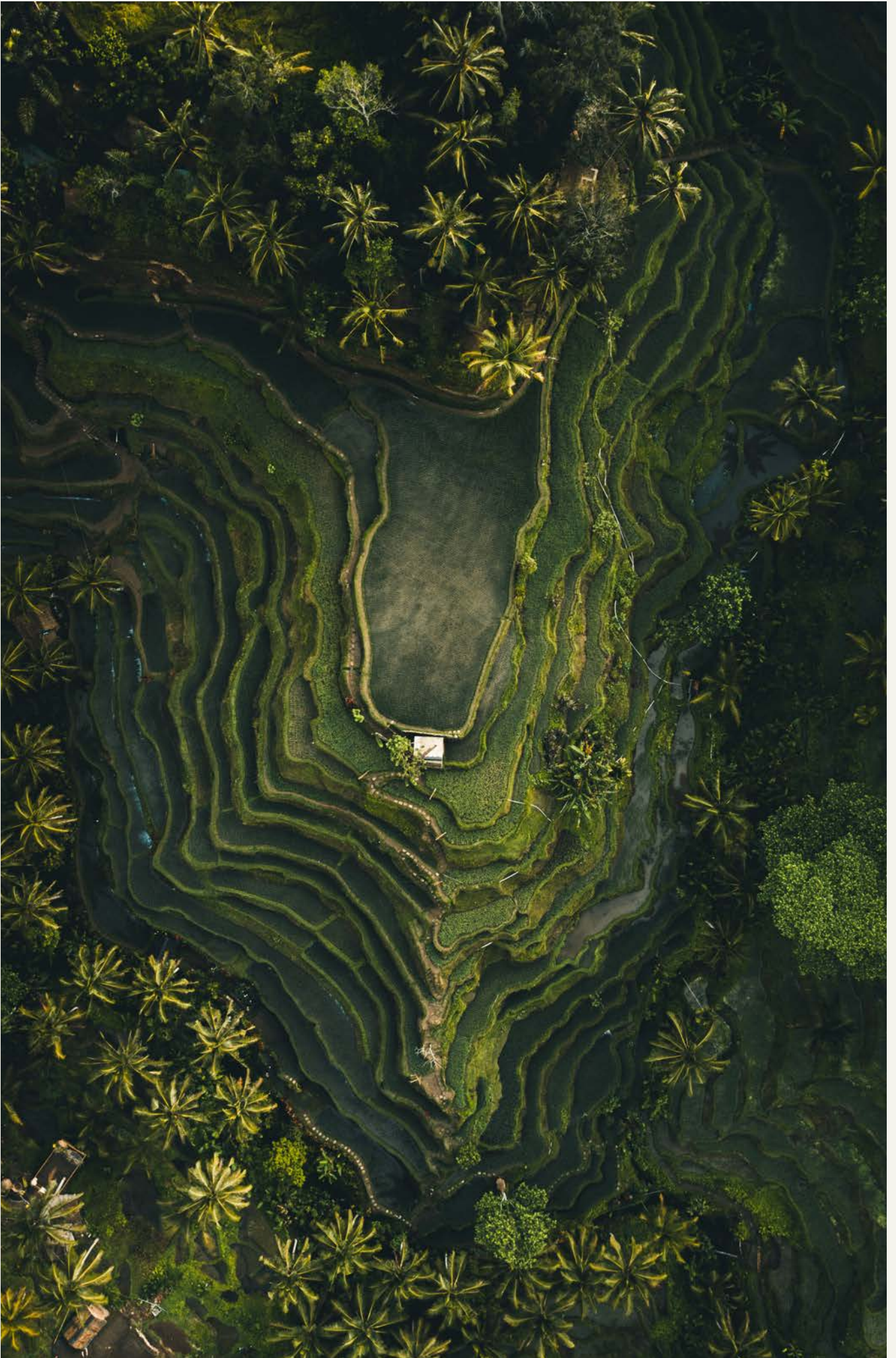
About:



The Tropical Forest Alliance (TFA) is a global multistakeholder partnership platform initiated to support the implementation of private-sector commitments as well as to amplify demand-side engagement in major economies towards the transition to reduced deforestation commodity supply chains. Hosted by the World Economic Forum and together with the alliance of 170+ organizations - companies, government entities, civil society, indigenous peoples, local communities and international agencies - TFA works to catalyze high impact Forest-Positive collective actions to address the inherent tensions that exist from aligning economic growth and environmental protection. TFA operates regional platforms in Latin America, West and Central Africa, China, and Southeast Asia.



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