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Commodities and Forests Agenda 2020:

Ten priorities to remove tropical deforestation from commodity supply chains

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Contents

Executive Summary

To avoid the worst effects of global climate change, it is imperative to halt deforestation. To have a chance of limiting temperature rises, as outlined in the Paris Agreement on climate change, emissions from land use must peak by 2020 and then decline. Eradicating deforestation in tropical regions would represent a crucial step towards that goal. The destruction of forests creates almost as much greenhouse gas emissions as global road travel and yet it continues at an alarming rate, with an area equivalent to the size of South Africa lost between 1990 and 2015.

A movement has emerged to eliminate, by 2020, the deforestation that is embedded in global agricultural supply chains. Commercial agriculture is responsible for well over half of all deforestation, with land cleared to produce commodities that end up in our everyday consumer products. By September 2017, more than 470 leading businesses had made voluntary commitments to reduce or eliminate deforestation in their supply chains, through improvements in production and sourcing practices. Back in 2010, the Consumer Goods Forum pledged to achieve zero net deforestation by 2020 in beef, soy, palm oil, pulp and paper supply chains. In 2014, more than 190 government, non-governmental and corporate entities committed to the elimination of all deforestation driven by agricultural commodities by 2020 by signing the New York Declaration on Forests.

Yet this movement must intensify its efforts, if it is to meet its goals. Despite strong momentum, independent assessments indicate that the international community will miss its target of eliminating commodity-driven deforestation by 2020 if efforts are not increased and accelerated. This report—*the Commodities and Forests Agenda 2020*—lays out 10 priority areas that company executives, policy-makers and civil society leaders should focus on in order to accelerate progress in addressing commodity-driven deforestation. The 10 priorities for action are:

1. Eliminating illegality from supply chains

Businesses have a substantial opportunity to help eradicate deforestation by eliminating illegality from their agricultural supply chains. Illegal forest clearance is responsible for almost half of all tropical deforestation. Compliance with Brazil's Forest Code alone would save 150 million hectares of tropical forest and lead to an increase in forest cover of more than 15% by 2050. Ultimately, strengthened policy, better legal frameworks and effective law enforcement are the responsibility of governments, but companies can support these efforts by improving the way in which legal compliance is monitored in their own supply chains.

2. Growing and strengthening palm oil certification

The expansion and strengthening of palm oil certification is critical to the success of sustainable supply chains. Palm oil is a major cause of deforestation, particularly in South-East Asia and West Africa and substantial effort has gone into the development of sustainable palm oil certification. At present, the Roundtable for Sustainable Palm Oil (RSPO) certifies 21% of the global palm oil market, the highest penetration of any sustainable certification programme. Certification is the primary means by which companies meet their commitments to eliminate deforestation from palm oil supply chains. To further grow certified supply, it is now essential that demand is increased. Consumer countries and companies should commit to the purchase of certified palm oil. At the same time, palm oil certification programmes and their application need to made stronger in order to improve their integrity and environmental impact.

3. Scaling up pilot programmes of sustainable intensification of cattle grazing

Pilot programmes in South America show that well-managed sustainable intensification methods can improve yields and profitability of livestock systems, while sparing land and reducing deforestation pressures. Demand for beef is growing, and its production causes more deforestation than soy, palm oil, timber, pulp and paper combined. Increased investment is needed to greatly expand existing pilot programmes and roll out intensification on a wider scale. A lack of qualified labour, ingrained habits and behaviours, along with upfront costs, will need to be overcome, but production costs are expected to fall when intensification is scaled up. At the same time, support for law enforcement and forest management and protection is needed to drive out illegal forest clearance and to redirect incentives away from programmes that encourage low-yielding beef production.

4. Sustainably increasing smallholder yields in palm oil and cocoa

Closing the yield gap for smallholder producers of palm oil could spare millions of hectares from deforestation. More than one-third of palm oil is produced by smallholder farmers who often lack access to credit, technology and training. With technical and financial assistance, these operations have great potential to raise their yields to global standards without a detrimental effect on the natural landscape. Managed well, these productivity increases could even free up land for other crops, or reforestation. For that to happen, existing investment barriers that prevent the adoption of best practices must be removed, while greater aggregation, risk management and training can help to boost yields at smallholder plantations. Similar solutions that close yield gaps and support sustainable intensification are also needed to remove pressure placed on forests by cocoa production in West Africa.

5. Achieving sustainable soy production

Multistakeholder initiatives are urgently needed to tackle the problem of soy-driven land conversion in South America. Global demand for soy is rising and production is expanding rapidly, making it one of the main causes for the destruction of natural ecosystems in that region. Between 1990 and 2010, soy was responsible for the loss of approximately 29 million hectares of natural landscapes in the Brazilian Cerrado alone. Collaborative initiatives supported by companies, civil society and governments can help to ensure that production occurs without further landscape conversion.

6. Accelerating the implementation of jurisdictional programmes

Many tropical forest jurisdictions—both national and sub-national—have started to define and implement climate and forest programmes that integrate land planning, sustainable forest management and commodity production in order to achieve sustainable rural development. Collectively, these jurisdictions encompass between 10% (beef) and 40% (soy) of the global production of forest-risk commodities. Early results are encouraging, but these efforts need to be strengthened and accelerated with more public and private sector support. Jurisdictions with more advanced programmes can serve as models for other countries and regions, so that more private sector commodity commitments can be incorporated into government-led programmes.

7. Addressing land conflicts, tenure security and land rights

A correlation exists between clear and uncontested land rights and forest protection. In many tropical forest countries, uncertainty over

land registration and titles hinders investment in more sustainable land practices. Land conflicts and overlapping claims, for example agricultural concessions that have been granted over community land, encourage deforestation. Assigning formal land titles is particularly relevant for land traditionally occupied by indigenous peoples and local communities. Studies in South America have found deforestation rates that are between 6 and 350 times lower in forests legally recognized as belonging to indigenous peoples and local communities. It is, therefore, essential to accelerate land registration efforts and put in place effective and fair conflict resolution mechanisms for competing land claims.

8. Mobilizing demand for deforestation-free commodities in emerging markets

Emerging markets are the largest importers of forest-risk commodities and their engagement is, therefore, critical to the success of zero-deforestation initiatives. China is the world's largest importer of soy, pulp and paper products, the third largest importer of palm oil and is projected to become the world's second-largest importer of beef within the next five years. India is the world's largest importer of palm oil products. An increasing number of initiatives in emerging economies indicates a readiness for engagement and improved coordination and cooperation among stakeholders across consumer and producer countries. Commodity supply chain stakeholders must support greater engagement with Chinese and Indian companies and governments to encourage more sustainable supply chains.

9. Redirecting finance towards deforestation-free supply chains

The amount of finance available for sustainable commodity production today dwarfs the quantity of investment that is deployed into traditional agricultural production. It is, therefore, essential to redirect existing financial flows towards sustainable agricultural production. The shift towards deforestation-free agricultural commodities can create new and profitable investment opportunities, while mitigating reputational and stranded asset risks. Appropriate investment criteria and risk management policies, combined with subsidy reform, especially in agricultural credit, can help. However, investment in sustainable production is often hampered by unfamiliar risks, upfront costs and a limited understanding of regional characteristics. Dedicated public finance and impact investment that covers the costs and risks of transition towards better management and sustainable agricultural practices is needed in order to pilot innovative financing models.

10. Improving the quality and availability of deforestation and supply chain data

The past decade has seen enormous advances in the availability of information on deforestation and forest loss. Yet supply chain companies and other stakeholders are just beginning to develop effective systems to use this information in support of the implementation of zero-deforestation commitments. Similarly, civil society initiatives and improved mapping technology have led to better monitoring in countries such as Brazil and Indonesia, but further advances are needed to fully capture their potential in supporting sustainable land use decisions. More data must be collected and publicly shared so that governments and companies can target and monitor their activities more effectively. An agreement on a common set of definitions, including "forests" and "zero net deforestation" is also needed to ensure comparability and accountability across supply chains.

The *Commodities and Forests Agenda 2020* summarizes the areas in which most urgent action is needed to eliminate deforestation from global agricultural supply chains. Concrete action plans will need to be designed for the local context and incorporate national and regional priorities. Moreover, if long-term sustainability is to be achieved, these areas will need to be supported by efforts to support the broader sustainable development of rural communities that operate at the fringes of tropical forests and by efforts to transform consumption patterns that reduce the global footprint of agricultural supply chains. However, understanding the importance of addressing these long-term concerns should not be a reason to delay action on the commodities and forests agenda.

The Need for a Common Vision on the Path to 2020

Tropical forests are disappearing at an alarming rate. Forests provide livelihoods and jobs to hundreds of millions of people, as well as habitat for almost half of the world's species. They are also regulators of local climate and their ability to store carbon means that they are essential in addressing climate change. Satellite-based measurements show that the annual rate of natural forest loss increased 9% between 2011 and 2014, compared to the period between 2001 and 2010.[1] Furthermore, the Global Forest Resource Assessment of the Food and Agriculture Organization of the United Nations found that 129 million hectares, about the size of South Africa, were lost between 1990 and 2015.[2] In total, deforestation and forest degradation are responsible for almost as much greenhouse gas emissions as global road travel.[3] Recent studies suggest that between 53% and 80% of global deforestation is due to agriculture, the largest part of which is caused by commercial agriculture in just a few commodities and geographies.[4]

Beef, soy and palm oil production have the largest impact on tropical forests; together, they account for 36% of all tropical deforestation.[5] South America and South-East Asia are particular commodity-driven hotspots, with Brazil and Indonesia alone responsible for 44% of tropical deforestation. However, forest loss in many West African countries and the Congo Basin is also alarmingly high. As a continent, Africa accounts for 18% of tropical deforestation, with West Africa and the Congo Basin accounting for 10%.[6]

Reducing deforestation is essential to meet the climate goals of the 2015 Paris Agreement. Limiting global warming to well below 2° Celsius above pre-industrial levels requires urgent action. To have at least a 50% chance of meeting the Paris climate goals, greenhouse gas emissions from the land sector must peak and decline by 2020.[7] This includes a dramatic reduction in deforestation. Action in the land sector must be immediate to ensure that climate change goals are met alongside food security and biodiversity targets.

The good news is that an increasing number of governments and companies have confirmed their intent to eliminate the deforestation that is embedded within agricultural supply chains. The UN's Sustainable Development Goal 15 promotes the sustainable management of all type of forests and aims to halt deforestation by 2020. Meanwhile, the 400 member companies that make up the Consumer Goods Forum have committed to eliminate deforestation by 2020 in four key supply chains and more than 190 governments, non-governmental organizations and businesses have endorsed the New York Declaration on Forests (NYDF), which adopted the goal to eliminate deforestation from agricultural supply chains by 2020.[8] By September 2017, more than 470 companies had made voluntary commitments to reduce or eliminate deforestation from their supply chains, through improvements in production and sourcing practices.[9]

However, despite a rapid increase in pledges and government efforts to reduce deforestation, no clear evidence exists that the various initiatives have the intended impact. Companies and governments face barriers and setbacks, including weak local governance, problems tracing the source of the product, insufficient integration of supply chains and difficulty involving smallholders. Increasing exports to countries that are less sensitive towards sustainability concerns limits the impact of existing supply chain commitments.

The *Commodities and Forests Agenda 2020* summarizes the strategic priorities that must be addressed to eliminate tropical deforestation from beef, soy and palm oil production. The Agenda is intended to help government officials, corporate and civil society leaders identify organizational goals and provide

leadership in implementing strategies that address the problem of commodity-driven deforestation. It supports a coordinated and cooperative approach towards action by the public and private sectors in addressing tropical deforestation. However, it is not intended to prescribe solutions to the issues it identifies. Instead, the Agenda prioritizes areas that require urgent action.

The Agenda focuses on the commodities that pose the largest deforestation threat—namely, beef, soy and palm oil, with some consideration of cocoa, pulp and paper. This limitation does not imply that deforestation caused by the production of other agricultural crops, such as rubber and sugar cane, does not warrant action.

The Agenda reflects the views of more than 250 stakeholders, following extensive consultations facilitated by the Tropical Forest Alliance 2020 (TFA 2020). The Agenda is backed by a data-driven assessment of priority areas with the biggest potential to reduce commodity-driven deforestation. It proposes a number of generally applicable and commodity-specific recommendations that are mutually supportive and interlinked. Many of the activities outlined in the Agenda depend on a number of complementary actions targeting different actors and related, or underlying causes, of deforestation. The Agenda aims to help stakeholders coordinate such actions.

Commodities and Forests Agenda 2020

1. Eliminating illegality from supply chains

Companies are currently pursuing legality within supply chains, but could play a more active role. Compliance with existing forest laws alone could save almost 200 million hectares of natural forest in Brazil and Indonesia and lead to substantial increases in forest carbon stocks. Compliance with these laws will not be enough to halt the deforestation associated with agricultural commodities, but would make a crucial contribution. Full compliance with Brazil's Forest Code, for example, would save 150 million hectares of tropical forest and lead to an increase in forest cover of more than 15% by 2050.[10] Meanwhile, effective implementation of the moratorium on new concessions in primary forests and peatlands in Indonesia would protect 42.5 million hectares in the next 10 years.[11] Combining a private sector push towards compliance with strengthened policy and legal frameworks would, naturally, make these gains even more significant.

Illegal clearance for commercial agriculture has driven almost half of all tropical deforestation in recent decades. Despite strong legislation in many countries, enforcing it is challenging and deforestation has continued at alarming rates. Two-thirds of all illegal forest conversion between 2000 and 2012 occurred in Brazil and Indonesia.[12] Extensive illegal deforestation is also prevalent in other Amazon countries, such as Peru and Bolivia, as well as South-East Asian and Pacific countries, such as Lao PDR, Papua New Guinea and Cambodia.[13] In Africa, high rates of illegal deforestation also exist in a number of countries, including Cameroon and the Republic of the Congo, although a much smaller share of this is associated with commercial agricultural production.[14]

The prevalence of illegal deforestation fundamentally undermines the ability of tropical forest countries to simultaneously promote agricultural development and manage and protect their forests. Almost all tropical forest countries participating in international initiatives to reduce emissions from deforestation and degradation (REDD+) cite illegality and lack of enforcement as significant factors underlying deforestation and a majority identify them as barriers to the successful implementation of programmes.[15] A number of companies have reported that incoherent forest legislation, combined with insufficient implementation of regulations, makes it harder to ensure legality in supply chains.[16] Many smallholder farmers face similar issues, which may be amplified by a lack of ability to understand and comply with legal requirements. In many countries, particularly Africa, a lack of alignment between statutory laws and local customary laws complicates matters further. Moreover, where illegal forest clearing and land grabbing are widespread, companies and smallholders seeking to follow the law are put at a competitive disadvantage.

Past evidence shows that stronger law enforcement is feasible and can have a major effect on deforestation levels. The Brazilian government's coherent action to address the illegal conversion of forests for commercial agriculture during the first decade of this century is widely regarded as one of the most important steps towards the 70% decline in deforestation rates since 2004.[17] In Indonesia, a number of factors have contributed to the limited success of its forest moratorium, including conflicts with other laws, lack of awareness and technical guidance at the local level, the use of conflicting data sets and the absence of a credible penalty system.[18] In several African and South-East Asian countries, governance challenges have hindered the development of effective processes to ensure legality in timber production.[19]

Additional efforts are necessary for companies to promote traceability, monitoring and legal compliance through their supply chains. Of the companies that have their deforestation commitments tracked via the Supply

Change initiative, 63% have pledged to ensure legality in their supply chains.[20] However, these commitments take different forms and vary in stringency and level of implementation. Some do not exclude all types of illegal activity and others only apply to future activities and do not address past illegalities.[21] There is also insufficient information on how actively these pledges have been implemented and many companies do not have a rigorous system for monitoring compliance with legality criteria.[22]

2. Growing and strengthening palm oil certification

Certification programmes can help companies meet supply chain commitments, but they need to be expanded and strengthened to be effective. Certification is particularly promising in the palm oil sector where implementation has already reached critical mass. Action to address deforestation driven by palm oil production is urgently needed, however, as it remains a major cause of global deforestation, leading to an annual average forest loss of 300,000 hectares.[23] The main palm oil deforestation hotspots are located in South-East Asia and West Africa.[24] Production is dominated by Indonesia and Malaysia, which provide more than 80% of global supply. However, production is expanding rapidly in several other countries, particularly Thailand, Nigeria, Colombia and Cameroon. Organizations such as the Roundtable on Sustainable Palm Oil (RSPO) certify about one-quarter of the global palm oil market; although significant, this is not yet enough for transformative change. Currently, 2.5 million hectares of global palm oil production are certified, of which 1.8 million hectares are in Indonesia.[25] As the largest certifier of sustainable palm oil, the RSPO has significant reach. However, if palm oil certification is to have maximum effect on deforestation levels, an increase in demand for certified supplies and improvements in certification requirements are needed.

Demand for certified palm oil falls short of existing supply and is insufficient to drive further certification among palm oil producers. Almost 60% of the 629 companies assessed by Supply Change that depend on palm oil have made public commitments to source it sustainably.[26] Most rely on certification to meet those commitments and, in 2014, certified demand grew more than supply as a percentage.[27] While this growth is a positive sign, production of sustainable palm oil still outstrips demand. The imbalance between demand and supply dampens incentives for further certification. In 2016, RSPO certified more than 11 million tons of palm oil, of which only 6 million were sold. This gap is partially due to a lack of proportional effort from buyers to match the effort put in by growers to increase certified supply.[28] However, it is also due to logistical challenges in a complex supply chain that needs to create better connections between buyers and sellers.[29]

Major importers can support and increase certification by demanding certified palm oil and providing support and incentives to suppliers. Global demand for palm oil has grown at an annual rate of more than 8% in the past three decades, with almost 60% of consumption occurring in the European Union (EU), India and China.[30] Increases in demand are largely driven by biofuels policies, rising global populations, accelerated economic growth and dietary changes. For example, palm oil replaces other vegetable oils as a source of biofuel in the EU, while the market for processed foods in China is growing.[31] In 2015, six EU countries signed the Amsterdam Declaration in Support of a Fully Sustainable Palm Oil Supply Chain by 2020, which commits their governments to support private sector efforts to achieve 100% sustainable palm oil supplies in Europe.[32] The EU imports 11% of the world's palm oil, and its Renewable Energy Directive has set a target of at least 10% of transport fuels coming from renewable sources by 2020.[33] As of 2014, palm oil was meeting 45% of that target.[34] While the Directive's requirements aim to prevent forest loss, more could be done to ensure traceability and enforcement of sustainable production. European countries could also enhance their efforts to reach out and invite other countries, in particular China and India, to join the Amsterdam Declaration.

As well as raising demand, certification guidelines must be updated to improve forest protection. RSPO has guidelines for sustainable procurement and production,

including standards for forest conversion and new plantings. Its current certification safeguards 780 million hectares of global primary forests, of which 47 million hectares are located in Indonesia.[35] Research indicates that while certification can lead to reduced deforestation, it fails to reach some of the most important stakeholders, particularly those that operate illegally and at the fringes of tropical forests. Certification also tends to favour the protection of primary forests.[36] If the standard were to include other categories, such as secondary or plantation forests, the effect on conservation would grow. This is especially true in West and Central Africa, an emerging frontier for palm oil, where at least 2.6 million hectares of plantation projects are planned or underway across 10 countries.[37] The RSPO is taking steps to improve its certification, having introduced RSPO NEXT in November 2016.[38] This next level of voluntary standard provides additional criteria for producers and mills that have already met the RSPO's baseline certification requirements and includes "no deforestation, no peat and no fire". Complementary initiatives, such as the Africa Palm Oil Initiative, support a set of regional principles for responsible palm oil development, taking into account national development plans.

3. Scaling up pilot programmes of sustainable intensification of cattle grazing

Demand for beef is rising and new strategies, such as sustainable intensification, are required if yields are to improve without further deforestation. Beef production has the single largest deforestation footprint, clearing two million hectares in 2011—more than soy, palm oil, timber, pulp and paper combined. While deforestation for pasture-based beef production is partly motivated by other economic considerations, such as land speculation, research points to a correlation between pasture expansion and beef prices.[39] Current reports indicate that, after a period of sharp decline in deforestation, increases in the levels of beef production and forest clearing can be partially attributed to a spike in prices.[40] The pressure on forests will continue to rise since Brazilian beef exports are growing, increasing almost five times between 2000 and 2013.[41] Brazil is the second-largest producer of beef after the United States and sells 20% of its production overseas, making it the largest beef exporter.[42]

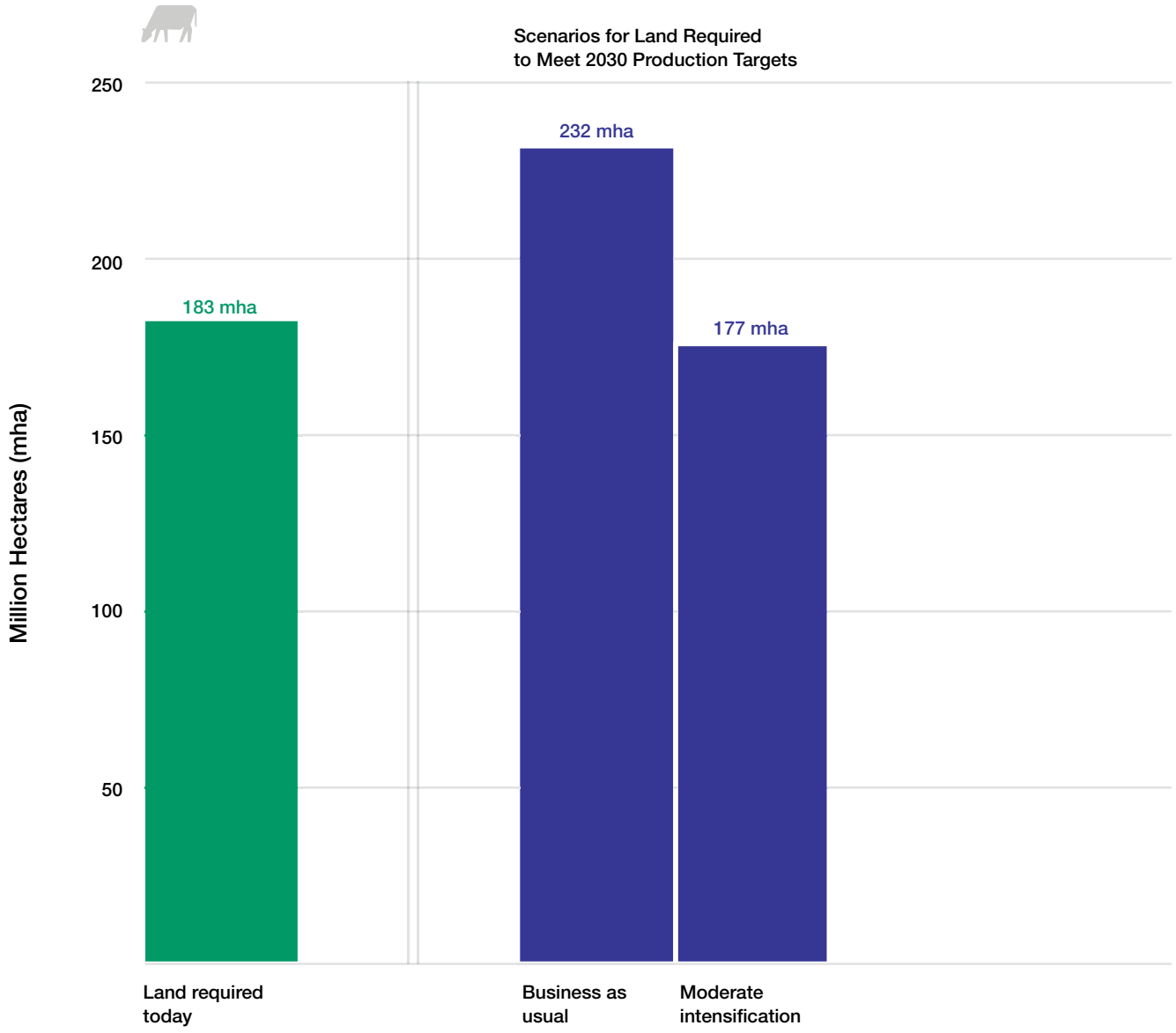
Beef production in South America is mostly characterized by large pasture areas with few animals per land unit and by limited, poor land management. Current pasture productivity in Brazil is very low, at one-third of what could be considered sustainable. With demand for beef continuing to grow, the risk of further deforestation is also increasing.[43] Extensive cattle farms rely on grazing on unmanaged pastures, which provides farmers with little economic gain and results in severe degradation of pastureland. Some 85% of Brazil's cattle farms rely on this process, which has left about two-thirds of its pastureland degraded.[44] This degradation is often caused by poor land management, leading to overgrazing, inadequate grass regeneration, changes to the physical properties of the soil and weed invasion. Other negative environmental effects are common, such as water degradation, loss of biodiversity and greenhouse gas emissions. Sustainably intensifying production by controlling these issues and maintaining healthy levels of soil fertility can maximize land usage.[45]

If properly managed, intensification can increase income while enhancing conservation.[46] Moderate intensification of pasture operations in Brazil could improve livestock productivity by 31% and raise beef production by 27% by 2030.[47] This could spare up to 55 million hectares of pastureland in the same timeframe (**Figure 1**) and free up more land than is required for crops, demand for which is projected to increase by 8 million hectares by 2026.[48] Successful pilots, such as Pecuária Sustentável da Amazônia (Pecsa), have shown productivity increases of up to 700%. Meanwhile, Good Agricultural Practices (GAP), developed by the Brazilian Agricultural Research Corporation, have demonstrated an increase in agricultural output by 240%. Pecsa's Novo Campo Program, which promotes the adoption of GAP as part of its strategy, is running pilots at a number of ranches in Mato Grosso.[49] In addition, intensification in line with Mato Grosso's "produce, conserve, include" strategy could increase beef productivity in the Amazon and Cerrado by 125% and 116%, respectively, by 2025.[50] An economic and environmental

FIGURE 1

Moderate Intensification of Pasture Operations in Brazil Can Spare 55 Million Hectares

Land Required for Beef Production in Brazil Under Different Scenarios



Source: Climate Focus analysis based on Federation of Industries of the State of São Paulo (2016) outlook FIESP 2026: projections for Brazilian Agribusiness.

feasibility study of 13 different properties with varying pasture sizes and degradation levels in São Félix do Xingu, northern Brazil, concluded that, overall, intensification has the potential to halt deforestation while providing social and environmental benefits.[51] Meanwhile, in Colombia, the Ganadería Colombiana Sostenible programme has started to make additional payments to farmers who combine sustainable practices with forest protection.[52] Leading businesses, such as Grupo Exito in Colombia and McDonald's in Brazil, support sustainable intensification through the preferential purchase of beef from participating farms.

However, intensification alone does not lead to a reduction in deforestation and its potential to spare land depends on policy and governance improvements that actively discourage further expansion into forests.[53] Law enforcement and improved governance, along with investor safeguards, need to address illegality and redirect incentives away from programmes that motivate low-productivity beef production. In addition, credit and financing initiatives that support alternative land uses are needed to support rural development and diversification of landscapes. A lack of qualified labour, ingrained habits and behaviours, along with upfront costs, will need to be overcome, but production costs are expected to fall when intensification is scaled up. Protected areas can help to conserve forests, while intensification programmes can increase the profitability of smallholder operations and reduce land expansion.

4. Sustainably increasing smallholder yields in palm oil and cocoa

Smallholders in the palm oil sector can achieve 85% productivity gains while sparing millions of hectares of tropical forest from unnecessary expansion. Most of the world's current palm oil production area is performing below its potential yield. In past decades, the palm oil sector relied on land expansion to increase production and, since 1990, both expansion and production have grown more than 800%. Despite this huge rise, yields have only increased by 3%.[54] The palm oil supply chain has a high level of integration, largely driven by a few major commodity traders. Yet, smallholders have a key role to play in meeting demand; they produce 35-40% of global palm oil and their actions have a direct effect on forests. They often operate at the margin of profitability and lack access to credit, training and technology. Improved agricultural practices and replanting would offer smallholders and plantations the opportunity to raise average yields to global standards.

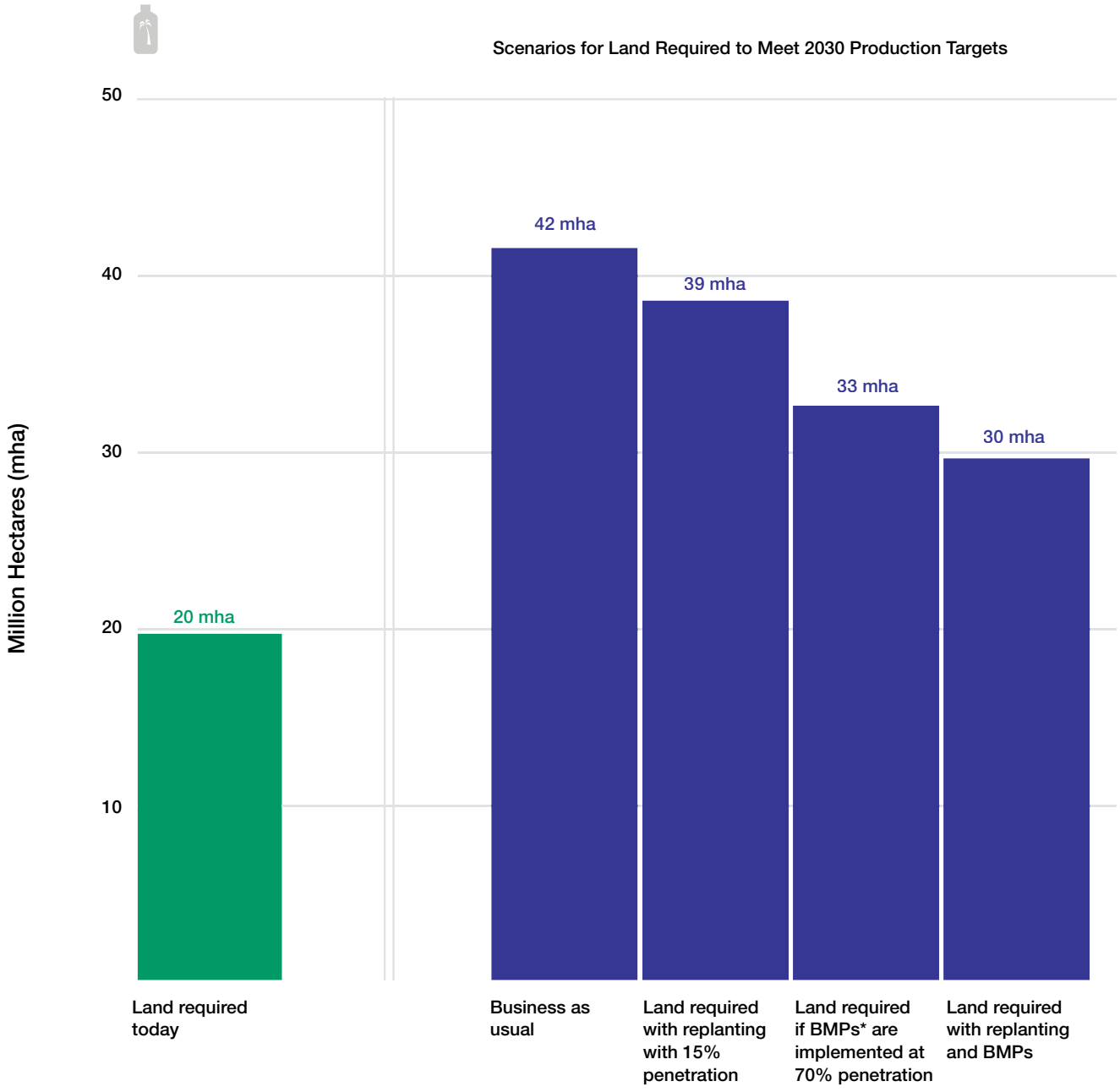
Smallholders have a unique opportunity to achieve palm oil intensification through the adoption of best management practices. If managed well, palm oil production can become efficient enough to avoid deforestation, allow other crops to use available land and even encourage reforestation of retired areas. Smallholder plantations have a yield gap that can be reduced or eliminated by technical and financial support.[55] Average smallholder yields are estimated at 3.5 tons of crude palm oil per hectare, versus 6.5 tons per hectare in more efficient plantations.[56] Through best management practices and replanting, Indonesia could sustainably increase palm oil production and reduce land needs, while Malaysia has ample opportunity to intensify and replant on existing palm oil plantations.[57] Meeting expected global demand for palm oil in 2030 without any increase in average productivity would require an additional 22 million hectares of land under cultivation. Phasing in best management practices (BMPs) and partial replanting would reduce that figure to 30 million hectares, while fully meeting demand (**Figure 2**).

Similar opportunities exist in the cocoa supply chain in West Africa. Two-thirds of the world's cocoa is grown in Africa, with the majority produced by Côte d'Ivoire and Ghana, almost exclusively by smallholders. West Africa lost 2.3 million hectares of forest to cocoa cultivation between 1988 and 2007 and deforestation continues across an ever-diminishing area of forest in the region.[58] Chocolate companies are now focused on cocoa intensification to address ongoing and future deforestation.[59] Application of fertilizer and investment in replanting and rehabilitation could more than double cocoa productivity in Côte d'Ivoire and Ghana, rising from about 500 kilograms per hectare to as much as 1,500 kilograms.[60]

FIGURE 2

Even with Intensification, the Palm Oil Industry Will Require Additional Land to Meet 2030 Production Targets

Land Required for Palm Oil Production Globally Under Different Scenarios



Source: Climate Focus analysis based on Woittiez et al. (2017), Donough et al. (2011), Pirker et al. (2016), FAOSTAT and Grand View Research

*BMPs: Best Management Practices

Dedicated smallholder support in the form of financing and capacity building is needed to allow farmers to adopt best management practices. Certification can serve as a tool to help farmers adopt best management practices. Certified plantations report improvements in yields and savings from reduced inputs, such as fertilizers and pesticides. However, initial upfront costs and time constraints may hinder certification, especially for smaller producers who lack training, finance and technology. Supply chain companies, in cooperation with governments, can support farmers through the provision of credit, training, organization and aggregation, fertilizer and other agricultural inputs.

5. Achieving sustainable soy production

Soy production puts great pressure on biodiversity and drives the rapid conversion of forest and other native ecosystems in South America. Between 1990 and 2010, land dedicated to soy production in South America increased by 270%.[61] This corresponds to the loss of approximately 29 million hectares of natural landscape in the Brazilian Cerrado alone.[62] In Paraguay, soy production has tripled over the past two decades and now covers 80% of the country's agricultural area.[63] In 2015, more than two-thirds of land conversion in the Brazilian Cerrado was related to soy expansion, compared with one-third in the Amazon.[64] While much soy production in the Cerrado expanded into pasture and cropland, most cultivation in the neighbouring Matopiba region occurred through the clearing of natural landscape.[65] A 9.1 million-hectare area of natural vegetation in Matopiba is at risk of conversion for further agricultural expansion.[66]

Company commitments and certification have failed to stimulate market interest in sustainable production. While certification systems are available, the global market share of certified soybeans is only 2%. Commodity-specific deforestation commitments put in place by 21% of companies operating in the soy sector have not led to an increase in demand for certified soy.[67] This weak demand may be partly due to an inability to source large volumes of segregated soy, and also because, like palm oil, soy is an invisible ingredient in many consumer products. The inability to trace the source creates challenges, as do insufficient disclosure policies and variances in the quality and quantity of certified soy.[68] Moreover, insufficient protection of forests and natural landscapes, an inconsistent definition of what is meant by a "forest" and the quick displacement of soy as an annual crop all increase the risk of rapid loss of natural habitat.

It is essential to find a solution that enables sustainable soy production and protects South American forests and other natural landscapes. The 2006 Soy Moratorium in the Amazon has shown that, with improved forest governance and public-private initiatives, reduction in deforestation from soy expansion is possible (**Figure 3**). Led by the Brazilian Soy Working Group, participants make use of satellite images and monitoring systems to track and exclude non-compliant producers.[69] A multistakeholder initiative that helps to forge a public-private agreement on sustainable soy production in Brazil and Paraguay is necessary to avoid further land conversion.

Developing effective solutions for sustainable soy production and sourcing is consistent with national policies in Brazil and Paraguay. In January 2017, the Federal Government of Brazil submitted a forest reference emission level for the Cerrado biome to the UN's Framework Convention on Climate Change, demonstrating its commitment to protect forests in the Cerrado.[70] In Paraguay, the National Development Plan 2030 mandates effective control of deforestation and an increase in forest cover. The country has also committed to recovering and protecting one million hectares of forest by 2030.[71]

Land is available today that can support the expansion of soy production into already cleared areas, rather than requiring new conversion. In Paraguay, after the Zero Deforestation Law came into effect in the eastern part of the country, the cultivation of soy on land previously used for cattle grew significantly.[72] In Brazil, the growing consensus is that sufficient converted land already exists to meet conservation efforts and production targets.[73] Increasing productivity in the Cerrado can both expand soy production and prevent further conversion of natural

ecosystems. Projections suggest that an expansion of soy cultivation of about 2.5 million hectares in Brazil by 2019 can be met by raising annual productivity by 2.43%, primarily in the Cerrado and Amazon regions.[74] Moreover, a 20% increase in productivity in previously cultivated and now degraded pasturelands would free up enough land to meet growing demand for soy until 2040.[75]

6. Accelerating the implementation of jurisdictional programmes

Climate and forest initiatives at the state or regional level provide the required scale to systematically address deforestation, in alignment with sustainability and development goals. National and subnational governments in tropical countries that account for a large share of global commodity production have begun implementing integrated programmes at the jurisdictional or—where administrative boundaries are less suitable—landscape level that direct agricultural development away from areas at risk of deforestation. A TFA 2020-commissioned study identified 34 jurisdictional programmes that are in planning or being implemented in tropical forest countries that produce the forest-risk commodities relevant to the Agenda.[76] These programmes cover 41% of the global production of soy in tropical forest countries, 34% of palm oil and 11% of beef (**Figure 4**). Almost half are already being implemented and have the potential to serve as a model for other jurisdictions (**Figure 5**).[77]

Sustainable intensification can enhance agricultural productivity while protecting forests and natural landscapes. For example, a 31% improvement in beef production could protect 55 million hectares in Brazil and moderate palm oil intensification could spare 12 million hectares of land in Indonesia. However, intensification without parallel efforts to conserve and restore forests can drive additional deforestation if not supported by measures that protect the forest. Achieving production goals while protecting standing forests requires a coherent and coordinated approach to agricultural development, natural resource management and forest policies. Jurisdictional programmes can help to address and avoid the tension that occurs between social, economic and environmental land-use objectives.[78] Certification of deforestation-free commodity production at the jurisdictional level can help to reduce the cost of its implementation, while increasing coverage and strengthening its environmental impact. An example is RSPO certification at the jurisdictional scale, which is currently being piloted in three jurisdictions in South America and Asia.[79]

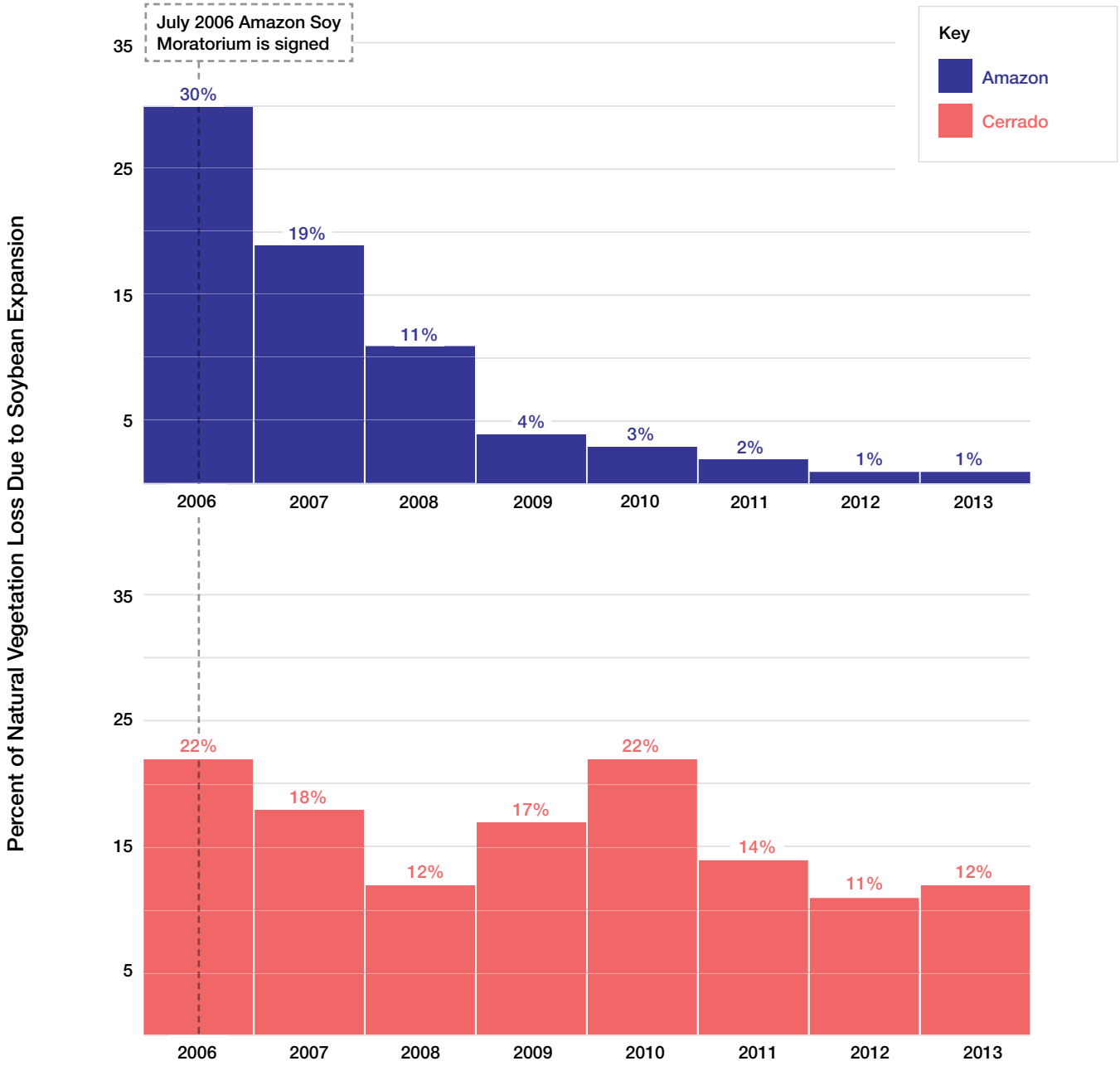
Large-scale and politically-backed programmes create a platform for public-private partnerships that address deforestation. These partnerships create incentives for governments to invest in institutions, law enforcement, land registration and planning and programmes that support smallholders, while creating a favourable environment for supply chain investments and zero-deforestation procurement. They allow private sector commodity commitments to be incorporated into government programmes, which, in turn, strengthens governance and land-planning activities. Examples of this are jurisdictional "produce-protect" initiatives that are supported by consumer goods companies. In 2015, Unilever and Marks & Spencer announced that they would source commodities specifically from areas that have designed, and are implementing, jurisdictional forest and climate initiatives.[80] These partnerships also allow governments and the private sector to take advantage of opportunities offered by combining different types of finance, such as public climate finance with private commodity finance. For example, the new Norway-backed andgreen.fund only provides credit facilities in jurisdictions with progressive forest or peat protection agendas and sustainable development strategies.

To improve conservation efforts, additional support for jurisdictional programmes is needed. The implementation of existing jurisdictional programmes has to be accelerated and the establishment of new programmes supported. If strengthened and accelerated, existing programmes can provide models for others. The Brazilian states of Mato Grosso and Pará are good examples of jurisdictions that have set up promising programmes. They offer insight into developing a sustainable approach to agriculture, including cattle intensification, zero-deforestation production

FIGURE 3

The 2006 Soy Moratorium Led to a Sharp Decline in Soy-Driven Deforestation in the Amazon

Percent of Annual Loss of Natural Vegetation Due to Soybean Expansion in the Amazon and Cerrado, 2006-2013

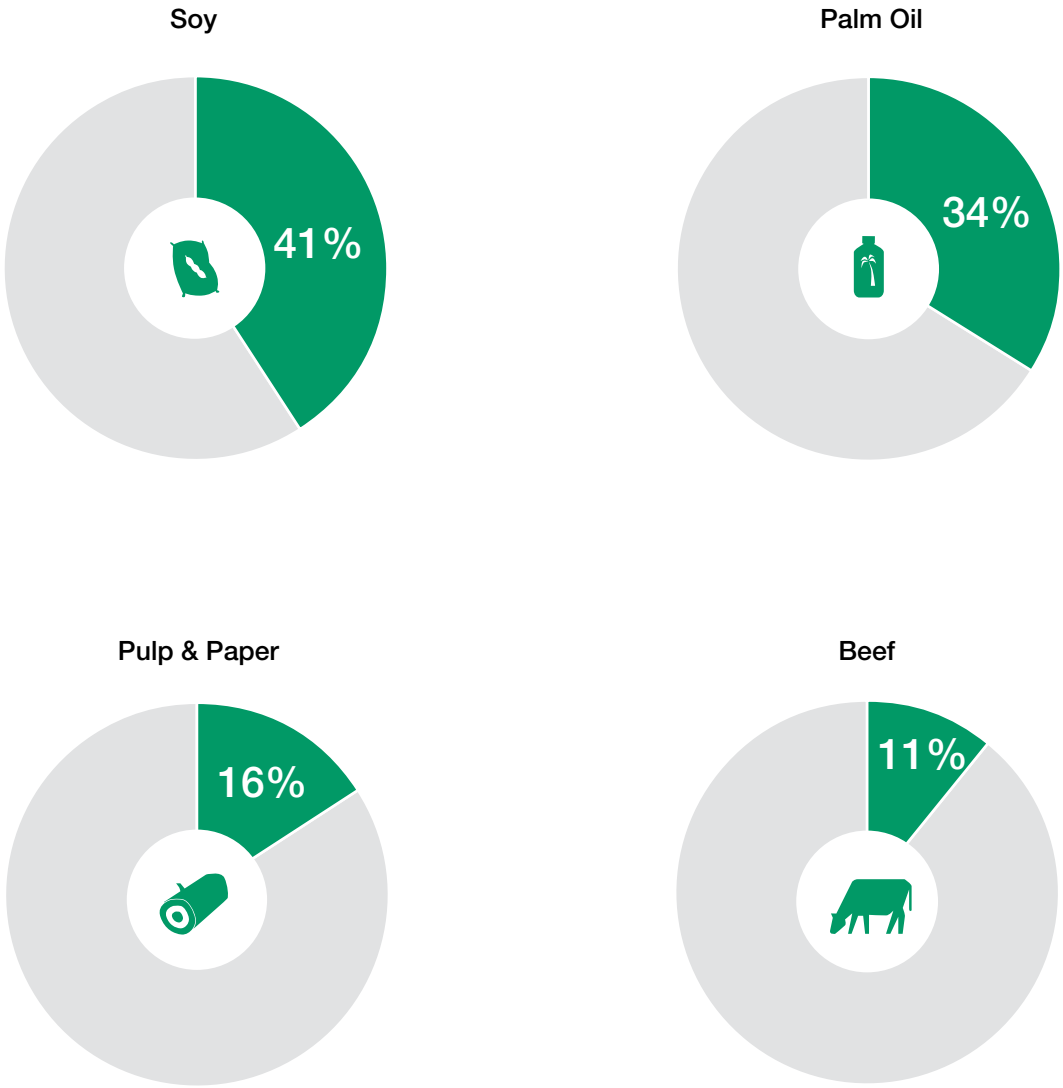


Source: Based on Gibbs et al. (2015). For soybean expansion within the Amazon biome, Gibbs et al. consider total deforestation hectares and the fraction of deforestation for soy production in 88 municipalities with more than 1,000 hectares of soy in Mato Grosso, Pará and Rondônia. For soybean expansion within the Cerrado biome, Gibbs et al. consider total deforestation in hectares and the fraction of deforestation for soy production in the entire biome.

FIGURE 4

Successful Jurisdictional Approaches Have the Potential to Impact a Substantial Fraction of Forest-Risk Commodities

Share of Forest-risk Commodities from Jurisdictions with Sustainable Land Use Plans

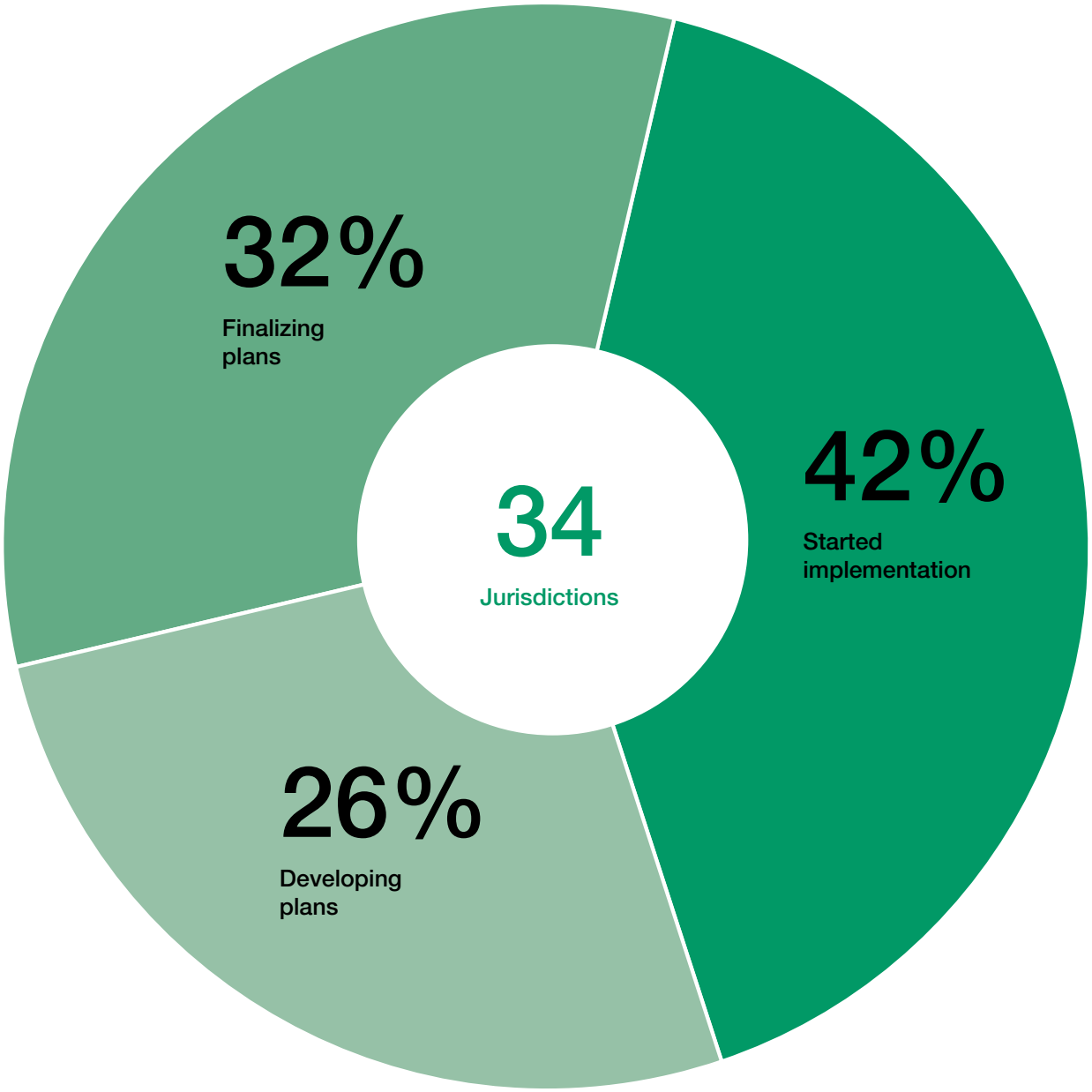


Source: AlphaBeta analysis based on estimates of the Food and Agriculture Organization of the United Nations (FAO). The AlphaBeta analysis considered the share of supply from the 34 jurisdictions with relevant commodities in tropical regions. According to the analysis: data used for soybean, palm oil, pulp and cattle was based on 2014 FAO estimates; data for forest concession was based on 2015 FAO estimates; the area allocated for timber production was used as a proxy for pulp; and total heads of cattle used as a proxy for beef produced.

FIGURE 5

More Than 40% of Jurisdictions with Sustainable Land Use Plans Have Started Implementation

Relevant Jurisdictional Approaches by Stage of Development



Source: AlphaBeta analysis based on literature review and expert research. The analysis considered 34 jurisdictions with relevant commodities in tropical regions. According to the analysis: "developing plans" refers to jurisdictions that are in the design and planning phase; "finalized plans" refers to jurisdictions that have ratified their plans and that are currently working to develop the capacity and pilot projects around these plans; "started implementation" refers to jurisdictions that have commenced implementation of their programmes at the jurisdictional level.

and restoration of degraded land, in jurisdictions that are deeply rooted in global commodity supply chains. Both states have programmes driven by a vision to halt deforestation while increasing agricultural production and count on strong support from local governments, as well as pilot programmes to test sustainable production methods. Although programme development is specific for each jurisdiction, political support, private sector cooperation, collaborative planning, support for transparency initiatives and availability of finance are all essential for any successful jurisdictional programme.

7. Addressing land conflicts, tenure security and land rights

Clear and uncontested land rights are essential for forest stewardship and investment in sustainable landscapes. Deforestation is more likely in areas where land tenure is insecure.[81] There are a number of reasons for this: weak or absent land rights limit access to credit and remove incentives for long-term investment, such as funding for sustainable forest management; landholders are seeking to strengthen their claim by clearing the forest and using the land "productively"; and absent titles enhance the risk of land-grabbing or speculation.[82]

Conflicts between concessions and community rights create important risks for companies. Conflicts occur where various land claims exist. Agricultural concession areas frequently overlap with community forests, often leading to disputes, legal challenges, direct action and protests, and even violence and human rights abuses.[83] One study reviewed agricultural concessions in 12 emerging economies and found overlap with community lands in at least 31% of commercial concessions—predominantly those in agriculture, logging and mining—but the real figure is estimated to be much higher.[84] Where rights are not formalized, agricultural concessions can lead to people losing access to the forests they customarily own and use.[85] Unresolved land conflicts create tension, limiting the potential for supply chain investments.[86]

Increased security of tenure is associated with decreased deforestation in general, and formal recognition of the legal rights of indigenous peoples and local communities can be particularly beneficial for forest protection. Studies in South America, where local communities hold rights to large areas of land, found that deforestation rates are between 6 and 350 times lower in forests that are legally recognized as belonging to indigenous peoples and local communities. In Brazil, deforestation rates inside indigenous lands were found to be over 10 times lower than outside (**Figure 6**). Studies in Niger and Nepal, meanwhile, have shown that legal recognition of community land titles has led to increases in forest carbon stocks of 30 million tons and 180 million tons over the past 30 years, respectively.[87] Currently, indigenous peoples and local communities have legal rights to 31% of forests in low- and middle-income countries. Despite almost doubling the land held by local communities in the past 15 years, the legal recognition of community land rights in Africa lags behind South America and Asia (**Figure 7**).

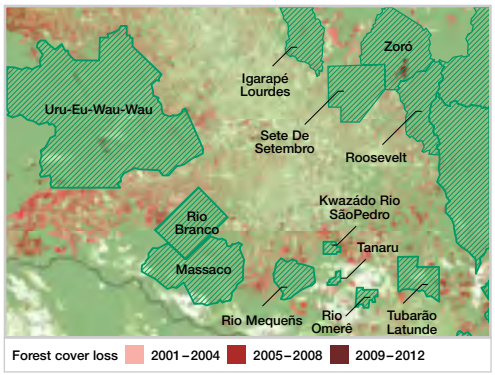
Global consensus is emerging on the need to address greater security of land tenure. The UN Sustainable Development Goals, adopted in 2015, commit member states to ensure that all men and women have equal rights to "ownership and control over land and other forms of property" by 2030. Moreover, almost all countries have now endorsed the UN Declaration on the Rights of Indigenous Peoples, which guarantees land and territory rights. International REDD+ initiatives, along with the New York Declaration on Forests, have prioritized improvements in overall tenure security and protection of community rights and provided an impetus for states to expand recognition.[88]

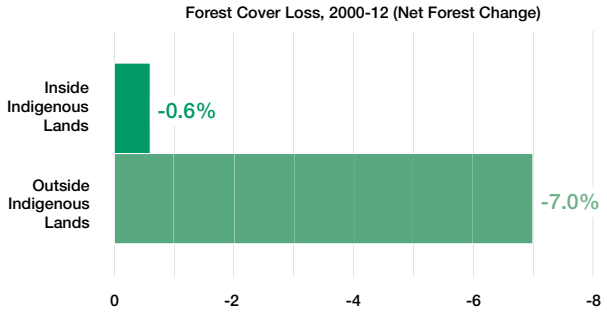
Increased support and accelerated effort in land titling and conflict resolution enables investment in zero-deforestation commodities and forest protection. Financial support for the collection of data on land tenure and the establishment of land registries are essential to create the basis for long-term investments in landscapes. Mapping community forests helps to expel illegal loggers and avoids overlapping claims with agricultural

FIGURE 6

In Brazil, Recognition of Community Forest Rights is Strongly Associated with Reduced Deforestation

Forest Cover Loss in Indigenous Lands in the Brazilian Amazon, 2000-2012



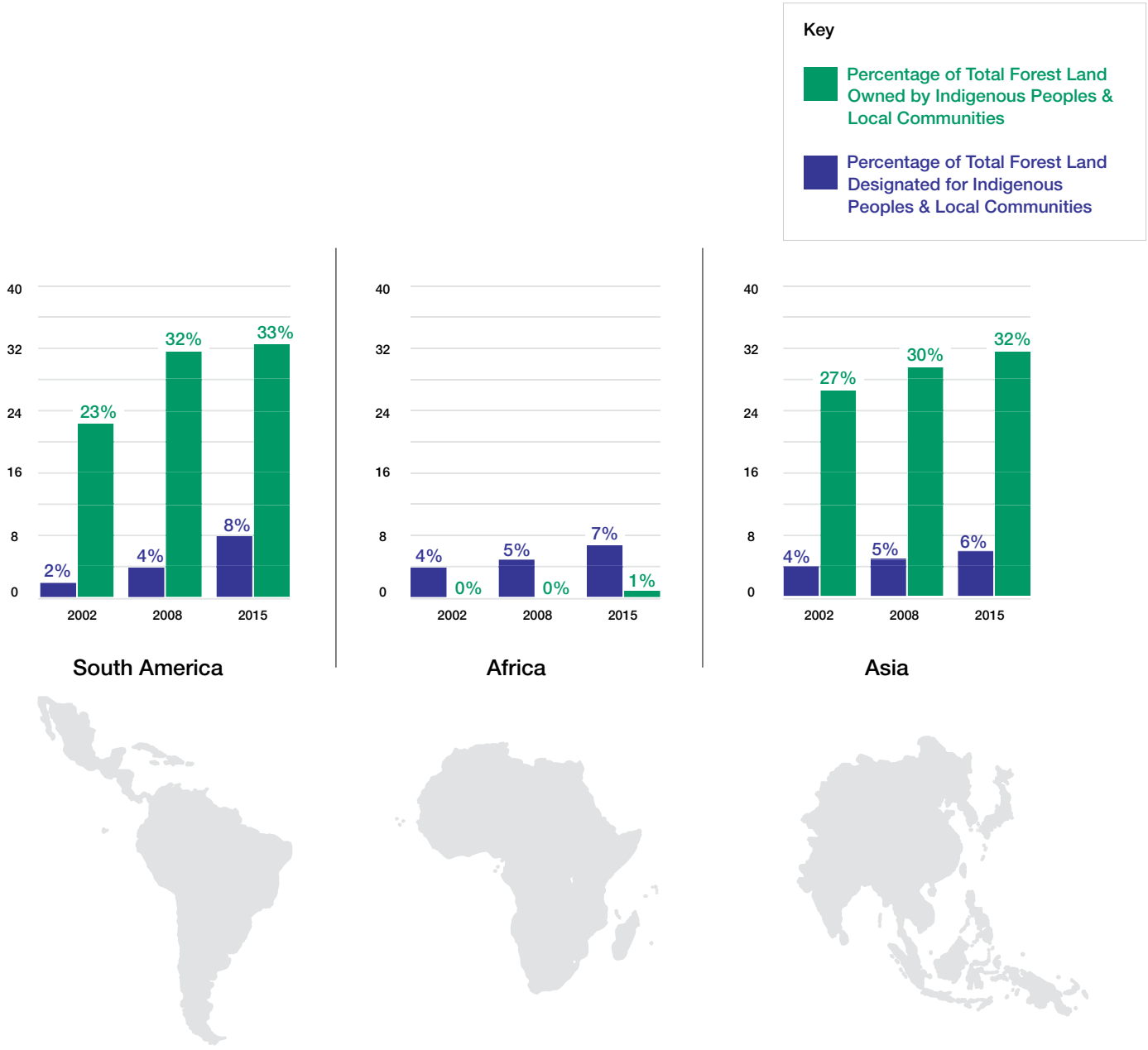


Source: Stevens et al. (2014), Hansen et al. 2013.

FIGURE 7

Africa Lags Behind in Recognition of Forest Tenure by Indigenous Peoples and Local Communities

Regional Comparison of Forest Tenure, 2002-2015



Source: RRI (2016)

concessions. Improving equal access to land tenure for men and women may also be important in achieving conservation objectives.[89] Land registration can help avoid land conflicts before they occur. The establishment of conflict resolution mechanisms is also essential to address existing conflicts and can range from village-level mediation to strengthening of laws and court systems.

Experience shows that assigning clear land titles is a low-cost investment with substantial return. The cost of registering community lands is estimated at around 1% of the benefits gained through protected biodiversity, carbon storage and other forest ecosystem services.[90] New technologies, innovative approaches to land mapping and the increasing availability of open-source geospatial information also have the potential to improve titling efforts, while reducing costs.[91] Almost all countries have some legal frameworks in place that allow formal rights to be granted to local communities and several countries have been successful in achieving major increases in the amount of forests formally held by communities in the past 15 years.[92]

8. Mobilizing demand for deforestation-free commodities in emerging markets

Companies and governments from emerging economies – in particular China and India – need to become partners in supply chain efforts. Today, almost 90% of deforestation commitments come from companies based in North America, Europe and Australia.[93] However, companies from industrialized countries are only importing a comparatively small proportion of the global production in forest-risk commodities. Over the past decade, China has singlehandedly accounted for almost two-thirds of the growth in global soy demand (**Figure 8**).[94] Its imports of soy for cattle feed are projected to grow by a further 30% by 2030.[95] While most of Brazil's beef production is consumed domestically (**Figure 9**), China's imported volume of beef, including Hong Kong, has grown by almost 160% since 2011 and is expected to rise another 55% by 2026.[96] China is also the world's largest consumer of paper and paperboard products (**Figure 10**), accounting for 93% of the growth in global pulp demand in the past 10 years.[97] India is the world's largest importer of palm oil.[98] In 2011, almost 25% of Indonesia's palm oil deforestation was embedded in exports to India alone.[99] Considering the impact that emerging economies have on global commodities production, it is essential to engage companies and governments from these countries in global supply chain efforts.

In addition to reaching out to private companies and government agencies in importing countries, influencing domestic demand in producing economies is also important. Domestic markets are often one of the largest influences behind agricultural production. Brazil, for example, consumes more than two-thirds of the beef and more than one-third of the soy that it produces. Indonesia consumes 40% of its palm oil, making it the single largest consumer of domestically-produced palm oil. To address the deforestation that is embedded in agricultural commodities, companies that supply local markets must be brought into global and local discussions on deforestation-free supply chains.

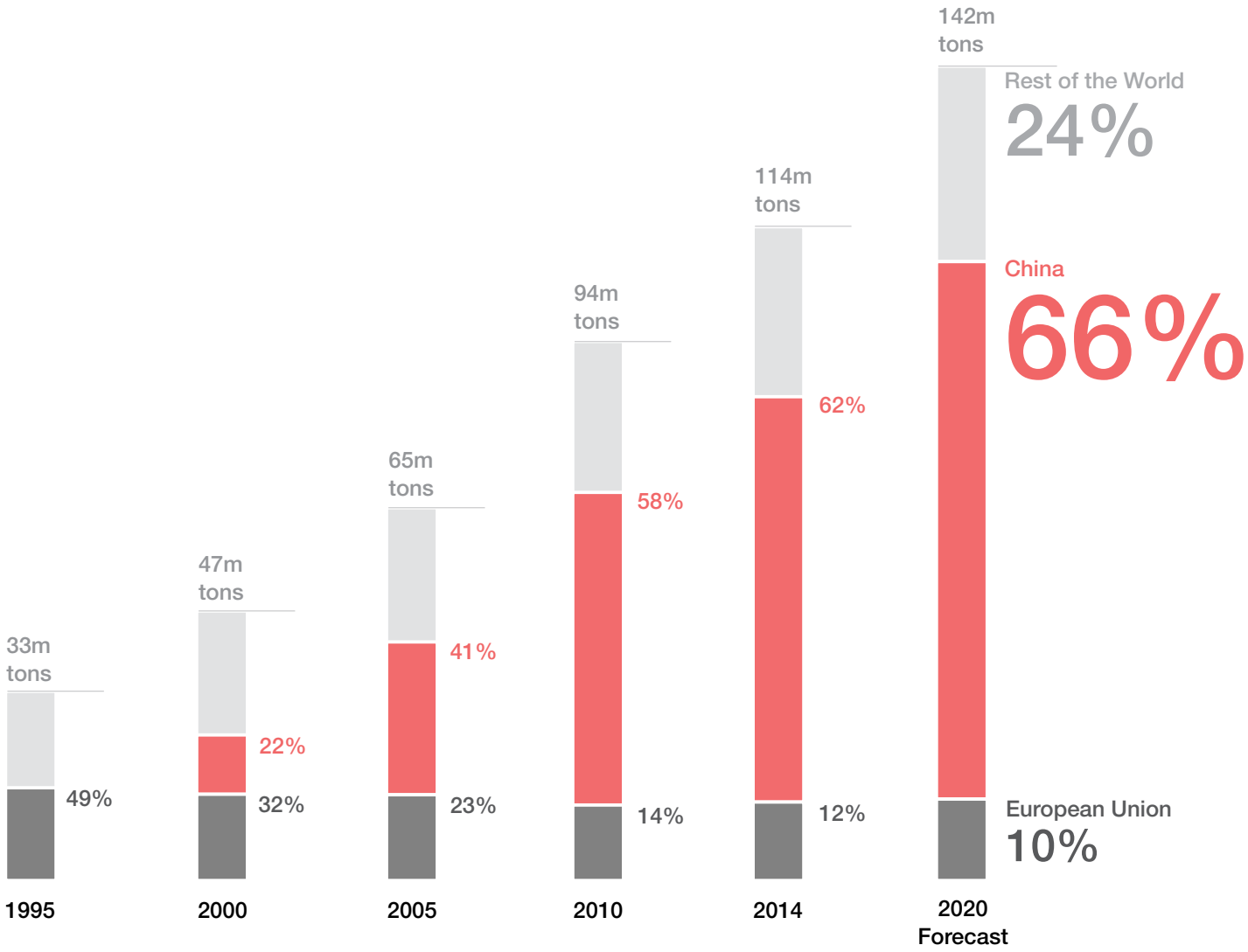
It is in the interest of emerging economies to eliminate deforestation from agricultural imports. Global supply chains are essential to meet food demands of rapidly-growing markets in developing countries. To ensure long-term supply and food security, it is in the interest of all countries to reduce the negative impacts of resource consumption.[100] The development of emerging markets will depend on stable and sustainable availability of agricultural commodities. At the same time, investors from middle-income countries have an increasingly important role to play in influencing the way in which land is used and can become critical supporters of sustainable production and consumption.

Increasing awareness among Chinese companies opens an opportunity for engagement. Until recently, Chinese private companies have been reluctant to proactively take on sustainability commitments while waiting for policy signals from the Chinese government. However, this is changing and awareness of the impact of sourcing decisions on tropical forests is growing. For example, the China Soybean Industry Association is now a partner in Brazil's Soja Plus programme, which was set up to provide economic, social and

FIGURE 8

In 2014, China Accounted for More Than 60% of Global Soy Imports

Global Soy Imports by Major Importer,1995-2014

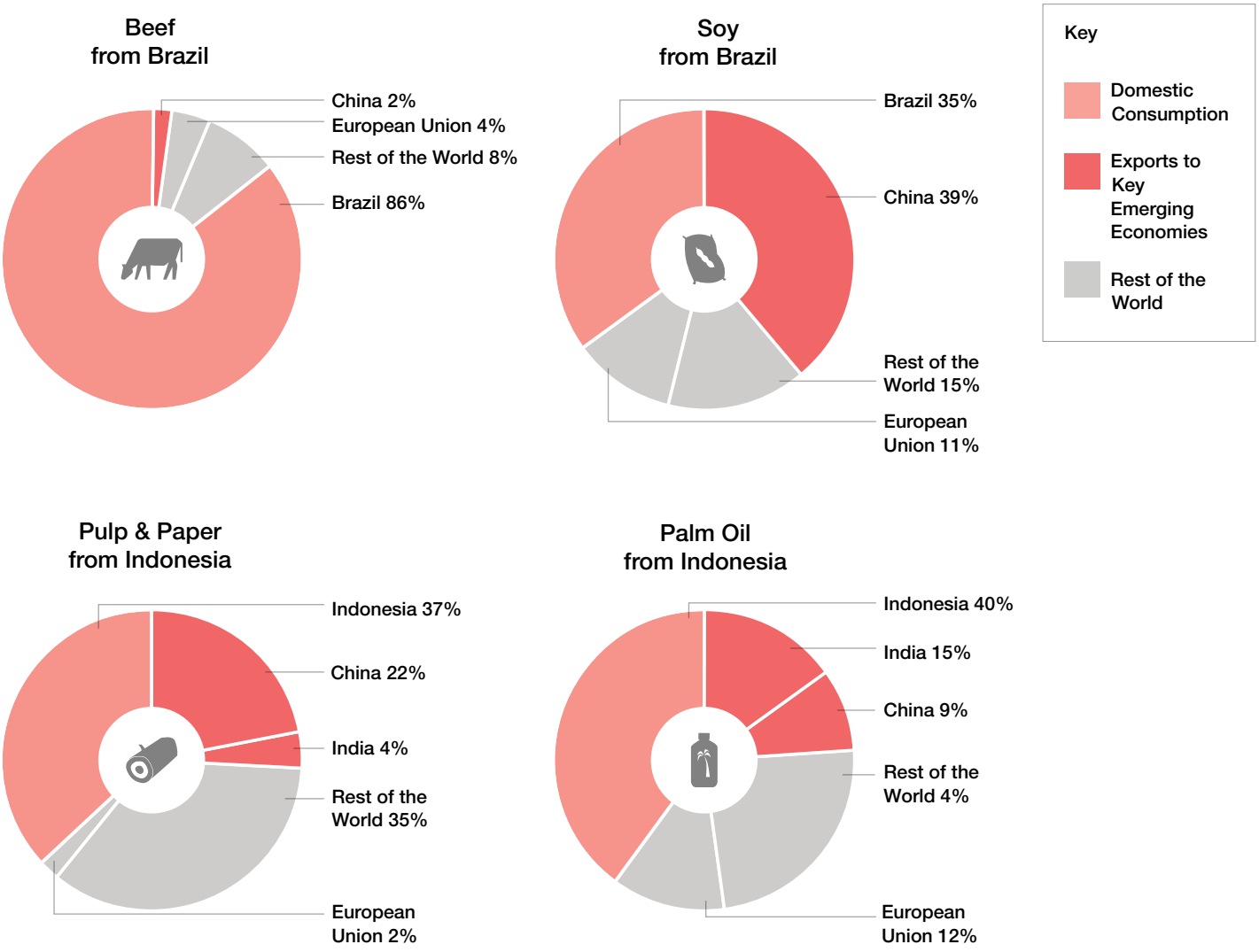


Source: MVO (2015)

FIGURE 9

Emerging Markets are the Primary Consumers of Commodities Driving Tropical Deforestation

Distribution of Global Consumption of Forest-risk Commodities

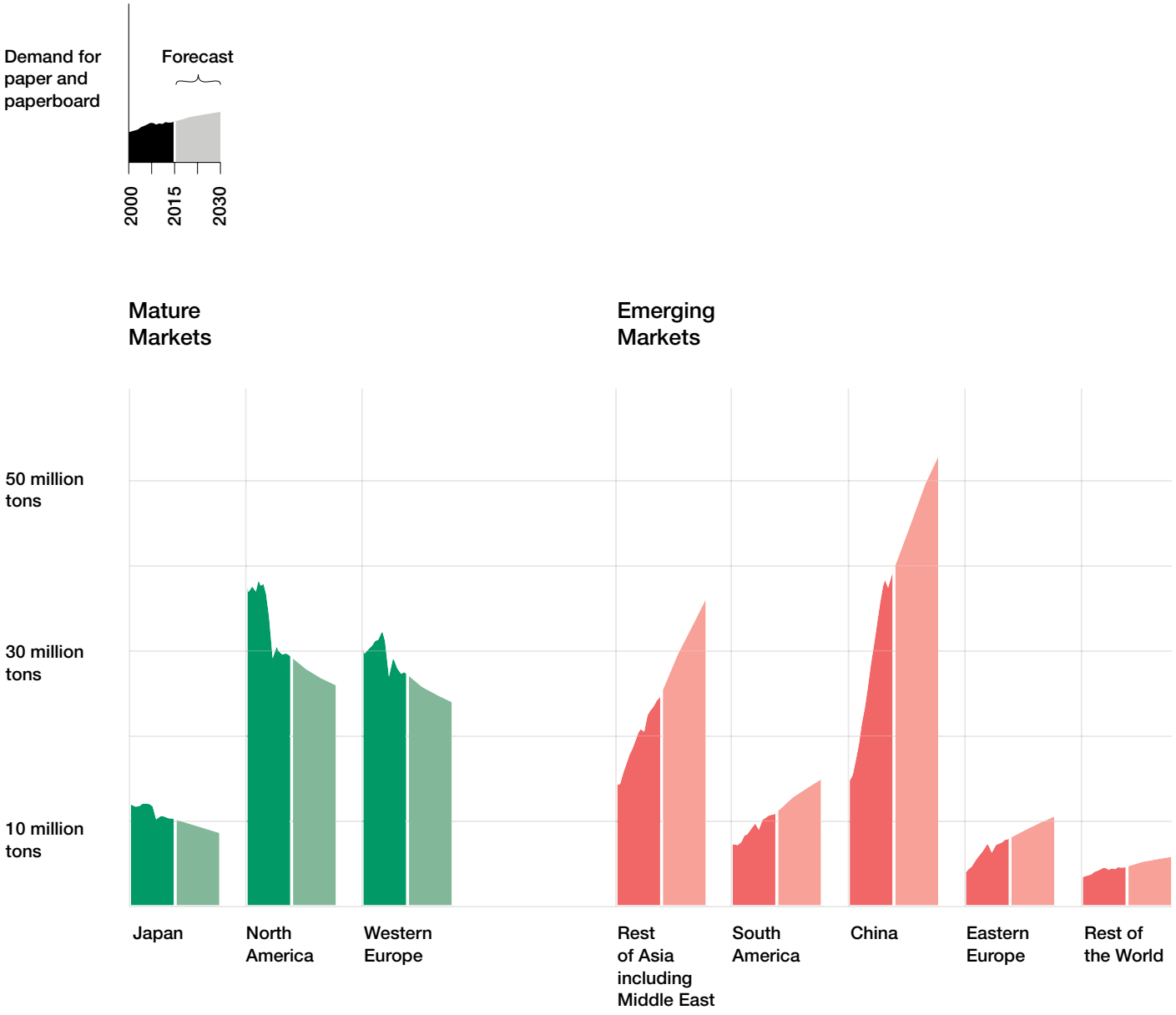


Source: Calculated from Henders et al. (2015) and Trase.earth for Brazil-Soy, 2016

FIGURE 10

Demand for Paper and Paperboard Products is Forecast to Increase Dramatically in Emerging Markets

Regional Demand for Paper and Paperboard, 2000-2030



Source: Suhonen and Oksanen (2016)

environmental management of the country's soybeans.[101] Meanwhile, the Sustainable Soy Trade Platform, a partnership between the Nature Conservancy, Solidaridad, WWF and the Paulson Institute, was established in 2015 to engage key public and business players to enhance communication between China's importers and soy suppliers.[102] Chinese palm oil importers are also moving towards more sustainable palm oil procurement. China established a sustainable palm oil working group in 2016, including members that control 45% of global palm oil production and trade.[103] Julong Group, China's largest palm oil importer, is also working with Solidaridad to develop an environmentally-sound supply chain that links producers in Indonesia to the Chinese market.

The Indian government wants to encourage the growth of domestic palm oil production, shifting demand away from imported palm oil products. In April 2017, the Union Cabinet, chaired by Prime Minister Narendra Modi, approved measures to increase the domestic palm oil area and production.[104] India had previously attempted to reduce reliance on imports and boost domestic production by increasing import duties, first on processed palm oil and then on crude. In 2012 and 2013, the country banned exports of all edible oils. However, Malaysia and Indonesia responded by eliminating export tariffs. This, along with lower global prices, pushed Indian imports of palm oil to record levels.[105] Indian markets are highly price-sensitive and importers and consumers show little sign of moving towards more sustainable palm oil supply chains if the result is higher costs.

While there are encouraging signs, more needs to be done to help companies and governments from emerging economies join the global dialogue on sustainable agricultural supply chains. Policy coordination among commodity importers from developed and developing countries can help to promote green procurement standards. This includes government cooperation across regions to commit to zero-deforestation initiatives, such as the Amsterdam Declaration, as well as increased discussions with private sector companies on sustainable commodity sourcing. Integrated policy packages that address investment, trade, standards, certification and capacity building, while tackling food security concerns, can also have lasting impact on tropical forest conservation.[106]

9. Redirecting finance towards deforestation-free supply chains

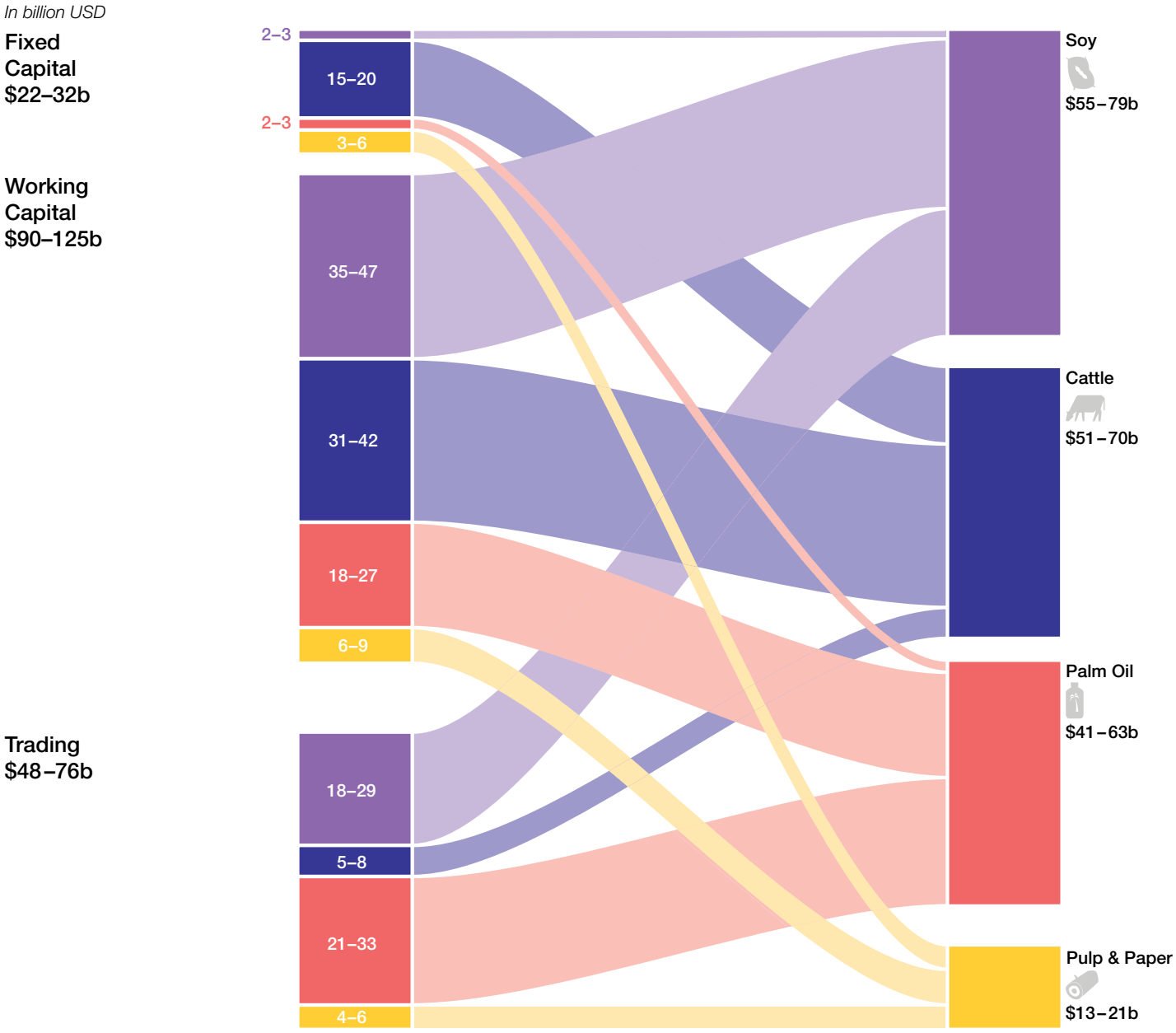
Redirecting existing financial flows into sustainable production methods is essential for the introduction of more sustainable landscapes. Every year, more than $100 billion in fixed and working capital and trade finance flows into the production of beef, soy, palm oil, pulp and paper in tropical forest countries.[107] In comparison, funds that specialize in investing in sustainable agriculture and food systems currently only have $500 million in assets under management.[108] Meanwhile, 31 leading agricultural funds have a capital base of just under $4 billion, which, according to estimates, represents less than 3% of the required investment to promote sustainable production methods.[109] Domestic public finance for agriculture in developing countries is estimated at between $38 billion and $225 billion.[110] While no reliable estimates exist on how much of this public finance funds sustainable agriculture and forestry, indicative evidence suggests that only a small portion is specifically directed towards these activities.[111] Channelling these resources into sustainable investments would help to reduce deforestation, while promoting healthy and productive landscapes. The review and removal of government subsidies for agricultural practices that drive deforestation are also needed.

The shift towards deforestation-free agricultural commodities creates investment opportunities across all value chains (Figure 11). One report indicates that approximately $50-100 billion annually could be invested in sustainable intensification, rehabilitation of degraded lands and cattle intensification **(Figure 12).**[112] Investments for various activities can often be linked in order to achieve the desired conservation and productivity outcomes. Opportunities for cattle intensification, for example, may sit alongside forest restoration or crop diversification on freed-up pastureland. The interlinked nature of agricultural and forest activities may require investment

FIGURE 11

Shifting to Deforestation-Free Commodities Creates Billions of Dollars in Investment Opportunities

Estimated Direct Financing Needs in Deforestation-Free Commodity Production and Trade in 2020



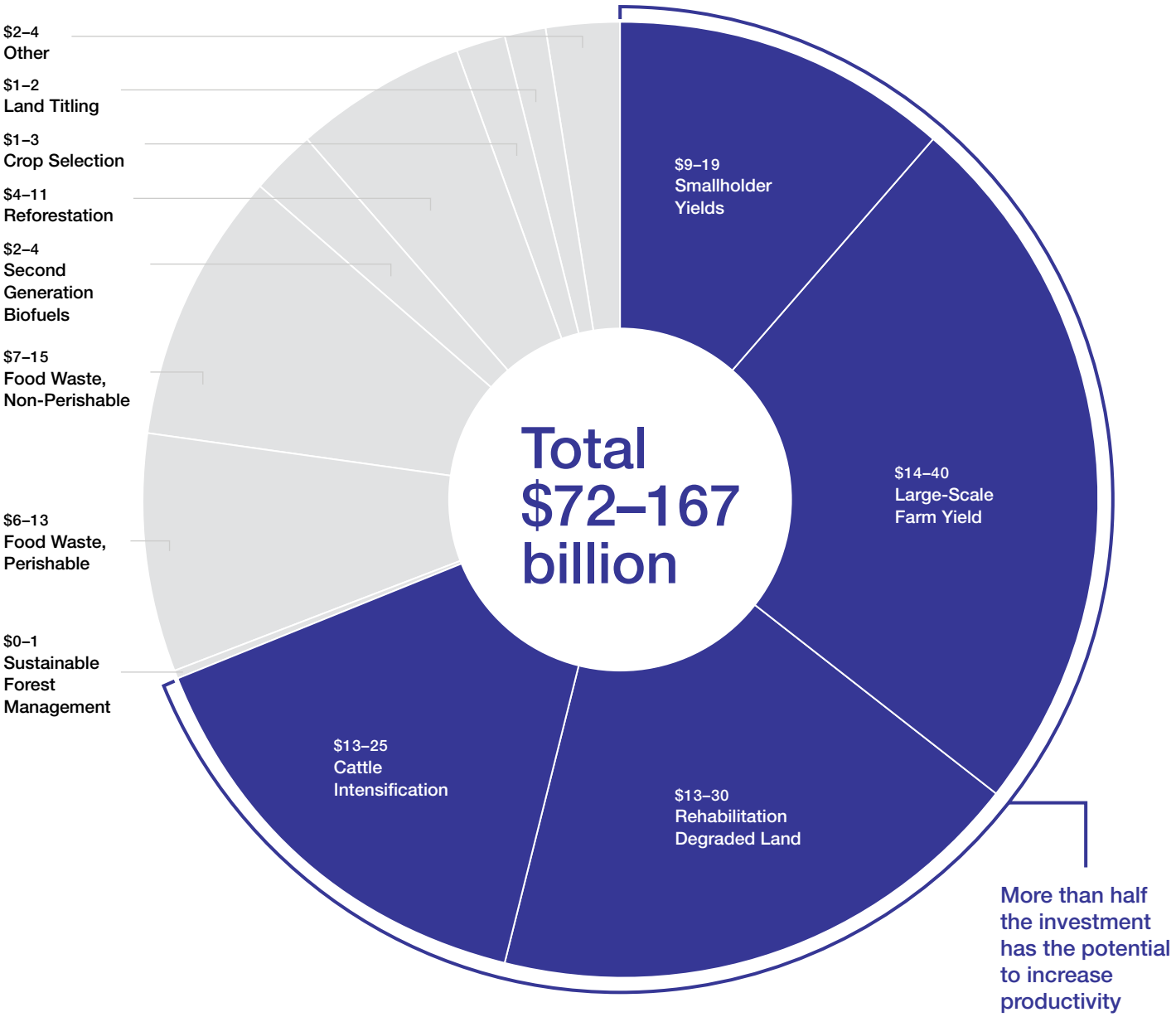
Note: Fixed and working capital estimates are for upstream production, not processing or manufacturing. Trade finance estimates assume these commodities receive such financing at levels typical for agricultural commodities.

Source: World Economic Forum (2017); Estimates by Vivid Economics, based on consolidation and comparisons across various sources including UN Comtrade data, the United States Department of Agriculture (USDA), Tropical Forest Alliance 2020, the Food and Agriculture Organization of the United Nations (FAO)

FIGURE 12

Over Half of the Investment Needed to Shift to Sustainable Land Use is For Productivity Increases

Annual Investment Needed to Enable Sustainable Land Use in Tropical Forest Regions by 2030



Source: Thompson and Charlton (2016)

safeguards that combine investment into productivity with provisions that protect natural ecosystems. Government-subsidized rural credit can be used to support public policy goals, such as forest conservation. Along with many other countries, Brazil has traditionally used rural credit to support agriculture, in terms of financing short-term working capital, investment and commercialization of rural production.[113] In 2008, the Brazilian National Monetary Council made rural credit in the Amazon biome conditional on proof of compliance with environmental regulation, legitimacy of land claims and legality of rural operations. A 2013 study by the Climate Policy Initiative showed that this action prevented the clearing of more than 2,700 square kilometres of forest, representing a 15% decrease in deforestation between 2008 and 2011.[114]

Although significant opportunities exist, unlocking investment in sustainable production is hampered by upfront costs and a number of risks. Costs include investment in unplanted land areas, known as "set-asides", to create or preserve ecosystem services; forgone logging (where a forest is cleared before planting); monitoring; certification; land assessment; and staff training and technical assistance.[115] In addition, there may be associated risks with immature technologies, insufficiently liquid financial markets and incentive programmes that pose a threat to policy.[116] Financing strategies, such as payments for ecosystem services, instruments that reduce the cost — or increase the pool — of finance, off-take agreements and publicly-funded facilities to provide long-term capital can help to overcome investment barriers.

Financial institutions are lagging behind in their efforts to eliminate deforestation from supply chains. Despite increasing civil society pressure, financial institutions continue to trail consumer goods companies in the adoption of policies that eliminate deforestation from their portfolios.[117] For the most part, financial institutions do not identify the risks associated with their investments in agricultural commodities, including land conflicts, stranded assets and illegality. Some financial institutions have policies in place to measure and mitigate risk in agricultural commodity investment, but they are limited in number and scope. The global disclosure charity CDP reported a 24% increase between 2014 and 2017 in institutional investors who requested that companies report data on forest risks.[118] Meanwhile, at least 36 financial institutions have zero-deforestation policies for at least one commodity.[119] However, critical mass with the largest banks has not yet been reached and financial institutions in emerging economies still lag in their commitment to conduct risk assessments.

Innovative finance solutions are needed to support the transition of smallholder operations. Smallholder farms face particular challenges in accessing finance. They often need to be aggregated into cooperatives to allow for better allocation and distribution of finance and tend to require skills training, crop insurance and secure land tenure. Better support for implementing and measuring sustainable practices, along with certification, can help them to unlock financial support.[120] Governments have a key role to play, through direct policy measures and by supporting the creation and development of professional associations that provide training and other services. In many cases, governments will need international public support. Where the public sector lacks the institutions to provide training, cooperative arrangements with community organizations and private entities are also possible. Impact investors can help to pilot and scale financing models. A number of support models have already been successfully piloted, such as the RSPO's Smallholders Support Fund, which allocates part of the revenue generated from the trading of certified palm oil to support smallholders with the certification process. Meanwhile, Mondelēz International supports training for smallholders wanting to develop more sustainable farming practices via its cocoa extension and advisory services programme.

10. Improving the quality and availability of deforestation and supply chain data

Companies need better data to be able to assess their deforestation risk and measure the impact of their actions. Companies with zero-deforestation commitments are taking promising steps, such as

conducting deforestation risk assessments, increasing supplier dialogue and revising their procurement rules. However, few can demonstrate that their commitments have led to reduced deforestation.[121]

Significant progress has been made in obtaining global data on forest cover and deforestation, but additional efforts are needed. Notably, Global Forest Watch, an online forest monitoring and alert system, has experienced rapid growth in scope and content. At the national level, Brazil introduced the Action Plan for the Prevention and Control of the Legal Amazon Deforestation in 2004, which included the Real-Time System for Detection of Deforestation. This introduction of near real-time transparency of deforestation in the Amazon, through improved monitoring, raised the level of enforcement in tackling illegal deforestation. In Indonesia, the government launched its One Map initiative in 2016, which aims to combine land use, primary and secondary forests, land tenure and other spatial data into a centralized database. It aims to complete the process by 2019.[122] Other efforts include the Trase platform, which links downstream supply chain stakeholders to key production regions and their deforestation track records, and LandMark, an interactive, global platform that provides maps and other critical information on land that is collectively held by indigenous communities. LandMark also intends to start integrating data on concessions and carbon stocks.[123]

More near real-time deforestation data and alerts are needed, as well as more detailed information on the type of natural and plantation forest cover. The High Carbon Stock Approach is a tool that can help define forests that are important to local communities, or have high carbon or biodiversity values, in order to prioritize protection efforts and identify degraded areas for development.[124] Complete geospatial information on concessions, licences and land and forest tenure would allow governments to implement policies and avoid the confusion and conflict that can arise from overlaps between concessions and protected, or community-owned, forests. Greater knowledge of these overlaps would help companies comply with their own sustainable sourcing commitments and reduce risks arising from conflicting land claims.

There is an urgent need to agree shared definitions of key terms, such as "forest", " zero net deforestation" and "high conservation areas". Companies working towards deforestation-free supply chains use a wide range of definitions for words such as "forest" and, therefore, what constitutes deforestation. In addition, companies employ different standards to determine what types of forest should be spared from development. Agreement on these definitions would provide common ground for discussion and action and allow for more effective collaboration between partners.

Conclusions

The *Commodities and Forests Agenda 2020* is intended to help company executives, policy-makers and civil society leaders prioritize actions to address deforestation, within their own institutions and in cooperation with others. It provides those dealing with forest-risk commodities with facts and analysis to help define organizational goals and to provide strategic leadership in their implementation.

The Agenda focuses on measures that can address the deforestation caused by key agricultural commodities. However, the long-term success of these actions depends on broader efforts that support rural development, sustainable patterns of consumption, sustainable management of forests and the protection of standing forests. While governments in producer countries need to enhance policy and strengthen forest governance, those on the demand side must continue to explore options for putting regulatory incentives in place to reduce the deforestation linked to imported products. This two-pronged approach is necessary to transform supply chains, with action required from all consumers and importers, including emerging economies.

Supply chain efforts must be embedded in broader efforts to develop sustainable rural economies. A lack of career opportunities is driving younger generations towards urban centres, creating a shortage of qualified labour to support sustainable farming initiatives. Agricultural research and training, paired with access to finance, would help to attract rural businesses that create work opportunities for a younger workforce. The diversification of agricultural landscapes can help to break the dependence on a single crop and create more rural business opportunities.

Reduction of deforestation also depends on addressing consumption of commodities that pose the greatest risk. Reducing the global demand for meat, combined with a shift towards more sustainable production systems, would have a significant impact on greenhouse gas emissions, human health and landscapes typically associated with livestock production.

Addressing commodity-driven deforestation must coincide with increased efforts to conserve and sustainably manage forests in order to achieve long-term success. While this report focuses on agricultural supply chains, the protection of standing forests is equally important, recognized by the emphasis on legality and transparency within the Agenda. Protection can take the form of moratoria, incentive payments and redirected subsidies, or the creation of protected areas. Sustainable management of forests and stronger legal wood product supply chains are essential. Without adequate direct investment, incentives and supportive policies, forests risk further degradation. A comprehensive approach to managing forests that combines protection, sustainable management and reforestation is required. Support for sustainable forest industries can encourage people to manage, grow and protect forest resources, while contributing to rural economies. It is essential, particularly in regions with high rates of deforestation, that standing forests start generating financial returns.

The *Commodities and Forests Agenda 2020* shows that addressing commodity-driven deforestation is possible now. Solutions exist and are ready to be scaled up. The *Commodities and Forests Agenda 2020* helps to prioritize and coordinate activities and provides a concrete roadmap for action. To be able to meet the 2020 climate and forest goals, action must be taken without further delay.

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World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744

contact@weforum.org
www.weforum.org