APRIL 2017

SUPPORTING JURISDICTIONAL LEADERSHIP IN NET ZERO DEFORESTATION THROUGH SUSTAINABLE VALUE CHAINS: OPPORTUNITIES FOR TFA 2020

Foreword

Forests cover approximately 30% of the land area on our planet. Not only do they provide oxygen for the planet and a home for much of the world's wildlife, but 1.6 billion people also rely on forests for basic needs, such as good, fresh water, clothing, traditional medicine and shelter. Despite the increasing focus on sustainable land use, the deforestation rate is still high. According to WWF, approximately 46-58 thousand squares miles of forest are lost each year. It is estimated that the production of soy, beef, paper and pulp and palm oil account for about half of the world's current tropical deforestation. Scientists estimate that 12% of global greenhouse gas emissions come from deforestation.

In response to these challenges, the Tropical Forest Alliance (TFA) 2020 was created to contribute to mobilizing and coordinating actions by governments, the private sector and civil society to reduce tropical deforestation related to key agricultural commodities by 2020. The TFA is a public-private partnership in which partners take voluntary actions, individually and in combination, to reduce the tropical deforestation associated with the sourcing of commodities such as palm oil, soy, beef, paper and pulp and does so by tackling the drivers of tropical deforestation using a range of market, policy, and communications approaches.

The tropical deforestation challenge is currently at a critical juncture. On the positive side, the Paris Climate Conference COP21 led to a number of ambitious forest-related pledges from governments, donors, and private sector companies. There are also several sub-national governments who have developed ambitious programs for reducing deforestation and carbon emissions. On the negative side, there is still a perception that reduced deforestation efforts are incompatible with efforts to promote economic growth in forest-rich regions. This perception, combined with many institutional challenges in these tropical forest-rich countries, has meant that progress has been uneven and slower than otherwise would have been hoped.

The goal of this research effort is to address these gaps by examining the state of jurisdictional initiatives, and of the opportunity they offer for the partners of TFA 2020 in supporting the transition to sustainable production of key forest risk commodities (such as palm oil, soy, beef, paper and pulp, cocoa, and rubber).

Many experts in academia, government, and industry have offered invaluable guidance, suggestions, and advice. Our particular thanks to Marco Albani, Patricia Ohnmacht, Florian Reber, Fabiola Zerbini, and Anna Kopacz (TFA); Neil Scotland (DFID); Greg Fishbein, Lex Hovani, Herlina Hatanto, Marcio Stutzman, and Karen Olivera (The Nature Conservancy); Jeff Seabright, Hannah Hislop, and Melissa Miners (Unilever); Mark Murphy (Cargill); David Edwards, Edward Davey, Beatriz Luraschi; and Graham Wynne (The Prince's Rainforest Project); Craig Hanson (WRI); Jeremy Goon, Perpetua George, and Kelly Chen Kaili (Wilmar); Daniel Nepstad (Earth Innovation Institute); Lloyd Gamble and Josefina Braña Varela (WWF); Rosa Maria Vidal, William Boyd, and Luke Pritchard (Governors' Climate & Forests Fund); Ruth Nussbaum (ProForest); Vincent Swinkels (Ministry of Foreign Affairs, The Netherlands); Christine Dragisic (White House Council on Environmental Quality); Morten Rosse (McKinsey & Company); Cynthia Ong (LEAP SPIRAL); Holly Jonas (Forever Sabah); Yohanes Ryan (RSPO); Violaine Berger, Nienke Stam and Lucian Peppelenbos (IDH); Liam Walsh (Conservation International); Mathias Almeida (NatCap); Fiona Wheatley (Marks & Spencer); Andrew Kluth (Golden Veroleum Liberia); Goetz Martin (Sinarmas); Eduardo Leao (SEDEME – Para); Paulo Barreto

(IMAZON); Saah David (FSD – Liberia); Fernando Sampaio (PCI- Mato Grosso); and Fred Kugan (Sabah Forestry Department).

We are grateful for all of their input, but the final report is ours and any errors are our own

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Executive Summary

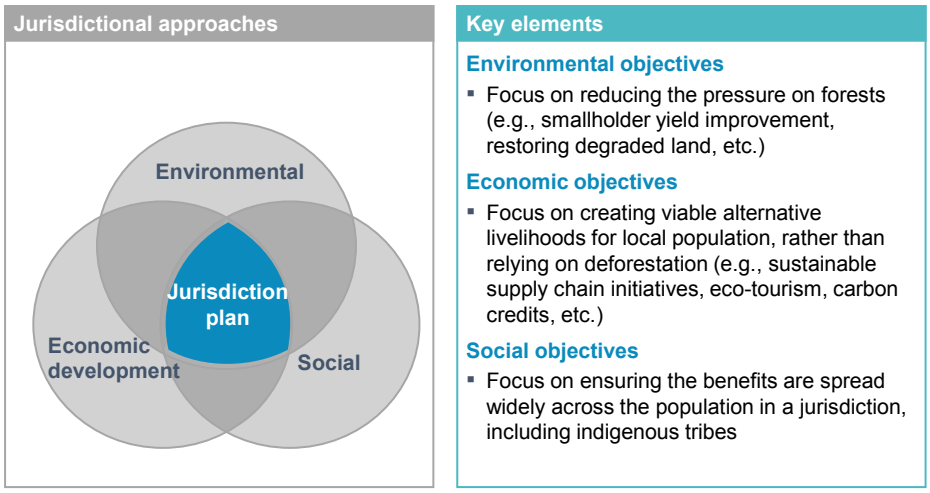
A jurisdictional approach can be a useful complement to TFA 2020's existing focus on sustainable sourcing by ensuring that there is sufficient volume and supply of sustainable commodities to make company deforestation-free commitments realizable, and by helping to avoid system leakage whereby sustainable sourcing approaches by some companies are undermined by other companies adopting non-sustainable approaches. This research identifies several emerging trends that could support a TFA 2020 jurisdictional approach and identifies 3 broad areas of opportunity for TFA 2020 partners to consider.

Understanding the jurisdictional landscape

Jurisdictional programs are approaches that aim to reconcile competing social, economic, and environmental objectives, and that take place at a scale that matches the administrative boundaries of sub-national or national governments (Exhibit E1).

EXHIBIT E1

Jurisdictional approaches aim to reconcile competing social, economic and environmental objectives



SOURCE: WWF; AlphaBeta analysis

There are several reasons why jurisdictional approaches are crucial for tackling deforestation. First, they can help to mainstream sustainability in the forest regions versus creating "an oasis of green in a desert of deforestation" where sustainability efforts are undermined by leakage from continued deforestation elsewhere. Second, jurisdictional approaches have the greatest potential for long-term impact by seeking to reconcile competing social, economic, and environmental objectives. By engaging local institutions, it also maximizes the likelihood that policy procedures and governance will be directed towards a long-term solution. Finally, jurisdictional approaches provide the opportunity to create replicable examples of success to inspire change elsewhere, helping to scale-up potential impact.

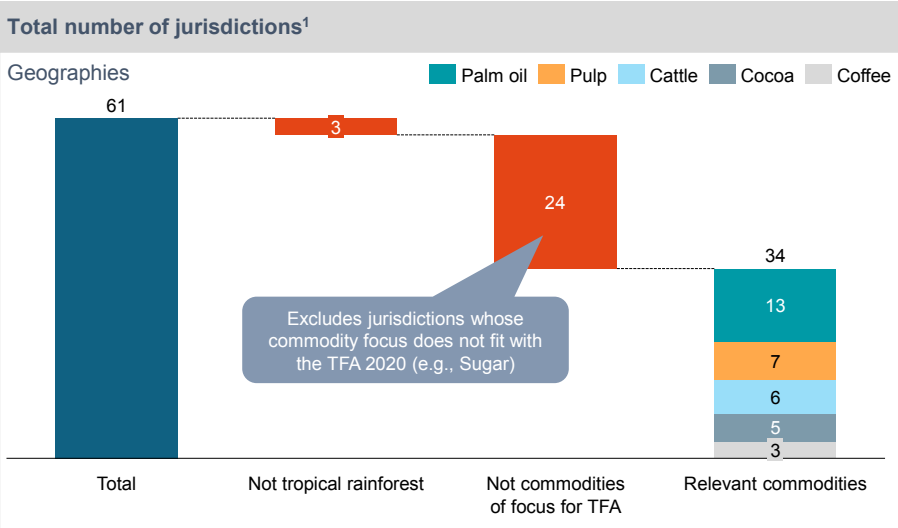
Five emerging trends in jurisdictions create a potential opportunity for TFA 2020 partners:

1. *There are a significant number of jurisdictions pursuing sustainable development, allowing TFA 2020 partners to "spread their bets"*

In total, we have identified 61 jurisdictional programs, with a fairly even distribution across Africa, Latin America, and Asia. Of the total number of jurisdictions, 34 of them are potentially relevant to the mandate of TFA 2020 (Exhibit E2) as they are operating in tropical forest regions and have relevant commodities (i.e., palm oil, pulp, cattle, soy, cocoa, and coffee). This creates a range of potential opportunities for TFA 2020 partners to consider supporting.

EXHIBIT E2

Of the 61 cases, we have long-listed 34 jurisdictions whose geography and commodity focus is aligned with the objectives of TFA 2020



1 Jurisdictions based on the definition by 'The Little Sustainable Landscapes Book' by Denier et. al., 2015. For jurisdictions producing multiple commodities, the main commodity (in terms of production volume relative to global supply) was used for classification purposes.

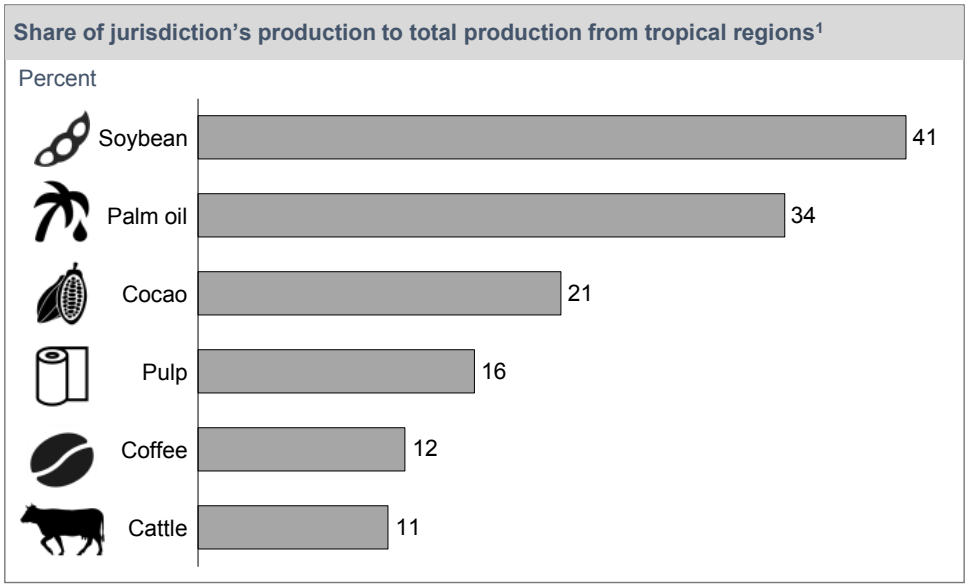
SOURCE: Literature search, Denier et. al.; AlphaBeta analysis

2. *These jurisdictions are crucial for sustainable sourcing and could create sufficient scale to make sustainable sourcing commercially feasible*

The 34 jurisdictions of potential relevance for TFA 2020 represent significant shares of global value chains (Exhibit E3). This is particularly the case for soybean where the jurisdictions represented 41% of the total global production from tropical regions in 2015.

EXHIBIT E3

These jurisdictions represent a significant share of the total supply of key commodities of interest to TFA 2020 partners



1 Share of supply from the 34 focus jurisdictions. Data for Coffee; Palm oil; Soybean; Cacao and Cattle based on 2014 FAO estimates. Data for forest concession based on FAO estimates from 2015. Area allocated for timber concession was used as a proxy for total supply of pulp and paper. Total heads of cattle is used as a proxy for total beef produced.

SOURCE: FAO; AlphaBeta analysis

3. *There are jurisdictions that are sufficiently advanced on their strategies that could enable TFA 2020 to achieve relatively near-term impact*

Assessing the precise level of jurisdictional maturity when it comes to their sustainable development plans is difficult. However, we have identified 3 stages linked to identifiable "milestones" in jurisdictions:

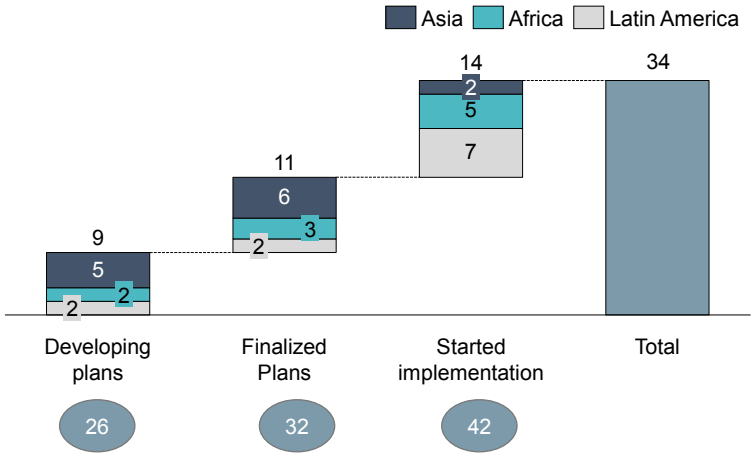
- "Developing plans" refers to jurisdictions who are in the design and program planning phase;
- "Finalized plans" refers to jurisdictions who have ratified their plans and who are currently working to develop the capacity and pilot projects around these plans; and
- "Started implementation" refers to jurisdictions which have commenced implementation of their programs at a jurisdiction-wide level.

In the 34 jurisdictions, over 40% have started some level of implementation on their sustainable development plans (Exhibit E4).

EXHIBIT E4

Over 40% of the jurisdictions have started implementation on their sustainable development strategies

Total number of jurisdictions by stage of sustainable development approach[1]



1 The stage of development of the jurisdictional sustainable development approach is based on expert interviews and a literature review. "Developing plans" refers to jurisdictions who are in the design and program planning phase; "Finalized plans" refers to jurisdictions who have ratified their plans and who are currently working to develop the capacity and pilots projects around these plans; and "Started implementation" refers to jurisdictions which have commenced implementation of their programs at a jurisdiction-wide level.

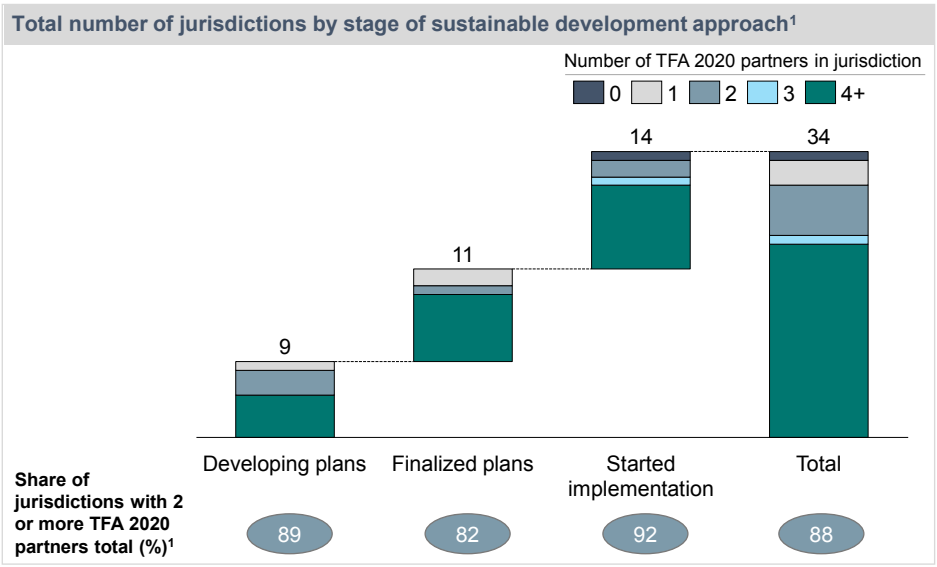
SOURCE: Literature search; Expert interviews; AlphaBeta analysis

4. TFA 2020 partners are already active in many of these jurisdictions

More than 88% of the jurisdictions have 2 or more TFA 2020 partners active in the region (Exhibit E5). Interviews with TFA 2020 partners identified their willingness to explore collaboration with other partners and potential interest in TFA 2020 to help with this convening.

EXHIBIT E5

88% of the jurisdictions have 2 or more TFA 2020 partners active in the region



1 Excludes TFA 2020 government partners.

SOURCE: Literature search; Expert interviews; AlphaBeta analysis

5. *There are a number of challenges that these jurisdictions face where TFA 2020 partners could play a valuable role.*

This report examined 5 jurisdictions (Mato Grosso and Pará in Brazil; East Kalimantan in Indonesia; Sabah in Malaysia; and Liberia) in detail to understand their specific challenges and opportunities, and to illustrate a possible jurisdictional level approach that TFA 2020 members could pursue. Our review of past jurisdictional approaches has identified several "pre-conditions" for successful sustainable development (Exhibit E6).

EXHIBIT E6

A review of jurisdictional approaches has identified a number of "pre-conditions" for successful sustainable development

Pre-condition	Description
Aligned incentives	
Local leadership engagement	The degree to which local political leaders are actively committed to a sustainable development approach.
Community engagement	The degree to which local communities (particularly those dependent on the forests for their livelihoods) are actively engaged during the process.
National alignment	The degree to which sub-national jurisdiction plans are supported and coordinated with national processes.
Other stakeholders	The degree to which other key stakeholders, particularly those likely to be potentially adversely affected by the changes, are actively engaged in the process.
Strong Design	
Strategic planning	The degree to which there is an aligned and clear strategic plan for sustainable development in the jurisdiction.
MRV systems	The degree to which there are robust Monitoring Reporting & Verification (MRV) frameworks and systems in place in the jurisdiction.
Focus and prioritization	Strong prioritization of areas of focus, with SMART (Specific Measurable Action-oriented Realistic and Time Bound) goals.
Alternative livelihood plans	The degree to which viable plans for alternative livelihoods have been developed, which can reduce pressures on the forest without sacrificing local growth and incomes.
Robust implementation	
Technical capacity	The presence of technical expertise to support the implementation of the sustainable development plan, including factors such as MRV systems and land certification.
Financial resources	The ability of the jurisdiction to attract the necessary finance to support the envisaged transformation.
Spatial planning	The degree to which there is clear land certification and spatial planning to support the sustainable development plan.
Governance issues	The degree to which there are strong governance procedures in the jurisdictions to minimize corruption and ensure the longevity of plans beyond the current administration.

SOURCE: AlphaBeta analysis

In each of the jurisdictions studied, there is further support needed to ensure these pre-conditions are all in place. Specifically:

- **Aligned incentives.** Jurisdictional governments have committed to sustainable development, but the communication, consensus building and resilience required to pursue and complete the task can be challenging, especially after financial incentives have eroded. The government strongly supported a sustainable growth path in all the jurisdictions studied. However, all face potential trade-offs, with many stakeholders stressing that carbon markets alone will not provide sufficient incentives to adopt long-term sustainable growth.
- **Strong design.** Planning ensures that projects do not overlap and that they avoid focusing too heavily on a few districts instead of the whole jurisdiction. This is a common challenge for many jurisdictions, particularly because many their programs build on sub-regional activities that at times involve multiple levels of government. Weak communication between stakeholders on the scope of their projects often exacerbates this. In addition, many alternative livelihood plans remain underdeveloped in jurisdictional approaches, or are based on areas where scalable impact may be difficult to create.
- **Robust implementation.** Sufficient technical capacity to design, implement and evaluate projects is needed to allow various stakeholder programs to function efficiently. Jurisdictions vary significantly in this regard. In some jurisdictions, there are gaps in land planning and establishing capacity for enforcement. In addition, a key constraint for pursuing the sustainable development pathways in these jurisdictions is the scale of investment required. Whilst there are several data challenges in estimating

the exact investment requirements to adopt a sustainable land use approach in tropical rainforest regions, previous TFA 2020 works suggest investment needs could be roughly USD 160 billion annually.[1] It is useful to compare the investment requirements to the assets under management of investment funds created to invest in ecological and regenerative agriculture and food systems. Currently, these funds have just over USD 500 million in assets under management even considering broader agricultural funds, the capital base of the 31 leading funds amounts to just under USD 4 billion.[2] While large, this is less than 3% of annual investment requirements. Similar gaps appear in the jurisdictions examined in this report.

Potential unique role for TFA 2020 partners

Based on TFA 2020's capabilities and experience, several potential collaboration opportunities to support jurisdictional sustainable development emerge:

- **Signal publicly.** TFA 2020 and its partners could relay to key stakeholders (involved in the jurisdictions) of the importance of the jurisdiction's sustainable development plans and its associated goals and activities. The alliance could indicate that progress on these jurisdictional plans could be matched with greater sourcing opportunities. Public signaling and advocacy, particularly on the part of major commodity producers, retail companies, and private investors, could help build momentum and political will to implement and see through sustainable jurisdiction plans. This is important as many jurisdictions are at a critical inflection point wherein their programs have recently commenced, or are currently being renewed. TFA 2020 could also give voice to these jurisdictions by sharing the success of jurisdictional approaches through platforms at various international events.
- **Establish sustainable sourcing roadmaps and targets.** TFA 2020's multi-stakeholder platform includes companies from various commodities, across the full length of the commodity value chain. This puts the alliance in a unique position to work with its private sector partners (and other stakeholders) to translate existing sustainable sourcing guidelines for different commodities into a clear roadmap to support the jurisdiction's development of a sustainable supply chain. This would require TFA 2020 partners in each jurisdiction to establish minimum criteria for sustainable practices for a given commodity based on their own requirements and relevant internationally recognized certifications, and then develop a clear action plan and targets (together with local stakeholders in the jurisdiction) for achieving these criteria. A roadmap would help to "scale-up" the efforts of individual TFA 2020 partners who often have their own sustainable sourcing guidelines, and reduce confusion around the sourcing process. There are some promising initiatives in this area upon which TFA 2020 partners could build on. For example, the Moore Foundation is working to implement harmonized verified deforestation-free sourcing commitments for meatpackers, retailers, and soy traders, across supply chains in parts of Brazil, Argentina, and Paraguay.[3]

[1] Better growth with forests - economic analysis, TFA 2020, March 2016.

[2] *Agricultural investment funds for developing countries*, FAO, 2010.

[3] https://www.moore.org/initiative-additional-info?initiativeId=forests-and-agricultural-markets-initiative

The sustainable sourcing roadmaps could also be used to identify gaps in the jurisdictional sustainable development approach and provide opportunities for TFA 2020 partners to support and/or collaborate. Among initiatives for potential collaboration, training for smallholder farmers on sustainable techniques and community engagement could be particularly interesting areas to explore given there currently exists a large number of similar imitative within a jurisdiction.

There could also be a role for TFA 2020 partners in helping understand the investment requirements to support this sustainable sourcing transition, and the barriers (including risks inflating hurdle rates) limiting investments. In our analysis of jurisdictions, we found that estimates of investment requirements varied significantly – in amount as well as investment components. TFA 2020 could help to formulate a rigorous, consistent, and replicable methodology to quantify the investment requirements and potential returns needed for sustainable practices across jurisdictions. This would improve investor confidence and provide clarity for investors. TFA 2020 could also support the development of a business case, and "matchmake" jurisdictions with potential investors. Such an approach could integrate effectively with other initiatives in this space, such as the Governors' Climate and Forests Fund's "Jurisdictional Partnerships for Forests, Climate, and Agriculture". The fund's program aims to support investment in public-private partnerships to reduce deforestation associated with commodity production.

- **Develop a cross-jurisdictional platform.** Our report found that jurisdictional programs are at different levels of maturity but often face similar implementation challenges. A cross-jurisdictional platform can shorten the "learning curve" for jurisdictions by providing a repository of both local and international best practices to engage with the private sector, local communities, smallholders, government agencies, and civil society. While there are many platforms active in this area – for example, the Territorial Performance System (TPS), the Sustainable Tropics Alliance, the Governors Climate Fund (GCF), Global Canopy Program (GCP) – there is a key role that TFA 2020 can play due to its membership base. Many of the stakeholders interviewed in the course of this work stressed the fact that having private sector companies as part of the TFA 2020 could create a more effective platform for sharing insights and scaling impact to other jurisdictions.

Possible next steps for TFA 2020

Key next steps for moving forward in this area include:

- *Individual discussions with TFA 2020 members to get their input and align on their aspirations and approach.* This could include clarifying the role of the TFA 2020 secretariat. This role could range from a "light touch" convenor role, where the secretariat simply shares learnings from what TFA 2020 partners are doing separately in each jurisdiction, to a "heavy touch" implementation role whereby TFA 2020 raises funds from partner organizations in order to fund teams in each of selected jurisdictions to work with TFA 2020 partners to develop the sourcing roadmaps and drive implementation with the jurisdiction.
- *Identify funding requirements and other enablers for TFA 2020 to pursue a jurisdictional approach* (based on the feedback from individual TFA 2020 partner discussions). The resourcing requirements will need to be defined as part of this exercise.
- *Convene a discussion of TFA 2020 partners to align on a clear plan forward*, possibly at the 2017 Annual General Meeting. This would include aligning on the approach, the organizations to be involved, and the jurisdictions to pilot this approach.

1. Stock take of jurisdictional approaches

Defining jurisdictional approaches

For the purposes of this report, we define jurisdictional programs as "approaches that aim to reconcile competing social, economic, and environmental objectives, and that take place at a scale that matches the administrative boundaries of sub-national or national governments."[4] Jurisdictional programs differ from other sustainable land use initiatives in some key areas (Exhibit 1). For example, landscape approaches are similar to jurisdictional approaches in that they include multiple stakeholders with multiple objectives, with a strong emphasis on reduced deforestation. However, landscape approaches differ in that they do not match specific administrative boundaries of sub-national governments, typically representing an area within a certain government district for example. There are also zero-deforestation commitments by industry in their plantations, which can involve multiple stakeholders but tend to have a specific focus on reduced deforestation and do not match to government administrative boundaries. The definition of jurisdictional approaches in this report is slightly broader than used in other reports. For example, the WWF has a narrower definition of jurisdictional approaches which include only regions with zero-deforestation commitments.[5]

EXHIBIT 1

Jurisdiction approaches differ from other sustainable land use initiatives in some key aspects

Focus of this analysis

✓ Present ✓ Some presence ✗ Not present

			Characteristics			
Approaches	Description	Example	Multiple stakeholders	State - drawn boundary	Multiple objectives	Zero deforestation goals
Landscape approach	Approach that involves collaboration among multiple stakeholders, with the purpose of achieving sustainable landscapes	Juma reserve	✓	✗	✓	✓
Zero-Deforestation commitments	Voluntary corporate sustainability efforts by industries to end deforestation in their plantations	Unilever J-sourcing	✓	✗	✗	✓
Jurisdictional approach	Similar to the landscape approach but with a clearly demarcated area linked to political / state boundaries	Acre, Mai Ndombe	✓	✓	✓	✓

SOURCE: WWF; AlphaBeta analysis

[4] This definition links closely to that used by other academics in this space. See for example, Denier, L., Scherr, S., Shames, S., Chatterton, P., Hovani, L., Stam, N. 2015. The Little Sustainable Landscapes Book. Global Canopy Program: Oxford.

[5] *Jurisdictional Approaches to Zero-Deforestation Commodities*, WWF, November 2016.

Advantages and Disadvantages of jurisdictional approaches

There is a range of advantages but also disadvantages to jurisdictional approaches. Some of the advantages include:

- **Creating scalable impact.** The jurisdictional approach can potentially increase the scale of positive sustainability impacts while lowering the costs of achieving those impacts. Or to put in more blunt terms, it can mean the difference between mainstreaming of sustainability in regions versus creating "an oasis of green in a desert of deforestation."
- **Supports long-term change.** Jurisdictional approaches have the greatest potential for long-term impact to reconcile competing social, economic, and environmental objectives. By engaging local government institutions, it also maximizes the likelihood that policy procedures and governance will be directed towards a long-term solution.
- **Enables replication.** Similar to the cities agenda, where local mayors have been given platforms (such as the C40) to share and highlight their innovations, by working with local government leaders there is the opportunity to create replicable examples where other government leaders can learn and adapt the experiences of others. A good example of this is the Governors' Climate and Forests Task Force, which enabled states/provinces to meet on a regular basis to discuss progress on their REDD+/LED programs.

However, there are also challenges associated with jurisdictional approaches:

- **Lack of perceived benefits.** Many jurisdictional programs commenced with the objective of attracting significant financial contributions from REDD+ mechanisms, however in most cases (at least to date) carbon markets have failed to deliver a meaningful contribution to local development. Whilst sustainable supply chain commitments could create a more realistic and long-term solution to sustainable development in these jurisdictions, there is still significant skepticism. As Fishbein and Lee describe, "political leaders and land managers require a compelling value proposition to change course—and many do not have one yet".[6]
- **Local sovereignty concerns.** If done poorly, jurisdictional approaches risk being perceived as foreign companies and governments impacting local sovereignty. Negative responses by the Indonesian government to zero-deforestation palm oil commitments are a prime recent example. This can be exacerbated if local stakeholders perceive that there are insufficient incentives associated with the change in behavior required. A recent jurisdictional review by the WWF highlighted some concerns in this area with sustainable sourcing commitments – several of their interviewees raised concern that these may simply be a "bubble" that will not be

[6] Greg Fishbein and Donna Lee, *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*, TNC / Forest Carbon Partnership Facility / World Bank, January 2015.

transformational to economic development in jurisdictions, at least in the near-term (3-7 years).[7]

- **Unrealistic expectations.** Jurisdictional approaches can shift monitoring costs to local governments, which can be unrealistic given gaps in local capabilities. A review of 8 diverse jurisdictions (Acre, Brazil; Berau, Indonesia; Ghana's cocoa ecoregion; Mai Ndombe, Democratic Republic of the Congo (DRC); San Martín, Peru; São Félix do Xingu, Brazil; the Terai Arc, Nepal; and the Yucatan Peninsula, Mexico) highlighted capacity gaps (including technical and financial resources) to be among their top challenges to progress.
- **Political cycles.** Political turnover due to election cycles and other disruptions can derail jurisdictional approaches, where often the presence and support of a key local political leader are critical for progress.[8]
- **Weak governance.** Bureaucracy, coordination, and corruption can kill momentum, both with local stakeholders and with foreign companies and donors.
- **Too many goals.** Some jurisdictional approaches have been criticized for being a "layer cake" with a range of environmental, economic, and societal objectives. Whilst all are valuable in isolation, the sum effect of these goals may lead to a dilution of focus. In one jurisdiction, there were over eight different definitions of success in terms of the deforestation objectives, which can make it difficult to focus attention.[9]
- **Potential misalignment with national processes.** Garnering support at the national level, and ensuring appropriate coordination can sometimes be challenging, particularly when the national and local government leaders are from different political parties, or where there have been past (and sometimes ongoing) tensions around local sovereignty. Some jurisdictions are further ahead than the national level program and have passed legislation or developed frameworks for REDD+/LED (e.g., Acre, San Martín).[10]

List of current jurisdictional approaches

In order to compile a comprehensive list of active jurisdictional programs, AlphaBeta reviewed several sources: the existing academic literature; various institutions supporting reduced deforestation (e.g., The Nature Conservancy; IDH; Governor's Climate and Forest Task Force, the FCPF-Carbon Fund, REDD Early Movers, and the BioCarbon Fund's Initiative for Sustainable Forest Landscapes, etc.) and consulted with a range of experts across different regions. In total, we have identified 61 jurisdictional programs, with a fairly even spread across Africa, Latin America, and Asia (Exhibit 2).

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[7] *Jurisdictional Approaches to Zero Deforestation Commodities*, WWF, November 2016.

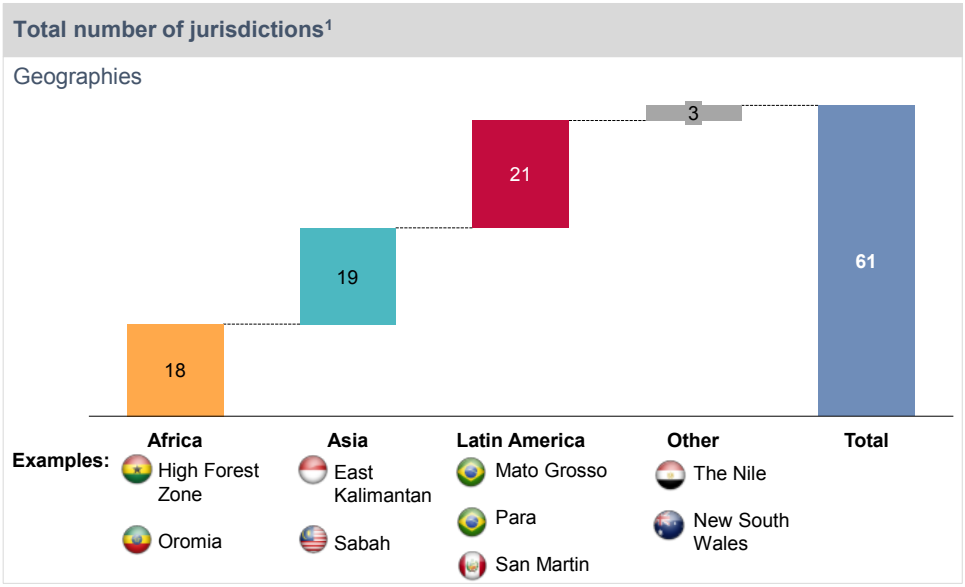
[8] Greg Fishbein and Donna Lee, *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*, TNC / Forest Carbon Partnership Facility / World Bank, January 2015.

[9] *Jurisdictional Approaches to Zero Deforestation Commodities*, WWF, 2016 (forthcoming).

[10] Greg Fishbein and Donna Lee, *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*, TNC / Forest Carbon Partnership Facility / World Bank, January 2015.

EXHIBIT 2

Our research has identified 61 geographies which are engaged in sustainable jurisdictional approaches



1 Jurisdictions based on the definition by 'The Little Sustainable Landscapes Book' by Denier et. al., 2015

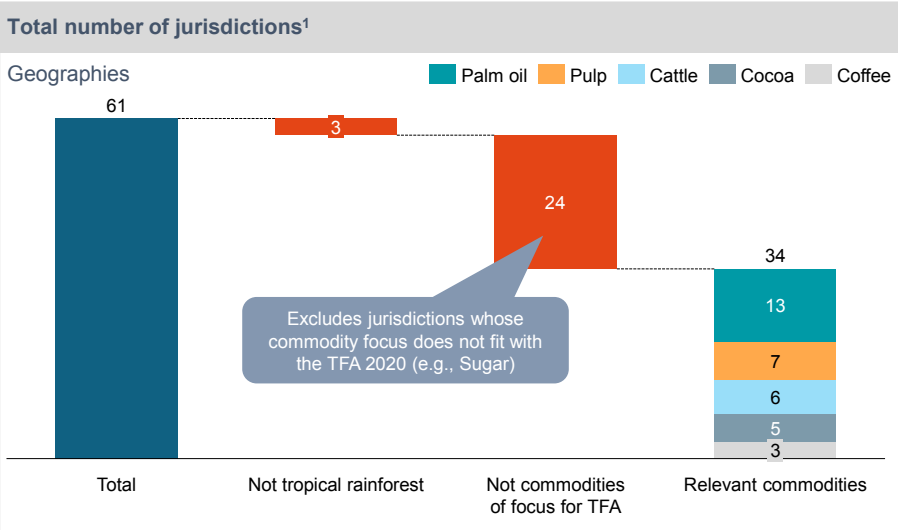
1. SOURCE: Literature search, Denier et. al.; AlphaBeta analysis

Some of the jurisdictions were then removed as they were not relevant to the mandate of TFA 2020. Specifically, this included jurisdictional programs not operating in tropical forest regions, or jurisdictional programs without a focus on TFA 2020's key commodities (i.e., palm oil, pulp, cattle, soy, cocoa, and coffee). This resulted in the removal of 27 jurisdictions from the list, leaving 34 jurisdictions (Exhibit 3).[11]

[11] See the Appendix for further details on these jurisdictions.

EXHIBIT 3

Of the 61 cases, we have long-listed 34 jurisdictions whose geography and commodity focus is aligned with the objectives of TFA 2020



1 Jurisdictions based on the definition by 'The Little Sustainable Landscapes Book' by Denier et. al., 2015. For jurisdictions producing multiple commodities, the main commodity (in terms of production volume relative to global supply) was used for classification purposes.

SOURCE: Literature search, Denier et. al.; AlphaBeta analysis

The jurisdictions vary across multiple dimensions

The 34 remaining jurisdictions differ significantly in terms of geographies, administrative level, commodity focus, and logistical challenges (Exhibit 4):

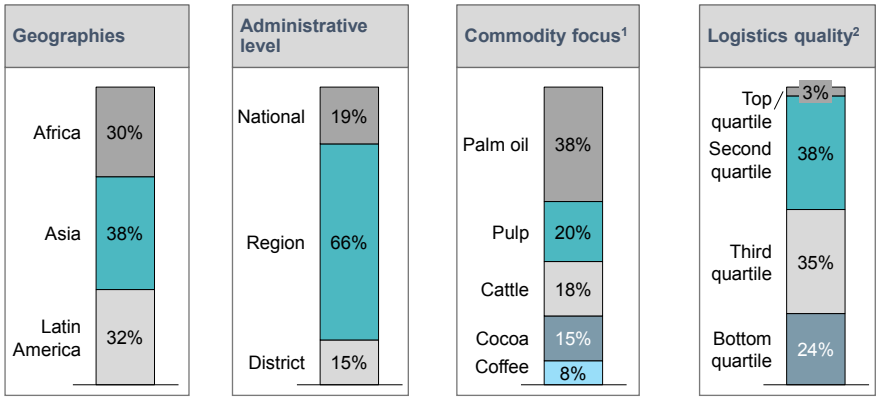
- **Geographies.** The jurisdictions represent a fairly even spread of geographies, at least at the continent level. The largest share of jurisdictional approaches is in Asia (38%), followed by Latin America (32%), and Africa (30%).
- **Administrative level.** Most of the jurisdictions are at the sub-national level (i.e., typically defined as states or provinces) – one level down from the national level. This raises the importance of ensuring strong alignment with both national processes, but also at the district level (i.e., the level below this regional level).
- **Commodity focus.** Many of the jurisdictions produce a range of commodities, however, for the analysis, we focused on the "main" commodity in each jurisdiction, based on their share of global production volume. The most important commodity is palm oil (38%), with a fairly even spread across the other commodities in the other jurisdictions.
- **Logistics challenges.** The logistics challenges are proxied by the score of each jurisdiction in the World Economic Forum's Competitiveness Index on the sub-index "Quality of transport infrastructure". This metric has the disadvantage of representing subjective opinions of local business leaders (which can introduce some noise in the data), but it has the advantage of having comprehensive coverage of the jurisdictions. The data is available only at the national level, so we have assumed for this analysis

that the jurisdictional quality of logistics infrastructure mirrors that of the broader country. The analysis shows the challenge facing many of these jurisdictions on logistics. More than half of the jurisdictions are in the bottom quartile on the assessment of the quality of transport infrastructure, and only one jurisdiction (Sabah) ranks in the upper quartile.

EXHIBIT 4

The jurisdictions differ significantly in terms of geographies, administrative level, commodity focus, and quality of logistics

Breakdown of jurisdictions
Percent



1 For jurisdictions producing multiple commodities, the main commodity (in terms of production volume relative to global supply) was used for classification purposes.
2 Quality of transport infrastructure is based on the World Economic Forum competitiveness index 2014/2015, benchmarked against other countries. The "overall transport infrastructure quality" sub-index is used. Sub-national regions are given the same score as the overall country due to data availability.

SOURCE: Literature search; World Economic Forum Competitiveness Index; AlphaBeta analysis

The jurisdictions also vary in terms of their stage of sustainable development

Assessing the precise level of jurisdictional maturity when it comes to their sustainable development plans is difficult. However, we have identified 3 stages linked to identifiable "milestones" in jurisdictions:

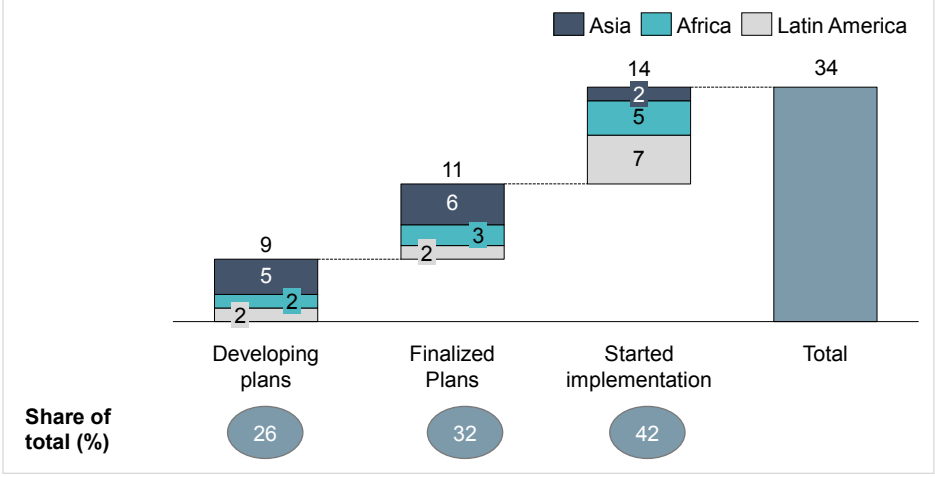
- "Developing plans" refers to jurisdictions who are in the design and program planning phase;
- "Finalized plans" refers to jurisdictions who have ratified their plans and who are currently working to develop the capacity and pilot projects around these plans; and
- "Started implementation" refers to jurisdictions which have commenced implementation of their programs at a jurisdiction-wide level.

In the 34 jurisdictions, over 40 % have started some level of implementation on their sustainable development plans (Exhibit 5).

EXHIBIT 5

Over 40% of the jurisdictions have started implementation on their sustainable development strategies

Total number of jurisdictions by stage of sustainable development approach[1]



1 The stage of development of the jurisdictional sustainable development approach is based on expert interviews and a literature review. "Developing plans" refers to jurisdictions who are in the design and program planning phase; "Finalized plans" refers to jurisdictions who have ratified their plans and who are currently working to develop the capacity and pilots projects around these plans; and "Started implementation" refers to jurisdictions which have commenced implementation of their programs at a jurisdiction-wide level.

SOURCE: Literature search; Expert interviews; AlphaBeta analysis

The jurisdictions are crucial for global commodity supply

A key consideration for TFA 2020 is the importance of these jurisdictions for global supply chains. Gathering precise data is difficult as many jurisdictions lack strong reporting mechanisms. Where production volumes were unavailable, the team did an approximate breakdown of the jurisdiction's share of national export volumes (where data is available from the FAO). Data on pulp and paper production was proxied using the area provided for timber concessions in the jurisdiction as a share of the total area for timber concessions globally.

Our research indicates that the jurisdictions provide a significant share of the export commodities from tropical regions (Exhibit 6):

- **Palm oil.** The jurisdictions produced 34% of the palm oil from tropical countries in 2014.[12] A large portion of these jurisdictions is in Asia, including Sabah, Central Kalimantan, and East Kalimantan.
- **Cocoa.** Despite only representing 15% of jurisdictions cocoa producing areas like the Tai region in Ivory Coast and Ghana's high forest region, produced over 21% of global (and tropical) cacao production in 2015.[13]

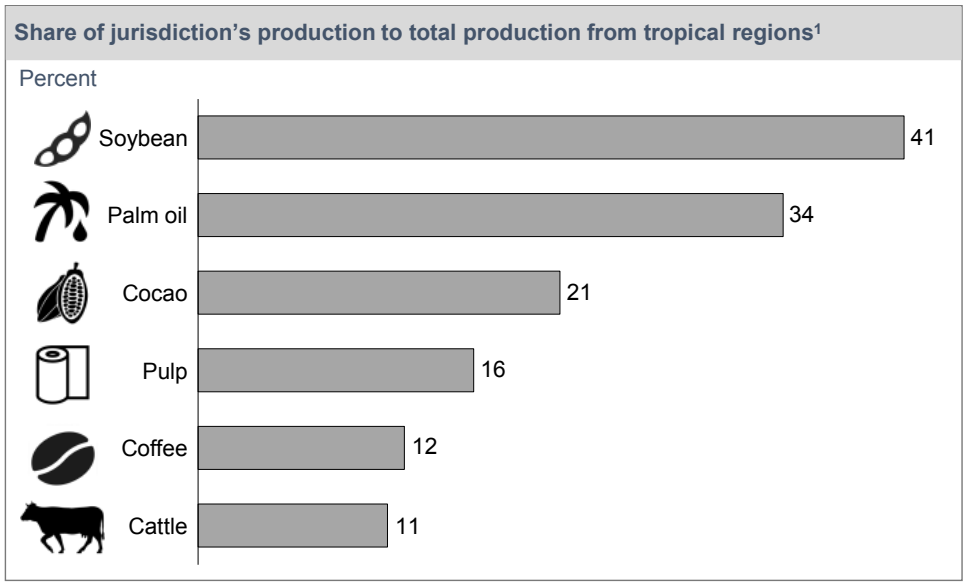
[12] FAO Statistical Database: Palm Oil production, *FAO,* 2014.

[13] *Global Cocoa Production 1980-2015*, Statista, 2016.

- **Soy.** Although not considered the primary commodity in their jurisdictions, Mato Grosso, Para and Paraguay provided nearly 13% of the world's soybean supply and 41 % of soy produced in tropical climates.
- **Coffee.** The jurisdictions we examined accounted for 9% of the world's coffee production in 2015 and 12% of coffee from tropical climates. This was driven largely by Viet Nam's Lam Dong province and Ethiopia's Oromia region.
- **Cattle.** Cattle producing jurisdictions – measured as the total number of heads – contributed to 8% of the world's total cattle supply and were mainly from Latin American jurisdictions (Mato Grosso and Para in Brazil; Yucatan Peninsula in Mexico). These jurisdictions represent 11% of the cattle heads in tropical countries.

EXHIBIT 6

These jurisdictions represent a significant share of the total supply of key commodities of interest to TFA 2020 partners



1 Share of supply from the 34 focus jurisdictions. Data for Coffee; Soybean; Cacao and Cattle based on 2014 FAO estimates. Data for forest concession based on FAO estimates from 2015. Area allocated for timber concession was used as a proxy for total supply of pulp and paper. Total heads of cattle is used as a proxy for total beef produced.

SOURCE: FAO; AlphaBeta analysis

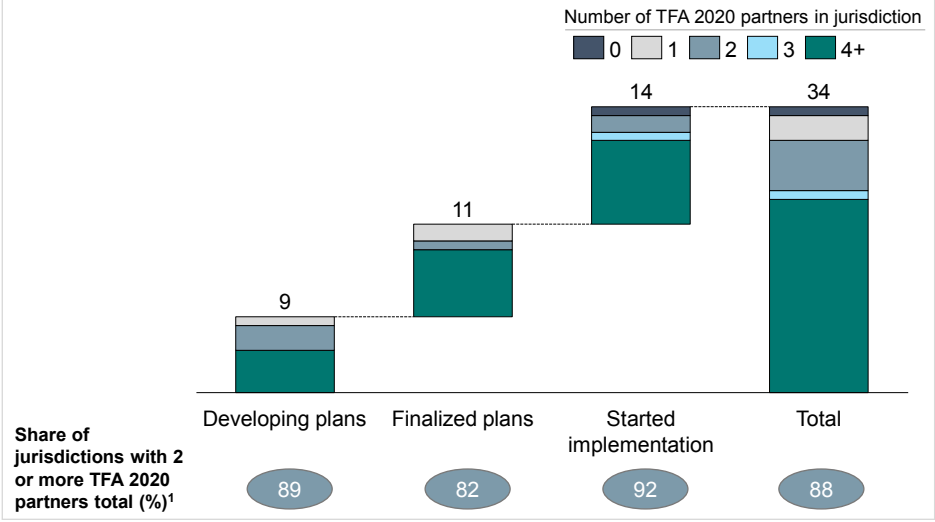
TFA 2020 partners are already active in many of these jurisdictions

More than 88 % of the jurisdictions we examined have 2 or more TFA 2020 partners active in the region (Exhibit 7).

EXHIBIT 7

88% of the jurisdictions have 2 or more TFA 2020 partners active in the region

Total number of jurisdictions by stage of sustainable development approach[1]



1 Excludes TFA 2020 government partners.

SOURCE: Literature search; Expert interviews; AlphaBeta analysis

This number excludes the government partners of TFA 2020 – including them would make this number even higher. The cooperation between TFA 2020 partners in these jurisdictions varies across jurisdictions, but overall it is still somewhat limited. Interviews with TFA 2020 partners identified willingness to explore collaboration with other partners, and potential interest in TFA 2020 helping with this convening.

Lessons learned from jurisdictional approaches

While many jurisdictional programs are developing, and finalizing plans, there are some emerging lessons. Based on a review of past academic literature and a series of expert interviews, the following key lessons emerged:[14]

1. **Be focused.** Successful strategies typically have no more than three to six priority areas.[15] It is crucial for jurisdictional efforts to be similarly focused in terms of their social, economic, and environmental objectives, avoiding a "layer cake" of objectives which dilute attention of senior

[14] See for example, Greg Fishbein and Donna Lee, *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*, TNC / Forest Carbon Partnership Facility / World Bank, January 2015; and *Jurisdictional Sustainability: Guidance document for multiple stakeholders*, 3Fi, 2016.

[15] *Instruction to Deliver: Fighting to Transform Britain's Public Services*, Michael Barber, 2007; *Delivery 2.0: The New Challenge for Governments*, McKinsey & Company, 2012.

policymakers. It is important that not only are these priorities and goals accepted by key local stakeholders, but they are also endorsed and recognized by key external systems, such as compliance with emerging jurisdictional standards and sustainable sourcing guidelines.

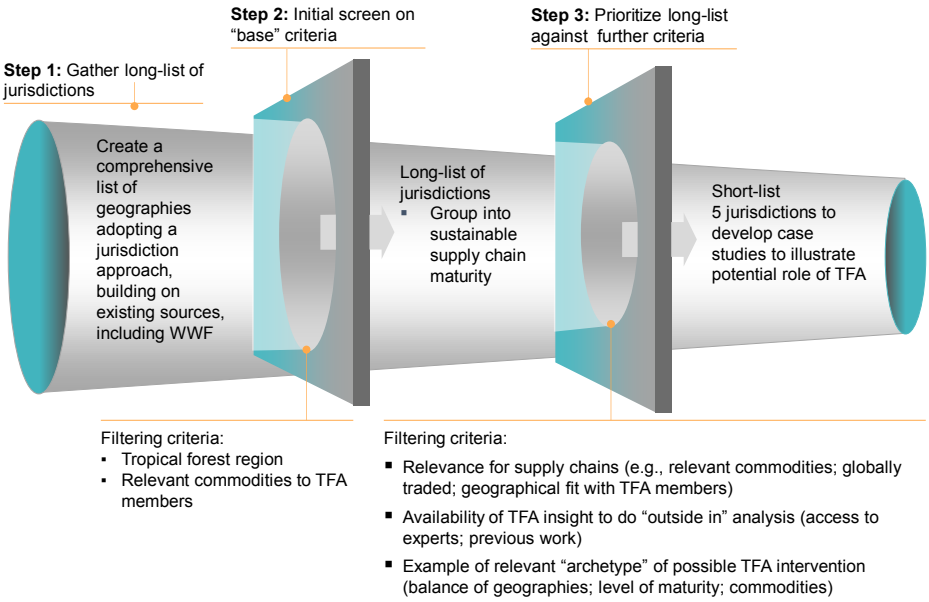
2. **Be transparent.** It also vital to have targets that are specific, measurable, actionable, realistic (but challenging), and timely (SMART). Not only is it crucial to have clear outcome-level goals, but it is important to also have clear output and input level metrics to measure progress towards those end objectives. Monitoring, Reporting, and Verification (MRV) techniques must be robust, but also practical given the starting point of local capabilities.
3. **National-level support.** Few sub-national programs can succeed in isolation without strong national-level commitment and support. It is important for jurisdictions to work with national ministries to ensure alignment of their sub-national policies with national ones.
4. **The need for a compelling value proposition to local stakeholders.** The reality of land-use decisions continues to be largely driven by near- to medium-term economic considerations such as household income, industrial growth, jobs, and tax revenues. Successful jurisdictional approaches have taken into account these considerations while simultaneously pursuing conservation and sustainability goals.
5. **Look for early wins to build momentum.** Initiating site-level activities early in the program, in parallel with policy reforms and enabling conditions, is important to test innovative approaches and build early momentum.
6. **There is no simple answer to understanding the appropriate scale for jurisdiction approaches.** The appropriate scale for a jurisdictional program depends largely on the country context, including where authority for land-use decisions resides, the capacity and resources available at different scales, the feasibility of working at larger jurisdictional scales, and the ecological and economic relationship of forest areas.
7. **Capacity, capacity, capacity.** A lack of capacity (human, technical, and financial) was identified as the most important challenge facing jurisdictions. Additional support in this area is crucial to ensure the long-term sustainability of this approach.
8. **Enduring government support.** Political and bureaucratic turnover is an issue. Jurisdictions need to "future proof" for these events.
9. **Move the focus from compensation to transformation.** Early conceptions of jurisdiction approaches focused on compensating "opportunity costs" of reducing deforestation but did not sufficiently focus on integrating forest conservation into long-term economic development plans.
10. **Be flexible on outcomes.** Transparency on outcomes is crucial. However, rewarding proxies (as opposed to full results-based financing) can contribute directly to reducing emissions, be simpler to implement, and may better respond to the interests of key actors.

2. Prioritizing jurisdictions to understand the potential role for TFA 2020 partners

Overall there is a strong sense that jurisdictional approaches to sustainable land use hold promise for the achievement of the objectives of TFA 2020 (deforestation-free commodity supply chains); and that supply and value chain players have a potentially important role to play in supporting jurisdictions on their pathway towards sustainable land use and rural development. Towards this end, jurisdictions were prioritized for a deep-dive to understand their specific challenges and opportunities, and to illustrate a possible jurisdictional level approach that TFA 2020 members could pursue. The prioritization was a three-step approach (Exhibit 8).

EXHIBIT 8

Our work adopts a 3 step approach to identify jurisdictions to do case studies of potential TFA role



SOURCE: AlphaBeta analysis

The following jurisdictions were selected for case studies:

- **Mato Grosso, Brazil.** Mato Grosso provides a unique insight on developing a sustainable approach (which includes, cattle intensification, zero-deforestation production, and restoration of degraded land) in a jurisdiction which is deeply entrenched in global supply chains. The state's 'Produce, Conserve, Include' (PCI) Strategy – which was presented in COP21 – illustrates how jurisdictions economic and production goals can be aligned with conservation, and social inclusion goals.
- **Pará, Brazil.** Pará has developed a sustainable jurisdiction-wide approach without specific legislation for climate change, or mechanisms (e.g., REDD+) to reduce

emissions.[16] The state relies on its Green Municipalities Program (PMV) – which is voluntary but rooted in specific legislation, and the State Plan for deforestation Prevention, Control and Alternatives (PPCAD/PA) to promote sustainable practices (particularly cattle intensification, zero-deforestation production, restoration of degraded land, etc.). Many other jurisdictional programs begin from an environmental agenda and struggle to transition it into the mainstream agenda of the government. Pará can provide insights on how conservation and environmental goals can be compatible and incorporated with an economic plan, Pará 2030. Pará 2030 is the state's economic roadmap that seeks to spur economic growth and social development by developing the agriculture and cattle sectors; and improving transport and technology infrastructure, while achieving net zero-deforestation.[17]

- **East Kalimantan, Indonesia.** East Kalimantan provides insights on how a jurisdiction can operate at multiple scales in parallel – simultaneously driving district level programs with an overall province-wide program. East Kalimantan's jurisdictional approach also has the potential to demonstrate the effectiveness of sustainable approaches – which include "land swaps" (i.e., reallocating production to already degraded or deforested land as opposed to forests);[18] sustainable palm oil certification; and community engagement – as only approximately 20% of all allocated land has been operationalized for oil palm plantations.
- **Sabah, Malaysia.** Sabah's jurisdictional wide certification of palm oil represents a pre-emptive step to meet global demand for sustainable palm oil. By committing to sustainable approaches for palm oil and forestry, Sabah also intends to develop clean waterways; limit deforestation; reduce land degradation; and support alternative livelihoods for forests communities. Sabah has the potential to become a beacon for sustainable development for other parts of Borneo and other tropical areas undergoing similar development processes.
- **Liberia.** Liberia provides an insight on developing and implementing a sustainable jurisdiction-wide approach (which promotes sustainable production of palm; a rigorous 'Free, Prior, and Informed Consent' (FPIC) approach; identifies high carbon value areas; and creates alternative livelihoods for forest communities) at a national level. Having experienced a 14-year civil war, the country recently conducted its first democratic elections in 2005; the young government requires external assistance in the form of human capital, resources, and infrastructure to support its implementation plans. Liberia is a TFA 2020 and part of TFA 2020's Africa Palm Oil Initiative (APOI). The country could serve as an opportunity to create a "lighthouse" approach that could be replicated in other APOI member countries.

[16] *GCF Brochure: Para*, Governors' Climate and Forests Task Force, 2012.

[17] http://para2030.com.br/

[18] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016 and *Optimizing Land Use in East Kalimantan- Technical Working Paper*, Dewan Daerah Perubahan Iklim, 2011.

3. Mato Grosso, Brazil

Size: 91 million hectares

Forest area: 54 million hectares

Population: 3.2 million people

Economy: Dependent on agriculture - 48% of GDP. The state is the largest cattle and soybean producer in Brazil

Jurisdictional boundary: A state (1 administrative level down from the national level –there are 26 states in Brazil). It covers 53% of Brazil's Amazon region

What makes Mato Grosso a unique type of jurisdiction?

Mato Grosso provides special insight for developing a sustainable approach, which includes cattle intensification, zero-deforestation production and the restoration of degraded land, in a jurisdiction deeply entrenched in global supply chains. The state's Produce, Conserve and Include (PCI) strategy, presented at the 2015 United Nations Climate Change Conference (COP21), illustrates how economic and production goals can be aligned with those for conservation and social inclusion. Mato Grosso has made substantial commitments to fight deforestation and develop sustainable supply chains. While some programs have operated over several years, the recently introduced PCI strategy will better articulate production and conservation goals, and improve the coordination of these programs.

Drivers of deforestation and degradation

Deforestation. In 2015, the highest deforestation rate since 2008 was detected in Mato Grosso; the deforestation rate increased by 49% from 107,500 hectares in 2014 to 160,000 hectares.[19] 20 (out of 141) municipalities in the North and Northwest of the state accounted for 72% of the state's total deforestation.[20]

There are 3 major contributors to deforestation in the state:

- **Cattle.** Cattle ranching for the state's 25 million heads of cattle has historically been the single biggest driver of deforestation and degradation in the state. Conversion of forests to pastures has resulted in over 20 million hectares of forests (the size of Senegal) being cleared in Mato Grosso.[21] Although deforestation has slowed down since 2005, nearly 26% of Mato Grosso's land remain as pastures; most of which are unproductive or neglected.[22] According to interviews with experts on the ground, land

[19] http://www.obt.inpe.br/prodes/index.php

[20] *Deforestation in Mato Grosso's Amazon forest*, PRODES, 2015.

[21] *Amazon cattle footprint*, Greenpeace, 2011.

[22] Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil, IDH, 2015.

speculation is particularly rife in cattle ranching in Mato Grosso (and also Pará). Cattle ranching causes further deforestation and land degradation as farmers clear forests to increase their land's value.

- **Soybean**. Nearly 7 million hectares of agricultural land has been set aside for soybean cultivation.[23] Soybean cultivation requires large plots of land for production and threatens the ecosystem by reducing wildlife and biodiversity. Soybean production was one of the largest contributors to deforestation in Mato Grosso before 2006 – when a moratorium on soybean produced by farmers who clear rainforests was introduced.[24] In fact, between 2001 and 2006, over 1 million hectares of land in the state, most of which was natural forest, was cleared to make way for soybean plantations.[25]
- **Illegal logging.** Despite strict regulation, illegal logging causes deforestation in Mato Grosso. Unscrupulous logging companies continue to extract and export timber from restricted areas..[26] Loggers falsify the authenticity of the illegal timber by: gaining authorization to log in an area and then logging elsewhere; overstating the volume and density of valuable trees in an area and supplementing that supply with illegally logged timber; and buying credits from legal logging companies to be sold as legally logged timber.[27] A study by Instituto Centro de Vida, a local civil society organization, found that nearly 48% of all forest cleared in the Amazon region (which includes Mato Grosso) between 2009 and 2013 occurred without authorization.[28] Most of these illegally logged areas occurred as a result of unclear land tenure.[29] In 2012, several amendments to Brazil's forest code – which waived fines and eased requirements for restitution of areas that were illegally deforested, renewed concerns that logging would become rampant again.[30]

Degradation. Forest degradation is a reduction in tree biomass density from human or natural causes such as logging, fire, and other events. Degraded land is more prone to ignition and fire damage as they have significantly lower levels of moisture content and a higher amount of combustible materials.[31] Land degradation remains a pressing issue in the state. In fact, in 2010 alone, over 1.4 million hectares of land was degraded in Mato Grosso. This was 16 times more than

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[23] Fearnside Philip M., Adriano M.R. Figueiredo, *China's Influence on Deforestation in Brazilian Amazonia: A Growing Force in the State of Mato Grosso,* Global Economic Governance Initiative, 2015.

[24] http://news.wisc.edu/study-shows-brazils-soy-moratorium-still-needed-to-preserve-amazon/

[25] *Ibid.*

[26] http://www.bbc.com/news/world-latin-america-20408238

[27] *The Amazon's silent crisis: License to launder*, Greenpeace, 2015.

[28] http://www.forestlegality.org/blog/mapping-illegal-forest-clearings-brazilian-amazon

[29] *Ibid.*

[30] https://www.theguardian.com/environment/2012/jun/01/brazilian-rouseff-pardon-deforesters-condemned

[31] Kyereh B., Ninnoni R., Agyeman V.K., *Degraded forests are more susceptible to forest fires: Some possible ecological explanations, Department of Silviculture and Forest Management*, Journal of Science and Technology, 2006.

the area deforested in the same year.[32] Ranching and the development of logistics infrastructure for the agriculture and livestock sector have largely driven land degradation.

Status of current efforts

Mato Grosso has made substantial commitments to fight deforestation and develop sustainable supply chains. While some programs have been ongoing for several years, the recently introduced Produce, Conserve and Include (PCI) strategy will better articulate production and conservation goals and improve coordination of these programs:

- **Produce, Conserve and Include Strategy (PCI).** The governor of Mato Grosso presented the PCI strategy at COP21 in December 2015. The PCI is a set of goals to increase agricultural and livestock productivity, whilst committing to an overall reduction in deforestation by 90% in the forest, and 95% in the *cerrado* (tropical savannah) (Exhibit 9). It is projected that the state has the potential to avoid 6 GTCO2e by 2030 through this approach. PCI was developed with a broad coalition of organizations from the private sector, civil society, and government agencies. The proceeding initiatives described below (i.e., PMS, IDH's Green Growth Initiative, etc.) are under the umbrella of the PCI.

[32] *Detection of forest degradation caused by fires in Amazonia from time series of MODIS fraction images*, Institute for environmental sustainability, 2015.

EXHIBIT 9

Mato Grosso's 'Produce, Conserve, and Include' strategy aims to reduce emissions by 6 GTCO2e while ensuring economic growth

Goals of the PCI by 2030	
Produce	▪ Rehabilitate 2.5 million hectares of degraded pasture ▪ Expand soy/grain production on degraded land by 3 million hectares ▪ Increase sustainable forest management to 6 million hectares
Conserve	▪ Reduce 90% of deforestation in forest and 95% in the tropical savannah ▪ Eradicate illegal deforestation by 2020 and restore 1m ha of deforested areas
Include	▪ Expand technical assistance for **all** smallholders ▪ Increase smallholder access to markets from 20% to 70% ▪ Increase total credit to stallholders to R$1.3 billion

SOURCE: Government of Mato Grosso

- **Programa Mato-Grossense de Municipios Sustentaveis (PMS).** PMS is Mato Grosso's municipal-level sustainability program. Launched in March 2014, it aims to reduce deforestation within the state, end poverty, and improve food security at the municipal level. To achieve these goals, PMS will strengthen municipal environmental management; regulate land tenure; and promote sustainable production chains with a focus on smallholders.[33] Since its launch, approximately 38% (53 out of 141) of Mato Grosso's municipalities have joined the PMS.[34] However, the PMS has not been fully operationalized as land-use plans and legislation at the municipal level remain unresolved.
- **Green Growth Initiative.** Norway's International Climate and Forest Initiative (NICFI) and IDH are working with the government of Mato Grosso to support the state government's commitments to the PCI strategy. Established in September 2016, the Green Growth Initiative seeks to design land use planning for commercial and conservation goals, by support cattle intensification, rehabilitate degraded pastures, develop a de-risking facility for mainstream investments into intensification, and promote reforestation in Mato Grosso.[35]
- **Territorial performance system (TPS)** The Earth Innovation Institute (EII) began working with several municipalities in 2015 to conduct spatial planning to improve land

[33] https://sustainabledevelopment.un.org/partnership/?p=10857

[34] http://www.mt.gov.br/-/adesao-de-prefeituras-ao-pms-em-2015-duplicou?inheritRedirect=true

[35] *Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil,* IDH, 2015.

use and reduce deforestation. The TPS aims to develop the following: a shared consensus on targets for low-emission rural development; an integrated incentive system for reducing the financial and regulatory costs of implementing sustainable practices; and a transparent online monitoring platform.[36] A web-based mapping tool serves as the system's core and uses data sources to efficiently monitor sustainability indicators on a territorial scale.[37]

- **The Nature Conservancy (TNC) and Cargill responsible soy program.** Both organizations are working to train farmers in responsible farm management practices and ecological restoration techniques. The program is also testing the environmental impact of deforestation and pesticide use, and aims to reach up to 20 municipalities in the state and cover 25 million hectares of land.[38]
- **Carrefour sustainable farming platform.** In May 2016, Carrefour, Agrotools and the Mato Grosso government agreed to develop an electronic system to monitor purchases of domestically consumed beef. The system uses big data techniques to monitor farms and ensures that meat does not come from producers who engage in deforestation, ranch in embargoed and protected areas or on land held by indigenous communities, or use illegal labor.[39]
- **REDD and REDD+.** Mato Grosso recently began exploring REDD+ mechanisms to provide financial support for its conservation efforts. 2 organizations are working with the state government on this. First, the Athelia Climate Fund looks to incorporate REDD+ structures and indicators in the state government. The Fund uses eco-investments in landscape conversion to provide financial incentives for jurisdictions to meet ecological and social performance indicators. Second, the German Development Bank's REDD Early Movers program is working to provide bridge financing to promote forest conservation. The program aims to strengthen performance-based payments for demonstrated reductions in emissions.

Challenges to Mato Grosso's sustainable development plan

Mato Grosso has made significant strides to develop a sustainable jurisdiction. However, several areas require additional support (e.g., including municipalities in its sustainable municipalities program, funding for reforestation and conservation, etc.):

Aligned incentives

- **Local leadership engagement**. Mato Grosso's governor, Pedro Taques, has been pivotal in driving the state's sustainability efforts. Since assuming his position in October 2014, he has made international commitments to improve the economy, fight deforestation and alleviate poverty. This vision is encapsulated in the state's Produce,

[36] *Ibid.*

[37] *Territorial performance system*, Earth Innovation Institute, 2015.

[38] http://www.cargill.com/corporate-responsibility/responsible-supply-chains/soy/index.jsp

[39] http://www.carrefour.com/current-news/carrefour-launches-its-sustainable-farming-platform

Conserve and Include (PCI) Strategy.[40] Mato Grosso is also a founding member of the Governors' Climate and Forests Task Force (GCF), a subnational collaboration of jurisdictions dedicated to advancing low-emissions development strategies and REDD+. The GCF seeks to advance subnational policy innovation and leadership, sustain engagement and collaboration with public- and private-sector stakeholders at multiple levels, and promote pathways to effective national and international approaches to REDD+ and low-emissions development.

- **Community engagement.** Social inclusion lies at the heart of the PCI strategy. Part of this effort include plans to expand technical assistance to rural communities and increase the participation of smallholders in the domestic market to 70%.[41] Participation of smallholder producers and buyers is particularly important to advance conservation and sustainable efforts; in fact, a recent study has found that being part of a sustainable cattle supply chain increases socialization and the use of sustainable practices for cattle ranchers.[42] Experts interviewed noted that additional resources are needed to educate and support farmers not participating in these global and domestic supply chains. Most of these farmers have limited access to credit and technology, and struggle to keep pace with more established farms. A combination of these factors tends to lead them to apply unsustainable agricultural practices and neglect conservation objectives legislated by the forest code.
- **National alignment.** Mato Grosso's PCI strategy to reduce deforestation in its forest and *cerrado* is aligned with the national forest code and Brazil's commitments made at the 15th Conference of the Parties (COP15) to reduce deforestation by 80%. It is also aligned with the Rio Branco Declaration, which aims to reduce deforestation by 80% and form partnerships with supply chain actors.[43] The strategy's goal to reduce carbon emissions by 6 GTCO2e is also aligned with national commitments to reduce carbon emissions to 1.3 GTCO2e by 2030.[44]
- **Other stakeholders**. Grosso joined Brazil's system for the ecological value-added tax (ICMS-Ecológico, or ICMS-E) in 2000. An ecologically based fiscal transfer system, the ICMS-E gives municipalities a larger proportion of value-added tax revenue, based on their efforts to protect forests and other ecological indicators (e.g. land degradation, emissions).[45] Municipal and state governments are further motivated to practice

[40] https://news.mongabay.com/2016/03/mato-grosso-leading-the-fight-against-climate-change-and-deforestation-commentary/

[41] *Ibid.*

[42] Gibbs Holly, *Did ranchers and slaughterhouses respond to zero-deforestation agreements in the Brazilian Amazon?* Conservation Letters, 2014.

[43] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013.

[44] https://www.theguardian.com/environment/2015/sep/28/brazil-pledges-to-cut-carbon-emissions-37-by-2025

[45] May, Peter et al., *The "Ecological" Value Added Tax (ICMS-Ecológico) in Brazil and its effectiveness in State*

sustainable production methods based on commitments by the private sector to only source soy and cattle from sustainable farms.[46] A case in point is the Soy Memorandum of Understanding between Mato Grosso's Soy Producer Association (Aprosoja), the Brazilian Vegetable Oils Industry Association (ABIOVE), and the China Soybean Industry Association. The MoU, which was signed in April 2016, commits parties to eliminate deforestation from soy production in Brazil.[47] Similarly, Brazil largest meat packers (JBS, Marfrig, and Minerva) signed a moratorium in 2009 to only buy cattle from suppliers who did not engage in deforestation practices.[48] Despite these achievements, Mato Grosso requires additional support to design programs which provide incentives for participation by smallholders and small slaughterhouses not currently in the national or global supply chains.

biodiversity conservation: a comparative analysis, ISEE, 2012.

[46] DeFries, Ruth et al., Export-oriented deforestation in Mato Grosso: harbinger or exception for other tropical forests?, Philosophical transactions of royal society, 2012.

[47] https://www.solidaridadnetwork.org/news/solidifying-china-and-brazil%E2%80%99s-strategic-soy-trade-partnership

[48] *Tropical Forest Alliance 2020 Annual Report 2015-2016*, TFA 2020, 2016.

Strong design

- **Strategic planning.** Mato Grosso's PCI strategy has a well-represented committee to realize the strategy's goals. The committee includes the PCI secretariat's executive director and representatives from relevant government agencies for each of the strategy's parts: Produce – the Economic Development Secretariat (Sedec); Conserve – the Environment Secretariat (Sema); and Include – the Secretariat for Family Agriculture and Land Affairs (Seaf) as well as the Secretariat for Labor and Social Assistance (Setas).[1] These stakeholders, along with those from the private sector and civil society, are involved in developing a PCI secretariat that will monitor and coordinate the state's activities. Similarly, and to support the program, the state's PMS has a management committee, an executive committee and five working groups (land tenure, financial resource, productive sustainable chain, target plan, and training and learning).[49]
- **MRV systems.** The state is working with several organizations to improve forest control systems, which include the Integrated System for Environmental Licensing and Monitoring, the System for Commercialization and Transportation of Forest Products, and the System for Monitoring Timber Harvesting.[50] Imazon, a not-for-profit research institution which aims to promote sustainable development in the Amazon through studies, public policy formulation, and capacity building, has been helping the state with spatial planning since 2008.[51] The Governors' Climate and Forests Fund (GCF) is also working with the state's Secretary of Environment to develop a forest monitoring and carbon measurement platform at the state level.[52] Together with Earth Innovation Institute, and the state government, GCF is in the early stages of developing a set of metrics to measure jurisdictional performance on sustainable production for certain commodities. There are plans to apply this metric to all GCF member jurisdictions globally.
- **Focus and prioritization.** The state's Produce, Conserve and Include (PCI) Strategy recently concluded an action plan for 2017. In the plan, the government will work with McKinsey & Company to design a robust monitoring system for the PCI; develop an institution with public and private capital to attract financial resources; structure the governance system of the PCI; and create business models to support investment in supply chains. While progress on the PCI remains on-track, experts we interviewed noted that the state's sustainable municipalities program (PMS) has yet to develop clearly defined roadmaps and activities.
- **Alternative livelihood plans.** The Produce, Conserve and Include (PCI) Strategy is focused on engaging, recognizing and rewarding smallholders as they transition from

[49] https://sustainabledevelopment.un.org/partnership/?p=10857

[50] http://imazon.org.br/publicacoes/forest-management-transparency-report-state-of-mato-grosso-2010-2011/?lang=en

[51] Deininger et al., *Innovations in land right recognition, administration and governance*, 2010.

[52] http://ipam.org.br/wp-content/uploads/2015/12/Folheto_CCal_nov15-1.pdf

deforestation activities to sustainable agricultural and livestock practices.[53] To this end, the strategy includes projects to increase access to finance and technical assistance for marginalized groups. However, the planning for the strategy is in an early stage, and any alternative livelihood strategies will not show effects until much later.

Robust implementation

- **Technical capacity.** Mato Grosso receives significant technical support from national agencies and civil society. For example, the TNC provides farmers with technical assistance for cattle intensification and reforestation.[2] With the support from the GCFF, the state's Secretary of Environment has worked with Instituto de Pesquisa Ambiental da Amazônia (IPAM) to refine a statewide forest monitoring and measurement platform. Imazon is also working with the state's municipalities to strengthen environmental management in the Amazon region by training municipal technicians in geospatial tools to improve environment management.[54] However, the national government's recent decision to freeze federal spending for 2 decades creates uncertainty around government funding to maintain these activities.[55]
- **Financial resources.** According to its estimates, Mato Grosso would need about USD 10 billion to promote sustainable practices via the PCI strategy from 2015 to 2030 across the jurisdiction (Exhibit 10).[56] Although the Brazilian government has reduced federal spending, alternative sources of funding remain. Several projects under the PCI have been funded by the Norwegian government, and are being conducted by the Amazon Fund, IDH, Earth Innovation Institute (EII), and the Earth Defense Fund (EDH).[57] Mato Grosso (as a member of the GCF Task Force) and its civil society partners are also eligible for funding from the GCFF to advance public-private partnerships and improve capacity to reduce deforestation.
- Aside from securing finance, the state is working to stretch its dollar. The PCI strategy's 2017 action plan includes a donors' coordination exercise, which aims to map the flow of funds based on the strategy's objectives and targets, and to increase visibility for low-funded areas. For example, while significant funding has been designated for de-risking and supporting sustainable agriculture, a funding deficit exists for reforestation and incentivizing conservation efforts to reduce logging.

[53] *Mato Grosso Brail COP21*, Government of Mato Grosso, 2015.

[54] http://www.amazonfund.gov.br/FundoAmazonia/export/sites/default/site_en/Galerias/Arquivos/QL_PDF_INGLES/Arvore_Objetivos_IMAZON2_ENGLISH.pdf

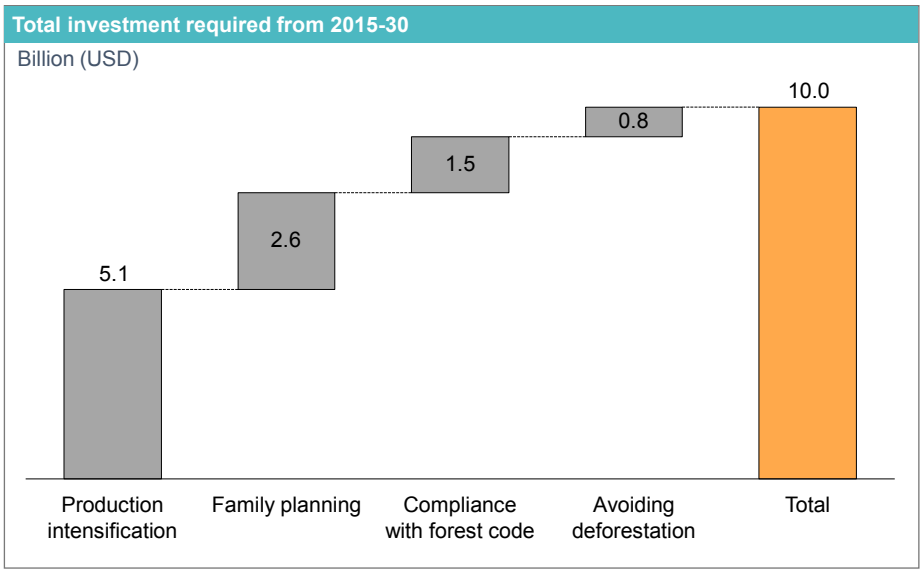
[55] http://www.vox.com/world/2016/12/15/13957284/brazil-spending-cap-austerity

[56] *Mato Grosso Brail COP21*, Government of Mato Grosso, 2015.

[57] https://www.norad.no/en/front/funding/climate-and-forest-initiative-support-scheme/grants-2013-2015/projects/providing-incentives-for-zero-deforestation/

EXHIBIT 10

Mato Grosso estimates that it would require roughly USD 10 billion to develop a sustainable land use approaches by 2030



SOURCE: PCI; IDH; NORAD

- **Land use change**. Brazil's New Forest Code (enhanced in 2012) introduced the rural environment registry (CAR) that promotes the environmental regulation of rural land. The CAR is a public registry system that requires owners of rural land to certify their intent to comply with environmental regulations related to their rural property. If the rural landowner or possessor fails to comply with environmental regulations, they could be subjected to administrative, civil, and criminal liabilities. Mato Grosso has one of the most advanced CARs in the country and has ambitious plans to increase the area registered by the CAR to 90%.[58] Having registered over 77% of all rural properties in 2016, the state is on track to meet these goals.[59]
- **Governance issue.** Mato Grosso has substantial resources to ensure enforcement of sustainable approaches. The government's ability to muster manpower to enforce the soybean and beef moratorium (for farmers and ranchers who were involved in deforestation activities) is one of the primary reason why the state managed to achieve its deforestation goals in such a quick period.[60] Brazilian's IBAMA (Brazilian Institute of Environmental and Renewable Natural Resources) conducts more enforcement operations in the state than other parts of the country.[61] However, there are 2 potential challenges to governance. At a state level, enforcement of deforestation regulation in frontier municipalities of the state remains difficult. At a national level, increased leniency to the forest code as well as strong opposition by the

[58] Deininger et al., *Innovations in land right recognition, administration and governance*, 2010.

[59] *Deforestation in Mato Grosso's Amazon Forest*, PRODES, 2015.

[60] http://blog.cifor.org/20984/in-brazil-governance-key-to-resisting-mato-grosso-deforestation-study?fnl=en

[61] *Deforestation in Mato Grosso's Amazon Forest*, PRODES, 2015.

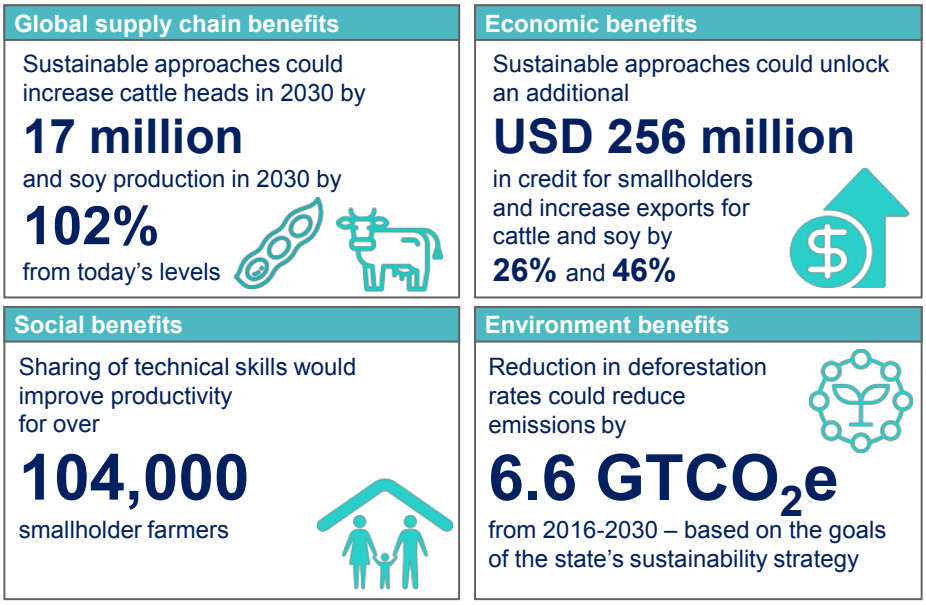
agricultural lobby could dampen efforts to reduce deforestation.[62] This is compounded by the budgetary cuts by the Brazilian government in December 2016.

Potential benefits of a sustainable development approach

A sustainable development approach could deliver significant benefits to global supply chains, economic, environmental, and social outcomes in Mato Grosso (Exhibit 11):

EXHIBIT 11

A jurisdictional approach in Mato Grosso could reconcile competing global supply chain, social, economic and environmental objectives[1]



1. Data in exhibit is estimated by AlphaBeta using a range of original and third party sources

Global supply chain benefits

Sustainable approaches would significantly improve inputs for cattle and soy production in Mato Grosso by 2030:

- **Soy.** According to estimates, a sustainable approach to soy production, which includes intensive agricultural practices and efficient use of water, could nearly double output to 53 million tons per year by 2030. This 20% increase in production from a business-as-usual (BAU) approach (Exhibit 12).[63] This could further boost Mato Grosso's share of global soy supply to approximately 16% by 2030 (from today's share of 9%).[64] Aside

[62] https://www.theguardian.com/environment/2012/jun/01/brazilian-rouseff-pardon-deforesters-condemned

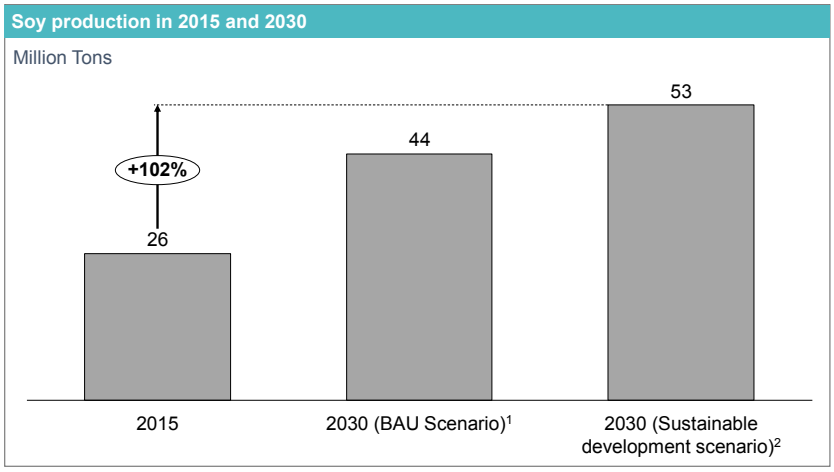
[63] Business-as-usual approach based on the assumption that soy productivity increases by average annual rate of 2% (based on FAO estimates), and that land area devoted to soy production increases to 12.5 million hectares (from current 9.5 million hectares). This is the goal of the PCI strategy.

[64] The FAO estimates that soybean oil production (would amount to 58 million tons (of oil) by 2030. From: *World agriculture: Towards 2015/2030*, FAO, 2003.

from increasing yields, sustainable soy production would the rehabilitation of 3 million hectares of degraded pastures.

EXHIBIT 12

Sustainable approaches could double soy production from today's levels by 2030

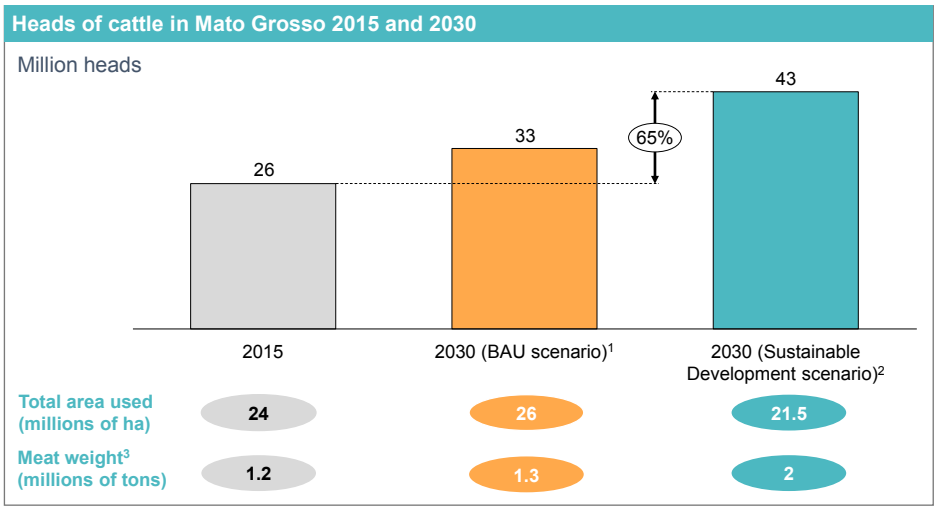


1 Assumes that soy productivity increases by average annual rate of 2% (based on FAO estimates), and that land area devoted to soy production increases to 12.5 million hectares (from current 9.5 million hectares). This is the goal of the PCI strategy.
2 Assumes that adoption of best-practice applications in commercial farming could increase crop yields by 20% and 60-70% for smallholders by 2030 (based on McKinsey estimates of global yield improvement potential). Also assumes that 12.5 million hectares will be devoted to soy production by 2030.
SOURCE: International Institute for Sustainability; FAO; McKinsey & Company; AlphaBeta analysis

- **Cattle.** As human diets globally become more protein-heavy, demand for cattle production will grow. By properly applying cattle intensification and other green technologies, Mato Grosso could increase its cattle population to approximately 43 million heads in 2030 while producing 67% more meat. Cattle intensification would also prevent the further deforestation of 3 million hectares of degraded pastures (Exhibit 13).

EXHIBIT 13

Sustainable approaches could increase cattle heads by roughly 65% from today's levels, while saving 2.5 million hectares of land



1 Based on Instituto Centro Vida (ICV) forecast of cattle growth in Mato Grosso of 1.3% annually to 2030. The land requirements are estimated based on this predicted growth in cattle, and assuming some productivity improvements, with heads per hectare growing to 1.3 in 2030 (from current 1.1).
2 Based on PCI aim of reducing land devoted to cattle by 2.5 million hectares (from current levels) while intensifying cattle production (heads per hectare) by 2.
3 Weight calculated using Mato Grosso's PCI strategy goal of increasing weight from 50 to 95 kg/ha/year.

SOURCE: Instituto Centro Vida (ICV); PCI; AlphaBeta analysis

Environmental benefits

Mato Grosso's PCI strategy aims to reduce net carbon emissions by 6 GTCO2e in 2030. Some of the major sustainable environmental benefits identified in Mato Grosso include:

- **Reducing deforestation.** A sustainable approach to soy cultivation, cattle ranching, and logging has reduced the rate of deforestation in Mato Grosso by 86% since 2004.[65] The PCI strategy aims to build on this and further reduce deforestation by 90% in the Amazon and 95% in the *cerrado*. Based on 2004 deforestations levels, this would present an annual abatement opportunity of 447 MTCO2e in 2030, or 6.6 GTCO2e from 2016 to 2030.[66]
- **Restoring degraded land.** Cattle intensification, and cultivating soy on degraded land would spur the restoration of approximately 2.5 million hectares of degraded pastures. A recent study on cattle intensification in Brazil concluded that the restoration of degraded pastures in Brazil is the biggest opportunity for the national carbon mitigation plans.[67] It is estimated that pasture restoration in Brazil could potentially

[65] *Deforestation in Mato Grosso's Amazon forest*, PRODES, 2015.

[66] A McKinsey report on the carbon economy in Brazil estimates that 1.9 million hectares of land cleared through deforestation activities generated 800 MtCO2e annually. Abatement opportunity for Mato Grosso by 2030 was calculated using the national average CO2e/hectare and the PCI's goal of reducing deforestation by 90% from 2004 levels (~1 million hectares) while assuming that deforestation will remain at 2004 BAU levels. From: *Pathways to a low-carbon economy for Brazil*, McKinsey & Company, 2009.

[67] Mozzer G, *Increasing beef production could lower greenhouse gas emissions in Brazil if decoupled from deforestation,* Nature Climate Change, 2016.

mitigate 5 – 7 tons of CO2e per hectare by 2030, or approximately 17 MTCO2e in Mato Grosso.[68]

Economic benefits

Sustainable approaches and economic growth are intertwined in the state of Mato Grosso. The soy moratorium established in 2006 prevents the proliferation of unsustainably sourced soy.[69] Aside from access to markets, sustainable practices can unlock access to finance for farmers and ranchers in the state. There are several funds being created for this purpose. Brazil's ABC Program (Low Carbon Agriculture), led by the State Agriculture Secretariat (Sagri) and Amazon fund provides credit for farmers to recover degraded pastures and improve productivity.[70] Similarly, the IDH and NICFI are working to structure a de-risking fund that combines commercial capital with financing from donors and investors. The fund will support the development of cattle intensification and reforestation practices – which might be deemed by a farmer to be too financially risky to undertake.[71] Moreover, plans exist to develop a federal-level CAR, which would aggregate the registries of all Brazilian states. Such a system at the federal level would reduce information asymmetry over land size and ownership; this would improve lender confidence as well as opportunities for farmers to get subsidized rural credit from banks.[72]

Social benefits

Sustainable production could increase smallholder access to markets and income. For example, IDH's soy program provides technical assistance to support the certification of smallholders according to the Roundtable on Responsible Soy (RTRS) principles.[73] RTRS certification allows farmers to sell their products to international markets and reap a higher profit from their harvest. This is in-line with the state's PCI strategy that aims to improve productivity for 104,000 smallholders.[74]

Potential role for TFA 2020 Partners

Based on TFA 2020's capabilities and experience, and the "unmet" pre-conditions for sustainable development in Mato Grosso, several potential collaboration opportunities emerge:

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[68] This does not include emissions from additional cattle per hectare. Seroa da Motta, *Climate change in Brazil: economic, social and regulatory aspect*, IPEA, 201. Available at: https://www.ipea.gov.br/agencia/images/stories/PDFs/livros/livros/livro_climatechange_ingles.pdf#page=108 and Carvalho et al., *Deforested and degraded land available for the expansion of palm oil for biodiesel in the state of Pará in the Brazilian Amazon*, Renewable and Sustainable Energy Reviews, 2015.

[69] Sustainably produced soy refers to soy being produced on non-deforested areas.

[70] *Ibid.*

[71] *Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil,* IDH, 2015.

[72] Garrett Rachael and Lisa Rausch, Green for gold: Social and ecological tradeoffs influencing the sustainability of the Brazilian soy industry, Journal of peasant studies, 2015.

[73] *Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil,* IDH, 2015.

[74] *Mato Grosso Brail COP21*, Government of Mato Grosso, 2015.

- **Signal publicly** to the key stakeholders linked to the state (e.g. mayors of black-listed municipalities, representatives of the state assembly, and public banks, such as Banco do Brasil, Banco da Amazonia, Caixa Econômica Federal and the Brazilian Development Bank). TFA 2020 partners could also show positive support associated with the strategy's success (e.g. expanded sourcing, private investment, public investment); this backing is particularly important because market recognition of the work done in Mato Grosso has been low. Such public signaling and advocacy, by international producers and investors, would also build momentum and political will for municipal governments and smallholder producers to join the PCI strategy and establish a federal rural registry system.
- **Establish sustainable sourcing roadmaps and targets**. TFA 2020 partners can provide technical support to expand sustainable practices in the state. The Sustainable Trade Initiative (IDH) – a member of TFA 2020 – is already working with the state government to develop state-wide targets for the PCI.The PCI plans to rehabilitate unproductive pastures and improve cattle productivity freeing up over 6 million hectares of land in the state. This creates an opportunity to apply modern techniques of spatial planning and analysis to optimize yields within these freed-up lands, and develop long-term infrastructure which would reduce post-harvest losses as well as improve transport infrastructure. Working with local partners and civil society, TFA 2020 partners could extend technical assistance based on their global experience in similar landscapes. To illustrate, USAID provides a course on infrastructure planning in Uganda and the course material could be adapted and used for government officials in Mato Grosso.[75] Partners could also provide on-the -ground assistance to establish a land reserve quota market and create a well-functioning land rental market. Moreover, given the interest of the PCI to include smallholder farmers in sustainable practices and economic development, TFA 2020's partners could explore expanding the certification of smallholder farmers according to the principles by the Roundtable on Responsible Soy (RTRS).

TFA 2020 could also work with its private sector and local partners to develop a compelling business case for municipal governments to join the PMS and champion the goals of the PCI. TFA 2020 can potentially play a dual role of promoting sustainable production while cultivating demand for these sustainable commodities in international markets. Some TFA 2020 partners are already involved in this process – for example, the IDH's soy program has prioritized increasing demand for sustainable soy in Europe as part of its 2016-2020 agenda.[76] TFA 2020 partners could also work to make sourcing commitments (particularly for small and medium ranchers and meatpackers) which are pegged to the performance of the jurisdiction based on sustainable develop targets in the PCI (e.g., the volume and value of procurement for soy and beef increases as the environmental performance of the jurisdiction increases).

[75] *Biodiversity conservation and forestry programs*, USAID,2016.

[76] *Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil,* IDH, 2015.

In his presentation in COP21, Governor Taques emphasized that the strategy was a costly project which needed external financial support.[77] Although a portion of the cost would be funded by the national government and other bilateral partners, additional funding would speed up the adoption of sustainable practices. Additionally, interviews with experts on the ground also note that TFA 2020 partners can address gaps in funding for conservation efforts as well as reforestation – an area which remains largely unaddressed by existing funds.

A possible implementation pathway

Several TFA 2020 partners, including IDH, the Earth Innovation Institute and Marfrig, collaborated to help develop the PCI strategy. Several other TFA 2020 partners are also active in this jurisdiction, including TNC, Cargill and the GCF. To start, a roundtable for all TFA 2020 partners could help align them on the method of cooperating and the government engagement strategies. Subsequent meetings on establishing targets, trailing programs and identifying funding opportunities could include the PMS and government agencies involved in developing the strategy (for example, senior representatives from the departments of strategic affairs, environment and economic development; agriculture; and land).

[77] *Mato Grosso Brail COP21*, Government of Mato Grosso, 2015.

4. State of Pará, Brazil

Size: 124.8 million hectares

Forest area: 88 million hectares

Population: 8.2 million people

Economy: Dependent on the service industry and manufacturing – 56% and 36% of GDP respectively. Agriculture, particularly cattle ranching accounts for 8% of GDP.

Jurisdictional boundary: A state (1 administrative level down from the national level –there are 26 states in Brazil). It covers 25% of Brazil's Amazon region.

Unique traits of Pará

Pará has developed a sustainable jurisdiction-wide approach without specific legislation for climate change, or mechanisms (e.g., REDD+) to reduce emissions.[78] The state relies on its voluntary Green Municipalities Program (PMV), which is rooted in specific legislation, and the State Plan of Prevention, Control and Alternatives to Deforestation to promote sustainable practices, particularly cattle intensification, zero-deforestation production and restoration of degraded land. Many other jurisdictional programs begin from an environmental agenda and struggle to transition into the government's mainstream agenda. Pará can provide insights on how conservation and environmental goals can be compatible and incorporated with an economic plan – in this case, Pará 2030. The plan seeks to spur economic growth and social development by developing the state's agriculture and cattle sector, and improving transport and technology infrastructure while achieving net zero deforestation.[79]

While district-level programs have been running in Pará since 2004, a state-wide jurisdictional approach (Pará 2030), which includes all municipalities, has only recently been implemented.

Drivers of deforestation and degradation

Deforestation. Deforestation remains a pressing issue in Pará. Together with Mato Grosso, the 2 states accounted for almost half of global tropical forest loss from 2000-2005.[80] More recently, deforestation increased by 60% between 2014 to 2016.[81]

There are main 2 drivers of deforestation in Pará:

- **Cattle.** Cattle production in Pará has been the single biggest driver of deforestation and degradation in the state.[82] Between 1993 and 2013, the total herd size in the Brazilian Amazon region (which includes Pará) expanded by over 200%. The ensuing

[78] *GCF Brochure: Para*, Governors' Climate and Forests Task Force, 2012.

[79] http://para2030.com.br/

[80] https://apollomapping.com/blog/our-changing-landscape-deforestation-in-para-brazil-part-ii

[81] Instituto Nacional de Pesquisas Espaciais

[82] http://www.sciencemag.org/news/2015/05/brazil-cattle-industry-begins-help-fight-deforestation

conversion of forest to pasture resulted in over 12 million hectares of forest, equivalent to the size of Malawi, being cleared in Pará.[83] Nearly 85% of all deforested areas remain as cattle pastures. Similar to Mato Grosso, land speculation is rife in the state and leads to further deforestation and land degradation.

- **Illegal logging.** Despite strict regulation, unscrupulous logging companies continue to extract and export timber from restricted areas. Loggers falsify the authenticity of illegal timber; among other methods, they gain authorization to log in an area and then log elsewhere; they overstate the volume and density of valuable trees in an area and supplement its supply with illegally logged timber; and they buy credits from legal logging companies to be sold as legally logged timber.[84]

Degradation. Forest degradation is a reduction in tree biomass density from human or natural causes such as logging, fire, windthrows and other events. Degraded land is more prone to ignition and fire damage as they have significantly higher levels of combustible material in the soil.[85] Forest degradation is a rampant yet under-examined issue in Pará. A recent study by the Woods Hole Research Center and the Carnegie Institute found that forest degradation in Pará is on the same scale as deforestation in the state.[86] Recent estimates suggest that degraded land in the state has resulted in a loss of biodiversity equivalent to clearing 9.2 – 11.4 million hectares of primary forest.[87] Degradation in Pará is caused by a range of factors, including unsustainable livestock practices, illegal mining, non-sustainable logging techniques, and road construction.

Status of current efforts

While district-level programs have been running in Pará since 2004, a state-wide jurisdictional; approach which includes **all** municipalities (i.e., Pará 2030) has only recently been implemented. Several municipal-level programs are being carried out alongside the Pará 2030 plan. These include, but are not limited to the following:

- **Green Municipalities Program and Parágominas.** In 2008 Parágominas was identified as the municipality with the second highest rate of deforestation in the Amazon. With the support of The Nature Conservancy, the government developed the Green Municipalities Program.[88] The program made commitments to end illegal logging; ensure zero-net deforestation by 2014, and plant 100 million new trees in rural areas.[89]

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[83] *Ibid.*

[84] *The Amazon's silent crisis: License to launder*, Greenpeace, 2015.

[85] Kyereh B., Ninnoni R., Agyeman V.K., *Degraded forests are more susceptible to forest fires: Some possible ecological explanations, Department of Silviculture and Forest Management*, Journal of science and technology, 2006.

[86] https://apollomapping.com/blog/our-changing-landscape-deforestation-in-para-brazil-part-ii

[87] Barlow et al., *Anthropogenic disturbance in tropical forests can double biodiversity loss from deforestation,* Nature (535), July 2016.

[88] http://www.ecosystemmarketplace.com/articles/paragominas-the-green-revolution-that-almost-wasnt/

[89] *Ibid.*

By 2010, Parágominas had deforestation and degradation by over 90%.[90] The municipality became the template for the 'Green Municipalities' program (PMV) across Brazil. In Pará, the PMV aims to reduce deforestation and land degradation in the state by 80% (from 1996-2005 levels); strengthen sustainable rural production by enhancing land title management; and improve land planning. PMV supports, monitors, and enforces sustainable forest practices through agreements with the State's municipal governments (2 administrative level below the national level).[91]

- **Sao Felix Du Xingu.** In July 2009, The Nature Conservancy (TNC) signed a Memorandum of Understanding with local stakeholders to implement the environmental registry system (CAR) for private lands in São Félix do Xingu. Signatories included municipal and state government representatives, the leader of the local cattle ranchers' union and representatives from one of Brazil's largest meat processing companies. To date, the TNC has helped the municipal government register almost 90% of its land with CAR, paving the way to implement actions that further reduce deforestation in the municipality.
- **Portel**. The Brazilian Rosewood Amazon Conservation REDD+ project begun in 2008 and protects 177,899 hectares of forests in the municipality of Pará. The project focuses on patrolling and monitoring of forests to prevent illegal logging. It also supports alternative livelihoods by engaging local villages as paid staff to protect the forest protection from illegal logging and monitor biodiversity. The project also funds local sustainability initiatives through its revenues from carbon sales.

Challenges to Pará's sustainable development plan

While Pará has overcome several challenges common to jurisdictional approaches, several gaps around alternative livelihood plans, financial resourcing, and land tenure require additional examination and support:

Aligned incentives

- **Local leadership engagement**. Pará is a founding member of the Governors' Climate and Forests Task Force (GCF) and signatory to the Rio Branco Declaration which aims to reduce deforestation by 80% and form partnerships with supply chain actors. As a platform, the GCF advances subnational policy innovation and leadership, ongoing engagement and collaboration with public- and private-sector stakeholders at multiple levels, and pathways to effective national and international approaches to REDD+ and low-emissions development. The state's PMV has successfully reduced deforestation and degradation by building on broader national plans, such as the Sustainable Amazon Plan and the Plan for Preventing and Controlling Deforestation in the Legal Amazon. However, 25% of Pará's municipalities (36 of 143) do not participate. Moreover, some municipalities that registered for the program do not actively

[90] *Ibid.*

[91] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013. Pará

participate in it. Experts interviewed note that these municipalities fail to respond to deforestation alerts and provide only infrequent reports on deforestation. This prevents consistent monitoring and evaluation of the municipalities' progress.

- **Community engagement.** Participation in national and international cattle supply chains has increased the socialization of sustainable practices among cattle ranchers. A study in Pará found that properties supplying cattle to slaughterhouses and making sustainable sourcing commitments were much quicker to comply with the state's CAR and the new forest code than those that did not.[92] However, interviewees suggested that only 50% of slaughterhouses operating in the state have made zero-deforestation sourcing commitments. Additional support is required to socialize and design schemes which provide incentives to engage smallholder ranchers and slaughterhouses not involved in global and national supply chains to comply with these commitments.
- **National alignment.** The Pará PMV and Pará 2030 (the latter committing to zero net deforestation by 2020) are aligned with Brazil's national forest code, the country's commitments made at the 15th Conference of the Parties (COP15), and the Rio Branco Declaration.[93]
- **Other relevant stakeholders.** Pará's Green Value Added Tax formula established in 2013, includes 'sustainability-promoting' variables (e.g., total forest area, the percentage of land which has been registered under the state's Rural Registry System (CAR), etc.) as criteria for allocating tax revenues to municipalities. This provides incentives for municipal governments to reduce deforestation to receive more tax revenue.[94]

Strong design

- **Strategic planning.** The government endeavors to promote the sustainability agenda in all districts. The Green Municipalities Program has an Extraordinary State Secretary who is directly linked to the Government Chief of Staff Office. Additionally, the program has a Steering Committee comprising of 21 members from the public sector, civil society, and an executive committee to coordinate implementation efforts.[95] Similarly, Pará's 2030 was developed through extensive consultation with state production secretariats, and organizations from the private and public sector.[96] Pará's 2030 will also create a 'delivery unit' which acts as a focal point between state

[92] Gibbs Holly, *Did ranchers and slaughterhouses respond to zero-deforestation agreements in the Brazilian Amazon?* Conservation Letters, 2014.

[93] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013.

[94] *A blueprint for climate action in agriculture*, Global Harvest Initiative, 2016.

[95] *Ibid.*

[96] Strategic Plan for the Sustainable Development of the State of Pará, Pará 2030, 2016.

departments and the private sector. These units will also monitor progress and resolve any challenges which initiatives may encounter.[97]

- **MRV systems.** Imazon, a non-profit research institution, monitors the PMV's municipalities on a regular and frequent basis. The organization's Deforestation Alert System uses satellite imagery to provide monthly updates on deforestation in the Amazon region.[98]
- **Focus and prioritization.** The state's Green Municipalities Program has developed several clearly defined goals (e.g., maintain the annual deforestation rate below 40 km^2; have more than 80% of all municipalities registered; create a municipal Working Group for fighting illegal deforestation, etc.) which are monitored using annual targets and benchmarks.[99] Similarly, together with McKinsey & Company, Pará 2030 has developed a list 70 initiatives and 280 actions to achieve its goals. These actions are tracked through 1400 implementation milestone across a 15-year period (i.e., till 2030).[100]
- **Alternative livelihood plans.** Although alternative livelihood strategies exist for district-level projects (e.g. Portel, São Félix do Xingu), plans to develop a state-wide alternative livelihoods strategy remain unclear. Pará 2030 intends to increase soy production, providing an alternative livelihood for cattle ranchers. However, the implementation of Pará 2030 is still early, and the effects of any alternative livelihood strategies will only become apparent much later.

Robust implementation

- **Technical capacity.** Pará enjoys significant support from the national government and existing civil society. For example, Imazon has trained technicians from municipal Environmental Secretariats on Geo-Technology Applied to Environmental Management and Verification of Deforestation.[101] Although technical capacity training has been extended to officials and soy producers, interviews with researchers in the field note that technical capacity for the state's cattle ranchers is particularly lacking. Additional stakeholder support from all parts of the supply chain is required to provide training and technology for cattle intensification and other sustainable practices. Moreover, like Mato Grosso, local sources note that government-hired technicians have been laid off because of Brazil's recent budget cuts.
- **Financial resources.** Based on our estimates, which was developed through international case studies and past academic literature, Pará would require an USD 1.4

[97] *Ibid.*

[98] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013.

[99] *Ibid.*

[100] Strategic Plan for the Sustainable Development of the State of Pará, Pará 2030, 2016.

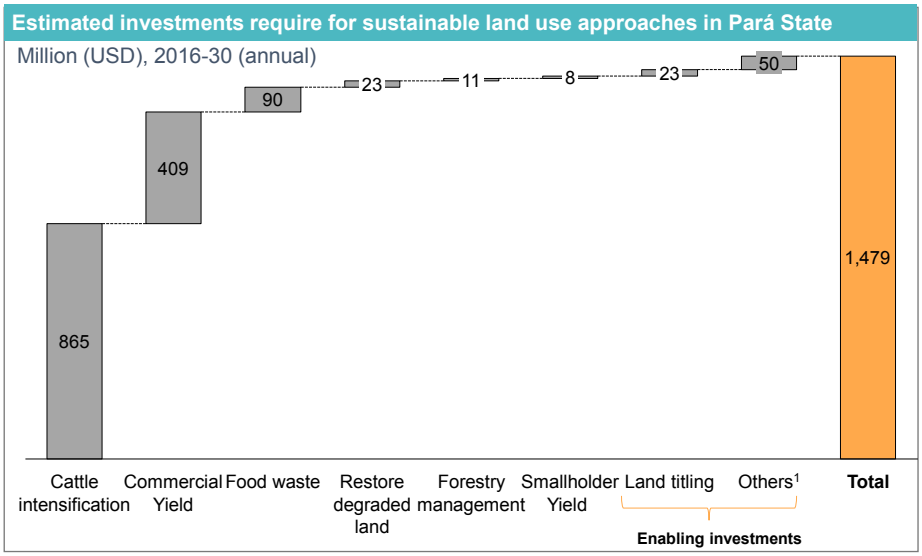
[101] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013.

billion in annual investments to meet the goals laid out in Pará 2030 (Exhibit 14).[102] Cattle intensification for pastures would take up more than half of these investments. According to interviews with local experts, more than 90% of the expected cost (an undisclosed amount) to implement programs for the Pará 2030 programs has been approved. However, the government's decision to freeze federal spending for 2 decades creates uncertainty if the state will be able to secure the funds previously promised to it.[103]

EXHIBIT 14

Based on local and international case studies, Pará could require over USD 1.4 billion annually to develop sustainable land use approaches by 2030

ROUGH APPROXIMATION



1 Others includes spatial planning, training of government officials, community engagement and soft infrastructure.

SOURCE: McKinsey Global Institute; FAO; TNC; Investment case studies; AlphaBeta analysis;

- **Land use change**. The government has embarked on land reforms to improve environmental governance while enabling agricultural and rural development. The country's Forest Act aims to halt the expansion of the agricultural frontier over forestlands to contain deforestation and maintain their environmental services.[104] The country's rural registry (CAR) will improve recognition of land tenure rights for indigenous people and management of conservation areas. However, implemented legislation has not fully resolved disputes in the state, and local communities continue to contest land use claims. Limited legal security and lowered investor appetite have resulted in illegally occupied land, deforestation and speculation.[105] Nearly 39% of state

[102] See Appendix A for methodology

[103] http://www.vox.com/world/2016/12/15/13957284/brazil-spending-cap-austerity

[104] Pacheco Pablo and Benatti Jose Heder, *Tenure Security and Land Appropriation under Changing Environmental Governance in Lowland Bolivia and Pará,* Forests (6), 2015.

[105] Strategic Plan for the Sustainable Development of the State of Pará, Pará 2030, 2016.

land has unresolved land tenure regularization cases - which arise from dubious settlement history and various commercial and political interests.[106] Additional support would be needed to strengthen intergovernmental coordination and improve the currency and transparency of data.[107]

- **Governance issue.** State agencies in Pará regularly carry out joint enforcement operations, typically consisting of the environment ministry with the participation of several other agencies of the state and municipal government (e.g., treasury, state security apparatus, and agriculture and ranching).[108] However, recent cuts to government fiscal spending might create difficulties to provide manpower to support implementation. Several interviewees note that many municipalities are planning to suspend their environmental departments. IBAMA (Federal Environmental Agency) and ICMBio (the Federal institute responsible for managing conservation units) have already reduced personnel in the Amazon significant (between 30% - 40%).

[106] *Unresolved land tenure issues in Pará*, Imazon, 2013

[107] *Ibid.*

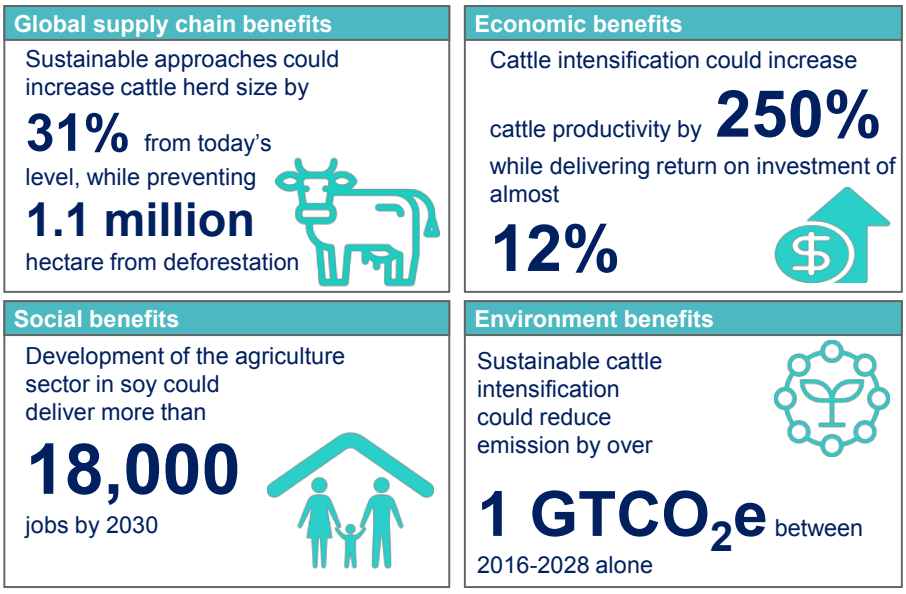
[108] Whately Marussia and Maura Campanili, *Green municipalities program: Lessons learned and challenges for 2013/2014*, 2013.

Potential benefits of a sustainable development approach

A sustainable development approach could deliver significant benefits to global supply chains, economic, environmental, and social outcomes in Pará (Exhibit 15):

EXHIBIT 15

A jurisdictional approach in Pará could reconcile competing global supply chain, social, economic and environmental objectives[1]



1. Data in exhibit is estimated by AlphaBeta using a range of original and third party sources

Global supply chain benefits

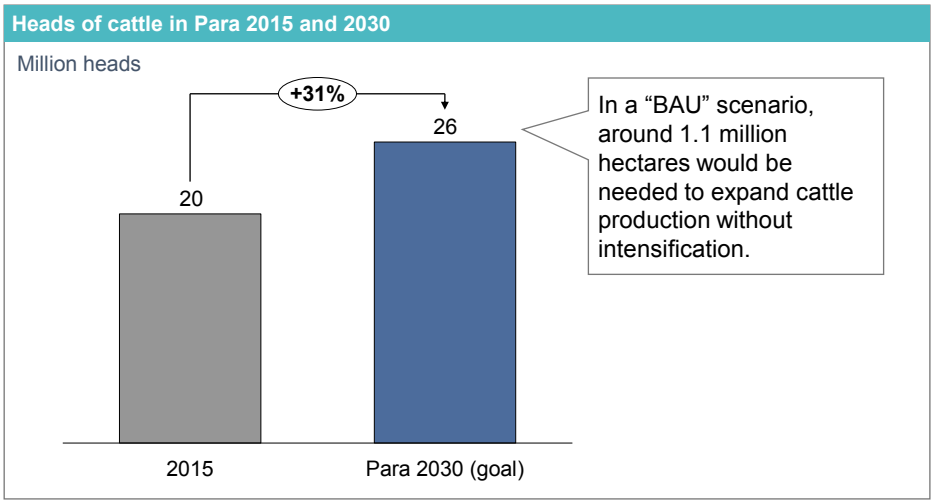
Sustainable practices in Pará could increase cattle production and allow the state to further participate in global cattle supply chains. Pará 2030 includes plans to improve cattle production by practicing land intensification for 50-70% of cattle lands.[109] It is estimated that, through the proper application of cattle intensification and other technologies (improving feed and smart supplements), Pará could increase its cattle population to 26 million heads of cattle by 2030. (Exhibit 16). Aside from increasing cattle stocks, sustainable cattle production could prevent 1.1 million hectares of deforestation.[110]

[109] *Ibid.*

[110] *Green growth and sustainable cattle intensification in Para*, The Nature Conservancy, 2015.

EXHIBIT 16

Pará 2030 aims to increase cattle herd size by over 30 percent by 2030, and avoid 1.1 million hectares of deforestation through cattle intensification



SOURCE: The Nature Conservancy

Environmental benefits

Sustainable approaches in cattle management could reduce carbon emissions by approximately 1 GTCO2e between 2016 to 2028; accounting for nearly 30% of Brazil's total annual abatement opportunity by 2030.[111]

Some of the major sustainable development opportunities identified in Pará include:

- **Reducing deforestation.** The state of Pará has made several initiatives to reduce deforestation most notably the Green Municipalities Program (PMV). More than two-thirds of all municipalities in Pará have committed to the PMV. Since, its introduction, the annual deforestation (for participating municipalities) rate has declined to 188,700 hectares.[112] In some municipalities like São Felix, the deforestation rate has dropped to 25,000 hectares per year, an 80% reduction from it's 1999–2008 average.[113]
- **Restoring degraded land.** Cattle intensification would not only spare 1.1 million hectares from deforestation, but it will also spur the restoration of degraded pastures. A recent study on cattle intensification in Brazil concluded that the restoration of degraded pastures in Brazil is the biggest opportunity for carbon mitigation plans (with exception of preventing deforestation altogether).[114] The study estimates that pasture

[111] *Green growth and sustainable cattle intensification in Para*, The Nature Conservancy, 2015; and *Pathways to a low-carbon economy for Brazil*, McKinsey & Company, 2009.

[112] http://municipiosverdes.com.br/

[113] *A blueprint for climate action in agriculture*, Global Harvest Initiative, 2016.

[114] Mozzer G, *Increasing beef production could lower greenhouse gas emissions in Brazil if decoupled from deforestation,* Nature Climate Change, 2016.

restoration on degraded in Brazil could mitigate 5 – 7 TCO2e per hectare by 2030, or approximately 10-13 MTCO2e in Pará alone.[115]

Economic benefits

Like Mato Grosso, sustainable approaches and economic growth are intertwined in Pará. Since 2009, major retail chains such as Walmart, Carrefour and Pão de Açúcar have committed to not buying products obtained through illegal deforestation. Additionally, 3 of Brazil's largest meatpackers (JBS, Marfrig and Minerva) have a moratorium that commits them to buy cattle only from environmentally compliant suppliers (with different levels of compliance for direct versus indirect suppliers).[116] Aside from access to markets and profit margins, sustainable practices unlock access to finance for the state's farmers and ranchers. The PMV supports green-financing systems, such as Brazil's ABC Program (Low-Carbon Agriculture) led by the State Agriculture Secretariat, and the Amazon Fund. The latter is the first risk capital fund in the Amazon region (worth BRL 20 million [Brazilian real], or $6 million) to develop action for a green economy in Pará. The program provides loans to recover degraded pastures and improve productivity. A sustainable approach has already proven to be financially lucrative for some municipalities. For example, in Sao Felix do Xingu, cattle intensification is estimated to have increased 12-year return on investment (ROI) rates by 12% and increased the gross margin for cattle production by 8 times from business-as-usual practices, from USD 39 per hectare to USD 252 per hectare.[117]

[115] Seroa da Motta, *Climate change in Brazil: economic, social and regulatory aspect*, IPEA, 2011. Available at: https://www.ipea.gov.br/agencia/images/stories/PDFs/livros/livros/livro_climatechange_ingles.pdf#page=108 and Carvalho et al., *Deforested and degraded land available for the expansion of palm oil for biodiesel in the state of Pará in the Brazilian Amazon*, Renewable and Sustainable Energy Reviews, 2015.

[116] *Tropical Forest Alliance 2020 Annual Report 2015-2016*, TFA 2020, 2016.

[117] *Green growth and sustainable cattle intensification in Para*, The Nature Conservancy, 2015.

Social benefits

A sustainable development approach would also create significant broad-based benefits for the people of Pará. Smallholder cattle ranchers in the state account for approximately 7% - of the total cattle land.[118] As such, they would not be the main beneficiaries of cattle intensification. However, Pará 2030 includes a plan to expand soy production by up to 3 million hectares by 2030. According to estimates, soy production could increase by 19% annually from 2013 to 2017, and the industry could create more than 18,000 jobs.[119]

Potential role for TFA 2020 Partners

Based on TFA 2020 partner capabilities and experience, and the "unmet" pre-conditions for sustainable development in Pará State, a number of potential collaboration opportunities emerge:

- **Signal publicly** to the key stakeholders linked to the state (e.g., mayors of black-listed municipalities; representatives of the State Assembly; and public banks like Banco do Brasil, Banco da Amazonia, Caixa Econômica, and BNDES) the importance of the state's plans and the associated goals and activities. TFA 2020 partners could also show positive support associated with the success of Pará 2030 (e.g. expanded sourcing, private investment, public investment), and express willingness and interest to participate in the plan's initiative and actions. Such public signaling and advocacy, particularly by major companies and investors, could help to build momentum and political will to advance Pará 2030, as well as reverse activities and financing that would lead to further deforestation.
- **Establish sustainable sourcing roadmaps and targets**. TFA 2020 can provide support to reshape the sourcing requirements in the jurisdiction. For example, according to the Pará 2030 plan, the state intends to increase soy production by over 3 million hectares in the following decade.[120] This presents a unique opportunity for TFA 2020 to assist in developing a sourcing roadmap for sustainable soy procurement in the jurisdiction. This would entrench sustainable practices for the commodity and improve the transparency of sourcing requirements. In a similar vein, the rate of decrease in deforestation has varied by areas dominated by different actors, in the Brazilian Amazon, deforestation has been reduced by 81% in the largest properties (>2,500 ha) compared to only 73% and 65% in small and medium properties, and only 71% in remote areas.[121] TFA 2020 and its partners could further support the reduction of deforestation through sourcing roadmaps for small and medium-sized properties,

[118] Pereria Ritaummaria, Cynthia Simons and Robert Walker, *Smallholders, Agrarian Reform, and Globalization in the Brazilian Amazon: Cattle versus the Environment,* Land, 2016.

[119] http://www.agrimoney.com/news/brazils-northern-frontier-to-see-soy-output-boom--7764.html and According the WWF, a Soy worker in Brazil tends to 167 hectares. From: *The Impacts of Soybean Cultivation on Brazilian Ecosystems,* WWF, 2003.

[120] http://municipiosverdes.com.br/base_de_dados

[121] *Governing for sustainability in agricultural-forest frontiers: A case study of the Brazilian Amazon*, Stockholm Environment Institute, 2014.

particularly for smallholder ranchers and meatpackers. These tools provide assurances and commitments, as well as increased access to markets, as deforestation is better managed in these areas

TFA 2020 partners could also explore a range of incentives linked to further participation in initiatives which champion the goals of Pará 2030. In considering these incentives, TFA 2020 partners could encourage the inclusion of the remaining 36 municipalities that have yet to join the PMV. This concerns municipalities with the highest deforestation rates who still participate in domestic and international supply chains. TFA 2020 could work with its private-sector partners, mainstream financial institutions and local partners to develop a compelling business case for municipal governments to participate in the program. This was successful in Parágominas, where The Nature Conservancy effectively engaged the government to adopt sustainable practices.

A possible implementation pathway

There are several TFA 2020 partners operating in the state, including TNC, ProForest, Governors' Forest & Climate Fund, Earth Innovation Institute (EII), MAFRIG, and Cargill. A starting point could include a meeting between these active partners to align on the cooperation method as well as the government engagement strategies. Special attention should be given to identifying common strategies to improve land tenure regularization and develop alternative livelihood strategies which can be applied across the jurisdiction. Subsequent meetings on establishing targets; trialing programs; and identifying funding opportunities could include government agencies involved in the development of the green municipalities program as well as Pará 2030. After that, a few key stakeholders from government will be crucial to include, such as:

- The Green Municipalities Program (and particularly the Extraordinary State Secretary)
- Government Chief of Staff Office
- Treasury department
- State security (for enforcement of forest acts)
- Agriculture & Ranching department

5. East Kalimantan, Indonesia

Size: 13 million hectares

Forest area: 8.5 million hectares

Population: 3.4 million people

Economy: Dependent on the coal mining and oil & gas industry. Agriculture and logging account for 6% of GDP

Jurisdictional boundary: A province located on the island of Borneo between Central and North Kalimantan (1 administrative level down from the national level – there are 34 provinces in Indonesia).

Why is East Kalimantan an interesting archetype of a jurisdictional approach?

East Kalimantan provides insights on how a jurisdiction can operate at multiple scales in parallel – simultaneously driving district-level programs with an overall province-wide stratagem. East Kalimantan's jurisdictional approach also demonstrates the effectiveness of sustainable methods, which include "land swaps" (i.e. reallocating production to already degraded or deforested land as opposed to forests);[122] sustainable palm oil certification and community engagement; only approximately 20% of all allocated land has been operationalized for oil palm plantations.

East Kalimantan is in the process of finalizing its jurisdictional plans. Its government passed legislation to reduce carbon emissions from forest loss and land degradation by 15.6% from 2012 to 2020. In June 2016, East Kalimantan's Emission Reduction Project Idea Note to reduce emissions was accepted by the Forest Carbon Partnership Facility (FCPF) Carbon Fund.

Drivers of deforestation and degradation

Data from the Ministry of Forestry and Environment show that from 1990 to 2014, the province lost 1.6 million hectares, or 20%, of its total forested area. Several factors can be attributed to this forest loss, including legal and illegal natural forest logging, planned industrial-scale palm and forestry plantation expansion, mining development, small-scale community-driven forest conversion, and widespread fires linked to El Niño events.

- **Palm oil.** Significant deforestation in East Kalimantan arose from the development of palm oil in forested areas – especially in the peatland. Peat is partially decayed vegetation or organic matter that in its natural state is usually found in marshy areas or bogs. Peatlands have very high carbon content (more than 10 times that of normal soil). Academic research indicates that the degradation of moderate to deep peatlands

[122] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016 and *Optimizing Land Use in East Kalimantan - Technical Working Paper*, Dewan Daerah Perubahan Iklim, 2011.

generates up to 20 times the emissions as the same acreage of forest converted to other uses.[123] Dried peat is also very susceptible to fire and is very difficult to extinguish – increasing the risk of forest fires. Of the 3 million hectares gazetted for oil palm production in East Kalimantan, an estimated 332,000 hectares of these lands reside in peatland.[124] The development of peatlands into oil palm plantations could significantly increase provincial greenhouse gas emissions and decrease the province's carbon stocks by around 135 MTCO2e in the long run.[125]

- **Pulp and paper.** The pulp and paper sector has grown substantially in East Kalimantan over the past 30 years. Expansion of plantations has been driven by demand for fiber in Indonesian mills and for export abroad. Deforestation has been compounded by licensing systems that are exploited by several forestry companies and errant officials. This has resulted in vast areas being licensed, cleared for timber, and then abandoned without being replanted. New mills have continually been licensed at capacity levels that far exceed plantation fiber production to meet international demand from markets like China. The result is that most fiber for Indonesian pulp mills has come from clearing natural forests.

Status of current efforts

East Kalimantan is in the process of finalizing its jurisdictional plans. Its government passed legislation to reduce carbon emissions from forest loss and land degradation by 15.6% from 2012 to 2020.[126] In June 2016, East Kalimantan's Emission Reduction Project Idea Note (ERPIN) to reduce emissions was accepted by the Forest Carbon Partnership Facility (FCPF) Carbon Fund.

There are several ongoing initiatives in the state. These include, but are not limited to the following:[127]

- **East Kalimantan Transformational Vision 2030 Strategy**. The provincial government recently signed a Memorandum of Understanding with the Global Green Growth Institute to support green growth development. The program aims to diversify economic activity and provide equitable distribution of benefits. The Memorandum of Understanding also included a medium-term development plan RPJMD (Rencana Pembangunan Jangka Menengah Daerah) for the 2014 to 2018 period. RPJMD creates

[123] *Optimizing land use in East Kalimantan - Technical working paper*, Dewan Daerah Perubahan Iklim, 2011 and *Reducing greenhouse gas emissions from oil palm in Indonesia lessons from East Kalimantan,* CIFOR, 2015.

[124] *Ibid.*

[125] *Ibid.*

[126] *Reducing greenhouse gas emissions from oil palm in Indonesia Lessons from East Kalimantan,* CIFOR, 2015.

[127] Several other programs like the Forest Resource Management for Carbon Sequestration Program in Nunukan and the Avoided Deforestation Project in Malinau are no longer within the political jurisdiction of East Kalimantan.

a binding framework of action for governments at the province and district levels, increasing coordination and cooperation between agencies.[128]

- **Berau Forest Carbon Program.** Berau is the first REDD+ program in Indonesia to span an entire political jurisdiction and is being used to inform East Kalimantan's REDD+ strategy. The program aims to reduce the carbon emissions in the district through community management of forests, controlling of impact logging and controlling land use for oil palm plantations in the district among others. Stakeholders in this program include The Nature Conservancy, FORCLIME, and other natural resource companies.
- **Community Carbon Measurement Project and Green Development Action Plan in Kutai Barat and Mahakam.** The program initially involved testing the feasibility of community involvement in measuring and monitoring the forest carbon levels in Kutai Barat. This has since progressed to the development of a REDD+ strategic action plan for the 2 districts. The action plan identifies specific policy objectives and supports the implementation of initiatives to be carried out by district governments to address these objectives.
- Green Growth Compact (GGC) development. Led by the Provincial Climate Change Council (DDPI) with support from TNC, the GGC will include the development of a roadmap, a finance plan, a multi-stakeholder platform, cross-sectoral commitments, and agreements to promote sustainable practices in the province. The GGC is designed to revitalize and scale up East Kalimantan's efforts to conserve its valuable natural capital through coordinated sustainable development actions. The compact involves convening key stakeholders within the jurisdiction to create a shared low-emissions development plan that lays out an interrelated set of policy, finance, and implementation commitments. The compact aims to help actors translate existing goals, commitments and interests into fully implementable and operational solutions through improving cooperation. The GGC's implementation will help East Kalimantan to achieve its mission to "increase economic growth by 8% and reduce emissions by 1,000 tons CO_2 equivalent per USD 1 million GDP" by 2030.

Challenges to East Kalimantan's sustainable development plan

East Kalimantan has set out an ambitious goal to reduce carbon emissions. Although the jurisdiction has made significant strides to develop and implement initiatives to support this endeavor, several technical and capacity gaps require additional public, private and civil society support:

Aligned incentives

- **Local leadership engagement**. Local government involvement and consensus are important to ensure that political decisions taken at the national level develop into concrete plans. In the case of East Kalimantan, the provincial government has been a strong advocate of sustainable approaches. The government is a founding member of the Governor's Climate and Forest Task Force and a signatory to the Rio Branco

[128] http://gggi.org/gggi-and-government-of-east-kalimantan-in-partnership-for-regional-green-growth/

Declaration to reduce tropical deforestation. It has also instituted a low-carbon growth strategy; issued a moratorium on new licenses for mining, forestry and palm oil; and developed the Action Plan for Reducing Greenhouse Gases and the REDD+ Provincial Strategy and Action Plan. However, issues at the district level persist, as not all government stakeholders are engaged in the process.

- **Community engagement.** Engagement on sustainable resource management remains limited. One positive example is SIGAP REDD+ (Communities Inspiring Action for Change in REDD+/Aksi Inspiratif warga untuk perubahan dalam REDD+). This approach engages local communities from the start to ensure their commitment to forest and natural resource management, while simultaneously improving their livelihoods. SIGAP's action points are: (i) communicating a long-term vision of village land protection and village development; (ii) formulating a socially, environmentally and economically integrated "green" village development plan; (iii) establishing collaborative forest arrangements with companies; (iv) securing forest management rights; and (v) accessing financial support.[129] Many new regulations to support a sustainable approach in the province have come into effect only recently and might encounter enforcement challenges at the district/landscape level.[130]
- **National alignment.** East Kalimantan's province-wide emissions reduction program is in line with Indonesia's national effort to reduce emissions. The province has also been designated as a pilot site for Indonesia's national Green Growth Program.[131] However, many national policies and processes are still being developed. More time is needed for these policies to be implemented in the province.
- **Other stakeholders.** The province's district governments provide land permits and earn royalties from mining and palm oil concessions.[132] This could potentially lead to cases where national and provincial policies are not fully adhered to due to the financial incentives accrued from royalties.

Strong design

- **Strategic planning.** As experienced in the Berau Forest Carbon Program, coordination between various initiatives across several sites and levels of government in East Kalimantan can be difficult.[133] This is caused by weak communication between various stakeholders on the scope of their different projects. Mechanisms to improve

[129] http://www.cifor.org/redd-case-book/case-reports/indonesia/tncs-initiative-within-berau-forest-carbon-program-east-kalimantan-indonesia/

[130] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016.

[131] Anderson Zachary R. et al*., Growing the Economy: Oil palm and green growth in East Kalimantan, Indonesia*, 2015.

[132] *Indonesia Now World's Largest Exporter of Coal for Power Stations, But There Are Costs*, Asia Foundation, 2014.

[133] Fishbein Greg and Donna Lee, *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*, The Nature Conservancy, 2015.

coordination between agencies and other relevant stakeholders on the ground are still being developed.

- **MRV systems.** Consistently keeping track of green growth goals and actions is critical to building transparency and confidence in the international climate regime. Measuring, reporting and verification (MRV) systems have been developed for district-level programs, but a province-wide approach is still in development.
- **Focus and prioritization.** East Kalimantan's development of a "green economy" is one of seven policy directions designed to increase investments and diversify the province's economy.[134] Although there is a roadmap which highlights short (2014-15), medium (2015-19) and long-term (2020-25) broad outcomes to realize this goal, the investment roadmap has yet to outline specific actions and metrics to consistently measure progress.[135]
- **Alternative livelihood plans.** Alternative livelihood strategies exist in the province – but only for district level projects (e.g., Berau Forest Carbon Program). Plans to develop a province-wide alternative livelihood approach remain undefined. The East Kalimantan Investment Roadmap 2014-25 identifies some key enablers, such as Small and Medium Enterprise (SME) development, but has limited focus on alternative sectors that could be developed.

Robust implementation

- **Technical capacity.** In East Kalimantan, the capacity of staff in the Forest Management Unit (KPH), government officials, and forest communities require additional support to increase the scope and strength of forest protection.[136]
- **Financial resources.** Inclusion into the Forest Carbon Partnership Facility (FCPF) Carbon Fund alongside grants from the Berau Forest Carbon Program and Green Development Action Plan will provide financial support for East Kalimantan's emissions reduction program. The FCPF estimates, however, that the province requires an additional USD 157 million over the next 8 years to fully fund the project (Exhibit 17).[137] Based on international case studies and existing literature, AlphaBeta estimates that the province could require up to USD 336 million in annual investments to fully transform the entire state's land use to a sustainable one.[138] A large bulk of this investment would be focused on improving commercial yields for palm oil and restoring degraded land. Although these units form part of an ambitious reform program to build appropriate

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[134] *Rencana umum penanman modal provnsi Kalimantan timur tahun 2014-2025*, Bandan Perijinan dan Penanman Modal Provinsi Kalimantan Timur Samarinda, 2014.

[135] *Ibid.*

[136] http://indonesiacop21.com/catalyzing-the-green-development-in-indonesia-learning-from-east-kalimantan/

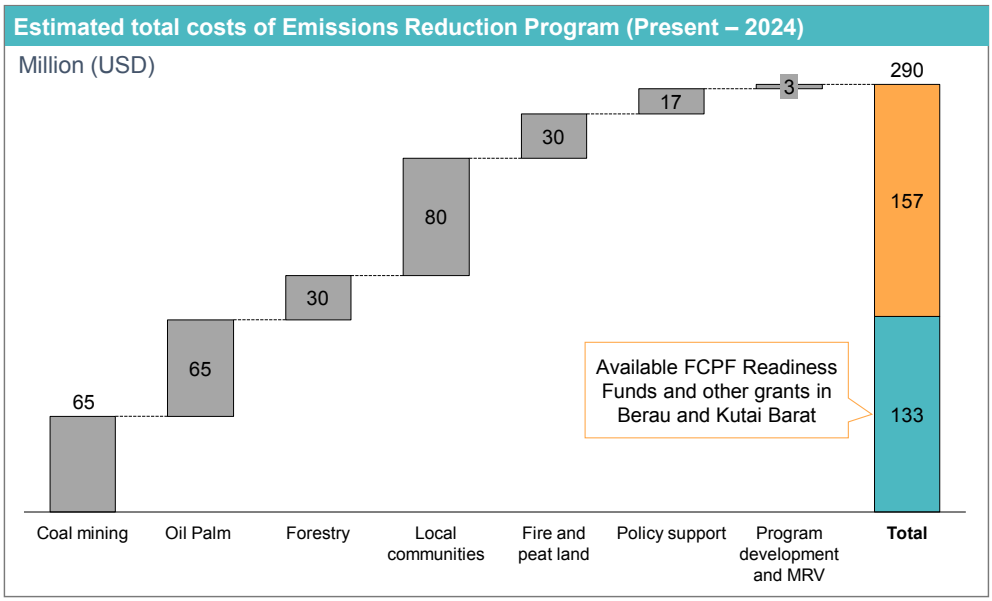
[137] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016.

[138] See Appendix A for methodology.

institutional capacity to manage forest estates, the financing to implement the KPHs is insufficient.

EXHIBIT 17

Less than half of the estimated costs of developing an emissions reduction program is currently available in East Kalimantan



SOURCE: Forest Carbon Partnership Fund

- **Land use change**. East Kalimantan's "one map policy" aims to assimilate various maps used by government agencies and levels of government in the province. The use of a single map will improve data quality collection and improve assigning land concessions. However, plotting of a single map is onerous, technically challenging, and slow. The Geospatial Information Agency in July 2016 announced that it has finished the first stage of the project, which involved the compilation of maps from all government agencies. The process of verifying and integrating the data across the provinces is expected to take till 2019. This stage will be challenging as it involves convening government agencies, companies, and communities to work through conflicting land claims and resolve every boundary overlap.[139]
- **Governance issues.** East Kalimantan's KPHs were created to improve the oversight of production, protection and social objectives. The province plans to establish 20 KPHs. They will be responsible for overseeing license holders, monitoring land use activities and helping to facilitate law enforcement. Only 2 KPHs were active in 2015.[140]

[139] http://www.eco-business.com/news/healthy-forests-zero-burning-prosperous-economy-can-indonesia-have-it-all/

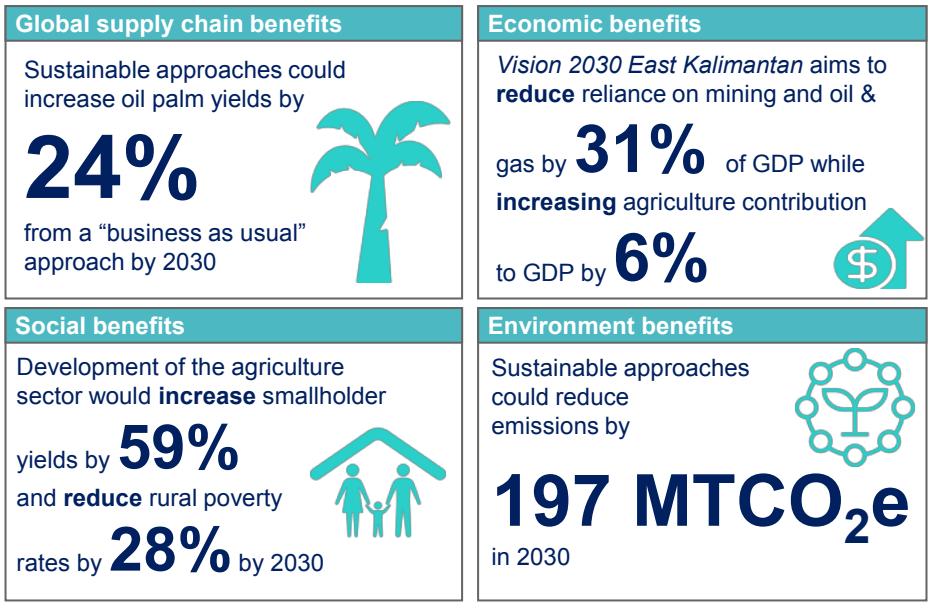
[140] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016.

Potential benefits of a sustainable development approach

A sustainable development approach could deliver significant benefits to global supply chains, as well as economic, environmental, and social outcomes in East Kalimantan (Exhibit 18):

EXHIBIT 18

A jurisdictional approach in East Kalimantan could reconcile competing global supply chain, social, economic and environmental objectives[1]



1. Data in exhibit is estimated by AlphaBeta using a range of original and third party sources

Global supply chain benefits

A sustainable development approach in East Kalimantan could deliver substantial benefits to global supply chains; by 2030, oil palm production could increase by 24% from a "business-as-usual" (BAU) approach (Exhibit 19). This could be achieved by smallholders' yield improvements (by up to 59% above BAU) and by yield improvements of large-scale farmers (by up to 20% above BAU), based on international evidence.[141] The potential in Indonesia (and East Kalimantan) could be even higher. For example, McKinsey Global Institute estimates that smallholder yields in Indonesia could potentially increase by more than 90% by 2030, or at a rate of about 3% per year.[142]

The development of sustainable palm oil could also be coupled with reduced deforestation by shifting pre-allocated oil palm concessions to existing degraded land. Academic evidence suggests that this shift to degraded land could have short-term productivity costs, but that over the longer term (5-10 years), yields are likely to increase and could come close to or reach conventional tillage yields (before further productivity gains are achieved through such mechanisms as farmer training programs).[143] In total, oil palm production could increase from eight million metric tons in 2013 to

[141] Smallholders are defined as having farms less than 2 hectares in size.

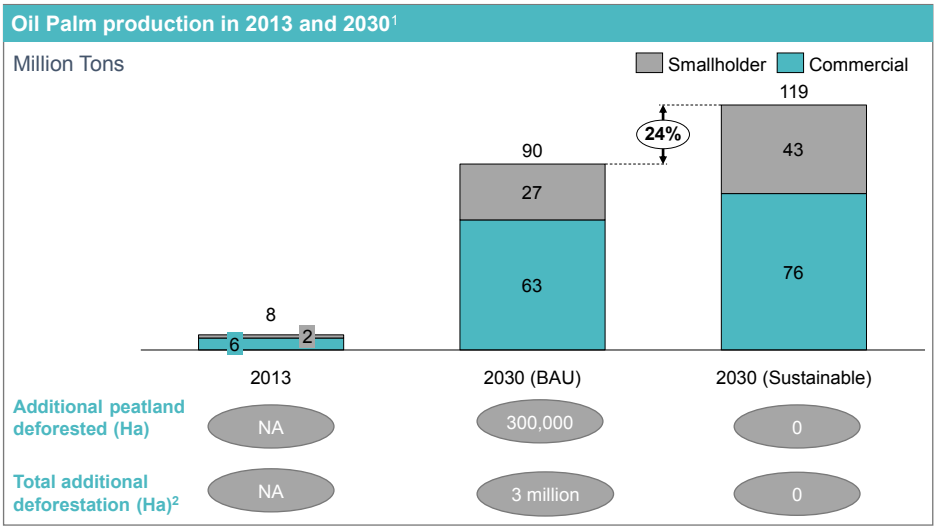
[142] *The archipelago economy: Unleashing Indonesia's potential*, McKinsey Global Institute, September 2012.

[143] *Better growth with forests – economic analysis,* AlphaBeta and the TFA 2020, 2016.

over 119 million metric tons by 2030 while decreasing deforestation by 3 million hectares.[144] The increase from using sustainable practices, coupled with the expansion of palm oil concessions, could support the development of East Kalimantan to become one of Indonesia's leading palm oil producing provinces.

EXHIBIT 19

Sustainable approaches can increase palm oil production by 24% from a BAU scenario and reduce deforestation by 3 million hectares by 2030



1.Oil palm refers to the fruit of the palm oil trees. It is the primary component of palm oil. Yields per hectare and productivity of commercial fields (which was calculated to be 1.4 times higher than smallholders) was based on historical data from Dinas Perkebunan Provinsi Kalimantan Timur. A McKinsey report estimates that best-practice applications in commercial farming could increase crop yields by 20% and 60-70% for smallholders by 2030.
2.A sustainable approach assumes that oil palm estates would be developed on existing degraded land, rather than primary forest.

SOURCE: Dinas Perkebunan Provinsi Kalimantan Timur; McKinsey & Company; AlphaBeta analysis

Environmental benefits

The potential to demonstrate tangible environmental benefits is high (as highlighted above). By 2030, the province could reduce its emissions by an estimated 197 MTCO2e .[145] Yield improvements in isolation are unlikely to cause a decrease in plantation expansion; in fact, they could encourage expansion as palm oil becomes even more profitable. Therefore, yield improvements must be made in conjunction with strictly planned land use for palm oil, set targets on production and unplanted lands, strengthened protection efforts in conservation and protected forests and, potentially, REDD payments to protect forests that would otherwise be needed for palm oil expansion.

The major sustainable development opportunities identified in East Kalimantan include:

- **Reducing deforestation.** A key driver of deforestation in the province is the lack of proper spatial planning and the frequent occurrence of overlapping land claims.[146] The province's "one map policy" will assimilate various maps used by government agencies

[144] Previous research estimates that commercial farming could increase crop yields by 20% and 60-70% for smallholders from 2011 to 2030 in *Reducing deforestation: The land-use revolution*, McKinsey & Company, 2012 and http://disbun.kaltimprov.go.id/statis-35-komoditi-kelapa-sawit.html#

[145] *Creating low carbon economic prosperity in Central Kalimantan*, DNPI, December 2009.

[146] *Towards a Greener and Developed East Kalimantan: A provincial emission reductions program in Indonesia,* Forest Carbon Partnership Facility Carbon Fund, 2016.

and levels of government. The reliance on a single map will improve data quality and collection, and improve assigning land concessions. These initiatives will support better spatial planning and resolve overlapping land claims.

- **Restoring degraded land.** The government is relocating agricultural development activities (e.g., palm oil estates, food estates) from forested land into existing deforested and degraded land. Establishing palm oil estates will further increase the carbon sequestration of the province; a report by Dewan Daerah Perubahan Iklim found that in areas where oil palm had been planted on degraded land, there was a net increase of carbon sequestration of approximately 30-40 tons of carbon per hectare.[147]

Economic benefits

On the economic front, the province's Vision 2030 East Kalimantan strategy intends to reduce its reliance on mining and oil and gas to 17% of GDP (from 48% today), while increasing the agricultural contribution to GDP to 10% (from 4% today), and industrial processing and manufacturing to 42% (from 23% currently).[148] This is borne out of economic necessity given the low current oil prices. The development of the agriculture sector would further benefit farmers and farm workers – who form the bulk of the workforce in the province. Results-based financing will provide an additional incentive to shift away from business-as-usual practices. The potential for economic development could be significant, for both the province's GDP and employment. For example, a sustainable development pathway was estimated to be able to increase average (real per capita) incomes in neighboring Central Kalimantan in 2030 by around 13-17% above a BAU approach.[149]

Social benefits

A sustainable development approach could also create significant broad-based benefits for the people of East Kalimantan. For example, enhancing land tenure and improving smallholder productivity could improve the overall yield of smallholders by around 59% by 2030. Development of the agricultural sector would also reduce rural poverty. An academic study shows that agricultural GDP growth in Indonesia is correlated to reducing overall rural poverty rates.[150] In the case of East Kalimantan, adopting sustainable approaches can support the reduction of rural poverty rates by approximately 28%, by 2030 - if the province realizes its goal of increasing agricultural contribution to GDP from 4% to 10% growth.[151]

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[147] *Optimizing land use in East Kalimantan - Technical working paper*, Dewan Daerah Perubahan Iklim, 2011.

[148] Sukhdeve Pavam, *Gaps in Concepts and Implementation of Green Growth in Indonesia*, UNEP, 2015.

[149] *Creating low carbon economic prosperity in Central Kalimantan*, DNPI, December 2009.

[150] Suryahadi Asep, Suryadarma Daniel and Sumarto Sundarno, *The effects of location and sectoral components of economic growth on poverty: Evidence from Indonesia*, Journal of development economics, Journal of Developmental Economics (89), 2009.

[151] *East Kalimantan's green growth planning and actions, and linkages with national development priorities*, East Kalimantan Regional Development Planning Agency, 2014.

Potential role for TFA 2020

Based on TFA 2020 partner capabilities and experience, and the "unmet" pre-conditions for sustainable development in East Kalimantan, several potential collaboration opportunities emerge:

- **Signal publicly** to the Province and Green Growth Compact (GGC) participants the importance of the GGC and its associated goals and activities. This is particularly important as the government begins the process of implementation across the province. TFA 2020 partners could also indicate positive support associated with the success of the GGC (e.g. expanded sourcing, private investment, public investment), and express their willingness to further participate in the GGC process. Public signaling and advocacy, particularly on the part of major companies and investors, would help sustain the political and economic will to advance the GGC.
- **Establish sustainable sourcing roadmaps and targets**. TFA 2020 partners could develop harmonized sourcing guidelines for palm oil through the GGC agreement. For example, several TFA 2020 partners are working to converge high-carbon stock methodologies. This approach could potentially be tested in East Kalimantan. Participation in the GGC should be structured such that the time spent is viewed as valuable to solve real problems that can only be resolved across multiple stakeholders, and tangible on-the-ground programs are delivered.

  TFA 2020 partners could also explore a range of incentives linked to GGC progress. For example, the potential to expand sourcing from East Kalimantan's smallholders exists, if certain certification milestones linked to internationally recognized guidelines (i.e. those of the Roundtable on Sustainable Palm Oil - RSPO) are met because of reduced risk of exposure for companies. These sourcing roadmaps could include new categories (e.g. sourcing alternative food production products from East Kalimantan forests).

  TFA 2020 partners could lend support to build a pipeline of projects for East Kalimantan. This could bring investors and project developers together to foster investible projects and promote innovative financing mechanisms. The GGC includes a conservation trust fund to enable pooled conservation investments in the province to reduce transaction costs for companies and ensure credible investments from mainstream financiers. TFA 2020 partners could explore opportunities to provide funding beyond sustainable agronomic practices (e.g. compensation for permit holders who forego land clearing, alternative livelihood programs, forest protection, etc.).

A possible implementation pathway

A starting point could be for TFA 2020 partners who are active in the jurisdiction (including TNC, Wilmar, Asia Pulp and Paper (APP), and WWF) to organize a roundtable to discuss these potential opportunities and align on a cooperation method. After that, a few key stakeholders from government will be crucial to include, such as:

- Kalimantan Climate Change Council (DDPI)
- Ministry of Environment and Forestry

- Development Planning Agency of East Kalimantan province (BAPPEDA)
- Plantation office of East Kalimantan
- Public works office

6. Sabah, Malaysia

Size: 7.4 million hectares

Forest area: 4.4 million hectares

Population: 3.8 million people

Economy: Dependent on service industry (particularly tourism) and agriculture – 40% and 30% of GDP respectively. The state produces 10% of the world's crude palm oil (CPO)

Jurisdictional boundary: A state (1 administrative level down from the national level –there are 13 states in Malaysia).

What makes Sabah a unique type of jurisdiction?

Sabah's jurisdiction-wide certification of palm oil represents a pre-emptive step to meet global demand for sustainable palm oil. By committing to a sustainable approach to developing its palm oil and forestry sector, Sabah intends to develop clean waterways, limit deforestation, reduce land degradation and support alternative livelihoods for forest communities. Sabah has the potential to become a beacon for sustainable development for other parts of Borneo and other tropical areas undergoing similar development processes.

Sabah's sustainable jurisdictional approach is already being implemented. Since the late-1990s, the state has made substantial commitments to fight deforestation and develop sustainable supply chains.

Drivers of deforestation and degradation

Deforestation. Between 2001 and 2013, over 980,000 hectares of Sabah's territory was affected by land-use change brought about by deforestation; logging in reserves; and the rotation of palm oil crops in commercial plantations.[152]

Drivers of forest loss in Sabah over the past decades include:

- **Palm oil.** Palm oil production is a key driver of Sabah's economy. Exports and production of oil palm contribute around 20% of the state's total GDP.[153] The reliance on the industry has led to the expansion of oil palm estates to over 1.5 million hectares (20% of Sabah's total area). Although not as extensive as in East Kalimantan, clearing of peatland for oil palm cultivation has also occurred in Sabah (see East Kalimantan case study).[154]

[152] *Progress report on environmental conditions and impacts of oil palm plantations in Sabah working towards the effectiveness evaluation of RSPO and ISCC in reducing threats to local biodiversity,* CEEM & WWF, 2015.

[153] Mullok, Dulah, Kasim Mansur, and Mori Kogid, The Sabah Development Corridor (SDC), 2015.

[154] *Ibid.*

- **Logging.** Logging was another main driver of deforestation in Sabah – especially in the early 1970s and 1980s.[155] A study found that over 80% of the rainforests in Malaysian Borneo (which Sabah is in) have been heavily impacted by logging.[156] The impact of logging has been far more drastic on the island than other parts of the world because its forests have a relatively higher density of commercially exploitable trees. As such, loggers extract a much higher volume of trees per hectare, causing considerable damage to the forests.[157] Moreover, prior to the introduction of Reduced Impact Logging (RIL), logging activities in Sabah resulted in 50% - 70% of the surrounding trees being damaged during the harvesting period.[158] RIL is a collection of several harvesting techniques used to minimize damage to the trees and soil to maintain the forest's long-term production capacity.[159]

Degradation. Forest degradation is a reduction in tree biomass density from human or natural causes such as logging, fire, windthrows and other events. Degraded land is more prone to ignition and fire damage as they have significantly lower levels of moisture content and a higher amount of combustible materials.[160] An academic study found that nearly 2.3 million hectares of land have been degraded in Sabah.[161] Land degradation in Sabah is (in part) caused by companies who clear forests meant for palm oil cultivation but subsequently, fail to grow palm oil thereafter. This leads to land which is vulnerable to loss of soil during heavy rain.[162]

Status of current efforts

Sabah's sustainable jurisdictional approach is already being implemented. Since the late-1990s, the state has made substantial commitments to fight deforestation and develop sustainable supply chains. Several programs are ongoing in the state. These include, but are not limited to the following:

- **Deramokot Forest Stewardship Council Certification.** In 1989, the Sabah Forestry Department (SFD) recognized that illegal and irresponsible logging practices were a threat to the state's long-term economic viability. In response, the SFD began

[155] *Overcoming the Past, Looking to the Future: A case study on responsible forest management in Malaysia*, Global Forest and Trade Network, 2010.

[156] https://news.mongabay.com/2013/07/80-of-rainforests-in-malaysian-borneo-logged/

[157] *Ibid.*

[158] Pinard, Michelle; Francis Putz and John Tay, Lessons learned from the implementation of reduced-impact logging in hilly terrain in Sabah, 2000.

[159] http://www.forest.sabah.gov.my/discover/sustainable-management/reduced-impact-logging

[160] Kyereh B., Ninnoni R., Agyeman V.K., *Degraded forests are more susceptible to forest fires: Some possible ecological explanations, Department of Silviculture and Forest Management*, Journal of science and technology, 2006.

[161] Bryan et. al., *Extreme Differences in Forest Degradation in Borneo: Comparing Practices in Sarawak, Sabah, and Brunei*, 2013.

[162] Alang Mahat, Suhaila Binte, *The palm oil industry from the perspective of sustainable development: A case study of Malaysian palm oil industry*, 2012

discussion of a responsible forest management plan for its concessions. Working with the Global Forest & Trade Network (GFTN), the department developed the Forest Stewardship Council (FSC) certification in 1997. The Deramokot forest is the first and longest continuously certified rainforest under this FSC scheme. To date, 868,374 hectares of Sabah's forests are partially or fully certified by the FSC.[163] The Deramokot model has since been expanded to forests in Sabah with the financial support of the private sector.[164]

- **EU-REDD+ pilot**. The EU's demonstration REDD+ for Malaysia is to be conducted in Sabah from December 2013 to December 2017. The aim of the project is to improve REDD+ readiness and implementation; enhance engagement in forest protection; and support forest communities. Key activities include: monitoring biodiversity, establishing a centralized repository of information, developing a framework for monitoring and evaluation; and establishing community conserved areas (CCAs).[165]
- **Jurisdictional Certification for Palm Oil.** In December 2015, the Sabah government made commitments to ensure that all palm oil produced in Sabah would be certified as sustainable according to the standards set by the Roundtable on Sustainable Palm Oil (RSPO) by 2025. The RSPO provides sustainable palm oil certification based on global best practices on sustainable palm oil cultivation. RSPO also monitors and evaluates the economic, environmental, and social impacts of sustainable palm oil in the market. In Sabah, the RSPO is working with the state government to ensure that smallholders receive assistance and are included in the certification process. Forever Sabah, an organization which aims to catalyze institutional change through a series of ground-up projects which build capacity to sustainably manage natural resources; protect and restore forests; and enhance social and ecological resilience, is working alongside RSPO as technical advisors for this program.

Challenges to Sabah's sustainable development plan

Sabah's jurisdictional approach appears well-placed to meet most of the challenges commonly encountered by other jurisdictions:

Aligned incentives

- **Local leadership engagement**. Local government involvement and consensus are important to ensure that political decisions that are taken at a national level develop into concrete plans. Sabah's chief minister, Datuk Seri Musa Aman, is committed to protecting forest and promoting sustainable supply chains. Since taking over in 2003,

[163] *Overcoming the Past, Looking to the Future: A case study on responsible forest management in Malaysia*, Global Forest and Trade Network, 2010 and *Forest certification in Sabah*, FSC, 2013.

[164] Datuk Sam Mannan, Forest governance and conservation in Sabah, Malaysian Borneo – the tasks ahead and challenges for full redemption, 2015.

[165] Martin, Ricky, Sanath Kumaran and Ronald Tuzan, Tackling climate change through sustainable forest management and community development, 2014.

he has doubled the Total Protected Areas (TPAs) (which include State Parks**;** Wildlife Sanctuaries; and Forests Reserve Classes 1, 6 and 7) to 1.7 million hectares (24% of all land in the state).[166] The government has plans to further increase TPAs to 30% of the state's land. It has also made international commitments to ensure that its forest products (pulp and paper) are 100% certified by 2018 and its oil palm products are 100% RSPO-certified by 2025.[167]

- **Community engagement.** It is essential that local communities understand the process of sustainable palm oil certification as well as the potential effects of new laws and regulations related to it. Interviews with experts on the ground revealed that there are robust plans by the government to conduct community engagement activities; manuals to deal with land conflicts; and a grievance mechanism to settle any outstanding land disputes. Despite these institutional frameworks, expanding outreach and tailoring programs to meet the needs of smallholders on the ground remains challenging, and requires additional support.[168]
- **National alignment.** Since 2008, Malaysia's new forestry laws prevents the clearing of forest for new oil palm plantations.[169] The country has also pledged to voluntarily reduce greenhouse gas emissions by up to 40% by 2020 (based on 2005 baselines).[3] Commitments to zero-deforestation and forest restoration through Sabah's jurisdiction-wide palm oil certification initiative would support the country's effort to realize these goals. However, experts on the ground note that the state's RSPO certification process does not fully align with Malaysia's RSPO standards, particularly regarding land eligible for certification post-1994.
- **Other stakeholders.** Under the 9th and 10th Malaysia Plans, the Sabah Government received USD 100 million (MYR 450 million) from the Federal government to develop green technologies and sustainable practices.[170] This provides financial resources and incentives to support the development of a green economy. While there is a general support to adopt sustainable practices in palm oil production, there remains a divide on which standards should be applied in the state. Interviews with experts on the ground note that while some groups advocate the adoption of RSPO standards which are internationally recognized, others have argued for using Malaysia's sustainable palm oil standards. Stakeholders in the state require additional dialogue to reach an agreement on this issue. Experts also note that Sabah's jurisdictional approach include plans to restructure entrenched government institutions. These plans might also encounter resistance by stakeholders who are comfortable with the status quo.

Strong design

[166] http://www.theborneopost.com/2015/12/31/totally-protected-areas-doubled-in-sabah/

[167] Payne John, *Introduction to the Sabah jurisdictional approach for sustainable palm oil,* 2016.

[168] http://www.rspo.org/newsandevents/news/rspooutreachprogramsupportssabah100cspocommitment

[169] http://www.orangutans.com.au/Orangutans-Survival-Information/Malaysia-bans-clearing-of-forests-for-oil-palm.aspx

[170] Mullok, Dulah, Kasim Mansur, and Mori Kogid, The Sabah Development Corridor (SDC), 2015.

- **Strategic planning.** The steering committee for Sabah's jurisdiction-wide palm oil certification includes representatives from prominent government bodies (e.g. the Land and Survey Department, the Environment Protection Department), civil society (Jaringan Orang Asal SeMalaysia, Sabah Environmental Protection Association) and the private sector (e.g. Sawit Kinabalu, HSBC). The inclusion of these organizations creates a platform for clear communication and strong coordination between the various groups. Forever Sabah and the RSPO are technical advisers to the committee. Moreover, the committee is supported by six working groups: HCV-HCS-Compensation; Labor; Governance and Legal; Free, Prior, Informed Consent; Monitoring and Evaluation; and Smallholder Issues. These working groups consist of various stakeholders from the government (the Department of Agriculture, the Natural Resources Office, the Sabah Forestry Department), civil society (the World Wide Fund for Nature WWF-Malaysia, the non-profit organization LEAP [Land Empowerment Animals People], the United Nations Children's Fund) and the private sector (Wilmar, Sime Darby, TSH Resources).[171]
- **MRV systems.** Sabah recently collaborated with the Carnegie Institute of Science's Department of Global Ecology to bring the department's mapping aircraft, the Carnegie Airborne Observatory (CAO) to the state. The CAO is the most scientifically advanced aircraft-based mapping and data analytics system in civil operation. It supported the state to identify and map forests with High Conservation Value (HCV) and High Carbon Stock (HCS).[172] As a next step, the state aims to finalize an integrated HCV and HCS map by 2017. Jurisdiction-wide monitoring of sustainable palm oil practices and verification have yet to be fully implemented in Sabah. This is due to the early stages of jurisdiction-wide certification.
- **Focus and prioritization.** Sabah's jurisdictional palm oil certification has 4 work areas with clearly defined outcomes per area. The state's jurisdictional committee recently approved its work plan for 2017 – which consists of several projects to support the jurisdiction to realize its long-term goals. The projects for 2017 include: producing an integrated HCV and HCS map; preparing a state-specific estate guide and an operational mechanism adapted from RSPO principles; piloting smallholder programs in 4 districts in Sabah; and improving governance and institutional frameworks in the state.
- **Alternative livelihood plans.** The development of a platform that empowers sustainable alternative livelihoods for indigenous communities is a central theme in Sabah's plans. The jurisdiction is working to provide alternative livelihoods for unlicensed palm oil farmers. For example, the World Wildlife Fund is working in the district of Kinabatangan to train and equip farmers to become native tree seedling suppliers necessary for forest restoration work.[173] Other areas to support alternative

[171] Payne John, *Introduction to the Sabah jurisdictional approach for sustainable palm oil*, 2016.

[172] *Forever Sabah: First wave project suite*, Forever Sabah, 2014.

[173] *Green Heart*, World Wildlife Fund, 2008.

livelihoods include plans to diversify agricultural production to ensure food security and food sovereignty in the state. Sabah's Community-Based Ecotourism Training School (CBETS) aims to develop a future of alternative livelihood options that are underpinned by resource conservation and the management of all forms of waste. The program is being trialed in the district of Telupid where CBETS is collaborating with local communities to help them understand the potential social and economic impacts of ecotourism and to deliver training in the skills necessary to run a successful ecotourism venture.[174] Past research has shown that ecotourism initiatives failed to reach sufficient scale to significantly impact local employment and growth.[175] However, the rise of tourism, driven by the growth in ASEAN's consuming class and the advent of low-cost carriers, could boost ecotourism in the state.

Robust implementation

- **Technical capacity.** Forever Sabah is supporting the state government by providing evaluations and advice on innovative policy, legal, and institutional frameworks. The overarching goal is to align the legal ecosystem and train a wide range of stakeholders, including local communities, to effectively engage in legal issues related to conservation and sustainability goals.[176] Similarly, the Roundtable on Sustainable Palm Oil (RSPO) is helping the state government to engage with smallholder farmers while training them on sustainable palm oil cultivation. While there appears to be significant technical knowledge in these areas, the state will require additional capacity to scale up the projects state-wide.
- **Financial resources.** Establishment and certification of sustainable palm oil is expected to cost USD 4.3 million from 2015 to 2025 in total. Interviews with experts close to the project estimate that Sabah requires USD 1.5 million in 2017 to fund projects which will further these plans. The state is exploring ways to providing financing for its conservation practices. In April 2016, the government convened a consultation workshop to leverage Payment for Ecosystem Services (PES) as a source of financing.[177] PES is an innovative financing mechanism developed to supplement funding by generating alternative revenue for protecting areas and sustainable resource management. An example of this is levying tourist fees to maintain natural wonders. The state is also working to seek funding from the government and other multilaterals.
- **Land use change**. Sabah has developed several pieces of legislation that regulate land-use and recognizes the rights of native lands. A case in point is the state's Land Ordinance (1930) which recognizes native customary rights to land and provides them with a permanent right of use.[178] More recently, the legal Working Group has

[174] *Ibid.*

[175] *Better growth with forests - economic analysis*, TFA 2020, March 2016.

[176] *Ibid.*

[177] *Report on workshop on developing PES for Sabah: Raising awareness, identifying Sabah's needs and preliminary options*, Sabah Forestry Department, April 2016.

[178] *Environmental law and policy in Sabah: From ridge to reef. Volume 2: Land*, Forever Sabah, 2015.

conducted reviews and analysis of the state and national laws to improve legislation.[179] The legal Working Group is also supporting forest communities to understand and engage with legislation that is affecting them.

- **Governance issue.** The members of the state's jurisdictional certification program include organizations and experts with a wealth of experience in RSPO principles and the certification process. This could help to support the implementation of coherent and consistent policy action in the state. The state government has also added officers in every district to enhance the protection and management of forest reserves. However, various challenges around land titling, planning, and enforcement of contract agreements remain unresolved. While the state's technical advisors and Working Groups are working to resolve several of these issues, additional financial support and capacity are needed to implement these mechanisms.

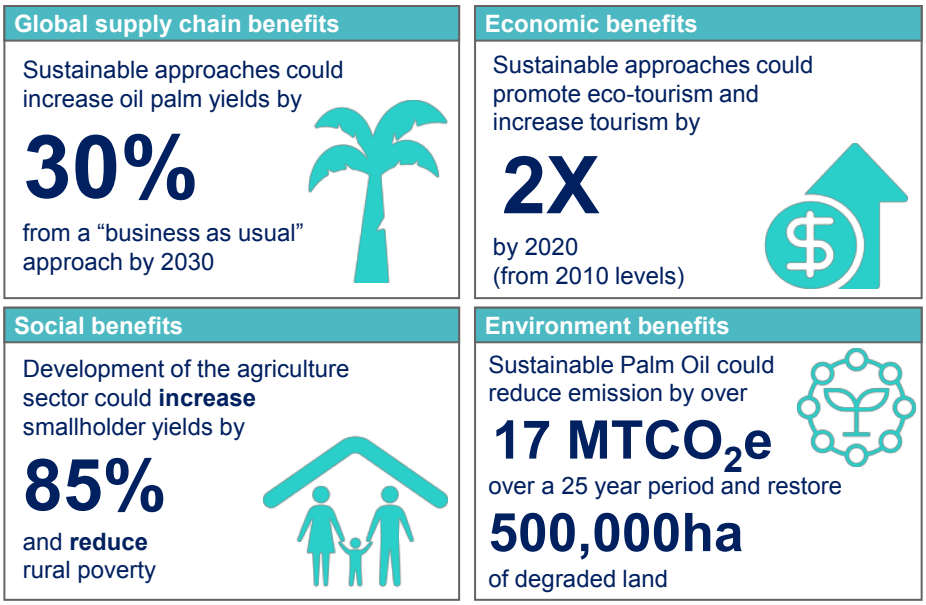
[179] *Forever Sabah: First wave project suite*, Forever Sabah, 2014.

Potential benefits of a sustainable development approach

A sustainable development approach could deliver significant benefits to global supply chains, economic, environmental, and social outcomes in Sabah (Exhibit 20):

EXHIBIT 20

A jurisdictional approach in Sabah could reconcile competing global supply chain, social, economic and environmental objectives[1]



1. Data in exhibit is estimated by AlphaBeta using a range of original and third party sources

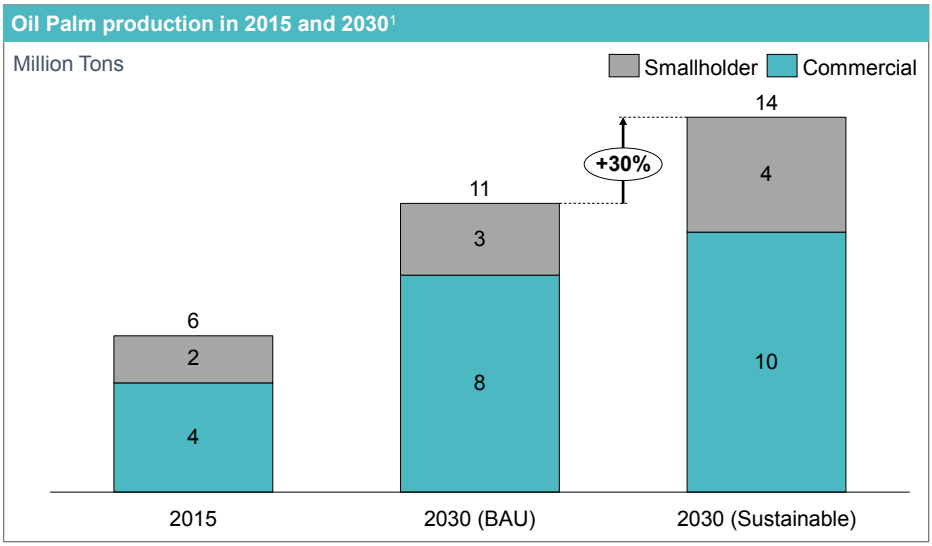
Global supply chain benefits

Sustainable approaches would significantly improve inputs for palm oil production in Sabah by 2030:

- **Palm Oil.** Nearly 20% of the state's land has been cultivated for palm oil. It is estimated that by 2030, a sustainable approach to palm oil production could more than double production from 2015 levels. A sustainable approach would also increase production to around 14 million tons – 30% more from a 'business-as-usual' approach (Exhibit 21).

EXHIBIT 21

Sustainable approaches could increase palm oil production by 30% from business-as-usual practices in 2030



1 Yields per hectare and productivity of commercial fields (which was calculated to be 1.4 times higher than smallholders) was based on historical data from global averages. A McKinsey report estimates that best-practice applications in commercial farming could increase crop yields by 20% and 60-70% for smallholders by 2030. OER was estimated at 21% - based on historical values in Sabah.

SOURCE: Malaysia Palm Oil Board; McKinsey & Company; AlphaBeta analysis

Environmental benefits

Some of the major sustainable environmental benefits identified in Sabah include:

- **Reducing deforestation.** Sabah has committed to increasing its TPAs to 30% of total land. Developing an integrated HCV and HCS map will further support reducing deforestation in the state. Moreover, sustainable approaches to logging and palm oil production could further reduce the rate of deforestation in Sabah and even increase the carbon sequestrian potential. A study on palm oil and greenhouse gas emissions found that the mean carbon sequestration of oil palms in Malaysia with a 25-year life was 2.09 tons carbon/hectare/year (equaling 7.66 tons of CO2e).[180] In the context of Sabah, this translates to a carbon sequestration potential of 17 MTCO2e across a 25-year period.
- **Degraded land.** Malaysia will seek to only cultivate palm oil on previously cleared and/or degraded land on mineral soil.[181] The optimized use of land in Sabah will ensure that land which is allocated for palm oil will be cultivated – rather than used as a source of timber. The state also has plans to restore 500,000 hectares of degraded land from 2015 to 2035.[182]

Economic benefits

[180] *Greenhouse Gas Emissions from Palm Oil Production*, RSPO, 2009.

[181] *National Interpretation of RSPO Principles and Criteria for Sustainable Palm Oil Production*, RSPO, 2015.

[182] Datuk Mannan, *17th Malaysian Forestry Conference*, Sabah Forestry Department, 2015.

Sustainable approaches and economic growth are intertwined in the state of Sabah. The Sabah Development Corridor is intended to boost ecotourism as well as agriculture. Sabah's green environment is a major tourism asset, attracting more ecotourists than any other part of South-East Asia.[183] The tourism sector contributed MYR 5.42 billion to the Sabah economy in 2013, equaling 10-15% of the state's GDP. Tourism is expected to double by 2020 from 2010 levels.[184]

The Sabah State Government has also decided to prioritize sustainable forest management practices. An economic impact analysis was conducted based on 4 scenarios arising from these practices: a 24% reduction in harvested area; a 49% increase in the external cost of timber harvesting; a 47% increase in the cost of internalizing the externalities; and a 20% gain in market access. The results showed that while the equilibrium quantity of timber had decreased, this welfare loss on the timber industry was offset by price gains and improved market access.[185]

Social benefits

The jurisdiction-wide certification plan calls for working with other commercial farmers to improve certification for smallholders. At present, the government is piloting a project to certify and improve alternative livelihoods for smallholders. The pilot is being carried out in Telupid, Tongod, Beluran and Kinabatangan districts and will provide access to good planting material and fertilizers. It is expected to be completed by 2017 and plans are already being made to scale it to the entire state. The RSPO estimates that sustainable practices will increase smallholder productivity by up to 85%.[186] Certification could also provide broad-based benefits like increased access to international markets.

Potential role for TFA 2020 Partners

Based on the capabilities and experience of TFA 2020 partners, and the "unmet" pre-conditions for sustainable development in Sabah, a number of potential collaboration opportunities emerge:

- **Signal publicly** to stakeholders in Sabah on the importance of their sustainable development plans and the associated goals and activities. Several initiatives are already working on increasing consumer awareness of sustainably sourced palm oil from the state. One such initiative is the Sustainable Palm Oil and Traceability in Sabah program, which is helping to certify 500 smallholder farmers in Sabah by 2020. The program was initiated by L'Oréal and commits the company to only purchase palm oil from producers that develop channels to sustainably source palm oil while improving the quality of life of independent smallholders. Wilmar and Clariant are working with L'Oréal to support this initiative. Aside from promoting sustainable agriculture in the state, the program also increases consumer awareness about the challenges of smallholders and the importance of purchasing sustainably sourced palm oil

[183] *Strategic plan of action (Sabah): The heart of Borneo initiative*, Sabah Forestry Department, 2013.

[184] *Ibid.*

[185] Rahim, AS Abdul et al., "Market and welfare economic impacts of sustainable forestry management practices – An empirical analysis of timber market in Sabah, Malaysia, *Journal of Tropical Forest Science*, 2012.

[186] Impact report 2014, *RSPO,* 2015.

byproducts. TFA 2020 could work with its partners to initiate similar programs that would further improve the visibility of smallholders in international markets.

TFA 2020 could also increase the political visibility of Sabah's plan and help to expedite policy change at the state and federal levels. Plans developed for jurisdiction-wide certification include creating new government institutions and mechanisms that require approval from Sabah's cabinet. Similarly, while the state government holds significant autonomy over its policies and environmental legislation, some policy decisions (e.g. funding) reside with the federal government. Increasing the prominence of Sabah's program could help expedite the decision-making process on both these fronts.

- **Establish sustainable sourcing roadmaps and targets.** TFA 2020 partners could explore a range of incentives linked to progress on Sabah's sustainable development plan. For example, the sourcing of palm oil from Sabah can be expanded if certain conservation goals are met. This incentive can be designed in a progressive manner, wherein sustainable palm oil certification (according to internationally recognized standards) for 100% of producers would unlock the largest benefits for producers and the state.

  Although the political and civil society support for Sabah's jurisdiction-wide initiative has been strong, getting smallholders involved remains challenging. The state is working with civil society and the private sector (particularly Wilmar) to engage smallholders in training on palm oil certification as well as alternative livelihoods for unlicensed and unregulated growers. This could offer an opportunity for TFA 2020 partners to work with the jurisdiction's relevant working groups in support of alternative livelihood programs.

  Aside from developing partnerships with the jurisdiction, TFA 2020 partners could furnish financial support for existing initiatives developed to meet the objectives of Sabah's jurisdiction-wide certification program. Some possible funding opportunities include providing financial support to reduce deforestation through land use change analysis; developing and expanding grievance mechanisms to ensure zero conflict; and enhancing smallholder productivity and capacity for best management practices.

A possible implementation pathway

Sabah has a well-developed jurisdictional program. TFA 2020 can work with existing partners on the ground (e.g., LEAP, WWF, IDH, Wilmar, etc.) to conduct a stock-take of existing sustainable supply chain improvement and conservation efforts by TFA 2020 partners and non-TFA 2020 partners (e.g., Clariant, L'Oréal, Boustead, etc.). Further, TFA 2020 partners could work closely with stakeholders in the jurisdiction (e.g., LEAP-SPIRAL, RSPO, etc.) to align on the cooperation methods to support the plans by the state government.

7. Liberia

Size: 9.9 million hectares

Forest area: 6.3 million hectares

Population: 3.5 million people

Economy: Liberia is dependent on the service industry and agriculture sector which account for 47% and 40% of GDP respectively - rubber and palm oil production are primary drivers of agriculture GDP.

Why is Liberia an interesting archetype of a jurisdictional approach?

Liberia provides insights on developing and implementing a sustainable jurisdiction-wide approach at the national level. It promotes sustainable palm oil production, a rigorous Free, Prior and Informed Consent (FPIC) approach and alternative livelihoods for forest communities. Despite having experienced a 14-year civil war, Liberia's drive to conserve the environment has made significant progress since it began in 2008. However, the outbreak of Ebola, coupled with weak government capacity, slowed down implementation. The country conducted its first democratic elections in 2005; the young government requires external assistance in the form of human capital, funding, and infrastructure to support its implementation plans. A significant proportion of the country's emissions reduction and sustainable supply chain programs are funded by Norway's International Climate and Forest Initiative (NICFI). In addition, Liberia is a Tropical Forest Alliance 2020 (TFA 2020) member and part of TFA 2020's Africa Palm Oil Initiative (APOI). The country could serve as an opportunity to create a "lighthouse" approach that could be replicated in other APOI member countries.

Drivers of deforestation

The rate of deforestation remained low during the civil war but has since increased at an alarming rate; deforestation in Liberia has jumped by 121% between 2001-2009 and 2010-2014.[187]

There are 2 key activities within the country which contribute to deforestation:

- **Logging.** Illegal and unregulated logging, coupled with weak oversight by government agencies have resulted in approximately 500,000 hectares of the country's forest to be lost from 2000 to 2014.[188] In 2012, a series of investigations found that 40% of Liberia's forests had been illegally sold to logging companies through secretive and illegal contracts called Private Use Permits (PUPs).[189] Land owners who hold Private Use

[187] *Eliminating deforestation from the production of agricultural commodities: Goal 2 assessment report*, forestdeclaration.org, 2016.

[188] *Consulting Services Contract for the Development of a National REDD+ Strategy for Liberia Final Report,* NIRAS, 2016

[189] http://news.trust.org/item/20140211134806-g65ej/

Permits have little restriction on how logging is carried out within the land. The permits allowed land owners to enter into contracts directly with logging companies, circumventing the country's laws which were meant to prevent unsustainable logging practices. Even though officials involved in the selling of PUPs have been indicted, nearly 24% of the total forest area remains earmarked for commercial logging.[190]

- **Agriculture.** Commercial farmers' and smallholders' agricultural activities, particularly rubber and palm oil cultivation, have contributed to the conversion of carbon rich forests into plantations:
  - **Rubber.** Rubber has been a major agricultural commodity in Liberia since 1926 when the first Firestone plantation (a subsidiary of the Bridgestone tyre company) established its operations in the country. Since then, 413,000 hectares of land, including dense and mosaic forests, have been converted into rubber plantations.[191]
  - **Oil Palm.** The emergence of palm oil as a biofuel has contributed to a rise in global demand for the commodity and led to the clearing of land to construct oil palm estates.[192] In the late 2000s, the government signed a series of concession agreements to significantly expand the industry. Over 930,000 hectares of land have been earmarked for development by Sime Darby, Golden Veroleum Liberia (GVL), Equatorial Palm Oil company (EPO), and Maryland Palm Oil Plantation (MOPP).[193]

Status of current efforts

Liberia's drive to conserve the environment has made significant progress since its initiation in 2008. However, the outbreak of Ebola, coupled with weak government capacity, has slowed down implementation. A significant proportion of the country's emissions reduction and sustainable supply chain programs are funded by the Norwegian Climate and Forest Initiative (NICFI). These include, but are not limited to the following initiatives:

- **The Liberia Forest Sector Program.** The Liberia Forest Sector Program began implementation in April 2016. The program aims to support the government's efforts to manage and improve the forest sector and protect nearly 1.5 million hectares of the country's remaining natural forest. [194] Initiatives from the program include:
  - *Forest investment project*. The project aims to strengthen the regulatory and institutional systems to improve the management of forest landscapes and complete

[190] *Consulting Services Contract for the Development of a National REDD+ Strategy for Liberia Final Report,* NIRAS, 2016.

[191] Calculated by adding SOCFIN and Firestone concession – 2 of the largest rubber concessionaires. http://www.socfin.com/Public/CompanyFolder.php?ID=1192&ancestor1=1079/ and https://ejatlas.org/conflict/firestone-bridgestone-rubber-plantations-liberia

[192] *Support to NEPAD-CAADP implementation*, Government of the republic of Liberia, 2006.

[193] Schoneveld, George Christoffel, *The geographic and sectoral patterns of large-scale farmland investments in sub-Saharan Africa*, Food Policy (48), 2014.

[194] *The Liberia Forest Program*, FCPF, 2015.

the process of legal reform and enforcement. It will also enhance landscape management of protected areas and community managed forests. Other components of the project include operationalizing a measurement and reporting system for forests and emissions reductions; reference level development; and an information system for safeguards.

- *Improving rubber production through private sector partnership.* This project provides financing to smallholder farmers to replant and renovate aging rubber plantations and adopt sustainable agronomic practices (See the "Environment Benefits" section of this chapter).
- *Payments for verified emissions.* This project provides financial payments for successful implementation of activities which lead to measured, reported and verified emissions reductions.

- **The Africa Palm Oil Initiative (APOI) in Liberia.** The APOI brings together TFA 2020 Partners and collaborators within governments, companies, civil society, and indigenous and local communities to help transition the palm oil sector in Africa. The goal of the APOI is to develop and support the implementation of a set of regional principles for responsible palm oil development that accounts for the ambitious development plans of countries in Africa. This approach aims to balance forest conservation, community development, and commercial interests while supporting the protection of high forest cover landscapes. 9 palm oil producing countries (including Liberia) are currently engaged in the APOI. Specific to Liberia, APOI has conducted national workshops on Liberia's national principles on palm oil production and is working on an implementation framework to guide the expansion of sustainable palm oil cultivation in the country.
- **Smallholder productivity and forest protection program.** NICFI and the Sustainable Trade Initiative (IDH) are supporting a program to achieve forest conservation in commercially productive landscapes in Liberia. The program aims to reduce deforestation and forest degradation, increase prosperity and create verified deforestation-free commodity producing landscapes. Partners in the program include the Government of Liberia, ArcelorMittal (mining), Sime Darby (oil palm and rubber), GVL (oil palm), local communities and civil society. The initiative, which began in March 2016, also endeavors to pioneer an investment model where investments in agricultural intensification are tied to forest conservation goals. Core activities of the program include developing land use plans consistent with commercial and conservation goals; signing protection agreements that commit participants to sustainably produced commodities; enabling investments in outgrowers (which are financially risky); and enforcing forest conservation policies.[195]

[195] *Green growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil,* IDH, 2015.

Challenges to Liberia's sustainable development plan

Liberia has made significant progress since its civil war and the Ebola crisis. However, legislative and governance issues remain potential challenges to implementing a sustainable jurisdictional approach in the country.

Aligned incentives

- **Leadership engagement**. At the national level, the government is a member of the TFA 2020. It has made significant commitments to adopt a sustainable approach; Liberia ratified the Paris agreement in 2015 and is in the process of developing a National Climate Change Policy. It also has an energy plan which aims to reduce greenhouse gas emissions by 10% by 2030, and a long-term strategy to achieve carbon neutrality by 2050.[196]
- **Community engagement.** To produce palm oil in a sustainable manner, companies like GVL and Sime Darby have committed to zero deforestation, and are also actively engaged in FPIC activities, which ensure that communities are provided with time and information to make informed decisions. These decisions are later formalized through Memorandums of Understanding (MoU) witnessed by the community, private sector and civil society. However, the lack of clear land management has led to some local communities claiming that oil palm plantations have acquired their lands without consent.[197] Additional effort is needed to better explain to local communities about land rights and the impact of palm oil production on their way of life. For example, establishing plantations might cause traditional water sources to be blocked, diverted, or drained in the process of clearing the land and building roads.[198] Moreover, despite palm oil companies expanding in a deforestation-free manner, their presence might lead to deforestation outside their immediate control (e.g., road openings, clearing of waterways, etc.). There is increasing recognition that communities and smallholders need to be further involved in the development process. For example, they can be encouraged to participate in the conservation and management of HCV and HCS which will help to prevent further deforestation.
- **National alignment.** The country has embarked on several legislative reforms to align regulations and legislation with green-growth and emissions reduction objectives (e.g., a national climate change policy; a national wildlife law; a mining act; and land rights laws). According to interviews, Liberia recently aligned on a common definition of forest cover and is currently working to increase private sector and public awareness of this definition.

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[196] *Greenhouse gas emissions in Liberia*, USAID, 2015.

[197] Kenrick, Justin and Tom Lomax, *Summary case study on the situation of Golden Veroleum Liberia's oil palm concession in Conflict or consent? The oil palm sector at a crossroads*, 2013.

[198] Lomax, Tom, Justin Kendrick and Alfred Bronwell*, Sime Darby oil palm and rubber plantation 12 in Grand Cape Mount County, Liberia, 2*013.

- **Aligned interest.** Although governments may have committed to national pledges, resilience to stay the course can be challenging especially when financial incentives are eroded. To this end, NORAD has provided a USD 5 million discretionary spending fund to support the government's transition away from deforestation activities.

Strong design

- **Strategic planning.** The Liberian government established the oil palm sector Working Group which include members from the government, smallholders and commercial farmers (i.e., Sime Darby, Golden Veroleum Liberia, Maryland Oil Palm Plantation and Equatorial Palm Oil). The working group acts as a platform for stakeholders to discuss challenges and develop an accepted national palm oil strategy. The government has also created a REDD+ steering committee, a technical working group and an implementation unit. Key decision makers from the forestry, climate change, and environment agencies are involved in these groups.[199]
- **MRV systems.** The country has not established a monitoring system to verify forest change and land degradation. In 2016, NORAD and the World Bank committed financial support to develop this monitoring system. However, the country faces a lack of support staff to develop the MRV framework, collect data, conduct "ground truthing", and test the system.[200]
- **Focus and prioritization.** As part of the Africa Palm Oil Initiative (APOI), Liberia has established a set of guiding principles to develop sustainable palm oil.[201] Similarly, the IDH's smallholder productivity and forest protection program has established a clear goal of leveraging private sector finance to support national efforts to demarcate 30% of the country's forests as protected areas (currently approximately 5% of the forest is under protection), however, a robust operating framework to implement these principles and programs is still being discussed.[202] The country's REDD+ program has also developed a roadmap with annual benchmarks and specific metrics to measure progress.
- **Alternative livelihood plans.** The Liberian government has made significant strides to support community engagement. To illustrate, the country's community forestry department at the Forestry Development Authority (FDA) has assisted local and forest-dependent communities through the CHYAO Project. The project helps to develop income-generating enterprises and manage the forest in a sustainable manner.[203] Palm oil plantations also support forest communities by employing individuals from MOU-signing communities to work in estates as field workers. Income generated from employment is a key driver for communities to invite concessionaires to plant in their

[199] FCPF Readiness Assessment: Mid-term report for Liberia, FCPF, 2014.

[200] *Ibid.*

[201] TFA 2020 Action Plan on Oil Palm Development in Africa, TFA 2020, 2016.

[202] REDD+ Biodiversity offsets – The Liberian Scenario, FDA, 2014.

[203] *REDD+ program annual country progress report (August 2015- August 2016)*, FCPF, 2016.

land and might provide an opportunity to deliver economic and environmental benefits.

Robust implementation

- **Technical capacity.** The outbreak of Ebola has led to a skills deficit due to a mass exodus of technicians and professionals.[204] The country lacks the technical capacity to develop sustainable management strategies for its forest and natural resource sector – particularly for environmental (biodiversity and ecosystem services) baseline data, data collection systems, and land use management.[205] Interviews with experts in the field note that there is also an absence of organized agricultural and forestry business institutions to provide capital and technical knowledge to farmers and pit sawyers.
- **Land use change**. The lack of formal land deeds and obscurity over land ownership is a root cause of many issues facing the development of palm oil in the country. This has led to differing definitions of 'privately-held land' by the government and the local communities. The resulting confusion has caused several instances where the local communities claim that their lands were acquired by concessionaires without their consultation.[206] To illustrate, the government provided a concession to Sime Darby land which they viewed as "free from any competing land claims". [207] However, the land was viewed by local communities as customary land that belonged to them. [208] A subsequent inquiry found that the Liberian government had overstretched its authority and that it was not in a legal position to negotiate the land deal in the first place.[209]

  On the environmental front, RSPO compliant companies have made commitments to cultivate palm oil only based on HCV and/or HCS assessments. NGOs are also supporting this process. Conservation International is working with producers and communities to demarcate "go" and "no-go" areas for palm oil production. "No-go" denotes areas which have a high level of biodiversity or provide people with non-timber forests products, income, and flood regulation. Although this has been developed at a landscape level, to date, Liberia has not established a national level policy and laws governing carbon rights. There also isn't a national carbon accounting system, forest inventory or National Forest Monitoring system.
- **Governance issue.** Inter-sectoral coordination and policy implementation, especially at the sub-national level, remains challenging. In a workshop by the World Bank in 2013, key government officials from the state identified the need to improve coordination at

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[204] *Ibid.*

[205] *Ibid and* https://www.regjeringen.no/en/topics/climateandenvironment/climate/climateandforestinitiative/kosinnsikt/liberia/id2345606/

[206] *Ibid.*

[207] *Making FDI work for sub-Saharan Africa: Lessons from Liberia*, Oxford Economics, 2014.

[208] *Ibid*.

[209] *Ibid.*

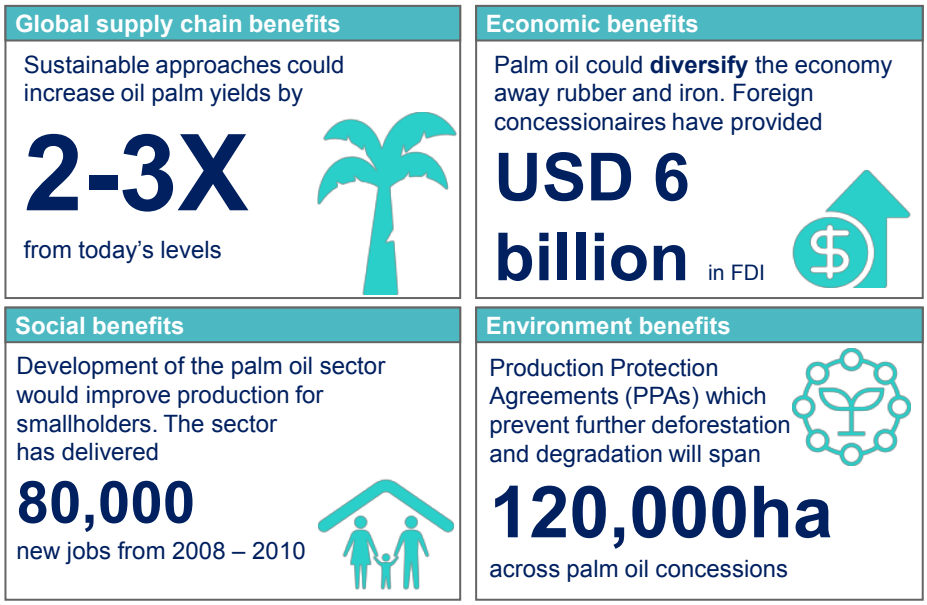
the senior level (e.g. Ministers, Directors) – to ensure that policies are consistent, and at the technical level – to share information and ideas between teams working on similar issues. Moreover, interviewees noted that the capacity to enforce sanctions for forest offenses; awareness of what constitute to forest crimes; and developing clear land boundaries are areas which officials from the justice and environmental departments require additional training in.

Potential benefits of a sustainable development approach

A sustainable development approach could deliver significant benefits to global supply chains, economic, environmental, and social outcomes in Liberia (Exhibit 22):

EXHIBIT 22

A jurisdictional approach in Liberia could reconcile competing global supply chain, social, economic and environmental objectives[1]



1. Data in exhibit is estimated by AlphaBeta using a range of original and third party sources

Global supply chain benefits

While oil palm is indigenous to West Africa, Liberia is one of several pioneer countries on the continent to cultivate it on a large scale using concessions. The production of sustainable palm oil could provide significant contributions to global demand for palm oil – which has been increasing 6% per year on average since 2000.[210] Current yields in Liberia are exceptionally low by global standards. Yields average 2-3 tons of oil palm fruits per hectare (versus a potential of 6-8 tons of oil palm fruits per hectare).[211] The EPO, Sime Darby and GVL have experience cultivating and producing palm oil and are also members of the RSPO. Cultivating sustainable palm oil, according to these principles,

[210] *Making FDI work for sub-Saharan Africa: Lessons from Liberia*, Oxford Economics, 2014.

[211] *Incentivizing no-deforestation palm oil production in Liberia and the Democratic Republic of Congo*, USAID, 2015.

while employing improved agricultural techniques (e.g. nurseries, high-yielding seeds, fertilizer) could significantly increase palm oil production while preventing deforestation.[212]

Environmental benefits

In 2014, the Liberian and Norwegian governments signed a bilateral agreement aimed at protecting the forests, by developing zero-deforestation agriculture and agreeing to place 30% of its forest estate under protected area status by 2020.[213] Adoption of sustainable approaches to logging, rubber and oil palm production would support this endeavor (e.g., zero-deforestation commitments, not cultivating near sensitive areas and water sources).

- **Palm oil.** As part of its agreements with IDH, Sime Darby and Golden Verolem will conserve approximately 120,000 hectares of forests through 'production-protection agreements'.[214] These agreements ensure that deforestation and degradation activities cannot be carried out in the area. [215] Further, adherence to international standards (i.e., RSPO) will prevent the clearance of High Carbon Stock and High Conservation value forests – 40% of which are in palm oil concessions.[216]
- **Rubber.** As part of the Liberia Forest Program, the government is working to pass legislation to limit rubber tree plantations to non-wooded areas. The International Finance Corporation is also working with Firestone Liberia to provide long-term financing to smallholder rubber farmers to replant and renovate ageing rubber plantations.[217] This would prevent the expansion of rubber plantations into dense and mosaic forests.
- **Logging.** Liberia has signed agreements with the European Union to fight illegal logging. The country is also working to develop systems to verify that exports are from legally felled wood. Liberia introduced a chainsaw regulation in 2013 to control chainsaw milling in the country. Estimates suggest that maintaining logging and other extractive forest activities at a sustainable level could reduce carbon emissions by 1.6 MTCO2e annually.[218]

Economic benefits

The development of a sustainable palm oil industry could provide significant benefits to the economy. In terms of investment, EPO, Sime Darby and Golden Veroleum will contribute USD 6

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[212] USAID expects that financial extension and support services by experienced palm oil producing companies could increase yield from 2-3 tons to 6-8 tons of fresh palm fruit per hectare. *Incentivizing no-deforestation palm oil production in Liberia and the Democratic Republic of Congo*, USAID, 2015.

[213] http://www.bbc.com/news/science-environment-29321143

[214] *Green Growth: Achieving forest conservation in commercially productive landscapes in Indonesia, Liberia and Brazil*, IDH, 2015,

[215] *Ibid.*

[216] *Consulting Services Contract for the Development of a National REDD+ Strategy for Liberia Final Report,* NIRAS, 2016.

[217] *Making FDI work for sub-Saharan Africa: Lessons from Liberia*, Oxford Economics, 2014.

[218] *REDD+ program annual country progress report (August 2015- August 2016)*, FCPF, 2016.

billion in foreign direct investment to cultivate estates and establish operations.[219] Improvements to palm oil cultivation and production would boost the country's export of palm oil – potentially making it one of the country's largest export commodities.[220] This will also aid Liberia's economy diversification away from iron and rubber at a crucial time – as both commodities have experienced a sharp decline in prices (59% and 38% respectively) since 2013.[221]

Social benefits

Development of sustainable palm oil and rubber could confer direct benefits to Liberians. Plans by Sime Darby and GVL include the development of over 84,000 hectares of palm oil in collaboration with smallholders as part of an outgrower scheme.[222] Outgrowers will have access to extension services and inputs that could increase their productivity. The production of palm oil also contributes to significant job creation; between 2008 and 2010, approximately 80,000 new jobs were created by the industry.[223] Further expansion could create additional employment opportunities for Liberians. Employment by concessionaires would support poverty alleviation – as the salary in the plantations is higher than other agricultural activities. To illustrate, the plantation operated by Sime Darby pays its workers USD 5.57 daily.[224] The salary accrued in a year would be nearly 3 times higher than Liberia's GDP per capita between 2013 and 2015.[225]

Potential role for TFA 2020 partners

Based on the capabilities and experience of TFA 2020 partners, and the "unmet" pre-conditions for sustainable development in Liberia, a number of potential collaboration opportunities emerge:

- **Signal publicly** to Liberia the importance of their sustainable development plans and the associated goals and activities. Liberia is at a critical juncture in its economic development. The country's 5-year Agenda for Transformation (AfT) ends in 2017. This creates an opportunity for TFA 2020 and its members to further promote and advocate for green growth policies that support greater inclusive development of the palm oil sector. While TFA 2020 is already supporting Liberia through the APOI, partners could also play a role in increasing the prominence of green growth initiatives. For example, while fostering these initiatives is included as a cross-cutting issue in the AfT, TFA 2020

[219] *Ibid.*

[220] http://africanbusinessmagazine.com/region/west-africa/liberia-palm-oil-become-key-export/#sthash.6VubYrQ0.dpuf

[221] http://www.indexmundi.com/Commodities/?commodity=rubber&months=60 and http://www.indexmundi.com/Commodities/?commodity=iron-ore&months=60

[222] *Incentivizing no-deforestation palm oil production in Liberia and the Democratic Republic of Congo*, USAID, 2015.

[223] The USAID report notes that projections indicate that approximately 80,000 jobs were created by the palm oil sub-sector. However, most of these are informal and thus effectively not subject to labor regulation or monitoring. *Ibid.*

[224] *Making FDI work for sub-Saharan Africa: Lessons from Liberia*, Oxford Economics, 2014.

[225] Assumes that the employees work year-round, 5 days a week. http://stat.wto.org/CountryProfiles/LR_e.htm

could advocate for emissions reductions and sustainable supply chains to be included as independent goals in the country's next strategic economic plan, and signal publicly that progress in this direction could lead to expanded sourcing and private investment.

- **Establish sustainable sourcing roadmaps and targets**. TFA 2020 partners in Liberia could work together to develop guidelines based on the fulfilment of initiatives aligned with sustainable production and conservation goals. For example, both GVL and Sime Darby are involved in mapping a unified High Carbon Stock Approach and High Carbon Stock Plus methodology to produce palm oil while protecting HCV and HCS areas and peatlands during the cultivation process. Building on this, TFA 2020 partners from both the private sector and civil society could work together to develop a unified FPIC approach that would support oil palm cultivation and maintain strong community engagement.

  TFA 2020 partners could also work to identify and reduce capacity gaps to support sustainable approaches. For example, TFA 2020 government partners could supplement the European Union's existing work to provide legal training to lawyers and judges to interpret and translate forest legislation. Similarly, the Alliance could provide financing based on environmental indicators. A key step would be to rigorously measure the investment needed to develop sustainable palm oil (including the technical support to harmonize land laws, land dispute resolution, spatial planning, the use of high productivity seeds, etc.) and RSPO certification. This could bring investors and project developers together to create a pipeline of investible projects. NICFI, IDH and several other TFA 2020 partners are already working on developing a Production Protection Fund to co-invest with private-sector partners in scalable projects that integrate conservation best practices into their investments and production of agricultural commodities (e.g. the restoration of degraded lands, legal compliance and the restoration of environmental liabilities).

A possible implementation pathway

A starting point could be for TFA 2020 partners who are active in the jurisdiction (including DFID, NORAD, USAID, Sime Darby, Golden Veroleum Liberia, and IDH) to organize a roundtable to discuss these potential opportunities; align on a cooperation method; and translate plans into concrete and practical policies which can deliver material change. After that, a few key stakeholders from government will be crucial to include, such as:

- Ministry of Finance and Development (leading the Agenda for Transformation)
- Forestry Department
- National Climate Change Secretariat
- Forest Carbon Partnership Facility (FCPF) management team in Liberia
- Working Group for Strategic Environmental and Social Assessment (SESA)

Appendix A: Methodology for investment sizing

Opportunity	Description	Sizing assumptions	Cost assumptions	Sources
Intervention-specific levers				
Large-scale farms	Improving yields on large-scale farms (more than 2 hectares)	Based on FAO and the McKinsey Global institute study we have assumed large scale farms to be 70% of agricultural land. Assuming that 20-40% of large-scale land area for Brazil and 10-30% for all other countries would lead to yield improvements.	*Advanced economies (e.g., Brazil):* Capex of USD 80/hectare for improved equipment for advanced precision farming. *Less advanced economies (e.g., Indonesia): C*apex of USD 455/hectare for improved capital equipment).	McKinsey Global Institute (based on expert interviews)[226]
Smallholder farm yields	Improving yields on smallholder farms (less than 2 hectares)	Based on FAO and McKinsey work, smallholder farms are assumed to be 30% of agricultural (non-cattle) land. Yield improvements applied to 10-20% of the smallholder farms.	Capex of USD 600/hectare for improved capital equipment.	McKinsey Global Institute (based on expert interviews)
Land degradation	Reducing the degradation of land and restoring land that is already degraded	Expert interviews suggest it is possible to restore 80% of land suffering low to moderate levels of degradation; and 60% in the case of severe to very severe degradation. Assume that 5-10% of moderately degraded land opportunity will be realized; and 2-4% of severely degraded land opportunity will be realized.	*Moderate degradation restoration:* Sample of case studies from Niger, Nicaragua, Ethiopia, South Africa, Bolivia, Kyrgyzstan, China, and Peru. Capex of USD 690/hectare.	Based on case studies from World Overview of Conservation Approaches and Techniques

[226] *Resource revolution: Meeting the world's energy, materials, food, and water needs*, McKinsey Global Institute, November 2011.

Opportunity	Description	Sizing assumptions	Cost assumptions	Sources
Sustainable forestry management	Reduced impact logging approaches	Apply to 20-30% of non-degraded land (which is 67% of agricultural land).	Prevention of land degradation: capex of USD 2-USD 10/hectare based on costs to implement no-till agriculture across irrigated and rain-fed croplands.	TBI (http://theborneoinitiative.org/)
Food waste	Reducing post-harvest food waste (excludes food waste in the supply chain or end consumer waste)	Apply to 10-20% of the agricultural land under perishable/non-perishable production.	Postharvest waste: *Non-perishables:* capex of USD 200/hectare to prevent waste during storage and transportation. *Perishables:* capex of $140/hectare to prevent waste during storage and transportation.	McKinsey Global Institute Calculated only for commodities that were relevant to TFA (e.g., Palm oil, Soy, Cattle, etc.)
Cattle intensification	Sustainable cattle intensification, including through improved feed supplements	Apply to 10-20% of cattle intensive agricultural land.	$459 per hectare	TNC case study for Para and using estimates from the PCI and Para 2030 plans
Reforest	Replanting of trees. Includes costs for purchasing harvesting equipment and planning software.	1.5 billion hectares globally of land that can be restored with trees, plants and other land use, according to Global Partnership of Forest Landscape Restoration (GPFLR), South Dakota State University and the IUCN. Applied country breakdowns based on share of forest area. Assume 1-2% of opportunity realized.	USD 1,000-USD 1,500 per hectare	Expert input and Global Partnership of Forest Landscape Restoration (GPFLR), WRI, South Dakota State University and the IUCN.
Agroforestry	Crop selection and mix approaches	Apply to 10-20% of total agricultural (non-cattle) land by country	Capex of USD 80 per hectare	Expert input
Cross-cutting enablers				

Opportunity	Description	Sizing assumptions	Cost assumptions	Sources
Land certification	Implementation of lend certification programs	Assume it applies to 40-60% of smallholder land titles in Africa; 30-50% in Indtsia and 10-20% in Latin America	USD 80 per hectare	World Bank
Spatial planning	Establish spatial plan			
Training government officials	Train government officials on sustainable land use policy frameworks			
Community engagement	Community engagement processes including behavioral change and local enforcement	Assume it applies to 40-60% of arable land in Africa; 30-50% in Indonesia and 10-20% in Latin America	USD 4.6 million annually for 120,000 hectares (combines many of these items) – equates to USD 38 per hectare	Indonesia ex-Mega Rice project
Core infrastructure	Soft infrastructure (e.g., market information, fire brigades, education, health) and hard infrastructure (e.g., electricity, roads)			

Appendix B: Long list of jurisdictions

Country	Region	Description	Relevant Commodities	Involved Organizations
Asia				
Indonesia	Central Kalimantan (Seruyan)	Initiative by TFA 2020 to ensure that all palm oil produced and processed in Seruyan District will be certified as sustainable	Palm Oil	RSPO, EDF, PILAR, Climate Policy Initiative, EII, INOBU, IPOP, GCF
Indonesia	Central Kalimantan	Pilot initiative to ensure that all palm oil produced and processed in the area will be certified as sustainable according to RSPO certification	Palm Oil	RSPO, EDF, PILAR, Climate Policy Initiative, EII, INOBU, IPOP, GCF
Indonesia	West Kalimantan	Produce Protect initiative by IDH.	**Palm Oil**, Timber	IDH, GCF
Indonesia	East Kalimantan	Building off Berau's district program. Focuses on building a landscape approach to develop sustainable palm oil and reduce carbon emission	Palm Oil	TNC, WWF, Wilmar, APP, RSPO, GCF
Indonesia	Jambi	Forestry Governance Index in nine districts of Jambi Province to measure sustainability practices	**Palm Oil**, Timber	IDH, UNDP, InPOP, RSPO. REDD+
Indonesia	Riau	Sourcing for prospective smallholders to pursue RSPO certification	Palm Oil	Wilmar, ISPO, UNDP, IDH
Indonesia	South Sumatra	Pilot jurisdictional RSPO program in Indonesia to ensure all palm oil produced would be certified sustainable	Palm Oil	IDH, ZSL, South Sumatra Eco-Alliance, Cargill, Wilmar, Musim Mas and London Sumatra (Indofood group), RSPO
Indonesia	North Sumatra (5 Districts)	Indonesian Palm Oil Development for Smallholders (IPODS) in North Sumatra plans to train 100,000 independent farmers in the production of sustainable palm oil	**Palm Oil**, Coffee	Unilever, IDH, PTPN III, CPI, IFC, Musim Mas, Wilmar, Conservation International, Unilever
Indonesia	West Papua	Jurisdictional land-use management system to define, monitor and encourage sustainable rural development in the entire province	**Palm Oil**, Coffee, Cacao	DFID, RSPO, INOBU, EU-REDD

Malaysia	Sabah	Initiative to ensure that all palm oil produced and processed in Sabah is conducted in a sustainable manner that meets RSPO certification standards	Palm Oil	Wilmar, Wild Asia Group, L'Oreal, Clariant, Global Amines, IDH, LEAP SPIRAL, RSPO
Lao PDR	8 provinces	Pursuing a nested national level REDD+ framework while providing support to project-related REDD+ activities, as well as national level strategies, programs, and action plans	Rubber, Coffee, **Timber**	JICA, GIZ, GCPF, KfW,
Nepal	Terai Arc	Collaborative forest management to increase access to alternative energy sources (e.g., biogas), and enhance alternative livelihoods thereby addressing underlying drivers of degradation"	**Cattle**, Timber	SDC, DFID, Finland and various REDD+ initiatives funded by the FCPFPC
Viet Nam	Lam Dong	REDD program to create a modeling framework that analyzes, quantifies, and evaluates adoption of climate-smart practices on a landscape scale. Out of the 8 pilot provinces, Lam Dong appears the most advanced	**Coffee**, Cocoa, Timber	USAID, CGIAR, IFPRI, OXFAM, CODESPA
Africa				
DRC	Mai Ndombe	The DRC plans to engage forest concessionaires in Mai Ndombe to incentivize improved forest management practices, create land management plans for over a thousand communities, increase plantation forests to meet timber and fuel needs, and implement improved agroforestry practices including fire management.	Cattle, Coffee, Cocoa, Bananas, Palm Oil, Rubber, **Timber**	Wildlife works, GTCR, WWF, NORAD, JICA, USAID, VCS; TFA 2020
Cameroon	Mount Cameroon	The initiative focuses on 41 villages surrounding Mount Cameroon National Park (MCNP). The REDD+ initiative aims to reduce forest loss and increase forest carbon stock by offering support for people whose livelihoods are dependent on protecting forests in and around the park.	Timber	KfW, GFA ENVEST, GIZ, Cameroon Government, FCPF; TFA 2020
The Republic of Congo	National	Participation in the Forest Carbon Fund Emission Reduction program which provides payments for reducing greenhouse gasses in the country	**Cacao**, Timber	CIB, OLAM, AFD, WCS, CACO-REDD+; TFA 2020

Liberia	National	Initiative by Liberia to ensure that all palm oil produced and processed in the country is conducted in a sustainable manner	**Palm Oil**, Rubber	EPA, AFCP, PROFOR, WB, Sime Darby, VLC; IDH; NORAD; TFA 2020
Ethiopia	Oromia region	Results-based approach to finance a landscape-level project aimed at reducing deforestation and forest degradation in Oromia state	Coffee	IDH, UNDP, Norway, REDD+
Ghana	High forest zone	Changing cocoa farming practices to make it more sustainable, while providing better access to inputs and insurance for farmers.	Cacao	Solidaridad / UTZ, Rainforest Alliance / SAN, National Cocoa Platform, IUCN-NL, SNV, NCRC, Olam, Touton, PBC, UNDP; TFA 2020
Tanzania	Shinyanga	Trees and catchment conservation program to re-establish the traditional Ngitili land management practice with REDD+ principles	Timber	MCDI, Government of Norway, IIED, TaTEDO, NAFRAC
Tanzania	Kilwa	Trees and catchment conservation program to reduce deforestation and incorporate REDD+ in the district	Timber	MCDI, Government of Norway, IIED, TaTEDO, NAFRAC
Ivory Coast	Tai Region	REDD+ program which focuses on reducing emissions through restoration and conservation of forest ecosystems in the Tai area based on integrated and sustainable management of natural resources	Palm Oil, Rubber, Cotton, Coffee, **Cocoa**	Olam, Mondelez, Cargill, Cemoi, FCPF, UN-REDD, IDH-ISLA, Germany
Gabon	National	Program to develop and support the implementation of a set of principles for responsible palm oil development	Palm Oil	OLAM; TFA 2020
Latin America				
Brazil	Mato Grosso	Initiative to restore 6 million hectares of degraded pastures and to put them to productive use. Mato Grosso's "Produce, Conserve, and Include" strategy follows the 3Fi Territorial Performance System (TPS) model	**Cattle**, Palm Oil, Soy	IPAM, ICV, EDF, EII, Groupo Amaggi, Marfrig, Famato, CIPEN, IDH, Instituto Socioambiental, Agroicone, Norwegian food and feed group

Brazil	Para	Sustainable initiative to increase cattle and soy production without further deforestation. The government plans to only produce on already degraded land and to increase the total forested area to around 80%	**Cattle,** Soy	Imazon, TNC, IPAM, Vale Fund, Regional federations of Agriculture and Ranching (Faepa), of Municipal Associations (Famep), of Industries (Fiepa), IIEB, ISA, Union of Rural Producers in Paragominas
Brazil	Portel	Initiative to conserve the Brazilian rosewood by rehabilitating and preventing further degradation	Timber	REDD+, Ecosystem services
Brazil	Acre	Initiative to deliver jurisdiction-wide compliance grade REDD+ credits while promoting sustainable agriculture practices	**Cattle**, Coffee, Cocoa, Palm Oil, Soy, Timber	REDD+, FSC, EDF, Consumer Goods, Forum, McDonald's, Government of California
Peru	San Martin	Integrated sustainable landscapes approach, including: strengthening enabling conditions to improve the control of forest land; development of innovative sustainable forestry management, agroforestry, and pastural business models; and strengthening of technical and management capacities of the regional authorities, local governments, indigenous communities, producers, civil society organizations, and the business sector.	**Cacao**, Coffee, Palm	REDD+, KfW, FIP, Norway
Peru	National	UNDP Green Commodities Program to support the development of a national coffee and oil palm platforms which will produce sustainable coffee and oil palm	Coffee	UNDP, Government of Switzerland
Mexico	Chiapas, Jalisco	LED-R strategy that is developing collaborative agreements with institutions, organizations of local producers and agro-industrial companies	Timber	Government of California, REDD+, Sustainable Tropics Alliance, Pronatura Sur (BirdLife)
Mexico	Yucatan Peninsula	The three states of the Yucatan Peninsula (Campeche, Quintana Roo, and Yucatan) signed an agreement to develop a joint approach to REDD+ in December 2010 (during COP-16).	Cattle	TNC, Rainforest Alliance, ENDESU, WHRC, USAID

Colombia	Orinoco	BioCF-ISFL and Amazon Vision programs related to REDD+ initiatives	**Palm Oil,** Pulp, Soy, Cattle	EII, Forest Trends, Fundacion Natura Colombia, WWF-Colombia, Nutresa, UKAid, Norad, WCS, TNC, GIZ
Dominican Republic	National	Green commodities program to develop national cacao platform which will produce cacao in a sustainable manner	Cacao	UNDP, Mondelez
Paraguay	National	Jurisdictional approach under UNDP green commodities program to develop national cattle and soy platforms which will produce cattle and soy in a sustainable manner	**Cattle,** Soy	ADM, Bunge, Cargill, Dreyfus, JBS, USAID, UNDP

[1] IDH, "Mato Grosso government sets up committee to monitor progress on climate goals", 2016, https://www.idhsustainabletrade.com/news/mato-grosso-government-sets-committee-monitor-progress-climate-goals/.

[2] IDH, 2015, op. cit.

[3] MySinchew.com, "Malaysia announces conditional 40% cut in emissions", 2009, "http://www.mysinchew.com/node/32942?tid=4.