


CONTRIBUTED PAPER

Jurisdictional sourcing: Leveraging commodity supply chains to reduce tropical deforestation at scale. A generic theory of change for a conservation strategy, v 1.0

Judy Boshoven¹ | Leonardo C. Fleck² | Sabine Miltner² | Nick Salafsky¹  | Justin Adams³ | Andreas Dahl-Jørgensen⁴ | Gustavo Fonseca⁵ | Dan Nepsted⁶ | Kevin Rabinovitch⁷ | Frances Seymour⁸

¹Foundations of Success, Bethesda, Maryland

²Gordon & Betty Moore Foundation, Palo Alto, California

³Tropical Forest Alliance 2020, Geneva, Switzerland

⁴Norway's International Climate & Forest Initiative, Oslo, Norway

⁵Global Environment Facility, Washington, District of Columbia

⁶Earth Innovation Institute, San Francisco, California

⁷Mars, Inc., McLean, Virginia

⁸World Resources Institute, Washington, District of Columbia

Correspondence

Nick Salafsky, Foundations of Success, 4109 Maryland Ave, Bethesda, MD 20816, USA.

Email: nick@fosonline.org

Funding information

Gordon and Betty Moore Foundation

Abstract

Expansion of agricultural commodity production is driving rapid deforestation in tropical countries. Several strategies including jurisdictional planning and producer or sectoral-level sourcing/certification have been used to counter this threat, each with its own limitations. There is growing interest in using jurisdictional sourcing (JS) as a hybrid that combines the best elements of each of these strategies. Specifically, JS involves bringing together key stakeholders in a given national or sub-national political jurisdiction to agree on a land-use plan that maintains forest ecosystems while promoting enhanced commodity production on degraded lands. Under JS, a key incentive for this agreement is the prospect of preferential sourcing from supply chain actors who want conversion-free commodities. As with any conservation strategy, the key questions are what defines JS and under what conditions is it likely to work? To help address these questions, we convened a group of practitioners/experts to develop a theory of change that explicitly defines what JS entails from both the perspective of a given jurisdiction as well as a global markets point of view. We also developed generic objectives and indicators that can be used to measure performance. We then vetted our initial drafts with a wider circle of JS practitioners/experts as well as through a review of relevant literature and against seven case studies. It is our hope that this framework can be used to inform the collection of more standardized data across JS strategies being implemented in different locations and conditions. This data could, in turn, inform more systematic assessments of JS strategies and ultimately, revisions to this theory of change as our collective knowledge improves.

KEYWORDS

certification, conservation action, jurisdictional approach, market-based strategy, tropical forest conservation

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. Conservation Science and Practice published by Wiley Periodicals LLC. on behalf of Society for Conservation Biology

1 | INTRODUCTION TO JURISDICTIONAL SOURCING

Expansion of agricultural commodity production such as soy, beef, palm oil, and cocoa is driving rapid deforestation in tropical countries (Curtis et al., 2018).¹ This trend is driven by both the desire of producing countries to increase the economic output of their agricultural sectors and increasing demand for these commodities by supply chains and consumers. Long-term conservation of tropical forests and their ecosystem services, such as climate change mitigation, clearly requires addressing the threat of commodity production (IPCC, 2019).

Several strategies have traditionally been employed to address this threat of commodity production, including (A) jurisdictional planning, (B1) producer-level sourcing/certification, and (B2) sectoral sourcing/certification (Figure 1) (Lambin et al., 2018). However, each of these strategies has key limitations (Lambin et al., 2018). For example, in jurisdictional planning, there are limited incentives for producers to comply with regulations and the system is vulnerable to pressure/corruption from politically powerful agricultural interests who want to expand the agricultural production areas. In producer-level sourcing/certification, there are limited incentives for producers to certify lands near the forest frontier and there is also vulnerability to production of non-certified commodities that “leak” to the rest of the market. Finally, sectoral sourcing/certification works best when there is a limited number of buyers and only focuses on one commodity.

As a result of these and other limitations, there is growing interest in using **Jurisdictional Sourcing** (JS) to potentially combine the best elements of each of these strategies and mitigate their shortcomings. JS (Figure 1C) builds on the concept of working at the jurisdictional level and is part of a broader family of *jurisdictional approaches* to solving various conservation and development problems (Boyd et al., 2018; Buchanan et al., 2018; Fishman, Oliveira, & Gamble, 2017; Stickler et al., 2018; Wolosin, 2016) (see the full results of our literature review in Annex A2 and Supplemental Report 1). Jurisdictions are a political unit at a national or sub-national level (e.g., province, district, or municipality) with the key being that the choice of the unit should be relevant to the policy being developed and implemented (Figure 1C, Point a). Common elements of a broader jurisdictional approach include strong involvement from the jurisdictional government, broader multi-stakeholder participation, recognition of and attempts to reconcile competing social, economic and environmental objectives, and monitoring progress at the jurisdictional scale.

From a place-based point of view, JS involves working with government, producers and other key stakeholders in a given jurisdiction to create the value proposition to

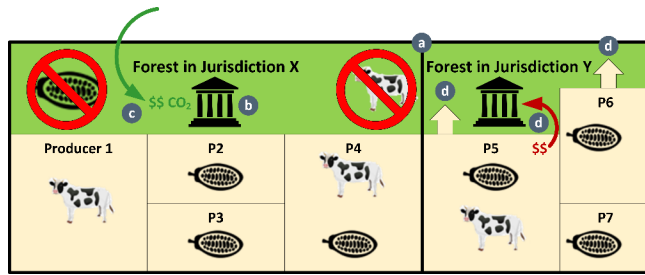
develop, implement, and enforce an agreement/land-use plan to avoid/reduce forest conversion and greenhouse gas emissions from commodity production and even potentially other threats (Figure 1C, Point c). But JS also brings in the global market signals from supply-chain sourcing to provide incentives for producers to provide deforestation-free commodities (Buchanan et al., 2018; Wolosin, 2016). Preferential sourcing agreements between leading companies and the jurisdiction contribute to the incentives for this value proposition and ideally provide these companies with a deforestation-free supply of critical commodities (Figure 1C, Point b). Thus from a global markets point of view, JS involves setting up the scaling conditions needed to make JS work across multiple jurisdictions around the world.

To create efficiencies and solve the “frontier” problem, instead of certifying individual producers, the entire jurisdiction is certified. As Wolosin (2016) states, “In a jurisdictional sourcing approach companies assess accountability for meeting their goals at the jurisdictional scale, perhaps including jurisdictional certification...and they preferentially source products based at least in part on the presence and success of place-based jurisdictional approaches.” The key is that producers in a given jurisdiction are bound together with a collective reputation so that if one producer engages in unsanctioned deforestation, then the entire jurisdiction is no longer certified (Figure 1C, Point d). This in theory provides incentives for the government and/or peer producers to develop policies, create “recovery mechanisms” and enforce agreements so as to maintain their jurisdiction’s reputation (Figure 1C, Point e). JS should thus work best in appropriate “Goldilocks” sized jurisdictional units that are small enough to enable stakeholders to come together, but large enough to provide a meaningful commodity supply and reduce “leakage” across jurisdictional boundaries (Figure 1C, Point f). JS can also include carbon and other incentive payments as part of the incentive structure to maintain forest within the jurisdiction (Figure 1C, Point g).

As with any conservation strategy, effectively employing a JS strategy requires both defining it and determining the conditions under which it is likely to work. There is currently a great deal of confusion as to what JS is and how it relates to the broader category of jurisdictional approaches. As Boyd et al. (2018) state:

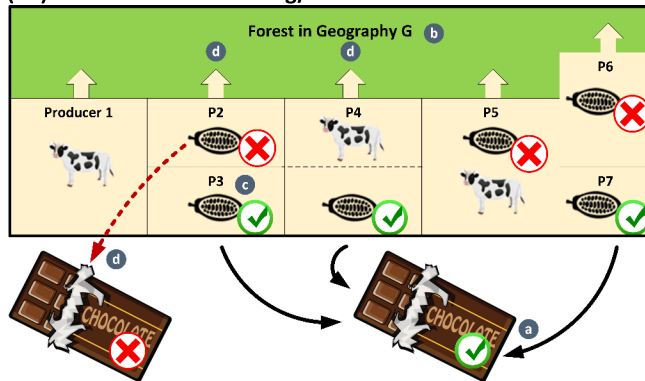
At the conceptual level there is still a general lack of agreement about *what the jurisdictional approach means, what constitutes success, and how to measure performance...* Even in a world of diverse jurisdictional approach initiatives and alternative understandings of the concept, more clarity regarding different approaches to a Jurisdictional Approach and its relationship to other initiatives—such as REDD+,

(A) Jurisdictional Planning



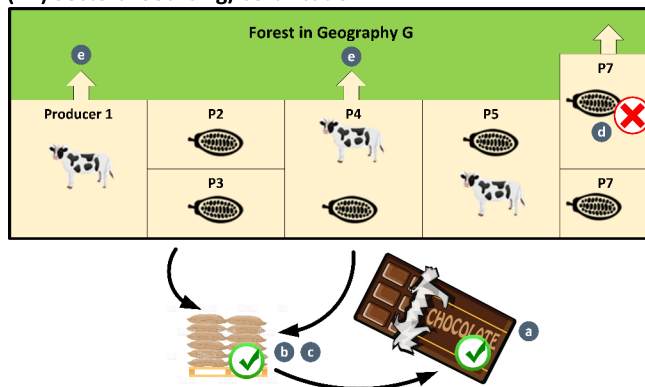
- a. Focused on *jurisdictions* – national or sub-national (e.g. province, district, or municipality) political units
- b. Government takes lead in land-use planning to set go & no-go zones for commodity production (e.g. cocoa & beef) and then enforces them
- c. Government may get \$\$ from CO₂ but limited positive incentives for producers to comply with regulations
- d. Vulnerable to pressure/corruption from politically powerful agricultural interests to expand go zones causing deforestation (arrows)

(B1) Producer-Level Sourcing/Certification



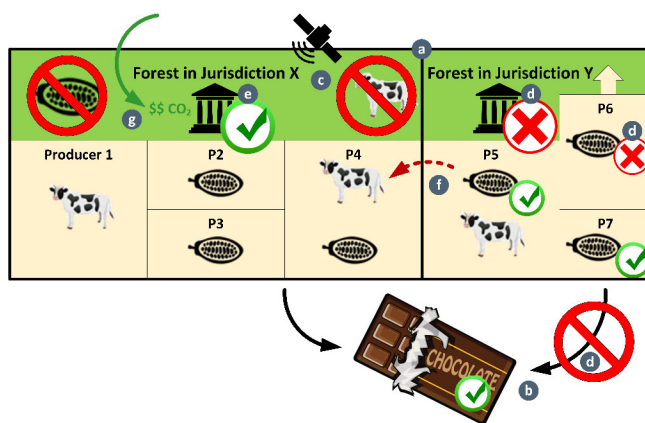
- a. 'Leading' companies make sustainability commitments and send global market signals through their supply chain that they will preferentially source or pay a premium for deforestation-free commodities
- b. Requires certifying specific producers from many different geographies as being deforestation-free
- c. Easy for certified production for leading companies to take place far from the forest frontier
- d. Meanwhile deforestation (arrows) continues at the forest frontier for products that 'leak' to the rest of the market, even within lands owned by one owner (e.g. Producer 4)

(B2) Sectoral Sourcing/Certification



- a. Again, companies make sustainability commitments sending market signals through their supply chain that they will preferentially source deforestation free commodities
- b. Key midstream actors (eg traders) in a sector organize to ensure that all producers in sector/geography are deforestation-free
- c. Works best where there are a small number of buyers (e.g. cocoa in which ~10 companies = ¾ of market)
- d. Requires midstream actors to be willing and able to monitor and enforce producer compliance
- e. Still a potential 'leakage' problem if cocoa sector is deforestation-free, but producers of other commodities (e.g. beef) are not

(C) Jurisdictional Sourcing



- a. Jurisdictions are national or sub-national (e.g. province, district, or municipality) political units
- b. Companies make sustainability commitments sending market signals to preferentially source from deforestation-free jurisdictions
- c. All stakeholders respond to value proposition and make joint agreement that includes go & no-go zones for production of all commodities which ideally can be remotely monitored
- d. If a producer (e.g. P6) violates the agreement, then all of Jurisdiction Y is non-compliant and companies should suspend their sourcing
- e. Producers are bound together with collective reputation, thus creating incentives to support/enforce agreement
- f. Still potential issues with leakage across jurisdictional boundaries
- g. CO₂ & other payments add incentives

FIGURE 1 Three strategies for addressing the threat of agricultural commodity production

sustainable supply chain efforts, and domestic policy—would be helpful in assessing progress.

To address this confusion, we convened a group of practitioners/experts to develop a theory of change (ToC) that explicitly defines what JS entails from both the perspective of a given place-based jurisdiction as well as a global markets point of view. As outlined in greater detail in GEF (2019) and Salafsky et al. (this volume), a ToC is “the process and product of developing an explicit account of how and why an intervention is expected to achieve its intended outcomes and impact goal, based on outlining a set of key causal pathways arising from the activities and outputs of the intervention...and the assumptions underlying these causal connections.” This JS ToC includes both the within-jurisdictional and cross-jurisdictional scaling actions that could be taken to implement this strategy as well as generic objectives and indicators that can be used to measure performance. We then conducted a review of the available evidence base about existing JS initiatives to begin to determine the conditions under which JS might contribute to desired outcomes. It is our hope that this framework will be useful for policy makers, companies, and funders who are considering using or supporting JS as well as for researchers who can more systematically assess the effectiveness of this strategy.

2 | METHODS

This article uses the basic methods for this series on generic conservation strategies described in Salafsky et al. (this volume). We first brought together a core working group of practitioners who have been implementing or supporting JS around the world to develop initial drafts of a situation model and ToC for JS (see CMP, 2020 for a discussion of these tools). We then vetted these initial products with a wider circle of JS practitioners/experts drawn from organizations, companies, agencies, researchers, and funders involved in implementing or supporting JS efforts around the world (Annex A1) as well as through a review of relevant literature (Annex A2), and against seven case studies (Annex A3). This vetting enabled us to produce the versions of the situation model and ToC presented in this article. Finally, we synthesized our findings, discussed implications, and identified outstanding information needs.

This analysis has several limitations. We did not attempt to conduct a systematic review of all available evidence, but instead deliberately selected the practitioners/experts we consulted with, the literature we reviewed, and our case studies. In vetting our draft ToC against the literature, it was challenging to determine whether the absence of commentary on a factor in our ToC was because authors explicitly felt it was not relevant, or merely did not

think to consider it. In vetting our draft ToC against our case studies, we obviously had a small sample size. In addition, our key informant interviews were with practitioners involved in implementing the approach, rather than neutral observers, thus potentially leading to biased assessments. Finally, each of the case studies is still in progress; it is too early to assess their ultimate outcomes.

We hope that this initial framework can be employed to inform the collection of more standardized data across JSs being implemented in different locations and under different conditions. This data can, in turn, inform ongoing systematic assessments of JSs and ultimately, revisions to this ToC as our collective knowledge improves.

3 | CONCEPTUAL FRAMEWORK

3.1 | Situation analysis for tropical deforestation through commodity production

Our core working group developed a situation analysis (CMP, 2020) to examine how agricultural commodity production drives tropical deforestation which was then vetted with a wider group of practitioners/experts (see high-level model in Figure 2, detailed model in Supplemental Report).

1. This model focuses on a specific Jurisdiction X. Our ultimate **targets** are typically the conservation of forests and associated ecosystems (green ovals) as well as the linked ecosystem services provided by conserving forests that include avoidance of greenhouse gas emissions and contributions to enhanced human wellbeing within the jurisdiction (brown ovals). See CMP (2020) for a discussion of linking conservation and human wellbeing targets.
2. The most relevant **direct threats** (pink boxes) to these targets are conversion of forests and related ecosystems for both legal as well as illegal/unregulated agricultural, livestock, and timber production. If this conversion “leaks” to other jurisdictions, it can also contribute to conversion of their ecosystems more globally. In addition, the model also accounts for all other threats to these ecosystems including climate change.
3. The **primary drivers** (orange boxes in purple group box) of the threats are the land-use decisions by both private landowners/managers and government agencies in the jurisdiction to keep or convert natural habitat. These decisions are immediately influenced by the decision makers’ perceptions of the benefit to cost ratio of keeping versus converting forest lands—their value proposition. The drivers of this land-use value proposition (orange boxes in orange group box) are the awareness and political will, economic and other incentives, and capacity of key stakeholders involved in the jurisdiction.

- There are a number of system **conditions** such as finance and investments, the demand for commodities, and government policies and practices at all scales that affect the decisions made in the jurisdiction and thus potentially limit deforestation-free commodity (DFC) production.
- Finally, there are **candidate actions** that can be taken both within the jurisdiction and across jurisdictions to promote deforestation-free commodity sourcing and production.

3.2 | Generic theory of change for jurisdictional sourcing

Our core working group then converted this situation analysis into a generic theory of change (ToC) as to how JS might lead to desired outcomes which was also then vetted with the wider group of practitioners/experts. Figure 3 presents a high-level version of the overall ToC. Figure 4A,B present more detailed versions of Within Jurisdiction Deforestation-Free Commodity (DFC) Production and Cross-Jurisdiction DFC Sourcing respectively.

The ToC starts by promoting deforestation-free commodity (DFC) production throughout a given Jurisdiction X (right-hand box of Figure 3 and Figure 4A):

- The ultimate **desired outcomes** for JS are typically the conservation of forests and associated ecosystems in Jurisdiction X (*green oval*) as well as the ecosystem services provided by conserving forests that include avoidance of greenhouse gas emissions and contributions to enhanced human wellbeing within the jurisdiction (*brown oval*).
- The primary **threat reduction results** (*purple boxes*) are that DFC production throughout Jurisdiction X reduces or eliminates net deforestation from agricultural commodity production. It also provides opportunities for degraded lands to be used for production.
- Moving to the top of the diagram, JS requires various **enabling conditions** (*blue boxes with blue text*) in place to be effective. These include both policy-related and political (e.g., supportive policy environment, clear land tenure and resource use rights, relative lack of corruption) as well as situational enabling conditions (e.g., lack of in-migration pressures, opportunities to intensify production on degraded lands).
- The first **intermediate result** (*blue box with black text*) required to implement JS involves creating the value proposition for different stakeholders within the jurisdiction to favor DFC production. Specific elements include providing awareness, incentives and capacity to key stakeholder groups.

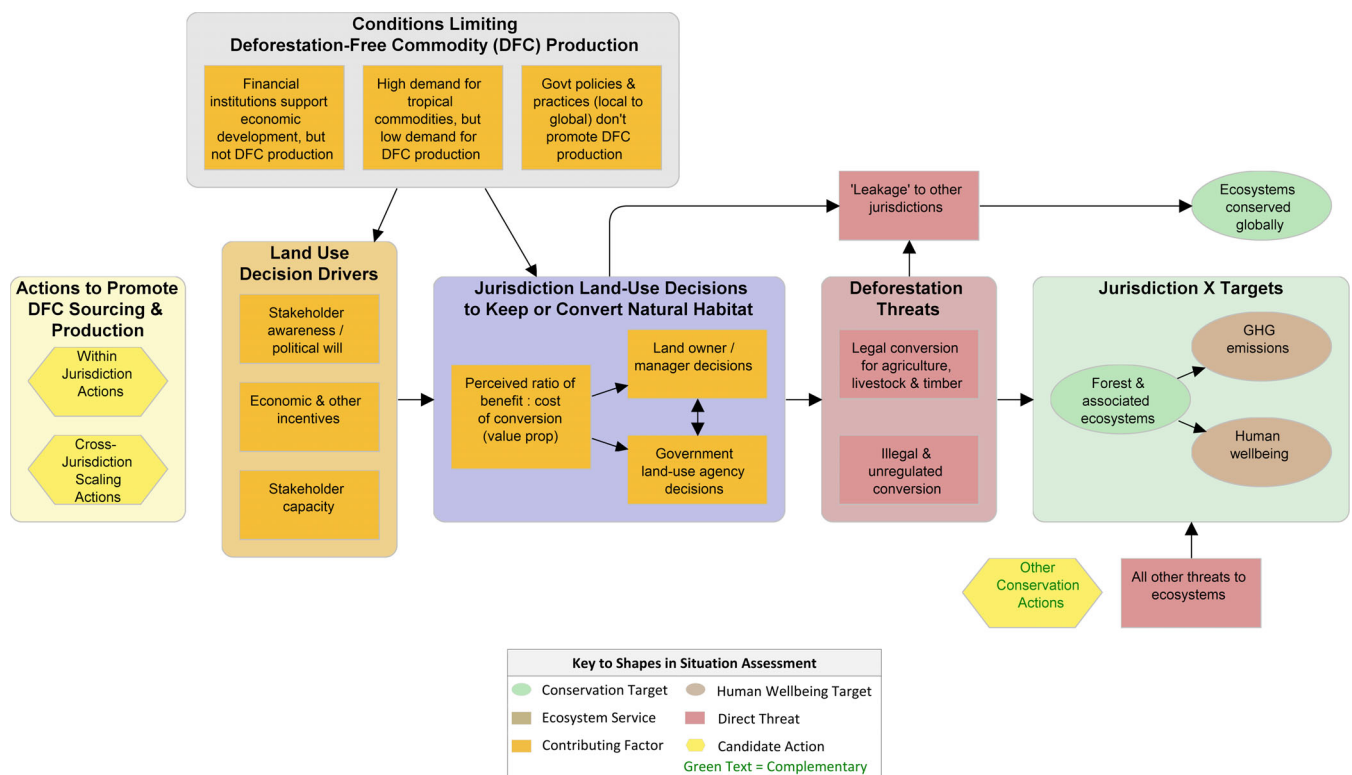


FIGURE 2 High-level situation model of agricultural commodity production and deforestation. Click here to see an “animated” version of this figure. Click here to see an “animated” and more detailed version of this situation analysis

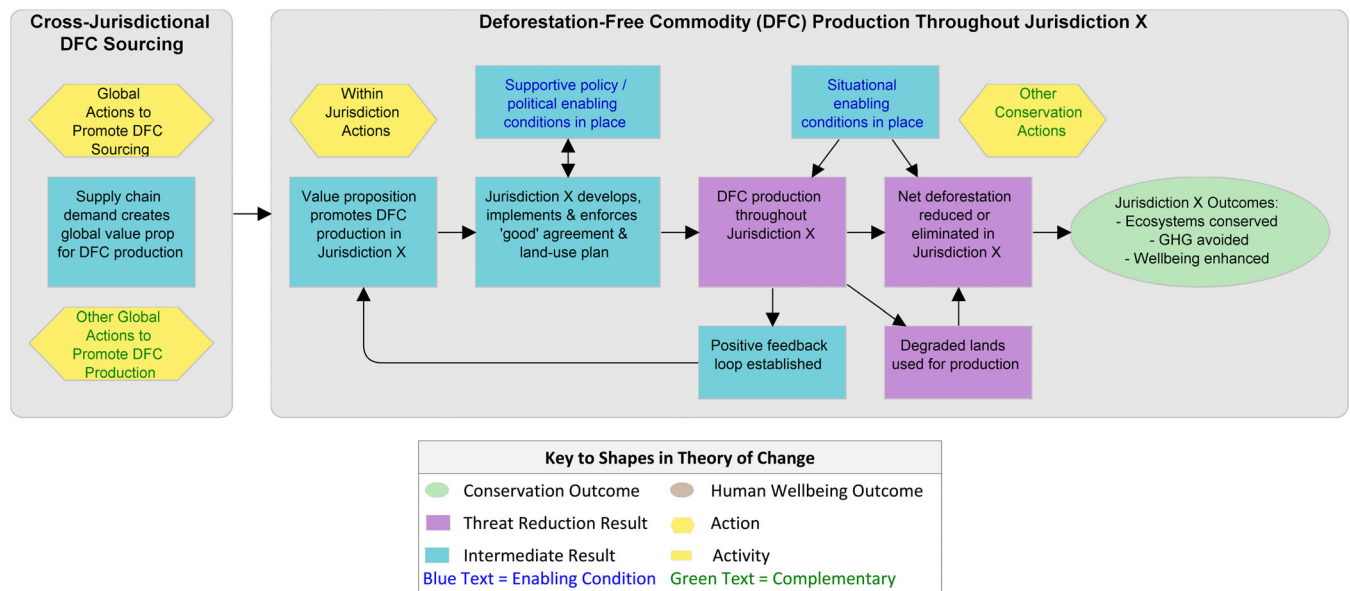


FIGURE 3 High-level generic theory of change for Jurisdictional Sourcing. Click here to see an “animated” version of this figure

- The next intermediate result involves going through a series of steps for developing, implementing, and enforcing a good jurisdictional agreement and land-use plan. If these steps are enacted, and results in deforestation-free production, then ideally a positive feedback loop is established to further reinforce the value proposition in favor of DFC production.
- Finally, within Jurisdiction X, there are a number of **actions** (yellow hexagons) that implementers of JS might undertake to achieve desired outcomes along the ToC. Within jurisdiction actions such as providing a backbone organization to catalyze work within the jurisdiction, or helping to develop an agreement and land-use plan are designed to promote DFC production within the jurisdiction. There are also other complementary conservation actions.

The second part of the ToC focuses on cross-jurisdictional actions that implementers, companies, and funders could take to promote deforestation-free commodity (DFC) sourcing (left-hand box of Figure 3 and Figure 4B) that creates a global value proposition that could affect many jurisdictions. As one analogy, these cross-jurisdictional actions can be thought of as an external magnet that is “aligning” the iron filings in each specific jurisdiction to move towards DFC production.

- Here the ultimate **desired outcome** (green oval) is more global. It results from DFC production taking place in many different jurisdictions around the world.
- There is one set of **pathways** (yellow action hexagons connected to blue results boxes) that involve promoting

DFC sourcing to provide incentives and capacity for stakeholders in each jurisdiction. One key pathway involves promoting demand from supply chains as well as trade policies/government procurement and finance and capital markets so as to provide jurisdictions with sufficient financial incentives to change the value proposition towards DFC production. Other global pathways involve building traceability and verification systems and getting NGOs to both pressure stakeholders to move towards DFC production while still providing safe space for continued engagement with not-yet compliant jurisdictions during an appropriate transition. Finally, there is a pathway that involves learning about JS so that DFC sourcing becomes part of the “standard” tool kit.

- There is also a complementary set of pathways (in green text) that involve other non-DFC sourcing actions such as payments for ecosystem services or diplomatic pressure that can complement the DFC sourcing actions to help create the global value proposition for DFC production.

3.3 | Measurable objectives and goals for key factors

Supplemental Report: Annex C provides high-level generic objectives/goals and indicators for key results in the ToC shown in Figure 4 (CMP, 2020). While these generic versions cannot provide the specific details needed to set actual SMART (Specific, Measurable, Achievable, Results-Oriented, Time Bound) objectives/

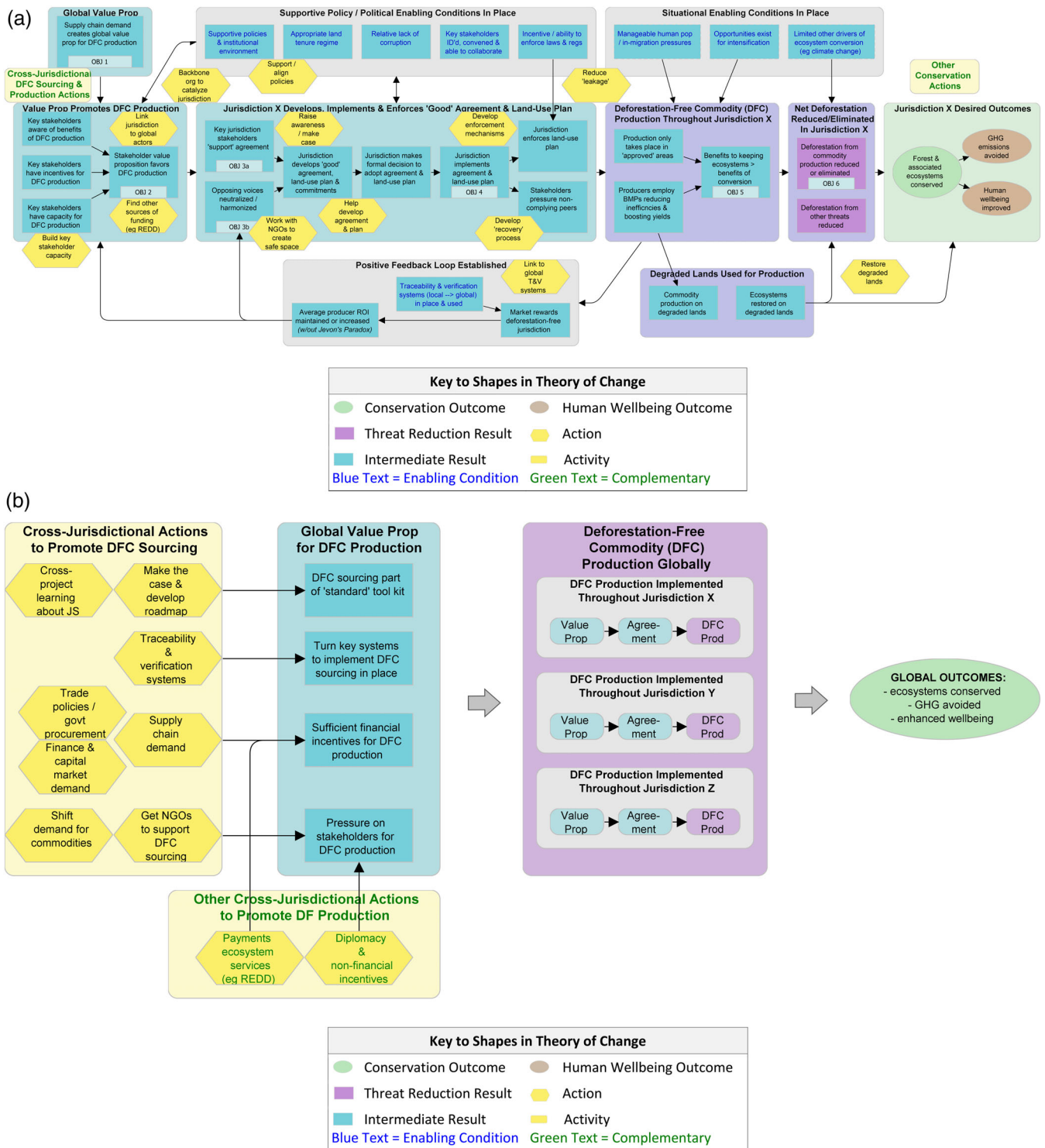


FIGURE 4 (a) Detailed theory of change for Promoting Within Jurisdiction DFC Production. Click here to see an “animated” version of this figure. (b) Detailed theory of change for Promoting Cross-Jurisdictional DFC Sourcing. Click here to see an “animated” version of this figure

goals for a real world project, they can provide a framework for developing these specific details needed to monitor these factors in a standard fashion. In particular, these objectives/goals provide “conceptual thresholds” for the sequence of results that need to be attained in order for a JS strategy to reach its ultimate goals. For

example, working from left to right, these key objectives/goals include:

- **OBJ 1. Supply chain demand creates global value proposition for DFC production**—Before agreement is implemented, sufficient financial incentives are

available through company preferential sourcing agreements as well as other sources of revenue for intact ecosystems (e.g., REDD+ performance payments).

- **OBJ 2. Stakeholder value proposition favors DFC production**—Before agreement is implemented, the marginal total *perceived* anticipated benefits to land-use decision makers from intact ecosystems are greater than the benefits from conversion.
- **OBJ 3. Key jurisdiction stakeholders “support” agreement/Opposing voices neutralized**—Before agreement is implemented, key stakeholder groups actively support the approach and there are no major stakeholder groups (those with power to kill the deal) who are actively opposing the approach.
- **OBJ 4. Jurisdiction implements “good” agreement & land-use plan**—Within X years, jurisdictional stakeholders make a formal decision to adopt agreement and land-use plan and then implement this plan.
- **OBJ 5. Benefits to keeping ecosystem > Benefits of conversion**—Within X years after the start of JS, the marginal total *actual* benefits to land-use decision makers from intact ecosystems are greater than the benefits from conversion.
- **OBJ 6. Net deforestation reduced/eliminated**—Within X years after the start of JS, there is little or no net loss/degradation of designated forest and other focal ecosystem areas.
- **GOAL A. Forest and associated ecosystems conserved**—Within X years after the start of JS, forest and associated ecosystems are maintained at or increased from baseline levels.
- **GOAL B. GHG emissions avoided**—Within X years after the start of JS, xxx tons of GHG emissions are avoided.
- **GOAL C. Human wellbeing improved**—Within X years after the start of JS, income levels and other indicators of human wellbeing meet desired target levels.

As these examples illustrate, JS will only be effective if it provides sufficient incentives to key decision makers within the jurisdiction to choose to not convert their forests and other ecosystems to commodity production. In many cases, this will be a challenging threshold to clear.

4 | RESULTS AND DISCUSSION: KEY FACTORS IN OUR THEORY OF CHANGE

We vetted our initial draft theory of change with key practitioners/experts as well as with the recent literature

about JS and against specific cases in which JS is being used in different parts of the world. In the following text and in Table 1, we discuss some of the major findings from our review of these sources along with some illustrative examples. Complete results of our analysis are available in Supplemental Report.

4.1 | Scope and desired outcomes

The sources we reviewed generally focused on conserving tropical forests and other terrestrial ecosystems. In addition, most sources also discussed how conserving forests led to avoiding greenhouse gas (GHG) emissions and improved human wellbeing. One case we considered looked at JS to manage water quality impacts of shrimp aquaculture.

4.2 | Threats and situational enabling conditions

The sources we reviewed explicitly or implicitly agreed that JS is more likely to work in situations where the primary threat to ecosystem conversion comes from production of a few internationally traded agricultural commodities such as beef and soy in the Amazon or palm oil in Kalimantan. Obviously, there is not much point in using a market-based JS in places where forest and other ecosystems are either not being threatened by expansion of commodity production, or where the threat from commodity production is small compared to other threats such as urbanization or subsistence agriculture. It is not yet clear whether in cases in which there is only one commodity and handful of buyers (e.g., cocoa in West Africa in which about 10 companies make up two-thirds of the global market), it makes more sense to use JS versus a sectoral commodity sourcing approach.

Most of our sources also speculated that for JS to work, there needs to be the opportunity to intensify crop production on existing and/or degraded lands so as to allow for economic growth without bringing new lands into production. This intensification requires that these better management practices are technically, economically, and politically feasible. For example, in Côte d'Ivoire current government employment policies that discourage cocoa intensification were seen as a potential impediment to successful JS. Finally, while most of our sources did not explicitly discuss the relevance of having a manageable human population and lack of in-migration, this may be because current instances of JS implementation selected locations where this is not an issue.

TABLE 1 Summary of conditions under which a JS is more likely to be effective

Factors	JS is more likely to work if...	JS is less likely to work if...	Actions to implement a JS	Future learning questions
Threats Situational enabling conditions	Production of a few market-linked commodities is a major threat driving ecosystem conversion	There are other major threats driving ecosystem conversion There is extensive current or potential in-migration to the jurisdiction		If there is only one major commodity with limited buyers, is a sectoral approach more useful? Are population dynamics beyond the manageable interest of a JS initiative?
Supportive policy/ political enabling conditions	Government has put in place governance structures and policies that support JS Sub-national policies to implement JS are supported and coordinated with national processes Key stakeholders have clearly defined land/resource rights	There is extensive corruption There is not long term political support and/or lots of turnover Relevant policies are not supportive or aligned across levels of government	Support/align policies across all levels of government including: - forest protection - clear tenure and use rights - incentives for BMPs - sustainable forest management - measures to reduce risks from corruption and political transitions	Is corruption/political turnover beyond the manageable interest of a JS initiative? How can transnational policy actors (NGOs, donors, etc.) shape policy agendas and affect outcomes at the jurisdictional level? (Boyd et al., 2018) Do JS initiatives provide incentives to clarify land tenure, especially for marginalized stakeholders?
Value proposition for key stakeholders promotes deforestation-free commodity production: - political leaders - producers - sourcing companies - advocacy orgs - forest-dependent communities	Stakeholders are engaged and aware of the proposed JS Companies have made sufficient commitments to source from deforestation-free producers in jurisdiction Incentives from sourcing agreements plus additional income sources (e.g., REDD+) are sufficient to induce needed stakeholder investments DFC production	Companies are hesitant to commit to source products from a jurisdiction that is in transition from fear of reputational risk	Raise awareness/make case Link jurisdiction to global actors & facilitate company commitments Find other funding (e.g., REDD+) to complement commitments Build key stakeholder capacity	To what degree can JS complement rather than replace other approaches to creating incentives (e.g., REDD+)?
Jurisdiction develops, implements, and enforces “good” agreement & land use plan Positive feedback loop established	There is an obvious “backbone” organization to catalyze agreement and plan among stakeholders Governing bodies and procedures are in place to coordinate multi-stakeholder processes	Government does not have systems in place or political will to enforce agreement NGOs are going to actively oppose agreements, even during the transition period Sourcing company investments in a	Get a “backbone” organization to catalyze agreement and plan Directly help develop agreement and plan Work with NGOs to create “safe space” for companies to make commitments during transition	Is there a typology of different starting points, pathways, timeframes to implementing JSs in different conditions? (Boyd et al., 2018) Should companies be formally invited to join a jurisdictional

(Continues)

TABLE 1 (Continued)

Factors	JS is more likely to work if...	JS is less likely to work if...	Actions to implement a JS	Future learning questions
	<p>Government has necessary systems in place including:</p> <ul style="list-style-type: none"> - land use planning - land certification system - robust monitoring, reporting and verification frameworks/systems - traceability system <p>Companies consider jurisdiction “bankable” and are willing to contract with producers</p> <p>Compliance with agreement can be easily monitored at scale</p> <p>There is evidence that key stakeholders are willing to apply pressure to enforce the agreement</p> <p>A “recovery” process exists to help rehabilitate producers who violate the agreement</p>	<p>jurisdiction create a “moral hazard” that disincentivizes ending noncomplying sourcing contracts</p> <p>The ROI for commodity production is so high that it drives ecosystem conversion (Jevon’s paradox)</p>	<p>Link to global traceability and verification systems</p> <p>Support development of mechanisms for enforcing noncompliance</p> <p>Develop “recovery” process to help rehabilitate producers who violate the agreement</p>	<p>agreement initiated by the government?</p> <p>Should JS initiatives try to create a “safe space” from reputational risks from “watchdog” conservation advocacy organizations?</p> <p>Does enforcing a jurisdictional agreement require that producers pressure noncomplying peers?</p> <p>Given that blacklisting could harm rather than help nonperforming jurisdictions, how should sourcing companies and markets treat lack of progress? (Fishman et al., 2017)</p>
<p>Deforestation-free commodity production throughout jurisdiction</p> <p>Degraded lands used for production</p>	<p>Better management practices (BMPs) intensify commodity production on degraded lands or provide other benefits (e.g., disease control in shrimp)</p> <p>Producers have time, resources & capacity to transition to BMPs</p> <p>There are opportunities to restore ecosystems on degraded lands</p>	<p>Deforestation-free production is not as economically profitable as conversion-based production</p> <p>Jurisdiction is small and/or porous so that producers can leak conversion- based production outside the jurisdiction</p> <p>Producers can easily shift to another commodity</p>	<p>Reduce “leakage” by getting critical mass of neighboring JDs to adopt JS so that it is difficult for producers to shift production</p> <p>Restore degraded lands</p>	<p>Are there cost-effective ways to manage leakage?</p>
<p>Global value proposition for deforestation-free commodity production</p>	<p>Deforestation-free commodity sourcing is part of a “standard” toolkit</p> <p>Turnkey systems are in place to implement deforestation-free commodity sourcing</p>	<p>Support is not present to promote global sourcing of a deforestation-free commodity to avoid leakage outside of participating jurisdictions</p>	<p>Cross-jurisdictional actions:</p> <p><i>Promote DFC sourcing:</i></p> <ul style="list-style-type: none"> - cross-project learning - pilots that make the case & develop standard tool kit 	<p>Given that companies may depend on multiple jurisdictions for their supply:</p> <p>What should be the criteria for companies to select eligible jurisdictions for preferential sourcing</p>

TABLE 1 (Continued)

Factors	JS is more likely to work if...	JS is less likely to work if...	Actions to implement a JS	Future learning questions
	There are sufficient financial incentives for deforestation-free commodity production There is pressure on stakeholders for deforestation-free production		<ul style="list-style-type: none"> - develop turn-key traceability/ verification systems - supply chain, trade policies and finance/ capital markets demand provide sufficient financial incentives for DFC sourcing - demand shifts and NGOs support puts pressure on stakeholders for DFC production <p><i>Promote DFC production:</i></p> <ul style="list-style-type: none"> - PES (e.g., water, REDD+) provide financial incentives - diplomacy and nonfinancial incentives put pressure on stakeholders 	<p>to meet their supply needs?</p> <p>To what degree can companies rely on individual jurisdictional monitoring systems to verify their performance against their deforestation-free commitments?</p> <p>How should companies deal with the jurisdictions that face performance issues and risk their reputation?</p> <p>How should companies combine jurisdictional sourcing with farm-level certification and/or sectoral sourcing approaches?</p>

Abbreviations: JS, Jurisdictional Sourcing; REDD+, Reducing Emissions from Deforestation & Forest Degradation.

4.3 | Supportive policy/political enabling conditions

There was general agreement that given the prominent role of the government in JS, it is important to select a jurisdiction with supportive policies and institutional environment or to first work to get them in place. Ideally, sub-national jurisdictional policies are aligned and not in conflict with national policies. In particular, it is necessary to have a land tenure system that provides key landowners the stability to make long-term investments. For example, in both Mato Grosso and Ghana, the governments are working to clarify tenure arrangements as part of the JS. It is particularly important to ensure that marginalized stakeholders such as indigenous peoples are included in these arrangements so as to minimize potential conflicts. There was also agreement that political stability is also vital; recent political changes in Brazil are now potentially making use of JS much more challenging. Interestingly, most of our sources did not explicitly mention corruption as being an issue, perhaps because it is a sensitive subject and outside the manageable interest of most JS initiatives.

4.4 | Value proposition for key stakeholders promotes DFC production

Overall, there was general agreement that implementing JS requires that key stakeholder groups are aware of its benefits. These stakeholders include political leaders, commodity producers, sourcing companies, advocacy organizations, and forest dependent communities. There was also almost universal agreement that it is important for JS to deliver economic and other incentives to these stakeholders that are material in terms of scope and size to warrant the needed investment in capacity, trust-building, and expenditure of political will needed to make JS happen. Several sources emphasized, however, that this incentive does not only have to come from commodity sourcing agreements, but instead could perhaps include other complementary sources such as REDD+ or other payments for ecosystem services.

Finally, sources pointed to the need to develop the technical and financial capacity to implement JS including spatial planning, land-use enforcement, benefit sharing, and development and use of monitoring and verification systems. Developing this capacity is particularly challenging in provincial or district-level settings

that tend to have much weaker institutional and human resources than at national levels. Several sources pointed to the need to have a “backbone organization” in place that could serve as a catalyst to help develop and promote JS in a given jurisdiction.

4.5 | Jurisdiction develops, implements and enforces “good” agreement and land use plan

There was general support across the sources we reviewed for the sequence of steps outlined in the theory of change to develop, implement, and enforce JS including starting with garnering key stakeholder support and neutralizing opposing voices. A key challenge that seems to be emerging is the need to create a “safe space” in which watchdog organizations refrain from publicly calling out firms that are sourcing from jurisdictions that are still in transition to being fully deforestation-free.

Although there is also concurrence that there is a need to develop detailed agreements and commitments and then have a formal decision to implement them, it is not clear in what sequence these steps take place. For example, in our Indonesian palm oil case studies, it seemed that stakeholders first made a formal high-level commitment to JS and then began the process of working out the specific details, whereas in other cases the details were worked out before the formal agreement was signed.

Finally, while most sources we reviewed concurred with the need to implement and then enforce the agreement and land-use plan, few if any of the cases considered had actually progressed to this point in the process. In particular, there is little evidence yet of stakeholders pressuring their peers to maintain the jurisdiction's reputation. One possible moral hazard that emerged was that if a company has to make substantial investments in infrastructure to source from a given jurisdiction, then this may create disincentives to pull its sourcing out of an underperforming jurisdiction. Another interesting wrinkle that emerged in the shrimp aquaculture case was that since the use of better management practices could reduce the spread of water-borne disease between production sites, this interconnectedness provided another strong incentive for peer enforcement of agreed upon practices.

4.6 | Deforestation-free commodity production + net deforestation reduced/eliminated

For the most part, there was little evidence in our sources that implementation of JS had led to any of the desired

outcomes shown in the ToC. However, this may be due to the fact that it is too early to expect these results in the majority of our cases. It is also still unclear at what level traceability and verification is required. Presumably, if changes in forest cover can be easily monitored at a jurisdictional scale, then it will be less important to verify compliance at an individual producer level. However, even in this case, there is still a challenge to ensure that success in one jurisdiction does not lead to leakage to or from other jurisdictions. For example, several sources described that if a jurisdiction is too small or porous, we might expect to see production from non-conforming neighbors be laundered through a deforestation-free jurisdiction.

4.7 | Global value proposition for deforestation-free commodity production

The practitioners/experts we worked with were able to identify a number of specific actions that implementers, companies, and funders could take to promote deforestation-free commodity (DFC) sourcing that creates a global value proposition that could affect many jurisdictions. In particular, supply chain purchasing commitments were noted as being critical to creating the value proposition to promote deforestation-free commodity production. However, at this point in the implementation of this approach, it was difficult to get information from the literature or our case studies about which specific actions were being used let alone their effectiveness.

At this point, substantial work remains to determine how global companies can best support jurisdictional sourcing when their supply chains depend on products from multiple jurisdictions. Some key questions include:

1. What should be the criteria for companies to select eligible jurisdictions for preferential sourcing? Does a jurisdiction need be going through a formal jurisdictional approach process to be eligible for preferential sourcing?
2. To what degree can companies rely on jurisdictional monitoring systems to verify their performance against their deforestation-free commitments and make claims to investors, civil society and consumers?
3. How should companies deal with the jurisdictions that face performance issues? Should they engage in recovery processes? At what point should they shift out of non-performing jurisdictions?
4. Will the incentives provided by JS diminish if this approach is widely adopted so that there are hundreds of jurisdictions “competing” against one another?

5. How should companies combine jurisdictional sourcing with farm-level certification and/or sectoral sourcing approaches?

5 | CONCLUSIONS

Jurisdictional Sourcing (JS) is a recently emerging hybrid between a jurisdictional approach to land-use management and producer or sectoral-based supply-chain strategies for providing market-based incentives for deforestation-free commodity production.

The theory of change presented in this article describes the relevant desired results and the actions that are used to achieve them based on the sources reviewed. Table 1 provides a summary of the conditions under which JS is more or less likely to be effective based on our current evidence base. It is our hope that this framework will enable practitioners and funders to better determine where and when it might be appropriate to use JS.

However, the JS is still very much in its early days—there are still few examples of JS initiatives, and they have not yet progressed through this entire theory of change. To this end, we have also provided generic objectives and indicators that could be used to assess the progress of specific implementations of JS initiatives as well as some learning questions that, if addressed, could reduce key uncertainties in achieving the outcomes of JS. It is our hope that if practitioners implementing and/or funding JS use this framework to collect and publicly share data about their specific experiences, we collectively will be able to refine this theory of change to represent our enhanced understanding of this emerging tool in the conservationist's toolbox.

ACKNOWLEDGMENTS

We thank the other members of the working group outlined in Annex A1 and the case study key informants in Annex A3 for their contributions to this work. This work was supported by the Gordon & Betty Moore Foundation.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

AUTHOR CONTRIBUTIONS

Judy Boshoven, Leonardo C. Fleck, Sabine Miltner, and Nick Salafsky led the writing, the discussion among co-authors, and the submission and publication of the article. All of the authors extensively discussed and contributed ideas, reviewed and vetted the theory of change and the analysis, and collaborated in reviewing feedback from reviewers and editing various drafts of this article.

DATA AVAILABILITY STATEMENT

All data used to generate this article are presented in the article or the supplemental materials.

ETHICS STATEMENT

The authors are not aware of any ethical issues regarding this work.

ORCID

Nick Salafsky  <https://orcid.org/0000-0001-9665-7477>

ENDNOTE

- ¹ In this article, we use “deforestation” to refer to the conversion or degradation of forests as well as other natural ecosystems.

REFERENCES

- AlphaBeta. (2017). Supporting jurisdictional leadership in net zero deforestation through sustainable value chains: Opportunities for TFA 2020, TFA 2020. Retrieved from <https://www.tfa2020.org/wp-content/uploads/2017/04/TFA2020-Supporting-jurisdictional-leadership-in-net-zero-deforestation-Report.pdf>.
- Boyd, W., Stickler, C. M., Duchelle, A. E., Seymour, F., Nepstad, D., Bahar, N., & Rodrigues-Ward, D. (2018). *Jurisdictional approaches to REDD+ and low emissions development: Progress and prospects. Working paper*. Washington, DC: World Resources Institute Retrieved from <http://www.indiaenvironmentportal.org.in/files/file/Jurisdictional%20Approaches%20to%20REDD+%20and%20Low%20Emissions%20Development.pdf>
- Buchanan, J., Durbin, J., McLaughlin, D., McLaughlin, L., Thomason, K., & Thomas, M. (2018). *Summary report: Exploring the reality of the jurisdictional approach as a tool to achieve sustainability commitments in palm oils and soy supply chains*. Arlington, VA: Conservation International Retrieved from https://www.conservation.org/docs/default-source/publication-pdfs/summary-report-exploring-the-reality-of-the-jurisdictional-approach.pdf?Status=Master&sfvrsn=52208c3_5
- CMP. (2020). *The open standards for the practice of conservation, v. 4.0*. Bethesda, MD: Conservation Measures Partnership (CMP) Retrieved from <https://cmp-openstandards.org/wp-content/uploads/2020/07/CMP-Open-Standards-for-the-Practice-of-Conservation-v4.0.pdf>
- Curtis, P., Slay, C. M., Harris, N. L., Tyukavina, A & Hansen, M. C. (2018). Classifying drivers of global forest loss. *Science*, 361, 1108–1111 Retrieved from <https://science.sciencemag.org/content/361/6407/1108.full>
- Fishman, A., Oliveira, E., & Gamble, L. (2017). *Tackling deforestation through a jurisdictional approach: Lessons from the field*. Washington, DC: World Wildlife Fund (WWF) Retrieved from https://c402277.ssl.cf1.rackcdn.com/publications/1145/files/original/wwf_jurisdictional_approaches_fullpaper_web_1.pdf?1520454471
- Climate Change and Land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems at its 50th Session held on 2–7 August 2019. The approved Summary for Policymakers (SPM) was presented

at a press conference on 8 August 2019. Retrieved from <https://www.ipcc.ch/report/srccl/>.

- Lambin, E. F., Gibbs, H. K., Heilmayer, R., Carlson, K. M., Fleck, L. C., Garrett, R. D., ... Walker, N. F. (2018). The role of supply-chain initiatives in reducing deforestation. *Nature Climate Change*, 8, 109–116 Retrieved from <https://www.nature.com/articles/s41558-017-0061-1>
- Salafsky, N., Boshoven, J., Cook, C. N., Lee, A., Margoluis, R., Marvin, A., ... Stem, C. (this volume) Generic theories of change for conservation strategies: A new series supporting evidence-based conservation practice. *Conservation Science and Practice*.
- Stickler, C. M., Duchelle, A. E., Ardila, J. P., Nepstad, D. C., David, O. R., Chan, C., ... Warren, M. W. (2018). *The state of jurisdictional sustainability*. San Francisco/Bogor, Indonesia/Boulder: Earth Innovation Institute/Center for International Forestry Research/Governors' Climate & Forests Task Force Secretariat Retrieved from <https://earthinnovation.org/state-of-jurisdictional-sustainability/>
- Wolosin, M. (2016). *WWF Discussion Paper: Jurisdictional approaches to zero deforestation commodities*. Gland, Switzerland: WWF

Retrieved from https://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_jurisdictional_approaches_to_zdcs_nov_2016.pdf

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Boshoven J, Fleck LC, Miltner S, et al. Jurisdictional sourcing: Leveraging commodity supply chains to reduce tropical deforestation at scale. A generic theory of change for a conservation strategy, v 1.0. *Conservation Science and Practice*. 2021;e383. <https://doi.org/10.1111/csp2.383>

ANNEX: SOURCES A.**Experts consulted to develop situation model and theory of change**

The following individuals were consulted at one or more points during the development of the materials presented in this paper. Neither they nor their institutions necessarily endorse the final results and conclusions of this paper.

Justin Adams, *TFA 2020*Joko Arif, *Packard Foundation*John Buchanan, *Conservation International*Andreas Dahl-Jørgensen, *Norway's International Climate & Forest Initiative*Joanna Durbin, *Climate, Community & Biodiversity Alliance*Greg Fishbein, *The Nature Conservancy*Leonardo Fleck, *Gordon & Betty Moore Foundation*Gustavo Fonseca, *Global Environment Facility*Lloyd Gamble, *World Wildlife Fund*Paul Hartman, *Global Environment Facility*Nathaniel Keohane, *Environmental Defense Fund*William Klaassens, *The Sustainable Trade Initiative (IDH)*Dane Klinger, *Conservation International*Sabine Miltner, *Gordon & Betty Moore Foundation*Dan Nepstad, *Earth Innovation Institute*Barry Parkin, *Mars, Inc.*Kevin Rabinovitch, *Mars, Inc.*Richard Scobey, *World Cocoa Federation*Frances Seymour, *World Resources Institute*Alice Thuault, *Instituto Centro de Vida*Matt Warren, *Earth Innovation Institute*Heather Wright, *Gordon & Betty Moore Foundation***Literature reviewed**

The following sources were reviewed to vet our initial theory of change. See Supplemental Report 1 for the complete analysis.

AlphaBeta, 2017: This report examines the state of 34 jurisdictional approaches that are potentially relevant to the mandate of TFA 2020. It focused on five jurisdictional approaches in detail to assess the opportunity the approaches offer for the partners of TFA 2020 in

Country—commodity jurisdiction**Name of JS initiative****Key informants****Brazil—beef, soy, and timber**

Mato Grosso

Produce, Conserve, and Include (PCI) strategy

Dan Nepstad, *Earth Innovation Institute*
Alice Thuault, *Instituto Centro de Vida*

Key agricultural commodities in the state of Mato Grosso in Brazil include soy, cattle ranching, and logging. The PCI initiative has been working since 2015 to implement JS.

West Africa—cocoa

Ghana

Cocoa Forest Initiative (CFI)

Barry Parkin, *Mars, Inc.*

Côte d'Ivoire

Cocoa Forest Initiative (CFI)

Kevin Rabinovitch, *Mars, Inc.*Richard Scobey, *World Cocoa Federation*

The West African countries of Côte d'Ivoire and Ghana produce about 65% of the world's cocoa supply. The CFI initiative has been working since 2017 to implement JS.

Indonesia—palm oil

Siak

CLUA/Packard Palm Oil Strategy (POS)

Joko Arif, *David and Lucile Packard Foundation*

Sintang

Packard Palm Oil Strategy (POS)

Frances Seymour, *World Resources Institute*

Ketapang

Packard Palm Oil Strategy (POS)

Palm Oil production is a major source of deforestation in Indonesia. In 2018, the CLUA/Packard POS selected three districts in Indonesia to serve as test cases of JS to produce deforestation free palm oil.

Indonesia—shrimp aquaculture

Banyuwangi

Shrimp Industry Improvement and Investment Program (SI3P)

Dane Klinger, *Conservation International*

In the Indonesian district of Banyuwangi, Conservation International and its partners are implementing JS around shrimp aquaculture. Although not about deforestation, this case provides interesting insights.

supporting the transition to sustainable production of key forest risk commodities (such as palm oil, soy, beef, paper and pulp, cocoa, and rubber), and identify preconditions for a successful approach.

Boyd et al., 2018: This report uses six case examples to provide a brief snapshot of some of the more important examples of jurisdictional approaches. The cases are not to be taken as representative samples of jurisdictional approaches, but rather to illustrate the diversity of approaches, challenges and opportunities, and progress to date.

Buchanan et al., 2018: This report is based on interviews with representatives from 14 companies at all levels of palm oil and soy value chains, government officials at all levels, and civil society actors in leading jurisdictional initiatives in Indonesia, Malaysia, and Brazil. These interviews were designed to test assumptions behind the utility of the jurisdictional approach as a vehicle to achieve commitments to eliminate deforestation, development on peatlands or exploitation in palm oil and soy supply chains.

Fishman et al. (2017): This report summarizes workshop of practitioners from five jurisdictional approaches

to explore each one in a peer-to-peer setting with additional global experts, and to extract theories of change, successes, challenges, and common lessons.

Stickler et al. (2018): This report reviews 39 sub-national jurisdictions in 12 countries, encompassing 28% of the world's tropical forests and varying widely in both their deforestation rates and the amount of their forest that is remaining.

Wolosin (2016): This report is based on interviews between March and May 2016, with approximately 30 experts in REDD+, jurisdictional approaches, and sustainable supply chains from a range of sectors. Desk research, including review of websites, blogs, news articles, and both public and confidential documents as available, added to information derived from interviews.

Case examples

The following case examples were used to vet our initial theory of change. See Supplemental Report for the complete analysis.