The Role Of

Jurisdictional Programs

in Catalyzing Sustainability Transitions
in Tropical Forest Landscapes

Authors: Lex Hovani, Rane Cortez, Herlina Hartanto, Ian Thompson,
Greg Fishbein, Erin Myers Madeira, and Justin Adams

Acknowledgements

Table of Contents

Photo credit: Erich Schlegel, 2016

Executive Summary

Tropical forests are among the most important landscapes on earth—storing vast amounts of carbon and biodiversity while providing food, water, livelihoods, and other critical resources for billions of people. There is growing consensus on the necessity of conserving tropical forests to achieve the Sustainable Development Goals and the objectives of the Paris Climate Agreement and there is growing investment and effort in relevant policies and programs.

Despite increased attention from the international community, however, overall tropical deforestation reached historic highs in 2016 and 2017. The failure to secure key interim results—including building strong agreement on key solutions, achieving sufficient political will, and establishing stable and sufficient finance—is further cause for concern. The necessity of achieving the ambitious global goals for conserving tropical forests is clearer than ever, but all actors, including NGOs, private sector organization, local governments, and donors, contribute to the current problematic dynamics in landscapes and need to be prepared to change approaches to achieve better results.

For the past 10 years, The Nature Conservancy (TNC) has been supporting broad, multi-stakeholder jurisdictional programs in Brazil, Indonesia, and Mexico that included support for jurisdiction-wide sector transformations, work at scale with indigenous peoples and local communities, and piloting climate finance mechanisms. These programs involved a wide range of stakeholders and strategies working toward broad jurisdictional goals. They allowed us to experience the challenge of working across levels from village to global and observe how change processes ebb and flow over time in these landscapes. They provided an ideal vantage point for understanding the challenges of achieving sustainability in tropical forest landscapes.

The purpose of this paper is to describe a framework approach that jurisdictional programs—defined here simply as multi-stakeholder initiatives with jurisdiction-wide sustainability goals—can use to accelerate sustainability transitions and enable the type of widespread efforts described above. The paper is primarily intended for leaders of jurisdictional programs and international actors either directly supporting jurisdictional programs or involved in designing support facilities for jurisdictions. We also hope that it helps those pursuing strategies for large-scale change—including carbon finance, sustainable supply chain approaches, and others—to better understand the wider context for their work.

Jurisdictional programs as catalysts for collective leadership

Large-scale sustainability transitions require that a wide range of actors with appropriate authority and resources work individually and in focused partnerships to develop necessary solutions. But landscape-scale sustainability is far beyond the power of any actor or group of close allies to achieve and an ability to work collectively is also necessary to ensure that approaches reinforce each other and that results are durable. Jurisdictional programs can accelerate sustainability transitions if they are able to catalyze collective systems leadership, whereby a network of influential and representative leaders work in compatible ways to address key systemic challenges and co-create sustainable landscapes.

In our experience, jurisdictional programs do not replace existing decision-making authority and are not highly integrated or tightly managed, but they can add significant value and complement other landscape approaches through three core roles:

1. **Strengthening the network of actors working toward sustainable landscapes** by (a) establishing a Leadership Group of influential and representative leaders addressing different aspects of sustainability, (b) enabling a backbone organization or other less formal mechanism to support the overall initiative, (c) supporting cross-sectoral dialogues within the Leadership Group and more broadly and increasing information flow to build deeper understanding of landscape dynamics and opportunities for change, and (d) cultivating a shared vision for jurisdictional sustainability.

2. **Empowering a range of systemic change initiatives** by (a) improving integrated spatial databases and analytics to improve the knowledge base for sustainability initiatives, (b) promoting effective structures and norms to improve cross-sector collaboration to tackle priority challenges, (c) mobilizing additional resources to grow promising initiatives over time, and (d) promoting rapid learning so improvements in approaches can be made in real time.

3. **Improving accountability** among actors by (a) facilitating effective jurisdictional agreements that provide frameworks for compatible action and meaningful commitments, (b) managing consultation and feedback mechanisms, and (c) reporting on overall progress transparently.

If a jurisdictional program is effective in strengthening the network of leaders, improving cross-sector collaboration on key initiatives, and increasing accountability, there will be opportunities to strengthen a range of other approaches including climate mitigation policies, supply chain initiatives, integrated landscape initiatives, and efforts to improve the well-being of indigenous peoples and local communities. In fact, jurisdictional programs can only be successful if they demonstrate that they can help leaders of sustainability initiatives in the jurisdiction to achieve their individual goals. They will then be motivated to engage with the jurisdictional program through multi-stakeholder dialogues, joining and leading focused partnerships, helping to make the case for sustainable landscapes, and working together to mobilize resources for complementary action.

Jurisdictional programs require multi-sector, multi-level leadership. Jurisdictional governments are influential and well-placed to drive change and should continue to do so within their authority, including by improving horizontal alignment among jurisdictional government agencies and vertical alignment with national and lower level governments. Jurisdictional governments need to provide leadership of jurisdictional programs but not dominate. National governments, the private sector, local communities, and civil society all have crucial roles to play and need to be active co-owners of jurisdictional programs. This approach recognizes the reality of distributed power and will tend to be less fragile, as it does not attempt to concentrate authority or rely on any single actor.

> *Jurisdictional programs are the opposite of a silver bullet—they succeed by enabling leaders to achieve diverse goals through a range of initiatives and approaches.*

Jurisdictional programs need to help stakeholders balance local and global interests in tropical forests. The international community has been providing substantial resources for initiatives in tropical forest landscapes and has a legitimate interest in achieving global goals, including related to climate mitigation and biodiversity conservation. But if jurisdictional programs are designed and managed primarily to drive a global agenda they will fail or even backfire.

Local and national actors have both the strongest stake in the outcomes in these landscapes as well as the greatest ability to influence landscape management, and therefore must be the core focus of sustainability transitions. Jurisdictional programs need to find ways to integrate global goals with a broader, locally driven sustainable development agenda.

Jurisdictional programs can enable steady progress toward shared goals by strengthening capacity for adaptive management. They can maintain objective, long-term evaluation programs, bring together diverse actors to assess what is working and what is not, and generate insights into how to adapt approaches over time. They can help steer toward overall sustainability goals and improve the adaptive management of individual policies and programs, which often underinvest in monitoring and evaluation.

Operationalizing jurisdictional programs

We outline a basic approach to designing and managing this type of jurisdictional program using a phased approach. To initiate a program, a small group of actors can work together to evaluate the potential for a jurisdictional program, develop a preliminary understanding of the case for change, and work to secure agreements to participate by a sufficient group of influential and representative leaders. Once established, a structured 6 to 12-month process is important for leaders to co-develop a systemic understanding of landscape dynamics, engage with existing initiatives, and build collaborative capacity. Following this, the main phase of the jurisdictional program is a fluid process of exploring, testing, and scaling approaches as opportunities and capacity allow. Initiatives form to tackle particular challenges, bringing together principal actors to frame the problem, develop potential plans, policies, and proposals, and test them using rapid innovation approaches. They share refined plans, policies, and proposals with the Leadership Group and with relevant principal actors who can apply ideas directly in their work or bring together implementation partnerships where necessary.

A formal jurisdictional compact, or high-level agreement, can be an important tool for clarifying, documenting, and reinforcing the commitment to a shared vision and collective action. The compact would ideally: recognize the current dynamics and challenges in the landscape, articulate a shared vision of sustainable landscape management, include high-level goals and plans, and document commitments to deliver on the vision and goals. Signatories would include members of the leadership group and any others that are appropriate. Jurisdictional plans and agreements are important but not transformational. In our experience, high-level planning efforts do not drive sustainability transitions so much as synthesize, strengthen, and refine successful efforts already underway. Understanding this distinction is crucial.

Various operational agreements will need to be developed to tackle major challenges—potentially related to carbon finance, commodity production, and jurisdictional sourcing—and jurisdictional programs can act as honest brokers in helping to facilitate these important focused partnerships. The type of cross-sector collaboration described in this paper is a necessary precursor to these operational agreements.

This is a flexible framework for jurisdictional programs and could be used effectively in various ways. More than any specific tool or methodology, the use of this framework requires maintaining a mental model of jurisdictional programs as catalysts for systemic change rather than architects of grand designs. It could be used to strengthen existing jurisdictional programs or to develop new ones. The approaches recommended could be applied comprehensively or selectively as resources are available. It is also a model of jurisdictional programs that can be started inexpensively, done in more places, and grown over time. We believe that many of these ideas are highly relevant in other landscapes and present significant opportunities for cross-over application.

The approach to jurisdictional sustainability that we describe in this paper is a composite; we believe that it is in line with our direct experiences in multiple places as well as research on the experiences of others in tackling complex challenges at scale. All parts of the approach have been implemented with good results, but it has not been demonstrated in its entirety in any one place. We are currently testing many of the approaches described in this paper in the jurisdictional programs we support, and the experiences will inform refinement over time. The paper presents a series of examples from work that we have been directly involved with to illustrate various points. We also present approaches developed in other contexts where diverse groups of actors have wrestled with complex challenges in pursuit of large-scale systemic change.

Recommendations

We need to stop denying complexity and embrace it. The approaches described in this paper—strengthening the leadership network, empowering systemic change initiatives, and increasing accountability—can help to make progress in complex landscapes and achieve sustained progress at scale. To begin making this shift we recommend the following:

1. **Increase focus and investment in the core roles of jurisdictional programs:** The complexity and scope of jurisdictional programs can obscure their unique contributions and has resulted in under-investment in the types of core roles outlined in this paper. In our experience, these are roles in jurisdictional programs that require substantially more attention in order to improve practices and allow jurisdictional programs to be effective.

2. **Be realistic about shared power:** Given the complexity in these landscapes, no one can achieve sustainability goals or other goals alone. Powerful actors need to recognize that others must take complementary action for them to achieve their goals and this requires mutual adjustment. All actors, including NGOs, need to look at how they, despite their best intentions, sometimes ignore the realities of shared power and undermine progress.

3. **Invest in improving the analytical rigor of key approaches:** There are several approaches and ideas for large-scale change that need more careful analysis and study, including: the design and management of backbone organizations, approaches to design and negotiation of jurisdictional plans and agreements, and alignment of mitigation policies and conservation investments.

4. **Increase transparency of governance and management of jurisdictional programs:** Core actors need to make additional efforts to clarify what is happening, who is involved, and how decisions are made. Consider reviewing governance systems and jurisdictional plans of existing jurisdictional programs for clarity and realism.

5. **Mobilize longer-term, better targeted, financing for cross-sector collaboration in jurisdictional programs.** Based on our experience and research in other large-scale system change efforts, the types of functions highlighted in this paper are high-impact, relatively inexpensive investments. While there is a perception that there has been substantial investment in jurisdictional programs, most of the money has gone to results-based finance, developing REDD+ related enablers (e.g. carbon monitoring systems), sectoral sustainability programs, and landscape initiatives. Very little has gone to cross-sector collaboration and backbone organizations and the funding has been very short-term. Longer-term approaches need to be developed and financed, focused on local organizations and capacity.

6. **Broaden the scope of jurisdictional programs:** While most jurisdictional programs are already broad, many still fail to engage those working on related issues including job creation, infrastructure development, local food security, watershed protection, and climate adaptation, to name a few. Broadening the thematic scope to clearly include these and other locally relevant issues would surface the existing complexity but increase the opportunities to harmonize related efforts. The network-based, systemic approach described in this paper allows for jurisdictional programs to expand scope.

7. **Look at ways that jurisdictional programs could deliver broad support for evaluation in tropical forest landscapes:** A range of recent studies have shown the dire inadequacy of monitoring and evaluation of strategy effectiveness. Jurisdictional programs are well placed to improve results cost-effectively with well-designed approaches.

8. **Development partners and companies should look for ways to make longer-term commitments:** The world is looking to tropical forest countries and sub-national jurisdictions to make long-term commitments to significant sustainability transitions. Development partners need to find ways to make similar long-term commitments to support them. This cannot be done unconditionally, but efforts should be made to reduce the tendency to quickly shift approaches and geographies when progress is slower than expected. Companies that want to make real contributions to sustainable landscapes should also be focused on long-term partnerships rather than avoiding challenging areas.

Conclusions

Transformational change is never fast, cheap, or easy. Initiatives in tropical forest landscapes need to get real about the challenges they face and what is actually needed—in time, resources, and collaboration—to achieve durable change.

Jurisdictional programs are the opposite of a silver bullet—they succeed by enabling leaders to achieve diverse goals through a range of initiatives and approaches. There are many necessary sustainability initiatives and we need to move into a post-heroic era of working in tropical forest landscapes in which we stop pretending that any particular solution or approach is transformational on its own (if only others would get in line) or casting other actors as villains blocking progress. Jurisdictional programs can enable the mutual adjustment processes that are necessary to develop and implement viable long-term solutions.

There is a genuinely urgent need to change the development pathway in tropical forest landscapes before high impact landscape management dynamics are locked-in through infrastructure, plantations, and other investments, sacrificing local and global well-being. The growing commitment to sustainability in tropical forest landscapes, the deepening understanding of different strategies and approaches, and the expanding range of successful examples give hope for large-scale sustainability transitions. Clarifying the core roles and additionality of jurisdictional programs to sustainability transitions can be an important step toward more realistic and effective efforts in tropical forest landscapes.

Photo credit: Bridget Besaw, 2009

1   Introduction

Over the past decade, growing recognition of the critical importance of tropical forests has prompted governments, the private sector, local communities, and civil society to expand efforts to achieve sustainable development in these landscapes. A convergence of varied interests is driving this trend, including interests in climate mitigation and adaptation, strengthening rights of indigenous people, improving governance, improving agricultural productivity, local economic development, and protecting biodiversity. Tropical forests are recognized as critical to achieving the Sustainable Development Goals, the Paris Climate Agreement, and the Bonn Challenge. The New York Declaration on Forests brought together a significant coalition working toward eliminating tropical deforestation.

Despite increased attention, the destruction and degradation of the world's tropical forests continue apace. In 2016, deforestation in tropical forests hit a record high and the second highest level in history was reached in 2017 (Seymour, 2018). There are additional warning signs that the tactics used to date may not be achieving political will and attracting the resources needed to get to scale. Across the domestic finance landscape, in most places, subsidies and investment in high-impact development are still 40 times higher than resources and incentives for conservation and landscape sustainability (Climate Focus, 2017). Large policy-based mechanisms for forest carbon finance have not yet materialized and fundamental questions regarding how to align different policy mechanisms still exist (Lee, 2018). Though the Green Climate Fund is now operating, the short time horizon of projects and low funding levels that are still relatively modest compared to prior expectations do not send a clear signal and incentive to forest countries. Although leading companies have made ambitious commitments to reduce impacts on tropical forests, there is not yet nearly enough market pressure on commodity producers to motivate sector-wide changes. More careful analysis has also revealed how company commitments need substantial complementary action to achieve meaningful results for conservation and community well-being, but these are not yet forthcoming (Taylor, 2018). The urgency of the challenges in tropical forest landscapes requires us to take a hard look at our current approaches and to seek ways to improve results and accelerate progress.

Jurisdictional programs need to be part of this reflection as they represent an important approach and are useful microcosms of the broader challenges. Jurisdictional approaches have been a prominent part of the broad effort to catalyze sustainability transitions in tropical forests for at least the past 10 years. Working at jurisdictional scale continues to have appeal as it enables alignment with government interests and management systems, provides a common orientation for different actors, and enables strategies and actions that match the scale of different challenges. More than 30 jurisdictional programs have been started around the world.
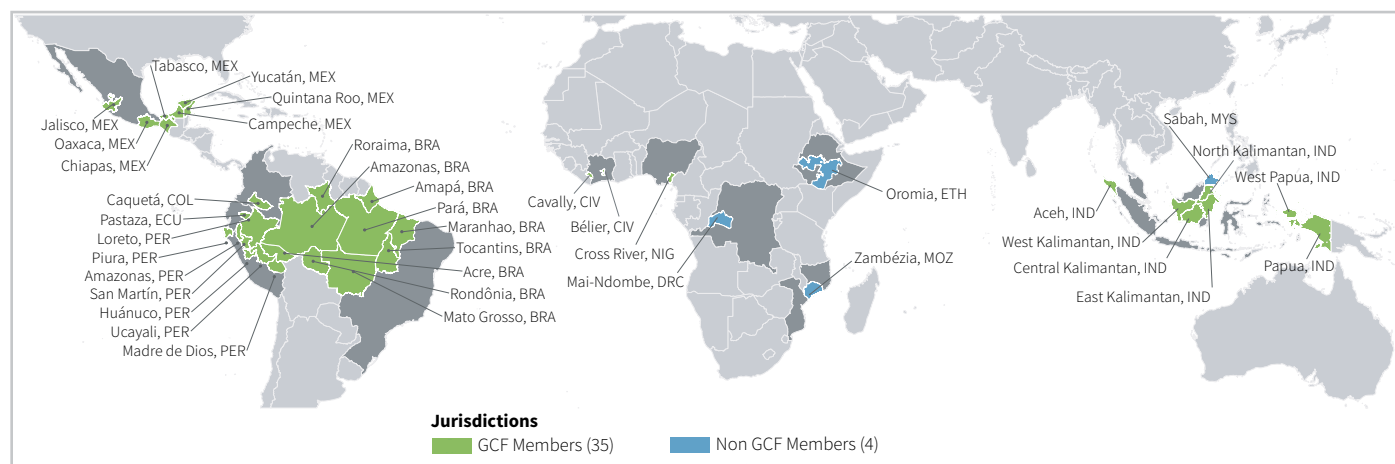

Figure 1. Jurisdictional Programs Around The World
(From Stickler, et al, 2018. The State of Jurisdictional Sustainability: Synthesis for Practitioners and Policymakers)

Jurisdictional programs as an evolving concept

Most jurisdictional programs began as jurisdictional approaches to Reducing Emissions from Deforestation and Degradation (REDD+) and from the beginning many recognized that jurisdictional REDD+ required a broad approach to tackle diverse drivers of forest loss (Fishbein and Lee, 2015; Boyd, 2018; Fishman, 2017). The scope and expectations of jurisdictional programs have expanded over time. As the policy dialogue on REDD+ evolved, led mainly by development agencies, the expectation grew that these jurisdictional REDD+ programs guaranteed broader development benefits (WWF, 2016).   On the ground experiences that continue to illustrate both the inter-relatedness of various landscape management issues and the importance of mobilizing diverse stakeholders also led to broadening of objectives and approaches (Varns, 2018). The rapid expansion of company commitments to "no deforestation" commodities, and the challenge of meeting these targets without support of other stakeholders, notably local government, has led to calls for jurisdictional programs to deliver on zero-deforestation supply chains (Taylor, 2018; WWF, 2016; EDF, 2016; Daemeter, 2016; Proforest, 2016; World Bank, 2016).

Heterogeneity of governance, cultural, and biophysical factors in jurisdictions as well as the changing context for jurisdictional programs has delayed conceptual development and creates a major challenge for retrospective evaluation. One of the major elements of the theory of change—large and predictable climate finance—have thus far failed to materialize. As the goals have expanded and major new actors took leadership roles, jurisdictional programs have continued to evolve (WWF, 2016). The sense of urgency to demonstrate the potential for landscape programs to contribute to global climate mechanisms often undermined careful documentation and clarification of how these programs work. All of this makes it hard to know what jurisdictional programs did, when they did it, whether it had the intended impacts, and whether these results were greater than in comparable areas without jurisdictional programs. Without this understanding, it is difficult evaluate jurisdictional programs.

The Nature Conservancy's experience with jurisdictional programs

For the past 10 years, The Nature Conservancy has been supporting jurisdictional-scale sustainability efforts in Brazil, Indonesia, and Mexico. These programs have all been linked to national policy frameworks and oriented towards multi-objective sustainable development goals. They have worked to improve the sustainability of commodity production, improve the well-being of local and indigenous communities, improve the management of natural ecosystems, and leverage climate finance.

Supporting such broad sustainability efforts in these three jurisdictions over a sustained period enabled us to see first-hand, or through the eyes of our colleagues, the dynamics among different strategies and actors, the challenge of working across levels from village to global, and how change processes ebb and flow over time in these landscapes. We have also maintained a degree of collaboration within our team across these geographies throughout this time and been able to compare experiences, including successes and areas for improvement.

Purpose and approach of this paper

The purpose of this paper is to describe a framework approach that jurisdictional programs—defined here simply as multi-stakeholder initiatives with jurisdiction-wide sustainability goals—can use to accelerate sustainability transitions. It is based on the idea that jurisdictional programs can be most effective by catalyzing collective systems leadership, whereby influential and representative leaders work together to address key systemic challenges and co-create landscapes they value.

The paper is primarily intended for leaders of jurisdictional programs and international actors either directly supporting jurisdictional programs or involved in designing support facilities for jurisdictions. We also hope that it helps those pursuing strategies for large-scale change—including carbon finance, sustainable supply chain approaches, and others—to better understand the wider context for their work.

In developing the framework approach outlined in this paper, we first looked carefully at our own experience and developed case studies of jurisdictional-scale programs The Nature Conservancy supported in Brazil, Indonesia, and Mexico. These case studies reflect on the process of developing an initial program design in each place based on blending the initial concept of jurisdictional REDD+ with locally feasible approaches and then evolving the strategies based on learning by doing. These programs were very different from each other in terms of the national contexts and the strategies employed, but there was a core similarity of experiences that provides the basis for this paper.

In addition, we researched experiences with large-scale systemic change in other sectors and tried to understand the degree to which effective approaches in tackling complexity in poverty, health, education, urban planning, and other domains would apply to landscape challenges. We did short background research studies on experiences with cross-sector collaboration and application of systems thinking. These documents, as well as the three case studies of experiences in Brazil, Indonesia, and Mexico, provide important inputs to this paper.

We do not attempt to provide a prescription that requires exact application in its entirety or suggest it is the only appropriate "jurisdictional approach" or type of jurisdictional program. In fact, we believe that the approaches and underlying ideas included here could be integrated into most existing jurisdictional programs, including those focused primarily on jurisdictional climate finance agreements, jurisdictional approaches to sustainable commodities, and jurisdictional government programs. Alternatively, it could be used in places where no jurisdictional program exists.

Photo credit: Erich Schlegel

The approach we describe here is a composite of our direct experience in multiple places as well as research on the experiences of others and has never been applied in its entirety. We believe that there is strong evidence, of different types, that these approaches work, but also that iteration and refinement will be needed over time. We have tried to introduce several new ideas and methods that fit with the overall logic of this approach, all of which have demonstrated value in other contexts or on some level in landscapes, and we encourage others to join us in exploring how these ideas can best be applied at scale in tropical forest landscapes.

We hope that the framework and specific ideas and methods can be helpful to the many practitioners in large-scale landscape efforts and that it sparks productive reflection around what is necessary to achieve sustainability in the long-term.   We also believe that many of the concepts are sufficiently generalizable that they can also be applicable at other scales and in other biomes beyond jurisdictional-scale tropical forest landscapes.

Overview of the paper:

- **Section 2:** The Challenges Of Large-Scale Sustainability Transitions In Tropical Forest Landscapes: Section 2.1 outlines the key challenges that we feel apply in most tropical forest landscapes and provide a strong rationale for collective, systemic approaches. Section 2.2 summarizes how these challenges both provide a strong rationale for jurisdictional programs as well as indicate ways that jurisdictional programs should work in order to be effective.

- **Section 3:** Jurisdictional Programs As Catalysts For Collective Systems Leadership Of Sustainability Transitions: Section 3.1 provides a brief overview of collective systems leadership and provides a description of the core roles that jurisdictional programs can play in catalyzing and supporting this way of working. Section 3.2 describes the benefits of this approach. Section 3.3 describes how this type of jurisdictional program can strengthen other landscape approaches, including climate finance initiatives, sectoral sustainability initiatives, and others.

- **Section 4:** Toward An Integrated Model: provides a summary of how to build a jurisdictional program and collective leadership model over time. Section 4.1 describes the high-level phasing. Section 4.2 describes the potential of jurisdictional agreements to reinforce plans for collaboration. Section 4.3 describes recommended approaches to finance the different types of costs associated with jurisdictional programs. Section 4.4 describes some of the specific capacity building needs that exist and section 4.5 describes monitoring and evaluation approaches that can strengthen the jurisdictional program as well as component strategies. Section 4.6 provides a systemic theory of change.

- **Section 5:** Advancing The Practice: Section 5.1 provides recommendations specific to jurisdictional programs and some about supporting sustainability transitions in tropical forest landscapes more generally, and Section 5.2 includes some concluding remarks.

- **Appendix A:** Key Ideas And Approaches In More Detail: Describes some of the key practices and ideas that are part of this model in more detail.

- **Appendix B:** References

2 The Challenges of Large-Scale Sustainability Transitions in Tropical Forest Landscapes

Sustainability transitions are processes of fundamental social change in core societal systems—including those related to food, energy, and the built environment—in response to societal challenges (Grin, Rotmans, & Schot, 2010; Markard, Raven, & Truffer, 2012). While initiatives in tropical forests are often characterized in terms of achieving some important milestone, the test of sustainability is whether these types of societal systems function differently in the long-term. This section highlights some of the key challenges for achieving large-scale transitions to sustainable management of tropical forest landscapes. The section concludes by discussing the implications for design and management of jurisdictional programs.

2.1 Key Challenges for Large-Scale Sustainability Transitions

Diverse and often competing goals

In many jurisdictions, current landscape management is producing results that nobody really wants. Resource-intensive economic development models persist and are driving continued conversion of natural ecosystems, but corporate leaders in agriculture, mining, forestry, and other industries are aware of the urgent need for sustainability transitions and starting to act. Ongoing degradation of tropical forest landscapes is already having significant impacts on local people and the global ecosystem and predictions of long-term impacts are daunting (Oakleaf, 2015). As a result, people from many domains are now acting to shift landscapes toward sustainability.

At the same time, it is important to acknowledge that viable alternatives are not always available, and actors have different primary motivations. While there is consensus on the need to balance sustainable development objectives in the long-term, there is often disagreement on sequencing. Most landscape stakeholders recognize the importance as well as the inter-relatedness of economic, social, and environmental objectives and the need to manage the tradeoffs between them. But the variety of circumstances and stakeholder interests and needs inevitably gives rise differences of opinion on sequencing.

Seemingly subtle differences also matter, and interests that are initially aligned can easily diverge over time. Protecting biodiversity and reducing climate emissions may be roughly aligned but also lead to very different decisions if strictly prioritized (Venter, 2013). Conservation and improving the well-being of indigenous communities can be aligned when indigenous communities have relatively traditional cultures, but as they become more integrated into market systems and connection to land decreases alignment can reduce.

Complex landscape dynamics defy understanding, prediction, and control

Landscapes are often described as socio-ecological systems or complex adaptive systems because they have numerous and diverse components—human, economic, ecological—with dense webs of interaction (Denier, 2015). As a result, all landscape initiatives must contend with inter-related challenges, highly distributed power, and ongoing, often rapid, change (Parrott, 2012; Holling, 2001). In fact, jurisdictional sustainability involves addressing multiple systemic challenges.

The programs we supported in Brazil, Indonesia, and Mexico all required tackling systemic challenges related to: transforming key economic sectors (socio-technical systems), improving the sustainability of management of multi-functional landscapes (socio-ecological systems), and strengthening spatial data infrastructure, spatial planning mechanisms, and landscape monitoring (government policy systems). These challenges are inter-related; they affect each other, both positively and negatively, but are also distinct. Large-scale sustainability transitions require working with an awareness of the interactions between multiple systems (Meadows, 2008).

> *There are no separate systems. The world is a continuum. Where to draw a boundary around a system depends on the purpose of the discussion.*
>
> **Donella Meadows**
> *Author and leading systems thinker*

Landscape dynamics constantly change in response to both external and local factors, complicating both prediction and control. Political shifts from national or sub-national elections and administrative shifts as key government staff are reassigned can also have a significant impact if priorities and budgets shift, making innovation processes unfinished. Market shifts created by price fluctuation and consumer preferences drive change, especially when global markets play a major role in landscapes. Ecological shifts, for example resulting from climate change, are also ongoing and sometimes dramatic. As ecological, social, political, and economic dimensions change they set off changes in other dimensions, with often unpredictable pathways (Denier, 2015).

Common pitfalls in complex systems and their psychological underpinnings

Landscape challenges are hard to address due to complexity, but there are patterns in the mistakes people make in tackling complexity that can help avoid problems. Dietrich Dorner, a psychologist, developed a computer simulation of a complex system to answer that question. He used a landscape management challenge for his simulation, but his interest was about managing in complex systems more generally. He invited research participants to attempt to manage toward objectives that he provided and then watched what happened (Dorner, 2006). He found that people made very consistent types of mistakes during the simulation:

- They were vague about the goals they were trying to achieve, and they operated based on a "repair shop" approach, mainly responding to the most obvious and urgent problems;

- They did not develop a clear understanding of the system dynamics, particularly in terms of side effects, or develop testable hypotheses about the system behavior; instead, they used simple extrapolation from past trends to predict the future and were consistently surprised as a result;

- They jumped quickly to conclusions about which strategies to choose and committed fully to the strategies and pursued them "ballistically" without developing an approach to monitoring effectiveness;

- They failed to coordinate action and results suffered from the "collision" of different measures;

- They were unable to adaptively manage because their understanding of the system dynamics did not improve over time.

These will likely sound familiar to people working in tropical forest landscapes and align with practitioner experiences in other sectors (Reed, 2016; Parrot, 2012; Ostrom, 2010; Sayer, 2008).

Despite the common mistakes described above, there are ways of working effectively to address complex challenges. There is a high degree of consistency in the recommendations of those with experience in a range of sectors, and they align well with avoiding the causes of failure that Dorner observed. Experienced practitioners highlight the importance of a strong understanding of the underlying structures and mindsets that drive system dynamics, careful choice of leverage points to intervene, collaboration with other stakeholders engaging with the same challenges, and rigorous adaptive management (Burns, 2007; Cilliers, 2013; Holling, 2001; Kania, 2013; McChrystal, 2015).

While there is reasonable agreement on approaches to managing in the context of complexity, these approaches are rarely fully utilized and thus it is worth looking deeper at why this happens. Dorner identified four underlying psychological factors associated with the mistakes he observed by managers working in complex situations, which help to illuminate the reasons for persistent inability to manage complexity. According to his research:

- Low cognitive processing capacity led to economical approaches and shortcuts to manage information flow, planning, and prediction of future patterns;

- A desire to protect their feelings of competence led people to avoid trying new approaches (through ideological entrenchment), avoid learning about failure (through low investment in evaluation), or move away from perceived failure (through "thematic vagabonding");

- Focusing narrowly on the "main" problem resulted in failure to anticipate side effects and long-term results;

- Forgetting prior system behavior and the subsequent inability to recognize patterns also undermined results.

None of these are simple issues to address, but awareness of these tendencies can be important in stimulating the sort of reflection necessary for people to start to change their own approaches as well as generating some potential strategies to help other actors perform better.

The need for multiple solutions led by different actors

Multiple complementary approaches are often required to achieve sustainability in landscape management at large scale (Tikkanen, 2002; Nepstad, 2013; WWF, 2016; EPRI, 2012; Cash, 2006). Actors who directly influence landscape management—who either manage large areas of land or develop regulations that directly influence land management—will typically involve scores of government agencies across different levels of government, often hundreds of companies, often hundreds or thousands of villages. Indirect yet influential actors—like banks, major commodity buyers, and development partners—add further to the list of those who influence sustainability transitions (Nepstad, 2013).

While contexts and needs vary, large-scale sustainability transitions will often include most or all the following types of solutions, which are led by different actors and often only loosely linked by either jurisdictional program governance mechanisms or other means:

- **National level policies and programs:** National policies and programs, and national level economic dynamics, have enormous influence on the prospects for jurisdictional sustainability, and it is hard to imagine sustained success at sub-national level without significant action by national governments to help address binding constraints, mobilize resources, and in many cases pressure sub-national governments and private sector for change.

- **Sectoral sustainability transitions:** The production systems in different economic sectors are among the most important determinants of overall sustainability in landscapes. It is necessary to understand these sectors as socio-technical systems in which regime actors—including government policy-makers, various industry actors, and other stakeholders—are closely linked by diverse regulatory and market relationships (see A.5. Multi-Level Perspective On Sectoral Sustainability Transitions for more on socio-technical regimes and sustainability transitions). Developing a deep understanding of these sectors and effective solutions requires a sectoral perspective but also awareness of complementary actions beyond industry sectors to achieve social and environmental benefits. Zero deforestation supply chain initiatives can be important in accelerating sectoral sustainability transitions.

- **Holistic approaches to supporting indigenous peoples and local communities:** Improving the well-being of local communities and indigenous peoples living in or near forests is one of the fundamental objectives of jurisdictional sustainability efforts. Contexts vary tremendously—all the way from indigenous reserves covering millions of hectares to scattered small villages—but this often involves strengthening recognition of land tenure, forest-stimulation of compatible economic development options, and empowerment in decision-making. While it is important to give attention to these objectives in the context of other initiatives (e.g. improving the well-being of smallholders linked to commodity production), it is important to address sustainable development needs of communities holistically to improve the chances for balanced improvements.

- **Integrated landscape initiatives:** Integrated landscape initiatives that develop specific governance and management approaches for particular landscapes can be an important complement to other approaches, especially in cases where social or ecological characteristics require particular management across a broad area or in cases where an important landscape cuts across administrative boundaries. Integrated landscape initiatives often involve stakeholders with specific direct interactions with each other and can, therefore, tackle inter-dependencies in landscape management in more detail than is possible at jurisdictional scale. At the same time, landscape initiatives often struggle with access to policy-makers necessary to provide formal support to agreements and approaches negotiated in landscapes (Shames, 2017).

- **Management of conservation areas:** In recent years, efforts in tropical forests have focused heavily on mitigation, but active conservation management is the critical complement in most cases, without which mitigation efforts fail. In many countries, protected area management still needs improvement, and management of the various private lands and concession set-asides is an often-overlooked challenge.

- **District or municipal-level initiatives:** Much attention regarding "jurisdictional approaches" has been oriented toward states and provinces. Lower level jurisdictional governments often have unique roles and authorities, including related to enforcement and detailed planning. They can also help customize and/or replicate effective approaches developed elsewhere.

- **Province or state level initiatives:** Often existing governance and management tools, such as spatial and development planning systems and government budgeting systems, must be adjusted to strengthen sustainable landscape approaches. Building new jurisdictional-scale enablers, including climate finance mechanisms and other accountability or finance tools, may also be appropriate at this state or provincial level to achieve efficiencies of scale.

These various landscape initiatives that jurisdictional programs rely on are often under the authority of different actors with a high degree of autonomy. They are designed to serve diverse institutional priorities and only partly guided by the needs and interests of the jurisdictional program or the broader sustainability agenda. Many actors driving these initiatives may be working towards similar objectives, but they are only partially responsible for these objectives, and none have enough power and knowledge to address the problems alone (Crosby, 2005). Collaboration is often needed, but power and decision-making are often fragmented and hard to understand (Forsyth, 2009). In this context, not even the most powerful actors can drive change across the full range of issues that matter to them and transform systems in the long-term. Most actors have a blend of different objectives and therefore broad interests; this ensures that even powerful actors have concerns far beyond what they can influence. While it is tempting to downplay or ignore the challenge, "institutional complexity is not a hypothesis—it is a fact and reality of governance" (Lubell, 2013).

Lack of clarity and agreement on fundamental solutions

Fundamental solutions address the root causes of problems, are viable in the long-term, and have the support of stakeholders for implementation. These types of solutions are often not known and agreed for many of the most important challenges in landscapes, many of which have existed for decades and have defied serious efforts to address them. While a greater sense of urgency and greater resources create new opportunities, they can also create new risks if actors jump to conclusions and rush to implement flawed approaches at scale.

Fundamental solutions often require the support of a range of different stakeholders to mobilize necessary complements, adopt or replicate effective approaches, and maintain progress over time. This often includes policy-makers, finance entities, supply chain companies, land managers, local communities, and others who are linked to the solution in some way. They will tend to have different perspectives that need to be negotiated over time. They may require different types of evidence before deciding to support an approach. Often the most fundamental, persistent problems require agreement from the widest range of actors. Even those with closely related interests can develop persistent disagreement on approach, resulting in many different solutions that never reached scale because they did not achieve the types of reinforcing support needed. The ongoing inability to align sectoral sustainability efforts related to legal and regulatory reforms, voluntary certification schemes, and individual company commitments is one example of a challenge. Another is the still-wide range of approaches to climate finance, even results-based climate finance (Lee, et al 2018).

Difficulty in sustaining progress

The above challenges together frame the need and challenge for building momentum and sustaining progress. It takes time to build shared understanding and trust among diverse, autonomous actors necessary for sustainable landscape management. Fundamental solutions take time to develop and many are needed. The broader socio-economic context, as well as ecological factors in landscapes, continue to change and can require adaptation and realignment of approaches.

It is difficult to maintain collaboration over time. Though they may be aligned at first, different programs may experience time delays that disrupt collaboration. Perspectives of different decision-makers can change over time, either as the context changes or as political or administrative changes lead to personnel shifts. Mechanisms to hold actors accountable for voluntary commitments are often not strong, and this can lead to failures of collaboration and outright conflict. Programs that depend on short-term donor funding face additional challenges of maintaining continuity of funding, often across multiple grant cycles.

Developing large-scale sustainability plans with multi-stakeholder buy-in is one strategy for sustaining progress, but the challenges are significant. Multi-stakeholder plans must be translated into operational policies and decisions by a range of different actors (Innes, 2018). An agreement to revise the siting of agricultural production, for example, may require adjustment of a dozen or more regulations, policies, budgeting mechanisms, and more—many under the authority of different actors—to become fully operational. The distributed authority characteristic of landscape governance means that holding actors accountable for following through on these agreed changes is an important capability for jurisdictional programs. This gap between a multi-stakeholder plan signaling change and the actual shift in a formal policy or agreement is analogous to the synapse between neurons in the human nervous system. These synapses can cause problems if delays are not anticipated and accountability maintained.

Table 1. Summary Of Challenges For Large-Scale Sustainability Transitions

Challenges in tropical forest landscapes	Common pitfalls for sustainability initiatives
Diverse and often competing goals	• Vagueness about goals or failure to recognize important goals of key actors • Quickly developing long-term goals and rigidly maintaining them • Not aligning actions with long-term priorities but rather responding mainly to obvious and urgent problems
Complex landscape dynamics defy understanding, prediction, and control	• Low investment in developing a clear understanding of system dynamics, including over-reliance on extrapolation from past trends • Not developing testable hypotheses to enable adaptive management • Narrow, short-term monitoring of system change misses unexpected but important changes, particularly side effects
The need for multiple solutions led by different actors	• Strong actors trying to drive change unilaterally or with close allies • Not coordinating among actors and resulting "collision" of different approaches • Focusing narrowly on the "main" problem resulting in failure to see the need for complementary approaches for long-term success • Actors call for change from others and do not change their own ways of working
Lack of clarity and agreement on fundamental solutions	• Underinvesting/ economizing on analysis and planning and jumping to conclusions about solutions, often based on best practices from elsewhere • A tendency to develop "quick fixes" that allow actors to avoid collaboration but do not lead to lasting results • Not monitoring whether solutions are working and instead pursuing strategies "ballistically" and not adapting regardless of results; • Low attention to side effects and short-term focus
Difficulty in sustaining progress	• Inability to adaptively manage because understanding of the system dynamics does not improve over time. • A desire to protect feelings of competence by avoiding contradictory or negative information • "Thematic vagabonding," or jumping too quickly between approaches, when progress is slower than expected

2.2   Implications For Jurisdictional Programs

The challenges of large-scale sustainability transitions described above provide a strong rationale for jurisdictional programs. The base case in most jurisdictions is that leaders of sustainability initiatives work alone or with close allies and stakeholders struggle to really understand complex landscape dynamics and the inter-related nature of different issues. They look at challenges in different ways given their unique perspectives and goals and the challenges described prevent most sustainability initiatives from achieving desired results at scale. At a basic level, helping individual sustainability initiatives to avoid the common pitfalls of working in complex systems is an important opportunity for jurisdictional programs.

These challenges also provide an indication of the likely obstacles of jurisdictional programs themselves. In order to accelerate sustainability transitions, jurisdictional programs must mobilize a wide variety of leaders to work within their own authority to develop compatible solutions. They must not only help actors be more effective in achieving their own sustainability goals, but work to achieve shared and compatible sustainability goals. How can they do this?

The initial concept of how jurisdictional programs operate has not been effective in our experience. Like many others, we originally began by supporting jurisdictional programs for Reducing Emissions from Deforestation and Degradation (REDD+). We envisioned jurisdictional programs as large-scale meta-programs that drove forward a range of policies and programs using integrated strategies, comprehensive and agreed spatial plans, and centralized multi-stakeholder governance. We tried to create a coherent, predictable, controlled pathway for the sustainability transition that achieved emission reductions in line with emerging climate policy.

The challenges of large-scale sustainability transitions provide a strong rationale for jurisdictional programs. An important opportunity for jurisdictional programs is to help individual sustainability initiatives to avoid the common pitfalls of working in complex systems.

The reality of institutional complexity in most jurisdictions creates barriers to integrated planning and program management, however. Jurisdictional goals require many to act, but jurisdictional programs have little formal authority to compel them to do so. We did not see major governance overhauls to streamline decision-making and management in any of the programs we worked with or hear about them in other programs, which likely reflects the fact that broad reforms of this type are not realistic or desirable (Ostrom, 2009). Many initially assumed that results-based climate finance would enable jurisdictional programs to have a high degree of influence over different landscape actors, but this has not happened as a result of the slow evolution and reduced scale of climate finance mechanisms as well as more fundamental challenges of distributed power.

Moreover, this process of aligning diverse initiatives with an overarching jurisdictional design is an ongoing need. Strategies and programs evolve separately to some degree and as the broader context evolves, interdependent programs and policies must be adjusted over time. There are time delays associated with translating high-level plans into operational plans, building capacity, and other factors that make alignment difficult. This requires active dialogue, but stakeholders are not willing to tolerate these high transaction costs indefinitely. Focusing too much on aligning with the global agenda and global incentive mechanisms proved a major challenge as well because it is impossible to anticipate the scale and timing of finance and other incentives.

Over time, our approach to jurisdictional programs has evolved as the context for jurisdictional programs changed and we learned more about the opportunities and constraints of large-scale landscape initiatives. We believe that experiences to date point to a model of jurisdictional programs that is different from what is currently practiced in most cases and in line with the approaches others have developed in other sectors to make progress against complex challenges. The following section outlines this approach.

3 Jurisdictional Programs as Catalysts for Collective Systems Leadership of Sustainability Transitions

The challenges for large-scale sustainability transitions are daunting. When sustainability initiatives operate independently, with no coordination, results are consistently disappointing. And at the other extreme, top-down planning approaches often prove to be of little help and can, in fact, backfire by delaying action. What is the alternative? In this section, we make the case that actors can recognize their inter-dependence but also autonomy and collectively lead sustainability transitions in complex landscapes. We outline core roles for jurisdictional programs that are complementary to other landscape approaches and can help to catalyze more collective approaches without naively expecting to predict and control the sustainability transition. The final sub-section describes how this type of jurisdictional program can strengthen other landscape approaches.

3.1 Jurisdictional Programs as Catalysts for Collective Systems Leadership

A broad range of actors now provides de facto leadership of sustainability transitions through their authority over the types of initiatives necessary, but they are largely autonomous and cannot drive change alone or with close allies. Large-scale sustainability transitions can happen more quickly if influential and representative leaders recognize their interdependence and are able to work together to address key systemic challenges and co-create landscapes they value. We call this collective systems leadership. In this section, we outline what that way of working looks like and in the following section describe an approach that jurisdictional programs can use to catalyze and sustain this way of working.

By working collectively, leaders can develop shared understanding of what is happening in the landscape. They can clarify their own goals and interests and learn about those of others. They work together to develop a multi-level perspective on the potential for a sustainability transition as well as a systemic understanding of how different factors interact and evolve in the jurisdictional landscapes over time. The direct results of this process are to build deeper individual and shared understanding of landscape dynamics, strengthen trust and relationships with other key leaders in the landscape, and develop greater clarity on high-leverage interventions, including the necessary sequencing for these interventions. Leaders are then better able to develop landscape solutions that both meet their institutional interests and are compatible with other efforts in landscapes.

> *Large-scale sustainability transitions can happen more quickly if influential and representative leaders recognize their interdependence, work together to address key systemic challenges, and co-create landscapes they value.*

How can jurisdictional programs catalyze the type of flexible, collective leadership described above so that they add value and strengthen the other initiatives and accelerate a broad sustainability transition? While the jurisdictional programs we have supported varied substantially in terms of governance context and strategies employed, there was a high degree of consistency in the core roles of jurisdictional programs. We use the term "core roles" to describe roles that jurisdictional programs are uniquely positioned to play, and which can have a significant positive impact on sustainability efforts in landscapes. We consider these core roles to be a) strengthening the network of actors in landscapes, b) helping actors to manage complexity and collaborate on various large-scale initiatives, and c) increasing accountability among actors. We make the case that there are benefits for jurisdictional programs to increase focus on these core roles and that they can enable more efficient collaboration, more effective action, and accelerate results on the ground.

3.1.1   Strengthening the Network of Actors Working Toward Jurisdictional Sustainability

To be effective, it is necessary for a critical mass of influential and representative leaders with *capacity and willingness* to act to shift landscape dynamics toward sustainability agree to engage with the jurisdictional program. These are people from the government, the private sector, local communities, and civil society. They are people who have a long-term stake in the jurisdiction, a mix of formal and informal power, and the ability to engage effectively across differences. It requires direct actors in landscape management, innovators working to develop new, more sustainable approaches, and actors outside the landscape who have an interest in accelerating the transition. It requires bringing together actors working on a range of different landscape approaches, including improving production practices, empowering indigenous and local community rural development, and strengthening management of priority ecosystems.

Jurisdictional programs can increase transparency of efforts at sustainability and improve the quality of interaction and dialogue among diverse actors in the jurisdiction. This can have the effect of broadening and enriching the mutual understanding, relationships, and trust that are the foundations for cooperation. A key feature of a networked approach is that it can be adapted as the situation and needs change or as new actors choose to engage.

Four key approaches for strengthening the leadership network are:

- **Leadership Group:** While the overall network will comprise potentially hundreds of actors, it is important to have a smaller group made up of a cross-section of sustainability leaders and stakeholders highly affected by landscape dynamics who are able to work together over a sustained period of time to lead the jurisdictional program, primarily through changing their own approaches in landscapes and inspiring others (see Appendix A.2. Leadership Group for additional information).

- **Backbone organization:** An organization or team of people managed to support the network of actors working toward jurisdictional sustainability, serving as an honest broker, facilitator, and catalyst depending on the needs and context (see Appendix A.3. Backbone Organization for additional information).

- **Systemic understanding:** Actors work together to achieve a more systemic understanding of overall landscape dynamics, which helps them to understand the current situation, a realistic case for change, and high-leverage opportunities to shift dynamics (see Appendices A.4. Systems Thinking and A.5. Multi-Level Perspective On Sectoral Sustainability Transitions for additional information).

- **Cultivate a shared vision and goals for jurisdictional sustainability** and identify high-leverage opportunities of mutual interest (see Appendix A.6. Cultivating Shared Vision And Goals for additional information).

One of the fundamental issues for jurisdictional programs is clarifying the role of jurisdictional government. Jurisdictional governments are indispensable to jurisdictional programs and without strong government support, jurisdictional programs will fail. The benefit of aligning with jurisdictional government policies and programs—land use planning, fiscal policies, licensing, etc.—provides the main rationale for jurisdictional programs. The fact that jurisdictional carbon finance agreements require jurisdictional government counterparts has necessitated a clear government leadership role in programs primarily focused on these agreements.

At the same time, multi-stakeholder leadership has great potential in jurisdictional programs, and this is inhibited if the private sector, local communities, and civil society actors are positioned as stakeholders to be consulted rather than principal actors. Governments can also be slow overall, overly focused on regulatory solutions at the expense of voluntary options, and prone to bureaucratic competition. The approach outlined in this paper downplays the need, and in fact the potential, for strong formal authority vested in jurisdictional programs, and therefore is very open to a wider range of multi-stakeholder leadership approaches. Jurisdictional government programs and efforts to strengthen horizontal and vertical alignment of government programs are major opportunities that can progress in parallel with the sort of multi-stakeholder leadership of jurisdictional sustainability envisioned in this paper.

3.1.2   Empowering Systemic Change Initiatives to Tackle Complex Challenges

A broad understanding of landscape dynamics allows actors to take focused, effective action within their authority. Sustainability transitions are far too complex to plan out through grand design, but it is possible to develop insights into the types of focused actions needed to start and how to navigate and adapt over time toward long-term goals.

Actors will identify shared interest in collaborating on a range of initiatives to tackle key challenges. These may either build on existing initiatives, in the case that leaders want to link with others to expand the range of actors involved, mobilize additional resources, or get better access to decision-makers. Or initiatives may arise from new opportunities identified through cross-sector dialogue. These initiatives will likely tend to orient around important systemic challenges that require significant collaboration to be effective, for example: development of cross-cutting technical systems (e.g. development of a land registry), catalyzing sector sustainability transitions, managing integrated landscape initiatives, or tackling systemic issues related to well-being of indigenous and local communities.

These systemic change initiatives involve bringing together principal actors to frame the problem, develop potential plans, policies, and proposals, and test them using rapid innovation approaches. As viable concepts are developed, actors can choose to implement prototypes, pilots, and demonstration programs on their own or in partnerships, as appropriate. They work transparently, share results with other relevant actors, and participate in monitoring and evaluation, using results from early implementation to inform broader understanding of opportunities, policy dialogues, and promote uptake of effective strategies.

There are various ways that jurisdictional programs can provide support for the challenge of individual initiatives without creating an overly centralized management system. They can:

- **Invest in integrated spatial databases and landscape analytics:** understanding spatial configurations and prioritization are fundamental to jurisdictional sustainability, but different values, analytical approaches, and management systems confound harmonization. Jurisdictional programs can invest in spatial data infrastructure, mapping of landscape assets, threats, and other features, and spatial action mapping (Venter, 2013) to empower individual initiatives to work more effectively with a broader perspective.

- **Develop approaches and norms for collaboration on systemic change initiatives** that are locally appropriate, and which make it easier for actors to choose to work together and work efficiently on an evolving portfolio of systemic change initiatives.

- **Mobilize finance** to support initiatives as they evolve over time from exploration of ideas, early stage research and development, to scaling up of effective approaches.

- **Support monitoring and evaluation and action learning** to continually improve different initiatives and increase confidence in decisions about which approaches should be scaled up and which ones refined or abandoned (Buck, 2014; Bixler, 2016; Burns, 2006)

These initiatives are more likely to succeed because they are built on a foundation of shared understanding of the broader context. This increases the probability that individual initiatives can work effectively in the complex adaptive systems they are trying to change.

3.1.3   Improving Accountability Among Stakeholders

Progress toward jurisdictional sustainability matters to many people and many of the key initiatives in jurisdictions rely on voluntary collaboration. This means that accountability is important, yet difficult to achieve. Jurisdictional programs can and should focus on enhancing accountability within realistic constraints.

- *Jurisdictional agreements* have been one important way of working on this and if done well. Initial agreements outlining intentions to collaborate at jurisdictional scale, agreements on how to align existing programs, statements of shared vision for sustainability, as well as jurisdictional compacts that blend these types of agreements can all be important (see Appendix A.8. Jurisdictional Compacts for additional information).

- Jurisdictional programs increase accountability by developing robust *consultation and feedback* mechanisms and these should continue to be broadened and improved.

- Jurisdictional programs should also expand focus on *transparency and reporting on progress* toward jurisdictional sustainability to inform local stakeholders on progress and build the case for change, inform adaptive management, and maintain support of key external actors.

Summary

The following is a summary of the core roles and approaches described in this paper. Some are described further in the annex.

Table 2. Key Approaches and Additional Information Related to Jurisdictional Program Roles

Role of jurisdictional program	Key components	Key approaches and additional information
Strengthening the leadership network	Leadership group	• See section Appendix A.1. Strengthening The Collaborative Network At Jurisdictional Level • See section Appendix A.2. Leadership Group
	Backbone organization	• See section Appendix A.3. Backbone Organization • Case 3: Indonesia – NGO Support For Backbone Organizations • Case 4: Mexico – Backbone Organizations • Paper: Cross-Sector Collaboration to Tackle Tropical Deforestation (Neeff, Von Leupke, Hovani)
	Systemic understanding	• Appendix A.4. Systems Thinking • Appendix A.5. Multi-Level Perspective On Sectoral Sustainability Transitions • Case 6: Importance Of External Shocks On Jurisdictional Programs • Paper: Systems Thinking for Jurisdictional Sustainability (Stroh)
	Cultivating shared vision	• Appendix A.6. Cultivating Shared Vision And Goals
Empowering systemic change initiatives	Integrated spatial databases and analytics	• Spatial data infrastructure and data harmonization • Mapping of landscape assets, threats, and other features • Spatial action mapping to understand opportunities
	Structures for collaboration	• See Appendix A.7. Developing Structures For Effective Collaboration For System Change • Case 7: Indonesia – Working Groups As Part Of Provincial Compact • Case 8: Mexico – Networks For Territorial Innovation
	Mobilizing resources	• Case 2: Spatial Harmonization And Blended Financial Packages To Expand Financing For Landscapes
	Learning	• Action learning • Knowledge management
Improving accountability	Jurisdictional agreements	• See Appendix A.8. Jurisdictional Compacts • Case 9: Brazil – Municipal Pacts for Zero Deforestation
	Consultation and feedback mechanisms	• Mechanisms related to management of Leadership Group • Mechanisms to inform landscape initiatives more broadly
	Transparency and reporting	• Jurisdictional sustainability dashboards • Annual or more frequent sustainability reports

3.2   Benefits of this Model for Jurisdictional Programs

Jurisdictional programs are the opposite of silver bullets. They are only impactful if they can influence actors with formal power and resources to work differently. We believe that this type of approach to jurisdictional programs can unlock the potential of many different approaches—including climate finance, sustainable commodities, work with indigenous peoples and local communities, integrated landscape initiatives, landscape-scale planning, and protected area management—that can make important but partial contributions to jurisdictional sustainability.

Jurisdictional programs are not stand-alone strategies, but they are uniquely situated in the context of other strategies. From our experience and based on research on large-scale change in other sectors, the core roles outlined in this model of jurisdictional programs are powerful in catalyzing change. By strengthening the network of actors in the jurisdiction, it is possible for actors to work together to build a stronger understanding of the current situation, cultivate a shared vision for sustainable landscapes, and identify promising opportunities for change. They can work together in more targeted groups on systemic change initiatives work towards developing mutually beneficial options, doing so with more insight and wisdom, and thus a greater chance of developing effective and compatible systemic solutions. Over time, this can lead to lasting results at scale and new "regimes of mutual gain" (Crosby, 2005). In this way, jurisdictional programs can catalyze collective systems leadership to enable actors to co-create landscapes they value.

Lessons from the Paris Agreement for Alignment of Approaches Within Jurisdictions

The model for jurisdictional programs presented here is built on the idea that jurisdictional programs can be effective by catalyzing and enabling a range of initiatives rather than trying to force or control change through top-down planning or centralized authority. This is a departure from the early mental model of jurisdictional programs. This shift in approach is in some ways analogous to the shift in approach from how the Copenhagen and Paris climate agreements were developed

Leading up to Copenhagen, the mental model was an international agreement that would first be ratified by many countries and then each country would find a way to comply with these international commitments by developing domestic policies and programs. This was a major failure. And it is quite similar to the disappointing results achieved when jurisdictional programs have expected high-level goals and plans to drive development of a vast range of underlying programs needed to implement them.

In the buildup to the Paris Agreement, by contrast, countries first developed their own domestic agreements based on political realities, technical options, etc. and then the global agreement was built to document and increase transparency of domestic agreements to help hold countries accountable. This is more like the model proposed in this paper—motivating actors to work within their existing authorities to develop solutions, helping them to steer clear of the pitfalls of complexity while doing it, and using jurisdictional plans and goals for reporting and to improve accountability.

While the Paris Agreement and this jurisdictional approach face similar challenges of not having a definitive long-term plan for achieving the overall goal or being able to force compliance, the advantage is it creates a framework for action and is compatible with the realities of distributed power.

Table 2. How this type of jurisdictional program addresses challenges of sustainability transitions

Challenge	How jurisdictional programs can help
Diverse and often competing goals	• Use sustainable development orientation as "higher level" goals that all actors can align towards and which inform detailed goals of individual initiatives • Recognize that there are trade-offs and enable ongoing negotiation and refinement of goals as understanding and needs change • Develop shared understanding of high leverage interventions and prioritization of most important challenges
Complex landscape dynamics defy prediction and control	• Invest in understanding dynamic, social, and emergent complexity • Work to establish habits of experimentation and rapid evaluation to accelerate learning and monitor to observe both expected and unexpected landscape changes • Develop jurisdictional agreements to reflect reality and improve accountability rather than try to control diverse autonomous actors • Develop and update knowledge database and understanding of system dynamics, and proactively share with initiatives, and refine and expand over time
The need for multiple solutions led by different actors	• Mobilize diverse leaders • Improve understanding of what others value and think and how they will react to changes in landscape management to improve design of policies and programs • Improve understanding of inter-relationships among approaches and arrange necessary complements • Broad monitoring of sustainable development goals to understand side effects and unintended consequences
Lack of clarity and agreement on fundamental solutions	• Help stakeholders to recognize and address disagreements about approaches where collaboration or alignment are needed • Reduce barriers to collaboration, especially for tackling binding constraints that affect many • Support for experimentation, structured innovation and transparency • Provide objective information about what is working and what is not, including ways that short-term solutions can undermine long-term solutions • Backbone as an honest broker to help resolve conflicts • Help to mobilize resources to maintain continuity in innovation processes and scaling
Difficulty in sustaining progress	• Backbone organization acts as "honest broker" to help identify needs for mutual adjustment • Dialogue within Leadership Group supports development of shared vision, including individual commitments to change • Systems thinking focuses on describing system behavior, not on blaming people; promote culture tolerant of edifying failure • Encouragement for long-term commitment • Make jurisdictional scale plans as clear as possible; ensure that level of detail and time horizon are appropriate to context and readiness; treat as living documents; adjust regularly as needed • Invest in accountability mechanisms to improve translation to operational decisions

Improving organizational performance

Individual organizations can continue to deliver on their own agendas in parallel to these collaborative efforts. This type of cross-sector collaboration operates alongside existing governance arrangements and does not attempt to replace or substantially revise the existing governance authorities that exist (Innes 2010). The approach we recommend does not require a substantial overhaul of governance arrangements to enable jurisdictional programs to have formal authority over a wider range of issues. Leaders will integrate insights gained through collaboration into their own organizational work as appropriate.

As organizations realize that they are better able to achieve their own objectives as a result of working with the jurisdictional program, their commitment of time and resources to the collective effort will tend to increase. As early initiatives show promise and the understanding of both jurisdictional goals and strategies improves, a jurisdictional compact can further reinforce the collective efforts. The agreement and associated management system will tend to grow stronger and more effective over time as strategies and implementation partnerships progress. Finally, actors that benefit from the overall jurisdictional program will choose to reinvest some of the "dividends" of their improved results to fund the core costs associated with managing the Leadership Group and Backbone Organization as well as some costs of the working groups.

Lessons from Brazil on the Long-Term Nature of Sustainability Transitions

Brazil's innovations and successes in sustainable natural resource management have inspired leaders around the world. The country has developed protected areas, indigenous reserves, forest monitoring, and integrated jurisdictional programs on a scale and with effectiveness rarely if ever seen in the tropics. From 2006 to 2010 the deforestation rate in the Brazilian Amazon dropped by a stunning 80% and this is sometimes cited as an example of the possibility of dramatic, rapid transformation. But Brazil's seemingly sudden transformation in landscape management was in fact built on decades of work developing effective indigenous reserves and protected area systems that narrowed the main challenge for reducing deforestation to tackling frontier areas and private lands. It built on 10+ years of development of a scalable rural registry system which was a crucial innovation that enabled enforcement to be scaled up quickly. It also built on decades of effort to create the political constituency for change.

One overarching lesson of the reduction in deforestation in Brazil is that underlying innovation processes sustained over time and aggregated together can shift large-scale systems. But another lesson is that large-scale systemic change is also reversible. The dramatic political shifts that have taken place throughout the country in recent years, coupled with the slow-moving processes of infrastructure development, have resulted in some surprising setbacks to the sustainability agenda in the Amazon. The experience in Brazil over the past several years is a reminder that dramatically reducing deforestation, or even eliminating it, is an important interim result, but not a stopping point. A society's effort at balancing economic, social, and environmental objectives in landscapes is an ongoing process that requires sustained focus.

Improving landscape performance

Widespread, effective action can translate into progress toward jurisdictional sustainability goals. Large-scale sustainability transitions will likely require systemic change initiatives related to strengthening governance, improving well-being of local and indigenous people, mobilizing climate finance, eliminating deforestation from commodity supply chains, and other topics. These are driven forward by the principal actors, and therefore are likely to have sustained commitment, understand the links among these initiatives, and are able to work together toward overall goals for sustainable development. (see Systemic Theory Of Change for additional information on how this approach can translate into improved jurisdictional sustainability).

This approach to jurisdictional programs and jurisdictional sustainability should be seen as an emergent, evolving, long-term approach. This does not mean that it needs to be slow. Collaboration can move as quickly as the key actors are ready to move. But in general, jurisdictional programs will take some time to build momentum as actors develop shared understanding of landscape dynamics, adopt more and more congruent goals and visions, and build solutions that are well-understood and meet the needs of diverse actors. This requires a long-term perspective and realistic expectations that allow actors to pursue fundamental solutions rather than quick fixes.

Benefits of clarifying core roles of jurisdictional programs

Jurisdictional programs are often hard to define because there are many initiatives that contribute to jurisdictional programs goals. The model we present in this paper creates a clear distinction between the core work of the jurisdictional program and the many associated but independent initiatives working toward jurisdictional sustainability, but which are not under formal control of the jurisdictional program. Distinguishing the core roles of jurisdictional programs has the following benefits:

- **Encourage and promote creativity and leadership of diverse actors:** This framing of jurisdictional programs reduces ambiguity and perception of overlap with existing authorities and makes it clear that actors can retain autonomy to ensure that they can achieve their own objectives while contributing to broader systemic improvements from which they also benefit. It reduces the type of competition for credit that can undermine cooperation and reduce overall progress (Fishbein and Lee, 2015).

- **Clarify that jurisdictional programs are influential mainly to the extent they can catalyze real commitment and action of diverse leaders with authority and resources:** Jurisdictional-scale goals and plans have been central to jurisdictional approaches from the beginning and emphasis on them can create the impression that they have significant formal power to drive progress. Yet in our experience, jurisdictional goals and plans are meaningful and effective to the extent that they reflect existing agreements and solutions developed through robust processes.

- **Make it easier for jurisdictional programs to expand or reduce scope as interests and needs change:** Needs and interests in landscape management evolve over time. If jurisdictional programs are organized as platforms for collaboration on sustainable landscapes, they can expand to tackle new priorities or stop working on low priority issues without major restructuring or loss of momentum.

- **Enable jurisdictional programs to be "honest brokers:"** By creating some independence from the various landscape actors and initiatives—including jurisdictional government policies and programs—multi-stakeholder jurisdictional programs can play a crucial role of mediating, facilitating negotiation, and moving away from advocacy and competition among approaches and initiatives and toward co-creation of new opportunities.

- **Enable ongoing improvement of jurisdictional programs:** When jurisdictional programs are characterized too broadly, it is hard to find the similarities between programs and understand what is working and why. We have found that these core roles are relatively consistent across diverse jurisdictions, in contrast to the landscape initiatives themselves. By clarifying and focusing on these core roles of jurisdictional programs it may be possible to create better communities of practice and improve practices over time. It can also help to understand the resource allocation to these core functions to ensure appropriate scale of investment relative to other landscape programs.

- **Provide a light model that can be started more cheaply in more places and grown over time:** When jurisdictional programs are characterized as an integrated mega-program including both the core roles we have outlined as well as the various initiatives needed to directly change landscape outcomes, it a) dramatically raises the estimate of funding required, b) increases the uncertainty regarding scale and timeline for funding needs, and c) increases the governance and management difficulty exponentially. This lighter model of jurisdictional program could be relatively low-cost with other funds mobilized as needed over time and managed in a decentralized way.

3.3   Strengthening Other Landscape Approaches

Jurisdictional programs can only be successful if they motivate leaders of diverse initiatives to engage with the jurisdictional program and provide collective leadership of the overall sustainability transition. Jurisdictional programs are most likely to attract participation if they can demonstrate that leaders can accelerate and grow the success of their core efforts through broader collaboration and engagement. Jurisdictional programs can create a "connective tissue" between different initiatives that improves cross-sector collaboration, increase the understanding of the whole system, identify ways to bundle and target resources, and increase visibility. Additionally, and arguably more importantly, jurisdictional programs can help to create a different mindset, in which everyone recognizes that they cannot obtain an optimal solution for themselves by themselves, and that they must work together, comprehensively, to achieve their goals.

Jurisdictional programs can create a "connective tissue" between different initiatives that improves cross-sector collaboration. They can help to create a different mindset, in which actors recognize that they cannot obtain an optimal solution for themselves by themselves, and that they must work together to achieve their goals.

Jurisdictional programs can provide platforms to help drive performance improvements in other landscape initiatives. They can increase the profile of initiatives in ways that enable them to find partners and complementary investments, engage government and corporate decision-makers more easily, and potentially mobilize resources.

Leaders and participants in these different initiatives have crucial roles to play in jurisdictional programs, some of which are identified here:

1. **Participate in cross-sector dialogues:** First and foremost, they need to show up and participate in appropriate cross-sector dialogues including the Leadership Group, if appropriate, and working groups. Jurisdictional programs need to stay mindful of requests for time but allocating staff time for face to face interactions is fundamental to cross-sector collaboration.

2. **Engage or lead systemic change initiatives:** They also need to be willing to lead or take part in focused collaborations, what we refer to in this paper as systemic change initiatives. These may be built around existing initiatives or new ones. These are where focused solutions can come together that have real value for relevant leaders if they help to shape them.

3. **Make the case for the sustainability transition:** Sustainability leaders have good reasons for trying to shift landscape management, but other actors may not understand them. Company commitments to "no deforestation" commodity production, for example, is partly motivated by predictions about future trends that local governments may not understand. By participating and making the case for sustainability from their own perspective, leaders help to shape each other's thinking and produce more durable concepts.

4. **Mobilize financing for cross-sector collaboration:** Because it is nobody's core responsibility, raising money for cross-sector collaboration is almost always challenging. International donors have been providing some financing, and may continue, but jurisdictional programs will be more effective if a meaningful share of the funding comes from direct participants in landscape management.

This section explores how jurisdictional programs focused on catalyzing collective systems leadership can be used to catalyze breakthroughs in each initiative, help to overcome key challenges, and enable sustainability initiatives to both achieve their core goals more consistently and contribute more to broader objectives.

3.3.1   Climate Mitigation and Adaptation

Reducing Emissions from Deforestation and Forest Degradation (REDD+) charged onto the conservation scene in 2005 when the concept was first introduced in the UN Climate Change negotiations. Most jurisdictional programs were started as REDD+ programs or with climate mitigation as a major objective and continue to have linkages to climate finance mechanisms, though the path forward is still uncertain. Expectations for REDD+ quickly escalated, with promises of a large-scale carbon market quickly producing never-before-seen amounts of money for tropical forest protection. REDD+ has since become somewhat of a disappointment, as negotiations on the rules became more and more complicated and the carbon market failed to materialize as quickly as people hoped.

The climate policy landscape continues to become more complicated but remains important. As the Paris Agreement nears implementation in 2020 countries continue building policies and programs to deliver on their Nationally Determined Contributions, but the alignment with REDD+ is not clear (Lee, 2018). Sectoral commitments such as that made by the International Civil Aviation Organization (ICAO) are starting to crystallize and can provide significant resources, but work remains to align of policy frameworks with the United Nations Framework Convention on Climate Change (UNFCCC). There is now broad recognition that climate mitigation and adaptation approaches are both highly compatible and perhaps necessary complements, but few examples where they are being applied effectively at scale to achieve necessary synergies (Rizvi, 2015).

Climate policy and finance can and should still play an important role in catalyzing sustainability transitions in key tropical forest countries and jurisdictional programs. Jurisdictional programs can help better target and time climate-related policies and investments with other landscape objectives to catalyze larger-scale investments by domestic governments and private sector actors.

Constraint/Challenge	Potential Breakthrough
Timing, scale, and duration of climate finance and policy are not predictable	**Jurisdictional programs focus first on locally driven sustainability initiatives allowing climate finance to reinforce existing goals with climate benefits:** Jurisdictional REDD+ programs have often attempted to lead large-scale cross-sectoral planning of sustainability transitions involving many actors based mainly on climate finance mechanisms not yet in existence. This has not worked well. If jurisdictional programs can work with actors to motivate change primarily based on existing authorities and resources, they will be more likely to identify genuine priorities actors are investing in themselves and which climate finance mechanisms can later support with additional resources.
Climate mitigation requires widespread changes but is a secondary objective in landscape management decisions in most places	**REDD+ financing is used as a catalyst for greater domestic and private investment:** Financial incentives linked to climate mitigation may expand but will likely continue to be small in comparison to other financial flows. The impacts of climate change, while noticeable, have not yet risen to top priority. To increase influence of climate finance, jurisdictional programs can identify ways to target REDD+ finance toward rapid prototyping, capacity building, measurement and monitoring, and other efforts that drive innovation. This means that REDD+ finance can act as a catalyst for developing interventions that can be scaled through public policy or private investment once proven.
REDD+ RBF is ex-post, leaving a finance gap to get started	**Innovative sources of finance are catalyzed through increased confidence in the whole portfolio:** Jurisdictional programs can use integrated cost modeling to identify the full suite of costs, the existing sources of finance to cover costs, and the remaining gaps. This holistic understanding of actions and needs will increase the jurisdictional program's ability to attract or mobilize up-front finance, including potentially through loans or bonds, since funds and future resource flows have been adequately mapped.

3.3.2 Sectoral Sustainability Transitions

A wide range of strategies has been developed to accelerate sustainability transitions in key economic sectors, including agriculture, forestry, and mining. These include strengthening regulatory frameworks, developing legality certification systems, voluntary sustainability certification systems, and most recently zero deforestation supply chain commitments. These strategies are largely compatible and can reinforce each other and all are likely to be required to produce lasting sectoral transitions (though there is also an amount of competition and even conflict among advocates of different approaches).

Zero deforestation commodity supply chain initiatives have captured the imaginations of many as a key lever for stopping tropical deforestation. These initiatives recognize that commodity agriculture is the primary driver of deforestation in the tropics and therefore hypothesize that removing deforestation from commodity supply chains will effectively stop most tropical forest conversion. The New York Declaration on Forests (NYDF) is one of the most prominent examples of corporate commitments to remove deforestation from their supply chains. Signed by more than 50 companies in 2014, the NYDF aims to cut global deforestation in half by 2020 and end natural forest loss by 2030, as well as eliminate deforestation from agricultural commodities by 2020.

Sectoral sustainability transitions are challenging because existing sectoral systems, or regimes, tend to be hard to shift as they include policy-makers, upstream and downstream companies, buyers, banks and others who are locked-in to existing dynamics by a variety of highly institutionalized forces. These can include the knowledge and capabilities of existing actors, technical infrastructure, economies of scale and markets of existing industry leaders, links to political power, and technology (Geels, 2011) (see Appendix A.5. Multi-level perspective on sectoral sustainability transitions for more).

While important progress has been made by some companies to advance on their NYDF commitment, there is a growing recognition that corporate commitments on their own are not sufficient to halt forest loss (Taylor, 2018). There is also more awareness that supply chain initiatives play out very differently in different contexts and the benefits for conservation and communities vary dramatically depending on factors such as land tenure, industry concentration, availability of domestic markets, and environmental governance (Lambin, 2018; Taylor 2018; Conservation International, 2018).

Participants in these initiatives are looking for better integration with other strategies and for increased partnerships with additional stakeholders to achieve their goals (Conservation International, 2018). The interest in jurisdictional programs as a means to help companies meet their commitments has led to a resurgence of interest in jurisdictional programs (WWF, 2016; EDF, 2016; CI, 2018). Jurisdictional programs that catalyze collective systems leadership can help to address some of the main constraints inherent in supply chain initiatives and lead to important breakthroughs that both help companies meet their commitments and deliver on the public benefit goals underlying the commitments. The table below summarizes some of these applications, though many other elements can also be brought to bear.

Photo credit: Kevin Arnold, 2015

Constraint/Challenge	Potential Breakthrough
Agricultural intensification is necessary to compensate for reduced access to land resulting from "no deforestation" commitments, but without enforced land use plans and active conservation management intensification generally increases rather than decreases deforestation	**Multi-party agreement on management rights, financing, and enforcement of conservation areas in and near production landscapes enable sustainable intensification:** Jurisdictional programs cannot guarantee that natural ecosystems are effectively managed, but they can help to identify the dynamics that continue to put these landscapes at risk and try to mobilize approaches and resources to complement corporate commitments. If this happens, sustainable intensification can take place in identified areas with confidence that the "spared" lands will be effectively protected and/or restored.
There is low transparency about on the ground practices and in some cases corporate ownership structures and this reduces accountability for voluntary commitments	**Collaboration allows for pooling of resources for monitoring and accountability systems:** Collaboration with a jurisdictional program will allow companies to tap into jurisdictional monitoring systems and provide feedback for adapting elements of those systems to fit their needs, rather than having to create their own systems from scratch.
Supply chain initiatives need to translate into sector-wide transformation to have meaningful impact, but many companies have not made commitments, leading to a two-tiered production system	**Partnership agreements clarify roles of government, commodity companies, and others in a shared roadmap for sector transformation:** Mapping a multi-level perspective as described in section A.5. can identify key shifts needed in the policy landscape to support the transition of the sector. Jurisdictional agreements that include both the companies and governments can create supportive feedback loops. A positive feedback loop is created in which government policies and programs support increased adoption and implementation of sustainable practices by more and more private actors. These agreements can both help to level the playing field so that company commitments do not put them at a competitive disadvantage and help to mobilize necessary complements that improve the prospects for broader landscape sustainability.

3.3.3 Integrated Landscape Management

Integrated landscape initiatives have spread widely over the past 20 years and now number in the hundreds globally. These are crucial approaches for aligning stakeholder efforts at local level, where direct relationships and direct impacts make multi-functional landscape challenges acute. These initiatives often develop specific governance and management approaches to address the emergent challenges. In a sense, these are the front lines of cross-sector collaboration. The multi-stakeholder plans and policy recommendations they develop can provide crucial inputs to government and corporate leaders. Integrated landscape initiatives often involve stakeholders with specific direct interactions with each other and can therefore tackle inter-dependencies in landscape management in more detail than is possible at jurisdictional scale.

But these initiatives often struggle to link to government and corporate decision-making processes (Shames, 2017). Local agreements are often not integrated into broader government planning processes. Despite long experience, evidence of impact on landscape management is mostly anecdotal (Reed, 2016).

Jurisdictional programs can help to build informal and formal links to jurisdictional government policy-makers and help develop mechanisms to ensure that landscape visions and strategies are reflected in government policies and programs. They can improve linkages with corporate leaders to increase the chance that approaches worked out among direct participants in landscape management can be better reflected in higher-level decisions on policy and practice. They can also provide additional visibility to help hold powerful actors accountable, mobilize resources, and provide access to potential partners. The table below summarizes some of these opportunities.

Constraint/Challenge	Potential Breakthrough
Integrated landscape initiatives struggle to shift government policies and programs or affect changes in corporate-wide practices	**Effective niche innovations in landscape initiatives are promoted to key policy makers to accelerate uptake and transformational change:** Integrated landscape initiatives play a key role in fostering innovations in landscape management that can then be taken up by relevant decision-makers at broader scale as the policy context creates opportunities for regime change (see A.5. Multi-level perspective on sectoral sustainability transitions for more on niche innovations). By creating the connective tissue between the work on the ground and the larger policy interventions and corporate commitments, jurisdictional programs can help mainstream the lessons learned through integrated landscape initiatives.
Integrated landscape initiatives have difficulty mobilizing resources for facilitation and landscape investments	**Jurisdictional programs help to match integrated landscape initiatives with potential funders and provide validation of program benefits:** Integrated landscape initiatives have unpredictable time-frames and deliver benefits indirectly, both of which are reasons they struggle to mobilize financing both for facilitation and for investment in landscape management. Jurisdictional programs can potentially serve as intermediaries that improve access to donors and investors.
Integrated landscape initiatives require significant capacity for collaboration at multiple levels	**Jurisdictional programs play complementary roles in supporting cross-sector collaboration:** Jurisdictional programs can reduce the challenge for integrated landscape initiatives by supporting cross-sector collaboration with jurisdictional and national leaders. They can also support learning networks and capacity building efforts that benefit multiple landscape initiatives.

3.3.4 Empowering Indigenous Peoples and Local Community-Based Conservation

Systemic thinking – seeing and managing the whole – is one of the main principles of many indigenous cosmologies. Their ways of understanding the interactions of the natural world have led them to be among the most effective stewards of the world's lands and waters. Increasing recognition of this fact, combined with emerging mapping efforts that show the vast extent of land owned or managed by indigenous peoples, has increased attention on empowering indigenous peoples and local communities as a key strategy for large-scale forest conservation. Studies have shown that community management of forests is one of the most effective strategies for reducing deforestation (Rights and Resources Initiatives, 2015; Stevens et al, 2014; White and Martin, 2002). However, like the other initiatives, community-based conservation efforts are often undertaken within a silo.

Indigenous peoples and local communities often face major power imbalances and lack capacity to influence decision-making processes, which hinder their ability carry out their visions. Addressing these constraints requires a comprehensive effort that involves policy shifts (e.g. land tenure reform), changes in corporate practices, development of sustainable finance support, on-the-ground capacity building efforts, among other interventions.

If jurisdictional programs recognize the need for fundamental solutions to rural development that suit the needs of indigenous peoples and local communities many opportunities are available. The table below summarizes some ways that jurisdictional programs can strengthen initiatives to empower indigenous and community-based conservation and in return get significant support for jurisdictional sustainability goals.

Constraint/Challenge	Potential Breakthrough
Exclusion from or under-representation in decision making processes	**Indigenous peoples and local communities are included as equal members in the Leadership Group and other cross-sector collaboration mechanisms:** In this paper we emphasize forming an effective Leadership Group that includes all the major players with "skin in the game." Indigenous peoples and local communities, as major rights holders and land managers and holders of critical knowledge would need to be included in that group. Because focus is on leadership rather than collective governance, leaders can participate with lower risk resulting from power imbalances, and thus be exposed to alternate perspectives and have opportunities to influence other leaders.
Lack of recognized and enforced rights over territory and resources	**Jurisdictional programs help to tackle fundamental land tenure issues:** Jurisdictional programs that engage diverse leaders are well placed to support progress on land tenure clarification. Many leaders recognize that tenure can be a binding constraint on sustainable development. Inclusion of indigenous peoples and local communities on the Leadership Group can help to ensure a responsible discussion on how to approach this difficult set of issues. The increased visibility of jurisdictional programs gives additional leverage to drive this process. A long-term perspective can make more aggressive action possible.
Insufficient capacity to engage in decision-making about managing natural resources	**Systematic community-focused development programs:** Strong leaders and capable institutions are needed for indigenous peoples and local communities to better exercise their rights to territory and resources, meaningfully engage in decision-making, and develop economically. Jurisdictional programs can seek to mobilize community-centered policies and programs with appropriate investment in capacity building to ensure that they are not only benefiting as contributors to industrial supply chains or climate mitigation efforts but able to develop their own holistic development pathway.
Most economic development models available undermine cultural and environmental priorities	**Indigenous peoples and local communities become champions for new sustainable development models:** Indigenous peoples and local communities often have a strong cultural connection to lands and waters and are therefore more likely to respond positively to models of sustainable resource use that are aligned with cultural values and traditional practices. They can become important spokespeople for forest-compatible development model and assert their interests in conservation while maintaining a stronger bargaining position.

Case 1: Indonesia – Village Green Development Planning

Unclear community land tenure and resulting land use conflicts are among the most persistent, significant obstacles to sustainable landscape management in Indonesia. Community ownership of forests is rarely acknowledged in Indonesia and use laws greatly privilege companies with forest, mining, or agriculture concessions over the villages that are commonly found within them. To understand the challenge, the Berau Forest Carbon Program (BFCP) undertook a scoping process of 20 villages in five zones in the District of Berau, East Kalimantan. The study found diverse contexts and many inter-related problems related to security over tenure, opportunities for economic development, and empowerment with respect to neighboring companies and government. This led to a decision to develop a comprehensive village planning framework to help villages articulate a clear vision for development to help empower them to influence and negotiate more positive outcomes under this uncertain tenure situation.

TNC led development of a community engagement model known as SIGAP (*Aksi Inspiratif Warga untuk Perubahan*, or Communities Inspiring Action for Change) from 2012 to 2014. It was designed carefully to fit into existing reality, where villages face insecure land tenure but also can significantly influence land use dynamics due to their long-standing presence. SIGAP was originally developed and tested in two communities in Berau. The model used a participatory "asset-based" community development approach, tested results-based incentives through agreements with villages to limit deforestation for shifting cultivation to receive a conservation "bonus," and helped villages develop five-year development plans and funding proposals to submit to the district government.

Several different approaches to scaling up application of SIGAP have been developed. The first phase was to train local NGOs and provide donor funding to support expansion to 24 additional villages. An Android application and WebGIS platform were developed. 1000 smartphones were distributed in over 150 villages and now link 100,000 villagers to each other and to district government. This platform allows for identification and information sharing between villages facing similar circumstances or pursuing similar development strategies. Villages can directly upload land use plans and development plans to government decision-makers.

The approach has also been mainstreamed in local government policy. The District Government developed an official program called SIGAP Sejahtera which will to train 10 facilitators in each village and reach all 107 villages in Berau (Berita Online, 2017). TNC facilitated a mega-training of over 1000 village representatives in 2017. The provincial government is also exploring how to also test SIGAP in 100 additional villages in East Kalimantan, outside of Berau, in hopes of eventually scaling it up to all 800 villages in the province. To make this strategy work requires: having trained and capably local facilitators; maintaining a strong commitment to balancing conservation with local economic development opportunities; and managing uncertainty in the process, as it is not possible to guarantee where communities choose conservation.

A crucial aspect of the approach is the flexible framework that allows application in different places and accommodation of different financing streams. Initially, TNC focused on incentivizing good conservation management through incentive agreements linked to REDD+. However, in recent years, both the district and national governments have dramatically increased their annual allocations to village development plans. Government funds for village development now support natural resource management, livelihood development, and conservation in line with village plans. SIGAP is also being adapted for the specialized situation of villages located among oil palm concessions in a model called *SIGAP-Sawit* (SIGAP-Oil Palm), which focuses on helping communities negotiate with companies.

While this does not mean villages will have full land tenure rights any time soon, it does signify a gradual increase in rights and economic opportunities for villages located within active economic concessions.

4   Toward an Integrated Model

The framework approach described in this paper is a composite of approaches we have tried, observed directly, or learned of from others. While we focused on approaches with a track record of success and we have done our best to create a coherent framework, without having implemented this in its entirety we consider the integrated model to be a strong hypothesis that requires careful testing.

This is a flexible framework for jurisdictional programs and could be used in various ways. It could be used to strengthen existing programs or to develop new ones. The approaches recommended could be applied comprehensively or quite selectively as resources are available. In this section, we outline a basic roadmap to designing and managing jurisdictional programs that emphasizes the importance of investing in building upfront systemic understanding but moving relatively quickly into an organic approach to building effective landscape solutions.

> *This is a flexible framework for jurisdictional programs and could be used to strengthen existing jurisdictional programs or to develop new ones.*

This section is meant as a high-level overview of the flow of jurisdictional programs. It can help policy-makers make decisions on how best to support jurisdictional programs. It also highlights key ideas that practitioners can choose to investigate more thoroughly to guide direct work within programs.

4.1   Phasing

This section provides additional detail on the phased approach to initiate collective systems leadership. The phases will in fact be overlapping. The diagram below gives a high-level process map showing some of the iterative nature of the work. Once different initiatives have progressed and are well understood, a jurisdictional compact and management system can be developed, building on earlier program agreements, to strengthen accountability.
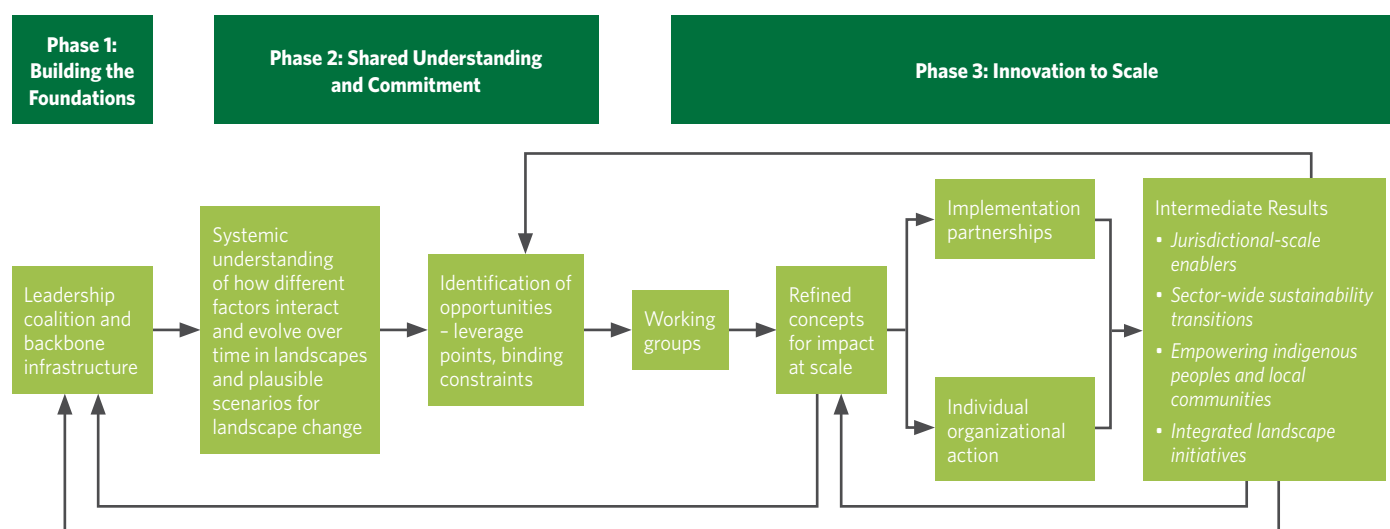

Figure 2: Process map for collective systems leadership in jurisdictional programs.

4.1.1 Building the Foundations

A small group of actors can work together to evaluate the potential for collective systems leadership and work to secure agreements to participate by a sufficient group of influential and representative leaders. This effort is important to verify the potential of a jurisdictional program, secure commitments of participation and financing, and create a preliminary roadmap for the early years of the jurisdictional program.

Phase 1: Building the foundations (6-9 months)	
Objectives	**Approach**
• Commitment of a critical mass of leaders to participate in collective leadership • Agreement on the basic infrastructure and commitments of resources for jurisdictional program	• **Form scoping team:** core group to investigate potential for a jurisdictional program • **Opportunity identification:** high-level view of landscape dynamics including: trends and patterns; what is working and what is not; binding constraints and potential leverage points • **Quiet convening:** stakeholder mapping based on individual interviews and focus group discussions to deepen understanding of dynamics, champions, aspirations, challenges, etc. • **Preliminary synthesis:** describe landscape dynamics and potential roadmap for the jurisdictional program • **Decision to move forward:** core group agrees; critical mass of influential and representative leaders provide initial agreement • **Formalize Leadership Group:** create "light governance" agreement; secure commitment of resources to support jurisdictional program operations; other commitments related to landscape management (if relevant) and transparency • **Establish a backbone organization:** identify; design role; capacity needs assessment; funding needs • **High-level roadmap:** outline approach to phases 2 and 3

The following are things to avoid:

- **Creating a rigid set of timelines and expectations on the direction of collaboration:** cross-sector collaboration needs to evolve somewhat organically. Aggressive timelines and high expectations are not appropriate, especially when actors do not have a history of close collaboration or the context for collaboration is not familiar (e.g. a new policy or market opportunity is an important driver of collaboration).

- **Expecting people to make significant commitments in early phases:** it is important for people to take the opportunity seriously, but the early goals should be limited to commitments to participate, and perhaps help fund the collaboration itself. It is not realistic, and usually counter-productive, to expect major commitments to landscape action at the beginning of the collaboration.

- **Overdo it designing the governance structure of the Leadership Group:** in reality, it is not possible or desirable to give this type of multi-stakeholder group significant decision-making power (Rich 2015). It is better to start with modest expectations on the formal authority of the Leadership Group and let it evolve as appropriate. This will help start more quickly, avoid alienating key actors, and avoid mistakes that are hard to remedy.

4.1.2 Shared Understanding and Commitment

It is important for leaders to take the time to work together to build a strong foundation of shared systemic understanding of landscape dynamics and increase mutual trust. This should be done in a way to reinforce their commitment to the overall effort. Given the complexity of landscape dynamics and the consistent challenges and mistakes actors make in tackling complexity, this should be strongly oriented toward resisting the habits of working— siloed approaches, focus on events and trends, ideological entrenchment—that consistently undermine progress. This will involve building stronger understanding of the current dynamics, the binding constraints to progress, plausible scenarios for the future, the diverse interests and visions actors have for landscape development, and identification of potential leverage points for shifting landscape dynamics. It may include some early experimentation and prototyping but will be more focused on building relationships and trust and discovering shared interest and opportunities.

It is important to have a structured, time-bound effort to strengthen understanding of landscape dynamics and build collaborative capacity at the beginning of the program. This period of intensive dialogue and analysis should be kept to under a year in most cases and can often be much shorter if there has already been a substantial amount of work to understand jurisdictional sustainability (e.g. if a jurisdictional program has already been operating). It will usually not be possible to achieve truly shared understanding and commitment in such a short time, and this needs to be recognized, with these ideals maintained as long-term goals to work towards with a strong initial effort achieved in this phase.

While this phase is primarily focused on improving understanding, it can and should engage with existing initiatives in more advanced phases of experimentation and scaling up. The jurisdictional program needs to engage actively with existing programs to fully understand their successes and failures, look for ways to demonstrate value to existing initiatives, and help stakeholders secure some tangible signs of progress. This all must be done carefully, however, to give necessary opportunity to look deeper and avoid jumping to obvious (but wrong) conclusions or reinforcing approaches that are not working.

The approach described below draws heavily on our experience as well as the methodology for Transformative Scenario Planning (Kahane, 2012) demonstrated in post-Apartheid South Africa and in helping to resolve the Colombian Civil War.

Phase 2: Strengthening shared understanding and commitment (6-12 months)	
Objectives	**Approach**
• Shared understanding of current dynamics and plausible future scenarios • Shared high-level vision and documentation of existing plans • Commitment to act based on realistic case for change	• **Leadership Group dialogues** (3-4 meetings): • **Focused research:** data gathering; analytical work on key topics; commission research; explore opportunities through rapid prototyping; look for ways get existing efforts unstuck • **Learning journeys:** thematic site visits to understand different aspects of key problems; understand what is happening and why • **Develop plausible scenarios:** based on current trends and dynamics, summarize 3-4 plausible scenarios • **Develop an initial case for change:** high-level vision and make the case for why this vision is preferable to other plausible future scenarios • **Develop high-level plans:** document what people are currently doing or will definitely start doing to work; strategic, spatial, financial; include high-level vision and explicit choice • **Identify opportunities and plan for working groups:** either building on existing initiatives or to explore new opportunities

This phase can dramatically improve understanding of landscape dynamics and initiate action to pursue high-leverage opportunities:

- **It can strengthen understanding of why others do what they do.** This can result in improved relationships, the capacity to work across sectors and differences, and partnerships to tackle challenges of mutual interest.

- **People understand their own contribution to the problem.** Rather than blaming others, they see that they are also contributing to the problems and can therefore change their own behavior and contribute to a solution. As leadership expert Bill Torbert of Boston College says, "If you are not aware of how you are part of the problem, you can't be part of the solution."

- **People understand the benefits and costs of the status quo as well as the benefits and costs of change.** Honestly weighing the case for change against the case for the status quo can result in durable commitment to change.

- **Deeper insight into opportunities and the prospect of joint initiatives can lead to increased ambition.** Increased coherence of efforts as well as focused partnerships can enable mobilization of additional resources.

The following are things to avoid:

- **Delaying action:** This phase is highly reflective, but also requires an action orientation. During this phase, Leadership Group members are continuing to work on their own or in existing partnerships and can be immediately starting to build in the insights from their collaboration. Opportunities to do small prototypes based on the dialogue of the Leadership Group or engage with existing initiatives to try to add value are crucial to sending the signal that this process is focused on action.

- **Focusing too much on externally-driven goals and resources (e.g. national REDD+; corporate commodity commitments):** These stakeholder interests and contributions will need to be considered, but external objectives and resources cannot be the basis for a sustainable, negotiation-oriented process that fully reflects the interests and needs of local stakeholders.

- **Overdoing it on technical analysis:** Targeted technical analysis is often necessary to fill key gaps in understanding of landscape dynamics. But while it is tempting to try to analyze the many key issues in detail, this is problematic because it takes time to design and commission good studies, can create specialist language that is inaccessible to diverse stakeholders, and must be integrated with other analysis. Given the short time-frame of this phase, caution is needed on commissioning studies.

- **Spending more than one year:** It is important to spend some time building shared understanding but damaging to spend too much. It may take a long time to get this process moving well, and as the end of the year approaches it may be tempting to extend, but this is probably a mistake.

- **Expecting too much from high-level plans:** While it is important to use this time to improve strategic programming, or harmonization of existing plans, it will not be possible to try to have agreed, detailed long-term plans.

4.1.3 Innovation to Scale

The main operation of the jurisdictional program is a fluid process of exploring, testing, and scaling approaches as opportunities and capacity allow. Working groups form to tackle particular challenges, bringing together principal actors and other stakeholders. They work together to frame the problem, develop potential plans, policies, and proposals, and test them using rapid innovation approaches. They share refined plans, policies, and proposals with the Leadership Group to inform the understanding of opportunities for jurisdictional sustainability. Experiences and insights from working groups are also shared directly with relevant principal actors who can apply ideas directly in their work or bring together implementation partnerships to tackle challenges together.

Phase 3: Innovation to scale (5 years or more)	
Objectives	**Approach**
• Develop and test tools, policies, programs, etc. to tackle landscape challenges • New policies and programs based on demonstrated solutions • Integrated landscape initiatives • Sectoral transition partnerships	• **Develop working groups for systemic change initiatives:** Try to link existing initiatives to jurisdictional programs where there is synergy and look for ways to quickly add value; initiate new efforts; and try to start quickly • **Build innovation pipeline:** Create a registry of relevant innovation efforts and agree on approaches to tracking progress • **Strengthen evidence-based approaches:** Support monitoring and evaluation of innovation efforts; support evidence-based decision-making; help make the case for effective solutions • **Support implementation partnerships:** Management of integrated landscape initiatives; sector transition partnerships • **Build capacity for cross-sector collaboration:** For Leadership Group members; for others • **Mobilize funds:** Sustainable financing for core costs and support for financing of landscape initiatives • **Monitoring and communications:** Help to maintain ongoing flow of information between collaborating partners and maintain transparency for outside actors. • **Engage the non-aligned:** Work with resistant government, private sector, and community actors to broaden support

The following are things to avoid:

- **Trying to address all needs simultaneously:** While there are often needs and opportunities to strengthen initiatives addressing a range of critical needs (e.g. biodiversity conservation, community livelihoods, sustainable forest management, food security, climate change adaptation, etc.), it is also important to be realistic about prioritization of attention and investment and develop appropriate sequencing.

- **Expecting significant results in less than five years:** in our experience, even if there is an effective approach to phases 1 and 2, phase 3 takes time. The theory of change is based on building momentum over time—as people see the benefits of collaboration they invest more and achieve better and better results. It could easily take five years before momentum really builds.

- **Letting investment in backbone infrastructure get out of line with investment in programs:** it is important to be willing to make a modest initial investment in the Leadership Group and backbone organization. But the ratio of these investments to the investments in programs needs to be monitored. If there is not increasing engagement and investment in programs after 2 years, the backbone infrastructure is probably not working and should be reconsidered. If, on the other hand, the investment in programs is high, it may be necessary to increase the investment in the backbone infrastructure to provide the necessary support.

- **Failing to identify success dividends for reinvestment:** over time the process must produce financial dividends that can be reinvested to further progress instead of solutions that depend solely on external drivers for continued success.

- **Allowing exaggeration of benefits to drive hype cycles:** jurisdictional sustainability requires sustained effort in multiple strategies. This is undermined by hype cycles which result in exaggerated expectations of any one strategy, short attention spans, and a continuous process of shifting effort from one approach to another without good reasons.

4.2   Jurisdictional Compacts

A formal jurisdictional compact, or high-level agreement, can be an important tool for clarifying, documenting, and reinforcing the commitment to a shared vision and collective action. The compact would ideally: recognize the current reality, articulate a shared vision of sustainable landscape management, include high-level goals and plans, and document commitments to deliver on the vision and goals. Signatories would include members of the Leadership Group and any others that are appropriate. While negotiating a formal agreement can be challenging, much of the value comes from making sure that there is real agreement and clarity to guide different stakeholders in pursuit of a shared vision.

A jurisdictional compact could take different forms and be developed in different ways depending on the context. Variations could include the name of the agreement (green growth compact; production protection compact; etc.), the timing of the agreement (early in the evolution of the jurisdictional program or later), whether it is a single agreement or a set of linked agreements, and the level of detail of the agreement.

A jurisdictional compact should be treated as a living document. It will almost certainly need revision to evolve as context, understanding, and priorities change. Hopefully, the compact can be retired once key elements and ways of working have been fully mainstreamed.

For more on jurisdictional compacts see Appendix A.8. Jurisdictional Compacts.

4.3   Financing Jurisdictional Programs

In the model outlined in this paper, financing requirements for jurisdictional programs can be roughly broken down into the three categories included in the table below.

Table 3. Financing Jurisdictional Programs and Related Initiatives

Category of costs	Description	Order of magnitude
1. Core programs and backbone support for jurisdictional program	Staff costs and overhead of intermediaries facilitating collaboration; consultants and analytical work to support program	USD 100,000 to USD 1,000,000 per year
2. Early phases of systemic change initiatives	Analytical work and targeted research; prototyping to develop concepts; piloting and demonstration program; detailed policy design	Several USD 100,000s to USD 1,000,000s per year
3. Scaling up proven solutions to accelerate sustainability transitions	Building institutional capacity; incentives to actors (including results-based payments)	Up to the USD 100,000,000s per year

Financing core operations of jurisdictional programs

Financing cross-sector collaboration approaches is a consistent challenge. While not nearly as capital intensive as other landscape needs, it requires stable funding to attract high-quality staff for backbone services and relatively flexible funding to meet evolving needs for analytical work, facilitation of high-level dialogues and working groups, learning journeys, and other costs. To date, funding for jurisdictional programs has come mainly from international donors interested in climate mitigation.

Jurisdictional programs take time to develop and require sustained effort to maintain momentum. Start-up funding for three to five years is likely the realistic maximum, but if the program is starting to show results in terms of improved collaboration and solution development, jurisdictional programs should work from an early point to secure long-term funding to cover for category 1 costs. Ideally, this would involve at least ten years of funding and should potentially involve fiscal mechanisms or endowment funds that provide ongoing funding.

International donors with interests in climate mitigation have been providing some financing for Category 1 costs, and may continue, but jurisdictional programs will be more effective if a meaningful share of the funding comes from direct participants in landscape management who are willing to fund core costs without undue influence over operations of the jurisdictional program or from outside sources with a balanced set of interests in sustainable development.

Financing systemic change initiatives

Jurisdictional programs can and should provide support for mobilizing Category 2 and 3 costs, but as the needs, timing, sources, and users of the funds will evolve over time it is not usually possible or desirable to raise funds all together or to expect centralized management.

There are many ways in which jurisdictional programs can help to mobilize resources for programs. By improving transparency of opportunities and relationships among leaders, they increase the odds of matching new opportunities with willing funders. They can help mobilize early phase resources from external funders by providing independent validation of new opportunities and reducing riskiness of investments in innovation by supporting coordination with decision-makers. Leveraging different relationships in the leadership network, they can support innovators to evolve and blend finance over time as opportunities are explored, tested and ready to scale. Jurisdictional programs can help by building credible coalitions and helping to mobilize large-scale funding. If jurisdictional programs can set up mechanisms to act as financial intermediaries, even on a small scale, it can have an outsized benefit by making it easier to fill gaps where timing of other funding is creating problems.

Case 2: Spatial Harmonization and Blended Financial Packages to Expand Financing for Landscapes

Jurisdictional programs can increase financing for landscape initiatives by helping to address spatial and strategic alignment challenges that reduce confidence of investors, public agencies, and donors. Following the start of the economic recession, the state of Pará commissioned McKinsey consulting group to analyze the state's economic situation and evaluate opportunities for growth and help to develop a "Pará 2030" sustainable development plan. TNC partnered with the state and McKinsey to analyze how the Pará 2030 strategies could be compatible with the state's commitment to achieve net-zero deforestation by 2030 (Isto É 2016). TNC and the economic consulting firm Agroicone developed detailed sectoral analyses—including spatial planning—on cattle ranching, cocoa agroforestry, forest restoration, family farming, and grains to demonstrate how the Pará 2030 plan can achieve zero net deforestation while meeting economic goals. TNC also worked with the state to develop a financial plan for how the commercial and environmental investments could be funded. This allowed the state to describe key sectors and convene multi-stakeholder working groups—involving civil society, the private sector, and researchers—around 23 priority opportunities, including several that have large land-use impacts, such as cattle, agriculture and forestry. These groups developed investment strategies, and highlighted issues around environmental governance that would need to be strengthened—such as land titling, credit access, and technical assistance—to ensure plans will not cause more deforestation. Analyzing the spatial compatibility of different growth strategies, reconciling these with the existing environmental and social objectives, and developing coherent financing plans, were critical steps in ensuring that the Pará 2030 plan was a robust green growth plan.

4.4   Building Capacity for Sustainability Transitions

This approach to jurisdictional sustainability would require sustained investment in building individual and organizational capacity. This includes the capacity for the backbone organization staff, for systems thinking and systemic understanding of complex landscape dynamics, as well as collaborative capacity.

Systems thinking is a potentially powerful discipline, but applying it is more analogous to learning a new language than to learning to use a particular tool or methodology (Senge, 2006). Building capacity for systems thinking takes practice and patience and it is inherently collaborative, as no single actor can properly understand system dynamics. Jurisdictional programs can support a gradual shift towards systems thinking in various ways, some of which are described in section 4.3. This may require hiring experts in systems thinking as facilitators in the early phases, but it will be possible to build more and more autonomy in this work over time. While systems thinking should be started early, it is best done iteratively as understanding of the system improves.

Building collaborative capacity is also something that requires sustained effort. There are many types of collaboration inherent in jurisdictional programs, including at the level of the Leadership Group as well as most focused initiatives. Actors will sometimes lead and sometimes participate. Turnover in organizations involved in jurisdictional programs creates a significant challenge, particularly if batches of new leaders join an initiative because of an administrative overhaul. Nonetheless, continually assessing and building collaborative capacity is a fundamental need for jurisdictional programs.

4.5   Systemic Theory of Change

The term "theory of change" has become common in the international development world and a "systemic theory of change" builds upon that foundation in the following ways (Stroh 2015):

- Incorporating feedback loops that characterize the main causal relationships relevant to the strategy;

- Illustrate how the "parts" in the system are expected to work together effectively;

- Incorporate expected time delays into the strategy;

- Consider both short-term and long-term improvements.

In this section, we articulate a systemic theory of change for collective systems leadership of sustainability transitions. It presents a testable hypothesis about how improved cross-sector collaboration can translate into improved landscape performance. It is based on positive feedback mechanisms to grow effectiveness and results over time. In the description below, the "engines of success," or positive reinforcing feedback loops, are identified with numbers that correspond to the diagram.

Figure 3: Systemic Theory of Change for Collective Systems Leadership

Clarity of Jurisdictional Compact & Management System
E5 *Engine of Success*

Multi-Level Understanding of Potential for Sustainability Transition
E1 *Engine of Success*

Strength of Innovation Ecosystem
E3 *Engine of Success*

Effectiveness of Implementation Partnerships

Interim Results
- Jurisdictional enablers
- Sector-wide transitions
- Empowering local communities
- Integrated landscape initiatives

Effectiveness of Leadership Group & Backbone Organization

E2 *Engine of Success*

Clarity of High Leverage Interventions with Sequencing Strategy

Effectiveness of Working Groups for Systemic Change Initiative

Viability of Concepts For Impact

Systemic Understanding of How Different Factors Interact & Evolve

Effectiveness of Individual Organizational Action

E4 *Engine of Success*

E6 *Engine of Success*

Reinvested Dividends of Success

Start Here

A ——→ B   Change in A causes change in B. In all cases here, an increase in A causes an increase in B.

⊢⊢⊢→   Time delay: it takes significant time for an increase in A to cause an increase in B.

Table 4: Explanation of Key Engines of Success

Engine of success	Critical factors for enhancing engines of success
E1. Multi-level understanding improving identification of opportunities	• All actors are prepared to participate and represent their interests • Initial push for understanding • Participation of key actors in different regimes
E2. Systemic understanding improving identification of opportunities	• Participative development of systems maps • Focusing on key opportunities and avoiding overcomplicated analyses
E3. Effectiveness of innovation ecosystem improving results from developing, testing, and implementing solutions	• Rapid prototyping and piloting • Monitoring and evaluation that provide sufficient scope and timeframes
E4. Improving individual organizational performance strengthens commitment to collaboration	• Inclusive approach to program design • Proactive identification and negotiation of trade-offs created by conflicting objectives • Prioritization of local actors' objectives
E5. Strengthening the Jurisdictional Compact and associated management system over time improves clarity of opportunities and accountability	• Align level of detail of Compact with true level of understanding and agreement on landscape dynamics and goals • Iterative refinement of the Compact
E6. Reinvesting dividends of improved collaboration creates sustainable financing for collaboration	• Mobilizing donor funding when necessary to catalyze programs • Start developing sustainable finance mechanisms early to avoid gaps in funding

There are potential limitations, however, and these need to be anticipated in advance with actions taken to mitigate the problems created by these limitations. The second diagram highlights these limitations, which are numbered, and explains the different limitations or challenges in the table on the following page.

Figure 4: Potential Limits of Systemic Theory of Change

L5 — Clarity of Jurisdictional Compact & Management System
Engine of Success

L2 — Multi-Level Understanding of Potential for Sustainability Transition
Engine of Success

Strength of Innovation Ecosystem
Engine of Success

L1 — Effectiveness of Leadership Group & Backbone Organization

L3 — Clarity of High Leverage Interventions with Sequencing Strategy
Engine of Success

Effectiveness of Working Groups for Systemic Change Initiative

Viability of Concepts For Impact

Effectiveness of Implementation Partnerships

Systemic Understanding of How Different Factors Interact & Evolve

L6 — Effectiveness of Individual Organizational Action

Engine of Success

Interim Results
- Jurisdictional enablers
- Sector-wide transitions
- Empowering local communities
- Integrated landscape initiatives

L4 — *Engine of Success*
Reinvested Dividends of Success

Start Here

A ———→ B   Change in A causes change in B. In all cases here, an increase in A causes an increase in B.

Time delay: it takes significant time for an increase in A to cause an increase in B.
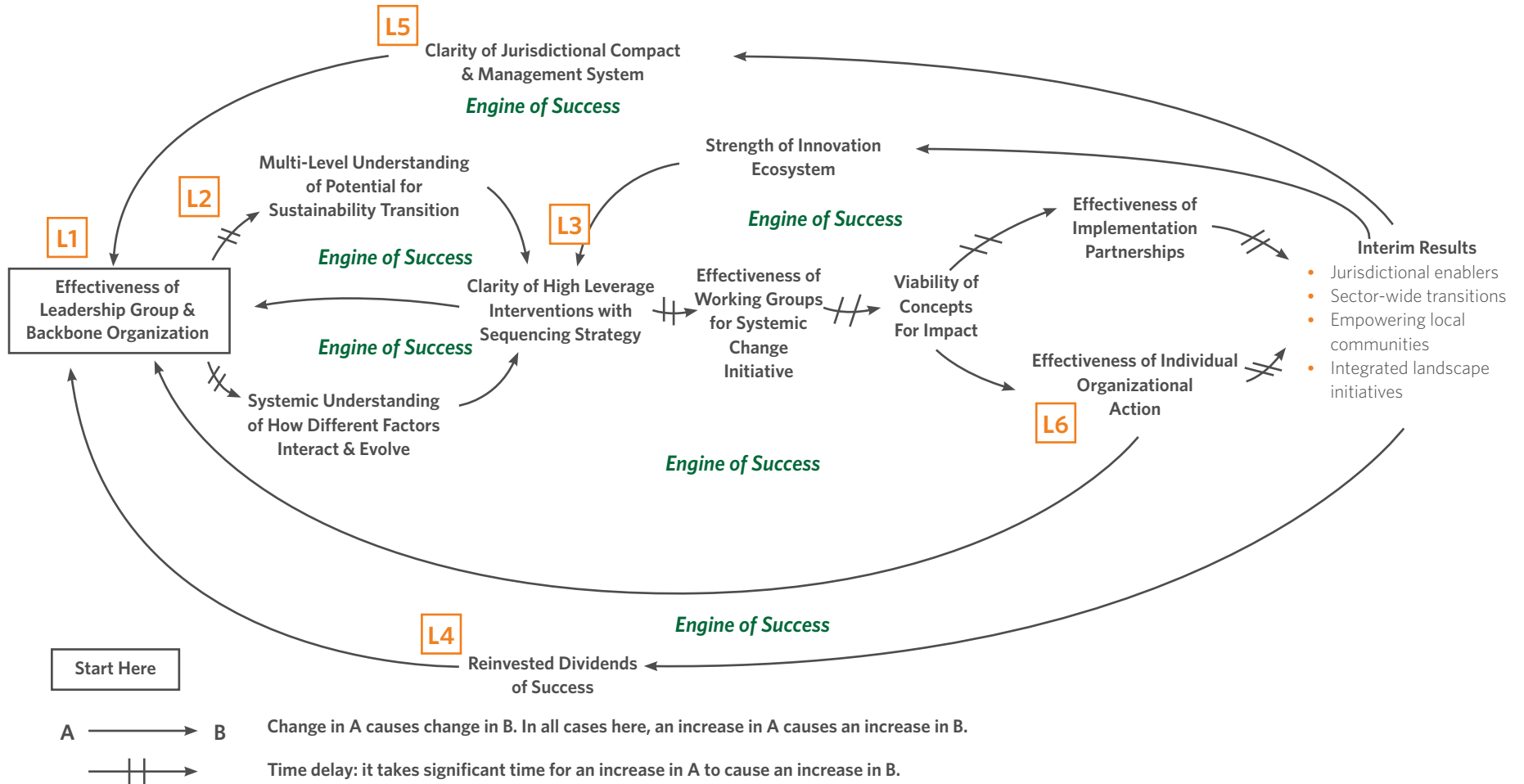
Table 5: Description of Potential Limits to Success

Potential Limits to Success	Early Investments to Overcome Limits and Build Sustainable Success
L1. Difficulties aligning diverse stakeholders	• Build appreciation of goals, strengths, weaknesses of each group – including local communities as equal partners • Align goals through shared visioning or transformative scenario planning • Develop willingness to be influenced by each other and viewpoint of personal responsibility for problems not just solutions • Develop shared language, including systems thinking to manage complexity
L2. Many time delays	• Shorten delays where possible. Practice rapid prototyping and learn from failure as well as success • Set realistic expectations around time required and apply patience and persistence where delays are inevitable

L3. Difficulties focusing on achievable priorities, including:
  • Tendency to try to do everything at once
  • Balancing competing goals
	• Look for leverage points: focus on a few key coordinated changes over time
	• Ensure strategies address shifting mental models and aligning explicit and implicit goals
	• Aim to achieve fewer goals in shorter time periods, then repeat
	• Sequence interventions consciously
	• Cultivate synergy between environmental and economic development goals
	• Reinforce new goals with changes in metrics/incentives/rewards, authority structures, funding streams

L4. Dependence on external goals and resources	• Build local ownership for results and reinvest dividends of success in the effort
L5. Political change	• Develop solid foundation for sustainable change through above tactics • Anticipate changes through scenario planning and innovation ecosystem • Expand stakeholder involvement over time • Communication with all candidates prior to elections and positioning the program as a non-political initiative • Make conscious adjustments to strategy and structure where necessary
L6. Actors do not feel collaboration is helping to achieve their individual objectives	• Be careful to balance portfolio of investments • Be very cautious in asking for participation in multi-stakeholder dialogues and processes • Be careful to manage expectations about timelines

4.6 Monitoring, Evaluation and Adaptive Management of Jurisdictional Programs

Monitoring, evaluating, and adaptively managing jurisdictional programs is crucial and challenging given their scope, complexity, and time horizon. To date, efforts toward measuring the effectiveness of jurisdictional programs have mostly focused on one or a few bottom-line measures like deforestation rate, which in our experience is not very meaningful. For one, it tends to change slowly, but more importantly, jurisdictional programs have only a modest influence over these cumulative results: they neither deserve full credit if jurisdictional sustainability improves (as many other factors, from national policies to market-related factors, will have contributed), nor should their influence be fully discounted if overall improvements are modest or even if negative trends continue. We need more informative ways to evaluate jurisdictional programs to improve overall approaches as well as approaches to individual initiatives.

To evaluate jurisdictional programs, it is necessary to consider direct outcomes of cross-sector collaboration (first-order effects), the ways that actors work differently as a result and the effectiveness of the landscape initiatives they drive forward (second-order effects), as well as the ultimate sustainability in the landscape (third-order effects). While there has been more investment in some aspects of the third order effects in jurisdictional programs as mentioned above, even these are often not yet fully developed and operational in management systems used by program stakeholders. First order effects have rarely been analyzed and shared publicly. Tying these three types of analyses together at the scale of a large sub-national jurisdiction is difficult and arguably has never been done well, but the benefits could be substantial.

The systemic theory of change described above provides an overall guide into how a jurisdictional program attempting to catalyze collective systems leadership should be evaluated. The causal relationships indicated by the arrows, the overall functioning of different anticipated "engines of success," and the anticipated "limits to success" should all be monitored, evaluated, and refined as appropriate.

There are substantial resources on many aspects of program evaluation, but the following are a few key principles, adapted from Mark Cabaj's approach for evaluating large-scale, multi-stakeholder change initiatives (Cabaj, 2014):

- **Use evaluation to enable strategic learning:** The dominant focus of monitoring and evaluation efforts in tropical forests for the past 10 years has been to inform external stakeholders including donors, results-based finance mechanisms, and commodity market actors. These are important users, but direct actors need to be the primary audience for evaluation as they are the main stakeholders in landscape management, provide most of the resources for landscape management, and have the most need for operationally useful information. The focus should be on learning about what works and what does not and how to drive performance improvements over time.

- **Multiple designs for multiple users:** Landscape monitoring systems need to meet the needs of diverse actors, operate at different levels, and use or build on existing monitoring systems where possible, many of which are already linked to operational decision-making. Different users require different levels of detail. There can and should be efforts to align and organize efforts, but it is not realistic or helpful to expect standardized, simplified monitoring of a collective initiative. Jurisdictional programs have put strong emphasis on defining collective goals, getting commitment to them, and monitoring them. Yet it is also important to recognize that management needs vary, existing monitoring and evaluation systems do not generally align easily, coordination on measurement is time-consuming and expensive, and it can get in the way of action. It is also subject to change, as context and needs change. Shared measurement needs to be used appropriately.

Photo credit: João Ramid, 2014

- **Seek out intended and unintended consequences:** noticing unintended consequences is an opportunity for jurisdictional programs to add value to other landscape initiatives. If successful in growing the comprehensiveness and transparency of monitoring across multiple initiatives, it will be much easier to notice unintended consequences, especially if they impact on other existing initiatives. More broadly, the wall-to-wall monitoring that is a core objective of jurisdictional programs can also play an important role.

- **Seek out contribution not attribution:** Contribution Analysis recognizes multiple factors that are partially responsible for changes—good or bad—that take place. It can be well-suited to landscape sustainability, where numerous factors often need to be in place to achieve a result. If successful in building recognition as an "honest broker," backbone organizations of jurisdictional programs can contribute by helping to bring objectivity as well as insider knowledge to understand the subtle contributions of different approaches.

It is important to note that the monitoring and evaluation of the jurisdictional program itself overlaps with the monitoring and evaluation that the jurisdictional program can do to support individual initiatives, which is described in section 2.2. The extremely weak track record of monitoring and evaluating different strategies in tropical forest landscapes is both a challenge and opportunity for jurisdictional programs. Efforts at evaluation are often inconclusive because a clear effect could not be demonstrated, or data was insufficient (Reed, 2016), interventions show weak effects (Carlson, 2018), or interventions are extremely slow to emerge (e.g. REDD+ results-based finance, which arguably has not been tested outside of Brazil). This prevents analysis of whether jurisdictional programs improve outcomes for specific initiatives (e.g. whether jurisdictional programs help to reduce deforestation in palm oil concessions). Jurisdictional programs have an opportunity to substantially strengthen evaluation of a range of landscape approaches, and to do so cost-effectively by designing monitoring systems well, maintaining longer-term databases of performance over time, and improving transparency to be able to better see indirect effects and inter-dependencies.

5   Advancing the Practice

5.1   Recommendations

We are convinced that it is possible to accelerate the sustainability transitions now underway in tropical forests, but it will require real reflection and in many cases changes in approach. Developing this paper and the associated case studies has highlighted for us some meaningful successes that can be built upon as well as many ideas on how to shift and strengthen our approaches to supporting sustainability at scale in tropical forest landscapes. We have been working to incorporate the insights and approaches reflected in this paper into programs with which we are involved. We hope that we have stimulated productive thinking about how others can to move forward and provide the following recommendations to highlight actions to follow-up on key ideas from the paper.

> *Bad news is good news if you do something about it.*
>
> **James Morgan**
> *Chairman Emeritus, Applied Materials*

1. **Increase focus and investment in the core roles of jurisdictional programs:** the complexity and scope of jurisdictional approaches and programs can obscure their core roles and unique contribution. In our experience, the core roles outlined in this paper are critically important and require substantially more attention to ensure the effective implementation of jurisdictional programs and enable improvements in practices over time. We could not find good data on the level of investment in these core roles but suspect that investment varies a lot and tends to be low. Research could help to establish rules of thumb to guide investment in the types of core roles outlined in this paper relative to other initiatives in landscapes.

2. **Be realistic about shared power:** given the complexity in these landscapes, no one can achieve sustainability alone. Governments can't unilaterally mandate it and expect effective results. Companies can't change the supply chain of their whole industry alone. Powerful actors need to recognize that they have to collaborate to achieve mutual gains. These actors need to look at how they, despite their best intentions, are part of the problem, before they think they can be part of the solution. Three examples of concern:

    a) *Commodity supply chain initiatives:* while there has been a growing level of commitment to remove deforestation from key supply chains and achieve sustainability across several key sectors, results on the ground are still disappointing. If companies are serious about their commitments, they need to do more to bring other actors along. They need to advocate that tropical forest governments develop stricter regulations and better enforcement. They also need to provide more substantial support and incentives for local producers to make improvements in their production practices. They need to reach out to others in their sector and develop pre-competitive collaborations.

    b) *Tropical forest governments:* tropical forest governments need international support and funding to tackle this problem – it is a global problem that requires global support. However, that does not let them off the hook in terms of making their own investments. In many countries, subsidies and domestic funding for activities that drive deforestation dwarf any kind of international aid or climate finance that can reasonably be expected. Tropical forest governments need to show true willingness to tackle the problem by reforming their own domestic incentives and increase their own collaboration across sectors to drive a sustainable development pathway for their country. Further, they need to strengthen regulations and increase enforcement to shape companies' investments and land managers' decisions.

c) **Climate finance:** international climate finance represents a significant increase in funding for tropical forest conservation compared to other environmental initiatives with the same aim. However, expectations of the potential for this to be a game changer have declined as the prospects for large-scale, long-term, predictable international finance have faded and recognition of the scale of other financial flows and other challenges have become clearer. As such, international policymakers need to take a more realistic perspective on their level of power to shape the situation in any given context. Managers of climate finance need to be more serious about using their funding to leverage tropical forest domestic investment and policy change. They need to be more responsive to specific country/jurisdiction needs and contexts and shape their funding to focus on systemic transformation rather than a restricted investment in one objective.

3. **Invest in improving the analytical rigor of key approaches:** there are several approaches and ideas for large-scale change that need careful analysis and study.

   a) **Backbone organizations for jurisdictional sustainability:** in our experience, backbone organizations were critical components of jurisdictional programs and this is the conclusion of many other large-scale change efforts in other sectors. Many jurisdictional programs have some type of coordinating entity that overlaps with the model we describe in this paper. But it is a very challenging role and lack of transparency in jurisdictional programs inhibits understanding of what efforts are being made and what works. We consider this a priority research topic.

   b) **Sustainability transitions in key sectors:** historical studies of sustainability transitions in different sectors show patterns of transition that depend heavily on case-specific factors in the broader socio-economic context, regime dynamics, and development of niche innovations. There are no examples, as far as we know, of a fast, linear transitions based on universal uptake of new innovations. It is now clear that the sustainability transition in key commodity sectors will look very different in different places. The multi-level approach to analyzing sustainability transitions provides one potential framework for more rigorous thinking about what sustainability transitions will look like in different places.

   c) **Jurisdictional agreements:** jurisdictional programs have generated many plans and agreements, but as far as we know there have not been serious studies to develop a typology of plans and agreements, their effectiveness, or best practices. We believe that jurisdictional agreements have high-potential, but that they are also prone to misuse, and lack a strong evidence base.

   d) **Alignment of mitigation policies and conservation management, and the need for prioritization:** There is reason for concern that many forest areas avoided by companies with "no deforestation" commitments are not being actively managed for conservation by companies, government, or local communities and is likely to be converted by other actors. One of the reasons for renewed interest in jurisdictional programs is the belief that they can help tackle this challenge so that company commitments do translate into conservation. But as we describe in this paper, jurisdictional programs primarily act as networks of individual initiatives. Will individual initiatives step up to actively manage all the forests? And if the answer is no, what does that imply for the design of voluntary mitigation policies to avoid all conversion?

   e) **Incentives for "high forest, low deforestation" regions and countries:** At a global level, more attention must be paid to solutions that really work for high-forest, low-deforestation states and provinces. The dominant strategies in tropical forests over the past ten years have created more opportunities for areas further along the forest transition curve but leave few realistic development paths for these less developed areas. Efforts to develop and demonstrate credible, forest compatible economic development options have been small-scale and do not yet present a compelling alternative to conventional, resource-intensive development models. We need to start taking these issues much more seriously.

4. **Increase transparency of governance and management of jurisdictional programs:** Jurisdictional programs are complex and hard to understand from the outside—sometimes even for actors within jurisdictions. Jurisdictional programs have often tried to create a perception of a coherently managed process, obscuring the reality of how decisions get made. More transparency is fundamental to improving practices over time.

   a) *Core actors need to make additional efforts to clarify what is happening who is involved, and how decisions are made.* This includes clarifying the leadership network, governance structures, and jurisdictional plans revising documents where necessary for clarity, realism and transparency. Clarifying these issues will make it easier for others to engage and support.

   b) *Consider reviewing governance systems and jurisdictional plans of existing jurisdictional programs.* In many cases, governance and management systems may be vague or unrealistic and should be reviewed. It is instructive to look at the degree to which adaptive management is possible if circumstances change. To what degree will various decisions and actions be made to really shift approaches in response to updated information?

   c) *Clarify role of NGOs in core management:* Various NGOs have played crucial early roles as backbone organizations, but their roles, including time horizon for engagement, need to be clearer and long-term plans for filling the role of backbone organization need to be.

5. **Mobilize longer-term financing for cross-sector collaboration in jurisdictional programs.** Based on our experience and research in other large-scale system change efforts, these are high-impact, relatively inexpensive investments. While there is a perception that there has been substantial investment in jurisdictional programs, most of the money has gone to results-based finance, REDD+ related enablers, sectoral programs, and landscape initiatives. Very little has gone to cross-sector collaboration and backbone organizations and the funding is very short-term. The role that TNC, Sustainable Trade Initiative (IDH), Earth Innovation Institute (EII) and other international NGOs have played as backbone organizations has often been effective, but these organizations have relied on unpredictable funding and sometimes had only a vague mandate. Longer-term approaches need to be developed and financed.

   a) *Donors need to help mobilize resources to build institutional capacity for cross-sector collaboration:* this includes creating sustainable financing and building the capacity of backbone organizations. It also requires building the capacity of a wide range of actors to participate effectively.

   b) *Funding for cross-sector collaboration should not be contingent on alignment with the global agenda:* most jurisdictional programs were originally designed to link jurisdictions to global agendas (e.g. REDD+ finance; global corporate commitments), and most funding for core roles has been linked to these. Linking too closely to an externally driven mechanism will tend to promote global over local interests, creating resistance by other landscape initiatives and decision-makers, and increase the risk that jurisdictional program funding will end if the global agenda shifts. The main value of jurisdictional programs and cross-sector collaboration more generally is the opportunity to work across multiple frameworks. For these reasons, independent funding is more likely to succeed in the medium and long-term and should therefore be prioritized now.

   c) *Companies and local governments need to help finance cross-sector collaboration in the medium and long-term:* international donors will likely need to provide financing in the near-term, but cross-sector collaboration will be an ongoing need. Consumer-facing companies should consider providing funding, likely through an intermediary, as they bear the brunt of consumer campaigns but do not always have easy ways to invest in on the ground solutions. Financing backbone organizations and key initiatives for cross-sector collaboration, without expectation of direct benefit or conditionality, could be part of their contribution.

6. **Jurisdictional programs should broaden their scope:** most jurisdictional programs started as REDD+ programs and over time expanded to include sustainable commodity initiatives, and efforts to ensure inclusive development for local communities and indigenous people. In fact, there is also high overlap with plans and programs related to infrastructure development, local food security, watershed protection, and climate adaptation, to name a few. The network-based approach described in this paper allows for jurisdictional programs to expand scope to include locally important issues more easily, and they should do so.

7. **Look harder at the ways that jurisdictional programs can strengthen overall efforts at evaluation in tropical forest landscapes:** section 4.6 makes the case that jurisdictional programs can help on this front in many ways. This has not been a strong-suit of jurisdictional programs to date, but with strategic investment and partnership with other actors it could deliver substantial value.

8. **Development partners should look for ways to put more skin in the game:** the world is looking to tropical forest countries and sub-national jurisdictions to make long-term commitments to sustainability transitions. Development partners need to find ways to make similar long-term commitments. This cannot be done unconditionally, but efforts should be made to reduce the tendency to shift approaches and geographies when progress is slower than expected.

5.2 Conclusions

We need to stop denying complexity and embrace it. Initiatives to transform tropical forest landscapes toward sustainability need to get real about the challenges they face and what is needed—in time, resources, and collaboration—to achieve durable change. "Transformational change" is never fast, cheap, or easy and if we keep promoting it that way we will continue to work in the wrong ways and be disappointed by the results. The approaches described in this paper can help better identify the actors that need to be involved, the interventions that need to be employed, and the relationships that need to be built to achieve sustained progress.

The realities of complexity in landscapes described in this paper are well understood, as are many of the tools and approaches for managing complexity. Why then does it feel like they are often ignored in design and management of strategies in tropical forests? On some level we know that simple and complicated strategies are not going to work to tackle complex problems, and yet we continue to believe or at least hope that they will. When our efforts fail, we often find some aspect of complexity to blame it on— "if only the context did not change" or "if only other actors did their part"— to show we were right, even though complexity was known from the beginning. This is in line with George Orwell's predicts in the quote on this page.

> *We are all capable of believing things which we know to be untrue, and then, when we are finally proved wrong, impudently twisting the facts so as to show that we were right. Intellectually, it is possible to carry on this process for an indefinite time: the only check on it is that sooner or later a false belief bumps up against solid reality.*
>
> **George Orwell**
> *Author*

We are now bumping up against solid realities of climate change, loss of local environmental services, and loss of irreplaceable biodiversity, among others. It is time to fully give up on our false beliefs about simple answers for sustainable landscapes.

A jurisdictional program is the opposite of a silver bullet—it succeeds by empowering other approaches and helping leaders achieve their own goals. The direct results of improved cross-sector collaboration are deeper insight into landscape dynamics and improved relationships among leaders. Individual actors are then able to apply those new insights to their own work and achieve their goals more effectively. Stronger mutual understanding and better relationships also result in less conflict and more effective partnerships. As actors see that collaboration helps them achieve their goals they will be more willing to invest in cross-sector collaboration going forward.

Jurisdictional programs can help leaders push each other toward better results. When leaders work together they are more likely to create a locally viable vision and path towards sustainable development informed by an honest assessment of the case for change and the ways that sustainability can help actors achieve their existing goals. A network of leaders will be more likely to build a shared understanding of how multiple strategies and programs need to reinforce each other. They are more likely to come to a clearer assessment of what is working, what is not, and how to adapt approaches over time. If done well, jurisdictional programs focused on catalyzing collective systems leadership will spark a range of focused partnerships that take approaches to scale through horizontal collaboration on multi-functional landscapes and partnerships to transition key sectors.

The core work of supporting jurisdictional programs can have a very high return on investment. Investing in the leadership network and the cross-cutting roles that serve as the backbone infrastructure for jurisdictional programs has modest cost and has the potential to make all these other investments in landscapes much more effective. Despite this, a major challenge will be convincing donors and others to mobilize resources for a model of jurisdictional programs based on enabling performance improvements across a network rather than driving and controlling comprehensive results directly.

Effective cross-sector collaboration in a diverse set of sub-national jurisdictions can also strengthen national and global dialogue on tropical forests. The ambition for protecting tropical forests continues to grow, but the goals and commitments created in the global dialogue are becoming further and further from the current reality in most places. This gap can drive progress if people have a realistic understanding of what it takes to close the gap. If leaders in a diverse set of sub-national jurisdictions can build their own shared understanding of how to drive forward on a sustainable development agenda, this will provide a valuable complement to the global dialogue, which is prone toward dialogues among close allies.

Building the relationships and infrastructure for effective collaboration outlined here takes time, but overall will generally result in faster change and more durable results. There is a genuinely urgent need to change the development pathway in tropical forest landscapes before high impact dynamics are locked-in. But experience has shown that jumping to conclusions about what will work or trying to drive locally unacceptable solutions creates an illusion of progress but in fact delays real change. This approach to jurisdictional programs is based on a conviction that the time required to build shared understanding and vision and to establish rigorous innovation approaches will easily be recaptured in faster progress in the medium-term and fewer reversals. If we can give up the illusion that jurisdictional programs can plan and control sustainability transitions, it may be possible to design them to have real influence in catalyzing the broad shifts necessary.

Photo credit: Erich Schlegel, 2016

Appendix A: Key Ideas and Approaches in More Detail

A.1. Strengthening the Collaborative Network at Jurisdictional Level

Perception of increasing inter-dependence and complexity has piqued interest in how network approaches can improve the governing of society (Kettl 2005) and international relations (Slaughter, 2017). Objectives of networks could be information, policy deliberation, decision-making, and implementation (Klijn Koppenjan, 2000).

Building a networked leadership model to improve jurisdictional programs is suited to the social complexity, distributed authority, and rapid change characteristic of tropical forest landscapes. A networked leadership model can work when actors recognize their shared power over one or more overall goals and work to improve the exercise of shared power through a network rather than an integrated structure (Grant, 2010). It is a collective, distributed, bottom-up, and emergent (Grant, 2010) way to create direction, alignment, and commitment (Meehan, 2012). Network leadership approaches can work well in situations that are hard to manage in a hierarchical way.

One of the critical advantages of a networked leadership model is adaptability. The effort to achieve jurisdictional sustainability is inevitably a long process. While an initiative may start with a certain rationale and set of stakeholders, the context could change, sometimes dramatically, if political, economic or social dynamics shift. Program approaches tightly designed around a single objective or dependent on a small number of highly influential leaders are more likely to become obsolete, whereas a network can adapt to new circumstances more easily.

Networked Leadership in the U.S. Military

One of the most compelling cases for using a networked approach to leadership comes from a surprising source – the U.S. Military. In "Team of Teams," Stanley McChrystal, a retired General who oversaw U.S. Special Forces in Iraq and Afghanistan during the second Gulf War, describes his transition from a classical hierarchical management style towards a "team of teams" approach that focused on building common goals, trust, and shared consciousness to enable small, distributed teams to act in a smart network to enable rapid response and action. He described his own role as being a "gardener," rather than leader of a hierarchical organization. A network approach is even more important for managing a set of truly autonomous actors. (McChrystal, 2015)

In the last decade, the idea of building networks to align actors towards a common purpose has expanded rapidly in many social sectors. One of the clearest articulations of this approach came from John Kania and Mark Kramer, who developed the "Collective Impact" approach, now being implemented in hundreds of large-scale systems change efforts in different sectors (Kania, 2011). It is a framework for a group of actors already working toward common goals to improve alignment and impact through more transparent and systematic collaboration. The Collective Impact Forum now manages an active community of practice to support hundreds of collective impact initiatives and is building a strong set of resources. There is a growing number of natural resource management initiatives in the United States that rely on networked approaches to governance and management (Scarlett, 2016).

While networks can be developed in a nearly infinite number of ways, we highlight four key ideas and approaches that are particularly important for jurisdictional programs based on our experience and research. First, while jurisdictional programs should work to build a wide network with many actors and types of collaboration, a Leadership Group made up of actors with substantial influence over jurisdictional sustainability and interest is critical. A backbone organization to provide overall support to the network, including the Leadership Group, is another key component. We highlight several approaches to building a systemic understanding of sustainability issues, both across sectors and within sectors and specific challenges. We highlight the importance, as well as the need for patience, in cultivating shared vision and goals for jurisdictional sustainability.

A.2.   Leadership Group

A jurisdictional program will need active participation by a broad network of actors to be successful but having a leadership group to provide high-level leadership is important (Huxham, 2000). Succeeding in getting a critical mass of influential and representative leaders to commit to working together as an important way to achieve their goals is, in fact, a key milestone for a jurisdictional program.

A Leadership Group needs to bring together a diverse group of senior leaders and decision-makers with capacity and willingness to meaningfully influence landscape dynamics (Kahane, 2014). Ideally, characteristics of effective Leadership Groups include:

- **Participation of three sectors:** government representatives from different levels of government, private sector actors, local people, and civil society actors all bring different and necessary knowledge and roles. The jurisdictional government must be heavily involved and play a leadership role but not dominate the collaboration.

- **Actors who work at multiple levels of the system:** collaboration between direct actors in landscape management, innovators working to develop new, more sustainable approaches, the public, and influential actors from outside the landscape—including national government—who have an interest in accelerating the transition and bring a broader perspective.

- **Actors have a long-term stake in the jurisdiction:** the diverse influential actors operating in the jurisdiction need to be the focus and starting point of jurisdictional programs. They are the ones who understand the system, have the most at stake, and have the most influence to shift dynamics. Jurisdictional programs can leverage global interest in tropical forest landscapes to create opportunities for change and accelerate change, but this can easily backfire if it becomes a dominant motivation and should be limited in early phases of jurisdictional programs.

Once a group with diverse, but interdependent interests is mobilized, the priority is on getting meaningful engagement and authentic dialogue across a wide scope of issues (Innes and Booher 2018). It is therefore not possible for the Leadership Group to focus on operational decision-making or collective governance (Rich, 2015), which would necessarily create conflict with existing governance systems. They work together within a light governance framework because they are not primarily a decision-making body. Decisions remain under the authority of each participating entity.

The Leadership Group works over time, with support from the backbone organization and others, to build a shared understanding of landscape dynamics and vision for sustainable development. They work together to provide high-level strategic direction and initial framing of key challenges. The Leadership Group will help individual actors clarify how they can strengthen their own sustainability actions as individual leaders of their organizations, as well as identify opportunities for focused partnerships.

Jurisdictional programs need to actively encourage participation of key actors. They can do this by focusing on creating value for different stakeholders, for example by providing analytical resources and access to decision-makers, managing effective and efficient process management to minimize transaction costs, and avoiding the perception that the jurisdictional program will try to control independent initiatives or claim credit. There will inevitably be important actors reluctant to join the effort, and leaders must continue to try to expand participation over time. They can do this by continuing to engage the unaligned, creating a shared consciousness, transparency, and communications that target these additional actors as well as those actively involved in the initiative.

A.3. Backbone Organization

A backbone organization is a crucial node in the network as it is the organization with the most holistic role in supporting the overall jurisdictional program. It has the mandate to address a wide range of topics of importance to the overall initiative but does so by working as both facilitator of the interests of the main participants and thought leader for inspiring understanding of new opportunities.

The term was popularized by "collective impact" initiatives, where the functions, options, benefits, and challenges of creating and maintaining backbone organizations are well documented and demonstrated. The concept has also developed independently in many other contexts where networks of actors are working toward common goals (Bakici, 2013; Howells, 2006; Hussein, 2018).

In tropical forest landscapes there are few fully developed examples, but there are similar approaches. Within integrated landscape initiatives there is some recognition of the role of "conveners" in catalyzing and supporting different landscape actors (EcoAgriculture Partners, 2017). Most jurisdictional programs have some sort of centralized management or coordination entity, often a unit within a jurisdictional government institution, though sometimes a non-government organization. Within jurisdictional programs there will likely be multiple backbone organizations supporting different initiatives that involve sustained cross-sector collaboration, including integrated landscape initiatives, sectoral sustainability initiatives, and others.

Case 3: Indonesia – NGO Support for Backbone Organizations

In Indonesia, TNC provided backbone support for two separate jurisdictional programs and played very different roles in each. In the Berau Forest Carbon Program (BCFP), which started as a district-scale REDD+ program, the initial plan was for TNC to support the design and fundraising for the program and focus on advising and harvesting lessons learned during implementation. The role expanded, however, and eventually included providing informal backbone support to the network of actors in BFCP and playing a significant role in designing and testing models and programs related to village development, sustainable forest management, and sustainable palm oil. The decisions to expand our role came as it became clear that more would be needed to create momentum in the program, the perceived time pressure for demonstrating REDD+, and the challenges to mobilize partners due to their limited capacity to take the roles as backbone organizations. While expedient, this further delayed full participation of others. A wide range of development partners, government agencies, local NGOs, and private sector have since taken on important leadership roles. Since 2016, the District Planning Agency (Bappeda) has been able to increasingly assume the responsibility as backbone organization, allowing TNC to withdraw to a more technical advisory role. The Vice-Bupati has taken on a strong leadership role in the steering committee and helps to coordinate between Bappeda and the other NGOs.

When working with the Provincial Government to develop the East Kalimantan Green Growth Compact, a local existing institution, the Provincial Climate Change Council, has the capacity and mandate to play the roles as the backbone organization. We took a much more disciplined approach to supporting the Council, taking a more focused role in program implementation, and actively recruiting other organizations to take on leadership roles. The expectation from the beginning of a network leadership model was also important. The result was far greater and more active leadership and ownership from government actors and other development partners.

At jurisdictional-scale, the backbone organization plays crucial roles in linking together related efforts outlined above and maintaining momentum over time as component initiatives come and go. Backbone organizations play several key functions, including:

- Supports the leadership group to build systemic understanding, building capacity for systemic thinking, and especially helping different actors to see their contribution to landscape dynamics;

- Is a catalyst for action by articulating a strong value proposition for sustainability and collaboration;

- Acts as an "honest broker" supporting honest dialogue and mutual adjustment, particularly where power imbalances make collaboration difficult;

- Steps in and fill gaps when necessary, mobilizing financial and technical resources, but do so in a way that motivates others to also act and ensure leadership to appropriate actors;

- Works with politically savvy to build momentum and avoid costly missteps, but still maintain integrity and respect of non-government actors;

- And facilitates action learning, knowledge capture, and knowledge sharing.

International NGOs have served as backbone organizations in some jurisdictional programs, but there is a strong case for starting to focus on development of long-term, local backbone organizations. International NGOs can serve as effective backbones temporarily if the organization is viewed as a trusted partner, most likely because of long presence in the landscapes, and is willing to work in this role on a sustained basis of five years or more. However, they face challenges in the long-term related to secure funding, license to operate in this key role over time, and the challenge of balancing the relatively neutral role of a backbone with the core mission of the organization.

New or existing non-profits, governments or international actors can serve as backbone organizations. There are pros and cons to different approaches (see Table 6).

Table 6: Advantages and Disadvantages of Different Kinds of Organizations Providing Backbone Support

Description	Pros	Cons
Newly created or existing local/national non-profit coordinates cross-sector collaboration	• Credibility and strong expertise on issues • Existing infrastructure in place if properly resourced • Perceived neutrality as facilitator and convener	• Lack of focus and capability if poorly funded
International non-profit coordinates cross-sector collaboration, often also as funder	• Ability to secure start-up funding and leverage resources • Can leverage international experience and expertise	• Lack of credibility if cross-sector collaboration seen as externally driven • Potential lack of independence
Government, at local or state level, drives cross-sector collaboration	• Proximity to national policy processes facilitating eventual uptake	• Slow progress in bureaucracy • Volatility in public priorities • Strong policy agenda
Multiple organizations second staff to a secretariat or otherwise share responsibility for cross-sector collaboration	• Credibility from broad participation • Access to broad expertise • Ownership by multiple partners	• Coordination challenges, leading to potential inefficiency

(modified from Hanleybrown, Kania, and Kramer, 2012)

Case 4: Mexico – Backbone Organizations

The Nature Conservancy informally played the role of a backbone organization throughout a five-year process to bring the three states of the Yucatan Peninsula together and to align several of their sustainable development strategies to a common set of goals and lines of action.

As the backbone organization, TNC fulfilled multiple roles, including gathering and generating necessary data and analyses, defining and coordinating pilot initiatives, designing and facilitating the establishment of key institutions, recruiting and convening partners, seeking alignment with other key initiatives, and guiding the vision and strategy of the initiative. Having one organization coordinate all these activities was useful in terms of ensuring a coherent and coordinated package of interventions as well as maintaining consistency and momentum over more than eight years. In parallel, at the national level, TNC worked closely with the Forestry Agency to design the country's national REDD+ system. The result is a nested, compatible, REDD+ system with clearly defined roles and responsibilities for national, state, and municipal levels, and analogous functions established at each jurisdictional level. This level of coordination and persistence was only possible due to a seven-year grant from USAID.

While TNC was the backbone organization, it also relied on and brought together dozens of key partners to lead on the design and implementation of diverse aspects of the program. Through small grants, contracts, and partnerships, TNC helped align the work of many local NGOs, local communities, research institutions, experts, and governmental bodies toward a common vision and shared goals. The program would not have been possible without this collaboration with so many highly-skilled local organizations.

The contribution of TNC as a backbone institution provided key momentum, funding, and continuity to the Yucatán Peninsula Jurisdictional Program, but leaves a capacity gap in terms of local organizations that can fulfill this role at different levels. The state governments have noted that TNC's contribution as a convener helped improve transparency and legitimacy for the jurisdictional program. However, the program has over-relied on TNC as a convening organization, which leaves uncertainty on the part of other capable partners on where they should step in. While a strong backbone organization is recommended at the start, the process needs to foster a networked leadership approach in which multiple actors share governance responsibility and mutual accountability. Capacity-building is needed to help local institutions assume this role at the whole systems level, or at the sectoral and community levels.

A.4. Systems Thinking

Systems thinking is a discipline created specifically for understanding and tackling complexity. It is based on the ideas that it is possible to study and make sense of patterns in the ways organizations, social systems, and ecological systems behave and that the insights gained can improve the ability to shape complex systems. There are several good resources on systems thinking (Meadows, 2015; Stroh, 2015); this section only highlights a few of the key ideas.

A system is a set of elements that 'hang together' because they affect each other over time and operate toward a common goal (Meadows, 2008). In the context of landscapes, examples of systems include ecosystems, economic sectors, villages, and government bureaucracies, to name just a few (Stroh, 2018). These examples of the many separate but inter-linked systems highlight the fact that jurisdictional sustainability is not achieved through optimizing any one particular system, but rather requires working intelligently with multiple systems. The good news is that despite this incredibly broad definition and variation among systems, there are tools and approaches that can help in understanding how many kinds of systems function. As a result, we consider systems thinking as a fundamental tool for improving outcomes in landscapes.

One of the most common ways of understanding systems is to use the metaphor of a system as an iceberg. Like an iceberg, only small portions of systems are "above the water." At the visible level, there are observable events (e.g. crises we must manage or fires we must put out). If we look a little deeper we can see the patterns of behavior, or trends over time, which can help to anticipate to some degree what will happen in the future. However, trends can be poor predictors of the future if the underlying systemic structures that give rise to the patterns are unclear; moreover, if the trends are undesirable, projecting conditions to get even worse is not helpful. If we want to change current trends and improve system performance in sustainable ways, we need to clarify the underlying systems structure that creates the trends and in turn the events which emerge from them. Elements of systems structure include things like policies, decision-frameworks, and market relationships. And even further below informal structures such as mental models or cultural assumptions, and goals – both explicit and implicit – that give rise to the formal structures.
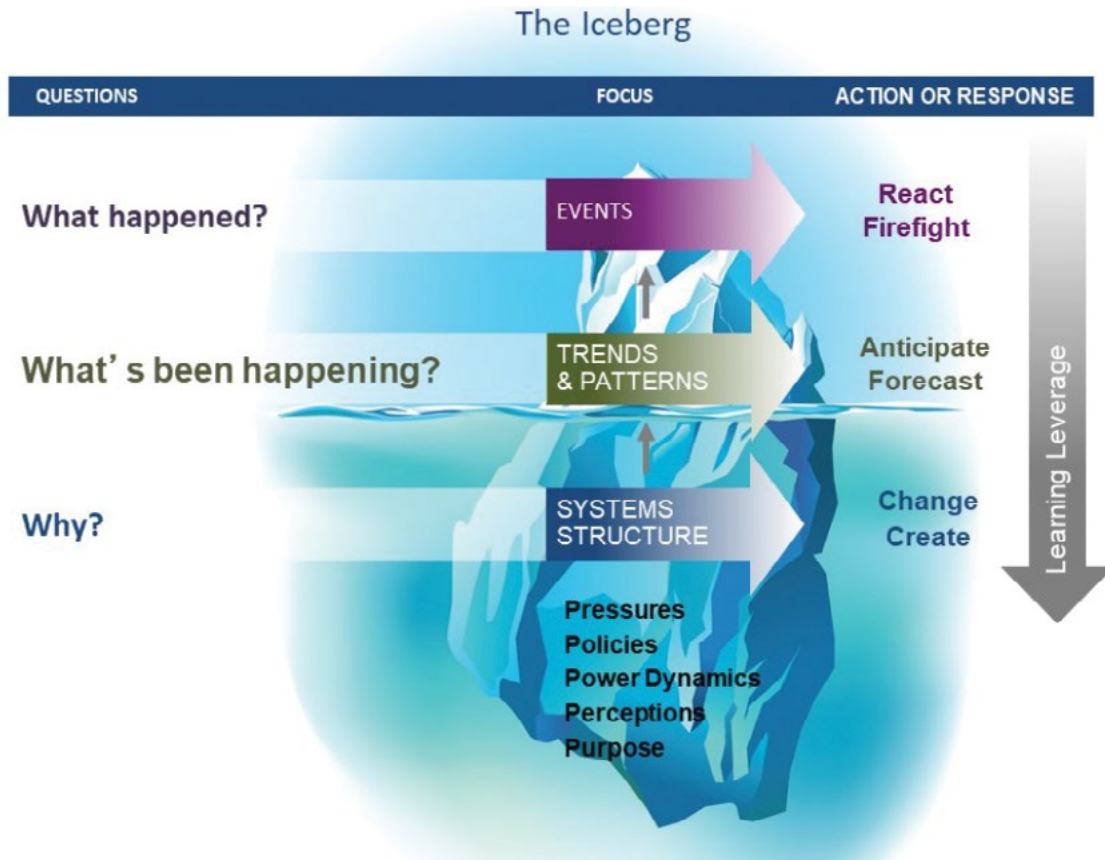

Photo credit: Erich Schlegel, 2016

The Iceberg

QUESTIONS	FOCUS	ACTION OR RESPONSE

What happened? — EVENTS — React / Firefight

What's been happening? — TRENDS & PATTERNS — Anticipate / Forecast

Why? — SYSTEMS STRUCTURE — Change / Create

Pressures
Policies
Power Dynamics
Perceptions
Purpose

Learning Leverage

Figure 4: Iceberg Model Of Complex Systems

Reprinted from David Peter Stroh, Systems Thinking for Social Change: A Practical Guide for Solving Complex Problems, Avoiding Unintended Consequences, and Achieving Lasting Results (Chelsea Green, 2015) with permission by the publisher.

Even this simple metaphor can help spark important insights. Over the past ten years, significant effort has been made to improve understanding of tropical forest landscape dynamics. There has been an enormous increase in the amount of information about trends—rates of deforestation in different areas, relative importance of proximate causes of deforestation, flow of different commodities. While there have been efforts to understand the underlying structures, these are inherently local, and aggregation is more difficult. The iceberg can serve as a reminder not to confuse trends with underlying structure and to keep looking for the mental models and goals that give rise to system structures. If we focus primarily on addressing trends, there is a high risk that the underlying structures and mental models will re-produce very similar dynamics.

Systems thinking can provide intuition about the value of different types of leverage points. Events and patterns attract much attention but responding at this level can be misguided and is rarely impactful. Some of the best opportunities for influencing the patterns in the system can instead come from changing mental models and goals of systems. High leverage is also possible through shifting underlying system structure, including not only policies and rules of the system but the ways that information flows and expands management options.

One of the key insights of systems thinking is that problems most often originate in the structure of the system, not individuals. This is a crucial insight because it allows for the possibility of blaming others less and for seeing our own role in undesirable dynamics with less defensiveness. Both shifts can dramatically improve collaboration.

Experience has shown that various types of systems often behave in similar patterns and recognizing these can accelerate understanding of the system. These "system archetypes" can be extraordinarily helpful when starting to diagnose system behavior. Some of these archetypes, for example "tragedy of the commons," which describes a tendency of individuals to exploit common-pool resources, have become well known, while others are less so. Some examples of these archetypes (Stroh, 2015) are:

- **Fixes that backfire:** people implement a quick fix that works in the short run but creates unintended consequences that eventually exacerbate the problem. Sustainable intensification in agricultural production is sometimes an example of this – in the beginning, it may reduce expansion of production into forested areas, but over the long-term it will likely actually contribute to increased deforestation as crop- and pasture-land becomes more profitable if complementary efforts are not made to strengthen forest protection.

- **Shifting the burden:** people have a choice of implementing a quick fix or a longer term, more fundamental solution to a problem. Their natural tendency is to implement the quick fix because it is more expedient; however, over time depending on the quick fix will often undermine their motivation and ability to implement the more fundamental solution and makes the problem worse. An example of this is depending on Phase I & II financing commitments to mitigate climate change instead of investing sufficiently in mainstreaming a sustainable forest landscapes approach.

- **Success to the successful:** in a system with fixed resources, when one party gains an early advantage, they can use that advantage to acquire more resources over time. At the same time, the party with an early disadvantage becomes less and less able to access resources. Within the REDD+ world, this can play out when High Forest, High Deforestation states receive more attention and resources than High Forest, Low Deforestation states. Over time, deforestation may shift to the High Forest Low Deforestation (HFLD) states, further increasing their disadvantage.

- **Accidental adversaries:** one party in an existing or potential partnership adopts a strategy that improves its own performance but inadvertently undermines the other party's success. This leads the second party to improve its own success but in a way that unwittingly undermines the performance of the first party. The result is that the benefits of the partnership to both parties devolve into an unintentional adversarial relationship. An example is the tension created between donors and host countries around REDD + funding when donors divert money from one country to another in hopes of achieving greater success, and host countries react by focusing on administration of donor funds or long-term solutions instead of demonstrating the shorter-term progress that donors seek.

Case 5: Indonesia – System Dynamics Modeling

In 2009, the governor of East Kalimantan pledged to make East Kalimantan a 'green province.' This resulted in the establishment of the 'Green East Kalimantan' (Kaltim Hijau) program. The vision of the program is to develop the province as a global example for how to combine greenhouse gas (GHG) emission reduction goals with economic development, while ensuring that development is sustainable and environmentally friendly. In considering policies for the next mid-term development plan, the Provincial Government planning agency (BAPPEDA) wanted to understand the interaction of economic, social, and environmental policies, and to meet this need. TNC and KnowlEdge SRL, a consultancy, undertook development of a simulation model to enable Provincial decision-makers to understand complex landscape dynamics. This involved (a) the identification of the main drivers of change at the local level (qualitative and stakeholder driven), (b) an evaluation of the strength of the relationships existing across variables (and across sectors), (c) a science-based analysis for the assessment of various policy/investment outcomes. The resulting modeling framework allows for the simulation of "what if" scenarios over time (using semi-continuous time) and for outcomes across dimensions (i.e. social, economic and environmental) and actors (i.e. households, private sector and government).

The modeling framework developed for this study utilized two main approaches, Systems Thinking and System Dynamics, to offer a comprehensive assessment of sectoral and provincial sustainability. The use of System Dynamics allows for the socioeconomic implications of different actions to be assessed across sectors (social, economic and environmental) and actors (e.g., households, private sector and the government), within and across countries. In this respect, the use of System Dynamics and the creation of causal maps (or Causal Loop Diagrams, CLD) have several purposes. First, it brings the ideas, knowledge and opinions of the participants together. Second, it highlights the boundaries of the analysis. Third, it allows all stakeholders to reach a basic-to-advanced knowledge of the systemic properties of the issues analyzed.

Having a shared understanding is crucial for solving problems that touch upon several sectors, or areas of influence, which are normally found in complex systems. A Causal Loop Diagram (CLD) is an integrated map of the dynamic interplay between the key elements – the main indicators – that constitute a given system, because it represents different system dimensions and explores circular relations, or feedbacks, within and between them.

To develop the provincial model, we worked with an overall multi-stakeholder group as well as focused expert groups who led development of four sub-systems. Stakeholders developed and refined the causal diagrams and identified potential interventions that they want to see being simulated. The consultant refined the causal diagrams, synthesized data, and built the mathematical model. The CLDs developed for East Kalimantan include (1) the main CLD, capturing multiple economic sectors, followed by (2) four sectoral CLDs: agriculture sector, community sector, oil palm production sector, and sustainable forest plantations. The results were analyzed using a Cost-Benefit Analysis (CBA). A CBA supports the comparison of benefits and costs of a given decision/investment. System Dynamics modeling aims at considering all the outcomes of policy interventions, both positive and negative, and for social, economic as well as environmental indicators. The model was validated by comparing the simulation output of the System Dynamics simulation model to historical data. TNC and the consultant presented the simulation to BAPPEDA facilitated discussions the results of simulation and then improved the model, added more data, and included other potential interventions. The simulation was again presented to BAPPEDA who utilized lessons into mid-term development plan.

A.5.   Multi-Level Perspective on Sectoral Sustainability Transitions

A significant amount of the effort toward jurisdictional sustainability has been focused on accelerating sustainability transitions in high-impact economic sectors. We have had experience in trying to develop jurisdiction-wide strategies for sector transitions in soy, beef, palm oil, and forestry in Brazil, Indonesia, and Mexico. We have found that because of variations in socio-economic context, interests of actors, positioning in supply chains, plus many other factors, different models and approaches work very differently in different countries and sectors. How can we do better at anticipating whether and how our efforts will produce change?

Studies of historical sustainability transitions indicate that there are patterns to how sectoral sustainability transitions unfold over time. Understanding these patterns can improve the ability to influence sector transitions going forward. One particularly compelling framework is the multi-level perspective on sustainability transitions, developed primarily by Frank Geels of the University of Manchester, provides heuristics and methods for doing case analysis to understand likely transition pathways.

The core idea of this framework is that it is necessary to have a multi-level perspective on sustainability to understand the pathways by which complex socio-technical systems evolve (Geels, 2011). The three main levels in this framework are:

- **Regime actors:** the direct actors in the target regime, including regulators, policy-makers, upstream industry, downstream industry, financial institutions, buyers, etc. Regimes are generally stable configurations of different actors tied together through legal and regulatory frameworks, market relationships, installed capabilities and investments, infrastructure, technology, etc. Regimes tend to evolve gradually, resist change, and reproduce themselves over time to maintain fit among these parts.

- **Socio-economic context:** another level is the overarching socio-political context. Changes at this level can impact regimes, but these changes in the socio-economic context are often slow to develop, unpredictable, and changes may be too small to impact regimes.

- **Niche innovations:** the specific initiatives aimed at developing "niche innovations," for improving production practices, strengthening landscape monitoring, empowering local communities, or other specific issues. These can emerge through focused investment, unique circumstances, technological breakthrough, or other means.

Empirical evidence indicates that the pathway of sustainability transitions depends on the dynamics between these levels. Changing the broader socio-economic context can motivate shifts in a regime, but the regime needs to perceive benefits from making those shifts or otherwise recognize the need for change. Even if there is pressure for change and willingness to change, innovations need to be ready to guide the shift. Innovations can be proven to work, but without pressure for change from above, regimes will be unlikely to adopt them. Often, actors work at one of these levels but not at two or all three, and often fail to shift regime dynamics due to lack of readiness at other levels.

If there is external pressure on a regime, but no viable innovations for change, the regime will be disrupted, but reconfigure. If there are innovations, but they are not demonstrably better for regime actors and there is not a strong signal for change from the external context, the innovations will produce only modest change. If there is moderate pressure for the regime to change and viable innovations, regimes can change either through simple substitution of technology or broader reconfiguration.

Many actors are trying to support sustainability transitions, but they often work at only one level and tend to work with others who are in a similar position. They know that others influence the issues they care about, but only have a vague understanding of what they do and why. This limited perspective underlies the failure of many efforts to take solutions to scale or influence complex systems.

Based on our experience, jurisdictional programs are well placed to help actors develop a multi-level perspective on landscape dynamics. They can make the socio-economic context for various regimes more transparent. They can help to convene regime actors—across sectors and scales—to improve insight into the constraints and opportunities for sustainability transitions in the sector. They can track and support the development and promotion of effective niche innovations.
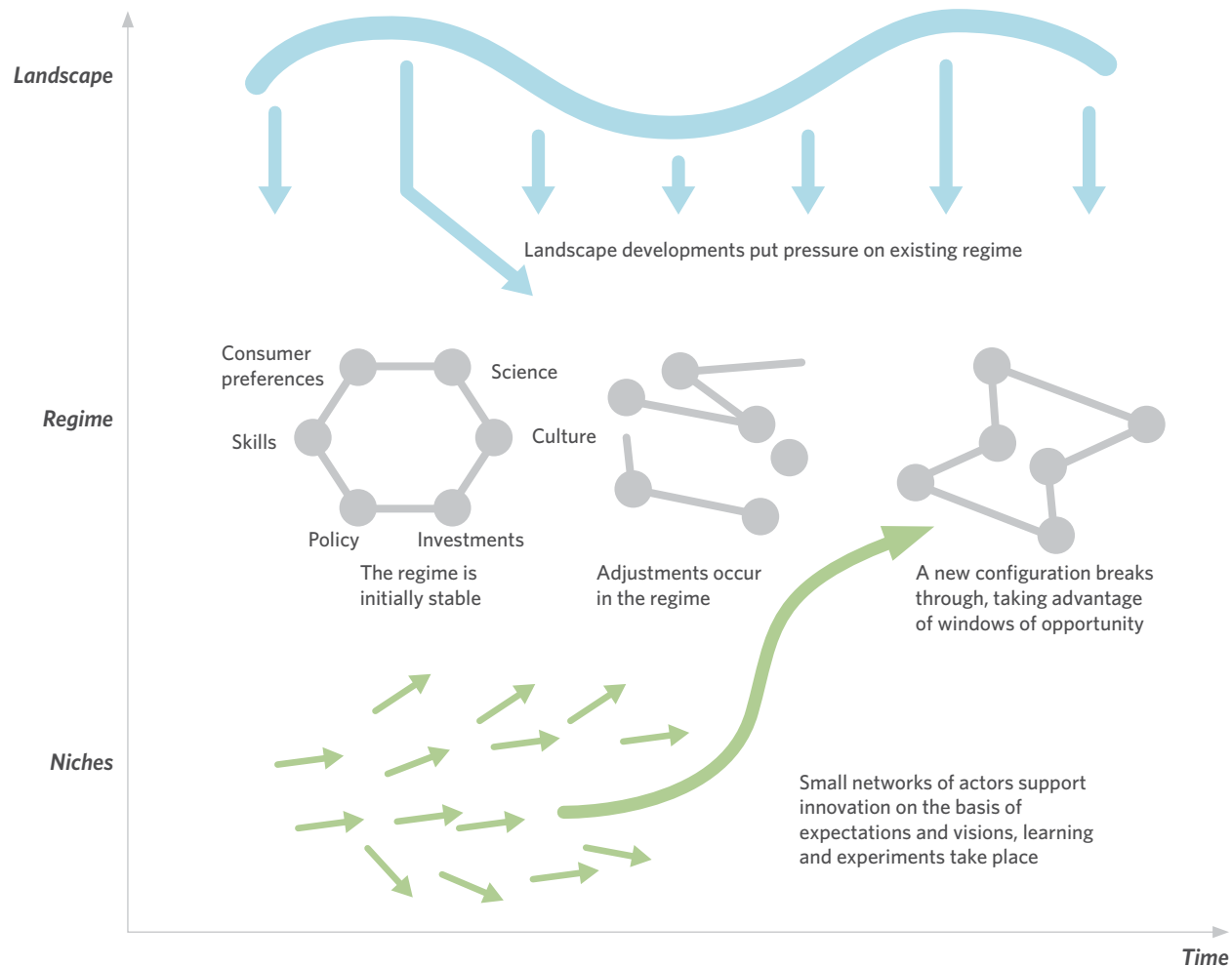
Figure 5. Multi-Level Perspective on Sustainability Transitions

Source: European Environment Agency (2018). Perspectives on transitions to sustainability. Based on Geels, 2002

Jurisdictional sustainability requires sustainability transitions in multiple regimes within a jurisdiction. There are, in fact, many inter-related regimes that are important to landscapes. While the appropriate boundaries for analysis of regimes can vary, types of regimes include different production sectors, the protected areas management system, systems related to land registries and land use planning, etc. Each of these exhibits similar dynamics of interaction between regime actors, the external context, and new niche innovations that are developed.

There are a number of potentially important roles that jurisdictional programs can play in catalyzing different sectoral sustainability transitions:

- **Synthesize understanding of the broader socio-economic context:** jurisdictional programs can help to synthesize the understanding of the broader socio-economic context and the interaction among regimes. While the complexity implied by trying to drive multiple sustainability transitions is daunting, there is not much alternative. This is the reality in virtually all landscapes. Jurisdictional programs can help make these dynamics more transparent and perhaps achieve efficiencies in analyzing and monitoring dynamics over time.

- **Support for scenario planning:** scenario planning is an important tool for bringing together the wide range of actors needed for building a multi-level understanding of sectoral transitions as well as overall transitions to jurisdictional sustainability. Scenario planning can help all actors better understand how to act more effectively in light of uncertainties about the trajectories of key performance drivers. Regime actors can better understand each other as well as how the broader context is changing. Those, such as advocacy groups, can better understand how regime dynamics and the availability (or not) of viable innovations will combine with external pressure to produce change, backfiring, or nothing. Those looking to invest in innovation can see the opportunities more clearly. Jurisdictional programs are well-placed to provide neutral facilitation. There are several examples specifically using scenario planning in the context of the multi-level perspective framework (Elzen, 2004). A very compelling and potentially compatible methodology is Transformative Scenario Planning, developed by Adam Kahane (Kahane, 2014). It is based on the idea that key actors in a system can unite around working together toward a most plausible and preferable future even if they do share common aspirations.

- **Encourage jurisdiction-wide sector transition strategies:** our experience in trying to develop jurisdiction-wide strategies for sector transitions in soy, beef, palm oil, and forestry sectors in Brazil, Indonesia, and Mexico has been that there is rarely if ever a single model or strategy. Variations in socio-economic context, interests of actors, positioning in supply chains many other factors will tend to require several models and approaches. We suspect this will be the conclusion of many scenario planning exercises as well, though actors—whether governments, NGOs, or private sector—tend to focus only on their preferred approach, losing important synergies. Jurisdictional programs are well-placed to help frame sector transition approaches that realistically describe the opportunities jurisdiction-wide.

Case 6: Importance of External Shocks on Jurisdictional Programs

While we have been among those emphasizing the importance of jurisdictional governments and championing their growing commitment, progress at sub-national scale relies in many ways on national policies and leadership as well as other forces that create external shocks and opportunities for change. In Brazil, sustained and effective campaigning, notably by Greenpeace drawing attention to soy and cattle-driven deforestation, created significant opportunities for change. The significant national initiative for coordinated enforcement of existing national land use regulations, including creation of a blacklist of municipalities with high rates of illegal deforestation, further built pressure on local governments, farmers, and other stakeholders to change.

In Mexico, in contrast, there are clear pathways for change that have strong local support, but they rely heavily on changes at the national level, notably with respect to the management of Mexico's vast agricultural subsidy programs. While national government has been open to exploring options, action has been slow. At farm and sub-national jurisdictional scale business as usual approaches have not changed due to the combined effect of inertia and perverse incentives.

A.6. Cultivating Shared Vision and Goals

Shared vision is consistently recognized as a critical factor in large-scale system change efforts because it can inspire, guide, and align action. To the extent that groups recognize common or at least compatible sources of commitment and energy, it can fuel much greater effort and progress (Scharmer, 2016).

Unfortunately, diverse stakeholders with different values, objectives, and knowledge cannot quickly develop a genuine shared vision. A jurisdictional vision and goals developed quickly based on externally defined metrics and objectives is likely to lack true commitment of local actors on whom successful achievement depends. Therefore, we use the word "cultivate," in recognition that it requires sustained attention over time. We include it as the last element because the development of shared vision is unpredictable and may indeed take significant time.

> *Vision becomes a living force only when people truly believe they can shape the future.*
>
> **Peter Senge**
> *Author,* The Fifth Discipline

Shared vision is built on individual visions and must reflect them. One of the most consistent and compelling advocates for the importance of shared vision is Peter Senge, author of The Fifth Discipline, and a professor at MIT. He emphasizes that shared vision starts with clarifying individual visions, which are often unclear and unarticulated, and then sharing these visions (Senge, 2006). Thus, shared vision does not replace an individual vision, but rather builds on it. He also emphasizes the importance of positive visions that articulate what people want to see, rather than what they want to avoid. A positive vision is more likely to clarify actions, inspire, and provide durable guidance. It is important to realize that it will not be possible or necessary for all actors to have identical visions, but it is important to have compatible visions. Peter Senge makes the analogy of shared vision to a hologram, made of separate images that are different but close enough to reinforce each other and make the overall image even more vivid and clear. In this way, sharing visions of individual actors is a crucial step toward a shared vision.

Another compelling articulation of the power of shared vision and how to get there comes from The U Process, developed by Otto Scharmer, also a professor at MIT. He embeds shared vision in an overall approach to collaborative system change that has inspired thousands of groups around the world to tackle complex challenges in new ways. It is based on the idea that to really understand and address complex challenges, it is necessary to get to deeper level of insight into the change process (Scharmer, 2016).

Over time, jurisdictional program can develop increasingly specific, measurable and achievable economic, social, and environmental development goals that guide the overall initiative. The country-level efforts to define Sustainable Development Goals could be a guide, as well as various existing planning processes and programs already in place in the Province. While it is possible to anticipate these goals, it is necessary to provide the opportunity for stakeholders to really work through these issues together to arrive at truly shared goals.

Jurisdictional programs also need to define clear progress indicators. These will likely be related to improved governance (e.g., finalization of land tenure review) as well as improved land management (e.g., effective protection of natural capital in set asides in plantations) that serve as program effectiveness measures and allow for adaptive management of the overall program.

Individual actors will also need to agree, over time, to specific commitments that contribute to one or more jurisdictional goals. These could include commitments of inputs and actions (e.g., financial commitments, specific actions related to policy reforms, commitments to align corporate practices, etc.) and commitments of cooperation that detail specific ways that two or more parties would work together (e.g., specifying government action on land tenure reforms and village development planning and the relationship to corporate site-level planning efforts).

A.7. Developing Structures for Effective Collaboration for System Change

Cross-sector collaboration is always challenging, and landscape initiatives are no exception. We have had some success developing recurring structures for collaboration within jurisdictional programs and believe that there is an opportunity to explore this approach further. In this section we discuss a general framework for creating structures for cross-sector collaboration as well as some of the issues around managing multiple working groups linked to the jurisdictional program.

Jurisdictional programs need working groups or other fora that allow narrower sets of partners to tackle focused problems. These working groups will build detailed understanding, refine problem framing, develop potential solutions, build prototypes, etc. These may result in implementation partnerships. The working groups will form as opportunities arise, operate, and end if the issue has been addressed. These can be built to link with existing initiatives or create to tackle new issues raised by the leadership coalition. Jurisdictional programs will therefore involve an evolving portfolio of working groups. Jurisdictional programs need to maintain links between working groups and the leadership group so they can evolve together.

Jurisdictional programs need effective and efficient approaches to manage working groups. This is important to enable actors to go deeper on key topics than is possible or desirable in the context of the leadership coalition. There are many important topics that do not require or benefit from the involvement of the full Leadership Coalition, and which need a different set of experts and principal actors.

Case 7: Indonesia – Working Groups as Part of Provincial Compact

The East Kalimantan Provincial Climate Change council (DDPI), the backbone organization for the Green East Kalimantan Program, recognized that developing solutions would require good collaboration across sectors, structured innovation to quickly refine and improve solutions developed, and effective translation from prototypes and pilots to full-scale approaches. This was the basis for the decision to make an evolving portfolio of "prototype initiatives" a major focus of the Provincial program. Prototype initiatives are initiatives developed to respond to complex sustainable development and natural resource management challenges. The initiatives chosen were among the highest priority opportunities for accelerating Green East Kalimantan, chosen for their potential for impact in the province and elsewhere in Indonesia. For each one, a set of partners has agreed to work together to improve understanding of the challenge, test and refine various solutions and approaches needed, and proactively share progress and results. In many cases, the mechanisms for getting to impact at scale are already part of the prototype, for example in the Forest Management Unit prototype initiative, where ongoing rapid replication creates a strong demand for effective solutions.

Some of the initial set of seven initiatives were underway in East Kalimantan prior to the Compact but are expected to benefit from increased focus and support from diverse stakeholders to accelerate progress. The majority of funding will come from prototype partners, but there may be potential to complement this funding over time. The portfolio of prototype initiatives will be overseen by DDPI to ensure maximum contribution to the overall objectives and strategies of Green East Kalimantan. DDPI will lead prioritization of initiatives, support operation of prototypes by the relevant parties, and help to link prototype initiatives with relevant decision-makers needed either for developing solutions or taking them to scale. It will maintain a publicly available registry of prototypes and report on progress.

Working groups will often be organized around either key "regimes" or high priority multi-functional landscapes and will work to test key innovations linked to the broader objectives. Often key regimes will be related to major economic sectors. Lasting change requires them to want to change themselves, but there are many reasons why they tend not to change and overcoming this tendency to maintain the status quo is central to accelerating sustainability transformations and collective systems leadership. Working directly with the full set of relevant regime actors is crucial as it is the only way to understand the opportunities and constraints for shifting the regime. A second level of focus is on development of particular innovations that advance the sustainability agenda while still meeting the needs of regime actors.

There are two basic pathways for creation of working groups.

- **Developing working groups to more effectively link existing initiatives to the jurisdictional program:** working groups already in process or which arise during the program and are linked to the jurisdictional program to provide better access to decision-makers, mobilize resources, or for other reasons. This is an important pathway to demonstrate the value of collaboration by engaging existing initiatives that show potential but are struggling in some way and try to help get them unstuck. This can be done by enlisting the participation of key decision-makers, finding new partners to tackle complementary work, or mobilizing resources to meet urgent needs.

- **Creating working groups to pursue opportunities emerging from the Leadership Coalition:** to follow-up on key opportunities or address critical constraints identified. Each working group will operate on its own time scale. When the organizing problem is solved or interest wanes working groups can stop operating. There is therefore a flexible portfolio of working groups that will be linked to the overall jurisdictional program.

If successful, working groups accelerate innovation and development of large-scale operational agreements to shift performance of key systems or landscapes. If successful, working groups will convene the relevant stakeholders involved in either a key regime or important landscape, test different innovations to shift the regime or landscape toward higher performance, and develop a shared, feasible implementation plan. These plans can be the basis for integrated or linked operational and financing agreements that help ensure that necessary complements are developed.

Photo credit: Bridget Besaw, 2009

Case 8: Mexico – Networks for Territorial Innovation

Based on the results of an in-depth analysis of drivers of deforestation, TNC and our partners launched a process to test potential solutions. This process centered on a small grants program to introduce, test, and measure the effectiveness of improved practices for farmers, ranchers, foresters, and community conservationists. The pilot projects financed through that small grants program were subject to local measurement and monitoring processes as well as an external analysis of the specific interventions to measure their economic and environmental costs and benefits.

The objective of the pilot projects was to determine which practices could provide the greatest social, environmental, and economic benefits at the least cost to guide and influence the types of interventions that were prioritized in national and state REDD+ programs. A key element of the process was the focus on using the pilots to generate data and developing a systematic approach to scale up the practices that proved successful.

The pilot projects were selected through an open call for proposals in which local NGOs and community associations voluntarily submitted proposed activities. This self-selection process allowed TNC to identify a greater range of partners than we had previously worked with and allowed the program to start with a coalition of the willing. A total of fifteen projects, managed by ten local organizations, were tested in over 47 communities in the Yucatán Peninsula, reaching over 1500 farmers and covering 75,000 hectares. Practices tested included silvopastoral systems for intensifying cattle ranching, conservation agriculture for improving corn and soy production, agroforestry and improved milpa practices for supporting Mayan communities, and improved forest management for community foresters.

To support the pilots to learn and share from each other, TNC implemented Communities of Practice on ranching, agriculture, and forestry. These Communities of Practice were critical for creating buy-in among participants, helping producers learn from each other, promoting adoption by a larger group, and for fostering the beginnings of a network of sustainable producers throughout the Peninsula. As these Communities of Practice progressed, the demand for participation quickly outpaced our ability to deliver exchanges. To better meet that demand, TNC began to work with partners to design a system that would support large-scale replication and adoption of the practices throughout the Peninsula. Using the map of drivers of deforestation to target "hotspots" for particular practices, TNC designed a system of "Networks for Landscape Innovation" (or RITERs, for their Spanish acronym) for each practice.

RITERs consist of a dedicated physical space that is designed for hands-on learning as well as a network of model farms/ranches/forests/conservation practices that serve as satellite training centers. Each RITER center will have sufficient infrastructure and technical capacity to train large numbers of producers and extension agents that can field-test new and innovative practices in their own productive spaces. The process focuses on farmer-to-farmer or peer-to-peer methodologies, so the RITERs will not only develop technical capacities, but also "soft" or "functional" innovation capacities so lead farmers also become promoters of these technologies/practices.

In addition to technical capacity to implement improved practices and improved business acumen to financially and administratively manage their production systems, producers need to be networked into a broader development system that includes all the other actors in their supply chains, specifically financial opportunities, research, input provision, potential buyers, among others. These innovation networks seek to create positive feedback loops that will accelerate and improve market opportunities for sustainable products.

The RITERs use Social Network Analysis (SNA) to identify and incorporate key actors within the network that will increase probability of innovation adoption, replication and influence. SNA is the process of investigating social structures using networks and graph theory. This methodology identifies producers that have high innovation capacities as well as high diffusion/communication capacity and facilitates the design of a network strategy with higher replication potential.

The process that was undertaken in the Yucatán Peninsula to test solutions, share learning, foster replication, and define the spatial extent for scaling, provides an example of a systematic approach to innovation and scale. While in in practice the implementation of the project was complex - activating strategies in parallel at several scales and adapting in real time to context, opportunity and leadership capacity-, the overall arc of activities has lent itself to progressively increasing levels of buy-in and adoption.

A.8. Jurisdictional Compacts

A formal jurisdictional compact, or high-level agreement, can be an important tool for clarifying, documenting, and reinforcing the commitment to a shared vision. This in turn enables stronger investment and effectiveness in understanding and problem solving. The compact would ideally: recognize the current reality, articulate a shared vision of sustainable landscapes, include high-level goals and plans, and document commitments to deliver on the vision. Signatories would include members of the Leadership Group and any others that are appropriate. While negotiating a formal agreement can be challenging, much of the value comes from making sure that there is real agreement and clarity to guide different stakeholders in pursuit of a shared vision.

A jurisdictional compact could take different forms and be developed in different ways depending on the context. Variations could include the name of the agreement (green growth compact; production protection compact; etc.), the timing of the agreement (early in evolution of the jurisdictional program or later), whether it is a single agreement or a set of linked agreements, and the level of detail of the agreement.

A jurisdictional compact should be treated as a living document. It will almost certainly need revision to evolve as context, understanding, and priorities change. Hopefully, the compact can be retired once key elements and ways of working have been fully mainstreamed.

Expected content of the Compact

Based on our experience, the following are some of the key elements to include in a jurisdictional compact:

- **Jurisdictional sustainability objectives, measures, monitoring:** the Compact would need to include clear economic, social, and environmental development goals that guide the Compact. The country-level efforts to define Sustainable Development Goals could be a guide, as well as various existing planning processes and programs already in place in the Province. While it is possible to anticipate these goals, it is necessary to provide the opportunity for stakeholders to really work through these issues together to arrive at truly shared goals. The Compact will define clear progress indicators related to improved governance (e.g., finalization of land tenure review) as well as improved land management (e.g., effective protection of natural capital in set asides in plantations) that serve as program effectiveness measures and allow for adaptive management of the overall Compact. Measures and monitoring of both development goals and progress indicators is necessary to maintain momentum and learning.

- **Individual commitments:** each party to the Compact would agree to specific commitments that contribute to one or more goals of the Compact; this would include commitments of inputs and actions (e.g., financial commitments, specific actions related to policy reforms, commitments to align corporate practices, etc.) and also commitments of cooperation that detail specific ways that two or more parties would work together (e.g., specifying government action on land tenure reforms and village development planning and the relationship to corporate site-level planning efforts). General types of commitments expected to include: a) commitment to multi-stakeholder process: get a critical mass of influential actors to agree to participate in development of the Compact and steering of implementation of the Compact; b) government and corporate policy reforms commitments by key institutions to create the enabling conditions for success of the Compact; c) program implementation and practice commitments by land managers, technical agencies, NGOs, and others who commit to implement key programs and practice reforms on the ground; d) financing commitments of public financing, private investment, donor funding, compensation investment and other types of finance as well as commitments to improve coordination of financing; e) accountability commitments to specific provisions to increase transparency about progress on policy and practice change and to specific ways they will hold each other accountable (explained further below).

Case 9: Brazil – Municipal Pacts for Zero Deforestation

In 2007, as part of a national effort to curb deforestation, the Government of Brazil created a list of Priority Municipalities (commonly known as the "blacklist") targeting the 36 municipalities in the Legal Amazon where more than half of total deforestation was taking place. The consequences of being on this list included a ban on new licenses to expand pasturelands, an embargo on the sale of goods produced on illegally deforested areas, and reduced access to credit lines. The municipality of Sáo Felix do Xingu (SFX), in the State of Pará was at the top of the list.

As part of the process to be removed from the list, SFX needed to forge a Pact to Achieve Zero Illegal deforestation. While other blacklisted municipalities in Pará basically rubber-stamped a generic agreement at their first meeting, stakeholders in SFX insisted that any pact would need to include commitments of support from all the relevant actors and agencies.

To obtain input from communities and stakeholders, and reach a pact representing a shared multi-stakeholder commitment, the Municipal Secretary of Environment (SEMMA), supported by TNC with local actors such as the Association of São Felix Associations (AAÇÔES), led a four-month process during which they traveled to the far-flung communities throughout the municipality to present and discuss the Pact. During each meeting, the community members listed the resources they would need to effectively reduce deforestation, and each community elected two representatives for the process: a smallholder and a large landowner. These community meetings were critical for large and small landholders to find common ground and agree on the principles of the Pact.

The main barriers and concerns discussed during the negotiation process were the need for secure land tenure; technical assistance and credit to improve agricultural practices; environmental regularization in the rural environmental registry (CAR); and improved infrastructure (e.g. electricity and roads) (IEB 2014). Rural producers would commit to zero illegal deforestation but demanded that the government also committed to fulfill its responsibilities.

According to the Secretary of Environment, these community meetings not only brought legitimacy to the Pact process through the collection of stakeholder input, but also served to bring diverse groups together to work toward a common goal. In the past, large ranchers and family farmers had difficulty even sitting at the same table due to historic and on-going—occasionally violent—conflicts over land. Through the process to create the Pact, representatives of these groups got to know one another on a personal level and gained understanding of the needs and perspectives of the other group, which was very important to the success of the process.

After the community meetings were complete, SEMMA and the Ministry of Environment held a meeting in August 2011 to review and sign the Municipal Pact for the End of Illegal Deforestation. The Pact was signed by 52 organizations representing government, local stakeholders, and NGOs; several more joined later. The objective of the Pact is to achieve zero illegal deforestation and support sustainable development. It includes commitments by the government to support landholders in securing land tenure and productive assistance; commits rural producers to work toward legalized, improved practices; and commits banks, the private sector, and non-governmental organizations to support the Pact with financial and technical assistance. In other clauses, rural producers commit to operate within legal parameters and to transform their production into a sustainable model.

Over time participation in the pact weakened as it did not move from problem identification and grievance mechanism to a solution provider. Despite investments in design of a funding mechanism, the plan to create a fund was discarded as investor interest in endowment funds was evaluated to be in decline.

However, it was a government agricultural credit scheme, the Low Carbon Agriculture(LCA) program, that revived the pact forum in another form. The LCA is a federal program with implementation groups established at state level. In the Amazon this still leaves a considerable gap to municipality level action. TNC and the São Felix municipal leaders obtained approval to create a municipal program connected to the state program. This absorbed the agenda of the municipal pact and became an effective space for multi-stakeholder planning of the zero-deforestation agenda. The municipal program was formally created by the municipal assembly. It developed targets and assigned responsibility for action on the main responses to deforestation. It also opened opportunities to access federal funds and provided training to family farmers in management and cooperativism.

A conclusion is that the slow pace of the state or federal government, compounded by competing demands from other municipal governments, makes it difficult to address some of the structural constraints prioritized by the producers such as tenure.

- **Anticipated implementation agreements:** as mentioned, the Compact will need to be supported with a wide range of implementation agreements. In some cases, these can be anticipated from an early stage and may be linked to individual commitments included in the Compact. In other cases, the Compact may identify an area where innovation is needed and the operational agreements that will be needed may not be known. To the extent possible, the Compact will reference anticipated operational agreements and then create a mechanism for tracking development of these agreements over time.

- **Finance plan:** to achieve jurisdictional green growth, it will be necessary to finance improvements in key enablers, production systems, and natural capital management. To do this, it is necessary to develop a holistic plan that captures the full costs of implementing the Compact and who bears those costs, fiscal policies and financing sources are best suited to supporting different needs, uses, or implementers, any key gaps in resources that are currently available for financing of jurisdictional approaches and how could these be addressed, how and by whom can various financing sources be accessed, policies and mechanisms that may be are needed to help align fiscal policies and financing from multiple sources with one common or integrated green development strategy at the jurisdictional level, and the role of performance-based incentives linked to emission reductions in the overall financing of programs needed to implement the Compact.

- **Transparency and accountability provisions:** maintaining accountability for the diverse range of commitments will require a mixture of transparency, incentives, and enforcement tools to hold different stakeholders accountable. There will need to be a comprehensive accountability and monitoring approach. Some commitments in the Compact will translate into new or revised legal requirements that have potential for true enforcement sanctions. In other cases, there will be incentives developed, including conditional donor payments for successful policy development, and payments for emission reductions in which case accountability could be supported by withholding incentives. Other commitments will remain purely voluntary where transparency, including government support for achieving transparency, is the main opportunity for the public or market pressures to induce sustained commitment.

Photo credit: Ami Vitale, 2008

Appendix B: References

Angelsen, Arild, and Center for International Forestry Research, eds. (2012). *Analysing REDD+: Challenges and Choices.* Bogor, Indonesia: Center for International Forestry Research.

Angelstam, Per, Kjell Andersson, Matilda Annerstedt, Robert Axelsson, Marine Elbakidze, Pablo Garrido, Patrik Grahn, et al. (2013) "Solving Problems in Social–Ecological Systems: Definition, Practice and Barriers of Transdisciplinary Research." *AMBIO* 42, no. 2 (March 2013): 254–65. https://doi.org/10.1007/s13280-012-0372-4.

Argyris, C. and Schon, D. 1974. *Theories In Practice*, San Francisco, CA: Jossey-Bass.

Bakici, Tuba, Esteve Almirall, and Jonathan Wareham. (2013). "The Role of Public Open Innovation Intermediaries in Local Government and the Public Sector." *Technology Analysis & Strategic Management* 25, no. 3 (March 1, 2013): 311–27. https://doi.org/10.1080/09537325.2013.764983.

Bassi, Andrea M. (2015). "Moving Towards Integrated Policy Formulation and Evaluation: The Green Economy Model." *Environmental and Climate Technologies* 16, no. 1 (January 1, 2015). https://doi.org/10.1515/rtuect-2015-0009.

Berita Online (Berau News). 5 December 2017. Sigap Sejahtera Ubah Kampung Jadi Luar Biasa.

Bixler, R Patrick, Shawn Johnson, Kirk Emerson, Tina Nabatchi, Melly Reuling, Charles Curtin, Michele Romolini, and J Morgan Grove. (2016). "Networks and Landscapes: A Framework for Setting Goals and Evaluating Performance at the Large Landscape Scale." *Frontiers in Ecology and the Environment* 14, no. 3 (April 2016): 145–53. https://doi.org/10.1002/fee.1250.

Bos, A. et al. (2017). Comparing methods for assessing the effectiveness of subnational REDD+ initiatives. *Environmental Research Letters* 12. Online: http://iopscience.iop.org/article/10.1088/1748-9326/aa7032/pdf.

Boyd, W. et al. 2018. "Jurisdictional Approaches to REDD+ and Low Emissions Development: Progress and Prospects." Working Paper. Washington, DC: World Resources Institute. Available online at wri.org/ending-tropical-deforestation.

Bryson, John M, Barbara C Crosby, and Melissa Middleton Stone. (2006). "Design and Implementation of Cross-Sector Collaboration: Propositions from the Literature." *Public Administration Review*, no. December: 22–55. http://www.serviceleader.org/sites/default/files/file/The Design and Implementation of Cross-Sector Colalborations.pdf.

Buck, Louise E, Raffaela Kozar, John Recha, Ayal Desalegn, Chris Planicka, and Abigail K Hart. (2014). *A Landscape Perspective on Monitoring & Evaluation for Sustainable Land Management: Trainer's Manual*.

Burns, Danny. (2007). *Systemic Action Research: A Strategy for Whole System Change.* Policy Press. Bristol, UK.

Cabaj, Mark. (2014). Five simple rules for evaluating collective impact. *The Philanthropist*. Volume 26: 1. 2014.

Carlson, Kimberly M., Robert Heilmayr, Holly K. Gibbs, Praveen Noojipady, David N. Burns, Douglas C. Morton, Nathalie F. Walker, Gary D. Paoli, and Claire Kremen. (2018). "Effect of Oil Palm Sustainability Certification on Deforestation and Fire in Indonesia." *Proceedings of the National Academy of Sciences* 115, no. 1 (2018): 121–126.

Cash, D. W., Adger, W. N., Berkes, F., Garden, P., Lebel, L., Olsson, P., … Young, O. (2006). Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World. *Ecology and Society*, 11(2). https://doi.org/10.5751/ES-01759-110208.

Cilliers, Paul, Harry C. Biggs, Sonja Blignaut, Aiden G. Choles, Jan-Hendrik S. Hofmeyr, Graham P. W. Jewitt, and Dirk J. Roux. (2013). "Complexity, Modeling, and Natural Resource Management." *Ecology and Society* 18, no. 3 (2013). https://doi.org/10.5751/ES-05382-180301.

Climate Focus. (2017). Progress on the New York Declaration on Forests: Finance for Forests - Goals 8 and 9 Assessment Report. New York Declaration on Forest Assessment Partners.

Conservation International. (2018). *Exploring the Reality of the Jurisdictional Approach as a Tool to Achieve Sustainability Commitments in Palm Oil and Soy Supply Chains*.

Cortez, R. (2016). New Sustainability Agreement for Yucatan Peninsula Provides Model for Collaboration. Accessed 28 February 2017.

Crosby, Barbara C, and John M Bryson. (2005). *Leadership for the Common Good: Tackling Public Problems in a Shared Power World.* 2nd ed. San Francisco, CA, USA: John Wiley & Sons.

Daemeter (2016). *Jurisdictional Approaches to Reducing Palm Oil Driven Deforestation in Indonesia: Scoping study of design considerations and geographic priorities*. Online: http://daemeter.org/new/uploads/20161105234503.DAEMETER_extended_summary_Final.pdf.

Denier, L., Scherr, S., Shames, S., Chatterton P., Hovani, L, Stam, N. (2015). *The Little Sustainability Landscapes Book*. Global Canopy Programme, Oxford.

Dörner, Dietrich. (1990). The Logic of Failure. *Philosophical transactions of the Royal Society of London*. Series B, Biological sciences. 327. 463-73. 10.1093/acprof:oso/9780198521914.003.0002.

EcoAgriculture Partners and the Sustainable Trade Initiative (IDH) (2017). *Public-private-civic partnerships for sustainable landscapes: A Practical Guide for Convenors*. Online: https://ecoagriculture.org/wp-content/uploads/2017/03/Public-Private-Civic-Partnerships-for-Sustainable-Landscapes-Practical-Guide-for-Conveners_web.pdf.

Electric Power Research Institute (EPRI) (2012). Overview of Subnational Programs to Reduce Emissions from Deforestation and Forest Degradation (REDD) as Part of the Governors' Climate and Forests Task Force. Online: https://static1.squarespace.com/static/5896200f414fb57d26f3d600/t/5936aacf1e5b6ccd2fc2bb45/1496754898148/EPRI.pdf.

Elsawah, S., Pierce, S., Hamilton, S.H., van Delden, H., Haase, D., Elmahdi, A., Jakeman, A. J. (2017). An overview of the system dynamics process for integrated modelling of socio-ecological systems: Lessons on good modelling practice from five case studies. *Environmental Modelling and Software*, 93: 127-145. Online: http://www.sciencedirect.com/science/article/pii/S136481521631091X.

Elzen, B., Geels, F., Hofman, P. and Green, K., (2004), 'Socio-Technical Scenarios as a Tool for Transition Policy - An Example from the Traffic and Transport Domain,' in: Elzen, B., Geels, F.W. and Green, K. (eds.), *System Innovation and the Transition to Sustainability: Theory, Evidence and Policy*, Cheltenham: Edward Elgar, pp. 251-281.

Environmental Defense Fund (EDF) (2016). Zero Deforestation Zones: The Case for Linking Deforestation-Free Supply Chain Initiatives and Jurisdictional REDD+. Online: https://www.tandfonline.com/doi/pdf/10.1080/10549811.2015.1036886?needAccess=true.

Estrategia de Cambio Climático de la Península de Yucatán (2016). *Acuerdo Para La Sustentabilidad De La Península De Yucatán (ASPY) 2030*. Accessed 13 February 2017.

European Environment Agency (2018). *Perspectives on transitions to sustainability*. EEA Report No 25/2017. Publications Office of the European Union. Luxembourg.

Fishbein, Greg, Lee, Donna (2015). *Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs*. Online: https://www.forestcarbonpartnership.org/sites/fcp/files/2015/January/REDD%2B_LED_web_high_res.pdf.

Fishman, A. et al. (2017). *Tackling Deforestation Through a Jurisdictional Approach: Lessons From the Field*. World Wildlife Fund (WWF). Online: http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_jurisdictional_approaches_fullpaper_web_1.pdf.

Forsyth, Tim. (2009). *Multilevel, Multi-actor Governance in REDD+: Participation, Integration and Coordination*. Center for International Forestry Research (CIFOR), Bogor, Indonesia, http://www.cifor.org/publications/pdf_files/books/bangelsen090209.pdf.

Geels, F.W., 2002. "Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study." *Research Policy* 31 (8/9), 1257–1274.

Geels, Frank W. (2011). "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms." *Environmental Innovation and Societal Transitions* 1 (1). Elsevier B.V.: 24–40. http://dx.doi.org/10.1016/j.eist.2011.02.002.

Government of Mexico. 4 December. (2016). *Firman Sagarpa y Semarnat acuerdo de colaboración para preservar bosques y fortalecer la sustentabilidad alimentaria del país*.

Grant, Heather McLeod. (2010). *Transformer: How to Build a Network to Change a System*. Monitor Institute.

Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to sustainable development; new directions in the study of long term transformative change*. New York, NY: Routledge.

Hanleybrown, Fay, John Kania, and Mark Kramer. (2012). "Channeling Change : Making Collective Impact Work." *Stanford Social Innovation Review*. http://www.ssireview.org/pdf/Channeling_Change_PDF.pdf.

Hassan, Zaid. (2014). "What Are Social Laboratories?" *Design Management Review* 25, no. 2 (2014): 56–59.

Holling, C. S. (2001). "Understanding the Complexity of Economic, Ecological, and Social Systems." *Ecosystems* 4, no. 5 (August 1, 2001): 390–405. https://doi.org/10.1007/s10021-001-0101-5.

Hovani, L., Varns, T., Cortez, R., and Kingsbury, P. (2018). *Berau District and East Kalimantan Province, Indonesia: Jurisdictional Approaches to Sustainable Landscapes*. The Nature Conservancy, Arlington, VA, USA.

Howells, Jeremy. (2006). "Intermediation and the Role of Intermediaries in Innovation." *Research Policy* 35, no. 5 (June 2006): 715–28. https://doi.org/10.1016/j.respol.2006.03.005.

Hussein, Taz, Matt Plummer, and Bill Breen. (2018). "How Field Catalysts Galvanize Social Change." *Stanford Social Innovation Review* Winter 201: 48–54. https://ssir.org/articles/entry/field_catalysts.

Huxham, C. (2000). "What Makes Partnerships Work." In *Managing Public—Private Partnerships for Public Services*, Edited by: Osborne, S. London: Routledge.

IEB. (16 September 2014). Seminário discute ações de combate ao desmatamento ilegal.

Innes JE and Booher DE. (2018). *Planning with complexity*. London, UK: Routledge.

Isto É. "Desmatamento zero na Amazônia é possível até 2020, diz governador do Pará" 21 January 2016.

Jagger et al, (2009). *Learning While Doing: Evaluating REDD+ projects*. CIFOR.

Kahane, Adam. (2012). *Transformative Scenario Planning - Working Together to Change the Future*. Oakland, CA, USA: Berrett-Koehler Publishers.

Kahane, Adam. (2017). *Collaborating with the Enemy: How to Work with People You Don't Agree with or Like or Trust*. Berrett-Koehler Publishers, Inc.

Kania, John, and Mark Kramer. (2011). "Collective Impact." *Stanford Social Innovation Review* Winter 201: 36–41.

Kania, John, and Mark Kramer. (2013). "Embracing Emergence: How Collective Impact Addresses Complexity." Blog Entry, January 21. http://awsassets.wwf.org.au/downloads/mc_embracing_emergence_5jun14.pdf.

Karsenty, Alain, and Symphorien Ongolo. (2012). "Can 'Fragile States' Decide to Reduce Their Deforestation? The Inappropriate Use of the Theory of Incentives with Respect to the REDD Mechanism." *Forest Policy and Economics* 18 (May 2012): 38–45. https://doi.org/10.1016/j.forpol.2011.05.006.

Kettl, D. F. (2005), *The next government of the United States: challenges for performance in the 21st century*. IBM Center for the Business of Government, Washington DC.

Klijn, E. H. and Koppenjan, J. F. M. (2000), Public management and policy networks: foundations of a network approach to governance, *Public Management* 2: 135–58.

Korhonen-Kurki, Kaisa, Jenniver Sehring, Maria Brockhaus, and Monica Di Gregorio. (2014). "Enabling Factors for Establishing REDD+ in a Context of Weak Governance." *Climate Policy* 14, no. 2 (March 4, 2014): 167–86. https://doi.org/10.1080/14693062.2014.85202.2.

Lambin, Eric F., Gibbs, Holly K., Heilmayr, Robert, Carlson, Kimberly M., Fleck, Leonardo C., Garrett, Rachael D., le Polain de Waroux, Yann, McDermott, Constance L., McLaughlin, David, Newton, Peter, Nolte, Christoph, Pacheco, Pablo, Rausch, Lisa L., Streck, Charlotte, Thorlakson, Tannis, Walker, Nathalie, F. (2018). "The role of supply-chain initiatives in reducing deforestation" *Nature Climate Change*. 109-116; 8 (2); https://doi.org/10.1038/s41558-017-0061-1.

Lee, Donna, Llopis, Pablo, Watersworth, Rob, Roberts, Geoff, and Pearson, Tim. (2018). *Approaches to REDD+ Nesting: Lessons Learned from Country Experience*. World Bank. 2018.

Lubell, M. (2013), The Ecology of Games Framework. *Policy Studies Journal*, 41: 537-559. doi:10.1111/psj.12028.

Markard, J., Raven, R., & Truffer, B. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, 41 (6), 955–967.

McChrystal, Stanley A, Tantum Collins, David Silverman, and Chris Fussell. (2015). T*eam of Teams: New Rules of Engagement for a Complex World*. New York, New York : Portfolio/Penguin.

Meadows, Donella. (2008) *Thinking in Systems: A Primer*. Edited by Diana Wright. Chelsea Green Publishing. White River Junction, Vermont.

Meehan, Deborah, and Claire Reinelt. (2012). *Leadership & Networks: New Ways of Developing Leadership in a Highly Connected World. Leadership Learning Community*. http://leadershiplearning.org/system/files/LLCNetworkNLfinal4.pdf.

Mercure, Jean-Francois, Pollitt, Hector, Bassi, Andrea. M., Viñuales, Jorge. E, Edwards, Neil R. (2016). Modelling complex systems of heterogeneous agents to better design sustainability transitions policy. *Global Environmental Change* 37 (2016) 102–115.

Mintzberg, Henry. (1994). "The Fall and Rise of Strategic Planning." Harvard Business Review, no. January-February.

Morieux, Yves, and Peter Tollman. (2014) *Six Simple Rules: How to Manage Complexity without Getting Complicated*. Boston, Massachusetts: Harvard Business Review Press, 2014.

Neeff, Till, Heiner von Leupke, Lex Hovani. (2018). *Catalysing Cross-Sector Collaboration to Tackle Tropical Deforestation by Backbone Support*. The Nature Conservancy.

Nelson, Jane and Beth Jenkins. (2016). *Tackling Global Challenges: Lessons in System Leadership from the World Economic Forum's New Vision for Agriculture Initiative*. CSR Initiative at the Harvard Kennedy School.

Nepstad, D., Irawan, S., Bezerra, T., Boyd, W., Stickler, C., Shimada, J...and Azevedo. (2013). More food, more forests, fewer emissions, better livelihoods: linking REDD+, sustainable supply chains and domestic policy in Brazil, Indonesia and Colombia. *Carbon Management* 4(6): 639-658.

Oakleaf JR, Kennedy CM, Baruch-Mordo S, West PC, Gerber JS, Jarvis L, et al. (2015) A World at Risk: Aggregating Development Trends to Forecast Global Habitat Conversion. PLoS ONE 10(10): e0138334. https://doi.org/10.1371/journal.pone.0138334.

Ostrom E. (2009). Beyond markets and states: polycentric governance of complex economic systems. Stockholm, Sweden: Nobel Foundation. www.nobelprize.org/nobel_prizes/economics/laureates/2009/ostrom-lecture.html.

Ostrom, Elinor, and Michael Cox. (2010). "Moving beyond Panaceas: A Multi-Tiered Diagnostic Approach for Social-Ecological Analysis." *Environmental Conservation* 37, no. 04 (December 2010): 451–63. https://doi.org/10.1017/S0376892910000834.

Parrott, Lael, and Wayne S Meyer. (2012). "Future Landscapes: Managing within Complexity." *Frontiers in Ecology and the Environment* 10, no. 7 (September 2012): 382–89. https://doi.org/10.1890/110082.

Pfund, Jean-Laurent. (2010). "Landscape-Scale Research for Conservation and Development in the Tropics: Fighting Persisting Challenges." *Current Opinion in Environmental Sustainability* 2, no. 1–2 (May 2010): 117–26. https://doi.org/10.1016/j.cosust.2010.03.002.

Proforest (2016). Implementing responsible sourcing – using landscape or jurisdictional initiatives. Online: https://www.proforest.net/en/publications/implementing-responsible-sourcing-2013-using-landscape-or-jurisdictional-initiatives.

Ramos-Mejía, Mónica, Maria-Laura Franco-Garcia, Juan M. Jauregui-Becker. (2018). Sustainability transitions in the developing world: Challenges of socio-technical transformations unfolding in contexts of poverty. *Environmental Science & Policy*, Volume 84, 2018, Pages 217-223. https://doi.org/10.1016/j.envsci.2017.03.010.

Reed, J. et al. (2016). *Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future*. Online: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13284/full.

Rich, Eddie, Jonas Moberg. (2015). *Beyond Governments: Making Collective Governance Work: Lessons from the Extractive Industries Transparency Initiative*. Greenleaf Publishing.

Rights and Resources Initiative (RRI). 2015. Who Owns the World's Land? A Global Baseline of Formally Recognized Indigenous and Community Land Rights. Washington, DC: RRI.

Rizvi, A.R., Baig, S., Barrow, E., Kumar, C. (2015). *Synergies between Climate Mitigation and Adaptation in Forest Landscape Restoration*. Gland, Switzerland: IUCN.

SAGARPA. 12 December 2016. Firma de convenio SAGARPA y CONAFOR.

Sayer, Jeffrey, Gary Bullb, and Chris Elliott. (2008). "Mediating Forest Transitions: 'Grand Design' or 'Muddling Through.'" *Conservation and Society* 6, no. 4 (2008): 320. https://doi.org/10.4103/0972-4923.49195.

Sayer, J. and Sunderland, T., Ghazoul ,J et al. (2013). Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. *Proceedings of the National Academy of Sciences*. 110:8349–8356. Online: http://www.pnas.org/content/pnas/110/21/8349.full.pdf.

Sayer J. and Margules, C. et al. (2014). Landscape approaches; what are the pre-conditions for success? *Sustainability Science*. 10(2):345–355. Online: https://www.cifor.org/library/5207/landscape-approaches-what-are-the-pre-conditions-for-success.

Sayer, J. and Margules, C. et al. (2016). Measuring the effectiveness of landscape approaches to conservation and development. *Sustainability Science* 12: 465. Online: https://doi.org/10.1007/s11625-016-0415-z.

Scarlett, L., & McKinney, M. (n.d.). Connecting people and places: the emerging role of network governance in large landscape conservation. *Frontiers in Ecology and the Environment*, 14(3), 116–125. https://doi.org/10.1002/fee.1247.

Scharmer, Otto. (2016). *Theory U: Leading from the Future as it Emerges*. Second Edition. Berrett-Koehler Publishers, Inc.

SEDUMA (2010). Acuerdo entre Gobernadores de la Península de Yucatán en materia de Cambio Climático. Latest agenda also available at: http://www.ccpy.gob.mx/agenda-regional.

Senge, Peter M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Doubleday.

Senge, Peter M., Art Kleiner, Charlotte Roberts, Richard B. Ross, and Bryan Smith (1994). *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*. Doubleday.

Senge, Peter, Hal Hamilton, and John Kania. "The Dawn of System Leadership." *Stanford Social Innovation Review* 13 (2015): 27–33.

Seymour, Frances. 2018, June 27. "Deforestation is Accelerating, Despite Mounting Efforts to Protect Tropical Forests. What Are We Doing Wrong?" [blog post]. Accessed – blog.globalforestwatch.org/data/deforestation-is-accelerating-despite-mounting-efforts-to-protect-tropical-forests-what –are-we-doing-wrong.

Spark Policy Institute, and ORS Impact. (2018). *When Collective Impact Has an Impact: A Cross-Site Study of 25 Collective Impact Initiatives*. http://sparkpolicy.com/collective-impact-impact-cross-site-study-25-collective-impact-initiatives.

Shames, Seth, Krista Heiner, Sara Scherr. (2017). *Public Policy Guidelines for Integrated Landscape Management*. Ecoagriculture Partners.

Stevens, C., R. Winterbottom, J. Springer, and K. Reytar. 2014. *Securing Rights, Combating Climate Change: How Strengthening Community Forest Rights Mitigates Climate Change—Report Summary*. Washington, DC: World Resources Institute.

Stroh, David Peter. (2015). *Systems Thinking For Social Change: A Practical Guide to Solving Complex Problems, Avoiding Unintended Consequences, and Achieving Lasting Results*. White River Junction, Vermont: Chelsea Green Publishing.

Stroh, David Peter. (2018). *Systems Thinking for Jurisdictional Sustainability*. The Nature Conservancy.

Sunderlin, W. et al. (2014). *The challenge of establishing REDD on the ground*. Center for International Forest Research (CIFOR). Occasional Paper 101. Online: http://www.cifor.org/publications/pdf_files/OccPapers/OP-104.pdf.

Surman, Tonya, and Mark Surman. (2008). "Listening to the Stars: The Constellation Model of Collaborative Social Change." *Social Space*, 24-29. https://centres.smu.edu.sg/lien/files/2013/10/MarkSurmanFinalAug-2.pdf.

Tikkanen, Ilpo, Peter Glück, and Heikki Pajuoja. (2002). "Cross-Sectoral Policy Impacts on Forests." In *EFI Proceedings*. European Forest Institute (EFI). https://www.iufro.org/download/file/4773/4509/61200-savonlinna02_pdf.

Turner, Shiloh, Kathy Merchant, John Kania, and Ellen Martin. (2012). "Understanding the Value of Backbone Organizations in Collective Impact." *Stanford Social Innovation Review*.

Universidad Marista. 21 December 2017. Instituciones de educación superior se suman al Acuerdo para la Sustentabilidad de la Península de Yucatán.

Varns, T., Cortez, R., Hovani, L., and Kingsbury, P. (2018). *Sao Felix do Xingu Municipality, Brazil: A Jurisdictional Approach to Conserving the Amazon Forest*. The Nature Conservancy, Arlington, VA, USA.

Varns, T., Cortez, R., Hovani, L., and Kingsbury, P. (2018). *Yucatán Peninsula, Mexico: A Jurisdictional Approach to Conserving the Maya Forest*. The Nature Conservancy, Arlington, VA, USA.

Venter, Oscar, Hugh P. Possingham, Lex Hovani, Sonya Dewi, Bronson Griscom, Gary Paoli, Phillip Wells, and Kerrie A. Wilson. (2013). "Using Systematic Conservation Planning to Minimize REDD+ Conflict with Agriculture and Logging in the Tropics: Systematic Conservation Planning for REDD+." *Conservation Letters* 6, no. 2 (April 2013): 116–24. https://doi.org/10.1111/j.1755-263X.2012.00287.x.

White, A., and A. Martin. 2002. *Who Owns the World's Forests?* Washington, DC: Forest Trends.

World Bank and BioCarbon Fund (2017). *Engaging The Private Sector In Results-Based Landscape Programs: Early Lessons from the World Bank's Forests and Landscapes Climate Finance Funds*. Online: https://openknowledge.worldbank.org/bitstream/handle/10986/27268/116412.pdf?sequence=4&isAllowed=y.

World Wildlife Fund (2016). *Jurisdictional Approaches to Zero Deforestation Commodities*. Online: http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_jurisdictional_approaches_to_zdcs_nov_2016.pdf.