



## Regular Research Article

# Scaling-up sustainable commodity governance through jurisdictional initiatives: Political pathways to sector transformation in the Indonesian palm oil sector?

Bahrudin<sup>a</sup>, Kate Macdonald<sup>b,\*</sup>, Rachael Diprose<sup>b</sup>, Deborah Delgado Pugley<sup>c</sup>

<sup>a</sup> Universitas Gadjah Mada, Indonesia

<sup>b</sup> University of Melbourne, Australia

<sup>c</sup> Pontificia Universidad Católica del Perú, Peru



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## ABSTRACT

Voluntary systems of sustainable commodity governance have come under intensified criticism for failing to catalyse transformative change beyond directly regulated supply chains. In response, there has been a surge of efforts to 'scale-up' sustainability impacts through governance interventions at landscape and jurisdictional scales. While these ambitious, scaled-up approaches are attracting significant interest, such approaches demand substantial changes to established repertoires of policy interventions and associated understandings of the pathways through which these contribute to sustainability outcomes. Drawing theoretical insights from scholarship on multi-stakeholder sustainability governance together with findings from a qualitative study of jurisdictional governance experiments in the Indonesian palm oil sector, this paper explores how emerging jurisdictional initiatives are promoting change pathways towards more sustainable commodity production, and how the political, environmental governance and economic contexts in which these interventions are implemented influence these pathways. Analysis shows that by integrating a distinctive mix of market and policy-driven interventions, jurisdictional approaches are contributing to three core pathways of change, centred respectively on network and coalition-building, collaborative governance, and resource mobilisation. However, which of these pathways are most influential, how interventions are sequenced and operationalised, and how the pathways interact in shaping change is highly sensitive to varied subnational implementation contexts, with important implications for the impact and resilience of jurisdictional programs. These findings highlight the need for jurisdictional policy interventions to respond flexibly to contextually-variable configurations of actor interests, coalitions and power relations within contested multi-scalar processes of sustainable commodity governance.

## 1. Introduction

Amidst rising concern about the adverse impacts of global production and trade in major agro-commodity sectors, consumers, businesses and governments worldwide increasingly seek assurance that the agricultural products they purchase are not contributing to social and environmental harms in source countries. In response, an array of voluntary sustainability governance systems have been created to help

businesses strengthen systems for managing social and environmental risk. Yet such voluntary systems have increasingly been criticised for failing to deliver substantial improvements in sustainability beyond the 'niche' boundaries of certified supply chains (van der Ven et al., 2018). Such intensifying criticism has fuelled a shift in emphasis away from a focus on supply chain social responsibility and certification, towards a broader range of *multi-stakeholder* programs and partnerships that support transformative changes in sustainable commodity production in

\* Corresponding author.

E-mail address: [kmac@unimelb.edu.au](mailto:kmac@unimelb.edu.au) (K. Macdonald).

targeted jurisdictions (Oorhuizen et al., 2018; Poynton, 2015).

Jurisdictional approaches (JAs) to sustainability governance can be broadly understood as a type of integrated landscape management<sup>1</sup> that focuses on promoting sustainable commodity production within defined jurisdictional (legal or administrative) boundaries—in contrast to farm or supply chain boundaries—through multi-stakeholder processes that usually involve significant engagement from subnational governments (von Essen & Lambin, 2021). The approach is distinctive in placing central emphasis on recruiting support from government authorities in targeted administrative jurisdictions, thereby bringing place-based, state-led approaches to sustainability together with market-led sustainability governance (Seymour et al., 2020). While the language of jurisdictional sustainability has often been used broadly to denote a central role for subnational governments in promoting forest conservation and sustainable land management, our focus is more narrowly on JAs that concentrate on sustainable commodity production, often with strong involvement from international supply chain actors.

Such shifts towards sustainable commodity governance at jurisdictional scale demand significant changes to established policy repertoires. The central focus on engagement with governments and other stakeholders in or near production areas also heightens the importance of governance design in responding to the varied political, economic and environmental governance contexts in which JA interventions are implemented. Yet despite considerable practical experimentation with interventions across a range of subnational contexts, there has been little theoretical or empirical research that addresses two critical and inter-related questions: (Research Question 1) How are the policy interventions supported through jurisdictional programs operating to promote intended pathways of change in support of sustainable commodity production; and (Research Question 2) how do the politico-economic and environmental contexts in which these interventions are implemented influence both the operationalisation and the effects of these interventions?<sup>2</sup>

To explore these questions, we first theorise three core ‘intervention’ pathways through which jurisdictional programs (or sets of interventions) are hypothesised to support more sustainable commodity production.<sup>3</sup> We then test and refine analysis of change pathways by examining empirically how a common institutional design plays out in two different subnational contexts in Indonesia, a country where experimentation with JAs has exploded (Seymour et al., 2020).

Our analysis shows that by bringing together a distinctive mix of market and policy-based interventions, there are early indications that JAs are contributing to changes in support of sustainability through each of the three theorised pathways of change. However, the ways these pathways are sequenced, operationalised, and interact in shaping

change are highly sensitive to subnational implementation contexts. Our analysis demonstrates that while some contextual conditions create opportunities or obstacles for the establishment and progress of jurisdictional programs, there is also significant capacity for subnational constraints to be navigated through adapting JA designs to varied local conditions.

## 2. Methods

For the purposes of theorising and empirically analysing ‘intervention’ pathways through which jurisdictional programs try to support sustainable commodity production, we adopted a process of middle-range theory building. Through iterative alignment between inductively-derived interpretations and theory-derived deductive analytical categories (Miles & Huberman, 1994), we constructed a contextually-grounded set of propositions regarding how JA governance interventions interact in particular contexts to produce outcomes (Bennett, 2013).

To this end, we first examined the ‘theories of change’ that are articulated or implied in JA project design, implementation and evaluation documents (Vogel, 2012), drawing on inductive analysis of a selection of eight JA programs in the Indonesian palm oil sector (see supplementary analysis online in Appendix 1).<sup>4</sup> We then further developed our theoretical propositions on intervention pathways through an iterative alignment between our initial propositions and the explicit and implied propositions regarding JA theories of change derived from a wider mapping and synthesis analysis of both academic and grey literature on JAs (including those beyond Indonesia),<sup>5</sup> and relevant insights from wider scholarship on transnational sustainability governance.

We selected Indonesia as the focus of the inductive component of our analysis as it is home to the world’s third largest tropical forest area, which plays a critical role in global efforts to combat climate change and protect biodiversity (Hovani et al., 2018). At the same time, the Indonesian economy relies heavily on land and forest-based commodity production. The resulting tensions between production and environmental conservation have seen sustainability and agro-commodity governance initiatives proliferate, concurrently reflecting the legacy of prior international interventions in environmental management under its decentralised governance system.<sup>6</sup> Indonesia has been characterised as “a globally significant laboratory” (Seymour et al., 2020, p.1) for trialling and exploring initial evidence on new sustainability governance approaches such as JAs. Evidence from Indonesian JAs can thus provide helpful insights for emerging initiatives elsewhere.

From the broader set of Indonesian cases used in our inductive analysis, we selected the Indonesian Verified Sourcing Areas (VSA)

<sup>1</sup> Integrated landscape management refers to ‘long-term collaboration among different groups of land managers and stakeholders to achieve the multiple objectives required from the landscape. These typically include agricultural production, provision of ecosystem services (such as water flow regulation and quality, pollination, climate change mitigation and adaptation, cultural values); protection of biodiversity, landscape beauty, identity and recreation value; and local livelihoods, human health and well-being’ (Scherr et al., 2013, 2-3).

<sup>2</sup> By framing our questions in this way, we deliberately place our focus on the causal processes and pathways through which JA programs are currently operating, rather than seeking to evaluate the ultimate outcomes or effectiveness of these sets of interventions. This focus reflects recognition of the very early stage of implementation of the JA programs we examine, and the observation that instead of rushing to evaluate effectiveness, there is first a need for more “careful documentation and clarification of how these programs work” (Hovani et al., 2018; Chervier et al., 2020).

<sup>3</sup> The concept of ‘intervention pathways’ emphasises both the intervention design, and the intended and actual chains of effects that flow from these interventions.

<sup>4</sup> These eight cases were selected for analysis on the basis that all were JA programs operating in the Indonesian palm oil sector for at least part of the period 2020–2023 (the time over which our data collection occurred), and all incorporated a strong focus on connecting sustainable landscape management with sustainable sourcing commitments from international companies.

<sup>5</sup> The most relevant sources identified through this search are presented in our supplementary analysis provided online in Appendix 1.

<sup>6</sup> While significant authority for land/forest/production concessions and licences was devolved to districts with democratisation in Indonesia, some powers have been wound back over time to the provincial or national level, especially for new large-scale licences and concessions (Diprose, 2022), requiring JA programs to engage at multiple scales. Nonetheless, significant regulatory authority for land-use, planning, economic development, existing licences and new smaller-scale licences remain within the purview of district governments, warranting a continued focus on the district scale for on-the-ground JA programs.

program for more detailed analysis against our theoretical propositions, both to test and illustrate the theoretical account of intervention pathways, and to explore how these change pathways varied in response to contrasting subnational contexts. To date, the VSA program has been implemented in three Indonesian provinces<sup>7</sup> and was developed by the Dutch international sustainable development organisation IDH and its partners to support stronger alliances between major supply chain commodity buyers and government, business, and civil society actors in commodity production areas. While the VSA uses a program-wide framework laying out aims and intervention logics for all implementation sites (that is, a common theory of change), subnational governments and participating partners have significant autonomy in shaping the specific objectives, mixes of intervention tools, and participants appropriate to each implementation context.<sup>8</sup> The fact that this program has been implemented across multiple subnational sites enabled us to compare a common overarching JA design across varied contexts so as to elucidate the different ways context might influence how intervention pathways vary in their operationalisation or effects.

We focus on the two sites (or cases) in which most VSA interventions to date have been concentrated: Musi Banyuasin (MuBa) District in South Sumatra Province and Aceh Tamiang District in Aceh Province. We use a qualitative comparative case study methodology to compare operationalisation of the VSA program in these two sites—an approach that is well suited to analysing JA programs due to their complexity and reliance on networks of individuals and institutions. This methodology enables us to trace the micro-social processes underpinning sets of interventions in specific contexts, the behavioural responses of participants, and associated causal processes of change (Checkel, 2006; Gerring, 2004; Peterson, 1999). Through comparative case work we then identify similarities and differences within the broader macro-structural (political-institutional and socio-economic) settings, or contexts, that influence these processes, thereby constraining or enabling implementation (cf. George & Bennett, 2004; Peterson, 1999).

By focusing on each of these VSAs as a single program of interventions we are able to explore if and how this JA has followed expected pathways to sustainable commodity production (Question 1). By examining two contrasting cases of VSA operationalisation,<sup>9</sup> we analyse how different dimensions of subnational contexts influence the balance and interaction between intervention pathways, and with what effects (Question 2).

Our case analysis draws on (often repeated) interviews with 41 experts and key stakeholders conducted between May 2020 and June 2022, observation and participation in eight multi-stakeholder forums and webinars involving participants in VSA and other Indonesian jurisdictional programs, and extensive informal discussions with local

and international participants in the VSA program.<sup>10</sup> We first carried out a purposive selection of interviewees based on publicly available information on the VSA program, with the aim of capturing a diversity of perspectives across stakeholder groups and governance scales. Following this, we conducted snowballing based on interviewee recommendations; this enabled us to access interviewees across all targeted categories, though we were only able to interview a selection of company representatives.<sup>11</sup> Interview data was supplemented with a range of secondary data.<sup>12</sup> Both primary and secondary data sources were thematically analysed based on the key elements of our conceptual framework for analysing intervention pathways and intervening dimensions of context (see online Appendices 1 and 3).

### 3. Theorising jurisdictional interventions: Between institutional design and political context

Based on our iterative methodology, we identify three core pathways and associated causal processes through which JA governance interventions may catalyse transformative change at jurisdictional scales. These centre respectively on network and coalition-building, collaborative governance, and organised resource mobilisation. These different intervention types overlap, and could have been inductively categorised in varying ways. Our classification aimed to capture the best analytical fit between the distinct intervention pathways inferred from our inductive analysis, and more foundational theoretical categories articulated within wider theories of policy instrument design.<sup>13</sup>

Our articulation of these three core intervention pathways thus reflects our own original synthesis and theoretical elaboration of insights drawn from both JA-specific analyses and broader bodies of environmental policy and governance scholarship. As detailed in our analysis (see online Appendices 1 and 2), while all three pathways are documented in existing academic and grey literature on JAs, such descriptions are overwhelmingly implicit, with only a small number of existing analyses attempting explicit theorisation of theories of change for JAs (e.g. Boshoven et al., 2021; Chervier et al., 2020). There has also been almost no explicit analysis of what policy theorists sometimes refer

<sup>10</sup> Key stakeholder interviews and informal discussions were undertaken by the same research team across locations with a mix of representatives of national and subnational governments, local and international NGOs, indigenous groups, community organisations, private companies, business associations, international donor agencies, individual workers and landowners, and other academics, experts, and observers. In total we interviewed representatives of 17 non-government organisations, 14 from government agencies, and 10 company representatives. Interviews were recorded and transcribed where interviewees gave their permission; otherwise detailed notes were taken. While we interviewed a slightly different mix of actors in each district, reflecting different patterns of state, civil society and business engagement in the two locations, there were sufficient similarities between the mix of actors interviewed and the documents reviewed in each site to enable cross-case comparison.

<sup>11</sup> We were unable to interview the largest corporate player in MuBa, though overall numbers of corporate interview participants were higher in MuBa than in Aceh.

<sup>12</sup> Secondary data included district and provincial government policies and regulations, statistical reports; development and green growth plans, evaluation reports, letters of intent and presentations; media reports and press releases; company, NGO, program and donor websites, program plans, concept notes, fact sheets and infographics, presentations, evaluation reports and annual reports, research reports and discussion papers, stakeholder engagement plans, workshop reports, and event descriptions.

<sup>13</sup> For example, these are illustrated clearly by Christopher Hood's (1986) seminal classifications of foundational governance tools: our network and coalition-building pathway maps broadly onto Hood's conception of 'nodality' or network centrality; the collaborative governance pathway maps onto Hood's categories of 'authority' and 'organisation'; and the resource mobilisation pathway tracks Hood's concept of the mobilisation of 'treasure' (understood as stocks of relatively fungible resources).

<sup>7</sup> To date, the VSA program has been implemented in Ketapang and Kubu Raya Districts in West Kalimantan, Musi Banyuasin District in South Sumatra province and Aceh Tamiang District in Aceh province. See <https://www.idh.sustainabletrade.com/teams/indonesia/> (accessed October 2022).

<sup>8</sup> Such autonomy reflects Indonesia's multi-level decentralised governance structures in which environmental governance is shaped by both national and subnational (district and provincial) regulations and institutions.

<sup>9</sup> While in a global context our two cases share important similarities, given that both are located in Indonesia, there are significant differences between the two subnational case sites, as we discuss further below. Further, the common overarching VSA design logic allows us to focus analysis on variations in how this JA program is operationalised, and how JA implementation adapts to different subnational context conditions. This analysis would have been confounded by analysing the operationalisation of two different JA designs in two different subnational contexts, thereby making it more challenging to understand how contexts and pathways interact.

to as the varying ‘calibrations’ through which these core intervention pathways are differently operationalised in varied contexts (Capano & Howlett, 2020; Hall, 1993; Sewerin et al., 2022), for example involving different mixes of public and private actors (Abbott & Snidal, 2009; Lambin et al., 2014), types of governance resources (Hood, 1986), and mixes of organisational forms (Rayner et al., 2017).

### 3.1. Network and coalition-building

The first broad intervention pathway we identify centres on network convening and management strategies, through which committed first movers take on a leadership role in initiating and promoting JAs. Network-building activities have been described in both Indonesian JA program documents and in some JA grey and academic literature, though rarely explicitly theorised. Such descriptions frequently document efforts by JA leaders to build legitimacy and harness wider support by articulating a vision of transformative change that connects with local governance problems (Conservation International [CI], 2018; Hovani et al., 2018; IDH, 2018). Network-building activities sometimes subsidise the costs of early activities, such as organising and hosting multi-stakeholder meetings, or disseminating the technical, financial, or other resources necessary for wider participation (Chervier et al., 2020; Milhorance & Bursztyn, 2018; Palmer & Paoli, 2017). Program documents and grey literature further describe how network-building interventions can build connections with established governance initiatives such as jurisdictional REDD+ (Reducing Emissions from Deforestation and Forest Degradation), farm-level certifications, corporate social responsibility (CSR), or other domestic public policy initiatives oriented towards sustainability goals (EII, 2017).

While the theory of change underpinning such strategies has rarely been explicitly theorised, such interventions can be understood as helping to frame problems and solutions, promote trust and collaboration amongst key stakeholders, and identify other intermediaries to promote collaboration (Abbott & Hale, 2014; Molenaar et al., 2015). Interpreting such practices through the lens of broader environmental governance scholarship sheds light on how JA interventions can enable small-scale networks established by front-runners to connect with and expand established governance networks (Manning & Reinecke, 2016). This can also help consolidate legitimacy and expand collaborative capacity while strengthening trust, social capital, and information flows among participants, and laying preconditions for more formalised multi-stakeholder collaborative governance processes (Bartley & Smith, 2010; Bitzer et al., 2012; Overdevest & Zeitlin, 2014).

JA design documents and grey literature further describe how network conveners must strategically choose which actors should be prioritised for early engagement. Some advocate targeting established political or business leaders who are already motivated to support strengthened sustainability governance and can act as ‘champions’ of JAs (EII, 2017, p.3; UNDP, 2022). Within broader environmental governance scholarship, emphasis has frequently been placed also on the importance of garnering support from established business or government power-holders who may perceive their interests to be threatened by new sustainability governance approaches (Barletti et al., 2020; Barletti et al., 2021; Diprose et al., 2021; Gellert, 2010a; Macdonald, 2020).<sup>14</sup>

Through strategic engagement and relationship-building, network conveners can thus shape dominant problem definitions and narratives for sustainability transformations at jurisdictional scale, open up communication and dialogue with potential opponents of such change, mobilise coalitions of potential supporters, and mediate conflict.

<sup>14</sup> Such scholars have also noted the risk that powerful actors use their involvement to promote watered-down approaches that are less threatening to their organisational or individual interests (Cashore et al., 2019, p.120).

### 3.2. Strengthened collaborative governance

A second important intervention pathway involves the creation of collaborative multi-stakeholder governance systems. This pathway has been explicitly articulated in most Indonesian JA program design documents we analysed, and is at least implicitly described in most academic and grey literature on JAs. Such sources describe how collaborative governance provides a framework of rules, procedures and resources for multi-stakeholder and multi-scalar processes of dialogue, coordination, planning and accountability (IDH, 2018; Rainforest Alliance [RA], 2022; von Essen & Lambin, 2021), in which governments (especially sub-nationally) play a central role (Brandão et al., 2020; Boyd et al., 2018).

Resonating with insights from broader environmental governance scholarship, formalised and collaborative governance architectures are advocated on the basis that they can: support efforts to clarify responsibilities; promote horizontal alignment among local government agencies and vertical alignment with national and lower-level governments; and connect jurisdictional initiatives with external sustainability programs, funding sources, participating business, and other non-governmental actors (Barletti et al., 2020, 2021; Hovani et al., 2018; Seymour et al., 2020; Tamara et al., 2021). They provide spaces for negotiation, coordination and collaborative planning among actors, helping create an enabling environment suitable for sustainable production through a range of interventions. These include fostering and implementing supportive policies, regulations and plans for direct interventions and related policy issues (e.g. spatial planning, tenure clarification, forest restoration or green growth), shared policy targets and roadmaps, and aligned programs and activities (e.g. investment, farmer support measures) (Brandão et al., 2020; Boyd et al., 2018; Daemeter & Proforest, 2019; Stickler et al., 2018; UNDP, 2022).

Plans are often formalised within a jurisdictional ‘compact’ or high-level agreement, in order to clarify, document, and reinforce multi-stakeholder commitments to a shared sustainability vision (Hovani et al., 2018, p.9; IDH, 2018). For example, the multi-stakeholder leadership group of one jurisdictional program in East Kalimantan, Indonesia, developed a written Green Growth Compact with 19 signatories that outlined the intent to work towards shared strategies for balancing efforts to promote local economic development with tackling deforestation, forest degradation, and climate change (Hovani et al., 2018).

An important task of JA collaborative governance processes is often the development of data collection and monitoring, verification, and performance evaluation systems to support accountability by scrutinising the progress of a jurisdiction against its sustainability aims.<sup>15</sup> JA academic and grey literature describes how these systems aim to support transparency and collaborative learning, recognise partial progress in ways that help build momentum towards further change, and facilitate input from actors with competing goals or knowledge claims (Brandão et al., 2020).

### 3.3. Organised resource mobilisation

A third intervention pathway centres on efforts to institutionalise

<sup>15</sup> Such interventions seek to improve systems of data collection, traceability, and monitoring and reporting, often incorporating data from the farm level, official government sources, remote-sensing technologies and citizen-based monitoring (FORCLIME, 2019; Daemeter & Proforest, 2019). Both academic and grey literature on JAs has described efforts to incorporate existing indicator or reporting frameworks, including regulations established by national governments, standards linked to multilateral financing agreements, and market-based sustainability standards, rather than relying on a single set of standards (CI, 2018; IDH, 2018; Molenaar et al., 2015; Seymour et al., 2020; Stickler et al., 2018).



new forms of resource flows that both facilitate and incentivise sustainable commodity production. Resource mobilisation activities are rarely explicitly theorised, but are described in some form in the majority of JA program documents and are implicit in both grey and academic literature. Such descriptions identify the mobilisation of multiple types of resources—financial, non-monetary (e.g. training, capacity-building or technical support), and administrative (EII, 2017; IDH, 2018; UNDP, 2022). One important strategy involves directly providing capacity-building and information to farmers, communities, and companies, building on both traditional state-led agricultural extension services designed to support farmer access to required production inputs and technical knowledge (Buchanan et al., 2019; Paoli et al., 2016), and longstanding corporate-led programs for disseminating technical information on Good Agricultural Practices (GAP) (Garrett et al., 2021; Molenaar et al., 2015).

Such coordinated support can help overcome technical blockages, contribute to organisational strengthening amongst farmers and communities, and grow knowledge and resource access, thereby facilitating and actively incentivising sustainable production practices (Ingram et al., 2016). Both JA advocates and broader analysts of sustainable commodity governance have illustrated how such efforts can extend support beyond the farm or supply chain scale. This occurs through collaborations with communities and farmer organisations, coordinating support services delivery with the activities of multi-stakeholder platforms and partnerships (Garrett & Pfaff, 2019; FORCLIME, 2019; Kissinger et al., 2014; Nelson & Phillips, 2018; RSPO, 2021), and by building a more organised and market-oriented agricultural service sector via investment in wider market services, infrastructure, and institutions (EII, 2017; Molenaar et al., 2015; UNDP, 2022).

Such investments are often designed to interact with and reinforce a broader range of external market or financial incentives. These can include commitments from government or market actors to provide direct resource transfers to support more sustainable commodity production, and market incentives organised through supply chains, such as preferential sourcing policies by major commodity buyers, increased market access for sustainable producers, or exclusion of non-adopters (Garrett & Pfaff, 2019; IDH, 2018; UNDP, 2022). External incentives

also include access to international or national sources of green investment, environmental performance-based finance, or ecological fiscal transfers (Seymour et al., 2020; Stickler et al., 2018). While such channels are often *ad hoc* and time-bound, they can also become institutionalised through, for example, revised corporate policies around preferential sourcing, green finance policies from financial institutions, or incorporating fiscal resource transfers into government medium-term planning processes or international donor programs (Molenaar et al., 2015). Such institutionalisation of resource transfers and incentives has been suggested to be a potential way of enhancing the durability of jurisdictional sustainability practices in business models and public policies (EII, 2017).

An overview of these pathways is presented in Table 1, which presents a selection of illustrative references that either explicitly or implicitly describe or (less often) analyse the three intervention pathways, drawn respectively from: primary Indonesian JA project documents; JA-focused grey and academic scholarship; and broader policy and governance scholarship.

### 3.4. How do intervention pathways interact in shaping sustainable commodity production?

While it is analytically useful for our conceptualisation of JA theories of change to differentiate distinct interventions and causal pathways through which programs can help promote sustainability transformations, this does not imply they operate in isolation from each other. Instead, JAs are grounded in the assumption that “no single approach, technology, intervention or policy instrument is capable of achieving transformative change” (Edmondson et al., 2019, p.2). The design documents of individual JA programs similarly emphasise that different interventions “are interlinked and one cannot be done effectively without the others” (IDH, 2018, p.4; see also Daemeter & Proforest, 2019; Stroh, 2018; Nepstad, 2015). In this sense, JAs are conceived as “the opposite of a silver bullet” (Hovani et al., 2018, p.11). Their logic thus rests on the notion—familiar to broader theorists of policy design—that policy interventions are rarely built around single instruments, but rather around complex mixes, portfolios or packages of

**Table 1**  
Major intervention pathways.

Intervention pathway	Focal interventions	Illustrative references: jurisdictional initiative design documents	Illustrative references: jurisdictional approaches scholarship	Illustrative references: broader policy and governance scholarship
Network and coalition building to strengthen communication and coordination	<ul style="list-style-type: none"> <li>● Articulating a shared problem definition and vision for change</li> <li>● Convening and expanding network interactions</li> <li>● Supporting trust-building and information-sharing</li> <li>● Coordinating between governance sites and scales</li> <li>● Managing conflict with potential opponents</li> </ul>	<p>Conservation International [CI] (2018)</p> <p>Daemeter &amp; Proforest (2019)</p> <p>IDH (2018); (2021)</p> <p>UNDP (2022)</p>	<p>Chervier et al. (2020)</p> <p>EII (2017)</p> <p>Hovani et al. (2018)</p> <p>Milhorance &amp; Bursztyn (2018)</p> <p>Palmer and Paoli (2017)</p> <p>Stickler et al. (2020)</p>	<p>Abbott &amp; Hale (2014)</p> <p>Barletti et al. (2020); (2021)</p> <p>Bartley &amp; Smith (2010)</p> <p>Bitzer et al. (2012)</p> <p>Cashore et al. (2019)</p> <p>Macdonald (2020)</p> <p>Manning &amp; Reinecke (2016)</p> <p>Molenaar et al. (2015)</p>
Strengthened collaborative governance to drive policy and institutional change and strengthen accountability	<ul style="list-style-type: none"> <li>● Facilitating structured multi-stakeholder dialogue</li> <li>● Negotiating roles and responsibilities</li> <li>● Coordinating multi-faceted program and policy delivery</li> <li>● Establishing monitoring and accountability mechanisms</li> </ul>	<p>CI (2018)</p> <p>Daemeter &amp; Proforest (2019)</p> <p>FORCLIME (2019)</p> <p>GIZ (2019)</p> <p>IDH (2018); (2021)</p> <p>Rainforest Alliance [RA] (2022)</p> <p>RSPO (2021)</p> <p>UNDP (2022)</p>	<p>Alvarado (2021)</p> <p>Bishai et al. (2022)</p> <p>Brandão et al. (2020)</p> <p>Chervier et al. (2020)</p> <p>EII (2017)</p> <p>Hovani et al. (2018)</p> <p>Stickler et al. (2018)</p> <p>Von Essen &amp; Lambin (2021)</p>	<p>Barletti et al. (2020); Barletti et al. (2021)</p> <p>Bastos Lima and Persson (2020)</p> <p>Molenaar et al. (2015)</p> <p>Tamara et al. (2021)</p>
Organised resource mobilisation to strengthen capabilities and incentives for sustainable production	<ul style="list-style-type: none"> <li>● Capacity-building and technical support for producers</li> <li>● Strengthening market infrastructure and services</li> <li>● Strengthening incentives for sustainable production</li> </ul>	<p>CI (2018)</p> <p>Daemeter &amp; Proforest (2019)</p> <p>FORCLIME (2019)</p> <p>GIZ (2019)</p> <p>IDH (2018); (2021)</p> <p>RA (2022)</p> <p>UNDP (2022)</p>	<p>Alvarado (2021)</p> <p>Bishai et al. (2022)</p> <p>EII (2017)</p> <p>Ingram et al. (2016)</p> <p>Stickler et al. (2018), (2020)</p>	<p>Garrett &amp; Pfaff (2019)</p> <p>Kissinger et al. (2014)</p> <p>Molenaar et al. (2015)</p> <p>Nelson and Phillips (2018)</p>

congruent instruments intended to generate complementary interactive effects (Capano & Howlett, 2020; Peters et al., 2018; Sewerin et al., 2022).

Despite clear expectations that different types of interventions are broadly complementary, however, neither JA design documents nor academic analyses of JA interventions have systematically analysed *how* exactly each pathway is expected to enable, reinforce, or amplify the operation of other pathways. Some broad propositions about such interactions can be drawn from related fields of policy and governance scholarship, which have highlighted the potential for a cohesive mix of instruments to enhance effectiveness by performing mutually reinforcing functions (Furumo & Lambin, 2020), enabling flexibility and resilience in the face of varied contexts (Capano & Howlett, 2020; Sewerin et al., 2022), or by iteratively sequencing interventions to create reinforcing feedback loops between policy and subsequent processes of interest mobilisation, resource distribution, or capacity building (Edmondson et al., 2019; Furumo & Lambin, 2021; Sewerin et al., 2022). Yet these propositions require further empirical exploration in the context of JAs.

### 3.5. How do varied implementation contexts influence the operation of intervention pathways?

While such propositions can help to guide our exploratory empirical analysis of how such pathways interact in support of JAs for sustainable commodity production, we also need to consider how the trajectories followed by these interacting intervention pathways are in turn mediated by varied implementation contexts. Some existing work on JAs has acknowledged the importance of implementation context for the establishment and operation of JAs, but has done so largely implicitly via descriptions of relevant operating contexts (e.g. Alvarado, 2021; FORCLIME, 2019; Hovani et al., 2018; IDH, 2018) rather than by theorising how pathways interact with contexts.

Other analysts of JAs have sought explicitly to identify the most important contextual factors that enable and constrain the development of JAs (see e.g. Brandão et al., 2020; EII, 2017; Paoli et al., 2016). These factors are then understood to interact in complex and often idiosyncratic ways in particular contexts (e.g. Kittinger et al., 2021; Stroh, 2018). While such analyses are rarely a focus of JA scholarship, they resonate with more systematically elaborated comparative analyses within wider environmental governance scholarship, on which our synthesised account of these contextual conditions also draws.

Such a synthesis first indicates the importance of the **economic context**, suggesting that governance initiatives are more likely to succeed in contexts where: major buyers recognise the jurisdiction's definition of sustainability and commit to purchasing sustainably-sourced products (EII, 2017; UNDP, 2022), buyers have more leverage over suppliers through vertical integration or market concentration (Boshoven et al., 2021; Daemeter & Proforest, 2019; Garrett & Pfaff, 2019), and commodity producers possess sufficient financial, technical, organisational, and informational resources to upgrade sustainability practices (Brandão et al., 2020; Chervier et al., 2020; Nolte et al., 2017; Paoli et al., 2016).

Second, emphasis is often placed on features of the **environmental governance context**, often shaped by its ecological features and history of extraction. Existing analyses suggest that sustainability governance schemes are more likely to be implemented when: both agricultural production and environmental conservation are established as political priorities (Daemeter & Proforest, 2019; EII, 2017), they are aligned with prior and ongoing government policy interventions to facilitate and incentivise sustainable production and land management practices (Brandão et al., 2020), government actors provide complementary financing, services, and infrastructure, and there is strong state institutional capacity to support these interventions (Chervier et al., 2020; Garrett & Pfaff, 2019; Nolte et al., 2017).

Third, the effects of interacting governance interventions have been

recognised in descriptions of JA design to depend importantly on features of the **political context**, particularly the extent to which influential local actors engage with, support, or resist efforts to promote jurisdictional initiatives (Boyd et al., 2018). Local company leaders, NGOs, research organisations, or government agencies can enable or constrain the operation of JA interventions, playing valuable convening and brokerage roles in mobilising knowledge and resources or blocking interventions perceived to threaten entrenched local interests (EII, 2017; Hovani et al., 2018). As such, the capacity of promoters to successfully frame their 'value propositions' as "sufficiently material to the interests of jurisdictional leaders" has significant implications for JAs—whether value is understood with respect to fiscal and administrative costs, economic growth, satisfaction of local social constituencies, personal gains (or gains for family or political allies), or political career aspirations (Daemeter & Proforest, 2019; Paoli et al., 2016; Seymour et al., 2020, p.7). Insights from broader governance scholarship further suggest that such responses are highly sensitive to specific 'trigger events' and broader political agendas, which can accelerate or derail political momentum for jurisdictional approaches at specific points in time (Furumo & Lambin, 2020; Nolte et al., 2017).

Illustrative references indicating existing analyses of such factors (in JA program documents, both grey and academic literature on JAs, and wider environmental governance scholarship) are summarised in Table 2.

While such existing work helps us to organise our empirical analysis of contextual factors enabling and constraining the operation of JAs, such literature has rarely developed a more explicit analysis of how these contextual conditions might *differentially enable and constrain* distinct intervention pathways. We can infer from the small body of existing literature on comparative policy instruments that varied contexts are likely to affect the three distinct intervention pathways in ways that reflect the unique capacities and resources that each intervention type requires and the benefits or costs that each generates for competing social interest groups (Edmondson et al., 2019; Sewerin et al., 2020). Yet such comparative work has not yet moved sufficiently beyond descriptive analyses of instrument typologies (Capano & Howlett, 2020) to provide a clear basis for more specific hypotheses about the drivers of such variation. It also remains unclear to what extent the managers of JAs can *intentionally adapt* their operationalisation of JA interventions to contextual conditions, for example via varying calibrations or sequences of the distinct interventions (Furumo & Lambin, 2021), or how varied intervention pathways might instead evolve through more *incremental strategies* of bricolage and layering (Edmondson et al., 2019; Peters et al., 2018; Stroh, 2018; Thelen, 2004). These persistent questions are explored further through our comparative case study analysis below.

## 4. The practice of jurisdictional interventions: Verified sourcing areas in Indonesia

In collaboration with World Agroforestry (ICRAF), IDH introduced the VSA program in Indonesia in 2016, building on prior landscape, forest, and ecosystem conservation and community forestry initiatives, and REDD + pilot programs. The VSA program aims to scale up sustainability impacts "beyond the reach of single companies or supply chains" (IDH, n.d. (b)) predominantly in palm oil (and some rubber) by strengthening corporate practice and government policy on forest and peatland protection, support for farmer livelihoods, and poverty reduction (IDH, 2017). The VSA implementation contexts and intervention pathways in MuBa and Aceh are discussed below, with VSA program strategies first being introduced in the MuBa discussion. Additional qualitative analysis and illustrative evidence is available online in Appendix 3.

**Table 2**  
Contextual influences on intervention pathways.

Dimensions of context	Enabling conditions for jurisdictional sustainability interventions	Illustrative references: jurisdictional initiative design documents	Illustrative references: jurisdictional approaches literature	Illustrative references: wider policy and governance scholarship
<b>Economic context</b>	<ul style="list-style-type: none"> <li>● Buyers recognise the jurisdiction's definition of sustainability</li> <li>● Buyers commit to purchasing sustainably sourced products</li> <li>● Buyers have leverage over suppliers through vertical integration or market concentration</li> <li>● Commodity producers possess sufficient financial, technical, organisational and informational resources to upgrade sustainability practices</li> </ul>	<p>Daemeter &amp; Proforest (2019) Rainforest Alliance (2022) UNDP (2022)</p>	<p>Boshoven et al. (2021) Brandão et al. (2020) Chervier et al. (2020) EII (2017) Paoli et al. (2016)</p>	<p>Bebbington (2015) Bebbington et al. (2018) Garrett et al. (2021) Garrett &amp; Pfaff (2019) Gellert (2003), Gellert (2010a), Gellert (2010b) Lawrence et al. (2019) Nolte et al. (2017)</p>
<b>Environmental governance context</b>	<ul style="list-style-type: none"> <li>● Agricultural production and environmental conservation are both local political priorities</li> <li>● Jurisdictional governance schemes are aligned with prior sustainability governance initiatives</li> <li>● State actors make policy commitments to support sustainable production and land management</li> <li>● State actors provide financing, services and infrastructure in support of sustainable production</li> <li>● Strong state institutional capacity</li> </ul>	<p>Daemeter &amp; Proforest (2019) Rainforest Alliance (2022) UNDP (2022)</p>	<p>Brandão et al. (2020) Buchanan et al. (2019) Chervier et al. (2020) EII (2017) Paoli et al. (2016) Seymour et al. (2020)</p>	<p>Agrawal et al. (2014) Andersson (2013) Gale &amp; Haward (2011) Garrett &amp; Pfaff (2019) Lemos &amp; Agrawal (2006) Meyfroidt &amp; Lambin (2011) Meyfroidt et al. (2014) Nolte et al. (2017) Ribot et al. (2010) van der Ven et al. (2021)</p>
<b>Political context</b>	<ul style="list-style-type: none"> <li>● Presence of government, corporate or NGO leaders with capacity and willingness to play convening and brokerage roles to support jurisdictional sustainability agendas</li> <li>● Absence of influential local actors who perceive interventions as threats to their interests</li> <li>● Ability of proponents of jurisdictional approaches to successfully frame their 'value propositions' in ways that resonate with the political interests of local politicians and public officials</li> <li>● Presence of 'trigger events' or aligned political agendas that accelerate political momentum for strengthened sustainability governance.</li> </ul>	<p>Daemeter &amp; Proforest (2019) UNDP (2022)</p>	<p>Boyd et al. (2018) Brandão et al. (2020) Chervier et al. (2020) EII (2017) Fishman et al. (2017) Hovani et al. (2018) Paoli et al. (2016) Seymour et al. (2020)</p>	<p>Bebbington (2015) Bebbington et al. (2018) Edmondson et al. (2019) Furumo &amp; Lambin (2020) Gellert (2003), Gellert (2010a), Gellert (2010b) Meyfroidt &amp; Lambin (2011) Nolte et al. (2017)</p>

#### 4.1. Musi Banyuasin (MuBa)

##### 4.1.1. Local political economy and environmental governance dynamics

South Sumatra Province, including the VSA's targeted jurisdiction of MuBa District, is known for its expansive palm oil production and depleted forests (Ristiana et al., 2021; IDH, 2017). Local problems of forest destruction, degradation and fires (often from clearing for oil palm)<sup>16</sup> have elicited national and international attention and *environmental governance* critiques (Stickler et al., 2020; RAN, 2020; Watts et al., 2019). South Sumatra's 2015 fires contributed to 23 percent of Indonesia's total burned area (including MuBa fires), producing extreme health and economic effects in Indonesia and neighbouring countries (Tacconi, 2016). In response to international and domestic pressure to crack down on illicit burning, newly-elected President Joko Widodo introduced significant institutional and policy measures, also tightening accountability within affected provinces and key state agencies (Pratumudya et al., 2018; Tacconi, 2016; Watts et al., 2019).<sup>17</sup>

The 2015 fires aligned national, provincial and district *political* priorities in improving environmental governance, inducing new policy commitments from the provincial governor for fire prevention through

the provincial Green Growth Plan,<sup>18</sup> which focused on two districts, including MuBa. The Plan was developed with international support and received strong backing from interim MuBa District Head Henedi<sup>19</sup>—a longstanding advocate of environmental conservation (IDH, 2016). District market and government-driven sustainability governance programs were introduced in cooperation with NGOs<sup>20</sup> and major commodity companies.<sup>21</sup> IDH, RPSO and other international organisations<sup>22</sup>

<sup>18</sup> The Green Growth Plan focused on delinking deforestation and fires from commodities such as palm oil, protecting and restoring forests and peatlands, improving the lives of smallholders, and increasing sustainable agricultural and forestry production through partnerships between the private sector, conservationists, civil society, and the government (Luttrell et al., 2018; IDH, 2016).

<sup>19</sup> Henedi held the deputy district head position in 2012 and was interim district head from December 2015 - July 2017 after the former head stepped down. Henedi had previously led an environmental conservation student association and was head of the South Sumatra branch of AMAN (Alliance of the Indigenous Peoples of the Archipelago) that has customary forest protection as a key advocacy focus.

<sup>20</sup> While the terms NGOs and civil society organisations (CSOs) are sometimes used interchangeably, since democratisation in Indonesia, the members of organisations established and driven by civil society have preferred the term CSOs because NGOs include organisations established by the military and elites (under authoritarianism and in contemporary Indonesia) to 'capture' civil society for more predatory interests. In referring to Indonesian CSOs in this paper, we simply use the term NGOs to be consistent with dominant usage in relevant literature.

<sup>21</sup> These most notably included the RSPO's Jurisdictional Certification scheme pilot in MuBa and the KELOLA Sendang sustainable landscape initiative (Luttrell et al., 2018; Rudi, 2017; Seymour et al., 2020; Shea, 2020).

<sup>22</sup> Zoological Society of London (ZSL), ICRAF, Rainforest Action Network (RAN), World Resources Institute (WRI), Forest Peoples Program (FPP), Daemeter and others.

<sup>16</sup> Fires from forest clearing (mainly on peatlands) have resulted in periodic extreme uncontrolled fires and haze, most recently in 2015, 2019 and 2023 (Tacconi, 2016; Watts et al., 2019; Yulisman, 2023). Fires on peatlands are extremely difficult to extinguish, and release significantly more CO<sub>2</sub> than fires on mineral soils.

<sup>17</sup> This includes new fire prevention policies, agencies (e.g. the Peatlands Restoration Agency - BRG) and task-forces. Widodo denounced (and in some cases prosecuted) company executives for fires in their concession areas. By the end of 2015, 23 companies in Indonesia lost their licences or had their activities limited and a further 31 were under investigation, while some company executives were prosecuted (Gabrillin, 2015).

also established the 'Friends of MuBa' network to support these initiatives.

This subnational context shaped the enabling environment for the VSA's implementation (see also Appendix 3a). As the timeline in Fig. 1 demonstrates, subnational *political cycles* created opportunities for strengthened *environmental governance*. For example, after the 2017 MuBa district head elections—won by the governor's son<sup>23</sup> with Hernedi as his deputy—a short RSPO pilot was discontinued (in Indonesia new regimes commonly distance themselves from incumbent-supported programs). The new district head instead supported his father's provincial plan via embracing IDH's VSA program, which stimulated a burst of VSA network and coalition-building activities supported by the international Friends of MuBa network<sup>24</sup> and the newly-established, government-led Sustainable Districts Association (LTKL) chaired by Hernedi (LTKL, 2018; CIV12).<sup>25</sup>

With the election of a new governor in 2018, provincial political enthusiasm waned for Green Growth.<sup>26</sup> District-level engagement thus became more critical for establishing VSA activities, with proponents proceeding carefully to minimise political disruptions (Pramudya et al., 2020). The 2019 fires reignited political motivation to scale-up provincial/district policy efforts, underpinning support for the establishment that year of the VSA coordination forum—the Centre of Excellence in Sustainable Commodities (PUKL)—as the formal JA multi-stakeholder forum (MSF).<sup>27</sup> Such multi-scale government support helped align interests of major producers under increasing pressure to clean up supply chains with international development partners' environmental sustainability agendas, smoothing the way for VSA implementation.

The VSA was further facilitated by the provincial/district *economic context*, in which business/state revenues from natural resources were diversified beyond oil palm (e.g. including timber, oil and gas, infrastructure), and both private business ownership and ties to companies for political-campaign support were cross-sectoral. As a result, the promotion of sustainable palm oil agendas proved less threatening to the economic interests of powerful state actors (political leaders and bureaucrats) that might otherwise block the initiative (e.g. Diprose, 2022).<sup>28</sup> The structure of the MuBa palm oil sector (see Table 3) was also conducive for the VSA as its three multinational buyers<sup>29</sup> (all committed to the zero deforestation Indonesia Palm Oil Pledge) had leverage over their transnational subsidiaries and national companies/smallholders

<sup>23</sup> Dodi Reza Alex Noerdin was the member of the national parliament representing South Sumatra for two terms. In aiming to follow in his father's footsteps (prior to being elected as governor, Alex Noerdin had been the MuBa district head) he ran for district office and was elected to the top position in the district in 2017 after a failed first attempt in 2012 (GOV03, GOV06).

<sup>24</sup> IDH, ICRAF, and Winrock International, among others.

<sup>25</sup> LTKL - Lingkar Temu Kabupaten Lestari. Hernedi and MuBa District drove the establishment of this Association, which began with eight member districts (now nine) from six provinces.

<sup>26</sup> The prior governor had reached his two-term limit and a new provincial governor, Herman Deru was elected. Again, as is common, new leaders may continue the broader sectoral agenda of their opponents but reshape this in their own policies and programs so as to distance themselves from opponents. The new governor's own program of 'Advancing Sumatra Selatan for All' was also based on principles of sustainable development and attention to environmental impacts.

<sup>27</sup> This included the district government, IDH, SNV, Daemeter, and participating companies (District Regulation No. 92 2019).

<sup>28</sup> Engagement in the infrastructure sector proved to be the undoing of both former Governor Noerdin and his son District Head Noerdin who were charged with corruption in 2021—the former for the possible embezzlement of USD 30 million of state funds received in return for privileging particular gas contractors in tender processes, and the latter for similar types of embezzlement for infrastructure projects.

<sup>29</sup> All three multinationals with subsidiaries and operations in MuBa had signed the zero-deforestation Indonesia Palm Oil Pledge in 2014.

via significant vertical supply chain integration. VSA interventions thus needed to engage with fewer private companies, as we explore in the next section.

#### 4.1.2. MuBa: Network and coalition-building

Network and coalition-building at multiple scales has been a central VSA intervention for expanding knowledge of and commitment to the VSA. High-profile international and national multi-stakeholder events on sustainable jurisdictions and landscapes, and other JA/VSA information-sharing events at multiple scales (see Annex 1a for international/national examples and Annex 1b for MuBa) have harnessed wider support for JAs by highlighting the benefits of sustainable commodities production and environmental governance. These also interacted with resource mobilisation pathways in garnering financial support and strengthening JA know-how via information sharing (especially for districts).

At all levels, some activities arose organically, often via initially harnessing existing networks formed around antecedent efforts to promote environmental governance, such as MuBa's Green Growth and spatial plans and monitoring frameworks (IDH, 2017; Luttrell et al., 2018). Others were ongoing strategically planned activities, most notably those organised by IDH/Daemeter or the LTKL with the support of other national and MuBa organisations.<sup>30</sup>

To build knowledge of, political commitment to, and implementation capacity for the VSA, MuBa network and coalition-building activities (Annex 1b) entailed sharing knowledge of how VSAs would help solve context-specific *local problems*, thereby creating a clear value proposition for local leaders and other stakeholders. Such activities often involved experience and knowledge-sharing to strengthen capabilities for government, local companies and farmers. Participants (e.g. GOV03, CIV08, CIV06) explained that they gained awareness of how the VSA could: help prevent forest fires via sustainable landscape management linked to community and farmer welfare; respond to market pressures for sustainable supply chains; and support local environmental governance.

Over time, these networks expanded into a strong coalition of state, business and civil society actors concerned with sustainability governance and production in MuBa. Networking and coalition-building activities contributed to collaborations (e.g. on data collection) and trust among diverse stakeholders (e.g. Bappeda, SNV and the local NGO GeCinde), and facilitated coordination between VSA interventions and existing programs (e.g. KELOLA Sendang) to promote sustainability governance.<sup>31</sup> Such interventions also galvanised interest and engagement from international investors and philanthropists (e.g. Packard Foundation)<sup>32</sup> and companies (e.g. Cargill, Wilmar and Musim Mas), opening pathways to scale up and sustain resource mobilisation for the VSA. By connecting the VSA with actors involved in antecedent environmental governance processes, these coalitions laid important foundations for collaborative governance through the VSA's MSF.

#### 4.1.3. MuBa: Strengthened collaborative governance

The MSF (locally called the PUKL) strengthened the enabling environment by providing a formal platform for government, business and civil society stakeholders to agree on shared aims and decision-making processes, negotiate roles and responsibilities, and formalise

<sup>30</sup> The LTKL was supported by international partners, local NGOs, and Indonesia's District Governments Association (APKASI), which helped legitimise the LTKL as a national forum for district membership, extending its reach over time (CIV12; CIV18; Seymour et al., 2020).

<sup>31</sup> Early network and coalition-building activities were related to sustainability transitions in which VSA supporters such as the provincial and district governments, IDH, ICRAF, RSPO and others were involved.

<sup>32</sup> For example, LTKL activities were funded for several years by the Packard Foundation.



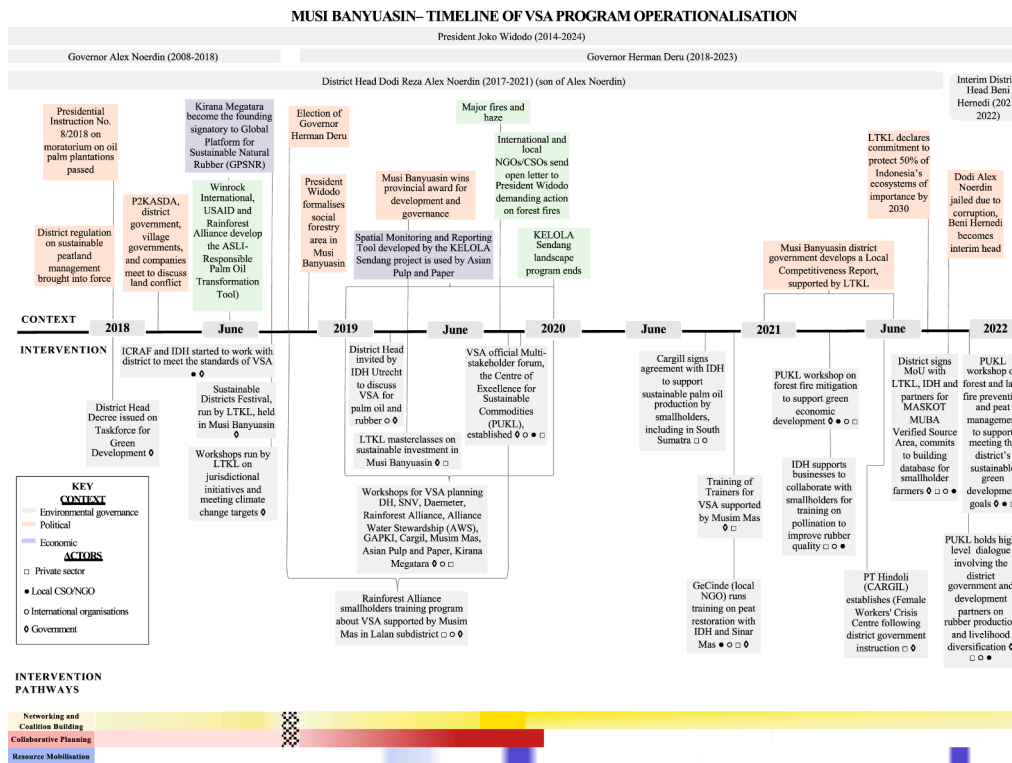
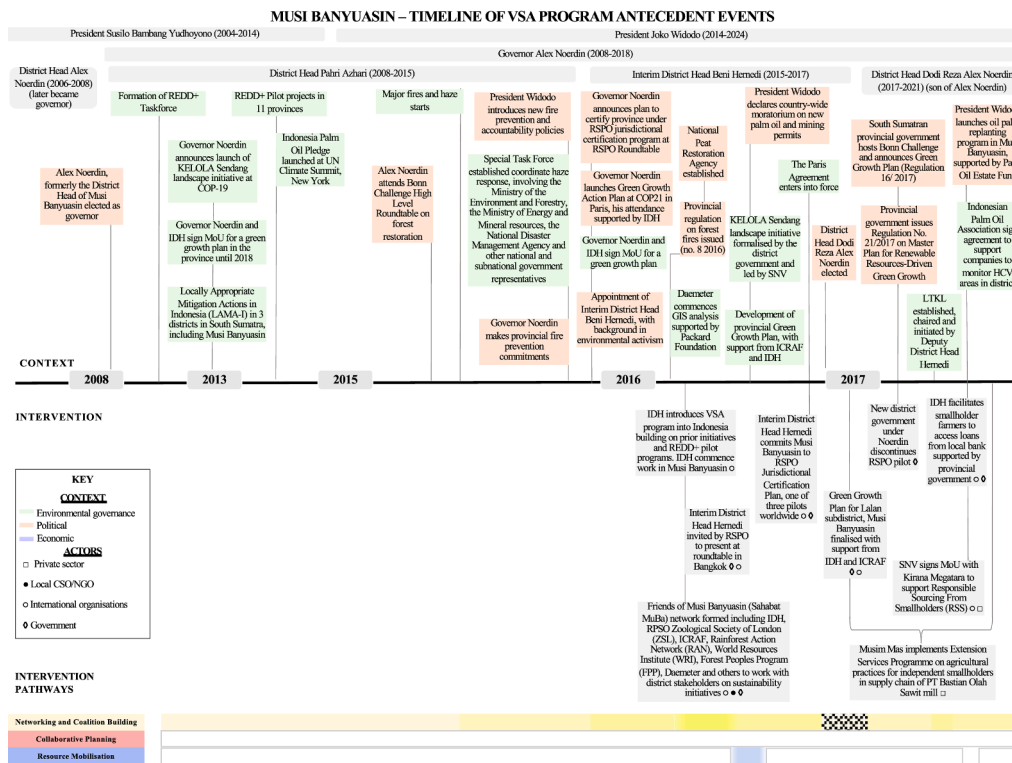


Fig. 1.

**Table 3**

Economic context: Structure of the palm oil sector in MuBa, South Sumatra.

MuBa District, South Sumatra Province	
Multinational buyers	1) Cargill Group, 2) Musim Mas Group, 3) Wilmar Group
Multinational and national palm oil companies	1) Hindoli (subsidiary of the multinational company Cargill/Cargil) 2) Musi Banyuasin Indah (subsidiary of the multinational Wilmar Group) 3) Berkah Sawit Sejati (subsidiary of the multinational Musim Mas Group) 4) Lonsum Babat Toman (subsidiary of the national Indofood company) 5) Mentari Subur Abadi (subsidiary of the national Indofood company) 6) Musi Agro Lestari (subsidiary of the national Astra Agro Lestari company) 7) Guthrie Pecconia Indonesia (national) 8) Banyu Kahuripan Indonesia Kecamatan Lalan (national)
Palm oil companies - subnational	1) PT. Sentosa Mulia Bahagia, 2) Pinago Utama, 3) Wanapotensi Guna, 4) Bastian Olah Sawit, 5) Sejati Palma Sejahtera, 6) Bina Karya Eka Mandiri, 7) Buyung Agro Sawita
Other major agribusiness companies	Kirana Megatara (Rubber - national), Sinar Mas (Asia Pulp and Paper - multinational with many subnational subsidiaries)
Total production area (smallholder farmers):	119,479 ha (MoA 2022)
Number of smallholder farmers:	45,760 (MoA 2022)
Average size of plantation per household:	2.6 ha (MoA 2022)
<b>South Sumatra Province</b>	
Smallholder farmers	424,754 ha (MoA 2022)
Private sector	441,891 ha (MoA 2022)
Government estate	48,007 ha (MoA 2022)

institutional structures for coordinating VSA activities and mobilising required resources (IDH, 2019). Participants predominantly involved district government, the LTKL, international organisations, and the private sector,<sup>33</sup> as there were few district NGOs (see Fig. 1, where actor types are distinguished).<sup>34</sup> Activities focused on strengthening institutional systems and environmental governance (see Annex 1c)—intensifying when political support strengthened after forest fires in 2015 and 2019.

Given its strong interest in reducing fires, the district led processes to establish and coordinate core MSF activities; the chair, secretary and deputy secretary were all staff from the District Development Planning Agency (Bappeda).<sup>35</sup> Many of MuBa's international development partners provided support for the MSF. For example, IDH led network-building and other activities with international buyers, financiers, donor organisations, and domestic private sector partners; ICRAF supported development of environmental governance regulatory frameworks; SNV<sup>36</sup> supported the MSF capacity development division to collaborate with businesses and smallholders; and Daemeter supported the MSF data and information division on HCV mapping, monitoring activities, and stakeholder training (CIV06, GOV06).

As a cross-district government association concerned with

<sup>33</sup> Yayasan Inisiatif Dagang Hijau, SNV, Daemeter, Rainforest Alliance, AWS, GeCinde (Gerakan Cinta Desa), GAPKI, Cargill, Musim Mas, APP Sinar Mas, Kirana Megatara.

<sup>34</sup> They mainly include the 'Village Love Movement' (Gerakan Cinta Desa – GeCinde) and Pelepah, which are very small local organisations.

<sup>35</sup> Responsible for development and green growth planning.

<sup>36</sup> A development organisation from the Netherlands, usually focused on the rubber sector.

sustainability, the LTKL focused on connecting district governments, building government knowledge of JAs, promoting political support for such approaches, and building district-level green growth capacity. NGOs coordinated some training, capacity-building and other events with smallholders/communities, but tended to provide contracted services for VSA interventions rather than developing independent programs (CIV06, CIV08). Private sector MSF members (e.g. the business association GAPKI and companies in MuBa's multiple agribusiness sectors such as Cargill and Musim Mas in palm oil,<sup>37</sup> APP in timber pulp, and Kirana Megatara in rubber) supported Good Agricultural Practices (GAP) training for smallholders.

Overall, respondents described how MuBa's VSA's collaborative governance activities (see Annex 1c) facilitated the negotiation, promotion and coordination of new policy planning tools (e.g. roadmaps, strategy development), helping to institutionalise an enabling policy environment for sustainable productive landscapes.

#### 4.1.4. MuBa: Organised resource mobilisation

The VSA has further coordinated both public and private sector resources to support sustainability transformations. As is evident in the division of responsibilities under the MSF, in MuBa the VSF's multi-stakeholder strategy helped expand resourcing. Each partner contributed people, time, finances, and expertise according to their comparative strengths to create stronger sustainability incentives, know-how and resources to enable farmers, supply chain actors and government to implement necessary changes (IDH, 2016; IDH, 2021).

The mix of actors resourcing the VSA reflects MuBa's contextual political and environmental governance opportunities.<sup>38</sup> As Fig. 1 and Annex 1d highlight, activities to date have been calibrated to build supportive environmental governance processes, capacities, and incentives. For example, given political commitments to the VSA, significant district/provincial funds, staff, and infrastructure have supported the MSF Secretariat and specific activities such as the smallholder farmer database, implemented with LTKL, IDH and partners. This has in turn laid foundations for future capacity-building and support activities (CIV12, CIV19, GOV03). The VSA's main interventions directing support to government, companies and smallholders have been resourced by international organisations, with company commitments (e.g. for training and smallholder hubs) slowly growing over time (COM01, CIV06, CIV06).

One VSA strategy has involved connecting farmers seeking to improve sustainable practices with international buyers committed to sustainable procurement. This has most recently encompassed IDH's SourceUp "collaboration platform for supply chain sustainability at scale" (IDH, 2021),<sup>39</sup> through which, for example, IDH funds work to connect smallholders and buyers who offer direct price premiums for improved sustainability. In MuBa (and Aceh), Musim Mas has set up a new smallholder hub and committed to buy palm oil from these farmers (COM07).<sup>40</sup> A second VSA intervention strategy has involved delivery of market services such as access to quality agricultural inputs for farmers

<sup>37</sup> Both Cargill and Musim Mas are also RSPO members.

<sup>38</sup> There has been less focus in MuBa on mobilising large-scale resources for, say, land rehabilitation under the VSA.

<sup>39</sup> This scheme establishes MSFs (referred to within the SourceUp scheme as 'compacts') in producing regions and links these with major agro-commodity companies, enabling buyers and producers to align local green growth or sustainable landscape policy agendas with international corporate commitments around sustainable commodity sourcing. In addition to direct benefits of price premiums, other benefits are indirect—e.g. stable supplier-buyer relationships, access to new markets or capacity-building support.

<sup>40</sup> In other agro-commodity sectors in MuBa, APP Sinarmas (in pulp and paper) and Kirana Megatara (in rubber) have, in collaboration with SNV, trained timber and rubber smallholders (e.g. the UPPB, Rubber Farmers Group) in responsible sourcing, with Kirana Megatara committing to purchase smallholder rubber products (CIV10; GOV08).

and farmer organisations, support for increased farmer productivity and improved land certification programs, thereby motivating producers to engage with sustainability interventions by increasing productivity, incomes and livelihood security.

A third emerging strategy has been designed to facilitate improved producer access to new sources of green finance<sup>41</sup> by offering either concessional (lower cost) finance or more secure access to finance for producers demonstrating sustainability impacts. In MuBa, Musim Mas support for smallholders, in coordination with national agencies, has helped farmers achieve ISPO certification, and in turn, to access low-interest financing schemes from Indonesian commercial banks for palm oil producers meeting certain requirements (Sindonews, 2017). As we see in Annex 1d, these interventions also interact with other VSA intervention pathways.

## 4.2. Aceh Tamiang

### 4.2.1. Aceh: Local political economy and environmental governance dynamics

Aceh province is well-known for its devastating experience of the 2004 Indian Ocean Tsunami and three decades of conflict between the Indonesian government and the Free Aceh Movement. Under the 2005 Helsinki peace agreement and the Aceh Special Autonomy Law (18/2001),<sup>42</sup> Aceh gained greater legislative and political authority and a higher share of extractive sector revenues compared with other provinces.<sup>43</sup> The province is also home to the famed Leuser and Ulu Masen ecosystems covering 3.3 million hectares (Anandi et al., 2014), including the Leuser National Park that partly covers Aceh Tamiang District and is one of the most important rainforests in Southeast Asia (RAN, 2014).<sup>44</sup> Together these conditions create a distinctive *environmental governance and political context* for VSA implementation in Aceh Tamiang.

With depleted oil and gas reserves and the wind-down of post-Tsunami reconstruction, Aceh's leaders faced significant pressures to develop the economy, including smallholder farming opportunities important for ex-combatants to avoid a return to conflict (Kasia et al., 2011), while also addressing ongoing damage to the Leuser Ecosystem (CIV09).<sup>45</sup> To counter these *local problems*, Aceh's first popularly elected Governor—Irwandi Yusuf, a founding member of Flora and Fauna International (FFI) in Aceh—developed 'Aceh Green', aligned with then President Yudhoyono's 2007 environmental and climate change mitigation agenda.

<sup>41</sup> Green finance can be sourced nationally or internationally and from public and private finance providers.

<sup>42</sup> Law No. 11/2006 on Aceh Governance also outlines aspects of Aceh's autonomy powers (Anandi et al., 2014). Under its special autonomy powers Aceh is able to operate Sharia law, which was one of the aspects of the Helsinki Agreement. Independent candidates can run for office without party backing and local political parties can be established (Aspinall, 2006). In all other Indonesian regions, political parties must have a national base and political candidates must be endorsed by parties or coalitions of parties.

<sup>43</sup> In many ways, Aceh's legislative powers under Special Autonomy resemble that of subnational States in federal political systems in the extent to which they can make policy and legislation and have a different form of political organisation. Most other provinces in Indonesia do not have these powers (only the Papua region has similar powers given its own conflict history).

<sup>44</sup> The Leuser Ecosystem spans an area of 2.6 million hectares, including 460,000 acres of peatlands that are high in carbon storage. The ecosystem contains biodiversity of global importance, and supports critically endangered species such as the Sumatran tiger, rhinoceros, orangutan, sun bear, and clouded leopard (RAN, 2014).

<sup>45</sup> Deforestation had not only reduced carbon stocks and affected biodiversity, but had resulted in drought, erratic water supplies, flash floods, landslides and silt-contaminated fishing areas in Aceh province, including Aceh Tamiang (EOA, 2009; CIV09).

However, this green growth policy failed because the proposed regulatory reforms were blocked by pro-palm oil factions in Aceh's parliament (COM8), economic opportunities for ex-combatants were too slow to materialise, agro-forestry company and international development agency investment in 'green' initiatives slowed as budgets shrunk with the Global Financial Crisis (GFC),<sup>46</sup> and market incentives for sustainable production remained weak (Swainson, 2016). As illustrated in the timeline in Fig. 1, Yusuf lost the Governorship in 2012 and the sustainability transition stalled (Anandi et al., 2014; Komalasari & Peteru, 2018).

A new provincial Aceh Spatial Plan (2013–2033) was instead introduced, opening up large Leuser areas to industrial development and expanded oil palm plantations (RAN, 2016). In response, from 2013 to 2017 Greenomics, Greenpeace, the Rainforest Action Network (RAN), and the local NGO the Leuser Conservation Forum (FKL)<sup>47</sup> scaled up coordinated advocacy campaigns to 'name and shame' global palm oil companies with production in the Leuser region (Greenpeace, 2017; CIV05; CIV09).<sup>48</sup> Under resulting consumer pressure, many global buyers committed to 'no deforestation' (Greenpeace, 2017).<sup>49</sup> However, the primary reliance on palm oil in Aceh Tamiang's *economic context*, and its complex, less vertically-integrated supply chain structure (compared with MuBa) over which many competing multinational buyers (see Table 4) had limited leverage<sup>50</sup> constrained sustainability options.<sup>51</sup>

Fig. 2 shows that only a few low-risk activities led by IDH and Earthworm Foundation took place in this constrained enabling environment.<sup>52</sup> Even President Widodo's country-wide moratorium on new palm oil and mining permits and a corresponding moratorium announced by Aceh's Governor did not constrain local land clearing for oil palm (RAN, 2016).

<sup>46</sup> In this instance, the GFC did not have the same implications for MuBa (South Sumatra) as it did for Aceh. This is because at the point in time when the GFC hit South Sumatra had fewer international environmental advocacy or development organisations (e.g. the World Bank, the UN, international organisations) with large and active programs and financing when compared to Aceh, where numerous organisations were engaged in post-tsunami and post-conflict rehabilitation. These agencies provided significant support to the Aceh governor via their own programs, and through funding for government initiatives. The GFC affected the budgets of these international organisations and companies, and a lot of funding for the region was withdrawn. As a result, South Sumatra has not seen the same presence of organisations or global pressures (it does not have the globally-renowned Leuser Ecosystem) and efforts to improve sustainability did not scale up until 2015, well after the GFC.

<sup>47</sup> FKL's founder, Rudi Putra, also coordinated a petition calling on the Indonesian government to enforce national-level conservation regulation in Aceh, which gathered 1.4 million signatures. In early 2014, the Ministry of Home Affairs requested revisions to the Aceh Spatial Plan; however, the plan was enacted as Qanun (Aceh's regional regulation) under Aceh's Special Autonomy status (RAN, 2016).

<sup>48</sup> For example, RAN ran the Conflict Palm Oil campaign and the Snack Food 20 campaign, monitoring the palm oil supply chains of three big buyers of palm oil in the region (Wilmar, Musimas and Golden Agri Resources - GAR) and the global companies that buy from these companies such as Pepsico, Unilever, and Nestle.

<sup>49</sup> Unilever, Nestle and GAR had committed to no deforestation a number of years prior to this and GAR followed suit in 2013, with many other global companies (i.e. L'Oreal, Kellogg, Mars) making commitments in 2014. Such campaigns also focused global attention on Aceh Tamiang, which lost 25% of its tree cover through deforestation between 2002 and 2020 (Global Forest Watch, n.d.).

<sup>50</sup> Concessions and mills were operated by many sub-nationally owned medium sized producers, national companies, and the state-owned palm oil company.

<sup>51</sup> The District Head did however support one project to remove palm oil plantations from *protection* forest areas in the Leuser (RAN, 2016).

<sup>52</sup> Fuji Oil, Golden Agri Resources (GAR), Cargill, Hershey, Mars, and Nestle (TFA, 2021).

Table 4

Economic context: Structure of the palm oil sector in Aceh Tamiang, Aceh Province.

Aceh Tamiang District, Aceh Province	
Multinational buyers	1) PepsiCo, 2) GAR, 3) Musim Mas, 4) Unilever, 5) Avril, 6) Clorox, 7) Bunge, 8) Colgate-Palmolive, 9) Fuji Oil, 10) Golden Agri-Resources, 11) Givaudan, 12) Hershey Mars, 13) Nestle, 14) PZ Cussons, 15) Reckitt, 16) Vandemoortele
Multinational and national palm oil companies in operating in the district	1) Sri Kual (multinational) 2) Socfin Indonesia Group (multinational) 3) Dharma Agung (national) 4) Dharmaswita Nusantara (national) 5) Padang Palma Permai (national) 6) Parasawita (national) 7) PTPN 1 Pulau Tiga (national) 8) Sumber Asih (national)
Subnational palm oil companies in the district	1) Alur Gantung, 2) Bahrung, 3) Benih Tamiang, 4) Bukit Safa, 5) Bumi Sama Ganda, 6) Desa Jaya Kebun Alur Jambu, 7) Desa Jaya Sungai Liput, 8) Mopoli Raya, 9) PP Pati Sari, 10) PPDI Nilam Wangi, 11) Puga Company, 12) Ronggoh Mas Lestari, 13) Tenggulun Raya, 14) Surya mata, 15) Seumadam, 16) Simpang Kiri Plantation, 17) Sriratu, 18) Wajar Corpora
Total production area (smallholder farmers):	44,969 ha (MoA 2022)
Number of smallholder farmers:	10,794 households (MoA 2022)
Average size of plantation per household	4.16 ha (MoA 2022)
<b>Aceh Province: Total Oil Palm Plantation Area (MoA 2022)</b>	
Smallholder farmers	162,764 ha
Private sector	148,497 ha
Government estate	29,832 ha

Opportunities to incentivise sustainable production grew, however, in 2015. Under pressure from multinational buyers Unilever and PepsiCo to clean up their supply chains, multinational suppliers Wilmar and Musim Mas both cancelled the supply contract of Mopoli Raya (the then district head's family-owned company) due to illegal clearing in High Conservation Value (HCV) and High Carbon Stock (HCS) forest areas by its subsidiary, Aloer Timur (RAN, 2016; CIV09; CIV07).<sup>53</sup> In response, with Wilmar and Earthworm's support, Mopoli Raya and other companies began work on HCV/HCS area protection and rehabilitation (Wilmar, 2020). Opportunities then arose in the *political context* in 2017 when Yusuf regained the Governorship and re-invigorated Aceh Green (CIV09; TFA, 2021), and a new district head was elected with no personal palm oil business interests and a background at the National Land Agency promoting legalised land titles for smallholders (GOV01; CIV05).

Critical shifts in the subnational political economy saw *environmental governance* activities quickly scale up in 2018: a moratorium on palm oil expansion was issued, a review of existing licences began, the Aceh Tamiang government applied to join the LTKL and signed an MOU with Earthworm (TFA, 2021),<sup>54</sup> and the Coalition for Sustainable Livelihoods was established to coordinate government, business, and NGO activities focused on sustainable smallholder commodity production,<sup>55</sup> designating Aceh Tamiang for its pilot (Seymour, 2019). In 2019, IDH's

<sup>53</sup> One of Mopoli Raya's lead shareholders contested this claim, arguing the palm oil was from legal concession areas (Listiyarini, 2015).

<sup>54</sup> This was despite the arrest of Governor Yusuf in 2018 on corruption charges—his agenda was not significantly disrupted by his deputy who acted in his place (Aceh Government, 2018).

<sup>55</sup> The Coalition for Sustainable Livelihoods focused on Aceh and North Sumatra. It existed in parallel to, but interacted closely with, the VSA, as a key goal shared by both initiatives was to coordinate landscape approaches and jurisdictional initiatives.

Production, Protection, and Inclusion (PPI) Compact was signed by the District Head and other partners, following several years of discussions (TFA, 2021; Seymour et al., 2020).<sup>56</sup>

#### 4.2.2. Aceh: Network and coalition-building

Like in MuBa, renewed political opportunities in 2018–19 spurred a scale-up in VSA networking and coalition-building efforts to grow multi-stakeholder knowledge of and consensus on the VSA in preparation for establishing its MSF (ratified in 2019 and active in 2020). Many examples of networking activities in *Annex 1e* harnessed existing networks of actors concerned with sustainability (e.g. those involved in PPI Compact discussions). This also interacted with collaborative governance pathways—many PPI Compact signatories are also MSF members.

Strategic information-sharing events sought to create a value proposition for participants by showing how the VSA helped to solve *local problems*—e.g. protecting and rehabilitating depleted peatlands, as well as supporting 'named and shamed' subnational companies to re-enter supply chains, other companies to respond to the market pressures for improved sustainability, and smallholders to secure land title/livelihoods. For example, IDH convened international palm oil buyers with existing sustainability commitments to discuss environmental sustainability of the Leuser Ecosystem (coordinating with NGOs like Earthworm and RAN) and connected these buyers to subnational oil palm companies and government, encouraging them to also join PPI Compacts (IDH, n.d).

Networking galvanised further awareness, interest and engagement from local/global NGOs, farmers (and farmer organisations), and development organisations, thereby laying the foundations to scale up partnerships via resource mobilisation, and to strengthen program coordination via collaborative governance. As one interviewee explained: "A significant impact [of the VSA] has been the relationships between farmers and companies and farmers and the government, and the cooperation created by this program has been positive. Previously there was no communication between companies and farmers" (CIV01).

Like in MuBa, network convening and management drove coalition-building and learning but differed with regard to the distinct governance problems around which network-building processes were mobilised, and the timing of networking activities based on evolving opportunities to engage with prior environmental governance activities and changing local political leaders.

#### 4.2.3. Aceh: Strengthened collaborative governance

Early members of Aceh's MSF were engaged in antecedent environmental governance efforts and advocacy (as in MuBa). Aceh's MSF similarly provided a space for dialogue, planning, and dividing and coordinating responsibilities between members. In contrast to MuBa, however, NGOs predominantly drove Aceh's MSF and VSA strategy development and activities coordination—reflecting NGOs' long involvement in local governance, conservation and smallholder and community work. NGOs also led implementation of GAP training and related programs, with support from their partners (CIV05, CIV09). MSF members have also included international and private sector organisations, with a lesser, mainly administrative function for district government given Aceh's political constraints, although the MSF is nonetheless chaired by district government (GOV01).

Despite different degrees of state engagement, the division of responsibilities among other partners in Aceh's MSF (see Fig. 1 for actor

<sup>56</sup> PPI Compacts are agreements developed by IDH between government, private sector and civil society actors. IDH began scoping work for the Compacts in 2017.



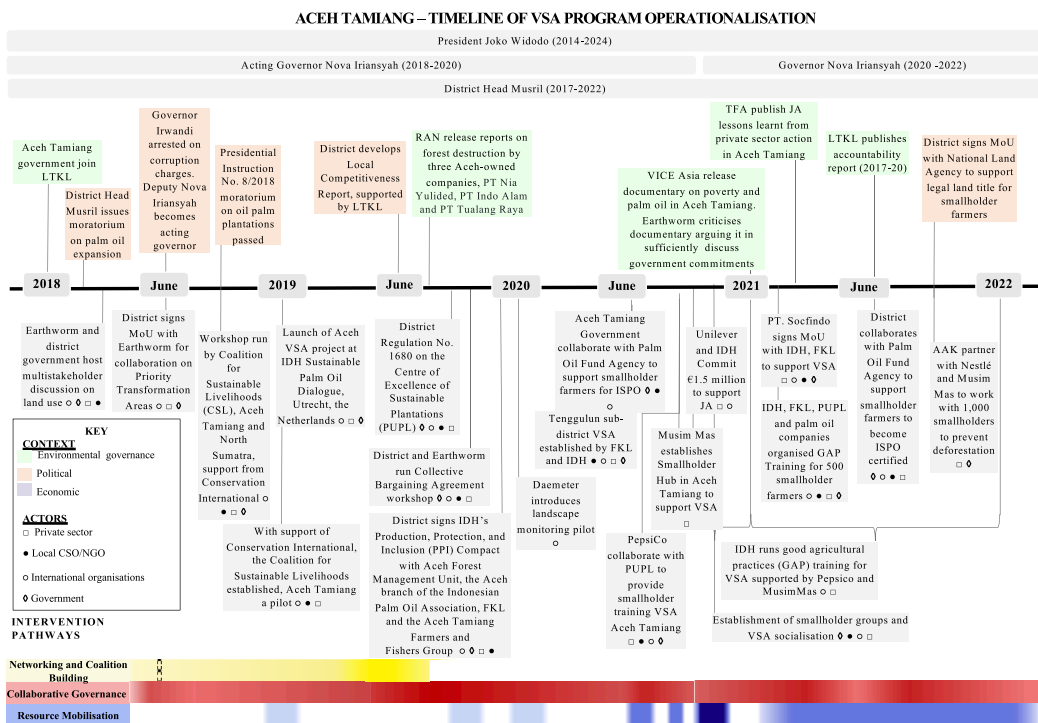
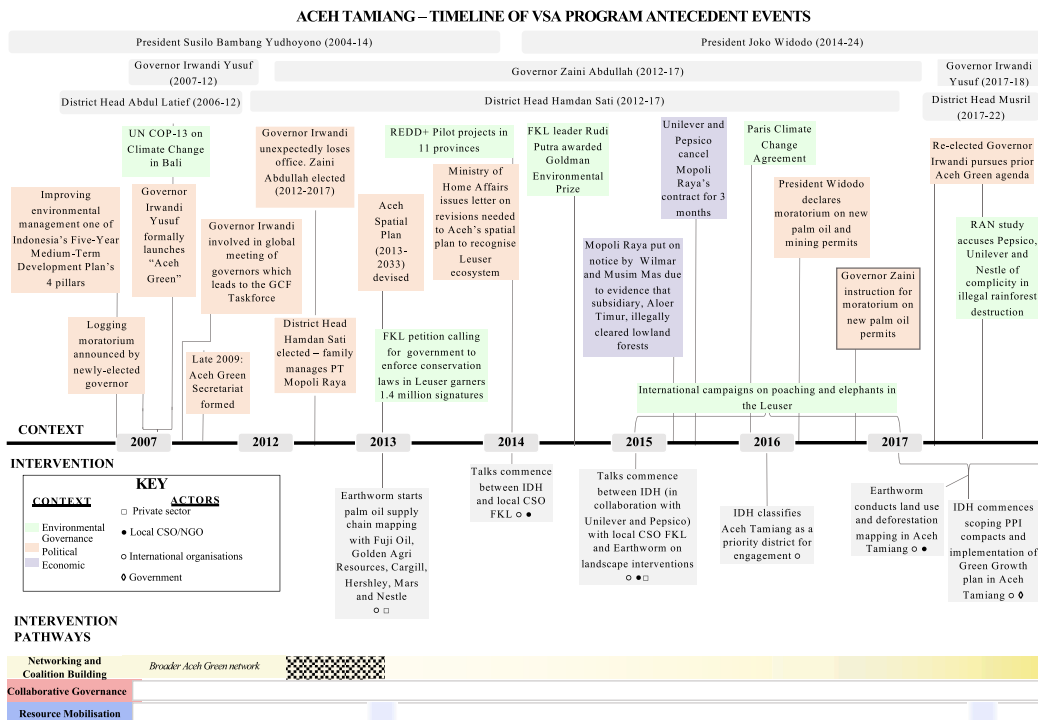


Fig. 2.

types) has been similar to MuBa, as have its collaborative governance activities (developing legislation, technical tools, roadmaps and strategies - see *Annex 1f*). The LTKL's role is similar; for example, it developed a Local Competitiveness Framework for MuBa and Aceh governments,<sup>57</sup> helping both to develop Local Competitiveness Reports in 2020 (CIV18, CIV19). The LTKL has also worked with Aceh Tamiang District's Bappeda (and the Forestry and Estate Crops Agency) to align PPI Compact commitments with the district planning documents.<sup>58</sup>

Other international partners operate across sites, but similarly take key roles in supporting development of environmental governance regulatory frameworks and monitoring and evaluation practices, albeit with a stronger focus in Aceh on working with companies on improving sustainable production. For example, in Aceh Tamiang, the Earthworm Foundation has engaged international buyers with the VSA approach, connected them with local companies and farmers for building capacity on supply chain sustainability, and educated local companies on environmental management and good labour practices.<sup>59</sup> There is a much wider range of global company<sup>60</sup> partners of the MSF in Aceh than MuBa, and a stronger focus on coordinating peatland rehabilitation, reflecting the structure of Aceh Tamiang's palm oil sector in which there are more multinational buyers and a less vertically-integrated supply chain involving far more sub-nationally-owned companies.

#### 4.2.4. Aceh: Organised resource mobilisation

Like in MuBa, the VSA's multi-stakeholder strategy has expanded resources by dividing responsibilities among MSF members according to their comparative strengths, with the mix of actors and activities calibrated to Aceh Tamiang's contextual conditions (see *Annex 1g* for examples). Government resources mainly support in-kind office and meeting spaces. Meanwhile, given Leuser Ecosystem advocacy, deforestation, and the large number of multinational buyers in Aceh's palm oil sector, various development partners (especially international organisations and buyers) fund peatland rehabilitation, farmer capacity-building, local supplier capacity-building, and other activities at a greater scale than MuBa. For example, international buyers have matched pledges by several European governments, while Unilever and IDH have jointly pledged €1.5 million for VSA activities, especially forest protection and restoration (TFA, 2021). Buyers have provided trainers and other resources for participating suppliers, and engaged in knowledge-sharing with the Indonesian Palm Oil Association (Aceh Branch).

There is strong political interest in supporting capacity development for farmers at a larger scale in Aceh than MuBa given Aceh's conflict history and the strong reliance on oil palm smallholdings for ex-combatant livelihoods. The VSA has thus targeted 10,000 smallholders for training in GAP and NDPE (No Deforestation, No Peat and No Exploitation) by the end of 2023 (TFA, 2021). As of May 2021, nearly 2500 of the 5000 targeted owners of land smallholdings had received clear land titles via VSA support, with farmers also receiving support for quality assurance, production inputs, and training (e.g. via Musim Mas's hubs). New farmers organisations and cooperatives were established to

coordinate VSA-related training and strengthen farmer capabilities; this also interacted with network and coalition-building processes by creating new connections and communication channels among farmers and firms.

## 5. Discussion and conclusion

### 5.1. Interacting intervention pathways

The above analysis has contributed to our understanding of jurisdictional approaches to sustainable commodity production by theorising and illustrating the operation and interaction of three foundational JA intervention pathways (Research Question 1). In both subnational cases of JA implementation that we analysed in detail, cross-sectoral *network and coalition-building* helped connect the JA with pre-existing governance architectures; *collaborative governance* arrangements supported multi-stakeholder policy planning and helped align JA activities with related government policies and programs; and both public and private *resource mobilisation* helped motivate and support government agencies, targeted companies, and farmers to shift towards sustainable production practices.

Although analytically distinct, in practice these intervention pathways had quite fluid boundaries, as many interventions, by design or default, intersected with and contributed to more than one change pathway, often generating highly complementary interactions (see *Annex 1* for examples of these intersections and interactions). For example, investment in network and coalition-building facilitated linkages with other governance initiatives and strengthened engagement and resource mobilisation from broader networks of actors. Resource mobilisation was crucial in enabling the implementation of collaborative policy planning and, by generating broader benefits to local voters and constituencies, helped to lay foundations for various political leaders to engage productively with collaborative governance processes. Institutionalised shifts in regulatory and market incentive structures negotiated through collaborative governance in turn supported preliminary steps towards shifting regulatory rules of the game in support of transformative coalitions.

The three types of interventions were thus often functionally interdependent and complementary, with each potentially helping to pre-configure, reinforce or amplify the others. As such, they could not straightforwardly be substituted for one another because each made distinctive contributions to processes of change. Yet despite such functional interdependencies, we did not observe that any one pathway was a strict precondition for the others, or that the interplay between pathways needed to unfold in a particular sequence. Rather, as illustrated in *Figs. 1 and 2* above, the combinations, timing and sequencing of intervention activities and their interactions took contrasting forms in each of our two illustrative cases, demonstrating variable pathways of interacting interventions across contexts. Such findings highlight the value of approaches that seek explicitly to promote multiple vectors of interacting change as means of amplifying system-wide processes of sustainability transformation (Brandão et al., 2020; Lambin et al., 2020).

### 5.2. Varied operationalisation of intervention pathways in contrasting contexts

Our research also investigated how the politico-economic and environmental contexts in which these interacting jurisdictional interventions were implemented influenced both their operationalisation and effects (Research Question 2). The two JA implementation sites we examined in depth reflected starkly different environmental governance, political and economic contexts (summarised in *Table 5*).

Notable differences between the two contexts included: *contrasting supply chain structures, degree of reliance on palm oil, civil society activity and subnational political dynamics*, which in turn produced both different incentives for political and business elites and varied availability of

<sup>57</sup> This Local Competitiveness Framework was developed using consultative processes. It integrates influential international performance standards with local government reporting and data collection frameworks, thereby simplifying the means of measuring and reporting performance on sustainable development.

<sup>58</sup> This includes coordinating PPI commitments for 16 district agencies (TFA, 2021).

<sup>59</sup> It has also conducted HCA and HCV assessments for specific companies and worked with stakeholders to monitor biodiversity management and develop participatory conservation plans (Seymour et al., 2020; Earthworm, 2020; TFA, 2021).

<sup>60</sup> These include PepsiCo, GAR, Musim Mas, and Unilever, and medium scale suppliers like Mopoli Raya, Bumi Sama Ganda, Patisari, Semadam, and Socfin (TFA, 2021; IDH, 2017).

**Table 5**  
Contrasting contextual conditions.

	South Sumatra (MuBa District)	Aceh (Aceh Tamiang District)
<b>Economic context</b>	<ul style="list-style-type: none"> <li>• Palm oil diversified with other resources (e.g. pulp and paper and infrastructure development), also diversifying the interests of local economic and political elites</li> <li>• Buyers: dominated by three large multinationals</li> <li>• Production: dominated by the subsidiaries of two large (and transnationally linked) palm oil companies; very few sub-nationally owned and operated palm-oil companies</li> <li>• Some international supply chain pressure to introduce sustainable production</li> </ul>	<ul style="list-style-type: none"> <li>• Palm oil is the dominant agricultural commodity, concentrating the interests of local economic and political elites in palm oil</li> <li>• Buyers: many large multinationals</li> <li>• Production: dominated by sub-nationally owned and operated palm oil companies and some national companies.</li> <li>• Substantial international supply chain pressure, especially on competing multinationals, to address problems in the supply chain, particularly illegal encroachment and environmental damage in the Leuser ecosystem</li> </ul>
<b>Environmental governance context</b>	<ul style="list-style-type: none"> <li>• Stronger history of prior sustainable commodities initiatives</li> <li>• Antecedent political backing at province and district levels for jurisdiction-wide green-growth regulatory frameworks and strategies</li> <li>• Weak civil society and private sector organisation on environmental governance issues</li> <li>• Strong involvement of international organisations in environmental governance</li> </ul>	<ul style="list-style-type: none"> <li>• Limited history of sustainable commodity initiatives</li> <li>• Failed antecedent efforts to introduce province-wide green growth plans and policy frameworks</li> <li>• Extensive history of environmental conservation movements, including civil society campaigns, targeting the direct environmental impacts of palm oil companies linked to local elites</li> <li>• Strong involvement of international organisations in environmental governance</li> </ul>
<b>Political context</b>	<ul style="list-style-type: none"> <li>• Strong continuity and alignment of state support for environmental governance at district and provincial levels, growing over time</li> <li>• State support for specific environmental initiatives shifted over time with political leadership changes</li> <li>• Strong national and international political pressure to address the problem of forest fires</li> <li>• Political leaders receive private sector support for campaigns from a mix of industry and extractive sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Disrupted history of district and provincial political support for environmental governance initiatives</li> <li>• A recent increase in support from government actors at district and provincial levels coincided with increasing market pressures to create a window of opportunity to establish the VSA</li> <li>• High subnational political autonomy limits the influence of national political actors</li> <li>• Political leaders receive private sector support for campaigns predominantly from the palm-oil sector; some own subnational palm oil companies</li> </ul>

state, market and civil society leadership and resourcing. These differences also led to variation in the most *salient environmental governance problems* related to patterns of resource production and extraction; contrasting histories of environmental advocacy and governance generating different configurations of existing *policy and governance*

*networks* from which jurisdictional initiatives could build; and temporal changes in opportunities for the VSA to gain support in response to *local shifts in both social coalitions and political and administrative leadership*. Together, these contextual factors shaped sub-national differences in how sustainability governance agendas were defined, the array of political, business and civil society actors with which jurisdictional interventions needed to coordinate, how these actors perceived and positioned their own interests in relation to jurisdictional sustainability agendas, and how all of these factors changed over time.

Such contextual differences in turn influenced *how jurisdictional interventions were operationalised* in each subnational location, as these different conditions created varied opportunities and constraints regarding the use of different mixes of interventions, the mixes of state and non-state actors relied on to coordinate or deliver the interventions, and the ways in which these mixes and calibrations changed over time. [Table 6](#) summarises key differences in how the three intervention pathways were operationalised in the two subnational sites of JA implementation.

As the right-hand column in [Table 6](#) highlights, VSA programs were linked to different local governance problem frames (forest fires in South Sumatra, destruction of the Leuser ecosystem in Aceh) to engage key local actors and build legitimacy. VSA program operationalisation also responded to contrasting patterns of state, market and civil society leadership and resourcing and different histories of prior environmental governance initiatives. Despite the MSF in each location being formally chaired by district government actors, in South Sumatra there was heavier reliance initially on state-led processes of collaborative governance and resource mobilisation, whereas civil society actors (from former Leuser Ecosystem advocacy work) and the private sector played more prominent initial roles in Aceh. The leadership and resourcing of the VSA in practice was thus partly path dependent but also contingent on locally-embedded interests at the point in time when the VSA was established.

Moreover, contextual differences between the two subnational sites had significant implications for *temporal dimensions of how interacting intervention pathways were operationalised*. As we explored above through the case study narratives and timelines illustrated in [Figs. 1 and 2](#), there were notable differences between subnational cases regarding when the JA interventions were initiated, how they were sequenced, and how they were scaled up and back at different times to flexibly respond to varied subnational context opportunities and constraints. In Aceh, large-scale private sector resources were quickly mobilised in response to international market pressures for more sustainable supply chains, while processes to establish the MSF and expand networks with state actors occurred more slowly. In South Sumatra, network-building processes drawing on participants in antecedent green growth policy frameworks led to stronger state leadership and resourcing of the MSF. The speed, timing and sequencing of implementation also varied in response to contrasting and shifting political dynamics in the two sites, as changes of local political leadership provided both important opportunities and sources of disruption, depending on the alignment and positioning of particular political leaders in relation to the VSA.

Such varied approaches to operationalising the VSA then in turn influenced the change pathways and corresponding effects that flowed from the interventions. The VSA in South Sumatra was calibrated such that its resource mobilisation and collaborative governance pathways mutually reinforced the establishment of strong state sustainability governance and policy capacity, enabling significant advances in state-led sustainability policy planning, and strengthened government capacity with regard to policy integration and implementation. Strong reliance on state support was a benefit insofar as it enabled access to state authority and resources, with political leaders playing crucial roles in facilitating and championing jurisdictional initiatives during particular time periods. But such reliance also tends to increase the political fragility of jurisdictional initiatives—intensifying the vulnerability of these pathways to political instability, possible elite capture or watering

**Table 6**  
Comparative operationalisation of change pathways in MuBa and Aceh Tamiang.

MuBa, South Sumatra	Aceh Tamiang, Aceh	Key differences
<ul style="list-style-type: none"> <li><b>Network and Coalition Building</b></li> <li>State support for network building bolstered by shifting political leadership</li> <li>Network participants drawn heavily from prior sustainability initiatives, with heavy reliance on government actors and international organisations</li> <li>Networks focused on local problems of tackling forest fires</li> </ul>	<ul style="list-style-type: none"> <li><b>Network and Coalition Building</b></li> <li>Network participants drawn heavily from international organisations, civil society and the private sector</li> <li>Coalition-building processes sporadic and disrupted</li> <li>Networks focused on local problems of preserving the Leuser ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Different <b>problem focus</b> (tackling forest fires in South Sumatra and protecting the Leuser ecosystem in Aceh)</li> <li>Different <b>timing and sequencing</b> to connect with prior sustainable commodity initiatives (more extensively developed in South Sumatra), and to navigate changing sources of local resistance or support</li> <li>Different <b>mixes of actors</b> in networks in each site</li> <li>Different <b>patterns of state, market and civil society leadership</b> of MSF</li> <li>Different <b>mixes of actors</b> involved in MSF</li> <li>Different <b>timing and sequencing</b> of MSF establishment to adapt to local political changes (in particular changing sources of local political resistance or support, and changing market incentives)</li> <li>Different <b>calibration of JA interventions</b> under the direction of the MSF to adapt to local priorities</li> </ul>
<ul style="list-style-type: none"> <li><b>Collaborative Governance</b></li> <li>Formal state endorsement of multi-stakeholder forum (MSF)</li> <li>State leadership of the MSF</li> <li>State resourcing of the multi-stakeholder forum</li> <li>Timing of the forum's establishment linked to changes in local political leadership</li> <li>MSF members mainly from international organisations and government (from prior green growth policy and spatial planning work)</li> <li>Strong alignment between JA program and government sustainability policies and monitoring systems under MSF direction</li> <li>District government MSF leadership spearheaded JA advancement in Indonesia via leading the LTKL</li> <li><b>Organised resource mobilisation</b></li> <li>Strong mobilisation of state resources</li> <li>Some mobilisation of market resources</li> <li>Resource investments strongly focused on both smallholders (capacity building, alternative livelihoods, and management practices) and government (capacity building, policy instrument development, land mapping, green growth and monitoring systems)</li> </ul>	<ul style="list-style-type: none"> <li><b>Collaborative Governance</b></li> <li>Formal state endorsement of multi-stakeholder forum (MSF)</li> <li>Civil society leadership in managing MSF activities</li> <li>Market and civil society resourcing of the MSF</li> <li>Timing of the forum's establishment linked to changes in local political leadership</li> <li>MSF members mainly from international companies, international organisations and NGOs</li> <li>Strong alignment between JA program, government priorities on smallholder land titling and peatland and forest rehabilitation programs, and subnational company capacity building activities under MSF direction</li> <li><b>Organised resource mobilisation</b></li> <li>Strong mobilisation of market resources</li> <li>Resource investments strongly focused on smallholders (land title, capacity building, land management practices), peatlands rehabilitation and management, and subnational palm oil companies (sustainable practices, supply chain management)</li> <li>Lighter focus on government capacity building (e.g. land and supply chain mapping, governance systems)</li> </ul>	<ul style="list-style-type: none"> <li>Different <b>patterns of state versus market resourcing</b></li> <li>Different <b>calibrations of resource investments and activities</b> to respond to local/MSF priorities</li> </ul>

down of the JA, especially during leadership transitions (e.g. see Brandão et al., 2020). In Aceh, interventions were calibrated to take advantage of NGO leadership and strong international and private sector support, which enabled greater progress with regard to peatland rehabilitation, engagement of national companies, smallholder land titling, the promotion of smallholder capacities regarding sustainable land use practices, and farmer access to preferential sourcing in supply chains. Yet in turn, heavy reliance on private resource flows can weaken resilience in the face of changing corporate or international donor agendas and priorities.

### 5.3. Anticipatory and adaptive approaches

To some extent, differences in how the VSA was operationalised in the two contexts emerged somewhat organically, reflecting path-dependent processes of relationship-building and gradual institutional change. However, precisely because intervention pathways are multi-dimensional and can be combined and sequenced in different ways, we observed significant scope for VSA proponents to adjust calibrations of JA interventions to respond to the opportunities and constraints of contrasting contexts—even within the framework of a common overarching ‘theory of change’.

Such efforts were reflected in various adaptive strategies adopted by JA proponents. They focused on problem frames with local salience in order to create value propositions that could target the interests of subnational actors and build local legitimacy. They made choices about which activities to prioritise based on the feasibility of accessing required capacities, resources and local support. And they attempted to anticipate and manage risks associated with political transitions by suspending programs during elections, strengthening engagement with local government agency leaders and young technocrats to champion JAs independently of high-level political leaders, and building strengthened relationships with diverse civil society actors to bolster resilience in the face of political change.

Despite such efforts to adapt intervention mixes and calibrations to varied contexts, our analysis suggests there remains further scope for more explicit forms of adaptive design, in which proponents of jurisdictional initiatives actively seek to manage risks and opportunities at early stages of JA design and implementation, while also monitoring changing contextual dynamics and responding to unanticipated changes as they evolve. For example, a responsive approach to design in the political domain might involve undertaking political analyses of elite actors or coalitions likely to support or resist sustainability initiatives, and seeking to adapt program incentive structures where possible to create more attractive value propositions for resistant actors. Extended adaptive designs could also identify which activities and policy interventions are easier to advance and lock in quickly in the face of potential resistance, which might help tackle early obstacles to JA establishment, and lay longer-term foundations for building resilience and upscaling. Such an approach might take advantage of early support from political leaders to prioritise strengthening regulatory frameworks, then later focusing more intensively on resource mobilisation. Alternatively, an initiative facing early political opposition could prioritise non-state resource mobilisation, before subsequently diversifying resource bases to reduce vulnerability to funding withdrawal. Such approaches could help JAs to connect with existing coalitions, sequence and prioritise initial strategies, and bring in other actors and intervention strategies over time in ways that build the resilience of overall intervention mixes.

At the same time, such strategic efforts risk producing unintended consequences in the face of difficulties in predicting changes, and should not be over-engineered. For example, excluding particular actors from network and coalition-building strategies during the establishment phase risks breaking trust with existing, organically-formed coalitions that could provide an important support base. Similarly, an explicit focus on state engagement in network-building might dissuade NGOs



critical of the state from engaging, while conversely, large-scale resource mobilisation focussed on companies might de-incentivise the commitment of state resources.

Given such challenges, JA operationalisation will continue to require a significant degree of experimentation and layering, supported by flexible procedures and periodic review processes to help inform ongoing adjustments to policy and practice in response to changing conditions (Sabel & Zeitlin, 2008). JAs are in a strong position to incorporate these types of reflexive procedures, because of their collaborative multi-stakeholder governance arrangements which are designed from the outset to facilitate ongoing processes of feedback and learning. Resilience may also be bolstered by incorporating a degree of 'redundancy' into JA program designs, whereby some interventions replicate the efforts of others (and thus seem less 'efficient') in anticipation of one or more pathways weakening over time (Howlett & Ramesh, 2023).

Such responsive ways of thinking about the design and ongoing management of JA interventions aid the adaptiveness of schemes so they can play the most productive role possible under the challenging real-world conditions in which they must operate. JA interventions attempt to address critical and time-sensitive environmental risks in places where they operate, whether or not conditions are conducive. Understanding how approaches can be adapted to these contexts is thus not only of theoretical interest, but crucial for practical efforts to make meaningful contributions that strengthen sustainable commodity governance where it is most needed.

## 6. Generalisability and limitations

Because the inductive component of our theory-building method was based on an analysis of a small selection of jurisdictional initiatives, there are limits to the generalisability of our findings regarding JA intervention pathways. The broader global population of existing JAs is highly diverse: some have simpler designs that only aim to activate one or two intervention pathways, operate at national or international scales rather than sub-nationally, or place less emphasis on internationally-traded commodities. JAs also operate in a variety of product sectors and promote different mixes of conservation and development objectives.<sup>61</sup> Both the inductive component of our theory-building and our illustrative case analysis focused on a subset of JAs that have a strong focus on sustainable commodity production and operate sub-nationally in the Indonesian palm oil sector. Our illustrative case analysis in turn focused even more narrowly on one comprehensive and highly developed JA program (in two implementation sites). As such, there are likely limitations to the generalisability of our study in relation to JAs introduced by domestic state and non-state actors for different purposes, other less comprehensive JA designs with different goals, those being piloted in different commodity sectors (e.g. timber, cocoa, coffee), or those focusing on less tradable commodities, forest conservation, and low-emissions development more broadly. Nonetheless, because our theory-building method also drew insights from a much broader body of academic and grey scholarship on JAs operating around the world, and because these broader initiatives have co-evolved with the initiatives we studied within a tight-knit international community of practice working on jurisdictional approaches, it is likely that these findings will have some transferability to a more diverse set of jurisdictional initiatives. Further research is needed to explore the degree of transferability of our findings to these broader contexts.

<sup>61</sup> Other prominent initiatives related to jurisdictional sustainability fall outside our narrower definition of jurisdictional approaches to sustainable commodity governance, such as the Governors' Climate and Forests Taskforce, which operates as an international network of jurisdictions promoting forest conservation and low-emissions development, rather than as a specific, commodity-focused jurisdictional initiative.

Our empirical focus on JAs operating in Indonesia also has implications for the degree to which we can generalise our findings on how varied politico-economic and environmental contexts influenced the operationalisation and effects of jurisdictional approaches. It is likely that the specific ways in which intervention mixes and calibrations were adapted to the Indonesian context would vary in national contexts characterised by different geographies and political ecologies of commodity production, different histories of environmental governance, and different national and subnational political dynamics. Rather than weakening the results presented here, however, this expected variation reinforces our more fundamental findings regarding the need for JA design and implementation that is adaptable to varied contextual conditions. In this regard, our comparison of two subnational contexts in the same country functions as a 'hard case' test of our argument, and we would expect such differences to be even more pronounced when comparing JA interventions across countries.

## CRedit authorship contribution statement

**Bahrudin:** Conceptualization, Data curation, Investigation, Methodology, Writing – review & editing. **Kate Macdonald:** Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing. **Rachael Diprose:** Conceptualization, Data curation, Investigation, Methodology, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Deborah Delgado Pugley:** Conceptualization, Data curation, Methodology, Validation, Writing – review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

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## Appendix A. Supplementary data

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## References

- Abbott, K. W., & Hale, T. (2014). *Orchestrating global solution networks: A guide for organizational entrepreneurs*. Available at SSRN 2431956.
- Abbott, K. W., & Snidal, D. (2009). The governance triangle: Regulatory standards institutions and the shadow of the state. *The Politics of Global Regulation*, 44, 44–88.
- Aceh Government. (2018). 21 April. *Program Aceh Green Bentuk Komitmen Pemerintah Selamatkan Lingkungan*. <http://humas.acehprov.go.id/program-aceh-green-bentuk-komitmen-pemerintah-selamatkan-lingkungan/>.
- Agrawal, A., Wollenberg, E., & Persha, L. (2014). Governing Agriculture-Forest Landscapes to Achieve Climate Change Mitigation. *Global Environmental Change*, 29, 270–280.
- Alvarado, L. B. (2021). *Social aspects of the Pilot Project for Jurisdictional Certification of the Ecuadorian Amazon: A preliminary review*. Available: Forest Peoples Programme. at: <https://www.forestpeoples.org/sites/default/files/documents/Jurisdiction-Certification-ENG-v07%28for%20publishing%29.pdf>.
- Anandi, C.A.M., Resosudarmo, I.A.P., Ekaputri, A.D., Komalasari, M., Asri, P., & R. Ariyani. 2014. Ulu Masen REDD+ Initiative, Aceh, Indonesia. In Sills, E.O., Atmadja, S.S., de Sassi, C., Duchelle, A.E., Kweka, D.L., Resosudarmo, I.A.P., and W.D. Sunderlin, eds. 2014. *REDD+ on the ground: A case book of subnational initiatives across the globe*. Bogor, Indonesia: CIFOR: pp 381-397.
- Andersson, K. (2013). Local Governance of Forests and the Role of External Organizations: Some Ties Matter More Than Others. *World Development*, 43, 226–237.
- Aspinall, E. 2006. Aceh: Elections and the Possibility of Peace, *APSN Net Policy Forum*, December 18, 2006, <https://nautilus.org/apsnet/0637a-aspinall-html/>.
- Barletti, J. P., Larson, A. M., & Vigil, N. H. (2021). Organizing for transformation? How and why organizers plan their multi-stakeholder forums. *International Forestry Review*, 23(1), 9–23.
- Barletti, J. P. S., Larson, A. M., Hewlett, C., & Delgado, D. (2020). Designing for engagement: A Realist Synthesis Review of how context affects the outcomes of multi-stakeholder forums on land use and/or land-use change. *World Development*, 127, Article 104753.
- Bartley, T. & Smith, S.N., 2010. Communities of practice as cause and consequence of transnational governance: the evolution of social and environmental certification. In Djelic, M-L & Quack, S. 2010. *Transnational Communities: Shaping Global Economic Governance*, pp.347-374.
- Bastos Lima, M. G., & Persson, U. M. (2020). Commodity-centric landscape governance as a double-edged sword: The case of soy and the Cerrado Working Group in Brazil. *Frontiers in Forests and Global Change*, 3, 27.
- Bebbington, A. (2015). Political Ecologies of Resource Extraction: Agendas Pendientes. *European Review of Latin American and Caribbean Studies*, 100, 85–98.
- Bebbington, A., Abdulai, A. G., Humphreys Bebbington, D., Hinfelaar, M., & Sanborn, C. (2018). *Governing Extractive Industries: Politics, Histories, Ideas* (p. 304). Oxford University Press.
- Bennett, A. (2013). The mother of all isms: Causal mechanisms and structured pluralism in International Relations theory. *European Journal of International Relations*, 19(3), 459–481.
- Bishai, N., Sirait, H., & Pedroza-Arceo, N. M. (2022). Landscape and Jurisdictional Approaches in Indonesia Policy Brief. *CDP*.
- Bitzer, V., Glasbergen, P., & Leroy, P. (2012). Partnerships of a feather flock together? An analysis of the emergence of networks of partnerships in the global cocoa sector. *Global Networks*, 12(3), 355–374.
- Boshoven, J., Fleck, L. C., Miltner, S., Salafsky, N., Adams, J., Dahl-Jørgensen, A., et al. (2021). Jurisdictional sourcing: Leveraging commodity supply chains to reduce tropical deforestation at scale. A generic theory of change for a conservation strategy, v 1.0. *Conservation Science and Practice*, 3(5).
- Boyd, W., Stickler, C., Duchelle, A. E., Seymour, F., Nepstad, D., Bahar, N. H. A., et al. (2018). *Jurisdictional approaches to REDD+ and low emissions development: Progress and prospects* (pp. 1–14). Washington, DC: World Resources Institute. at [wri.org/ending-tropical-deforestation](http://wri.org/ending-tropical-deforestation).
- Brandão, F., Piketty, M.G., Pocard-Chapuis, R., Brito, B., Pacheco, P., Garcia, E., Duchelle, A.E., Drigo, I. & Peçanha, J.C., 2020. Lessons for jurisdictional approaches from municipal-level initiatives to halt deforestation in the Brazilian Amazon. *Frontiers in Forests and Global Change*, p.96.
- Buchanan, A. J., Durbin, J., McLaughlin, D., McLaughlin, L., Thomason, K., & Thomas, M. (2019). *Exploring the reality of the jurisdictional approach as a tool to achieve sustainability commitments in palm oil and soy supply chains*. Washington, DC, USA: Conservation International.
- Capano, G., & Howlett, M. (2020). The knowns and unknowns of policy instrument analysis: Policy tools and the current research agenda on policy mixes. *Sage Open*, 10(1), 2158.
- Cashore, B., Bernstein, S., Humphreys, D., Visseren-Hamakers, I., & Rietig, K. (2019). Designing stakeholder learning dialogues for effective global governance. *Policy and Society*, 38(1), 118–147.
- Chervier, C., Piketty, M. G., & Reed, J. (2020). A tentative theory of change to evaluate jurisdictional approaches to reduced deforestation. *Frontiers in Forests and Global Change*, 119.
- Checkel, J. T. (2006). Tracing causal mechanisms. *International Studies Review*, 8(2), 362–370.
- Conservation International [CI]. (2018). 'Building the Coalition for Sustainable Livelihoods in North Sumatra and Aceh', Conservation International. available at: [https://www.conservation.org/docs/default-source/publication-pdfs/csl-summaries\\_final\\_english\\_11-12\\_final.pdf?Status=Master&sfvrsn=f5eb20f9\\_5](https://www.conservation.org/docs/default-source/publication-pdfs/csl-summaries_final_english_11-12_final.pdf?Status=Master&sfvrsn=f5eb20f9_5).
- Daemeter and Proforest. (2019). *Siak Pelalawan Landscape Program: Summary of Findings, Intervention Design Phase*. available at: [https://static1.squarespace.com/static/5f4facf89c7ef80d6f0ab63d/t/605835daca24454a7330cdf0/1616393703341/Siak\\_Pelalawan\\_Landscape\\_Programme\\_Design+phase\\_Report\\_May30\\_sent.pdf](https://static1.squarespace.com/static/5f4facf89c7ef80d6f0ab63d/t/605835daca24454a7330cdf0/1616393703341/Siak_Pelalawan_Landscape_Programme_Design+phase_Report_May30_sent.pdf).
- Diprose, R. (2022). Striking the Right Balance: Winding Back Indonesia's 'Big Bang' Decentralisation. In M. Crouch (Ed.), *Constitutional Democracy in Indonesia*. Oxford University Press.
- Diprose, R., Kurniawan, N., Macdonald, K., & Winanti, P. (2021). Regulating sustainable minerals in electronics supply chains: Local power struggles and the 'hidden costs' of global tin supply chain governance. *Review of International Political Economy*, 29(3), 1–26.
- Earth Innovation Institute. (2017). *Jurisdictional Sustainability: A Primer for Practitioners*. available at: [https://earthinnovation.org/wp-content/uploads/2017/02/JS-primer\\_Englishonline.pdf](https://earthinnovation.org/wp-content/uploads/2017/02/JS-primer_Englishonline.pdf).
- Earthworm. 2020. Our Projects: Aceh Indonesia. <https://www.earthworm.org/our-work/projects/aceh>.
- Edmondson, D. L., Kern, F., & Rogge, K. S. (2019). The co-evolution of policy mixes and socio-technical systems: Towards a conceptual framework of policy mix feedback in sustainability transitions. *Research Policy*, 48(10), Article 103555.
- Eoa. (2009). *Challenges of Forest Governance in Aceh*. Indonesia, Eye on Aceh: Banda Aceh. <https://reliefweb.int/report/indonesia/indonesia-challenges-forest-governance-aceh>.
- Fishman, A., Oliveira, E., Gamble, L., & Role, P. S. (2017). *Tackling Deforestation Through A Jurisdictional Approach*. World Wide Fund for Nature.
- FORCLIME, 2019. FORCLIME briefing note: Kapuas Hulu as a sustainable landscape, available at: <https://forclime.org/documents/Briefing%20Note/English/Jurisdictional%20approach.pdf>.
- Furumo, P. R., & Lambin, E. F. (2020). Scaling up zero-deforestation initiatives through public-private partnerships: A look inside post-conflict Colombia. *Global Environmental Change*, 62, Article 102055.
- Furumo, P. R., & Lambin, E. F. (2021). Policy sequencing to reduce tropical deforestation. *Global Sustainability*, 4, e24.
- Gabrilin, A. 2015 (21 December). *Ini Dia 23 Perusahaan Pembakar Hutan yang Dijatuhi Sanksi oleh Pemerintah*. <http://nasional.kompas.com/read/2015/12/21/20380241/Ini.Dia.23.Perusahaan.Pembakar.Hutan.yang.Dijatuhi.Sanksi.oleh.Pemerintah>.
- Gale, F., & Haward, M. (2011). *Global commodity governance: State responses to sustainable forest and fisheries certification*. Springer.
- Garrett, R. D., & Pfaff, A. (2019). When and why supply-chain sustainability initiatives 'work': Linking initiatives' effectiveness to their characteristics and contexts. *Meridian Institute*.
- Garrett, R. D., Levy, S. A., Gollnow, F., Hodel, L., & Rueda, X. (2021). Have food supply chain policies improved forest conservation and rural livelihoods? A systematic review. *Environmental Research Letters*, 16(3), Article 033002.
- Gellert, P. K. (2003). Renegotiating a timber commodity chain: lessons from indonesia on the political construction of global commodity chains. *Sociological Forum*, 18(1), 53–84.
- Gellert, P. K. (2010a). Extractive Regimes: Toward a Better Understanding of Indonesian Development. *Rural Sociology*, 75(1), 28–57.
- Gellert, P. K. (2010b). Rival transnational networks, domestic politics and Indonesian timber. *Journal of Contemporary Asia*, 40(4), 539–567.
- George, A. L., & Bennett, A. (2004). *Case studies and theory development*. Cambridge, MA: MIT Press.
- Gerring, J. (2004). What is a case study and what is it good for? *American Political Science Review*, 98(2), 341–354.
- GIZ. (2019). *Sustainability and Value Added in Agricultural Supply Chains*. available at: <https://snrd-asia.org/sustainability-and-value-added-in-agricultural-supply-chains/>.
- Global Forest Watch. N.d. Aceh Tamiang, <https://tinyurl.com/3tmm65z8>.
- Greenpeace. 2017. How the Palm Oil Industry is Still Cooking the Climate. <https://www.greenpeace.org/static/planet4-southeastasia-stateless/2019/04/0a48e8fb-0a48e8fb-still-cooking-the-climate.pdf>.
- Hall, P. A. (1993). Policy paradigms, social learning, and the state: The case of economic policymaking in Britain. *Comparative Politics*, 25(3), 275–296.
- Hood, C. (1986). *The Tools of Government*. Chatham, NJ: Chatham House.
- Hovani, L., Cortez, R., Hartanto, H., Thompson, I., Fishbein, G., Madeira, E. M., et al. (2018). *The Role of Jurisdictional Programs in Catalyzing Sustainability Transitions in Tropical Forest Landscapes*. Arlington, VA: Nature Conservancy.
- Howlett, M., & Ramesh, M. (2023). Designing for adaptation: Static and dynamic robustness in policy-making. *Public Administration*, 101(1), 23–35.
- IDH. 2016 (12 December). *Supporting South Sumatra to become a RSPO certified jurisdiction*. <https://www.idhsustainabletrade.com/news/supporting-south-sumatra-become-rspo-certified-jurisdiction/>.
- IDH. (2017). *Annual Report 2017*. IDH: The Netherlands.
- IDH. (2018). *IDH Landscape Program: An integrated approach to production, protection and inclusion*. available at: <https://www.idhsustainabletrade.com/uploaded/2018/01/Landscape-Overview-small-updated-07112017.compressed.pdf>.
- IDH. 2019. *IDH's approach to sustainable landscapes: Working together to balance sustainable production, environmental protection and social inclusion*. <https://>

- www.idhsustainabletrade.com/uploaded/2018/11/Landscapes-Information-Brief-IDH-approach-to-sustainable-landscapes.pdf.
- IDH. 2021. SourceUp: A Collaboration Platform for Supply Chain Sustainability at Scale. <https://www.idhsustainabletrade.com/approach/sourceup/>.
- IDH. n.d. (a) Musi Banyuasin Jurisdictional Certification Plan. <https://www.idhsustainabletrade.com/publication/musi-banyuasin-jurisdictional-certification-plan/>.
- IDH. n.d. (b). Verified Sourcing Areas Are Now a Part of SourceUp. <https://www.idhsustainabletrade.com/publication/what-are-verified-sourcing-areas-vsas/#:~:text=The%20new%20Verified%20Sourcing%20Area,collaboration%20on%20sustainability%20and%20impact>.
- Ingram, V. J., Judge, L. O., Luskova, M., van Berkum, S., & van den Berg, J. (2016). Upscaling sustainability initiatives in international commodity chains; Examples from cocoa, coffee and soy value chains in the Netherlands. *Statutory Research Tasks Unit for Nature & the Environment (WOT Natuur & Milieu). WO technical report, 67*, 125p.
- Kasia, R., Azmi, W., Ismail, M., Dunlop, J., Kiswayadi, D., & Halimatussa'diah, Tryshanie, F., Isha, H., Almasri, N. & M. Linkie. (2011). *Tackling illegal logging in Ulu Masen, Aceh: Strategy, action and future direction*. Aceh, Indonesia: Fauna and Flora International.
- Kissinger, G., Morage, M. & Noponen, M., 2014. Private sector investment in landscape approaches: the role of production standards and certification. In Minang, P.A, van Noordwijk, M., Freeman, O.E., Mbowa, C., de Leeuw, J., & Catacutan, D. 2014. *Climate-Smart Landscapes: Multifunctionality in Practice*, pp.277-293.
- Kittinger, J. N., Bernard, M., Finkbeiner, E., Murphy, E., Obregon, P., Klinger, D. H., et al. (2021). Applying a jurisdictional approach to support sustainable seafood. *Conservation Science and Practice*, 3(5), e386.
- Komalasari, M & S. Peteru. 2018. Aceh, Indonesia. In C. Stickler et al. (Eds.), *The State of Jurisdictional Sustainability*. San Francisco, CA: EII; Bogor, Indonesia: CIFOR; Boulder, CO: GCF-TF.
- Lambin, E. F., Meyfroidt, P., Rueda, X., Blackman, A., Börner, J., Cerutti, P. O., et al. (2014). Effectiveness and synergies of policy instruments for land use governance in tropical regions. *Global Environmental Change*, 28, 129–140.
- Lambin, E. F., Kim, H., Leape, J., & Lee, K. (2020). Scaling up solutions for a sustainability transition. *One Earth*, 3(1), 89–96.
- Lawrence, J., Rasche, A., & Kenny, K. 2019. Sustainability as opportunity: Unilever's sustainable living plan. In Lenssen, G.G. & Smith, C. 2019. *Managing Sustainable Business*. Springer, Dordrecht. pp. 435-455.
- Lemos, M., & Agrawal, A. (2006). Environmental Governance. *Annual Review of Environment and Resources*, 31, 297–325.
- Listiyarini, T. 2015 (December 3) CPO Mopoli Raya Dari Kawasan Legal. <https://www.beritasatu.com/ekonomi/326984/cpo-mopoli-raya-dari-kawasan-legal>.
- LTKL. 2018 (July 24). One Year Collaboration: Lingkar Temu Kabupaten Lestari Sustainable District Festival 2018. <https://www.kabupatenlestari.org/en/one-year-collaboration-lingkar-temu-kabupaten-lestari-sustainable-district-festival-2018/>.
- Luttrell C, Komarudin H, Zrust M, Pacheco P, Limberg G, Nurfatriani F, Wibowo LR, Hakim I and Pirard R., 2018. Implementing sustainability commitments for palm oil in Indonesia: Governance arrangements of sustainability initiatives involving public and private actors. Working Paper 241. Bogor, Indonesia: CIFOR.
- Macdonald, K. (2020). Private sustainability standards as tools for empowering southern pro-regulatory coalitions? Collaboration, conflict and the pursuit of sustainable palm oil. *Ecological Economics*, 167, Article 106439.
- Manning, S., & Reinecke, J. (2016). A modular governance architecture in-the-making: How transnational standard-setters govern sustainability transitions. *Research Policy*, 45(3), 618–633.
- Meyfroidt, P., & Lambin, E. F. (2011). Global Forest Transition: Prospects for an End to Deforestation. *Annual Review of Environmental Resources*, 36, 343–371.
- Meyfroidt, P., Carlson, K.M., Fagan, M.E., Gutierrez-Vélez, V.H., Macedo, M.N., Curran, L.M., Defries, R., Dyer, G.A., Gibbs, H.K., Labin, E.F., Morton, D.C., Robiglio, V. 2014. Multiple Pathways of Commodity Crop Expansion in Tropical Forest Landscapes. *Environmental Research Letters*, 9 (7): 074012.
- Miles, M., & Huberman, M. (1994). *Qualitative data*. Thousand Oaks: Sage Publications.
- Milhorance, C., & Bursztyn, M. (2018). Emerging hybrid governance to foster low-emission rural development in the Amazon frontier. *Land Use Policy*, 75, 11–20.
- Molenaar, J. W., Gorter, J., Heilbron, L., Simons, L., Vorley, B., Blackmore, E., et al. (2015). *Sustainable Sector Transformation: How to Drive Sustainability Performance in Smallholder-Dominated Agricultural Sectors*. AidEnvironment, New Foresight, IIED, Commissioned by IFC: Amsterdam, The Netherlands.
- Nelson, V., & Phillips, D. (2018). Sector, landscape or rural transformations? Exploring the limits and potential of agricultural sustainability initiatives through a cocoa case study. *Business Strategy and the Environment*, 27(2), 252–262.
- Nepstad, D. 2015. Territorial Performance System: A Framework For Driving Large-Scale, Jurisdictional Transitions To Low-Emission Rural Development In The Tropics practices (GAP) and technology. Forest, Farms and Finance Initiative; Earth Innovation Institute. [https://www.earthinnovation.org/uploads/2015/06/EII\\_TPS\\_EN\\_2015.pdf](https://www.earthinnovation.org/uploads/2015/06/EII_TPS_EN_2015.pdf).
- Nolte, C., de Waroux, Y. L. P., Munger, J., Reis, T. N., & Lambin, E. F. (2017). Conditions influencing the adoption of effective anti-deforestation policies in South America's commodity frontiers. *Global Environmental Change*, 43, 1–14.
- Oorthuizen, J., Vermaak, H., Dalmau, C. R., & Papaemanuel, E. (2018). *Collaborative Transformation: The Art of Making International Trade More Sustainable*. The Sustainable Trade Initiative: IDH.
- Overdevest, C., & Zeitlin, J. (2014). Assembling an experimentalist regime: Transnational governance interactions in the forest sector. *Regulation & Governance*, 8(1), 22–48.
- Paoli, G., Palmer, B., Schweithelm, J., Limberg, G., & Green, L. (2016). *Jurisdictional approaches to reducing palm oil driven deforestation in Indonesia: A scoping study of design considerations and geographic priorities*. Bogor, Indonesia: Daemeter.
- Palmer, B., & Paoli, G. (2017). *Jurisdictional Approaches to Sustainable Land Use in Indonesia; What is it, why pursue it and how to build one*. Available: Daemeter. at: [http://daemeter.org/new/uploads/20171128145054.Jurisdictional\\_Approaches.pdf](http://daemeter.org/new/uploads/20171128145054.Jurisdictional_Approaches.pdf).
- Peters, B. G., Capano, G., Howlett, M., Mukherjee, L., Chou, M. H., & Ravinet, P. (2018). *Designing for policy effectiveness: Defining and understanding a concept*. Cambridge University Press.
- Peterson, R. (1999). Mechanisms and structures in comparisons. In J. R. Bowen, J. Bowen, & R. Petersen (Eds.), *Critical comparisons in politics and culture*. Cambridge, UK: Cambridge University Press.
- Poynton, S. (2015). *Beyond certification*. London: Routledge.
- Pramudya, E. P., Hospes, O., & Termeer, C. J. A. M. (2018). The disciplining of illegal palm oil plantations in Sumatra. *Third World Quarterly*, 39(5), 920–940. <https://doi.org/10.1080/01436597.2017.1401462>
- Pramudya, E. P., Wibowo, L. R., Nugraha, I., Satwiko, A. A., Kurniasari, D. R., Rahmat, M., et al. (2020). Mengupayakan Konservasi di Tengah Kompleksitas Penggunaan Lahan. *Zoological Society of London*. <https://repository.zsl.org/media/publications/315855-mengupayakan-konservasi-di-tengah-komple-040511b2.pdf>.
- Rainforest Alliance, R.-A. (2022). Stopping Deforestation and Advancing Sustainability in West Kalimantan Project. available at: <https://www.rainforest-alliance.org/in-the-field/stopping-deforestation-and-advancing-sustainability-in-west-kalimantan-project-profile/>.
- RAN - Rainforest Action Network. 2014. The Last Place on Earth: Exposing the Threats to the Leuser Ecosystem, [www.ran.org/wp-content/uploads/2018/06/Last\\_Place\\_On\\_Earth\\_Report\\_Nov2014.pdf](http://www.ran.org/wp-content/uploads/2018/06/Last_Place_On_Earth_Report_Nov2014.pdf).
- RAN. 2016. Protecting the Leuser Ecosystem: A Shared Responsibility. [https://www.ran.org/wp-content/uploads/2018/06/2\\_RAN\\_Protecting\\_The\\_Leuser\\_2016\\_\(2\).pdf](https://www.ran.org/wp-content/uploads/2018/06/2_RAN_Protecting_The_Leuser_2016_(2).pdf).
- RAN. 2020. Keep Forests Standing: Exposing Brands and Banks Driving Deforestation. [https://www.ran.org/wp-content/uploads/2020/03/RAN\\_Keep\\_Forests\\_Standing\\_vWEB.pdf](https://www.ran.org/wp-content/uploads/2020/03/RAN_Keep_Forests_Standing_vWEB.pdf).
- Rayner, J., Howlett, M., & Wellstead, A. (2017). Policy mixes and their alignment over time: Patching and stretching in the oil sands reclamation regime in Alberta, Canada. *Environmental Policy and Governance*, 27(5), 472–483.
- Ribot, J. C., Lund, J. F., & Treue, T. (2010). Democratic Decentralisation in Sub-Saharan Africa: Its Contribution to Forest management, Livelihoods and Enfranchisement. *Environmental Conservation*, 37(1), 35–44.
- Ristian, N. I., Purnomo, H., Hero, Y., Okarda, B., Puspitaloka, D., & Sanjaya, M. (2021). Compliance theory: Analyzing zero deforestation commitment of government and private sector in South Sumatra Province. *JPSL*, 11(4), 638–652. <https://doi.org/10.29244/jpsl.11.4.638-652>.
- RSPO (Roundtable on Sustainable Palm Oil). (2021). RSPO Jurisdictional Approach Piloting Framework. available at: <https://rspo.org/resources/?category=piloting-framework>.
- Rudi, Alasad. 2017 (12 May). Alex Noerdin Bertekad Kebakaran Hutan Tak Lagi Terjadi di Sumsel. <https://sains.kompas.com/read/2017/05/12/07000061/alex.noerdin.bertekad.kebakaran.hutan.tak.lagi.terjadi.di.sumsel?page=all>.
- Sabel, C. F., & Zeitlin, J. (2008). Learning from difference: The new architecture of experimentalist governance in the EU. *European Law Journal*, 14(3), 271–327.
- Scherr, S. J., Shames, S., & Friedman, R. (2013). *Defining Integrated Landscape for Policy Makers*. EcoAgriculture Policy Focus No.10, United Nations & EcoAgriculture Partners.
- Sewerin, S., Béland, D., & Cashore, B. (2020). Designing policy for the long term: Agency, policy feedback and policy change. *Policy Sciences*, 53(2), 243–252.
- Sewerin, S., Cashore, B., & Howlett, M. (2022). New pathways to paradigm change in public policy: Combining insights from policy design, mix and feedback. *Policy & Politics*, 50(3), 442–459.
- Seymour, F. & L. Aurora. 2019. Moving Forward with the Jurisdictional Approach in Indonesia: Update for JA Proponents, April 2019.
- Seymour, F., Aurora, L., & Arif, J. (2020). The Jurisdictional Approach in Indonesia: Incentives, Actions, and Facilitating Connections. *Frontiers in Forests and Global Change: Policy and Practice Reviews*. <https://doi.org/10.3389/ffgc.2020.503326>
- Shea, W. T. C. (2020). KELOLA Sendang - A Photographic Journey. *Zoological Society of London*. <https://repository.zsl.org/publications/327989/keelola-sendang-a-photographic-journey>.
- Sindonews. 2017 (October 16). Wih, BRI Gelontorkan Rp635 Miliar untuk Kredit Kelapa Sawit. <https://economy.okezone.com/read/2017/10/16/320/1796216/wih-bri-gelontorkan-rp635-miliar-untuk-kredit-kelapa-sawit>.
- Stickler, C. M., A. E. Duchelle, J. P. Ardila, D. C. Nepstad, O. R. David, C. Chan, J. G. Rojas et al. 2018. The state of jurisdictional sustainability. San Francisco, CA: Earth Innovation Institute/Bogor, Indonesia: Center for International Forestry Research/Boulder, USA: Governors' Climate & Forests Task Force Secretariat. Available online at: <https://earthinnovation.org/stateof-jurisdictional-sustainability>.
- Stickler, C., David, O., Chan, C., Ardila, J. P., & Bezerra, T. (2020). The Rio Branco Declaration: Assessing progress toward a near-term voluntary deforestation reduction target in subnational jurisdictions across the tropics. *Frontiers in Forests and Global Change*, 3, 50. <https://doi.org/10.3389/ffgc.2020.00050>
- Stroh, D. P. (2018). *Systems Thinking for Jurisdictional Sustainability*. The Nature Conservancy: Arlington, Virginia.
- Swainson, L. J. (2016). *The Complexities of Green Economy Policy Reform: A Case Study of Aceh, Indonesia*. Australian National University. PhD Thesis.
- Tacconi, L. Preventing fires in haze in Southeast Asia. *Nature Climate Change*, 6(7), pp. 640-643.

- Tamara, A. R., Vigil, N. M., Liswanti, N., Arwida, S., Larson, A. M., & Barletti, J. P. (2021). Trust-building and leadership in multi-stakeholder forums: Lessons from Indonesia. *International Forestry Review*, 23(1), 43–58.
- TFA - Tropical Forest Alliance. 2021. Jurisdictional Approach to Sustainability: Lessons Learned from Private Sector Action in Aceh Tamiang, Indonesia. [https://www.tropicalforestalliance.org/assets/Uploads/AcehTamiang\\_Case\\_study-July2021-Final.pdf](https://www.tropicalforestalliance.org/assets/Uploads/AcehTamiang_Case_study-July2021-Final.pdf).
- Thelen, K. (2004). *How institutions evolve: The political economy of skills in Germany, Britain, the United States, and Japan*. Cambridge University Press.
- UNDP. (2022). 'FOLUR Indonesia Project Document (signed)', United Nations Development Program. available at: [https://info.undp.org/docs/pdc/Documents/IDN/6393\\_FOLUR%20Indonesia%20ProDoc\\_SIGNED.pdf](https://info.undp.org/docs/pdc/Documents/IDN/6393_FOLUR%20Indonesia%20ProDoc_SIGNED.pdf).
- van der Ven, H., Sun, Y., & Cashore, B. (2021). Sustainable commodity governance and the global south. *Ecological Economics*, 186, Article 107062.
- van der Ven, H., Rothacker, C., & Cashore, B. (2018). Do eco-labels prevent deforestation? Lessons from non-state market driven governance in the soy, palm oil, and cocoa sectors. *Global Environmental Change*, 52, 141–151.
- Vogel, I. (2012). *Review of the use of 'Theory of Change' in international development* (p. 10). UK: Department for International Development (DFID).
- von Essen, M., & Lambin, E. F. (2021). Jurisdictional approaches to sustainable resource use. *Frontiers in Ecology and the Environment*, 19(3), 159–167.
- Watts, J. D., Tacconi, L., Hapsari, N., Irawan, S., Sloan, S., & Widiastomo, T. (2019). Incentivizing compliance: Evaluating the effectiveness of targeted village incentives for reducing burning in Indonesia. *Forest Policy and Economics*, 108, Article 101956.
- Wilmar. (2020). *March*. Deforestation-Free Palm Oil: Our Pledge, Our Progress. [https://www.wilmar-international.com/docs/default-source/default-document-library/sustainability/wilmar\\_deforestationprogressreport\\_mar20\\_final.pdf?sfvrsn=69b278b1\\_6](https://www.wilmar-international.com/docs/default-source/default-document-library/sustainability/wilmar_deforestationprogressreport_mar20_final.pdf?sfvrsn=69b278b1_6).
- Yulisman, L., 2023 (13 September). Forest fires blanket several Indonesian provinces, causing surge in people falling ill. <https://www.straitstimes.com/asia/se-asia/forest-fires-blanket-several-indonesian-provinces-causing-more-people-to-fall-sick>.