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ADVANCING THE PAYMENTS FOR ECOSYSTEM SERVICE DISCOURSE THROUGH INSTITUTIONAL THEORY

PhD Series 25-2017

Kristjan Johannes Suse Jespersen

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Doctoral School of Organisation and Management Studies | **PhD Series 25.2017**

CBS COPENHAGEN BUSINESS SCHOOL
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Advancing the Payments for Ecosystem Service Discourse through Institutional Theory

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Acknowledgements

A Doctor of Philosophy Degree is, after all, a singular creation that comes into existence through the crafting of ideas, concerns, cultural parameters, and theories in and of a particular field of study. To work on one is, in some ways, to be like a painter or poet endeavoring to create a work of unique beauty.

While working on mine, I was occasionally reminded of a fabled story concerning how Michelangelo freed David from the lump of marble. Said he, allegedly:

"It was easy. I just chipped away the stone that didn't look like David."

Well, the story is probably apocryphal. One supposes Italian Masters of the 16th Century did not speak in the casual cadences of 21st Century America. But it is nonetheless a good story.

And one that does apply to the PhD process. Certainly, my task was never easy. On the other hand, it was certainly true that I did need to chip away and chip away at all the preconceived conceptions and beliefs of academia and research to embrace a process that I hope has—now here at the end—created something useful to the world of Economics.

With this in mind, I now take pleasure in acknowledging the many people – colleagues, friends, and family – who assisted me, guiding my hand, lending moral support, and just being available while I was completing my PhD.

What words I say here cannot cover the thanks and debt I owe them. Instead, the reader is welcomed to read between the lines to sense all their human generosity and kindness. Their contributions will live on in my heart in ways that can never be fully or even adequately described.

My gratitude goes out to Kai Hockerts for having encouraged the development of my PhD proposal and for walking me through the application process. When my idea was but a glimmer, he partnered with me through the many bureaucratic twists and turns until it became a reality. He also chiseled away and assisted me in bringing my proposal into sharp focus.

I was also fortunate to have Andreas Rasche as my principal supervisor. Learning from such an exacting and articulate scholar not only provided me with a clear direction, but also encouraged me to pursue my dream and larger ambition.

All throughout our work together, Kai and Andreas challenged me and gave me strength. Their confidence in my abilities instilled in *me* the confidence to believe that the goal was in fact possible. They struck their rhythmic hammers of progress leading me on to completion. Having their help throughout such an demanding process made it all the more special. I thank them both.

The value of this work is a direct testament to my long-time mentor and confidant, John Robinson. From our first meeting, in Copenhagen so many years ago, there has been no single individual who has more inspired and pushed me throughout this entire process. He encouraged my inquisitive nature while channeling my ambition and partnered with me on more than one engaging adventure. It is rare for any academic to feel like a superhero, but I certainly felt that to be his stature when he walked into any room I was in. John and I share the belief that our role is not simply to extract the kernels of truth through research, but that we must also engage, participate, and—where invited—initiate change. He embodies the meaning of an engaged researcher and I regularly pause at the beauty of the worlds and Davids he creates. I thank him for keeping me by his side and for inspiring me to create my own worlds and—possibly—a worthy sculpture of my own. It was our luck that we are able to sculpt so well together! With our rasps and rifflers, change was inevitable!

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I am most certainly not the first, nor shall I be the last to thank Dorte Salskov-Iversen, the head of IKL. I was so incredibly lucky to have her on my side. From our early introductions to our continued work in sustainability, her vision, her fairness, and her capacity to bring out the best in everyone has made working with her so rewarding. There is no better leader to guide the builder of worlds! She makes us all mine the very essence of ourselves so that together we make a most dynamic and enriching department and university. I thank her for giving vision and direction to this once up-start PhD candidate.

Special thanks should be given to the Sauder School of Business at the University of British Columbia and to Katriona MacDonald and Murali Chandrashekaran, who received a proposed diamond in the rough and helped me get started.

While at CBS, I benefited immensely from a close collaborative relationship with the office of the Dean of Research. I owe much gratitude to Annedorte Vad, Lise Vinkel Clausen, Nadia Schlosser Carstensen, Karen Slej, and Philipp Alexander Ostrowicz. We all entered the mines of research funding together and won a couple and lost a couple. You were all my canaries in the mine.

My long PhD journey could never have been achieved without the enduring love of Aleksandra – the best co-conspirator and dreamer one could ever wish to walk beside. The breadth and rhythm of our steps are so attuned that I inevitably met each new day with confidence. Undertaking this endeavor could never have happened without her. To our little brood of angels, Asger and Valerija, who are a tonic that reminds us what is in fact important, please do not stop negotiating, leading, embracing, and romancing us on a daily basis. Like a diamond edged blade, they bring clarity where once there was none. They make everything better.

Finally, I gladly thank my parents Krystyna Niziolek and Nils Jespersen. When I was growing up, they recognized that my story was not going to be one akin to Guy Lafleur. From both of them, I learned to work, to strive, to dream, and to embrace being different. I was amused recently by an HEC Paris Executive Education Program advertisement, calling for poets and quants. For one of the most conservative of business schools to call for a new type of applicant made me think of both my parents. They were both well ahead of their time. Living with them was a tango, across a kaleidoscope of art, science, and human decency. They continue to inspire and motivate me.

To all those I have not mentioned by name, the best is yet to come. We can all be sculptors hard at work pursuing our destinies and creating beauty with humanity and humor.

Kristjan Jespersen
March, 2017
Copenhagen, Denmark

Abstract

My research interest centers on payments for ecosystem services (PES), a prominent strategy to address economic externalities of resource extraction and commodity processing, improving both social and ecological outcomes. Given the novelty of these kinds of institutions, my research uses them as a set of compelling cases for studying institutional creation, and my driving research question is "How are institutions in support of PES created?" Importantly, my research spans environmental economics and business studies to study how PES schemes might more fully incorporate the private sector, an outcome that will be essential to their success. In the face of widespread enthusiasm, PES still has faced considerable legitimate critique. My research agenda is focused on a critical analysis of the development of PES from the perspective of organizational institutionalism. I principally use the literature on institutional work, which serves as a lens for understanding the reorganisation of existing practices and norms (Lawrence & Suddaby, 2006).

The research seeks to offer a unique contribution by interpreting PES through a neo-institutional perspective. Through both qualitative and quantitative approaches, the work identifies a key flaw in many current studies of PES: a thin conception of institutions as rules that ignores more subtle ways in which institutions and power are involved in the creation of PES systems.

This dissertation is comprised of four papers each contributing to the debate on PES by drawing insights from the institutional theory literature. Comprised of a meta-analysis literature review, two case studies and a contextual theory-driven paper, the findings are applicable for both PES scholars and practitioners. By engaging in this new perspective, PES scholars and practitioners will better understand how less frequently or easily observed institutions and forms of power can affect the development and effectiveness of PES initiatives. Collectively, the findings indicate that in order for PES to become a successful tool for sustainability, it must break from singularly using rational action and transaction cost theory as governing theories. The research offers recommendations to conceptually reframe PES as a tool for enabling sustainable relationships with nature, conserving and restoring ecosystems and their benefits for people.

Resumé

Min forskning fokuserer på 'payments for ecosysten services' (PES), som er en prominent strategi til at adressere økonomiske eksternaliteter ved udvinding og processering af råstoffer, for dermed at forbedre både de økonomiske og miljømæssige resultater. På baggrund af disse nyskabende former for institutioner anvender min forskning PES som cases for at studere institutionsdannelse, hvortil mit primære undersøgelsesspørgsmål er, "hvordan bliver institutioner som understøtter PES dannet?" I denne henseende omfatter min forskning både miljøøkonomi og erhvervsstudier med henblik på at undersøge hvordan PES-initiativer bedre kan inkorporere den private sektor, som vil være essentiel for at opnå succes. Som følge af den udbredte entusiasme, er PES dog blevet konfronteret med en betydelig, legitim kritik. Min forskningsdagsorden fokuserer på en kritisk analyse af udviklingen af PES med organisatorisk institutionalisme (organizational institutionalism) som tilgang. Jeg anvender hovedsageligt litteraturen omring institutionelt arbejde (institutional work), der fungerer som en optik til at forstå omlægningen af eksisterende praksis og normer (Lawrence & Suddaby, 2006).

Forskningen søger at tilbyde et unikt bidrag ved at fortolke PES gennem et neo-institutionelt perspektiv. Gennem både kvalitativt og kvantitativ metode identificeres en central mangel i mange hidtidige undersøgelser af PES: en smal opfattelse af institutioner som regler der ignorer mere subtile måder, hvorpå institutioner og magt er involveret i dannelsen af PES-systemer.

Denne afhandling består af fire artikler, som hver især bidrager til debatten omkring PES ved at drage på læringer fra litteraturen om institutionel teori. Resultaterne består henholdsvis af en metaanalyse som gennemgår litteraturen, to casestudier og en kontekstuel, teori-drevet artikel, som gør sig gældende for både forskere såvel som praktikere. Ved at engagere sig i dette nye perspektiv kan forskere og praktikere af PES bedre forstå, hvordan institutioner og andre former for magt der er mindre hyppige eller mindre lette at observere, kan påvirke udviklingen og effektiviteten af PES-initiativer. Samlet set indikerer resultaterne at PES er nødt til at bryde væk fra kun at anvende 'rational action' og 'transaction cost' som styrende teorier, for at blive til at succesfuldt værktøj for bæredygtighed. Denne forskning fremstiller anbefalinger for en konceptuel omformulering af PES som et værktøj til at muliggøre et bæredygtigt forhold med naturen, samt at bevare og genoprette økosystemer og deres fordele for mennesker.

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Visual Abstract

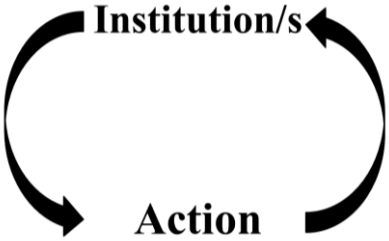
Advancing the Payments for Ecosystem Service Discourse Through Institutional Theory

Research Problem: Design for Payments for Ecosystem Services (PES) programs have very "thin" models of institutions, largely derived from transaction cost economics, which leads would-be institutional workers to adopt a "field of dreams" approach to institution building: "if you build it, they will come."

Research Question: *How are institutions in support of PES created?*

Theoretical Approach – Institutional Work

"Institutions are created through considerable, but mundane, effort expended in ongoing negotiations, experimentation, competition and learning, which resolve over time into shared conceptions of problems and solutions in organizational fields" (Zietsma & McKnight, 2009: 145).



Methodological Assumptions – Scientific Realism

1) The physical world exists independently of our minds;
2) Nature is governed in different domains by different processes

Article	Research Question
A1) The Mundane Work of Building Payments for Ecosystem Services	How has institutional emergence figured in the PES literature to date, and with what effects?
A2) Institutional Working as Institutional Networking: Building Transnational Anti-Deforestation Efforts	What kinds of institutional work are undertaken during the emergence of PES, and by whom?
A3) Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability	What opportunities and deficiencies of PES as a mechanism are visible from existing experiments?
A4) The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?

Finding	Implications for Academics	Implications for Practitioners
A1) PES literature ignores some institutional work of creation and all institutional work of maintenance and disruption	PES studies must consider expanding concepts of institutional creation, maintenance work (or the lack thereof) to further deepen the institution	Developing procedures for ongoing management and maintenance of PES systems is critical for success
A2) Specialization in types of institutional work on the part of actors leads to centralized normative networks engaged in institutional work	Institutional work is a relational, not individualized, process	The construction of normative networks must always consider how resource imbalances disempower some actors
A3) The current shortcomings of PES can be overcome by broadening the initiative to include supply chains and resolving existing compensation bottlenecks	PES projects should rely on a broader understanding of institutions/methods for compensating and integrating into innovative economic structures	Sustainability certification systems can benefit from incorporating elements of tradeable permits to better link production and consumption
A4) While reputational concerns can motivate support for standards, the resulting standards may be a poor balance between the costs of reputation protection and environmental improvement	Brand image and reputational risk can motivate firm engagement in standards but do not guarantee sustained improvement	To avoid being trapped in a niche market, standards must become sufficiently widely adopted to become nearly reputationally obligatory

Part A

1. Introduction

1.1 Phenomenon and Research Problem

There is general consensus among academics that markets require social rules and institutions to exist (Ahrne et al., 2014; North, 1990; Sinkula et al., 1997). Some suggest institutions emerge from rational expectations (Aoki, 2007), while others argue rules are more habitual, helping avoid cognitive overload (North, 2005). Given that markets are an effective, but imperfect, means of allocating resources and must constantly evolve and adapt to new situations, my research contributes to a longstanding and fundamental question in economics and business: how are new economic institutions created? In particular, I study the creation of payments for ecosystem services (PES) mechanisms, which adopt novel institutions that use markets to account for the environmental costs, or externalities, of human behavior. PES is a cutting edge market development that translates large-scale environmental problems into market prices, lowering the individual information required to make sound decisions. Understanding the process of creating these mechanisms can help build theory applicable to a wide range of emerging economic institutions, such as electronic commerce, non-state currencies like BitCoin, and the crowd-sourced/sharing economy.

PES is an umbrella term encompassing a diverse suite of policy tools, providing multiple observations that can be compared. All these mechanisms either compensate environmental stewards for the value of the ecosystem services they produce or require individuals and firms whose actions damage ecosystem services to compensate those affected (Milder et al., 2010; Engel et al., 2008; Wunder, 2005). PES can be fully marketized, as is the case with emissions trading mechanisms like the European Union's Emissions Trading Scheme or the United States' Acid Rain Program, but it also may involve managed payments by a government agency or even private actors. This is the case, for example, in Costa Rica, where a semi-autonomous government agency has channeled hundreds of millions of US dollars to protect nearly one million hectares of forest under its Payments for Environmental Services (*Pago por Servicios Ambientales*) program (Muradian et al., 2010; Brockhaus et al., 2012).

PES initiatives have been quite successful as ideas (Angelsen & McNeill, 2012), spanning from small community-based programs in Mexico (Corbera et al., 2009), Peru (Corbera, 2012), and

France (Perrot-Maître, 2006), through national efforts in Costa Rica, Madagascar, and the United States, to transnational initiatives such as Reducing Emissions from Deforestation and Forest Degradation (REDD+) (Brockhaus et al., 2012; Burgess et al., 2010). Efforts to link forest protection and carbon markets, like REDD+, have spawned around 200 avoided deforestation and sustainable forest management carbon mitigation projects around the developing world (Gallemore & Jespersen, 2016). Globally, 45 compensation systems aimed at stemming biodiversity loss were active in 2011, with a minimum annual market size between US$2.4 and US$4.0 billion (Madsen et al., 2011). These are accompanied, as of 2013, by around 350 active watershed compensation programs globally, a number growing at a 14% annual rate since 2008 and collectively directing at least US$7.3 billion to landholders across an area greater in size than India (Bennett & Carroll, 2014).

All markets require supportive institutional environments to function (North, 1990, 2005). Of particular importance for my work, markets cannot effectively internalize externalities in the presence of transaction costs without supportive institutions (Coase, 1960). In other words, third parties negatively affected by transactions generally cannot bargain their way to an effective solution efficiently without an institutional environment that assigns and enforces appropriate property rights. PES is an excellent case for studying the creation of economic institutions because it simply cannot exist without them. This introductory chapter discusses PES as an institutional phenomenon and explains the research problems that emerge from this perspective. In addition, this chapter describes PES in concrete terms and subsequently provides a taxonomy of PES models found globally. Considering the rich diversity of PES models, this chapter explains why PES is of academic – as well as policy and business – interest. The chapter concludes with a discussion of why and how studying PES elucidates the creation of economic institutions.

Classical environmentalism (Boulding, 1966; Carson, 1962; Goldsmith & Allen, 1972) gave natural scientists the role of identifying environmental risks, while social scientists and policymakers were to develop responses to these risks. Nature was something "out there" separate from social life (Latour, 1993, 2004), and scientists and governments were assigned the task of managing these risks. PES ambitiously brings nature "in here" – into economic and business considerations, effectively challenging easy governmental/nongovernmental divides.

PES's ambitions to bridge the human/nature divide, perversely, have led to a significant research gap. PES falls in the cracks between the natural and social sciences. While the business, economic, and organization studies literatures often focus solely on social systems, these systems are also inherently ecological (Holling & Gunderson, 2002; Walker et al., 2006). Not only do humans depend on natural systems, human activities are a dominant force reshaping the geosphere and biosphere (Verburg et al., 2015; Williams et al., 2015). What is more, these relationships are institutionally mediated, but extant understandings of PES have a very thin notion of institutions, by which I mean a view of institutions essentially as formalized rules and practices. The problem with this thin view is that it tends to erase the problem of institutional emergence, reducing it essentially to a matter of deciding on the rules, which, once created, ideally are self-enforcing. Sociological conceptions of institutions often found in organization studies, on the other hand, point out that institutions are not always explicit and are often as much about meaning and identity as formal rules. Such accounts, however, are not well developed in PES literature. My core research problem, then, is to understand how formal and informal institutions underpinning PES are constructed and how improved theoretical accounts of this process could support better institution building.

Studying the construction of PES mechanisms is also a way to investigate the process of institution building more broadly. In other words, PES, like many other institutional initiatives, is characterized by considerable theoretical knowledge that tells actors what, in the abstract, the resulting institution should like. However, and because the PES literature is characterized by a thin understanding of institutions, there is little in the way of clear roadmaps for actors wishing to build PES in the first place. This is not surprising: under the thin conception of institutions as formal rules resulting from decisions, detailed roadmaps seem unnecessary. That is to say, for many cases of proposed institutional change, we have a destination but no map. Studying the process of institutional creation in the case of PES can provide such a map for that domain, but also offers a chance to develop lessons applicable to a range of other institutional initiatives.

The challenge, then, is finding a theoretical framework that can address this process effectively. A logical starting point would be the theoretical work that led to PES in the first place. PES is rooted in ecological economists' attempts to quantify the monetary value of ecosystem services, which, coupled with Coase's (1960) argument that market exchanges could be used to

internalize externalities, facilitated the development of market-based approaches to conservation (Daily & Matson, 2008; Jack et al., 2008). Within ecological economics, the dominant understanding of institutions has drawn heavily on the transaction cost economics tradition (Coase, 1937; Williamson, 1975), and PES studies often inherit this perspective's view of institutions as formalized "rules of the game" (North, 1990, p. 3). Under such an approach, economic actors are, first, "*intendedly* rational, but only *limitedly* so" (Williamson, 1996, p. 36). In this view, rational decision-makers are incapable of collecting and processing all relevant information or making accurate farsighted predictions. This further implies that any complex contract, which is built on incomplete information, always leaves room for uncertainty. Second, "*some* individuals are opportunistic *some* of the time" (Williamson, 1996, p. 48). These two behavioral assumptions about the "contracting man" increase transaction costs, which include gathering information, bargaining, and formalizing and enforcing contracts – within firms as well as on the market (Williamson, 1996). According to Williamson, markets and hierarchical institutions are the extreme poles of governance structures, with alternative contracting structures, like joint venture and franchising, between them. Decision-makers choose the structure that imposes the lowest transaction costs (Williamson, 1996).

While transaction cost economics' austere institutional model may support policy design, it turns out that this approach does not provide the depth of cultural, behavioral (Hoffman & Jennings, 2015), and even societal (Palsson et al., 2013) analysis required to transform those abstract models into robust and replicable mechanisms in the real world, because once the necessary rules are agreed upon and formalized, institutional construction is essentially regarded as complete. From this perspective, institutions are primarily a tool for information discovery, even policing. That is to say, they are rule systems whose goal is to lead actors to adopt desired behaviors to serve their own self-interest. The PES literature, as a result, has tended to focus on formal rules and the reduction of transaction costs through mechanisms to ensure additionality. The problem with this approach is that the desired behavior is assumed to follow logically once the proper institutions are in place. This thin understanding of institutions as rules, however, misses the role of meaning, emotion, and legitimacy in institutional creation and performance. While the perspective acknowledges that institutional creation is costly, it lacks the detailed attention to the process of institutional construction and maintenance required to give practical advice to groups interested in creating PES systems. Formalized approaches risk blinding actors

and organizations to processes and phenomena that are not readily encompassed under existing epistemic frameworks (Scott, 1998), leading to managerial approaches to phenomena that are already institutionalized – in some cases institutionalized in a way that is deliberately resistant to management (Scott, 1985; North, 2009).

Most of the PES initiatives studied in the literature might be understood, in line with Zietsma and McKnight (2009), as proto-institutions, initial institutional experiments proposed by multiple actors as a possible solution for a specific institutional problem. While proto-institutions are not always formalized, they nevertheless have a determinant structure (Zietsma & McKnight, 2009; Lawrence et al., 2002). As a result, students of PES often are studying systems that have already gone through the most challenging periods of institutional creation, making it easier to gloss over the labor involved in that process. As a corrective, it is necessary to explicitly study institutional creation during its most uncertain periods, as well. The literature on organizational institutionalism developed in organizational studies, particularly discussions of institutional work, however, provides more detailed and concrete models of institutional creation than that found in the PES literature and provides a useful framework with which to develop those discussions.

1.2 PES: Definition and Different Types

While, as noted above, PES encompasses several market-based environmental policy approaches, at root all PES systems are designed to translate external, non-market environmental values into real financial incentives via voluntary transactional mechanisms (Milder et al., 2010; Engel et al., 2008; Wunder, 2005). Wunder's (2005; 2006; 2007) now classic definition identifies five key criteria for PES: (1) voluntariness, (2) a well-defined ecosystem service such as water quality or carbon sequestration, (3) a buyer who pays for the provision of the serves, (4) a provider who ensures the continuation of the service, and (5) a payment from the buyer to the provider conditional on the continuation of the ecosystem service. PES systems can include both monetary and non-monetary incentives, such as compensatory projects and payment in kind (Tallis & Polasky, 2009), and buyers and providers can be private individuals, state actors, or civil society organizations.

The logic underlying PES derives originally from the recognition that the cost of anthropogenic environmental damage, like other impacts on third parties not directly involved in economic transactions, generally is not reflected in the price of goods and services (Pigou, 1912; 2013). Pigou (1912) seminally argued that such third-party damages, known as negative externalities, which must be corrected either via taxation or regulation in order for markets to function properly (Hahnel & Sheernan, 2009). Starting particularly in the 1980s, however, policymakers began turning to perspectives that suggested that properly defined property rights might provide another way to address externalities (Hahnel & Sheernan, 2009). On this view, institutions could be built to properly clarify property rights in order to incentivize efficient measures to mitigate environmental problems (Coase, 1960; Tietenberg, 2003; Harris, 2002; Russell, 2001; Hanley et al., 2001; Perman et al., 2003). PES is perhaps the most prominent family of these approaches.

To make this mechanism clear, we can turn to a helpful illustration of PES found in the People's Republic of China (PRC), where a variety of market-based mechanisms are used to support water quality. The PRC allocates water resources in three ways. First, water within river basins is allocated to administrative regions and sub-regions (Shen, 2009). Second, these regions distribute the available water resources amongst various abstractors (Shen, 2009; Tallis et al., 2008). Third, the water is distributed by public supply systems to the end users of the resource (Shen & Speed, 2009; Shen, 2009). Strategically, China has made efforts to establish eco-compensation models within all three levels.

The application of PES works to target efficiency, pollution and conservation (Shen, 2009; Jack et al., 2008) using market forces directed by the state (Bennett, 2009; The World Bank, 2007). Farmers, who rely on tube-well systems tapping into groundwater reserves to supplement surface water, are key stakeholders. In northern China (Calow et al., 2009; Daily & Matson, 2008), water pressure is intensified by pollution, in the form of hazardous waste and municipal and industrial wastewaters, along with the fertilizer runoff, pesticides and manure seepage (Calow et al., 2009; Liu & Diamond, 2005). To date, the PES programs introduced in China have sought to compensate land users for lost income resulting from carrying out environmental protection policies, essentially compensating them for the opportunity costs of environmental protection. Approaches include fiscal transfer payments, educational services supporting sustainable land management, payments for watershed services, environmental taxes and fees

and direct government payment programs. Conceptually, at a very general level, this bundle of programs provides a way for downstream users to pay upstream users for water quality, as seen in Figure 1.

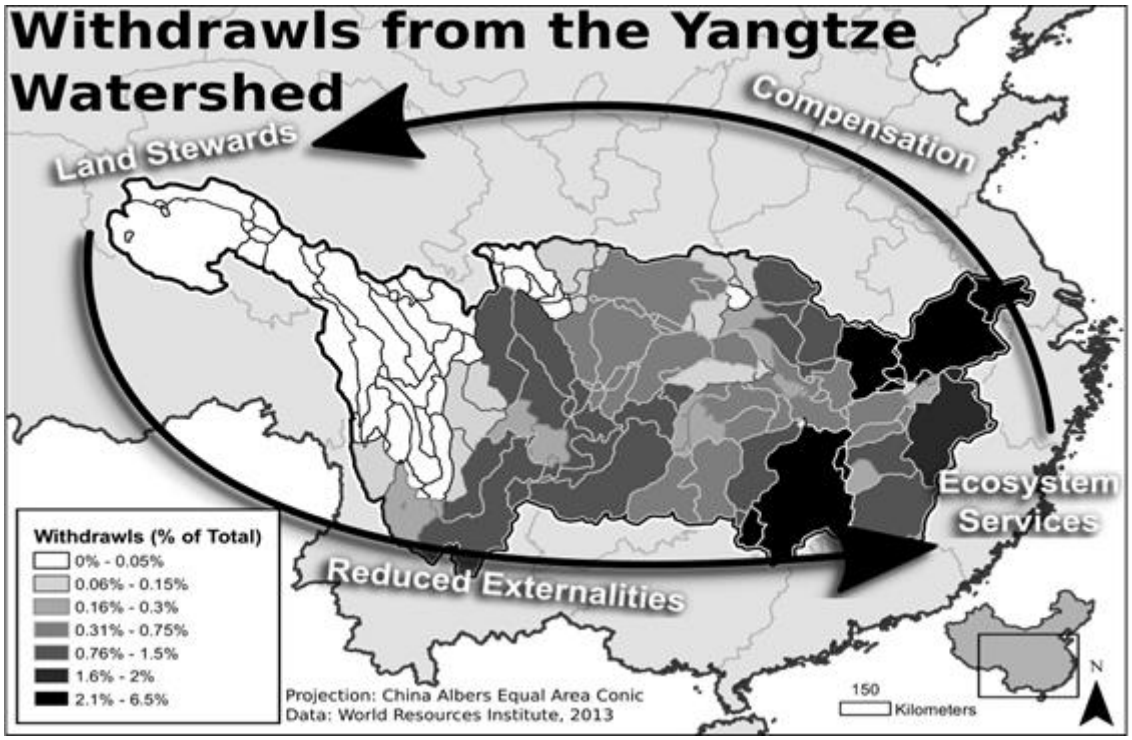


Figure 1: An example of a payment for ecosystem services initiative in China. Watershed data from Gassert et al. (2013). Boundaries from the Global Administrative Areas dataset (Matsumura et al., 2009).

To illustrate the logic of this system, imagine the situation of a single poor Chinese farmer who may have insufficient resources or education to influence their agricultural production. Such farmers face a vicious cycle of poverty and deteriorating ecosystem conditions for the simple reason that crop yields are directly correlated to the disruption of ecosystem services. PES systems like those deployed in China provide payments and incentives to farmers like this one, which can enable the farm to adopt more sustainable land management practices, simultaneously lowering environmental externalities for those downstream and helping break the vicious cycle the farmer faces him- or herself (Tarek, 2010).

1.2.1 Examples of PES

Given that PES is an umbrella term and, as a result, PES initiatives come in diverse shapes and sizes, many classification schemes can be found in the literature. A report by the non-profit organization Forest Trends, for example, identifies three types of payments made to landowners observed across different initiatives: 1) payments directly from the government; 2) voluntary payments from businesses, individuals, and non-governmental organizations; and 3) payments made in compliance with government regulations, again usually from firms or private individuals (Mercer et al., 2011). Jack, et al. (2008) divide PES into tradeable permits, subsidies, and market friction reductions, which involve providing information or clarifying legal requirements to lower barriers to sustainable behavior. Muradian, et al. (2010) argue that PES schemes differ along two key dimensions: the degree to which economic incentives are used as policy tools, and the degree to which ecosystem services are commodified.

To simplify the discussion – at the cost of adding yet another classification system – this chapter identifies two primary PES models, which can be operated by governments, the private sector or civil society, or a combination of these. The first is a tradeable credit system, which, if governmental, is generally referred to as a compliance market or a tradeable permit system and, if not mandatory or non-governmental, as a voluntary market. In these systems, the ecosystem service providers are paid based on environmental outputs. The second is compensation, which, if governmental, is generally referred to as a subsidy, but, when non-governmental, often comes in the form of voluntary certification. Here, ecosystem services providers are paid for adopting particular practices. That is, they are paid for inputs. In practice, however, these divisions can be approximate, with some schemes combining elements from multiple categories.

1.2.2 Tradeable Credits

Compliance-driven payments accounted for 40% of payments for forest-based ecosystem services in the US in 2007, valued at approximately $760 million (Mercer et al., 2011). Common to these initiatives is that they are developed in response to government regulations, which establish markets for ecosystem services. Examples include activities such as emission trading and conservation banking. Actual initiatives include the Clean Air Act 1990 Amendments and wetland mitigation banking programs established under the Clean Water Act

in the US, and the Kyoto Protocol at the international level (Mercer et al., 2011), as well as the European Union's Emissions Trading Scheme (Ellerman & Buchner, 2007; Chaabane et al., 2012; Convery & Redmond, 2007). The expansion of market mechanisms is internationally anticipated as a result of the recently concluded Paris Agreement (Eckersley, 2016; Rhodes, 2016).

In addition to public payments for upholding ecosystem services, another type of compensation to landowners is voluntary payments from private businesses, individuals, and non-governmental organizations, often used as a means of supporting Corporate Social Responsibility efforts or preparing for anticipated regulations (Green, 2014). Generally speaking, these programs are referred to as offsets. Examples include carbon credits (Mercer et al., 2011, p. 1), biodiversity credits (McKenney & Kiesecker, 2010; Bull et al., 2013; Jenkins et al., 2004), and the Roundtable on Sustainable Palm Oil's Green Palm certification system (Ruysschaert & Salles, 2014). In 2007 it was estimated that voluntary transactions amounted to $760 million, or 40% of all payments for forest-based ecosystem services in the US (Mercer et al., 2011). Outside the US, a particular initiative is the program developed and implemented by Vittel (Nestlé Waters) in north-eastern France (Perrot-Maître, 2006), where the water-bottling business collaborated with local farmers during a 10-year period to address the risk of nitrate contamination triggered by increasing agricultural intensification, paying farmers for additional reductions in nitrate runoff rates. Whereas financial aspects remain important success criteria for PES programs, the primary purpose in this case was to build trust between the partners through "the development of a long-term participatory process to identify alternative practices and a mutually acceptable set of incentives" (Mercer et al., 2011. p. 5).

1.2.3 Compensation

In the case of payments directly from the government, participation is driven by the commitment to protect natural resources, and ensuring that ecosystem services are continuously provided for the public (McDaniel, 1999). Specifically, these include payments to landowners for the implementation of afforestation, reforestation, or forest management projects on their land (Mercer et al., 2011, p. 3). The overall purpose is to produce or enhance ecosystem services, where landowners work in cooperation with government agencies at both the federal, state, and local level (Mercer et al., 2011, p. 3). The adoption of PES programs driven by public payments

is not limited to any particular geographical region. There are various initiatives across countries, such as the Joint Forest Management Agreements in Tanzania, the Mgahinga Bwindi Impenetrable Forest Conservation Trust in Uganda, the Protecting the Sierra Gorda Biosphere Reserve in Queretero, Mexico, and the Working for Water Project in South Africa (Asquith et al., 2008).

A prominent example is the New York City Watershed Program that was initiated in 1997. The City's watershed spans nearly 2000 square miles and is the largest unfiltered water system in the world, providing 1.2 billion gallons of drinking water every day for more than 9 million New Yorkers (Pires, 2004). The majority of the water comes from reservoirs in the Catskill Mountains, 120 miles North of the city, where previously only minimal treatment was necessary to maintain high water quality (Mercer et al., 2011, p. 20). Following declines in quality in the 1990s, however, the Environmental Protection Agency required improvements. Because a new filtration plant was estimated to cost $6 to 8 billion to build plus $300 million in annual operating expenses, the City Government decided to compensate upstream land managers for avoiding water diversion. Taking this approach, the city could maintain water quality for only approximately $1 to $2 billion in initial purchasing and $209 in annual management and maintenance of the watershed (Mercer et al., 2011, p. 14).

While government-led compensation programs can be thought of, in essence, as negative taxes, private actors do not have recourse to such mechanisms and, therefore, use standards-setting or certification approaches as a way to allow market actors to reward sustainable practices. Certification programs, often discussed in management science as examples of sustainability MSIs, provide a means for private consumers to reward positive environmental behavior in the absence of government regulation. Generally, these programs aspire to become universal standards, leading to a single, sustainable value chain for the product in question, at which point the environmental externalities resulting from production would be effectively internalized. Importantly, MSI certification schemes establish mechanisms that certify a specific form of standards compliance. These mechanisms, as outlined by Cashore (2002), establish auditing procedures, which are often performed by third-parties, to ensure the compliance of product specifications along the value-chain. The rise of such certification processes has brought some sustainability issues into mainstream business decisions (Turcotte et al., 2014; Fransen & Kolk,

2007; Utting, 2002). Prominent examples include organic, Rainforest Alliance (a large number of rainforest products (Bartley, 2003), Roundtable on Sustainable Palm Oil (Schouten & Glasbergen, 2011), Roundtable on Responsible Soy (Nepstad et al., 2014), Marine Stewardship Council (Ponte, 2012), and Forest Stewardship Council certification (Cashore, 2002).

While Business Management scholars would emphasize that MSIs are critical in a world where there exist non-binding global regulations for MNCs (Fransen & Kolk, 2007; Mena & Palazzo, 2012; O'Rourke, 2006), at present, even the most successful, such as the Forest Stewardship Council and Roundtable on Sustainable Palm Oil, only account for at most about 15–20% of global production in their respective sectors (Garrett et al., 2016). While some of these programs benefit from sustainable sourcing on the part of large retailers (Dauverngne & Lister, 2013), ultimately, they are likely to depend on governmental support to achieve maximum uptake (see ***Article #4***) as a means of scaling efforts (Laurance et al., 2010).

1.3 Background and Motivation

Theoretical Merits : ***Studying the Emergence of PES – a Theoretical Approach***

The relative lack of attention to PES system in the organizational studies literature is puzzling, particularly given the scope of phenomena potentially encompassed by these initiatives. Costanza et al. (2014), for example, estimate the global value of ecosystem services in 2011 at $125 trillion, considerably larger than the gross world product estimates for that year. Making sure at least some of this value counts in economic decisions and business strategies will be critical to sustainability, but current markets – and, as a result, the private sector – are, as noted above, often blind to this dimension of the global economy (Guerry et al., 2015). The importance of ecosystem services means PES has considerable policy interest, but, while quite a lot of ink has been spilled analyzing institutions that govern PES, this work has tended to be heavily influenced by institutional economics' characterization of institutions as the "rules of the game" (North, 1990), an approach which glosses over the cognitive and normative roles of institutions, which may have more behaviorally relevant explanatory power (North, 2005). As a result, the literature on PES has a relatively thin, even impoverished, understanding of institutions when compared to the organizational studies literature. This is a particular problem for PES, because while the rational design of the overall initiative may inspire confidence in

observers, in the absence of deeper legitimacy from a local perspective, institutional carrots and sticks are likely to be undermined (Gebara & Agrawal, 2017).

PES's diversity provides a multitude of theoretical experiments, offering multiple observations on institutional innovation within a single policy domain. This diversity can provide analytic leverage, shedding light on institutional factors that go unremarked in standard PES literature, informing better institutional design and outcomes. Traditional accounts of PES have often approached the concept through a "balance sheet" understanding of ecosystem services: they apply generalized systems and rules that, in theory, should result in changes in behavior that affect ecosystem service provision (Millennium Ecosystem Assessment, 2005). In many cases, however, this balance sheet approach to institutions dramatically oversimplifies their role in connecting humans and nature and, furthermore, tends to privilege formal institutions, glossing over informal norms and practices (see ***Article #1*** below).

Organizational institutionalist literature provides excellent resources for reformulating the terms of this debate. On the one hand, as Hoffman and Jennings (2015: 9) put it, "Institutional theory emphasizes environmental problems as being not primarily technological or economic in character but behavioral and cultural" (see also Bazerman & Hoffman, 1999). On the other, organizational institutionalism has a "thick" conception of institutions, as compared, for example, to the understanding of institutions as "rules of the game" (North, 1990: 3) common in many studies of human-environment interactions (Côte & Nightingale, 2012), and of PES in particular.

As such, organizational institutionalism can productively contribute to studies of socioecological systems, where models of social systems are at times overly simplified (Stone-Jovicich, 2015). Through the study of exogenous and endogenous efforts to build institutions, institutional theory offers greater understanding of the behavior on and off the path to institutional creation. This approach allows practitioners, as well as academics, to better understand the underlying logics surrounding belief structures and cultural norms linked to institutional emergence. Identifying factors of institutional construction that both support and undermine the subsequent efficacy or durability of institutions (Greif, 1994; North & Weingast, 1989; Weingast, 1997) can provide lessons not only about how the workaday tasks of institutional construction affect the outcomes

of institutional emergence, it can also provide rules of thumb for would-be institutional workers trying to actualize abstract institutional models like PES.

Global demand for robust and impactful environmental interventions is growing, but we must accept that there is no "institutional vacuum" in land and environmental management. From an institutional economics perspective, it might appear that the absence of formal rules invites policymakers to stamp a PES system down on the landscape, but, in fact, these types of interventions can often be ineffective because they are at odds with informal institutions and norms that are not recognized by policymakers (Chan et al., 2012). For example, the Kalimantan Forest Climate Partnership (KFCP) project implemented by AusAID in Indonesia in the late 2000s ran into considerable initial trouble because the project leadership's plans for peatland rehabilitation did not follow traditional tenurial practices followed in the area, leading to considerable conflict between the project and some of the target communities (Olbrei & Howes, 2012). Bringing organizational institutionalist theory to this discussion could help avoid these problems, contributing to the ultimate legitimation of PES initiatives.

1.4 Structure of the Thesis & Governing Research Question

From the foregoing discussion, the core question of my research agenda is probably relatively clear:

How are institutions in support of PES created?

While this question has been asked in a broad sense in the literature on neoliberal natures in political ecology (Castree, 2008; Bakker, 2005; Mansfield, 2007), there the discussion has tended to center on how neoliberal discourses have supported the rise of market-based environmental schemes as a popular policy solution. Only recently have researchers in this area begun to consider the nuanced processes by which PES and similar mechanisms are built (Gómez-Baggethun & Muradian, 2015). Like the institutional economics literature with which it is largely in contention, however, the political ecology literatures Marxist routes has tended to leave it with a similarly thin concept of institutions as conduits for the influence of powerful neoliberal actors (Gómez-Baggethun et al., 2010). Asking the question from an organizational institutionalist perspective can lead to more nuanced and policy-relevant answers.

From an organizational institutionalist perspective, it is possible to formulate a broad response to the research question, which is tested and explored through subsequent sub-questions addressed in the academic papers discussed below (**Part B**).

As a means of exploring the research question, the four presented papers (***Articles #1***, ***#2***, ***#3***, ***#4***) explore topics of PES production. The underlying four research questions that are part of the various papers provide answers to aspects of the overarching research question and test the conceptual statement above. To illustrate the logic, the following table outlines the articles discussed below.

Emergence of Payments for Ecosystem Services

Title	Research Question	PES Model
Article 1: The Mundane Work of Building Payments for Ecosystem Services	How has institutional emergence figured in the PES literature to date, and with what effects?	Tradeable Permit Compensation
Article 2: Institutional Working as Institutional Networking: Building Transnational Anti-Deforestation Efforts	What kinds of institutional work are undertaken during the emergence of PES, and by whom?	Tradeable Permit
Article 3: Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability.	What opportunities and deficiencies of PES as a mechanism are visible from existing experiments?	Tradeable Permit Compensation
Article 4: The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?	Compensation

The first research question, in ***Article #1***, applies institutional work theory as a framework for considering the state of theory development in the literature on PES:

RQ1: *How has institutional emergence figured in the PES literature to date, and with what effects?*

The question considers how PES studies have prioritized specific forms of institutionalizing. As a helpful tool to conduct this taxonomy, Institutional Work Theory was applied. The question is based on the assumption that certain components of creating, maintaining and disrupting institutions are at times neglected or underdeveloped in the PES literature, mitigating its utility for actual policy development.

The second question, then delves deeper into the application of institutional work by looking at the specific efforts undertaken to develop a PES initiative:

RQ2: *What kinds of institutional work are undertaken in efforts to develop PES, and by whom?*

The question was designed to understand how complex networks are formed through specific types of initiated work. It relates to both the study of the production of PES and provides a theoretical innovation in institutional work theory by drawing on network analysis techniques to add a relational context to the approach. The question focuses on who engages in institutional work and how this generates power relations within the process of institutional creation.

The third question takes a more macro perspective to explore how existing PES systems might be improved:

RQ3: *What opportunities and deficiencies of PES as a mechanism are visible from existing experiments?*

This line of inquiry explores major debates within PES literature, considering current tensions around the production of PES and how these tensions might be addressed through the development of novel institutional approaches that might not be visible from traditional institutional economics perspectives. The work provides insights into the future direction of PES emergence.

Finally, the fourth research question takes a bottom up approach exploring the production and rise of private standards systems:

RQ4: *How do concerns about reputational risk drive the emergence of private sustainability standards?*

In the absence of government mandates, private certification standards, such as the Roundtable on Sustainable Palm Oil studied in this paper, rely on consumer demand and brand reputation to motivate sustainable behaviors on the part of firms. This study brings a range of data, including interviews, price information, membership numbers, and news coverage, to bear on the question of whether or not reputational risk is sufficient to move a standard toward sustainability, on the one hand, and to encompass a sufficiently large proportion of the associated market to matter, on the other.

Visual Abstract

Advancing the Payments for Ecosystem Service Discourse Through Institutional Theory

Research Problem: Design for Payments for Ecosystem Services (PES) programs have very "thin" models of institutions, largely derived from transaction cost economics, which leads would-be institutional workers to adopt a "field of dreams" approach to institution building: "if you build it, they will come."

Research Question: *How are institutions in support of PES created?*

Article	Research Question
A1) The Mundane Work of Building Payments for Ecosystem Services	How has institutional emergence figured in the PES literature to date, and with what effects?
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A4) The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?

2. Theoretical Background

Having provided the overarching foci of the research and an overview of PES, the following chapter introduces the dominant theoretical framework applied throughout the research. The work draws heavily on organizational institutionalism, which provides an interpretivist and granular perspective on institutional construction suited to addressing longstanding tensions between the environment and the socially constructed world. This section is then followed by the more in-depth analysis of the sub-theory of institutional work, a new direction for institutional studies of organizations that has not previously been applied to PES.

2.1 Past Interpretations of Socio-Ecological Relations

Awareness of the problem of environmental degradation is not novel. Plato detailed the impacts of deforestation on soil erosion and the drying of springs in 400 BC (Mooney & Ehrlich, 1997). Pliny the Elder's 1st-Century encyclopedia voiced similar concerns about ethnographic and environmental tensions (Andréassian, 2004; Murphy, 2004). Even the vision of humans as a geological force has been expressed for some time. Amid the Industrial Revolution, George Perkins Marsh (1864, p. 8) argued humanity "has reacted upon organized and inorganic nature, and thereby modified, if not determined, the material structure of [its] earthly home," helping to spark the early conservation movement (Wellock, 2007).

These observations, however, did not lead directly to the attitude toward the nonhuman world found in current discussions of environmental management and sustainability. Embedded in a modernist epistemic framework, in which knowledges about the natural and the social were understood as starkly separate (Latour, 1993; Merchant, 2005), the early conservation and preservation movements both treated humans and the natural world as mutually exogenous forces. For the conservation movement, this meant making economically rational choices about land management in order to achieve maximum sustained yield (Oliver, 1997; Ison et al., 2007), while preservationists like John Muir sought to protect grand landscapes, even if this meant expelling native inhabitants, who came to be understood as spoiling the "pristine" wilderness (Cronon, 1995; Epstein, 2006; Neumann, 1997, 1998; Worster, 2011). This strong split between the human and the natural strongly informed some strands of classical environmentalism, which at a global scale came to be particularly concerned with population growth in the 1960s and

1970s, as population came to be seen as pushing up against hard geophysical limits (Ehrlich & Ehrlich, 2009; Hardin, 1968; Meadows et al., 1972).

The form of environmental thought developing within this frame was concerned, first and foremost, with scarcity (Gifford & Comeau, 2011; Sabin, 2013; Nordhaus & Shellenberger, 2004), harm reduction, and damage mitigation (McDonough & Braungart, 2002; Reed, 2007). In its focus on biospheric limits or carrying capacity, however, this narrative may have missed an opportunity to theorize the role of human-nonhuman relationships in the flourishing of humans and ecosystems (Summers et al., 2012).

Over the past two decades, there have been significant shifts in narratives of human-environment relationships that, while continuing to point to natural systems as preconditions of human existence, also consider their positive contributions to human flourishing and, conversely, the potential positive contributions of humans to their flourishing. The Millennium Ecosystem Assessment (Millennium Ecosystem Assessment, 2005), notably, highlighted the role of ecosystems in providing security, material resources, health, and social and religious benefits for humans, all supportive of human freedom, echoing ecological economists' arguments (Pearce & Turner, 1990; Costanza et al., 1997; Fisher et al., 2008). At the same time, a growing body of research by geographers, environmental historians, archaeologists, ecologists, and others began to argue that many landscapes formerly thought of as "pristine" were in fact heavily – and sometimes positively – influenced by human activities (Cronon, 1983, 1996; Ellis et al., 2012). As these arguments developed, ecologists studying contemporary ecological problems also began to reject the strict separation of humans and the nonhuman world, developing concepts like "coupled human-natural systems" or "socio-ecological systems" as frameworks with which to bridge this critical gap (Holling et al., 2002; Walker & Salt, 2012).

Echoing these calls, a recent vein of criticism argues that a return to nature is critical for the social sciences (Catton, 1992). As emphasized by Nightingale (2006, p. 1), social science needs "more engagement with ecological theory and ecological processes as they articulate with social processes in contingent, dynamic ways" (similar arguments are voiced by Zimmerer & Basset, 2003; Carolan, 2005; Whatmore, 2013). PES can be seen as perhaps one of the most all-encompassing of these ways of thinking about the relationship between humans and nonhumans.

If institutional theory addresses "agentic actors, responding to institutional circumstances" (Greenwood et al., 2008, p. 3), such circumstances, now, more than ever before, link what Weber (1973) called *Naturwissenschaften* and *Kulturwissenschaften*. In the Anthropocene, organizations are called upon to engage in active management of human-nonhuman relationships (Galaz et al. 2012a; Young & Dhanda, 2012), necessitating significant changes in extant institutions (Bengtsson, 2008) and the development of new logics and normative associations within changing institutional fields (Greenwood & Suddaby, 2006; Lawrence & Suddaby, 2006; Hoffman & Jennings, 2015) and across societal sectors. Studies of PES have focused heavily on earth system science (Dryzek, 2013), but there is growing interest in how PES necessitates cultural, institutional (Hoffman & Jennings, 2015), and even societal (Palsson et al., 2013) change, as we develop initiatives to manage our interactions with the nonhuman world.

2.2 Organizational Institutionalism

In principle, organizational institutionalism is well positioned for an intervention in the debate on how best to manage human-nonhuman relationships. Institutional structures, as Giddens (1984) argues, are evolving, socially constructed patterns that shape and are shaped by human action (Berger & Luckmann, 1966; DiMaggio & Powell, 1991; Meyer & Rowan, 1977). Organizations and professions draw upon accumulated institutional knowledge so as to operate on a daily basis (Berger & Luckmann, 1966). Much of this structure, however, is tacit, even unconscious; Giddens (1984, p. 4) argues that "the vast bulk of the 'sticks of knowledge' in Schutz's phrase … is not directly accessible to the consciousness of actors. Most such knowledge is practical in character: it is inherent in the capability to 'go on' within the routines of social life." Tacit or explicit, "rules can be seen to structure, [and] to give shape to, the practices that they help organize" (Cassell, 1993, p. 10) and serve as generalized procedures that result in the enactment and reproduction of social practices (Giddens, 1984), often without intention.

Organizational institutionalism's idea of a world that is always already institutionalized, in contrast, accords nicely with PES's view of a peopled planet, where landscapes generally already bear the impact of extant institutions and practices, whether formalized or tacit. Rather than taking a thin, formalist view of institutions, organizational institutionalist studies often

point to openness and adaptability as key components of change and organizational effectiveness. Lawrence & Suddaby's (2006) notion of embeddedness, for example, suggests organizational fields characterized by a high degree of openness to ideas and practices from elsewhere provide more exposure to a variety of third parties and hence facilitates the type of multidirectional information flow that promotes the development of new practices beyond the collaboration itself (Dorado, 2005). As Gibson-Graham (2011) argue, in case of PES, openness means not only being aware of broader social networks, but also of the materiality of one's activities.

2.3 Institutional Work

Whereas institutional approaches to organizational studies have traditionally tended to focus on the relationship between organizations and their respective fields, the institutional work literature examines how action affects institutions (Lawrence & Suddaby, 2006; Lawrence et al., 2009; Lawrence et al., 2011), a critical area of inquiry for understanding institutional creation. Defined as "the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions" (Lawrence & Suddaby, 2006, p. 215), the concept of work adopted in this literature is inspired by studies of everyday tasks, which have explored concepts such as emotion work (DiMaggio & Powell, 1991; Rafaeli & Sutton, 1987); identity work (Snow & Anderson, 1987; Ibarra & Barbulescu, 2010); boundary work (Zietsma & Lawrence, 2010; Fournier, 2000); strategic work (Goodstein, 1994); practice work (Zietsma & Lawrence 2010; Lawrence et al., 2009) and value work (Crank, 2003).

Institutional work theory has been combined with a range of other perspectives to analyze particular cases. Notable examples include Martí and Fernandez's (2013) research on the Holocaust, which links institutional work theory with the sociological literature on power. Focusing particularly on dynamics of oppression and resistance, and recognizing that power and institutions are intimately related, Martí and Fernandez's (2013) analysis of specific types of work provides a novel study of how institutional work can be both a means of achieving as well as expressing power (Rojas, 2010; Lawrence et al., 2013). In a different vein, Helfen & Sydow (2013) link institutional work to the industrial relations literature (McKersie & Walton, 1991), analyzing the impact of negotiation work across boundaries. Such forms of work require both

contestation and joint problem-solving (Hargrave & Van De Ven, 2006), in the pursuit of creating a new institution (Helfen & Sydow, 2013).

Similarly to these examples, the research that I have engaged with links institutional work to the PES literature. While PES may often simplistically be interpreted as creating incentives that work to change individual and collective behavior (Muradian et al., 2010), I study how establishing PES amid complex social norms and hierarchies necessitate concerted institutional work. One example, found in ***Article #2***, discussed below, integrates institutional work with network theory. Institutional work studies suggest actors engage in specific forms of institutional work that not only define themselves but in addition locate themselves alongside other actors in normative networks (Lawrence et al., 2013; Lawrence et al., 2011). Thus, the type of institutional work engaged in reflects and affects actors' position and affiliations within institutional fields (Battilana et al., 2009; Lawrence et al., 2013; Lawrence et al., 2011). For example, ***Article #2*** discussed below utilizes network data and clustering techniques to demonstrate that organizations specialize in particular profiles of institutional work, which then lead to different positions in normative networks engaged in building PES initiatives for forest protection.

Importantly, the theory of institutional work emphasizes that actors do not have a simplistic organizational awareness (Hirsch & Lounsbury, 1997), instead, this perspective studies the socialization of individuals and groups and how they engage with institutions (Berger & Luckmann, 1966). This concept moves past the assumed dominance of institutions (DiMaggio, 1988) by arguing stakeholders' exercise skill and reflexivity when interacting and engaging with institutions (Hirsch & Lounsbury, 1997). Actors are assumed boundedly rational, in that they work within institutionally-defined logics that shape their actions (March & Olsen, 1996), but they also can harness their competencies and knowledge in a creative fashion to pursue their objectives (Giddens, 1984; Cassell, 1993). ***Article #1***, discussed below, demonstrates that an understanding of the importance of innovation and agency in institutional construction in generally lacking in traditional literature on PES. The importance of such agency is illustrated in ***Article #4***, which details the strategic conflicts shaping the evolution of MSIs like the RSPO.

Growing efforts to date have studied how new institutional innovations emerge, compete and resolve incongruent logics and practice over time. Institutional theories have been criticized for

overemphasizing institutional stability, which makes social systems resilient to change (Bengtsson, 2008). Faced with the Anthropocene, new forms of institutional experimentation, presently described as proto-institutions, that emerge as implemented modes of action suitable to solve new problems. Lawrence et al. (2002, p. 281) define proto-institutions as "new practices, rules, and technologies that transcend a particular collaborative relationship and may become new institutions if they diffuse sufficiently." Similar to conceptions of the process leading to institutionalization (Galaz et al., 2012b; Österblom & Folke, 2013), Lawrence et al. (2002) see proto-institutions as emerging from elaboration and routinization of existing networks of collaboration. ***Articles #2*** and ***#3*** investigate these issues of institutional emergence from empirical and conceptual perspectives.

PES might also be seen as an opportunity to apply the notion of institutional logics. Originally introduced by Alford and Friedland (1985) as a tool to explain the contradictory practices and beliefs inherent in western society, the discussion of institutional logics has since evolved: "to understand individual and organizational behavior, it must be located in a social and institutional context, and this institutional context both regularizes behavior and provides opportunity for agency and change" (Thornton & Ocasio, 2008, p. 102). While institutional logics frameworks agree that organizational structures are influenced and shaped by both cultural rules and cognitive structures, the focus on isomorphism is less of a concern (Thornton and Ocasio, 2008). Rather, attention centers on how institutional logics shape boundedly rational behavior, where individuals and organizations engage in both shaping and changing logics (Thornton, 2008). In this way, institutional logics constitute a bridge between the micro and the macro level, by providing a link between action and institutions (Thornton and Ocasio, 1999). In order to account for structural, symbolic, and normative dimensions, Thornton and Ocasio (1999, p. 804) define institutional logics as "… the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality."

While useful when extending the research agenda, however, the institutional logics perspective was not deemed relevant for the present construction of this study. The reasoning here is the empirical focus of the current phase of research is on institutional construction. In other words, my research is concerned with the process by which institutions – and their concomitant logics –

are produced in the first place, whereas the institutional logics perspective helps understand boundedly rational choices and actions within already established logics. This does not mean, however, that the organizational institutionalist literature beyond institutional work did not inform my research. While institutional work is my primary tool for exploring the creation of PES as an institution, it was also clear that during periods of contention, the meaning of PES is subject to contentious framing and counter framing (Snow et al., 1986; Goffman, 1974; Benford & Snow, 2000). As Snow, et al. (1986: 469), put it, "support for and participation in movement activities is frequently contingent on the clarification and reinvigoration of an interpretive frame." Through this process of reinterpretation, an organization can redirect the evolution of the PES field in ways more consistent with their core values (Rokeach, 1973; Killian & Turner, 1972).

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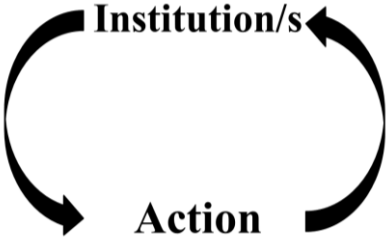
Research Question: *How are institutions in support of PES created?*

Theoretical Approach – Institutional Work

"Institutions are created through considerable, but mundane, effort expended in ongoing negotiations, experimentation, competition and learning, which resolve over time into shared conceptions of problems and solutions in organizational fields" (Zietsma & McKnight, 2009: 145).



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3. Methodology

Across all the submitted articles, methodological choices are based on two fundamental principles. First, I focus the intended outcomes of my research based on a model of engaged scholarship that aspires to conduct research that can simultaneously speak to theoretical questions and practical concerns. Second, I adhere to a scientific realist framework that prioritizes the development and refinement of models of social mechanisms, which provide a way to move from abstract theory to predictions about or interpretations of particular social processes. The two approaches are complementary, as they both emphasize a constant dialog between more abstract theoretical questions and hypotheses and practical applications.

3.1 Engaged Scholarship

Researchers studying Payments for Ecosystem Services (PES) are drawn from multiple schools of thought which are at times at ontological, epistemological, and normative odds with one another. Still further, while studying PES schemes, academics engage with very different audiences, offering insights to fellow researchers and non-academics alike. While researchers' principal audience is their academic peers, the study of PES also provides a venue for applied research that is of direct interest to a broad spectrum of stakeholders and "users" (Robinson & Tansey, 2006), such as firms, government agencies, international organizations, non-governmental organizations, and grassroots groups (TEEB, 2010; Millennium Ecosystem Assessment, 2005).

Building on Robinson & Tansey's (2006) framework, PES research has taken on many forms that include:

- policy analysis, where researchers explore the effectiveness of PES policies and initiatives, is undertaken with the express intent of commenting upon the policy implications and outcomes (e.g. studying the policy and practice implications of PES in Vietnam (Pham et al., 2013));
- "mandated science" (Salter, 1988), where research is undertaken to support a regulatory or policy mandate (e.g. UNREDD+ research in support of REDD+ (Corbera & Schroeder, 2011));
- "initiated consultancy research", conducted for a contractor, with very clearly outlined deliverables (e.g. WWF, FMO and CDC's Profitability and Sustainability in Palm Oil Production studying RSPO Compliance (Levin et al., 2012));

- "advocacy research", which is explicitly undertaken so as to advance a specific policy or political agenda (The Genetic Literacy Project – to expand GMO crops being planted in Brazil (Sherman et al., 2015)); and
- Standard empirical research, where new ideas and interventions are proposed to be tested (Wunder, 2005; Pagiola et al., 2007).

Clearly, almost any PES research has the potential to go beyond academia. As with any published material, it can be used for political means, and can legitimate or challenge public policy interventions (Robinson & Tansey, 2006). The study of PES, therefore, lends itself to "engaged scholarship", which encourages researchers to initiate "a participative form of research for obtaining different perspectives of key stakeholders (e.g. researchers, users, clients, sponsors, and practitioners) in studying complex problems" (Van de Ven, 2007, p. 9). Participatory approaches provide an opportunity to tap the expertise of both researchers and practitioners, generating novel findings for the academic literature that are also applicable to real-world problems (Van de Ven, 2007). This approach moves past the extractive form of research that looks at the studied actor simply as a source of data (Robinson & Tansey, 2006; VanWynsberghe et al., 2003) to a "dialogical" approach that entails collaboration between the researcher and the researched (Robinson & Tansey, 2006; Boyer, 1996). As Van de Ven (2007, p. 7) puts it "an engaged scholar views [organisations] as a learning workplace (idea factory) where practitioners and scholars co-produce knowledge on important questions and issues by testing alternative ideas and different views on common problems."

Throughout the research process reported here, research questions have been designed based on observations of problems faced by practitioners working on developing PES systems. By engaging directly with practitioners' concerns, it is possible to identify blind spots in existing approaches to PES or, for that matter, other areas of research of social and practical importance. For example, discussions with actors engaged in the Roundtable on Sustainable Palm Oil process revealed concerns with the challenge of constructing a rigorous standard that is simultaneously accessible for smallholders (***Article #4***). Similarly, discussions with a variety of stakeholders working on PES systems in Gros Morne National Park, Canada, as part of service work I engaged in made clear to me that the thin conception of institutions, characteristic of PES, failed to encompass the complex nuances of actual institutional construction, informing the development of my analysis of PES (***Articles #1*** and ***#3***). In addition to helping reveal blind

spots, engagement with stakeholders as part of the research process builds relationships that can allow for the dissemination of results beyond academia, helping to inform real-world decision-making.

3.2 Scientific Realism

My research is based on the scientific realist approach, which is itself based on three commitments found in most realist interpretations of scientific inquiry. First, there exists a physical world independent of our minds. I recognize that the environmental world which actors inhabit would exist without the actors' presence and that these biophysical flows are not determined or moderated by mental efforts. To refine this argument further, I accept Cartwright's (1999, p. 31) claim "that nature is governed in different domains by different systems of laws not necessarily related to each other in any systematic or uniform way; by a patchwork of laws." That is to say, scientific laws are essentially models of phenomena that need not add up to a single model of the entire world to be useful.

A distinctive characteristic of this form of scientific realism is its contention that science tends to develop through the creation and refinement of models (Giere, 1999). Models, on this understanding, encompass a wide range of phenomena that are used to represent in some way the behavior of the subject of study. As Clarke and Primo (2012, p. 13) argue, "models share many of the properties of maps. Like maps, models have limited accuracy, models are partial, and, most importantly, models are purpose-relative." In other words, models, highlight some aspects of the subject of the study, while ignoring others. Models may explain a phenomenon but not be "true" in the sense of a mirror of the real world; Cartwright (1983, p. 152) would propose that "to explain a phenomenon is to find a model that fits it into the basic framework of the theory and that allows us to derive analogues for the messy and complicated phenomenological laws which are true to it." They are, on Clarke and Primo's (2012) account, neither true nor false but, rather, should be assessed based on their fitness for particular purposes.

The interesting point here is that models need not be mathematical formulae. Maps, essentially, are models of the spatial world. Verbal and conceptual models that populate organizational studies, similarly, seek to represent the phenomenon under study by highlighting certain aspects

at the expense of others. Because the model-based perspective admits that the external world is always mediated by models (Giere, 1999), it is also consistent with a constructivist social ontology. We can, in other words, believe that many social facts and institutions are constructed by human interactions and beliefs but, nevertheless, hold that there is a real material world in which these constructions are assembled (Wendt, 1999). Even if this world is itself mediated by concepts and models, as Searle (1995, p. 165) puts it, "realism allows for an infinite number of true descriptions of the same reality made relative to different conceptual schemes," or, as I discuss here, models.

Sometimes, the models we use are not fit for the purposes to which we put them, and different ones are required. This is the crux of my argument regarding the problem of the thinness of institutions in conventional models of PES. It is not that such models are false in an epistemological sense but that their parsimony gets in the way of their effectiveness in informing processes of institutional construction. As argued in ***Articles #1*** and ***#3***, more expansive institutional models, while certainly less parsimonious and explicit, may nonetheless be more fit for the purpose of informing the construction of PES.

Second, studies aimed at generating applicable knowledge must consider the complex interactions of multiple causal processes that generate outcomes in the real world. As Hoefer (2008) argues, interactions across different processes can result in very different outcomes not easily wrapped up in a mathematical law. Elster (2007), similarly, argues that empirical outcomes are generated by the confluence of multiple mechanisms, such that understanding an outcome requires a combination of careful observation of processes, as well as statistical tests of the generalizability of the process observed and modelled (Bhaskar, 1978). Sometimes, as in Cartwright's (1999, p. 50) example of a nomological machine, mechanisms can combine to form "a fixed (enough) arrangements of components, or factors, with stable (enough) capabilities that in the right sort of stable (enough) environment will, with repeated operation, give rise to the kind of regular behavior that we represent in our scientific laws." While nomological machines are often described as man-made pendulum clocks, or lasers, they could themselves be market-like machines that govern flows of finances or in the case of PES – environmental transactions. While such machines may under specific circumstances result in

law-respecting behaviors, what happens more regularly is messier and less contained, open systems, where outcomes can be less predictable (Bhaskar, 1978).

This perspective further highlights the importance of considering informal social norms and tacit practices in understanding institutions like PES, as the interactions between these phenomena and formal rules can have significant implications for outcomes. That is to say, interactions between formal and informal processes can have a critical effect on PES systems. All of the accompanying articles demonstrate the importance of integrating multiple processes simultaneously in order to develop models that can help us understand and inform PES.

Third, the complexity of open systems necessitates an eclectic methodological approach with three objectives. The first is to identify relevant causal mechanisms that might explain an outcome, which often requires close study of processes through case-based analysis. The second is to develop a model of these processes to investigate interactions and outcomes in a theoretically rigorous and transparent way. The third requires assessing the model's predictive capacity, parsimony, and scope conditions (Clarke & Primo, 2012). Finally, effective models can be used to inform broader theoretical frameworks. This approach has sometimes been called the abductive mode of inference (Fann, 1970, p. 5). As an approach to knowledge production, abduction resides in the middle between induction and deduction (Järvensivu & Törnroos, 2010). Whereas inductive inference seeks to draw generalization from specific observations as an approach to theory building, abductive inference accepts existing theory (Järvensivu & Törnroos, 2010). As elaborated upon by Blaikie, (2009, p. 89) in the real world an abductive research strategy "incorporates what the inductive and deductive research strategies ignore – the meanings and interpretations, the motives and intentions that people use in their everyday lives and which direct their behavior – and elevates them to the central place in social theory and research." A specific example can be found in ***Article #4***, discussed below, where institutional work theory was used to generate questions for RSPO EURT mini-interviews, which then informed the development of a model of the RSPO process that can be tested with further data.

Case	***Article #1***	***Article #2***	***Article #3***	***Article #4***
Theme	Institutional Work and PES	REDD+	Resolving theoretical limitations of PES	RSPO NEXT
Type	Literature Review	Empirical	Conceptual	Explorative
Aim of study	Model Creation (Production)	Model Creation (Production)	Model Creation (Production)	Model Creation (Production)
Time frame	September 2013 – August 2016	January 2012 – September 2014	April 2014 – June 2016	December 2015 – September 2016
Data set	Collected 4,125 articles and Processed 799 unduplicated articles	Data on organizational positions of 1,291 organizations engaged on 292 anti-deforestation projects	Synthesis of prominent PES literature – 7 clearly defined problems and solutions are provided	60 interviews (6h8m) + 600 international newspaper articles

Table 4. Detailed overview of the four articles submitted in which two contextual studies scaffold two case studies. Included are the aims of the study, the form of engagement, the methods used and the timeframe as well as the data set interpretation.

The above table outlines the application of the epistemological and methodological approach to my current research. In the above table we have outlined the overall themes, the aims of the study, the type of scholarship, time frame, data set and outcome. Table 4 offers a helpful overview of the generated articles that will be further discussed in Chapter 4.

3.2.1 Literature Review Methods

As a conceptual paper, ***Article #1*** involves a literature review of 47 articles on the theme of PES. Based on methodology inspired by De Bakker et al.'s (2005) bibliometric study of research and theory within the academic fields of corporate social responsibility (CSR) and corporate social performance (CSP). As a means of exploring the vast literature, the application of institutional work theory was used as a filter to isolate specific PES articles that emphasized aspects of creating, maintaining and disrupting institutions (Lawrence & Suddaby, 2006). A coding scheme based on institutional work was developed and was used to filter an initial sample of 4,125 articles and then to identify instances of institutional work in the 47 articles identified as

featuring significant discussions of examples of institutional work. This systematic approach provided a way to demonstrate gaps in the literature on PES where necessary forms of institutional work were not considered.

3.2.2 Network Methods

Article #2 can be interpreted as another example of mapping the present dynamics exercised by actors within PES networks as a way of forming models of PES emergence. There has been considerable research on the role of policy networks in REDD+, the focus of attention here (Pham et al., 2014; Rantala & DiGregorio, 2014; Babon et al., 2014; Dkamela et al., 2014; Bushley, 2014; Gebara et al., 2014; Moeliono et al., 2014; Gallemore et al., 2014; Babon et al., 2012; Cronin & Santoso, 2010; Kengoum, 2011; Khatri et al., 2012; Di Gregorio et al., 2013), highlighting the importance of informal interorganizational networks in providing opportunities for particular groups to influence the creation of policy. While policy networks are often theorized as a governance mechanism that can promote trust and information exchange, lowering transaction costs and promoting cooperation (Hindmoor, 1998), ***Article #2*** takes a different perspective, combining institutional work with a network approach to argue that institutional work is often simultaneously institutional networking – such that the creation of PES systems requires simultaneous efforts to build institutions – and collaborative networks. This article is the only quantitative network paper employing institutional work theory of which I am aware and uses a dataset including 292 avoided deforestation or forest management projects, 1,097 REDD-related policy documents and 1,291 total organizations.

Rather than simply measuring the structure of these networks, however, the article utilizes a model-based clustering approach to identify positions taken by organizations across all the networks. Once clusters of positions are identified, it is then possible to use summary statistical analysis to characterize the systematic differences in positions held by different types of organizations. This provides a way to analyze how institutional work simultaneously constructs positions in emerging networks of institutional workers.

3.2.3 Case Study Methods

Adopting a case study method was of principal importance when aspiring to unpack the highly dynamic and complex social nature of PES. Yin (2009) proposes a twofold technical definition

when interpreting the case study method. Concerned with scope, the first part of the definition states that "a case study is an empirical inquiry that a) investigates a contemporary phenomenon in depth and within its real-life context, especially when b) the boundaries between phenomenon and context are not clearly evident" (Yin, 2009, p. 18). The second part outlines the technical aspects in designing a case study inquiry. When engaging in case studies, there is a technical distinction in that there are far more variables of interest than datapoints. In processing multiple sources of evidence, triangulation is supported by prior theoretical propositions that guide the design, collection and analysis of the data (Yin, 2009, p. 18).

In the context of research on sustainability, and more specifically PES, this means collecting data where the phenomenon is actually taking place. This approach is particularly relevant for engaged scholarship as it deepens the understanding of the policy creation process, which is appealing for the private sector, public organizations and civil society alike. The rationale for choosing the case study over other methods (e.g. surveys, experiments, archival analysis) is somewhat implicit in the definition above, but to be sure, in summary, the case study is the preferred method when 1) "how" and "why" questions are being posed, 2) the investigator has little control over events, and 3) the focus is on a contemporary phenomenon within a real-life context (Yin, 2009, p. 2). As such, the case study method is well suited for the aim of understanding why and how actors allocate their resources in support of environmental standards that as a result of scaling become PES-like in their approach to sustainable supply-chain management (***Article #4***).

Using case studies as a research method has a number of variations, including both single- and multiple cases, and different levels of analysis (Yin, 2009 p. 19; Hartley, 2004, p. 332). This research collection contains an in-depth exploratory case that explores the introduction of a new international palm oil standard ***(Article #4)***. While not knowing it at the time, much of this work was guided by what Donald Schön's (1991) advocates for as *The Reflective Practitioner* approach. Understanding the core motivations for organizations to engage and advocate for certified palm oil under the Roundtable for Sustainable Palm Oil (RSPO) as well as how to further encourage participation is critical.

Article #4 benefits from 60 interviews that were carried out at the European Roundtable for Sustainable Palm Oil in Milan. Yielding 6 hours and 8 minutes of recorded interviews that were later coded line-by-line, the academic team was specifically interested in exploring the strategic relationships actors held vis-a-vis the globally upheld palm oil standard. From this content, I was interested in testing the applicability and viability of these findings in the context of a single case.

Throughout the process, the team applied a detached/outsider approach (Evered & Louis, 1981). Inquiry "from the outside" is characterized by the researcher's detachment from the organizational setting which aims to provide universal knowledge of the phenomenon under study while "inquiry from the inside" creates knowledge of the particular organization in particular settings and the researcher becomes engaged with the actions and experiences within the organization being studied (Evered & Louis, 1981). ***Article #4*** is concerned with analysis at the meso level and applies qualitative methods.

3.2.4. Conceptual analysis

The submitted articles benefit from a mix of qualitative and quantitative evidence (Yin, 2009, p. 20), and serve to complement ***Article #3*** that at the end provides a theoretical retooling of PES. While the interpretative researcher typically relies on qualitative data, through the description of codes, the formation of taxonomies, or the building of interpretative schemes as illustrated in ***Article #4***, I also tested the nature of the typical approaches by engaging in quantitative data collection as illustrated **in *Article #2***. This technique follows naturally from the scientific realist epistemological commitments discussed above.

Article #3, explores that along with considerable enthusiasm, PES has faced a wide range of substantial critiques. In this paper, we characterize seven major classes of concerns associated with common PES designs, and use these as inspiration to propose promising opportunities for significant improvements in PES outcomes and uptake. Applying a conceptual research method at a later stage in the research process which is based on description and explanation allows for a more balanced approach when exploring both theory-building and theory-generalizing research (Meredith, 1993). Following Hirschheim's (2008, p. 433), description, "Conceptual papers emphasize assumptions, premises, axioms, assertions, etc.", the work summarizes the recurring

tensions found within the PES discourse, looking at dominant principles, concepts and facts related to PES. Drawing from the experience of the other three articles in the submission, it proposes conceptual innovations for PES that might help alleviate some of the challenges that these systems have encountered.

Visual Abstract

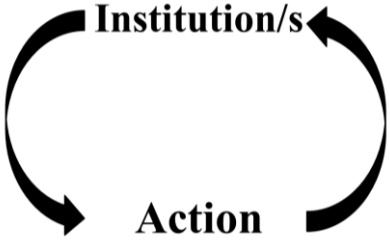
Advancing the Payments for Ecosystem Service Discourse Through Institutional Theory

Research Problem: Design for Payments for Ecosystem Services (PES) programs have very "thin" models of institutions, largely derived from transaction cost economics, which leads would-be institutional workers to adopt a "field of dreams" approach to institution building: "if you build it, they will come."

Research Question: *How are institutions in support of PES created?*

Theoretical Approach – Institutional Work

"Institutions are created through considerable, but mundane, effort expended in ongoing negotiations, experimentation, competition and learning, which resolve over time into shared conceptions of problems and solutions in organizational fields" (Zietsma & McKnight, 2009: 145).



Methodological Assumptions – Scientific Realism

1) The physical world exists independently of our minds;
2) Nature is governed in different domains by different processes

Article	Research Question
A1) The Mundane Work of Building Payments for Ecosystem Services	How has institutional emergence figured in the PES literature to date, and with what effects?
A2) Institutional Working as Institutional Networking: Building Transnational Anti-Deforestation Efforts	What kinds of institutional work are undertaken during the emergence of PES, and by whom?
A3) Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability	What opportunities and deficiencies of PES as a mechanism are visible from existing experiments?
A4) The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?

4. Key Findings in the Articles & Proposals

Addressing the theoretical limitations of PES is important in light of the mechanism's fruitfulness for theoretical development and significance as a policy intervention. My ongoing research provides both theoretical and empirical insights concerning PES initiatives from the perspective of institutional theory. The research has explored the overarching dynamics and general trends that are present within the institutional far-reaching construct of PES, with special regard to the overarching discourse and the types of institutional work adopted within this environmental intervention. The most innovative contribution of this research is the empirical knowledge gained through the application of institutional work theory and its application to both theory and the organizations that inhabit the PES discourse. As a whole, the articles showcase how a theoretical shift in perspective may highlight and support the further development of PES initiatives globally and through application how innovative solutions may be proposed in support of this initiative.

4.1 Article #1: The Mundane Work of Building Payments for Ecosystem Services

This critical review examines the payments for ecosystem services (PES) literature in the period beginning from the early rise in 1990 until 2015, focusing on how the core themes of institutional work are applied. The purpose of the study was to understand how extant understandings of institutions constrain empirical research on PES schemes, leading to a lack of consideration of the everyday efforts required to build and maintain PES institutions. The key findings from the article are summarized below:

- From an initial population of 799 non-duplicated articles on PES, only 47 studies (6%) explicitly discussed examples of institutional work, focusing on creating, rather than maintaining or disrupting, institutions.
- Institutional work, as a theory, could support a shift in perception from approaching PES as a single prototype to be implemented everywhere to a more adaptable model, aspects of which could be altered significantly in localizing it and applying it to particular objectives.

This article contributes to the existing literature on PES by providing a broader perspective on institutions through the institutional work approach. Institutional work theory provides a

framework to identify and classify types of work required to successfully create and maintain PES systems. As the literature review demonstrates, the institutional work required to create and maintain PES systems has generally been observed in passing, with anecdotes scattered across the literature without being united under a general model. This study constitutes the initial research that directly addresses the tensions within the academic field and proposes a conceptualization of PES as set of tools to be applied in different ways in various contexts, rather than a singular model.

4.2 Article #2: Institutional Working as Institutional Networking: Building Transnational Anti-Deforestation Efforts

This article argues that, in addition to deliberate acts of network creation characterized by the literature as constructing normative networks, collaborative engagement in institutional work necessarily also generates structured networks of relationships. In other words, institutional working is always also institutional networking. Using data on the complex multiplex network of Reducing Emissions from Deforestation and Forest Degradation (REDD+) – a form of large-scale PES initiative – the article identifies specialization on the part of actors in particular types of institutional work, which results in a network dominated by well-resourced actors. The principal findings that denote the article are the following:

- Organizations engaged in different forms of institutional work inhabit specific specialized positions in the transnational REDD+ network as a result of specialization in particular types of institutional work.
- A small subgroup of organizations who are well resourced in comparison to other actors, are better able to overcome the transaction costs involved in making connections and generate entrenched network structures.

Historically, network research in organizational studies has tended to study a single type of relationship, whereas this article employs data on multiple relationships. In addition, the paper innovates in the literature on institutional work by applying explicit network analysis to model the structure of networks engaged in institutional work, which in the case study literature tend to be discussed amorphously, with network often used simply to mean a horizontal grouping. As opposed to focusing on the singular roles adopted by actors, as denoted by a single position in a network specified by a single type of relationship, the article proposes that the types of positions

held by actors as a result of intentionally selecting specific forms of institutional work result in unintended outcomes that structure the network and form relationships on specific issues. This results in the development of a transnational network characterized by specialization of actors and centralization of relationships on a few well-resourced players. That is, many organizations engage in a relatively limited suite of activities that are a direct result of tradeoffs between interests, resources, and costs.

4.3 Article #3 - Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability

The article provides an in-depth discussion of PES's limitations, reviewing seven major classes of concerns found in the PES literature, providing a novel classification of diverse and disparate objections mounted against the idea. In response to these concerns, the article develops a new model for PES that more effectively addresses the challenges posed by transnational consumption and supply chains. The key findings are summarized below:

- Objections to PES broadly include concerns about rights, equity, and participation; the difficulty of implementation; and the creation of perverse incentives or crowding out of intrinsic motivations.
- The current shortcomings of PES can be overcome by broadening the initiative to include supply chains and resolving existing compensation bottlenecks, redistributing positive incentives across supply chains, increasing buy-in and avoiding problems of additionality.

By providing a reimagining of PES, the article offers a vision of shared stewardship for collective impacts that has resulted in a movement called CoSphere (a Community of Small-Planet Heroes, Ecologically Regenerating Economies). Building upon the proposed solutions for PES, this proposed new movement aspires to initiate large-scale market transformation through the provision of missing infrastructure that will have net-positive impacts on our planet's biodiversity and ecosystem services. In essence the paper represents an application of institutional work theory, whose thick conception of institutions guides the way PES is considered as an institution. What is more, the paper, itself, is institutional work. That is, the paper itself engages in theorizing and defining PES, itself taking part in the process of institutional construction by offering a novel and flexible model for PES that could be adapted to a range of different applications. The PES system proposed in the article might enable not

only ES providers, but also firms and consumers, to express moral values that are central to interpersonal ethics but have yet to be fully harnessed to address environmentally mediated impacts. At the same time, the system proposed would effectively encourage continuous institutional creation and participation on the part of stakeholders, helping to provide legitimacy.

4.4 Article #4 - The "Teenage" Years: Organizational Interests and the Evolution of Private Standards

The article looks at the evolution of the Roundtable for Sustainable Palm Oil (RSPO) as it enters a tumultuous time in its development. While a very large library has been written looking at the rise and impact of private standards, or civil regulations, very little has studied the diverse internal and external organizational interests that collectively produce the ambition and scope of individuals' civil regulations. The article builds on the institutional work perspective by considering the diversity of interests involved in institutional creation, linking micro-level concerns of institutional workers engaged on a range of issues with macro-level outcomes in the field of sustainable palm oil. Developed from research conducted at the European Roundtable for Sustainable Palm Oil in Milan (June 2016), the article's key findings were the following:

- Incumbent firms may be motivated to support strong environmental civil regulations if these produce new markets or control market entry.
- As powerful actors within multi-stakeholder initiatives are often motivated by reputational considerations, there is a risk that civil regulations increase costs of monitoring and transparency to protect reputation at the cost of locking small producers out of the market.

The paper maps the tension between rigor and inclusion that characterizes debates within RSPO and similar PES-like transnational standards. By isolating these tensions, the article proposes a simple verbal model that translates the specific interests held by organizations into outcomes at the level of the standard that either promote rigor or inclusion. A series of policy suggestions result from the model, with the clear understanding that further research must be directed to testing its predictive capacity and generalizability. In essence, the model developed in the paper can be used to address questions about the conditions under which different actors will engage in the institutional work of increasing rigor or expanding the scope of an emerging institution, and with what effects.

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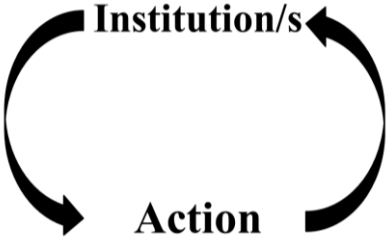

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A4) The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?

Finding
A1) PES literature ignores some institutional work of creation and all institutional work of maintenance and disruption
A2) Specialization in types of institutional work on the part of actors leads to centralized normative networks engaged in institutional work
A3) The current shortcomings of PES can be overcome by broadening the initiative to include supply chains and resolving existing compensation bottlenecks
A4) While reputational concerns can motivate support for standards, the resulting standards may be a poor balance between the costs of reputation protection and environmental improvement

5 Discussion

Synthesizing across all the submitted articles, my research suggests an initial answer to the key question, "How are institutions in support of PES created?" As argued throughout this discussion, the thin conception of institutions found in most work on PES is insufficient to address – or, in fact, to pose – this question. Rather, PES institutions are created as the result of a concatenation of a series of different types of power wielded by and flowing through a diverse range of actors. The success of these institutions requires not only that the formal rules that form the coercive apparatus of PES systems are in place but also that they are consistent with – and ideally supported by – the less formal institutions and modes of power that underpin social life. Different types of institutions – social norms, religious practices, cultural mores, and so on – can be created and mobilized by different types of power in ways that can support or undermine the formal institutions that form the tip of the PES iceberg. In the two sections below, I expand on this basic response to the core research question; outlining the implications of this answer can inform studies of PES, as well as practices in the field itself.

Much of the previous work on PES has adopted a thin conception of institutions as formal – or at least explicit – rules, derived in large part from the influence of transaction cost economics. In the framework outlined by Fleming and Spicer (2014), there are four major faces, or dimensions, of power (see also Lukes, 2005; Hayward, 2000). The first, coercion, is the ability of an actor to directly affect the behavior of another. The second, manipulation, refers to an actor's ability to pull institutional levers to determine what issues are raised to institutional agendas and addressed by organizations. The third, domination, refers to the diffusion of ideologies that benefit certain actors, usually elites, more than others, but are nonetheless widely held. The final, subjectification, refers to the constitution of actors' identities in ways that make them governable by particular institutions and techniques of power.

Mainstream research on PES has tended to focus on power understood as coercion or manipulation – that is, as the power of one actor to alter the behavior of others directly or to influence which issues are raised to the agenda (Lukes, 2005). The problem with this approach is, in essence, that it takes a relatively small part of the social systems that make up PES – a market transaction – as a stand-in for the whole suite of practices and meanings that actually

underpin economic systems. In terms of power dynamics, that means the approach overlooks what Fleming and Spicer (2014) refer to as domination and subjectification – the power of an actor to either promulgate norms or perspectives or to reinforce a system in which others who believe they are pursuing their own interests are in fact complicit in their own self-regulation. By taking an institutions-as-rules approach, the literature on PES has been led to examine only the tip of the power iceberg, missing social processes of domination and subjectification that are also part of making institutions work (Agrawal, 2005; Gebara & Agrawal, 2017). If institutions are simply the "rules of the game" (North, 1990), PES advocates need only construct formal institutions with the expectation that they will, in turn, directly alter behaviors (Williamson, 1975; North, 1990; Lawrence et al., 2009). All the complex labor involved in constructing – let alone maintaining – the market transactions that are the most visible aspect of PES often go unremarked and, as a result, unexamined, a problem noted in ***Article #1***.

5.1 Implications for Studies of PES

Taking an institutional work perspective highlights precisely these often unremarked components of institutions, directing my attention to the rest of the iceberg. The primary theoretical contribution of the articles discussed here, then, is to demonstrate that institutional creation involves all four dimensions of power, while much of the literature on PES has focused only on coercion and, occasionally, manipulation, corresponding to thin, formal institutions. For clarity, I separately discuss coercion, manipulation, and subjectification, the three most important dimensions of power in my work on PES below.

5.1.1 Coercion in the PES Literature

Fleming and Spicer (2014, p. 242) define coercion as a means of directly "getting another person to do something that he or she would not otherwise have done." This form of power, which Gebara and Agrawal (2017) gloss as the "carrot-and-stick" approach, has been the central focus of much of the PES literature and a core feature of its approach to institutional design (***Article #3***). This is consistent with a thin approach to institutions, where the formal rules need only be in place to change calculations of interests and resulting behavior. ***Articles #1*** and ***#3***

illustrate the pitfalls of limiting policy discussion to formal design principles that reinforce transactional behavior that in many circumstances diminishes the efficacy of the overall environmental intervention. Historically, much effort has been placed on getting PES design right, in an almost Sisyphian challenge to work against the weight of the overall complexity of the end ambition. Given that failed outcomes have been common, it is reasonable to ask why PES design often continues to be implemented in an almost formulaic fashion.

Admittedly, as illustrated in ***Articles #1, #3,*** and ***#4***, if the rest of the iceberg is so important to success, as Fleming and Spicer (2014, p. 31) point out, it seems puzzling "why organizations tend to cling to positions of formal authority – often with great fervor – given its secondary status in getting things done." A possible answer is that it is simply cognitively less demanding to focus efforts on explicit and formal institutions that can be readily identified and broken into discrete rules. Of course, what is expedient for boundedly rational actors with limited resources may not be the most effective, nor is it always the best strategy for researchers.

That is not to say that coercion is not an important part of the story of PES. PES is explicitly designed to create a system in which actors are incentivized either by the government or one another to engage in more sustainable behaviors. The problem, however, is that coercion does not exist on its own. First, institutions are not neutral and cannot fulfill every stakeholder's desires, so they are always open to filtering. Second, as Agrawal (2005) points out, formal institutions presuppose certain types of subjects who are to be governed by those institutions, so the process of subjectification is as much a part of institutional creation and maintenance as rule making. If the intended subjects of the institution are not pliable in the way envisioned, the institution will often be ineffective or even lead to perverse outcomes (***Article #3***). The power to affect what issues are and are not included in the ambit of an institution, as well as the power to shape subjects' norms and perceptions of their own interests are also central to the future development of PES systems. These more subterranean forms of power, which, only visible under a thick institutional lens, are a primary focus of my work.

5.1.2 Manipulation in PES

Manipulation occurs when "actors seek to either limit the issues that are discussed or fit issues within (what are perceived to be) acceptable boundaries" (Fleming & Spicer, 2014, p. 242).

Article #4 provides a concrete example. The RSPO, while certainly among the most successful of existing sustainability certification programs, is severely limited by an internal tension between its scope in terms of membership and its rigor in terms of results. Reliant on brand reputation concerns to drive participation, the RSPO's membership has expended considerable effort strengthening the verifiability and traceability of certified supply chains. In the process, it has generated a set of more or less separated supply chains, whose costs are much more reflective of the transaction costs involved in monitoring the flow of oil than the costs of more sustainable and equitable production. This system results directly from the changing power relations between different groups in the initiative and particularly reflects the growing dominance of downstream economic actors, who have come to primarily set the agenda at RSPO, leading to increases in rigor that threaten to lock out small producers.

The case of RSPO is not unique. As Fleming and Spicer (2014) note, institutional entrepreneurs may often find themselves at odds with the very institutions they promote as these institutions become more formal and, as a result, begin excluding issues. On the one hand, such a filtering function may be necessary if emerging institutions are to avoid collapsing under their own weight (Gallemore, 2016). On the other, because formalization is also simultaneously a process of selection, only some interests will be served by the institutional agendas that are formed. In other words, all PES systems are not created equally but will reflect the constellation of interests that motivate actors to undertake the institutional work of creation and maintenance. ***Article #2***, for example, demonstrates that inequalities in resource distribution and specialization in institutional work leads to inequalities in organizations' positional ability to influence policy development on PES systems like REDD+. This type of power, however, does not result from formal institutional arrangements but is, rather, presupposed by them because it is power that precedes and helps to set the agenda that shapes institutional creation itself. Inasmuch as PES systems are produced by different constellations of interests that attempt to manipulate the agenda, researchers must never regard the resulting systems as neutral and should pay close attention to the social process of institutional creation as a possible source for the inequitable outcomes that often plague these schemes. Too often, institutions have been assumed to be isomorphic and to have similar effects in different social contexts, but this is often not the case (Gebara & Agrawal, 2017).

5.1.3 Subjectification in PES

Fleming and Spicer (2014, p. 6) explain that subjectification "seeks to determine an actor's very sense of self, including their emotions and identity." As mentioned above, formal coercive institutions are generally counterproductive or ineffective if they are inconsistent with the identities and interests of the subjects they are intended to govern.

Subjectification is a subtle mode of power, and Fleming and Spicer (2014) helpfully characterize it as a power between actors who are continuously shaping one another's behavior. This can be seen, for example, in ***Article #2***'s study of the diverse types of institutional work involved in developing and disseminating PES systems. ***Article #2*** demonstrates that if we think of the institutional work of building PES as always being undertaken collectively, we can see that what are often understood as individual acts of institutional work are also simultaneously acts of network construction and, effectively, construction of the self as a particular kind of actor with a particular kind of expertise. Or, as Wheatley (2011, p. 69) puts it, "Nothing exists independent of its relationships." Subjectification takes place as a result of social interaction and while, on the one hand, it is the ultimate form of control, in which an actor's very self is constructed by power, as Foucault (Foucault, 1982) argues, these power relations cannot fully determine behavior, and there is always an opportunity for resistance, in part because no one actor can totally control the forces giving shape to others identities. Gebara and Agrawal (2017), for example, note that in Brazil local land users in the Amazon have learned how to clear forestland without being detected by satellite monitoring, refusing to respond to a carrot-and-stick approach to anti-deforestation, their knowledge and subjectivities prompting resisting coercion.

As advocated throughout the presented articles, the theoretical merits of adopting a thicker notion of PES is that it offers a space for reflection vis-a-vis the power of subjectification that can constrain or enable institutions. As argued by Schön, "a reflective institution must make a place for attention to conflicting values and purposes" (Schön 1991, p. 338). Through this broader discourse a stakeholder must not only interpret their position within this complex network, but so too acknowledge the constellation of other actors within this network and the power they inversely exert upon the observer.

5.2 Implications for Practitioners

Taking a thick conception of institutions as a lens for thinking about PES highlights the importance of more subterranean modes of power in PES's institutional creation and functioning. While this might seem esoteric, there are in fact some important lessons for policy and practice that emerge from this perspective. Most importantly, taking a thick view of institutions that embraces the myriad faces of power suggests that getting PES right is not just about getting the set of formal rules that constitute PES's coercive apparatus right. Getting PES right also requires orchestrating (Lister et al., 2015) the informal networks that support the creation and maintenance of particular PES systems, considering how inequalities in resources can facilitate manipulation and domination (Carpenter, 2011). What is more, the analysis suggest that practitioners should be careful not only to carefully craft PES models in light of the identities and interests of the subjects of those institutions but also, ideally, to create institutions that themselves facilitate reflection and mutual self-construction (Agrawal, 2005), along the lines of the reflective institutions outlined by Schön (1991).

Linking institutional work with PES is particularly helpful given the characteristics of our contemporary environmental challenges. As Crutzen & Stoermer (2000, p. 17) argue, we should "emphasize the central role of mankind in geology and ecology" as we enter the Anthropocene. Debates about its definition notwithstanding (Lewis & Maslin, 2015; Steffen et al., 2011; Waters et al., 2016), the significance of the Anthropocene is that, as Crutzen and Schwägerl (2011) put it, "It's no longer us against 'Nature.' Instead, it's we who decide what nature is and what it will be." The problem with this call to think of the human and nonhuman worlds as a common, mutually embedded, co-produced entity (Latour, 2004) is that it can simply be overwhelming. Hoffman (2016, p. 130), for example, argues that "[t]he Anthropocene is not a problem for which there can be a solution. Rather, it names an emergent set of geo-social conditions that already fundamentally structure the horizon of human existence." While such a characterization is compelling, it is also built to incite vertigo. What is needed is a mechanism by which these large-scale processes can be better linked to the rest of the institutional iceberg.

While the academic literature on PES may have been relatively silent on the institutional work required to create and maintain such systems, this labor is certainly known to practitioners themselves. Here, the implications of ***Article #1*** are that policymakers should not be lulled into a

false sense of confidence or despair by the extant literature. On the one hand, they should not adopt a *Field of Dreams* perspective that "if you build it, they will come" and expect the institution of formal PES rules to be sufficient to create a functioning system. On the other, they should not necessarily despair that PES approaches are ineffective but, rather, should consider the deeper aspects of institutions that need to be drawn upon to make such systems work (***Article #3***).

Recognizing that long-range teleconnections between consumer demand and land use have an outsize impact on global land cover (Meyfroidt, et al., 2010), international organizations, governments, NGOs, and private firms have each actively worked to develop innovative interventions to improve sustainability across supply chains (Newton et al., 2013; Lemos & Agrawal, 2006), in effect attempting to re-embed the environmental externalities they generate. Typically, the academic literature on supply chains differentiates between PES-like systems and certification initiatives (e.g. Forest Stewardship Council certification). As argued above, however, the underlying logic of the two approaches are in fact fundamentally the same. ***Article #3*** builds on this observation to make the case that PES systems could be an effective institutional way to push supply chains toward sustainability.

As ***Article #3*** argues, however, the economistic model of institutions that has tended to prevail in the PES literature is too thin to serve as an adequate design for would-be institutional entrepreneurs and workers. Rather, a thicker, humanistic approach to institutions that recognizes their role in constructing meaning and identity might be more effective at tapping intrinsic motivations. That means practitioners might need to develop new skillsets, grounded as much in behavioral economics (Sunstein, 2014) as transaction cost economics. These might include knowledge of traditional practices and norms, development of expertise in stakeholder engagement, and a clear understanding of how meanings and habits can affect behaviors.

Such a move would help avoid a significant problem with standard certification approaches: voluntary certification initiatives are intended to mobilize consumers to pay a premium for improved sustainability, effectively another attempt to internalize externalities. This approach, however, risks creating two distinct supply-chains – one a niche, sustainable chain, and another a mass-market, unsustainable one (***Article #4***). Dual systems like these not only fail to reach the

entire market, as certification systems may not become sufficiently widespread for their "network power" (Grewal, 2008) to make them a default standard, they also cannot benefit from economies of scale (***Article #3***). This problem is illustrated by the fact that, while the number of certified standards is increasing, the overall number of certified products remains in comparison a small fraction of global production. The Forest Stewardship Council (2016) for example, certifies only 8% of total wood production, while the Roundtable on Sustainable Palm Oil (2016) certifies only 17% of global palm oil production.

Practitioners should remember the connections between ecosystems and livelihoods (Meadows, 1998; Millennium Ecosystem Assessment, 2005; Cobb and Rixford, 1998; Sojka, 2014; Persha et al., 2011; Angelsen et al., 2014; Reed et al., 2015; ***Article #1*** and ***#4***) extend beyond monetary considerations to include non-economic (Favretto et al., 2016; Madzwamuse et al. 2007; ***Article #4***) and relational values (Chan et al., 2016; ***Article #4***). For example, the role of religion and belief (Gómez-Baggethun et al., 2012; Gómez-Baggethun et al., 2010; Muradian, 2013; ***Article #1*** and ***#4***), which has a long history in the forest governance and advocacy literature (Berkes et al., 2000; Berkes et al., 1995), is now being integrated into PES debates (Muradian & Cardenas, 2015; ***Articles #1***, ***#2***, ***#3***, ***#4***). Such approaches have not only embraced the idea that both ecosystemic values and justice are contextual but also document clashes between local interests and aspirations of project designers and proponents linked to the environmental initiatives (Srang-Iam, 2012).

Article #3 takes a different direction from the arguments developed in ***Article #1***, informed by the observations in ***Articles #2*** and ***#3***. As noted above, the thin conception of institutions glosses over their important roles as emotional signals and sources of meaning and legitimacy. ***Article #3*** suggests a way to harness those roles of institutions as a corrective for the limitations of existing PES models. By taking a more holistic model of institutions, this paper suggests, it is possible to think of a different approach to PES that would better incorporate supply chains and function more effectively in a teleconnected world. In particular, this approach understands that institutions can provide meaning and tap intrinsic motivations for sustainable behaviors. Rather than reducing agents to self-interested, boundedly rational actors, the PES mechanisms suggested here would tap other-regarding motivations held by targeted actors. In essence, ***Article #3*** presents a model for what PES could look like if it engaged the rest of the

institutional iceberg. This new model can provide a jumping off point for future discussions of PES.

Recognizing both these challenges and opportunities, practitioners no doubt already recognize that the formation of PES programs is, simply put, hard. Juggling biophysical performance and human interests and wellbeing is not the sort of straightforward activity that can be accomplished quickly or without great attention to detail. While there is unmistakably a sense of urgency for fixing global environmental problems, the mundane, intentional act of building institutions through institutions' work takes time. That is to say, while this research points to several issues of interest to practitioners, it equally highlights that practitioners likely already know much that should be of interest to academics.

Visual Abstract

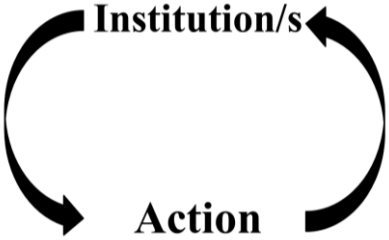
Advancing the Payments for Ecosystem Service Discourse Through Institutional Theory

Research Problem: Design for Payments for Ecosystem Services (PES) programs have very "thin" models of institutions, largely derived from transaction cost economics, which leads would-be institutional workers to adopt a "field of dreams" approach to institution building: "if you build it, they will come."

Research Question: *How are institutions in support of PES created?*

Theoretical Approach – Institutional Work

"Institutions are created through considerable, but mundane, effort expended in ongoing negotiations, experimentation, competition and learning, which resolve over time into shared conceptions of problems and solutions in organizational fields" (Zietsma & McKnight, 2009: 145).



Methodological Assumptions – Scientific Realism

1) The physical world exists independently of our minds;
2) Nature is governed in different domains by different processes

Article	Research Question
A1) The Mundane Work of Building Payments for Ecosystem Services	How has institutional emergence figured in the PES literature to date, and with what effects?
A2) Institutional Working as Institutional Networking: Building Transnational Anti-Deforestation Efforts	What kinds of institutional work are undertaken during the emergence of PES, and by whom?
A3) Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability	What opportunities and deficiencies of PES as a mechanism are visible from existing experiments?
A4) The "Teenage" Years: Organizational Interests and the Evolution of Private Standards	How do concerns about reputational risk drive the emergence of private sustainability standards?

Finding	Implications for Academics	Implications for Practitioners
A1) PES literature ignores some institutional work of creation and all institutional work of maintenance and disruption	PES studies must consider expanding concepts of institutional creation, maintenance work (or the lack thereof) to further deepen the institution	Developing procedures for ongoing management and maintenance of PES systems is critical for success
A2) Specialization in types of institutional work on the part of actors leads to centralized normative networks engaged in institutional work	Institutional work is a relational, not individualized, process	The construction of normative networks must always consider how resource imbalances disempower some actors
A3) The current shortcomings of PES can be overcome by broadening the initiative to include supply chains and resolving existing compensation bottlenecks	PES projects should rely on a broader understanding of institutions/methods for compensating and integrating into innovative economic structures	Sustainability certification systems can benefit from incorporating elements of tradeable permits to better link production and consumption
A4) While reputational concerns can motivate support for standards, the resulting standards may be a poor balance between the costs of reputation protection and environmental improvement	Brand image and reputational risk can motivate firm engagement in standards but do not guarantee sustained improvement	To avoid being trapped in a niche market, standards must become sufficiently widely adopted to become nearly reputationally obligatory

6. Conclusion

6.1 Main Contributions

The driving question behind my research has been and continues to be "how are institutions supporting PES created?" The question is important for both academic and policymaking audiences. On the academic side, PES provides an interesting family of institutional creation cases that can be used to develop and test theory. On the policy side, institutional theory directs attention to the hard work of institutional creation, which often goes unremarked in mainstream studies of PES, resulting in sub-par, even deleterious, outcomes. Critical studies of PES correctly point out that these initiatives, complex, varied, context-dependent, highly contested, and often stymied by complex natural systems and human actions that resist straightforward quantification (Mansfield, 2004; Prudham & Geoforum, 2004; Bakker, 2005; Robbins & Luginbuhl, 2005). Approaching PES from the perspective of institutional theory provides a way to acknowledge these critiques, while still taking a reformist approach.

On this view, PES initiatives encounter problems not necessarily due to an inherent fallacy of market-based policy, but, rather, due to ineffective institutional creation and maintenance, which leads to an inadequate understanding of the complex power relations within which these efforts are embedded. To summarize, my research identifies two overarching barriers to effective institutional creation and maintenance. First, there is a general lack of discussion about institutional work, and particularly institutional maintenance, in the first place (***Article #1***). Part of the problem comes from policy designers' tendency to think of institutions primarily as a means of limiting transaction cost barriers to environmental management. An example of this was illustrated in the case of the RSPO, where there is a risk that the reputational concerns driving many leading actors might take over the institution, resulting in many of the costs going to supply-chain monitoring, rather than on-the-ground sustainability improvements, locking out potential beneficiaries (***Article #4***). The risk is that the institution becomes more about achieving economies of scale in supply-chain management than sustainability impacts. This problem arises because there is tendency to consider only the coercive characteristics of institutions, without thinking about their role in spreading ideas and constituting subjectivities. Second, unequal resource distribution privileges the priorities of well-resourced organizations that may not have

sufficient on-the-ground knowledge to reconcile abstract institutional designs with extant local institutions (Gallemore & Jespersen, 2016; ***Articles #2*** and ***#4***). The evolution of the transnational REDD+ network, for example, privileges conventional development and conservation interests of organizations based in the global North, which may undermine the effectiveness of the institutional models developed and propagated by the network (***Article #2***). In this case, the more subterranean forms of power, manipulation through agenda setting, domination through the propagation of particular ideas and subjectification through socialization potentially mitigate against understandings of PES institutions that would go beyond the thin conceptions the focus on institutions as rules that coerce desired behaviors.

These barriers, however, do not necessitate abandoning PES. Living in the Anthropocene, we face two key challenges, to which PES could be a critical response. On the one hand, living in the Anthropocene requires that we become aware of the network of connections in which we are engaged and to take on a sense of responsibility for effects of our activities, for which stakeholders increasingly call organizations to account. Yet the very idea that we are in the Anthropocene means that most landscapes are always already institutionalized and institutional changes will therefore need to be negotiated, in the face of incentives for powerful organizations to attempt to dictate them. ***Article #3*** provides an initial response to these problems, advocating a reframing of PES based around supply chains. In making this argument, the article effectively is itself an act of institutional work, performing tasks of defining and modelling essential to institutional creation. The development of PES systems based along supply chains could address many of the problems outlined in all the included articles. Particularly, it involves a shift from a thin, transaction-cost economics model of institutions, designed to direct the activities of land managers, often in countries in the Global South, to a thick understanding of the complex and disparate motivations involved in sustainability, tilting the scale away from monitoring and control aimed at coercion and toward collective production of and participation in institutions managing the Anthropocene.

6.2 Limitations of the Study

Invariably, limitations can surely be found within any major research endeavor. Critically, limitations occur in part because of trade-offs that must be resolved throughout the research process. This has led to the decision that a more broadly-macro approach was needed in order to

understand generally the rise of PES and gleam in part the institutional complexity present within the overall system. Certain researchers may question why a more in-depth research focus was administered, where one specific case was selected and that the data was triangulated. Such efforts, however, have been in long standing norm where the PES discourse has been nearly dominated by the continuous production of empirical case studies that have limited the theorizing about PES past transaction cost economics. By experimenting theoretically with the application of institutional work theory, one was able to explore under studied or explored areas that the theoretical application assisted in finding.

A recent trend has explored how institutional pluralism emerges and plays out at the field level (Purdy & Gray, 2009; Greenwood & Suddaby, 2006; ***Article #3***). Some studies, for example, explore how different institutional logics account for varying practices by certain actors within the same industry or field (Hung & Whittington, 1997; Lounsbury, 2007; Balogun et al., 2011). Proponents of this theoretical approach, that the proposed work could join the ranks of a number of studies that explored how competing logics (Cooper et al., 1996; Zilber, 2006) are harnessed through a synthesis process, where political action is used to motivate change and possibly resolution (Greenwood & Hinings, 1996; Hargrave & Van de Ven, 2006; Van de Ven & Hargraves 2004; Seo & Creed, 2002). Yet overt focus on institutional logics, and the psychological preponderances of why specific stakeholders take on specific roles was beyond the nature of this study. Instead, by applying Institutional Work Theory to the emergence of PES, one is able to glimpse, in a more nuanced fashion, at how PES is emerging and how one may theorize differently about this institution. Such an approach is supported by the fact that little attention has been given to the ongoing co-existence of conflicting logics which characterizes plural systems (Denis et al, 2007; Jarzabkowski & Fenton, 2006; Kraatz and Block, 2008). As in the case of an evolving MSI, such as RSPO, the probability of isomorphic forces simplifying disparate positions will in the near future be highly unlikely. Instead, the mundane efforts by specific actors to engage in specific forms on institution building, maintaining and disrupting (Lawrence et al., 2009) as a whole are likely to be the most important aspects of institutional creation.

6.3 Future Research Directions

The articles presented here are part of an ongoing research trajectory, which means that much of the work required to adequately answer the fundamental questions noted above is also ongoing. ***Article #3*** points clearly to the next phase of my research, which will require developing and assessing new theoretical and normative models of PES that embrace the entire institutional iceberg and understand that ecosystem service provision is inextricably bound up with global value chains. In order to fully develop this agenda, there are three areas, in particular, where further study could be beneficial.

First, the present work has not yet modelled the causal mechanisms (Elster, 2007) that limit the performance and uptake of PES projects. These mechanisms that connect individual choices to engage in institutional work to emergent institutional structures and outcomes should be further tested and refined in future research. The verbal model presented in ***Article #4*** is a good example of the kind of work required. Developing and testing this and similar models is a critical task for developing a more complete understanding of how effective PES systems might emerge. At present, my team of master's students and I are undertaking a multidimensional study of the RSPO bringing together qualitative data from interviews and document analysis alongside quantitative data on interorganizational networks, support for RSPO resolutions, membership numbers, and certification prices to test predictions derived from the verbal model presented in ***Article #4*** and are further developing this theoretical model of supply chain governance.

Second, following from the considerations of ***Articles #3*** and ***#4***, transnational certification systems are the next frontier for PES. Promoting sustainability transitions using these mechanisms has a variety of advantages: they are potentially global in scope, can produce effects quickly, and, because they can be motivated by large downstream supply chain actors like retailers and manufacturers, they require the commitment of relatively small numbers of organizations (Dauvergne & Lister, 2013). As noted above, however, many of these initiatives have failed to expand beyond niche markets. While ***Article #4*** begins the process of analyzing how these approaches might be scaled up through concerted institutional work, there is considerable room for comparative studies of the limitations of rigor and uptake for supply-chain PES systems. These questions are a central focus of a recent FFU application I submitted

seeking funding to study agricultural and institutional innovation in the palm oil sector in Ghana, an emerging producer where interest in sustainable certification is high despite that the industry is dominated by small producers. Understanding the formal and informal institutions that constrain and enable sustainable production in Ghana provides an opportunity for testing and developing the normative model of PES outlined in ***Article #3***.

Finally, important questions remain about whether these systems actually have positive impacts on the ground. Working with a team of academics and civil society organizations, I am designing a natural experiment study to assess the livelihood and biodiversity impacts of RSPO certification around a sample of mills in Indonesia and Malaysia. This study will use careful case selection and controls to assess what impacts, if any, RSPO certification has on farmer livelihoods and local biodiversity, providing a rigorous test of the purported benefits of certification. Stakeholders in the project recently submitted their work package designs, and, partnering with the Worldwide Fund for Nature, the team will be seeking funding for the project from major donors like the Moore Foundation over the upcoming months.

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Part B: Papers

Chapter 7

The Mundane Work of Building Payments for Ecosystem Services

The Mundane Work of Building Payments for Ecosystem Services

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Abstract

Payments for Ecosystem Services (PES) is a policy tool that uses monetary or in-kind compensation to internalize environmental externalities. While there is a large literature that outlines ideal models for PES initiatives, PES schemes can be difficult to implement and sustain. While this problem is known, the literature on PES tends to gloss over the demanding everyday work involved in building and maintaining the institutions upon which successful PES models depend. Drawing on the theory of institutional work developed primarily in the organization studies literature, I conducted an extensive survey of the literature on PES to find examples of everyday work undertaken to build and maintain PES institutions, or else to disrupt institutions that stand in the way. I collected 4,125 documents containing 799 unduplicated publications produced between 1990 and March 2016. I found that while the PES literature rarely mentions everyday institutional work, there are nevertheless several examples that illustrate the potential of expanding studies of PES schemes to consider the effort required to build and maintain institutions. Using the institutional work framework, I identify several gaps in the PES literature's discussion of institution building and, particularly, maintenance and disruption. Careful attention to the details of institutional construction and maintenance not only can help explain the gap between PES plans and implementation on the ground. It also points out new avenues of research and new ways the literature might inform practice.

Keywords: *payments for ecosystem services; institutional work; institutions, work*

Introduction

Payments for ecosystem services (PES) schemes are a popular policy tool designed to internalize environmental externalities by compensating land managers for the social value of ecosystem services they provide. While there is a voluminous literature and advanced literature outlining ideal schemes for payments for ecosystem services (PES), many programs that have been initiated have been disappointing. The challenge PES practitioners face is that, while we have good blueprints for ideal PES systems, we lack knowledge that could provide recommendations for how to realize those blueprints in practice and maintain the resulting institutions over time. In this review, I argue that the extant literature on PES pays insufficient attention to the everyday, even a bit mundane, work required to construct and maintain institutions supporting environmental management. This is a critical problem. For PES, as with many other environmental initiatives, the devil is in the details, and many of the problems PES schemes encounter can result as much from the challenge of implementation as from the PES model itself.

It is relatively common to think of institutions as "rules of the game" (North, 1990) that, at least in the short term, are exogenous to individual activities (Aoki, 2001). Taking that perspective, institutional designs simply need to be implemented in order to transform individuals' behavior (Meyer and Rowan, 1977, p. 84; Muradian, et al., 2010). This might be a *Field of Dreams* fallacy - "if you build it, they will come" - while in fact there can be considerable variation in patterns of institutional creation, maintenance, and disruption, which can, in turn, affect institutions' effectiveness and sustainability (Lawrence et al., 2011; Lounsbury, 2008). Research adopting the institutional work perspective (Lawrence & Suddaby, 2006), on the other hand, argues that institutions are always in the process of being created, maintained, or undermined by deliberate human activities (Lawrence, et al., 2009; Lawrence, et al., 2011; Suddaby & Viale, 2011). What is more, this mundane, everyday work is central to the success or failure of institutional innovations. In other words, adopting an externalist perspective on institutions can lead us to overlook the effort involved in building and sustaining PES schemes. This can place practitioners and policymakers in an awkward position. The PES literature offers clear goals but less advice on how to reach them.

While the PES literature has not focused on everyday institutional work, we expect institutional work to be such an important part of PES schemes that examples will appear in the literature, even if the study in question is not directly concerned with everyday activities. We can use those limited examples as a guide to the kinds of institutional work involved in PES, as well as a starting point for theorizing the role of everyday institutional construction and maintenance in the success or failure of PES schemes. To collect examples of the work of institutional construction, maintenance, and disruption in the PES literature, I conducted an extensive literature survey. Beginning with a sample of 4,125 articles and other publications discussing PES, I found only 47 that have explicit and significant discussions of institutional creation. Conspicuously absent from the publication sample are discussions of the work involved in maintaining institutions once created or disrupting problematic institutions (Lawrence et al., 2011; Lawrence et al., 2009; Zietsma & McKnight, 2009). Nevertheless, the examples suggest ways more systematic attention institutional work could advance discussions of institutional creation for PES, framing how and why there can be significant gaps between PES plans and implementation on the ground. Taking from Marti and Mair's (2009, p. 93) argument, studies adopting an institutional work perspective of PES could go "beyond new ways of *doing* things [to] new ways of *seeing* things."

The paper is organized as follows: Section 2 defines the principles of PES and explores certain areas of contention within this institutional experiment. Section 3 explains the literature collection approach and the methods used to code the publication sample. Section 4 highlights the contribution of the dominant institutional work themes found within the PES literature. In Section 5, I outline some problems resulting from inattention to certain types of institutional work, particularly those involved in maintaining institutions, once created, and suggest some possible avenues of research.

Payments for Ecosystem Services

Costanza, et al (2014, p. 153) suggest that "probably the most important contribution of the widespread recognition of ecosystem services is that it reframes the relationship between humans and the rest of nature" to highlight human dependence on the natural environment (see also Costanza, et al., 1997). One of the most important manifestations of this approach is

payments for ecosystem services (PES). Modeled on market principles, PES compensates land stewards for environmental conservation and restoration (Milder 2010, Pagiola & Platais 2007, Molnar et al. 2004, Daily 1997). These payments, ideally, internalize unpriced, non-market environmental values via financial incentives or payment in kind (Milder 2010, Engel et al. 2008; Wunder 2005) to compensate adoption of more sustainable practices. As Wunder (2005; 2006; 2007) explains, in their purest form, PES systems must be voluntary, involve a transaction between a buyer and seller conditional on the selling producing a well-defined ecosystem service. This basic model, however, is relatively flexible in practice. PES systems can include both monetary and non-monetary incentives, such as compensatory projects and payment in kind (Pagiola, et al. 2005, Wunder, 2007). Approaches like these have captured the attention of academics and practitioners of conservation and sustainable development (Martin-Ortega, et al., 2013; Wunder et al,, 2008; Pagiola et al., 2006), who hope PES programs can be win-wins (Muradian, et al., 2010; Daily & Matson, 2008; Swallow & Meinzen-Dick, 2009) supporting both providers and users of ecosystem services (Engel et al., 2008; Wunder, 2006, 2008).

As illustrated in the hypothetical example presented in Figure 1, the basic idea of PES centers on compensating stakeholders who provide ecosystem services. In the example here, one may imagine a system in which land stewards managing the considerable expanses of cropland and pasture in the US Department of Agriculture's Natural Resources Conservation Service's (NRCS) Mississippi River Basin Critical Conservation Area might be incentivized through monetary payments or in-kind support to undertake conservation activities aimed at mitigating agricultural runoff leading to eutrophication and other water quality issues in the Mississippi Delta. In a pure market approach, beneficiaries of ecosystem services in the Delta that are negatively affected by runoff might pay land stewards upriver to mitigate these impacts, but they would only do so up to the point at which the cost of this payment equals the benefits accrued from the preservation of the ecosystem service. In a less market-oriented approach, federal agencies like the NRCS might provide monetary and other support to land stewards in the headwaters to lower fertilizer and pesticide use, construct riparian buffers, or utilize drip irrigation to mitigate runoff.

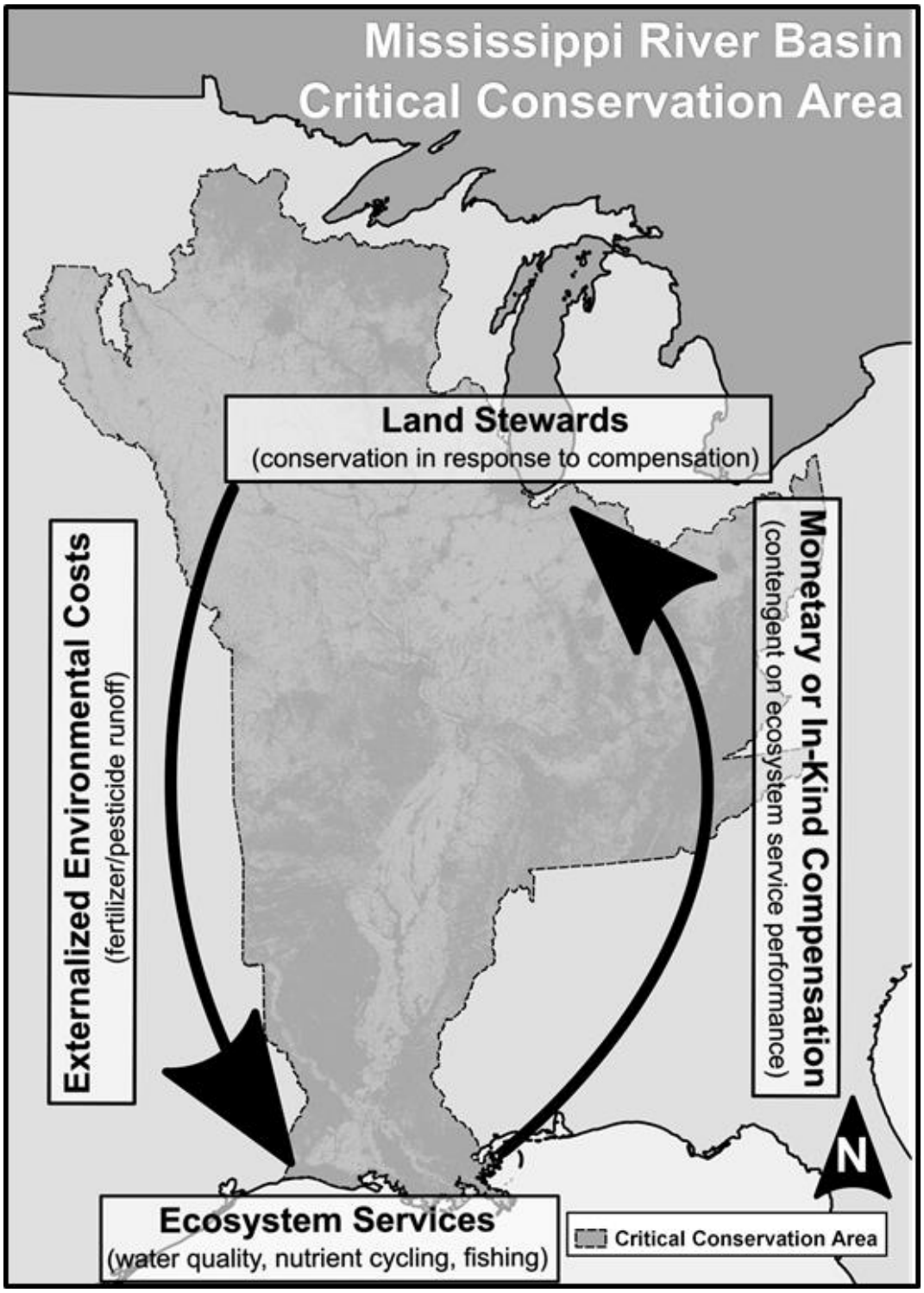

Figure 1: Diagram of a hypothetical PES scheme for the US Department of Agriculture's Natural Resources Conservation Service's Mississippi River Basin Critical Conservation Area. Cropland and pasture shown as white pixels. Polygon layers from Natural Resources Conservation Service (2014), United States Census Bureau (2015), and Sandvik (2009). Land cover from National Landcover Dataset (Homer, et al., 2015). Created with QGIS 2.14 (QGIS Development Team, 2016).

Despite their increasing spread, PES programs often meet with a variety of challenges. These include a lack of formal property rights (Pagiola, et al., 2005; Fisher et al., 2010), ongoing debates as to how best to monitor and ensure compliance (Wünscher et al. 2008, Fisher et al. 2010), uneven knowledge distribution (Corbera et al., 2007; Fisher et al., 2010), and overt conflict (Beymer-Farris & Bassett, 2012).

While institutions have figured heavily in PES research, theorizing, and programmatic statements (Farley & Costanza, 2010; Milder, et al., 2010; Muradian, et al., 2010, 2013), the term "institution" is often used unproblematically, without a definition. When such a definition is provided, however, it tends to accord with the focus on more overt, and often formal, institutions common in institutional economics (Williamson, 1975; North, 1990). Much of the work on institutions in PES stems from a Coasian tradition, which holds that markets typically fail when property rights are ill defined (Hahnel & Sheeran 2009). Were property rights effectively defined, and transaction costs low, parties could negotiate with one another in a free market system to address environmental externalities (Coase, 1960; Tietenberg 2003; Harris 2002; Russell 2001; Hanley et al., 2001; Perman et al. 2003). The problem, as Coase (1937) himself pointed out, is that transaction costs are everywhere and institutions can be an important way to alleviate them (Williamson, 1975). Corbera et al. (2009), for example, build on work by writers like North (1990) and define institutions as "formal and informal rules which regulate what we do." Corbera and Brown (2008), similarly, adopt an institutions-as-rules perspective, citing international regimes and local rules as examples. Clements, et al. (2010, p. 1288), also cite North (1990) and provide "property rights, monitoring, enforcement, governance and contracting arrangements" as examples.

Institutional Work

While institutions have figured heavily in PES research, theorizing, and programmatic statements (Farley & Costanza, 2010; Milder et al., 2010; Muradian, et al., 2010, 2013), the term "institution" is often used unproblematically, without a definition. Generally, however, the operative understanding of institutions in the PES literature owes a debt to work in institutional economics (Williamson, 1975; North, 1990). This is not surprising. PES stems from a Coasian tradition, which holds that markets typically fail when property rights are ill defined (Hahnel &

Sheeran 2009; Coase 1960; Tietenberg 2003; Harris 2002; Russell 2001; Hanley et al., 2001; Perman et al., 2003) and that institutions can be an important way to alleviate the costs that can impede efficient transactions (Coase, 1937; Williamson, 1975). In this tradition, institutions are often understood as exogenous rules that shape social interactions (Aoki, 2001). Corbera et al. (2009), for example, build on work by writers like North (1990) and define institutions as "formal and informal rules which regulate what we do." Corbera and Brown (2008), similarly, adopt an institutions-as-rules perspective, citing international regimes and local rules as examples. Clements, et al. (2010, p. 1288), also cite North (1990) and provide "property rights, monitoring, enforcement, governance and contracting arrangements" as examples of institutions.

While the institutions-as-rules perspective is powerful, it tends to externalize institutions, glossing over important ways in which institutions can be endogenous to social processes (Aoki, 2001). This externalist approach also characterized the otherwise quite different conception of institutions developed in neo-institutionalist sociology and organizational studies. In that literature, institutional regimes might be considered "iron-cages", that guided actors into uniform, isomorphic behaviors (DiMaggio & Powell, 1983; Battilana & D'Annu, 2009; Suddaby, 2010; Zietsma & McKnight, 2009). Beginning in the late 1980s, however, there were concerted efforts to bring agency back into institutional theory (DiMaggio, 1988; Suddaby, 2010), redirecting attention to institutional change. While providing room for agency, these accounts still focused on exogenous cognitive, normative, technological, regulatory, and political shifts (Fox-Wolfgramm et al., 1998; Hoffman, 1999, Oliver, 1991; Barley, 1986; Greenwood & Hinings, 1996; Oliver, 1992) in explaining institutional change. Other studies followed institutional entrepreneurs, who championed innovations that sometimes displaced existing norms (Greenwood et al, 2002; Maguire et al, 2004; Zietsma & McKnight, 2009).

Institutional work descends from the sociological approach to institutions but refocuses on intentional but everyday efforts on the part of individuals to build, maintain, or disrupt institutions, endogenizing institutional change. It departs from structuralist approaches by refusing to consider individuals as institutional dupes (Lawrence & Suddaby, 2006; Lawrence et al., 2009; Lawrence, et al., 2011), but it adopts a humble view of entrepreneurship, suggesting institutional change is often more mundane than heroic (Meyer, 2008; Lawrence et al., 2009). From this perspective, in order to understand how institutions are built, endure, and change, it is

necessary to conduct granular analyses of the motivations, habits, tactics, and practices of actors going about everyday business (Lawrence et al., 2009).

Studies of institutional work feature granular accounts of the ways everyday actions support, transform, or undermine institutions (Lawrence et al., 2009, Zietsma & McKnight 2011). Suddaby and Viale (2011), for example, argue that field-level organizational change should be re-conceptualized as a process composed of an ecology of multiple, often overlapping "projects" of both professionalism and institutionalization. Rather than studying heroic acts of institutional change - which tend to overemphasize the stability of institutions - Lawrence, et al. (2011, p. 52-53) argue we should investigate the "myriad, day-to-day equivocal instances of agency that, although aimed at affecting the institutional order, represent a complex mélange of forms of agency - successful and not, simultaneously radical and conservative, strategic and emotional, full of compromises, and rife with unintended consequences."

Central to this claim is that institutions are both emergent from and enacted in everyday practices. As Lefebvre (1961/2008, p. 41) puts it, more "elevated" actions like institutional entrepreneurship or collapse emerge from everyday, mundane activities. He provides several useful examples. The everyday life of science, for instance, involves "training, teaching, the climate in scientific circles, administrative questions, the way institutions operate, etc." (Lefebvre, 1961/2008). The everyday life of development organizations, similarly, involves planning, monitoring, measurement, and reporting, in addition to actions in the field itself (Farrington et al., 1998), work that can make a significant difference in accessing funds (Gallemore & Jespersen, 2016). Even market performance relies on everyday activities. MacKenzie (2006), for example, recounts how traders used printouts of ideal options prices to inform trading in the 1980s, leading the market to increasingly closely reflect those ideal prices.

To facilitate more detailed analyses, much of the theoretical discussion on institutional work has focused on identifying types of institutional work that might often go unnoticed and yet are essential if institutions are to be effective. Because such a wide range of types of institutional work have been identified, we do not explicitly discuss them all here (see Appendix I for an

overview). Instead, we focus our discussion on the types of institutional work identified in our literature sample, presenting these categories in Section 5. First, we outline the procedures by which our literature sample was constructed and coded.

Methodology

I applied standard procedures for systematic literature reviews (e.g., Petticrew and Egan, 2006; Cooper, 2010; Centre for Evidence-Based Conservation, 2013) in a four-step process (see Figure 1) to discover PES literature explicitly discussing institutional work. I outline these four steps below.

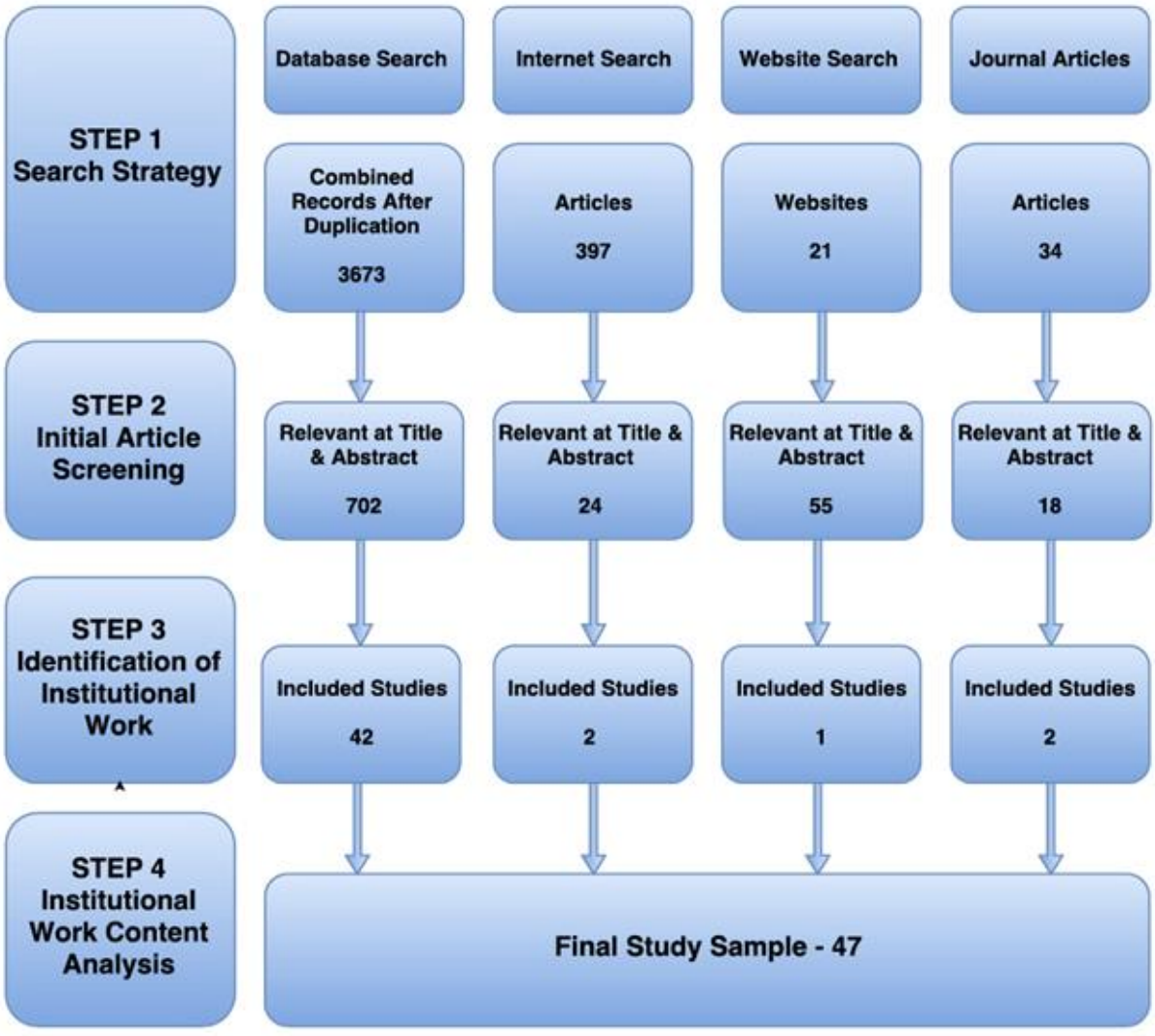

Figure 2: Flowchart of publication screening process.

Step 1 – Search Strategy

Three principal methods were used to source PES-related studies: scientific databases, Internet searches and websites, and journal special issues. Three specific databases were used to initiate the searches: ISI Web of Knowledge (all databases), Sciencedirect (SciVerse), Scopus, and Google Scholar. The Google search engine supported Internet searches (Davies & Pullin, 2006; Bowler et al., 2010). Databases and search terms are presented in Table 1. In addition, websites of organizations with recognized PES expertise and involvement, such as the Centre for International Forestry Research, Ecosystem Marketplace, and TEEB, were consulted. Special issues of several journals focusing on PES were also consulted: *Ecological Economics* (65 (4), 69 (7), 69 (11), *Journal of Sustainable Forestry* (28(3-5)) and *Environmental Conservation* (38(4)). Searches were conducted in English, though I attempted to locate translations of non-English publications, where these were available. I collected a wide range of publications, including articles, conference papers, theses, chapters, and reports, so long as the provenance of the text could be verified. A summary of the search terms and search strategy for each initial source is found in Table 1.

Database	Search Strategy	Search Terms
ISI Web of Knowledge	***Databases:*** All Sources ***Search in:*** TOPIC (=Title, Abstract, Keywords) ***Dates:*** 1990-Present	All possible combinations of the terms "payment(s)", "ecosystem service(s)", "environmental service(s)", "ecological service(s)", "eco-compensation", "market for environmental services", "market for ecosystem services" and "PES" were entered in the literature search. In addition, the term payment was exchanged with the term pay to see if any additional sources emerged. Other search terms were considered
Sciencedirect (SciVerse)	***Databases:*** All Sources ***Search in:*** TOPIC (=Title, Abstract, Keywords) ***Dates:*** 1990-Present	
SCOPUS	***Databases (content sources)***: All journals, all preferred web sources. ***Subject areas:*** All subjects ***Information Types:*** All types (abstracts, articles, reviews, etc.) ***File format:*** Any format ***Searched in:*** (=Title, Abstract, Keywords) ***Dates:*** 1990 – Present	
Google Scholar	***Databases:*** All Sources ***Search in:*** TOPIC (=Title, Abstract, Keywords) ***Dates:*** 1990-Present	

Table 1: Search strategy for sources consulted in search step one.

Materials were collected from the early rise of the PES literature in 1990 until 2016, resulting in a total of 4,125 publications. Figure 3 illustrates the distribution of publications on PES across time, with a clear period of exponential growth from 2004 to 2013. While there are clear declines in publication numbers in 2014 and 2015.

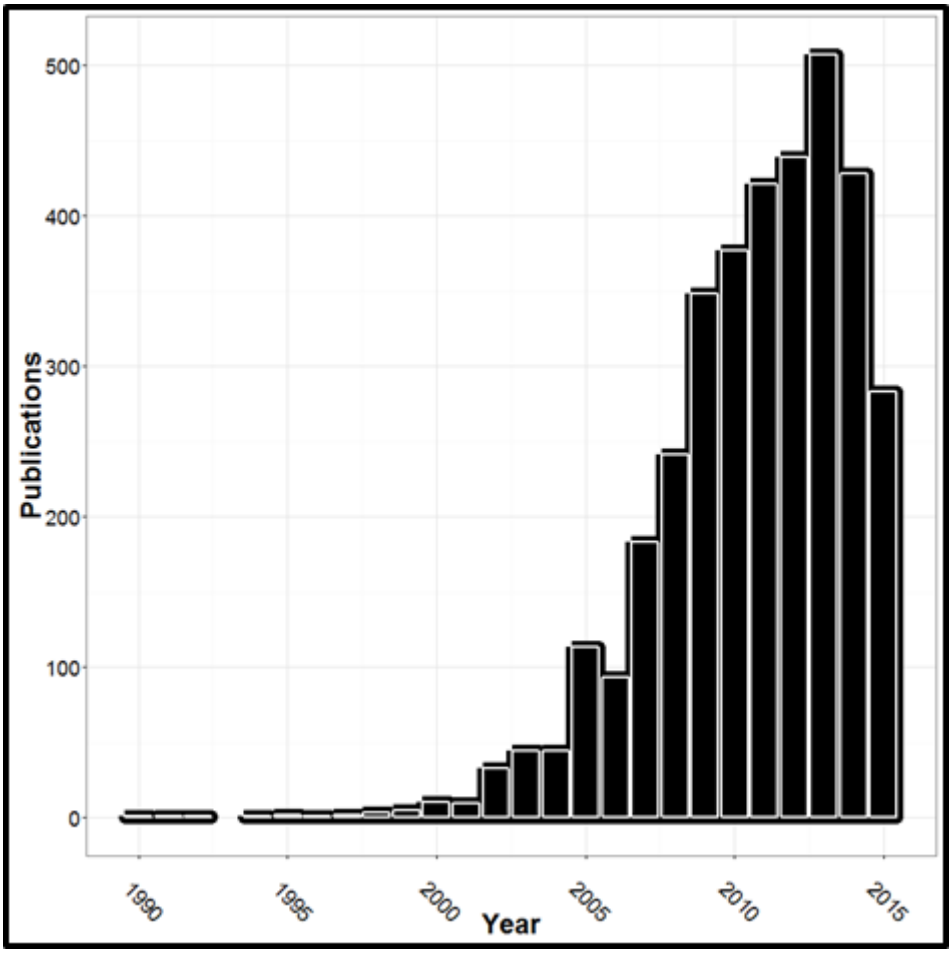

Figure 3: Publications on PES from 1990-2016. *Created with ggplot2 (Wickham, 2009) in R 3.3.0 (R Core Team, 2016).*

Step 2 – Screening criteria applied to title and abstract

After duplicates were removed, I filtered remaining materials using title and abstract (or introduction, if no abstract was present) of remaining publications were assessed for the potential to discuss institutional work. Any publications whose title or abstract mentioned institutions, rules, property rights, norms, monitoring, additionality, incentives, environmental management, or similar concepts were retained. As I discuss below, the work involved in creating, maintaining, and disrupting institutions associated with PES is not widely discussed in

the literature, and the explicit discussion of institutions is itself relatively rare, so it is possible that some minor mentions of institutional work activities might have been omitted in this step, but, given that the publications discarded at this step included no major institutional themes, I expect this is a minor problem.

Step 3 - Identification of institutional work

All publications identified in Step 2 were read in their entirety and screened for a significant mention, defined as a discussion of at least one paragraph or three lines, of at least one type of institutional work, using the screening criteria outlined in Table 2. All publications including at least one significant mention of institutional work were retained for the final sample dataset.

Step 4 - Institutional work content analysis

The institutional work literature identifies three principal components of institutional work: creating, maintaining, and disrupting. These categories are further subdivided into 18 types of work (see Appendix 1). Studies were coded for discussing events that illustrated any of the 18 subcategories of institutional work, using the screening criteria outlined in Table 2. Following an initial coding by the author of the paper, codes were checked by research assistants assisting in data collection process. In cases where coding was disputed, a discussion was held among coders and consensus reached. Coders only coded forms of institutional work that were mutually agreed to be major mentions in the publication, as defined above.

In addition to identifying institutional work, the author also coded the country or countries in which any cases analyzed in the publication were located. I also coded whether or not a definition of PES was explicitly provided in the publication. If there was, I categorized the definition according to its similarity to one of the two most prominent definitions of PES in the literature (see Table 2), that of either Muradian, et al. (2010) or else of Wunder (2005) Finally, we coded whether or not each publication in the final sample was itself a replication study or else called for replication.

Muradian, et al. (2010, p. 1205)	"transfer of resources between social actors which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources"
Wunder (2005, p. 3)	"(a) a voluntary transaction where (b) a well-defined environmental service (or a land use likely to secure that service) (c) is being 'bought' by a (minimum one) service buyer (d) from a (minimum one) service provider (e) if and only if the service provider secures service provision (conditionality)"

Table 2: PES definitions developed by Muradian, et al. (2010) and Wunder (2005).

Results and Analysis

Institutional Work

Table 3 presents the types of institutional work found in the final publication sample. While there were a very few minor mentions of institutional work aimed at maintaining or disrupting institutions, all major mentions of institutional work in the sample of publications address efforts to create institutions, so I focus on institutional creation in the discussion. The literature's focus on institutional creation is understandable, given that many PES projects are somewhat new, but it is also suspect, as some PES projects are in fact relatively old. Understanding the work involved in either maintaining these institutions or disrupting institutions that drive unsustainable practices should be an important part of future research.

Creating Institutions			
Forms of Institutional Work	**Definition**	**Key references of Institutional Work**	**PES articles**
Advocacy	The mobilization of political and regulatory support through direct and deliberate techniques of social suasion	Elsbach & Sutton, 1992; Galvin, 2009; Suchman, 2014	Pfaff, Robalino & Sanchez-Azofeifa 2008; Corbera, Soberanis & Brown 2009; Alix-Garcia, de Janvry, Sadoulet & Torres, 2009; Forsyth, 2009; Pokorny, Johnson, Medina & Hoch, 2012; Ernstson, 2013; McAfee & Shapiro, 2010; Huber Stearns, 2012; Jagger, Brockhaus, Duchelle, Gebara, Lawlor, Resosudarmo & Sunderlin, 2014; Fisher, Kulindwa, Mwanyoka, Turner & Burgess, 2010
Defining	The construction of rule systems that confer status or identity, define boundaries of membership or create status hierarchies within a field	Fox-Wolfgramm et al. 1998; Lawrence & Suddaby, 2006	Hajek, Ventresca, Scriven & Castro, 2011; Grieg-Gran, Porras & Wunder, 2005; Zbinden & Lee, 2005; Muñoz-Piña, Guevara, Torres & Braña, 2008; Dobbs & Pretty, 2008;Wunder & Albán, 2008; García-Amado, Pérez, Escutia, García & Mejía, 2011; Boyd, May, Chang & Veiga, 2007; Pagiola, 2008; Kosoy, Corbera & Brown, 2008; Missrie & Nelson, 2005
Vesting	The creation of rule structures that confer property rights	Russo, 2001; Mansfield, 2004; Townsend & Pooley, 1995; Bumpas & Liverman, 2009	Kosoy, Corbera & Brown, 2008; Pattanayak, Wunder & Ferraro, 2010; Locatelli, Rojas & Salinas, 2008; Corbera, Kosoy & Martínez-Tuna, 2007; Sunderlin, Larson & Cronkleton, 2009; Clements, John, Nielsen, An, Tan & Milner-Gulland, 2010; Kosoy & Corbera, 2010; Muradian, Corbera, Pascual, Kosoy & May, 2010; Wunder, 2006; Palmer, 2011
Constructing identities	Defining the relationship between an actor and the field in which that actor operates	Lounsbury 2001; Oakes et al., 1998	
Changing normative associations	Re-making the connections between sets of practices and the moral and cultural foundations for those practices	Townley, 1997; Zilber, 2002	
Constructing normative networks	Constructing of interorganizational connections through which practices become normatively sanctioned and which form the relevant peer group	Zietsma & McKnight, 2009; Keck & Sikkink, 1998; Babon, et al.,	Sun & Müller, 2012; Kerr, 2002; Moeliono, Galllemore, Santoso, Brockhaus & Di Gregorio, 2014; Liverman, 2004; Skutsch, van Laake, Zahabu, Karky & Phartiyal, 2009; Babon, McIntyre, Gowae, Gallemore, Carmenta, Di Gregorio & Brockhaus; 2014; Milne & Adams, 2012; Wendland, Honzák, Portela, Vitale, Rubinoff & Randrianarisoa, 2010;

	with respect to compliance, monitoring and evaluation	2014	Missrie & Nelson, 2005; Bennett, 2008; Huber-Stearns, 2012
Mimicry	Associating new practices with existing sets of taken-for-granted practices, technologies and rules in order to ease adoption	Hargadon and Douglas, 2001; Jones, 2001	Pagiola, 2008; Boyd, May, Chang & Veiga, 2007; Bennett, 2008; Fisher, Kulindwa, Mwanyoka, Turner & Burgess, 2010; Vignola, Locatelli, Martinez & Imbach, 2009; Petheram & Campbell, 2010; Froger & Méral, 2012; Sierra & Russman, 2006; Claassen, Cattaneo & Johansson, 2008; Frost & Bond, 2008
Theorizing	The development and specification of abstract categories and the elaboration of chains of cause and effect	Kitchener (2002); Orssatto et al. (2002)	
Educating	the attempt to provide the skills and knowledge needed to support novel institutions	Hargadon and Douglas', 2001; Barrett, et al., 2007	Jagger, Brockhaus, Duchelle, Gebara, Lawlor, Resosudarmo & Sunderlin, 2014; Greiber (ed.), 2009; Landell-Mills & Porras, 2002; Miranda, Porras & Moreno, 2003; Mulyani & Jepson, 2015; Fisher, Turner & Morling, 2009; Asquith, Vargas & Wunder, 2008; Wunder, Engel & Pagiola, 2008; Vignola, Locatelli, Martinez & Imbach, 2009; Petheram & Campbell, 2010

Table 3: Summary of observed types of institutional creation in the final sample.

According to Lawrence and Suddaby (2006), there are nine different practices that an organization can apply in order to create an institution. The publication sample contains examples of six of Lawrence and Suddaby's (2006) nine types of institutional creation work[1], as follow (see Table 4 for more detail):

- Advocacy: direct representation of actors' interests in institution-building processes (N=17)
- Defining: clarifying meanings of key concepts, establishing which labels or terms are applicable to new practices, roles, or identities (N = 15)
- Vesting: defining property rights under a new institution (N=9)
- Constructing normative networks: building new coalitions of actors engaged in institutional creation or transformation (N=8)
- Mimicry: packaging institutional innovations in ways that are similar to existing institutional practices (N=10)
- Education: developing and disseminating new skills and knowledge required to support novel institutions (N=22)

While the majority of the subtypes of institutional creation work were exhibited in the sample, efforts aimed at constructing identities and changing normative associations received only minor mentions and few of these. This is consistent with the suggestion that the bulk of the PES literature is concerned with more overt and formal institutions, whereas these forms of institutional work are targeted at informal and cultural institutions.

[1] For the sake of brevity and clarity, we omit the theorizing category, as the literature featuring this type of work is essentially entirely conceptual or hypothesis-testing literature, in which the paper itself is engaged in the institutional work of theorization, rather than reporting on acts of theorization on the part of individuals or organizations in the field. In a very real sense, of course, the entire PES literature is engaged in theorizing, which means that PES scholars are, by definition, engaged in institutional work on a daily basis.

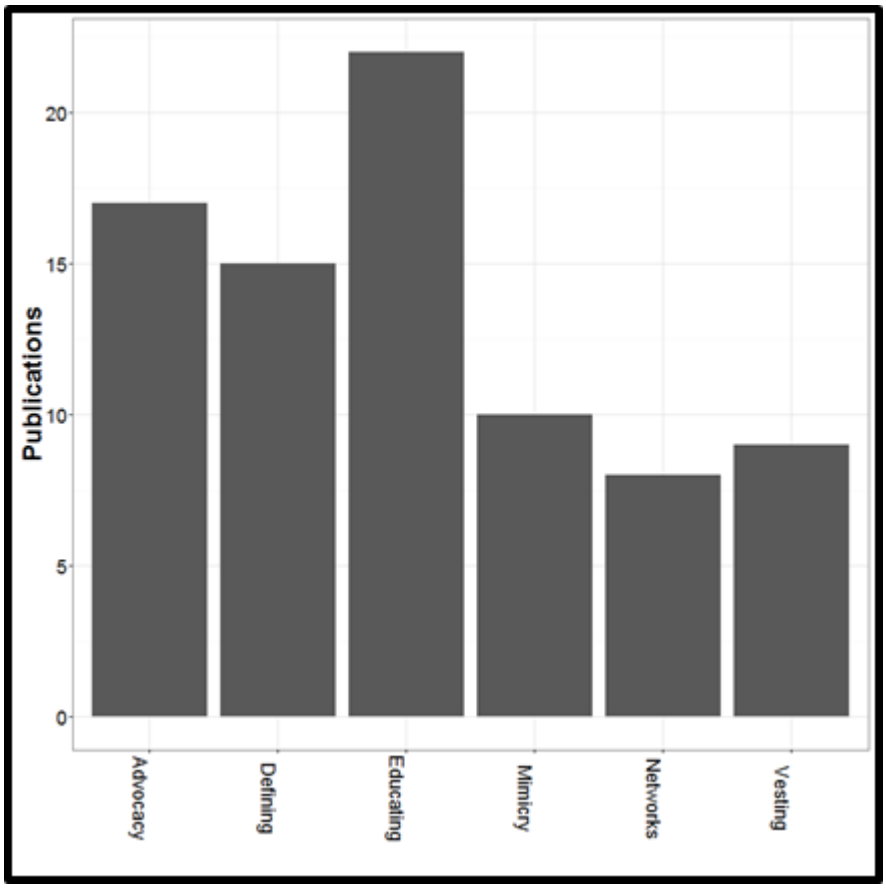

Figure 4: Distribution of institutional creation work discussed in the final sample. Created with ggplot2 (Wickham, 2009) in R 3.3.0 (R Core Team, 2016).

The Diversity of Institutional Work in PES

Advocacy

Lawrence and Suddaby (2006), identify advocacy eas harnessing political and regulatory techniques via social mobilization, which could include direct representation of the interests of specific actors (Galvin, 2002). Examples include lobbying, advertising, and litigation (Elsbach & Sutton, 1992; Galvin, 2002; Lawrence & Suddaby, 2006; Suchman, 1995) aimed at promoting and legitimizing new institutions. It is about setting the agenda for new institutional initiatives, a necessary prerequisite for any PES implementation. In ideal situations, this advocacy would be voluntarily undertaken by grassroots organizations, perhaps even unilaterally. One notable example is the introduction of the PSA-CABSA PES program in Mexico, initiated and lobbied for by grassroots organizations. A consortium of environmental and agricultural advocacy groups, as presented in Corbera et al. (2009), lobbied to include a number of strategic sectors for policy development and funding priorities, such as a policy

programme to implement Payments for Ecosystem Services (Alix-Garcia et al, 2009). Grassroots advocacy can also provide attractive stories, helping garner funding (Fisher et al., 2010; Prager et al., 2012; Wunder, 2005).

Unfortunately, advocacy can cut both ways. As Engel et al. (2008, p. 670) observe, PES schemes also may "be implemented [. . .] due to distributional concerns or lobbying by powerful actors causing the [environmental] damages." At the international scale, this is a primary concern of scholars of neoliberal natures, who note that PES advocacy is linked to broader market environmentalism (Gomez-Baggethun & Ruiz-Perez, 2011), which can ride roughshod over local institutions and practices.

On the other hand, Tacconi (2012) contends that PES programs themselves may become vehicles for advocacy. If implemented effectively, they can potentially change entrenched, unprofitable resource management practices that were previously maintained by special interest groups, in turn generates positive environmental and social externalities.

Defining

Definition involves creating constitutive rules that outline roles, responsibilities, and lines of authority consistent with new institutions (Lawrence & Suddaby, 2006). Lawrence (1999, p. 171), for example, explores credentialing as a means by which professions constitute acceptable behavior Definitions, however, can also be tacit, as new new characteristics, such as entrepreneurialism, come to be laudable in new domains (Lawrence & Suddaby, 2006).

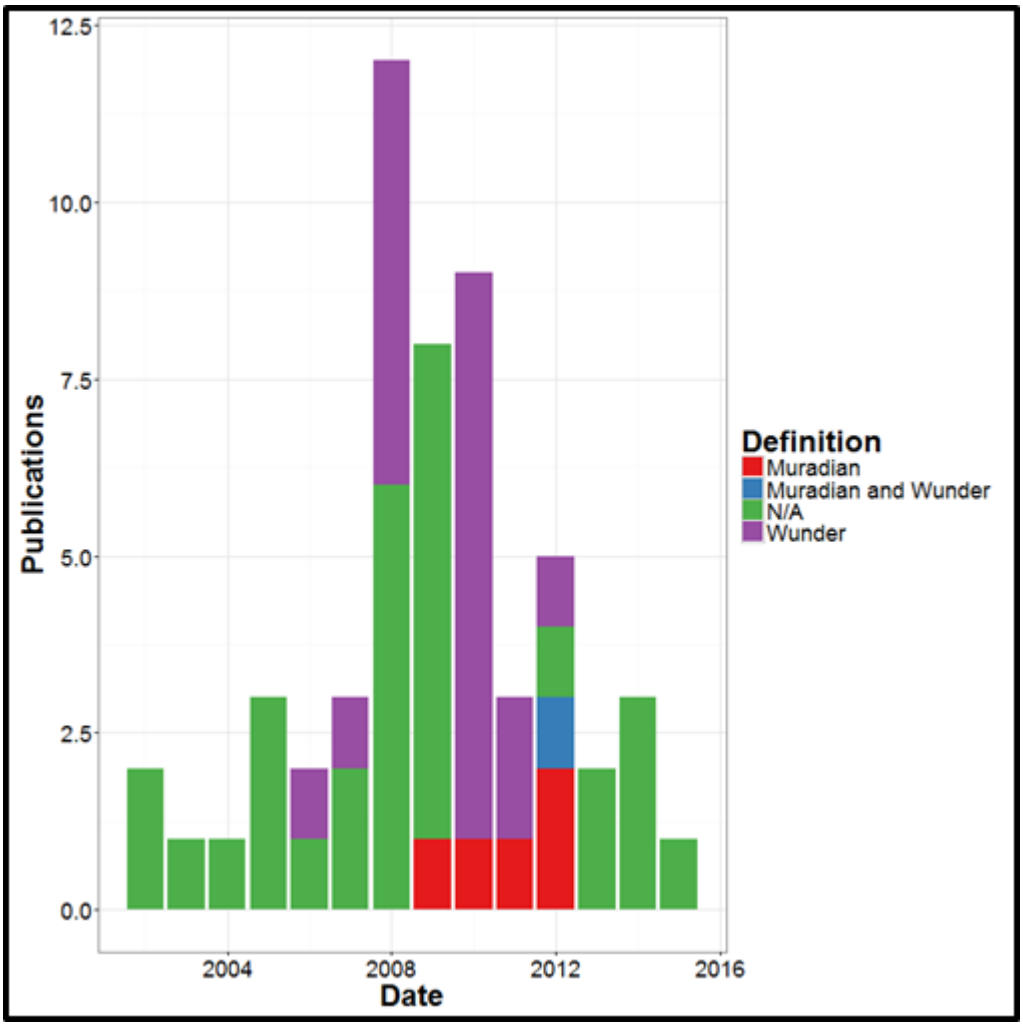

Figure 5: Distribution of Wunder (2005) and Muradian et al., (2010), definitions of PES found in final publication sample. Created with ggplot2 (Wickham, 2009) in R 3.3.0 (R Core Team, 2016).

Many of the acts of definition relevant to PES involve formal standards. These might include the various carbon measurement standards, such as Verified Carbon Standard, Gold Standard, or even the Clean Development Mechanism. Other examples, focused on social outcomes, include the Climate, Community, and Biodiversity Alliance Standard, the Plan Vivo Standard (Green, 2013), or Fair Trade Certification (Reinecke, 2010). Tellingly, none of these standards - nor any other - were discussed in the 47 studies surveyed. Instead, definitional work tended to involve adopting understandings of PES developed in the academic and policy literature and then attempting to implement them directly on the ground.

Another way to think about definition is to consider the PES literature itself a part of the institutional work of definition. In particular, one approach stands out: Wunder's (2005)

definition is used in 91% of the selected studies that included a formal definition of PES. This perspective is also widely held in the PES literature, as a whole (Börner et al., 2010; Engel et al., 2008; Wunder et al., 2008; Wunder, 2005). Wunder's definition follows a Coasian logic dependent upon clearly defined property rights and sufficiently low transaction costs (European Commission, 2012). As noted above, however, there is growing concern in the PES literature that the present definition is too limited to encompass the payment schemes presently in use (Martin-Ortega et al., 2013; Muradian et al., 2010; Schomers & Matzdorf, 2013), as government is present in the contractual, transactional, monitoring and educational components of most initiatives (Muradian et al., 2010; Van Hecken & Bastiaensen, 2010a, 2010b). In response, Muradian et al. (2010, p. 1205) propose a broader definition: "a transfer of resources between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources." This newer definition, however, is discussed in only 11% of the publications sampled.

Vesting

Vesting involves assigning specific rules or rights to individuals or organizations as institutions change (Russo, 2001). This is not to suggest, however, that vesting is solely orchestrated through decree; it often involves negotiations between the state and other actors (Lawrence & Suddaby, 2006). Sometimes, property rights are created *de novo*. This is the case, for example, with the creation of individualized tradeable fishing quotas in a variety of managed fisheries. Such systems divide up the allowed annual catch, assigning shares to individual captains, boats, or operations, which can then be traded as property (Mansfield, 2004; Townsend & Pooley, 1995). Carbon markets, similarly, can literally create property rights "out of thin air" (Bumpas & Liverman, 2008).

The vast majority of publications in the sample that discuss vesting focus on creating a market and establishing property rights (Farley & Costanza, 2010, p. 2061; Larson, 2011; Clements et al., 2010; McAfee & Shapiro, 2010; Engel et al., 2008; Wunder et al., 2008; Wunder, 2005). In particular, the literature is concerned with clarifying the types of rights that are bestowed upon the owners of relevant resources and whether or not owners possess agency over the property they inhabit (Vatn, 2010). As Vatn (2010) points out, this is an inherently political process

(Kosoy et al. 2007; McAfee & Shapiro, 2010). Vesting is critical for the livelihoods and human rights of indigenous and other forest-based communities. As outlined by Larson (2011, p. 541) "secur[ing] rights to resources, among other things, [is] essential for the ability of local peoples to respond and adapt to the challenges of climate change."

Constructing Normative Networks

Institutional change is generally not undertaken by agents acting alone. Given the cognitive challenges and complexity of activities required to scale up new practices (Zietsma & McKnight, 2009), building coalitions and other support networks can be critical for success (Galaz, et al., 2012; Lawrence & Suddaby, 2006). Zietsma and McKnight's (2009) study of the coastal forestry sector in British Columbia is a good example. With the industry largely delegitimized by social and environmental criticism, industry actors reached out to organizations in other sectors, working, for example, with environmental civil society groups to achieve Forest Stewardship Council (FSC) certification. This strategy allowed industry officials to leverage external expertise in order to increase uptake of the new standard. In addition to the attractiveness of using networking to fill in gaps in skills and expertise, connections can also be important for successful advocacy, in the first place (Keck & Sikkink, 1998; Babon et al., 2014). Finally, the construction of normative networks can be important for legitimacy. Pokorny et al. (2012), for example, note the importance of building long-standing connections in the context of socially inclusive governance systems for successful PES projects (see also Wendland, et al., 2010; Pattanayak, et al., 2010). Kanowski, et al. (2010), contend that increased decentralization of environmental management can allow for more participation and, potentially, improved benefits for less advantaged groups.

Within the PES literature, a great deal of the discussion of network construction relates to REDD+, in no small part due to the extensive policy network research on REDD+ development undertaken by the Center for International Forestry Research (Brockhaus & DiGregorio, 2014). A central finding of this work is that networking is often very difficult - and generally politically contested. Moeliono, et al. (2014), for example, find a lack of cooperation on REDD+ at the national scale in Indonesia, as powerful organizational actors often do not need to engage other stakeholders to bring about policy changes. Gebara, et al. (2014) document a similar situation at

the national level in Brazil, where ideologically polarized actors are reluctant to collaborate across groups or the public/private/civil sector divide.

Mimicry

As Daily, et al. (2009), contend, ecosystem services must be systematically integrated into the broader decision making processes of individuals, corporations and government entities. Of course, this is not always easy, as individuals - particularly powerful individuals - may find change threatening, and it is often necessary to blend relevant scientific, economic and cultural information into the policy design and implementation process with cultural and social contexts (Larson, 2011). Sometimes, the best way to address this problem is to couch institutional innovations in the guise of existing practices, in a Trojan horse approach to institutional change. The institutional work literature refers to attempts to assuage fears of change by utilizing designs and approaches similar to existing institutions as mimicry (Lawrence & Suddaby, 2006). Mimicry allows new institutions to be immediately recognizable and understood, while at the same time pointing out shortcomings of past practices and demarcating the new practices (Lawrence & Suddaby, 2006).

Adopting market and conditional cash transfer (Rodríguez et al., 2011) approaches, PES as a whole clearly takes a mimicry approach to ecosystem protection. The ecological economics movement, for example, intends "to adapt economic institutions to the physical characteristics of ecosystem services prioritizing ecological sustainability and just distribution and requiring a transdisciplinary approach" (Farley & Costanza, 2010, p. 2060). Mimicry also has some practical advantages: PES experiments initiated by public entities may have lower transaction costs because they use existing institutions and benefit from state legitimacy, where it exists (Rodríguez et al., 2011). At the local scale, tapping into shared norms and beliefs of communities affected by PES programs can be crucial to success, as is even sharing of information within the community (Fisher, et al., 2010). Mimicry can, in principle, support both these needs.

Educating

Education is an attempt to disseminate the skills and knowledge needed to support novel institutions (Lawrence & Suddaby, 2006). Sometimes, it must be extensive. In Hargadon and Douglas' (2001) study of the proliferation of Edison's electric light, for example, they note that "Edison lobbied local schools to develop training programs in electrical engineering and, when that initiative fell short, started his own training programme" (Hargadon & Douglas 2001, p. 487; Lawrence & Suddaby, 2006). Sometimes, education is less top-down and involves people teaching each other (Barrett, et al., 2007).

Because PES programs can often be alien to existing land management practices - and involve highly technical monitoring requirements - the literature sample frequently mentions educational initiatives. Gallemore et al. (2014), for example, discuss efforts on the part of the provincial government of Central Kalimantan, Indonesia, to engage in outreach to explain deforestation-reduction policies to village residents in the province. Wendland et al.'s (2010) account of the Mantadia Project, similarly, notes that stakeholder education was a central component of empowering communities to effectively engage in negotiations about project expectations and outcomes. This is in contrast with education and training attached to many sustainable development projects, which tend to focus more on technical instruction (Pokorny et al., 2012; Swallow et al., 2007).

Research and policy implications of institutional work

PES approaches have certainly captured the interest of academics and policymakers alike (Sukhdev et al., 2010), leading some to caution that PES may be too easily thought of as win-win solution (Muradian et al., 2013; Pagiola et al., 2005) or even a silver bullet. Of course, as practitioners and academics well know, the devil is in the details. Adopting an institutional work perspective helps draw attention to the critical details of institutional creation, maintenance, and disruption. In this section, I discuss some of the ways in which the PES literature's implicit discussions of institutional work raise important questions for future research before going on to consider what authors and practitioners may be missing by neglecting the less salient aspects of institutional work and the challenge of replicating institutions across different contexts.

Implications of extant engagements in institutional work

Here I return to some of the types of institutional work illustrated in the literature sample, considering how a thorough engagement with these issues might lead to new conceptual, empirical, and normative demands on the part of students of PES. Given that Lawrence and Suddaby (2006) identify nine distinct types of institutional creation work, it is not possible to adequately address them all here. Instead, I chose to focus on three particularly important modes: advocacy, vesting, and mimicry. These three examples are particularly appropriate for PES, which is often created in response to advocacy demands, necessitates the creation and vesting of novel property rights, and, often, involves attempts to replicate effective programs implemented elsewhere.

To begin with the concept of advocacy, the ability of different groups to demand institutional change raises questions of power and agency. Normatively, there are important considerations regarding how practitioners are to protect the rights of people to be involved in deliberation about choices affecting them (Habermas, 1996; Dryzek & Stevenson, 2011) and how agenda-setting may be dominated by powerful groups (Engel, et al., 2008). Power and agency are similarly important for empirical studies of institutional change. Often, local advocates may find themselves trapped in pre-existing expectations about what indigenous communities should want, constraining the scope of advocacy positions they can take successfully (Li, 2000, 2002; Li, 2007). More broadly, existing institutions can constrain the scope of possible successful advocacy, which in turn, can be aimed at changing institutions, in continuous feedback loops (Brockhaus & Angelsen, 2012; Schmidt, 2008, 2010).

Vesting is central to the development of PES systems, but, to date, little research has been conducted that studies comparatively how investments in property rights and the resulting institutional work at the local scale leads to greater local incentives for collective action vis-à-vis the environment (Clements et al., 2010). This should involve an expanded understanding of potential property relations and norms beyond traditional Western. Spatialized conceptions of property that might include religious and other traditional norms and ways of ordering resources and space (Chan et al., 2012; Gibson-Graham, 1996; Ostrom, 1990). As critics of the logic of commodification in PES note, the imposition of predefined property relation models can lead to

resulting division and disempowerment within communities and countries (McAfee & Shapiro, 2010). Careful attention must be paid to how incentives can foster as well as undermine intrinsic motivations stemming from social and cultural meanings attributed to the nonhuman world (Chan et al., 2012; Daily et al., 2009; Rodríguez et al., 2011).

Mimicry is a challenging task, though, at first, it might seem the most straightforward way to expand PES. In principle, if existing models of PES can be found in places like Costa Rica or the United States, replicating these initiatives might seem to be the best way to tap market approaches to environmental management. As North, et al. (2009) remind us, however, institutions exist within an ecosystem, such that porting an institution from one social context to another can lead to very unexpected outcomes. Social life is full of informal, even hidden (Scott, 1985, 1990) norms and institutions, with which novel institutions inherently interact. As a result, effective mimicry requires detailed knowledge of local contexts, whether these are communities of resource users or the halls of bureaucracy.

At the same time, the institutional work of mimicry raises the question of what should be mimicked, in the first place. All things being equal, individuals living in affected communities are much more likely to be aware of institutions - particularly informal institutions - onto which PES initiatives might be grafted. The failure to recognize complex local institutions in the attempt to stamp down an institutional model in particular place is often a source of failure (Ika, 2012; Scott, 1998). The downside is that the innovations introduced, as a result of being picked according to existing institutions, may become less radical or transformative. On the other hand, mimicry could also result in PES approaches latching onto features of existing institutions that could promote future success and durability.

Missing pieces of institutional work in PES literature

While the publications in the final sample focus nearly exclusively on the work involved in institutional creation, institutional work does not stop with a ribbon-cutting ceremony. Indeed, the durability of institutions, once created, is a key problem, particularly for development initiatives (Ahsan & Gunawan, 2010; Ika et al., 2012). While a focus on institutional creation is certainly necessary for newly initiated institutional experiments, PES is no longer a fledgling initiative. The work required to maintain extant institutions through active policing, enabling,

embedding, or routinizing work is neglected in the sampled literature, but critical to any initiative's long-term success.

One may argue that the lack of discussion of institutional maintenance is just testament to the fragility of PES as an environmental intervention. On the other hand, part of the explanation for PES's limited staying power in some contexts might be a lack of attention to the institutional work of maintenance. The absence of discussion of institutional maintenance may limit the ability of the academic literature on PES to inform "effective, efficient, and equitable" (Pham et al., 2014) policy implementation.

Another source of the problem may be typical funding schemes offered under development or environmental initiatives. With funding streams lasting no more than five years on average (Batta et al., 2010), researchers and practitioners interested in introducing or studying PES may have limited opportunities either to carry out a project over a long period or to conduct longitudinal analysis across projects' lifespans. Still further, the likelihood of securing funding to study freshly established PES initiatives may be higher than the odds of acquiring resources to investigate ongoing projects.

Figure 5: Geographic distribution of cases studied in the final sample of publications. Created with tmap (Tennekes, 2016) in R 3.3.0 (R Core Team, 2016).

Another possible reason the literature does not document the work involved in institutional maintenance is limited replication. None of the studies in the sample call for any type of

replication or reanalysis to be made of the work reported, nor are any of the studies a replication of another. That is not necessarily surprising, given the pressures against replication (Janz, 2015), but the absence of replication in work on institutional creation in PES is particularly concerning because of political and economic implications of these initiatives. In addition, cross-national comparisons, which might yield a better understanding of the role of institutional conditions in PES sustainability, are relatively limited, again likely due to resource constraints (see Table 5).

Type of Study	Percentage of Articles
Single case study	55%
Comparative case study across multiple countries	31%
Comparative case study within a single country	14%

Table 5: Distribution of case study types in the literature sample.

Like replication, further comparison would benefit the PES literature in a variety of ways. As the institutional work framing suggests, the process of institutional creation is likely to be different in different places, where different institutional contexts provide different backgrounds against which PES initiatives must operate. Comparing the successes and failures of PES initiatives across a range of contexts - both within and across countries - may provide another opportunity to develop more flexible models of PES, as well as to build knowledge about ways in which institutional work can be used to make these initiatives successful.

Conclusion

From an initial population of 4,125 documents, containing 799 non-duplicated publications on PES, I found only 47 studies with explicit and significant discussion of examples of institutional work, with attention placed exclusively institutional creation, rather than maintenance or disruption. Despite this, I believe the institutional work perspective has considerable resources to offer the PES literature. By drawing one's attention to the diverse activities that may - and sometimes must - be carried out in order to build and maintain novel institutions, institutional work provides a different way of seeing the problem of PES. While many of these practices might seem to be everyday, even mundane, their role in success can be critical. Not only should

practitioners be concerned about refining the blueprint of ideal PES schemes, they also need the practical knowledge of how to make the blueprint a reality and sustain it for the long term.

Despite that it is far from an explicit focus, institutional work is such important component of PES initiative that I nevertheless find examples discussed in the literature. These examples point to some important ways in which everyday work is required to keep PES schemes going, but they remain scattered, undeveloped, and untheorized. Adopting a systematic framework like the institutional work perspective can bring these fragmentary examples together in the service of theoretical development. For the moment, at least, these examples highlight that nothing can get in the way of a grand design like the hardscrabble work of building it in the real world.

Appendix

Forms of Institutional Work	Examples/Sub-Categories
Creating Institutions	
Advocacy	Advocacy, Citizen advocacy; Case advocacy (which involves human and environmental well-being); System advocacy; Peer advocacy; Consultative advocacy; Citizen advocacy; Statutory advocacy, Group advocacy, Legal advocacy (Professional/Specialist Advocacy, Political Advocacy (political and regulatory support) (litigation), Best Interest Advocacy, Lobbying, Social mobilization, Social movements, Social and political capital, Advertising.
Defining	Defining, Defining boundaries, Clarifying membership, Hierarchies, Citizenship rules, Procedures, Membership rules, Practice standards, (Formalization) rule systems, Formal categories, Definitional work, Accreditation processes, Certification, Standards, Exchange rates, Delimiting, Demarcating, Marking, Circumscribing, Outlining, Identifying, Classifying, Naming, Describing, Specifying, Definable set, System(s).
Vesting	Vesting, Ownership, Property rights, rule structures, Authority, Reallocation of property rights, Enforcement, Land tenure, (Vesting) legislation, Exchange relations, Legitimacy and legitimate land rights, Regulative bargain, Granting property rights or permission(s), Public duty, Coercive authority, Regulatory authority, Customary land tenure, Private land tenure, Private property, Native trust land, Native reserves, Leasehold tenure, communal land tenure, open access land tenure, A right to (use the land), A right to (exclude unauthorized people) from using the land, A right to (control how land will be used), A right to (derive income) from the land, A right to (protection from illegal expropriation) of the land, use rights, control rights, A right to (transmit the rights) to the land, A right to alienate only a portion of the rights, A (residuary right to the land), A (duty to surrender) the rights to the land when they are taken away through a lawful action, Transfer rights.
Constructing Identities	Constructing Identities, Identities, Actor and the field, New identities, Professions, Professional identities, Professional groups, Collective action, Characteristics linked to nature, Characteristics linked to markets, Traditional beliefs, Markets, Making new linkages or connections, Creating new points of reference, Non-economic values, Spiritual beliefs, Religious beliefs
Changing Normative Associations	Changing Normative Associations, Re-making connections or sets of practices, Interpreting moral/cultural practices, Logics, Forest logics, Environmental assumptions/logics, New Ideologies, Consensus making/building, Field-specific norms, Norms, Business-like, Business Associations, Civil-society, Special interests, Lobbying, Lobbyists
Constructing Normative	Constructing Normative Networks, Construction, Normative networks, Inter-organizational connections, Normative

Networks	structure(s), Peer groups, Normative compliance, Monitoring, Evaluation, Proto-institutions, Cooperatives, Co-operation, Collective work, Collective Liability, Commercial Relations, Professional coalitions, loose coalitions, Newly formed associations, Institutional structures, Roles, Values, Norms, Field, Actor, Actor-actor, Relationships.
Mimicry	Mimicry, Practices, Traditional practices, Established technology, Established rules, Established institutional structures, Institutional Structures, accepted cognitive heuristics, Juxtaposition of old and new, Old and new templates of organizing, Templates, Layering, Traditional, Traditional professional practices, Traditional legal practices, Traditional political practices,
Theorizing	Theorizing, Cognitive maps, Cause and effect, Abstractions, Abstract Categories, Naming, Communication of complex ideas, Common conception, Hypothesizing, Imagining, Speculating, Imagining, Ideology, Ideologies, (Causal) and (temporal) relationships, Linkages among institutional elements, Merging concepts, Merging organizations,
Educating	Educating, Skills, Knowledge, Novel, Practices, Novel practices, Cognitive work, New Skills, Workshops, Training, Support work, Case studies, Formal documents, Dissemination, Templating, Cultivating, Instructing, Schooling, Tutoring, Training, Coaching, Informing.
Maintaining Institutions	
Enabling Work	Enabling Work, Creation of rules, Rules, Facilitate, Facilitation work, Facilitation activities, Supplement existing work, Supplement existing efforts, Auditors, Authorizing work, Creation of authorizing agents, Institutional routines, diverting resources, Diffusion, Legitimation, Frameworks, Institutional frameworks, Professional associations, Intra-professional agreements or organizations, Defining boundaries, Clarifying membership, Clarifying behaviour, Permits, Empowerment work, Facilitation work,
Policing	Policing, Maintaining, Enforcement, Enforcing, Auditing, Monitoring, Monitoring costs, Monitoring payments, Monitoring compliance, Placing sanctions, Limits, Inducements, Penalties, Incentives, Property rights, Giving status, Control over environmental or economic processes, Petitions, Regulations environment, Agreement environment, Compliance, Exchange services, Transaction cost, Baseline monitoring, CDM cycle monitoring, Collective management, Monitoring of service provision, Conditionality, Additionality, Evaluation, Transactional monitoring, Monitoring environmental effectiveness, Compliance monitoring, Monitoring adequacy, Field monitoring strategies, Monitoring unintended impacts, Multi-stakeholder monitoring, Self-monitoring, Remote monitoring, Group monitoring, Community monitoring, Hydrological

	monitoring, Participatory monitoring, Expert monitoring,
Deterrence	Deterrence, Deterring, Coercive barriers, Coercive agent, Institutional change, Threat, Threat of Coercion, Conscious obedience, Subvert, Legitimate authority, Rules, Rule-based work, Rewards, Institutional compliance, Control, Institutional control, Discouragement, Pre-emption, Restriction, Prevention, Limitations, Preclusion
Valorising and Demonizing	Valorising, Demonizing, Positive, Positive examples, Negative, Negative examples, Demonstrations, Moral status, Fields, Institutional beliefs, Beliefs,
Mythologizing	Mythologizing, Past, Past practices, History, mythologizing, Forest folklore, Traditions, Lore, Myths, Legends
Embedding and Routinizing	Embedding, Routinizing, Routines, Day-to-day routines, Organizational practices, Stabilizing influence, Repetition, Repetitive practices, Training, Education, Hiring, Certification Routines, Ceremonies, Institutionalized myths, Appraisal, Accountability, Normative maintenance, Shared frameworks, Recruitment practices, Consensus,
Disrupting Institutions	
Disconnecting sanctions	Disconnecting sanctions, Disconnect rewards, Sanctions, Practices, Technologies, Rules, Invalidation, Direct disruption, Undermining technical definitions, Disrupting assumptions, Changing long-held beliefs, Calculated disruption, Regulative control, Coercive work, Redefining concepts, Redefining sets, Redefining nature, Redefining environment, Defining, Concept work, Reconfigure relationships, Disconnecting sanctions, Arbitration, Judicial systems
Disassociating moral foundations	Disassociating moral foundations, Disassociating the practice, Changing rules, Changing technologies, Changing moral foundations, Changing cultural contexts, Gradual undermining, Moral foundations, downsizing, Undermining the normative basis, Disassociative techniques, Disassociate techniques, Moral coercion
Undermining assumptions and beliefs	Undermining assumptions, beliefs, Changing patterns, Changing practices, Changing technologies, Changing rules, Removal of costs, Removal of benefits, Breaking assumptions, Gradual undermining, Introduction of contrary practices,

Table Screening criteria applied to titles and abstracts and used to code final sample of publications. Criteria were developed based on the list of types of institutional work identified by Lawrence and Suddaby (2006) and the broader literature on PES. Terms were used to guide classification, but publications need not have mentioned the words explicitly.

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Chapter 8

Institutional Working as Institutional *Net*working: Building Transnational Anti-Deforestation Efforts

Institutional Working as Institutional *Net*working: Building Transnational Anti-Deforestation Efforts

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Abstract

We argue that institutional work is inherently a network phenomenon. We examine the endogenous structuration of a transnational network through the types of institutional work that organizations exhibit. Our empirical context is Reducing Emissions from Deforestation and Forest Degradation (REDD+), a large transnational, collaborative, decentralized sustainability network of (inter)governmental, private sector, civil society, and research/academic organizations. We use data on 1,291 organizations' engagement in the transnational network. Based on measurements of organizational positions in four different types of networks – collaboration on pilot projects, seats on private standards-setting committees, co-authorship of policy documents, and hyperlink connections – we identify clusters of network positions across multiple relationships using finite mixture models. We distinguish six distinct institutional work profiles across these networks, with different profiles often dependent on organizational specialization in one or more types of institutional work. Resource-constrained organizations' institutional work tends to involve specialization, while the diversification of the types of institutional work increases with resources. Tracing the evolution of the pilot project collaboration network over time, we find that initial resource advantages may support the establishment of long-term core positions as networks evolve. By examining institutional work in multiple large networks, we extend existing theorizing on the development of institutions.

Keywords: *Institutional work; Network; Network analysis; transnational governance; sustainability; REDD+*

Introduction

Institutional work theory helpfully illustrates how individuals can generate, reproduce, and erode institutions as a result of deliberate action (Lawrence et al., 2009; Lawrence et al., 2011; Jarzabkowski et al., 2009), but critics have claimed it can be too voluntarist, adopting "heroic" images of institutional innovators divorced from their relational contexts (Battilana & D'Aunno, 2009; Lawrence et al., 2009). One way of avoiding these excesses would be to utilize a network perspective, and, indeed, networks are often central to attempts to overcome voluntarist individualism and determinist structuralism (DiMaggio & Powell, 1983; Giddens, 1984; Padgett & Powell, 2012). Within the institutional work literature, however, networks are figured primarily as objects acted upon by institutional workers engaged in "constructing normative networks" (Lawrence & Suddaby, 2006; Currie, et al., 2012), a term often used interchangeably with groups or coalitions (Boxenbaum & Pedersen, 2009; Currie, et al., 2012; Zeitsma & Lawrence, 2010). Responding to calls for the use of more formal network analysis in studies of institutional work (Perkmann & Spicer, 2008), we adopt a different approach: rather than an external force institutional workers act on, we conceptualize networks as a medium within and through which institutional work takes place, such that the relationship between institutional work and networks is reciprocal. On the one hand, networks constrain what institutional workers can do, and, on the other, relationships are constructed via institutional. Networks and action, in other words, are mutually constitutive (Latour, 2005). More concretely, we argue that resource constraints and organizational strategies can lead to specialization in particular kinds of institutional work. This specialization, in turn, reciprocally constitutes network relationships between organizations engaged on a particular problem.

To demonstrate this understanding of the role of networks in institutional work, we analyze the development of a very large transnational collaboration network connecting firms, government agencies, international organizations, nongovernmental organizations (NGOs), and research or academic organizations engaged in the development and implementation of Reducing Emissions from Deforestation and Forest Degradation (REDD+) policy (Author,

2013). The initiative, which is emblematic of several similar transnational environmental governance approaches (Österblom & Folke, 2013), utilizes economic incentives in exchange for the reducing deforestation and improving forest management (Angelsen, et al., 2012), and is closely linked to supply chain sustainability and corporate social responsibility efforts (Dixon & Challies, 2015). It is a particularly interesting network to study due its large size and diversity of organizational forms. Furthermore, its bottom-up structuration is particularly interesting as there is little centralized network orchestration involved. That REDD+ was included as a stand-alone article (Article 5) in the 2015 Paris Agreement is a key result the institutional work undertaken by this network's members (den Besten et al., 2014).

Our analysis of this network extends arguments developed by Currie, et al. (2012) that resources and power relations constrain opportunities for institutional work and that multiple forms of institutional work are carried out simultaneously. Due to resource constraints, we expect organizational actors to specialize in a limited range of institutional work types complementary to their available resources. We call these bundles of institutional work types institutional work profiles. Because institutional work is generally collaborative, we argue that the profiles organizations adopt and their position within networks of institutional workers are co-constituted. That is, institutional working is necessarily institutional *net*working. This move allows us to consider ways would-be institutional innovators can be hemmed in by existing structures while nevertheless engaging in activities that, through a path-dependent process, can create new structures, in turn. From this perspective, we address three key research questions:

1. What kinds of institutional work do organizations exhibit in the development of a transnational governance network?
2. How do resources related to the type of organization and its headquarters' location affect institutional work profiles?
3. Which types of organizations adopt central positions over time?

Our main contribution is developing tools to understand institutional work as a network phenomenon, as institutional work has very seldom been examined from a network perspective (Bertels et al., 2014). Our more specific contributions are three-fold. First, we show that while institutional workers engage in multiple types of institutional work, the need to strategize and

specialize means organizations adopt well-defined institutional work profiles. Second, we show that these institutional work profiles can help us understand which organizations adopt central positions during institutional evolution, responding to calls to return power to studies of institutional work (Currie, et al., 2012). Finally, we provide a methodological innovation, in that we utilize large-scale datasets across multiple networks, rather than qualitative analysis, to study patterns of institutional work in multiple forms at a global scale. Analyzing the transnational REDD+ network allows us to investigate a range of institutional work from a relational perspective. We use model-based clustering to simultaneously identify institutional work profiles and network positions across multiple relationships. We then investigate the distribution of institutional work profiles across organizational types and headquarters locations as a proxy for resource constraints.

We begin with a discussion of the simultaneous constitution of institutional workers and networks. After developing a case that this co-constitution should lead to networks whose members specialize and whose structure is centralized, we provide background on REDD+, which attracts, indeed, requires, actors from multiple sectors with diverse interests. We then describe our data collection procedures and outline the methods we use to identify organizations' institutional work profiles. We interpret and discuss these profiles and their position within emerging REDD+ networks. We conclude with a consideration of potential future research on institutional working and *net*working.

Organizations and institutional (*net*)working

The institutional work literature focuses on everyday, effortful processes, inasmuch as they create, maintain, or transform institutions (Lawrence et al., 2006; Zietsma & McKnight, 2009; Hargrave & Van de Ven, 2006). Canonically, the institutional work approach makes networks external to everyday institutional work, though we belief this approach can be moderated without damaging the core theory. In Lawrence & Suddaby's (2006) typology, for example, networks are only discussed in the context of the institutional work of constructing normative networks, making them something acted upon, rather than a medium in which institutional workers are embedded. While direct action on networks is common and important, we do not focus here on conscious efforts like constructing normative networks or orchestration (Abbott & Snidal, 2009). Instead, we consider network patterns resulting from no one's

intentions (Padgett & Powell, 2012). These networks are not webs built by a single spider, but antrails laid by thousands of interacting organizations. This approach builds on reciprocal accounts of networks and institutional work, which highlight networks simultaneously as a constraint and as something acted upon (Currie, et al., 2012) by considering how institutional work can build networks unintentionally.

Like institutions, networks evolve endogenously (Aoki, 2007; Padgett & Powell, 2012) emerging from - and, in turn, constraining - the everyday activities of the individuals that compose them. Consistent with the spirit of the institutional work literature, in which institutional change grows from numerous agents' prosaic efforts (Lawrence & Suddaby, 2006), we contend that overarching network structures emerge from mundane activities. As Padgett and Powell (2012: 3) argue, networks are just an instantaneous realization of an ongoing process. "Nodes and ties in social networks are not reified dots and lines," they point out. Rather, "they are the congealed residues of history." In other words, patterns of relationships between actors - not to mention the characteristics of actors themselves (Padgett & Powell, 2012: 2-3) - emerge from ongoing, everyday social activities (Lefebvre, 2008 [1961]: 41-42). For some, even this idea of emergence is too reified. Latour (1993: 121), for example, points out that at any point in a network (or other large social process), all activity remains contextual and, in a certain sense, local. In other words, networks just are a way of thinking about and modeling the large-scale patterns of particular, everyday activities.

Relationships emerging from everyday activities are a critical part of social life. As Taylor (2012: 53) notes, the "everyday work" involved in routine activities like planning advertising campaigns, brokering contracts, and facilitating information exchange are central underpinnings of global interaction. Alongside the conscious efforts to build and rebuild institutions come side effects. While actors advocate, theorize, mimic, and so on, they do so in collaboration or relation with others (Lusher & Ackland, 2011; Tily, 2015; Shumate & Dewitt, 2008; Ackland & O'Neil, 2008). Because institutional change requires multiple actors to adopt normative innovations, agents cannot accomplish transformation alone (Österblom & Folke, 2013; Bodin et al., 2016). Institutional working and *net*working go hand in hand.

"Work" implies effort; effort identifies institutional work as such (Lawrence, et al., 2009; 2011). Institutional workers face opportunity costs: some sacrifice is in inherent in

adhering to or constructing new institutions. Actors retrain, research, or redefine roles and identities to fit changing institutions. Adhering to some standards may raise the costs of engaging those adherent to others (Williamson, 1975). Because institutional transformation draws down precious resources, organizations must weigh the costs and benefits of engagement in various types of institutional work. Focusing on types of institutional work that are consistent with organizational resources and expertise, as well as with one another, may provide a way to shephard resources. Also, while the institutional work menu is expansive, adopting some types of work may necessitate the exclusion of others, in the interest of maintaining a coherent identity or brand (Bertels et al., 2014), that maintains stakeholder legitimacy (Amburgey & Rao, 1996; Bosso, 2005; Carpenter, 2011; Kelly & Amburgey, 1991; Deephouse & Schuman, 2008; Deephouse & Carter, 2005; Dowling & Pfeffer, 1975; Michel & Rieunier, 2012). These constraints can affect not only the types of institutional work upon which an organization embarks, but also with whom they collaborate in doing so. Organizations engaged in institutional work must make strategic decisions about their partners, trading off resources, autonomy, reputation, and influence (Hoffman, 2009; Bertels et al. 2014; Peterman et al. 2014). These considerations suggest an important stylized outcome we would expect across most institutional work networks:

- Proposition 1: Organizations will specialize in particular profiles of institutional work.

All else equal, organizations with more resources in time, personnel, and funds should be able to expend more person-hours in institutional work and, therefore, engage in more diverse activities with more varied partners than other groups. In other words, smaller, less affluent organizations should specialize in more limited institutional work profiles, collaborating with particular sets of partners, while more well-resourced organizations should exhibit broad profiles, casting a wide collaborative net. All this means we should expect a second stylized outcome across institutional work networks:

- Proposition 2: The extent and diversity of organizations' institutional work profiles will increase with organizational resources.

Organizational first-movers, as well, might be expected to become core players in evolving networks, as they benefit from rich-get-richer spirals. Padgett and Powell (2012: 6-7) contend a major source of change in organizational fields is the transposition of network relationships of one type into another domain. If institutional work can itself provide access to further resources, then organizations engaged in an emerging field may experience "rich get richer" outcomes. As Currie, et al. (2012) note, powerful institutional workers can use network construction as a means of maintaining influnece. Organizations that become gatekeepers (Carpenter, 2011), for example, can then, in turn, become more attractive collaboration partners, leading to further opportunities (Wagner & Leydesdorff, 2005; Margolin et al., 2015). This leads to a further proposition:

- Proposition 3: First-mover organizations will be more likely to become gatekeepers in networks formed by institutional workers than other organizations.

Background/Case: REDD+

We select REDD+ as an interesting case of institutional working and *net*working for two main reasons. First, the REDD+ network includes diverse organizational actors spanning the public, private, and civil society sectors. Reforming forest policy at local and global scales requires collaboration between government, firms, civil society, and international donors (Brockhaus & DiGregorio, 2014); no one can do everything. Donors' efforts, for instance, must be split between developing international credibility (Dauvergne & Lister, 2013; King, 2007; Authors, 2016) and ensuring sustained impact on the ground (Jagger et al., 2010). Civil-society organizations, on the other hand, must work to alleviate information asymmetries and diminish principal-agent problems (Van Slyke, 2009) while keeping an eye on funders' demands and organizational branding (Barakso, 2010). Because the bulk of the action undertaken by the network has taken place since 2007, organizations working on REDD+ have left digital traces that can be used as indicators of their activities.

Second, REDD+, a descendent of payment for ecosystem services (PES) aimed at compensating land stewards for environmental conservation and restoration (Milder 2010; Pagiola & Platais 2007), is an interesting case, in and of itself. The idea has traveled beyond its initial home in United Nations Framework Convention on Climate Change (UNFCCC)

deliberations to encompass development programs (den Besten, et al., 2014) and novel (and sometimes short-lived) institutions (Reinecke, et al., 2014). Its multistakeholder approach is important part of why REDD+ became a "remarkably successful idea" (Angelsen & McNeill, 2012: p. 32) after formally entering the United Nations Framework Convention on Climate Change (UNFCCC) debate in 2005. The initiative is potentially many things to many people, affecting groups concerned with livelihoods improvement and biodiversity protection, in addition to those interested in carbon sequestration (Di Gregorio et al., 2013; Vijge, et al., 2016). That is not to say REDD+ is an unambiguous win-win. In REDD+ discourse, emission reductions are seen as potentially at odds with - or at least separable from - social and biodiversity concerns (den Besten, et al., 2014; Pandey et al., 2014; McDermott, et al., 2012). Debates over these issues can be an important source of cleavage in REDD+ politics, with donors and investors tending to emphasize carbon benefits and civil society groups more interested in co-benefits (McDermott, et al., 2012; Vijge, et al., 2016).

Data and methods

Case studies are a primary tool for institutional work research. Close qualitative analysis has been employed to identify and study diverse types of work (Lawrence, et al., 2013; Lawrence & Suddaby, 2006), but this approach has the disadvantage of leaving the identification of institutional work profiles ad hoc (Perkmann & Spicer, 2008). Instead, we take a quantitative, model-based approach, utilizing clustering methods to extract institutional work profiles from indicators of a range of institutional construction activities. Because our data also characterize collaborative relationships between organizations engaged in REDD+, clustering allows us to relate emergent network patterns to the institutional work profiles we identify. Our analysis is premised on the idea that institutional work and networks, as Giddens (1984: 25) argued of agents and structures, "are not two independently given sets of phenomena, a dualism, but represent a duality."

Previous network research in organizational studies has often focused on a single type of relationship, such as board interlocks (Hoffman, 2009; Bertels et al., 2014), membership in committees (Peterman, et al., 2014) or participation in common projects (Paquin & Howard-Grenville, 2013), but a growing literature points to the need to consider multiple relationships among organizations or actors in order to properly understand the evolution, structure, and

effects of networks (Boccaletti et al., 2014; Bodin, et al., 2016; Padgett & Powell, 2012). Here, we study multiple networks, following Bertels, et al. (2014) in using clustering to investigate network structures, which in our case result from a total of 1,291 different organizations' engagement in common projects (N=750 organizations), hyperlink connections (N=741 organizations), co-publications (N=299 organizations) and co-membership on standards committees (N=290 organizations).

Data collection and preparation

Because REDD+'s future was and remains highly uncertain, we focus on salient activities involved in institutional creation in the REDD+ context. Data on organizational engagement in 292 avoided deforestation or sustainable forest management pilot projects, seats on 31 private standards-setting committees related to REDD+, and authorship of 1,097 REDD-related policy documents were derived from a dataset first described in Author (2013). These data, first assembled in June 2012, provide a cross-sectional map of a variety of dimensions of the REDD+ network's institutional work as of that time (see Table 1).

These data are used to construct three bipartite networks, in which two different types of entities are connected by links or edges, such that entities of one type can only be connected to entities of the other type (Wasserman & Faust, 1994). In the pilot project network, organizations are connected to pilot projects for which their contribution is noted in online sources describing the project. In the standards network, organizations are linked to committees involved in developing and assessing voluntary standards for forest-carbon projects when at least one organizational representative sits on one of the committees. In the co-authorship network, organizations are linked to policy documents listed on the Forest Carbon Asia (2016) website, which collects a wide range of resources produced on REDD+ from around the world.

Here we are less concerned with the structure of these bipartite networks themselves than we are in how the actions that compose these networks indicate different relationship patterns (Wasserman & Faust, 1994). To focus our analysis on these relationships, we project the bipartite networks to single-mode networks with weighted edges by multiplying the adjacency matrix of each network by its transpose (Watts, 2004), setting the diagonals of the resulting matrices to zero to remove self-loops. This creates a set of networks where the connections between organizations represent a count of the number of times the pair of organizations in

question are involved in a common pilot project, have representatives on the same standards committee, or co-author a policy document. We build on these data by adding data on hyperlink networks connecting websites of organizations appearing at least once in the three networks discussed above. There is growing evidence that hyperlink networks can be reflective of offline networking activities (Pilny & Shumate, 2012), helping in particular to identify major organizational hubs or gatekeepers (Carpenter & Jose, 2012), in addition to being a form of influence and organization on their own (Shumate, 2012). Websites of all organizations present at least once in the pilot project, standards, or publications networks (where such sites existed) were crawled using a script programmed in Node.js. The crawler began on the homepage of each organization, crawling three links deep into the organization's site and collecting all external links. Based on these data, we create a directed, weighted network, where the weight of each edge is a count of the number of hyperlinks from the sending organization's website to a page on the website of the receiving organization.

Projects	Standards	Publications	Hyperlinks
Advocacy	Defining	Advocacy	Advocacy
Mimicry	Vesting	Theorizing	Theorizing
Theorizing		Building normative associations	Building normative associations
		Educating	Educating

Table 1: Types of institutional work involved in activities used to construct collaboration networks.

Network Measures

We utilize a variety of network measures both to identify clusters of organizations occupying common positions across our networks and, once these positions are identified, to study their characteristics. We utilize two measures - degree and betweenness - as the basis for constructing our clusters. The degree of a node is the number of connections it has with other nodes (Freeman, 1978/1979). In weighted networks, such as those we study here, degree is the sum of all edge weights (Barrat, et al., 2004). Because three of our networks (Projects, Publications, and Standards) are symmetric, we compute the degree divided by two. For our hyperlinks network, we compute degree as the sum of both incoming and outgoing hyperlinks. Betweenness centrality is a count of the number of times a node is found on the shortest path between a pair of other nodes in a network (Freeman, 1978/1979). We adopt Opsahl, et al.'s (2010) weighted betweenness centrality, implemented in the tnet package (Opsahl, 2009) in R 3.2.3 (R Core Team, 2015). This approach takes the reciprocal of the edge weights and uses Dijkstra's (1959) least-cost path algorithm to find paths across the network with the minimum sum of reciprocal edge weights. This measure provides a good indicator of the degree to which an organization is positioned as a hub linking otherwise weakly connected organizations in a network.

We also compute Gould and Fernandez (1989) Gatekeeper scores - to aid our interpretation of the four networks we study. The Gatekeeper score is one of several measures proposed by Gould and Fernandez (1989) to measure patterns of connections between nodes of similar or different types across networks. An organization's Gatekeeper score is computed as the number of times an organization is located on a two-step path between an organization of a different type and an organization of its own type. This is particularly important for us because it provides an indicator of the degree to which an organization can broker access between organizations of its own type and differing types of organizations. We define types in two ways, calculating Gatekeeper scores for each. First, we compute the score with clusters based on organizational category (Firm, Government agency, International organization, NGO, and Research/academic) and, then, based on organizational headquarters location, by Organization for Economic Cooperation and Development (OECD) membership. We compute these scores for each network, dividing the scores for the projected bipartite networks by two to correct for double counting, as Gould and Fernandez (1989) scores are designed with directed networks in mind. This measure helps us observe how organizations with different roles contribute to the multiplicity and diversity of network connections and is computed in the statnet package (Handcock, et al., 2015; Handcock, et al., 2008) in R 3.2.3 (R Core Team, 2015).

To facilitate comparability across networks, we rank-transform all the above variables for all networks and then divide by the maximum rank for each variable. This produces scores scaled between 0 and 1 for all variables, indicating an organization's percentile on that variable, expressed on a 0-1 scale.

Clustering

To identify institutional work profiles, we utilize model-based clustering. While we follow Bertels, et al. (2014) in utilizing clustering to identify role positions, we depart from their approach in some significant ways. First, we cluster on a different set of network measures, degree and betweenness centrality, for all networks simultaneously, normalized as described above. Second, we cluster using finite mixture models as implemented in the mclust package in R 3.2.3 (Fraley & Raftery, 1999, 2007; R Core Team, 2015). This clustering approach is based on modelling clusters as discrete ellipsoids encapsulating the datapoints, with each cluster modelled using a Gaussian distribution. The optimal clustering given the data maximizes the

similarity of variable values within each ellipsoid and minimizes the similarity of values in different ellipsoids. Multiple models can be estimated with different numbers of clusters, with Bayesian Information Criteria used to compare models and select the number of clusters that best balances complexity and model fit (Fraley & Raftery, 1999). This technique allows us to assign organizations in our networks to distinct clusters based on their degree and betweenness in each of the networks, combining information both on the level of an organization's institutional work and its position across the networks. The resulting clusters identify profiles of institutional working and *net*working.

We use descriptive measures to characterize the identified institutional work profiles. To aid our interpretation, we create box-and-whisker plots for each of the network measures described above for each of the clusters identified by the optimum finite mixture model. Finally, we examine the distribution of organizational types and headquarters locations across institutional work profiles. Using 50,000 permutations of the clusters assigned by the model, we identify cases in which more organizations of a particular type or with a particular headquarters location (OECD versus non-OECD) are found in each of our identified institutional work profiles than would be expected at random chance.

Results

Our datasets contain many organizations (N=1,291), though the vast majority of these appear in only one or two relationships. The project (N=750) and hyperlink (N=741) networks contain considerably more organizations than the publication (N=299) and standards (N=290) networks. Based on Bayesian Information Criteria, the optimal clustering of these organizations' institutional work and networking generates six profiles, which, for sake of convenience, we refer to as Bridges, Digital Hubs, Experts, Generalists, Project Proponents, and Regional Players (see Table 2 and Figure 1).

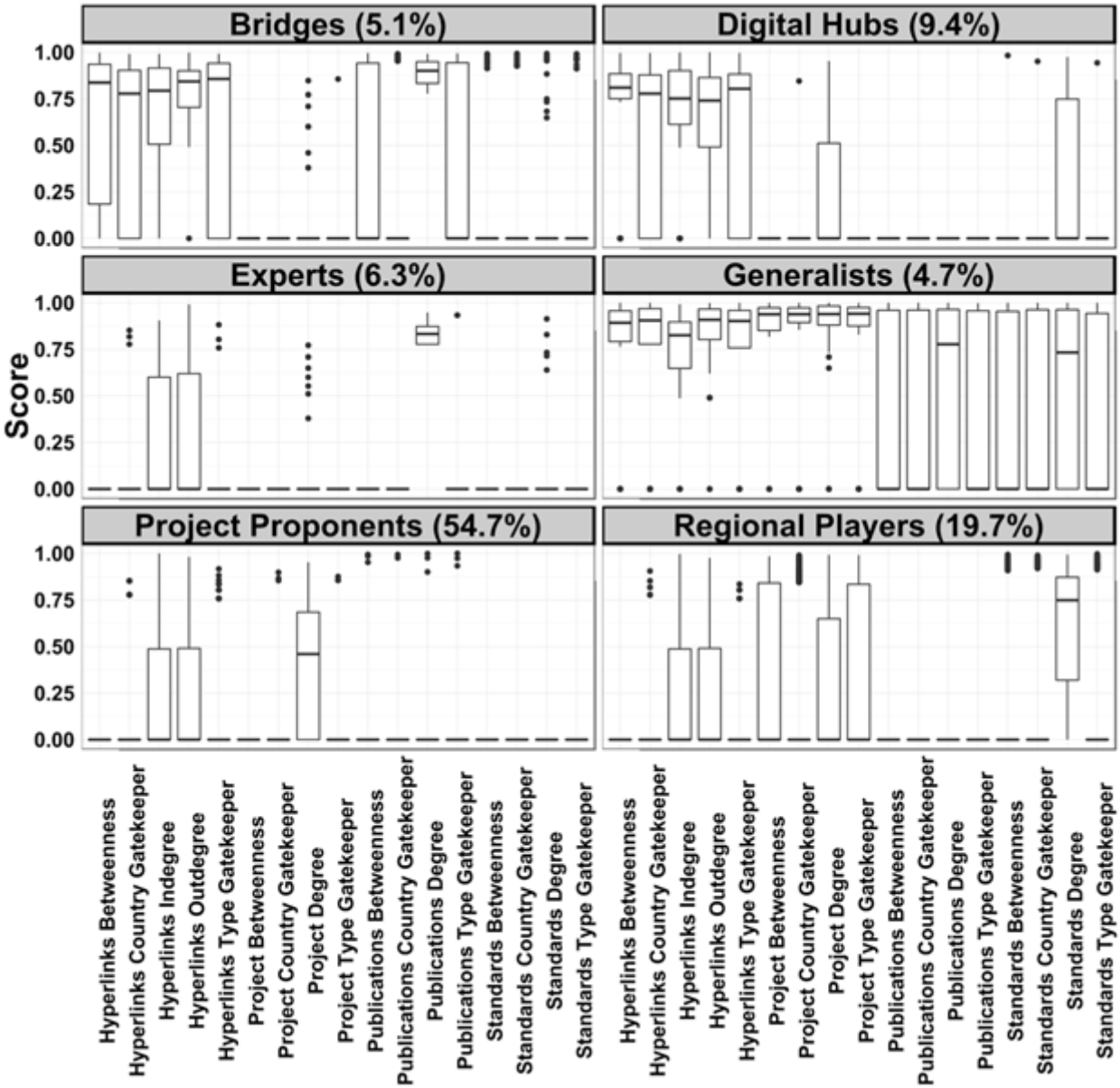

Figure 1: Distribution of network measures across institutional work profiles, normalized by dividing by the maximum value for each score across all organizations. Graphic produced with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015) and edited with Inkscape (Inkscape Board, 2015).

Bridges provide relatively weak ties facilitating knowledge exchange across sectoral or scalar divides (Olsson, et al., 2007; Berkes, 2009). These organizations that serve as hubs in the hyperlink network and are actively involved in co-sponsorship of policy-relevant publications,

where at least some have very high betweenness scores. Bridging organizations are often understood as being locally or regionally embedded, and the example organizations shown in Table 1 often have specific sectoral foci or operate at a regional scale. While digital hubs act as online connectors (Shumate, 2012), they are not positioned prominently in any of the other networks. Experts tend to have some web presence but are characterized primarily by a very strong position in the publications network, though they do not tend to play a prominent role in connecting up a diverse range of organizations. Generalists engage in advocacy on a wide range of issues (Gray & Lowery, 2000; Lowery, et al., 2012). Our appropriation here is a bit different from common usage, however. Here, we refer more to these organizations' wide range of institutional work, relative to other organizations engaged in REDD+. Project proponents tend primarily to be involved in the pilot project network, often in only one or two projects. Regional players are moderately involved in the pilot project network, and, unlike project proponents, they tend to be involved in multiple pilot projects but generally within a defined geographic area. They also are actively involved in standards committees, providing a conduit for local experience into standards setting.

<table>
<tr><th>Institutional Work Profile</th><th>Characteristics</th></tr>
<tr><td>Bridges (5.1% of organizations): Organizations that specialize in publications and web presence that act as web hubs. While they can act as organizational gatekeepers, they do not act as transnational gatekeepers.

More Likely: Civil Society; OECD

Less Likely: Private Sector

Examples: Institute for Global Environmental Strategies; International Union of Forest Research Organizations; HuMa; Climate Works; Silvestrum; Asia Network for Sustainable Bioresources;</td><td>
<table>
<tr><th>Very High</th><th>High</th><th>Low</th><th>Very Low</th></tr>
<tr><td>Advocacy; Building Normative Associations; Educating; Theorizing</td><td></td><td>Defining</td><td>Mimicry; Vesting</td></tr>
</table>
<table>
<tr><td>Networking</td><td>High</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Federation of Community Forestry Users, Nepal; Government of Nepal</td><td></td></tr>
<tr><td>Digital Hubs (9.4% of organizations): Organizations that are prominent, central actors in hyperlink networks but generally marginally involved in other networks.

More Likely: Research/Academic

Less Likely: Private Sector

Examples: Stockholm Environment Institute;International Food Policy Research Institute; Tanzania Traditional Energy Organization; Plan Vivo Foundation; Smithsonian Institution; Natural Resources Defence Council</td><td>
<table>
<tr><td>Very High</td><td>High</td><td>Low</td><td>Very Low</td></tr>
<tr><td></td><td>Advocacy; Building Normative Associations; Educating; Theorizing</td><td></td><td>Defining; Mimicry; Vesting</td></tr>
</table>
<table>
<tr><td>Networking</td><td>Low</td></tr>
</table>
</td></tr>
<tr><td>Experts (6.3% of organizations): Organizations that specialize in research and publications but do not tend to be located in prominent network positions or connect organizations of different types or in different places.

More Likely: Civil Society

Less Likely: None

Examples: GtripleC; Indigenous Peoples Network of Malaysia; Vietnam Forestry University; Daemeter Consulting; Asia-Pacific Network for Sustainable Forest Management; Bloomberg</td><td>
<table>
<tr><td>Very High</td><td>High</td><td>Low</td><td>Very Low</td></tr>
<tr><td></td><td>Advocacy; Building Normative Associations; Educating; Theorizing</td><td></td><td>Defining; Mimicry; Vesting</td></tr>
</table>
<table>
<tr><td>Networking</td><td>Very Low</td></tr>
</table>
</td></tr>
<tr><td>Generalists (4.7% of organizations): Organizations that are prominent in multiple networks.</td><td></td></tr>
</table>

More Likely: Public Sector; OECD

Less Likely: Private Sector

Examples: The Nature Conservancy; Government of France; Blue Moon Fund; Rights and Resources Initiative; Winrock International; CARE International; Government of Indonesia; Government of Central Kalimantan, Indonesia

Very High	High	Low	Very Low
Advocacy; Building Normative Associations; Educating; Theorizing	Defining; Mimicry; Vesting		

Networking	Very High

Project Proponents (54.7% of organizations): Organizations that are involved in project development and have some web presence but tend not to connect up otherwise unconnected organizations.

More Likely: None

Less Likely: Non-OECD

Examples: Program for Belize; Government of Tocantins, Brazil; Instituto Natureza Tocatins; Rakyat Berjaya

Very High	High	Low	Very Low
	Advocacy; Mimicry; Theorizing	Building Normative Associations; Educating	Defining; Vesting

Networking	Very Low

Regional Players (19.7% of organizations): Organizations that have moderate connections in the project network, often focusing on a particular area with multiple projects engaging multiple organizations. They also are involved in standards-setting activities.

More Likely: Private Sector; OECD

Very High	High	Low	Very Low
	Advocacy; Defining; Mimicry; Theorizing; Vesting	Building Normative Associations; Educating	

Less Likely: Civil Society Examples: Precious Woods; Applied Geosolutions, LLC; University of Palangkaraya; Government of Amazonas, Brazil; Carbon Decisions International	Networking	Moderate

Table 2: Descriptions and examples of members of detected institutional work profiles. Organizational types and headquarters locations that are more likely to be in each category than expected at random

The small number and internal consistency of the identified institutional work profiles is consistent with specialization (Proposition 1). Organizational types also have differing propensities to adopt different institutional work profiles (Figure 2). Civil society organizations are more likely to be Bridges and Experts and less likely to be regional players than would be expected at random chance. Private sector organizations are more likely to be Regional Players or Project Proponents than would be expected at random chance, and are less likely to adopt any other profiles. Public sector organizations are more likely to be Generalists and less likely to be Experts. Academic and research organizations, not surprisingly, are significantly likely to be Digital Hubs.

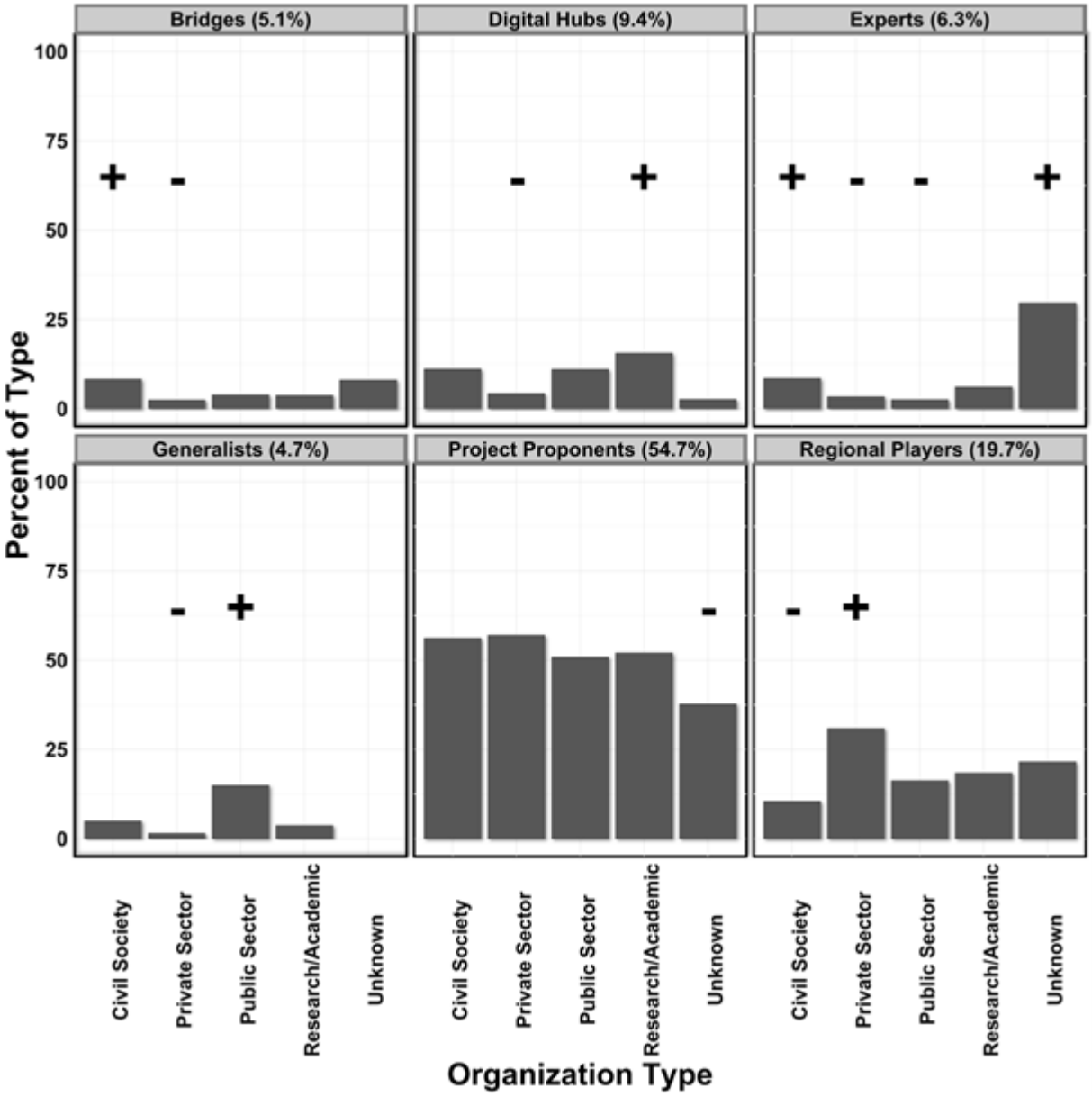

Figure 2: Distribution of organisational types, by institutional work profile. Graphic produced with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015) and edited with Inkscape (Inkscape Board, 2015).

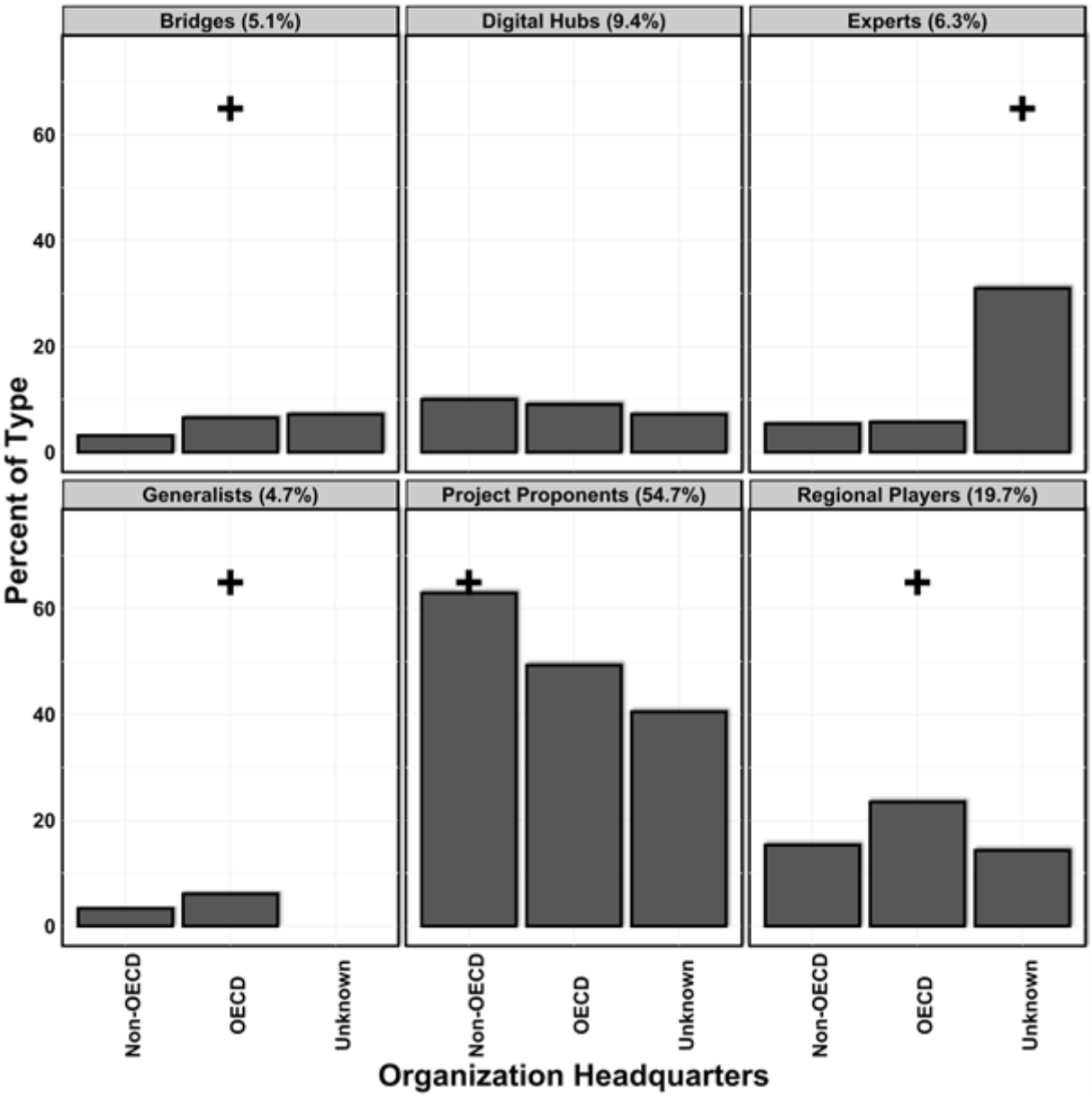

Figure 3: Percentage of organisations by headquarters location and institutional work profile. "+" denotes a percentage statistically significantly higher and "-" a percentage statistically significantly lower than expected at the 0.05 level, based on 50,000 permutations of the clusters assigned by the model. Graphic produced with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015) and edited with Inkscape (Inkscape Board, 2015).

That public sector organizations are more likely than others to be Generalists demonstrates an association between resources and the diversity of institutional work (Proposition 2). Additionally, organizations headquartered in non-OECD countries tend to play marginal roles in the network by virtue of adopting modest institutional work profiles (Figure 3). More than 60% of the organizations based in non-OECD countries in our dataset occupy the

Project Proponent role, while organizations based in OECD countries are more likely to be Bridges, Generalists, and Regional Players than would be expected at random chance.

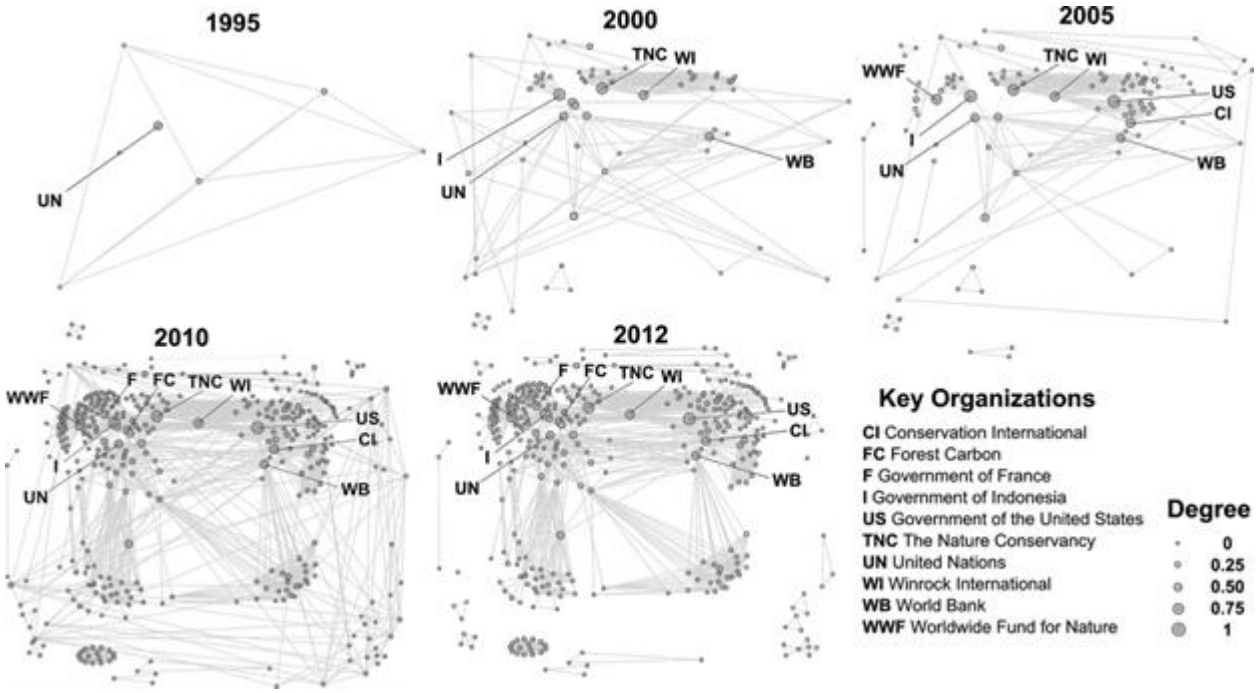

Figure 4: Evolution of the REDD+ pilot project network, projected to show organization-to-organization connections. Organizations sized by degree, normalized by the maximum degree in the network. Top ten organizations by degree as of 2012 labelled in all time periods in which they appear. Organizations are in the same relative position in each time period. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015) and edited with Inkscape (Inkscape Board, 2015).

Figure 4 illustrates the evolution of the pilot project network, the only one of our networks for which time-series data are available. Organizations are in the same relative position in each time step, and the top ten organizations by degree as of 2012 are labelled whenever they are present. The figure demonstrates the importance of key organizations that serve as anchors for a growing network linked by collaboration on projects. In addition to serving as the core of the network, these organizations also become more redundantly interconnected over time (Proposition 3). Notably, with the exception of Forest Carbon, all of the top ten organizations are classified as Generalists, a pattern consistent with the idea that global branding and sufficient resources are necessary to become a core network member.

Discussion

Our findings illustrate how different profiles of institutional work lead organizations to occupy different positions in transnational networks aiming at institutional transformation, such that institutional working is always also institutional *net*working. Previous studies have commonly identified central players (mediators for Hoffman, 1999; network orchestrators for Paquin & Howard-Grenville, 2013; commissioners for Peterman et al., 2014; portals for Bertels et al., 2014) and organizations connecting other organizations or parts of the network (structural holes or brokers for e.g. Burt, 1992; bridges for Hoffman, 1999; conduits for Bertels et al., 2014). Our Generalists and Bridges occupy similar positions, and our Expert profile comes close to Peterman, et al.'s (2014) interpreters. However, our Generalist organizations need not take central positions in all networks, nor do they necessarily take over the management or orchestration of the network in exerting their influence. These differences indicate the importance of considering multiple types of institutional work in identifying network positions. Minor players in one network may be dominant in another. Because of specialization, organizations' activities in any one relationship do not necessarily indicate their position across all relevant relationships.

Our assessment of the role of cost and specialization in institutional work led to the suggestion that we would expect networks emerging as a result of collaborative institutional work to be centralized and specialized. This appears to be the case for the network of organizations working on REDD+ policy development and implementation. The core members of the transnational REDD+ network, the Digital Hubs, the Bridges, and the Generalists, account for only about 20% of the organizations in our dataset. Organizations adopting these institutional work profiles tend to be governmental actors, particularly OECD development agencies; large transnational NGOs; and international organizations like the World Bank. Well resourced and possessing a professional and generally internationally savvy staff, these organizations are equipped to support multiple modes of institutional work simultaneously. They are positioned not only to overcome the transaction costs involved in fostering collaborative relationships but also, due to their command of resources and, in some cases, formal legal influence over institutionalization and policy development, may be sought-after partners.

We also find evidence of specialization. Outside the Generalists, very few organizations in the dataset are highly active in more than two types of activity, though these activities may still involve a relative diversity of institutional work. As we might expect, there is a tendency for collaboration on publications and connected web presence to cluster together, while it appears that many private sector actors tend to operate in particular national or regional contexts, working with many different types of organizations, but not necessarily across countries.

The combination of centralization and specialization that emerges from the co-constitution of institutional work and networks can have important implications for changes in networks over time. On the one hand, dominant organizations may be able to define the purpose of the network (Carpenter, 2011), which can, in turn, affect subsequent patterns of network evolution (D'Andreta, et al., 2016). The dominance of transnational organizations based in the global North in REDD+ project networks (Author, 2013; Authors, 2016), for example, may tilt the discursive position of the network in the direction of more market-based approaches to climate change mitigation.

Conclusion

We began making the case for our study by arguing that networks and relationships are undertheorized in the literature on institutional work. While the literature has taken an exogenous perspective on networks, as something built and rebuilt by institutional workers (Lawrence & Suddaby, 2006; Currie, et al., 2012), here we have argued that networks should also be seen as a medium in which institutional work is embedded and with which institutional work is co-constituted. Rather than treating networks as horizontally organized groups (Boxenbaum & Pedersen, 2009; Currie, et al., 2012; Zeitsma & Lawrence, 2010), our work responds to calls for explicit network analysis in studies of institutional work (Perkmann & Spicer, 2008). Our findings demonstrate that the ability to engage in institutional work can have important implications for the structure of collaborative relationships between organizations. These relationships in turn, have implications for power and authority and, potential for who may benefit from institutional work. These findings suggest relational perspectives can be a helpful theoretical move, allowing us to bring power relations back into accounts of institutional work (Currie, et al., 2012).

The institutional work of building REDD+, our findings suggest, is characterized both by specialization and centralization. That is, many organizations adopt a delineated institutional work profile, economizing on limited resources. Those organizations with sufficient wherewithal to engage in wide institutional work profiles transnationally come to occupy core positions in the transnational network engaged on the issue. These core organizations are positioned to serve as market makers for the effort as a whole, but their presence also may swing the network in directions consistent with their own interests and ideologies, with implications for the types of institutions network members create.

While the future of REDD+ is uncertain, and the dynamics observed in this network may be in part a product of that uncertainty, there are likely many efforts, both within and beyond environmental concerns, that mirror this type of evolution. The REDD+ case, therefore, suggests some avenues for further research. It would be particularly interesting to find activities that could be understood as indicators of single types of institutional work, as it can be difficult to pry apart just what type of function is performed by any given activity. Similarly, in this study, we have only touched upon the power dynamics of network evolution, and these themes certainly merit more scholarly attention. Finally, qualitative data and specialized expertise in the everyday social practices and strategies of organizations involved in the institutional work area under study may assist in identifying the most relevant types of institutional work and resulting relationships. Identifying the key activities for a given domain is essential in order to study the co-constitution of institutional working and *net*working.

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Chapter 9

Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability

Payments for Ecosystem Services: Rife with Problems and Potential—for Transformation towards Sustainability

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Abstract

Payments for ecosystem services (PES) programs are one prominent strategy to address economic externalities of resource extraction and commodity production, improving both social and ecological outcomes. But do PES and related incentive programs achieve that lofty goal? Along with considerable enthusiasm, PES has faced a wide range of substantial critiques. In this paper, we characterize seven major classes of concerns associated with common PES designs, and use these as inspiration to consider potential avenues for improvements in PES outcomes and uptake. The problems include (1) new externalities, (2) misplacement of rights and responsibilities, (3) crowding out existing motivations, (4) efficiency-equity tradeoffs, (5) monitoring costs, (6) limited applicability, and (7) top-down prescription/alienating agency. As currently practiced, many PES programs are thus of limited benefit and even potentially detrimental to sustainability. From this dire conclusion, we highlight several innovations that might be combined and extended in a novel approach to PES that may address all seven problems. Problems remain, and new ones may arise, but the proposed approach may offer a way to reimagine PES as a major social *and* economic tool for enabling sustainable relationships with nature, conserving and restoring ecosystems and their benefits for people now and in the future.

Extended Keywords: *Payments for ecosystem services; reverse auctions; incentive schemes; offsets; corporate social responsibility; market-based instruments; motivational crowding out/in; incentives and motivations; stewardship; environmental values; relational values*

Introduction

The challenge of sustainability and conserving biodiversity will require solutions that reign in the negative externalities of market transactions. Climate change, habitat degradation and fragmentation, pollution, overharvest, invasive species and disease—all the major threats to biodiversity and ecosystem services (Wilcove, 1998; Millennium Ecosystem Assessment, 2005)—are produced largely via extraction, conversion, transport, and use of goods and services traded in local or global markets.

The existing major tools for environmental policy and management all have encountered obstacles in addressing these pervasive economic drivers. Legislative and regulatory 'command and control' approaches are difficult to implement, in part because those industries that stand to bear focused costs are often highly effective as government lobbyists (Oreskes, 2004), and also because actions must generally be demonstrated harmful before being prohibited. Such evidence of harm is often elusive given that environmental patterns are inevitably cumulative products of diverse drivers of change interacting over multiple spatial and temporal scales (Levin, 1992). Ecosystem-based management (EBM) (Grumbine, 1997; McLeod & Leslie, 2009) suffers many of the same problems, and it can be costly and difficult to implement given the need for coordination across sectors/agencies, such that EBM as envisioned by experts has been only partly implemented in a few places (Arkema et al., 2006; Chan et al., 2009). Finally, environmental impact assessment, potentially a tool for preventing environmentally damaging development, has more often been a rubber-stamping procedure that approves of all but the most egregious focused impacts (Boyd, 2003; Duinker, 2006; Singh et al., submitted). A fourth kind of solution are environmental incentive programs, including payments for ecosystem services (PES), which involve users of ecosystem services (ES) paying for actions that protect those services (Wunder et al., 2008).

It was PES and similar private finance deals that drove *the Economist* to declare the 'rescue' of environmentalism (The Economist, 2005), and such business interests continue to promote ES more generally (WRI, 2008). If PES programs could succeed in internalizing the externalities of market transactions, in theory Adam Smith's invisible hand could steer global markets towards sustainability rather than against it. Innovations to economic systems have tremendous potential for positive change and are absolutely essential for sustainability (Daily & Ellison, 2002; Helm, 2015; Chan et al., in press).

However, although PES programs were initially met with considerable hope, they have also been fraught with controversy, which appears to have thwarted their expansion. One outright rejection is associated with the commodification of nature, and the concern with any market-based rationale to protect ecosystems when it is the same market-based motivations that fuel the consumption that drives environmental degradation (Kosoy & Corbera, 2010; McAfee & Shapiro, 2010; Spash, 2008). Proponents as well as detractors within the ongoing

commodification debate have become more sensitized as well as cautious concerning the capacity, scope and overall ambition for PES initiatives worldwide (Prudham, 2007; Gómez-Baggethun & Ruiz-Pérez, 2011; Gómez-Baggethun & Muradian, 2015). This is particularly evident in discussions around the ethical implications and social consequences of introducing incentive programs into a community setting (Brooks et al., 2012; Luck et al., 2012; McAfee & Shapiro, 2010; Norgaard, 2010). Despite such concerns, PES programs continue to garner substantial interest worldwide, despite large-scale institutional failures of similar market instruments, such as the inability to establish an internationally recognized and supported carbon market (Dixon & Challies, 2015).

In this article, we address those practitioners and scholars who see some value in incentive-based approaches to ecological problems but who may see shortcomings in their current contribution to a more sustainable world. We take a somewhat unusual stance of pairing fundamental critique with constructive proposal, assessing incentive programs and their potential contributions to sustainability—realized or not—from multiple perspectives. Specifically we bring to bear expertise in environmental values, cultural ecosystem services, social-ecological systems and corporate social responsibility; we also incorporate insights from sociology, social psychology, and anthropology. Most writing on PES implicitly either accepts or rebukes the fundamental premises of economic efficiency and monetary incentives as helpful towards sustainability, with PES proponents proposing design tweaks to address particular flaws in PES programs as *economic* tools (e.g., Jack et al. 2008; Engle 2016; Rode et al. 2015). These are important contributions. But this article takes a step back, explicitly considering the legitimacy and applicability of critiques while acknowledging the merits of the overall process of incentivizing conservation and restoration. After briefly defining the scope of incentive programs considered, we characterize seven major sets of objections/critiques that have been levied at PES in a range of relevant literatures. We then consider how several major design changes could lead to a novel redesign of PES as *social* and *economic* tools, responding to emerging understandings of environmental values (e.g., Chan et al., 2016). We draw from existing approaches within and beyond PES to recommend a suite of conceptual shifts and corresponding practical approaches to address each of the seven critiques. We propose that this approach might simultaneously address important challenges to PES and help the ES concept live up to its highly touted potential.

PES, A Brief Introduction

In this article, we address a broad basket of incentive-driven programs and projects intended to protect or provide sustainable flows of ecosystem services, commonly referred to as PES (Wunder, 2005, 2013; Muradian et al., 2010; Barrett et al., 2013), but also including a variety of related programs (e.g., what Swallow et al. (2009) termed compensation and rewards for environmental services). PES can refer to small local projects targeting specific species, such as

the Wildlife Conservation Society's program that sold hunting permits for a rare turkey in Guatemala to fund conservation of its habitat. They may also be substantially larger in both geographic and monetary scale, such as Norway Environment Ministry's $1 Billion USD investment to the Brazil Amazon Fund to fund programs encouraging afforestation and reducing deforestation. PES programs can be private arrangements, government driven, or some hybrid of the two. In Ecuador and elsewhere, water funds are collaborations between municipal governments, environmental NGOs, private firms and local water users. In these arrangements beneficiaries of clean water pay into a trust that funds watershed restoration projects to enhance the quality and quantity of urban water delivery (Goldman et al., 2008).

PES have captured rapidly expanding attention. For instance, there were 13 articles in Google scholar with the term "payments for ecosystem services" before 2000, 182 between 2001 and 2006, and 6830 between 2007 and 2015. This literature reveals mixed results with respect to endorsement of PES, where synthesis is hampered by a lack of established metrics for success (Daniels et al., 2010; Dougill et al., 2012; Prager et al., 2015). Learning across contexts has been challenging due to the wide range of sectors, sizes and types of projects (see Brouwer et al., 2011; Engel et al., 2008). In short, the promise of PES remains largely unproven (Kinzig et al., 2011; Naeem et al., 2015). And yet optimism remains, from large funders and long-term government programs, and implementation continues.

The expanding literature on PES has important gaps. The vast diversity of projects (based on services targeted, spatial and temporal scales, kinds of participants, landscape types, and contractual arrangements) makes it difficult to discuss PES as a unit, and yet many papers do just this. Broad-brush arguments can impede progress, because appropriateness of program designs depends on various dimensions of context (Wunder et al., 2008; Corbera et al., 2009; Kemkes et al., 2010; Brooks et al., 2012; Muradian et al., 2013).

Several recent reviews have begun to address this gap by identifying important conditions and contexts and which design features of PES are most appropriate for each (Jack et al., 2008; Lockie, 2013; Samii et al., 2014; Engel, 2016). In addition to these 'best practice' suggestions, ideas have been put forth to improve our conceptualization of PES (e.g. Swallow et al. 2009). However, a substantial gap remains between these constructive suggestions for improving PES programs and the more fundamental critiques that have been levied against PES and market-based mechanisms more generally (Kosoy & Corbera, 2010; McAfee & Shapiro, 2010; Spash, 2008). The following seven critiques—ordered for flow of ideas and not for importance—draw from and synthesize *both* the critical and constructive literature on PES. While not an exhaustive set, we hope they constitute an important starting point to advance cross-disciplinary conversations.

Seven Problems

1. New Externalities, "A cure for every ill, an ill for every cure"

The danger with any new market or system of incentives intended to address environmental externalities is that it will itself yield actions with unintended consequences in the form of new externalities. This is essentially a case of Goodhart's Law, which states that once an indicator is made a metric for success, it will cease to function as an effective metric because individuals and firms will find and exploit loopholes that enable success by the metric without its intent (Newton, 2011). Several authors have pointed to this general danger in the context of PES, as participants pursue funding from the program without regard for other environmental concerns (Kosoy & Corbera, 2010; Luck et al., 2012; van Hecken & Bastiaensen, 2010). For example, participants in carbon-credit programs may produce low-cost carbon at the expense of food production and livelihood security, which emphasizes possible perverse incentives by such environmental market interjections (Jack et al., 2009; Muradian et al., 2010). The problem of new externalities is especially applicable to PES designs that award contracts based on a small set of pre-identified criteria, and less applicable to designs that involve scrutiny for multiple attributes (e.g., Stoneham et al., 2003).

The problem of new externalities often applies to reforestation or afforestation programs, wherein plantations of fast growing (and often non-native) trees such as eucalyptus are commonly promoted because their fast growth satisfies carbon sequestration goals, but also consume much water, cause considerable soil loss and sedimentation, and may provide little habitat for biodiversity, even at maturity (Farley et al., 2005; Jackson et al., 2005; Jindal et al., 2008; Bremer & Farley, 2010). Such failures have been elaborated by Flores et al. (2009), who discuss the struggles of NGOs against the Plantar Forestry Project in Brazil. Additionality requirements and narrowly targeted payments may also lead to unintended environmental consequences (Flores et al., 2009; Bagri et al., 1999). Furthermore, PES payments can, if unchecked, lead to further perverse incentives when those who do not qualify to participate in a given program engage in undesirable activities, like deforestation, in order to be eligible for the PES program (Sommerville et al., 2009; Wunder et al., 2008).

2. Misplaced rights and responsibilities, *"Polluter is paid"*

By providing payments for particular actions, incentive programs specify or imply a set of rights and responsibilities that may change the way people perceive entitlements and appropriate actions. In the ecosystem services literature, researchers have noted that PES might shift our understanding of our rights and responsibilities towards ecosystems (Solazzo et al., 2015; Mauerhofer et al., 2013; Chan et al., 2012). Most PES systems are structured such that beneficiaries of ES pay those directly responsible for an ecosystem ("ES providers") not to degrade (e.g., downstream water users pay upstream farmers to reduce sedimentation and eutrophication of waterways). Such a structure sends an implicit signal that people have the right

to degrade unless paid not to do so (Polasky, 1997). In short, the responsibility to care for or conserve the ecosystem and the services it provides is shifted from those directly responsible for the ecosystem to those paying for the ES. Responses that include the disappointment effect, loss aversion, and negative reciprocity can change how stewards and benefactors of environmental services understand their rights and responsibilities towards ecosystems (Fehr & Falk, 2002; Fehr & Gächter, 2001; Frey & Oberholzer-Gee, 1997). For example, ES providers may be less likely to continue an action after an introduced financial incentive is removed because they have learned to feel entitled to receive this compensation, and/or because they perceive that a relationship has been violated. This problem is applicable to any program that funds would-be polluters/degraders to *refrain from* polluting or degrading, particularly if payments only apply to those who were previously polluting/degrading, as commonly required for additionality (hence "polluter is paid" rather than "steward earns" as in Gómez-Baggethun & Ruiz-Pérez 2011); it applies less to programs that fund active positive stewardship (e.g., encouragement to create new pollinator habitat or nest sites).

There are many examples of changing perceptions of rights and responsibilities in response to incentives, also associated with motivational crowding out (see 3 below; Gneezy & Rustichini, 2000; Fehr & Falk, 2002). As an example of disappointment regarding PES, in a carbon project in Uganda, participants who did not make required changes prior to monitoring were frustrated when payments were not received or there was a delay in compensation, which undermined overall goodwill and trust (Dougill et al., 2012). Similar effects may also occur on the consumer side of market-based conservation programs. Igoe (2013) describes how participating in activities like purchasing products with environmental certifications or acres of rainforest allows consumers to purchase their personal "environmental redemption", meaning that they may feel like they have fulfilled their environmental responsibilities and do not need to participate in further conservation activities.

3. Motivational crowding out, *"Money breeds mercenaries"*

Whereas we might hope that adding a monetary incentive simply adds to existing motivations for conservation, there is also a danger that the new monetary incentive provided by PES programs can *undermine* existing "intrinsic" or altruistic motivations. Much has been written describing this motivational "crowding out" in the context of PES (Vatn, 2010; Luck et al., 2012;). Considerable evidence for this phenomenon has been found in experimental psychology (e.g. Frey & Oberholzer-Gee, 1997; Reeson & Tisdell, 2008; van Noordwijk et al., 2012). Experiments confirm that participants receiving only social incentives (no payment) often expend more effort than those receiving payments, or than those offered both incentives (Heyman & Ariely, 2004). While most of the evidence to date does not focus on conservation activities, there is evidence of motivational crowding out in PES programs (Rode et al., 2015). Of particular concern is the fact that the displacement of intrinsic and altruistic motivations may be difficult to reverse (i.e., after the removal of the monetary incentive) (Gneezy & Rustichini,

2000). This problem applies to any program offering a payment, but it may be less applicable when payments are co-payments or clearly lower than opportunity costs (because ES providers must retain intrinsic motivations to justify participation (Kosoy et al., 2007)).

Although it has received less attention in the PES literature, motivational crowding out can have a social dimension as well. Some stakeholders may undertake stewardship actions for stated 'moral' reasons partly to gain social approval or avoid social disapproval, or simply to conform to social norms (Kerr et al., 2012). However, if people are paid for such actions (or see others getting paid for the same action), the social incentive diminishes as it becomes hard to distinguish a moral motivation from a mercenary one (Fehr & Falk, 2002). Similarly, Bowles (2008) suggests that policies designed for self-interested citizens may undermine moral motivations. By focusing on economic arguments, we may diminish the total number of motivations for conservation (Olmsted et al., in prep), a concern because conservation efforts will likely be more successful with multiple arguments in their favour (Redford & Adams, 2009). Wunder (2005) explains how strict additionality requirements can signal that non-monetary motivations for conservation are not valued by excluding conservation-minded people who may already be engaged in conservation activities for non-monetary reasons.

There is some evidence of motivational crowding-out from the PES literature. In experimental settings with hypothetical farmers, Kits et al. (2014) observed small crowding-out effects via reduced participation after removal of payments. Similarly, in their review of eighteen empirical studies Rode et al. (2015) found evidence of motivational crowding out (and to a lesser degree, crowding in). More recently, De Martino et al. (2015) paradoxically found that higher monetary awards induced *less* participation of conservation-minded landowners in a hypothetical PES, suggesting a crowding-out effect.

4. Project Efficiency and Equity, *"What about me?"*

There is an inherent tension between structuring a program to achieve maximal conservation gain for the least money versus providing needed funds equitably across potential participants. Conservation program efficiency is often sought via targeting participants who offer the greatest 'additionality'—effectively the greatest conservation return on investment. Efficiency may also impede equity when program designs unintentionally exacerbate barriers to participation for poorer landowners, including land tenure and requirements to hire foresters to complete applications (Pagiola, 2008; Anderson & Zerriffi, 2012). The tradeoff between these two desirable attributes appears to be applicable to all PES designs.

The PES literature provides many examples of such tradeoffs. Programs may seek efficiency at the cost of equity when they seek out the most ecologically important or most degraded land (Pascual et al., 2010). Other common strategies to reduce PES program costs, such as requiring minimum commitments of land or resources to participate, favour including fewer ES providers responsible for larger parcels of land over many smaller-scale providers (Anderson & Zerriffi,

2012). In an attempt to optimize multiple conservation goals in a PES in the Andes, researchers found substantial tradeoffs between maximizing land enrolled and number of farmers participating—the most cost-effective conservation resulted in substantially uneven payments to participants (Narloch et al., 2011). Targeting particular land for conservation or changing management practices yields better (environmental) results than including land at random or maintaining existing practices (Narloch et al., 2011; Pascual et al., 2010). However, this can exclude people in some areas and those who are already engaging in conservation activities. PES programs that aim for highly efficient service provision outcomes and ignore equity considerations may reinforce existing power structures as well as inequalities in access to resources (Pascual et al., 2010); they may even undermine the effectiveness of PES programs for conservation (Pascual et al., 2014). In Costa Rica's national PES program, despite the addition of explicit social goals and associated requirements to include less wealthy and more vulnerable Costa Ricans, participants continued to be disproportionately wealthier, more educated landowners (Porras et al., 2013). On the other hand, the PES program in Costa Rica arguably also reduces its environmental efficiency while increasing equity by allocating 26% of its funding to PES in indigenous territories where there is little risk of deforestation (Porras et al., 2013).

5. Burden of monitoring, "Cheating pays, so pay for policing"

If participants engage in a program primarily for monetary benefit, there is an unavoidable incentive for ES providers to cut corners or shirk responsibilities, which has led to costly on-ground monitoring to ensure that participants are doing as they should. While monitoring of overall impact is important to understand the effectiveness of various programs, monitoring, and an often rigid accountability framework consumes a large fraction of the costs of carbon credit payments (Wittman et al., 2015). In addition to concerns about cheating, PES may require detailed monitoring for reports to funders or beneficiaries or for accounting purposes (Wittman & Caron, 2009). More broadly, an overemphasis on monitoring, auditing, and achievement of quantitative metrics can undermine organizational autonomy and professional values, yielding several kinds of unintended effects (Shore & Wright, 2015). This problem is applicable to any PES program involving payments, but much less so when the payments are token (small relative to opportunity costs), in-kind, or reimbursements for expenses incurred, due to the associated reduction in incentives or opportunities to cheat.

Particularly for carbon sequestration projects, which generally require detailed accounting, monitoring costs have subtracted from other program goals. When an NGO in Guatemala adopted PES as a mechanism to fund its reforestation work with small-scale farmers, several unanticipated consequences occurred: funds were diverted from development activities to pay for costly outside consultants with the needed technical skills for carbon accounting, and the NGO expanded from its focus on small scale farmers to include those with larger land holdings (which eased the burden of monitoring) (Wittman & Caron, 2009). Thus, burdensome

monitoring not only presents costs but can also function to exclude many small-holder farmers from participating, particularly when auditors are paid by the farmer, as in Costa Rica's national PES program.

6. Limited applicability, "A Coasean solution … for a non-Coasean world"

PES are also limited as a solution to environmental problems because they are only applicable to relatively rare cases (Wunder, 2013). Although Wunder points to several relevant requirements, much can be summed up by recognizing that PES—as *ideally* conceived—are effectively two-party negotiation solutions in a world where two-party problems are rare. Here we refer to Coasean theory, which posits that environmental externalities can be solved via the clarification of property rights, which would allow affected parties (the impacted and the impacting) to negotiate with one another in a free market system (Coase, 1960; Tietenberg, 2003; Harris, 2002; Russell, 2001; Hanley et al., 2001; Perman et al., 2003). Coase argued that precise allocations of property rights and the absence of any costs of information or negotiation would allow two parties to arrive at an advantageous outcome (Dixit & Olson, 2000; Coase, 1960). Such negotiations should result in Pareto-optimal outcomes including the human experience of environmental harms (Cheung, 1970; Coase, 1960).

The problem is that such solutions apply only to the few cases in which a given environmental externality (e.g., water quality degradation) affects a single party or a cohesive set of parties. In cases of multiple affected parties (e.g., firms and also human communities), the benefits of ES mitigation actions often cannot be recouped by a sufficiently cohesive group that such private solutions will occur spontaneously. In many PES, governments have stepped forward with a Pigouvian solution (Engel, 2016) distributing funds from the public purse to protect public benefits. Because this generally requires large new sources of revenue (e.g., taxes), such government action does not often happen at large scales. As such, the types of actors involved in PES—and thus the sources of funds and the scope for application of PES—are often quite limited. This problem is not associated with any particular application, but rather the paucity of applications in relation to the frequency of environmental externalities.

In line with this argument, there has been relatively little corporate involvement in PES, despite a rise in interest in environmental sustainability by manufacturers and retailers globally (Dauvergne & Lister, 2012). Considering the role that firms have played in impacting the environment, firm participation in conservation is appropriate (Dixon & Challies, 2015). Yet firms face a high degree of risk and uncertainty when entering new markets in the form of sustainable initiatives (Dixon & Challies, 2015). In the case of PES, firms are often unfamiliar with the nexus of conservation, social development and investment finance (Agrawal et al., 2011; Corbera & Schroeder, 2011; Dixon & Challies, 2015). Limited private sector involvement may reflect the considerable costs and uncertainty associated with PES, which can be magnified in the context of low governance capacity (Matthews et al., 2014; Rendón-Thompson et al., 2013; Van Noordwijk et al., 2014; Hajjar, 2014). Recently, firms have become more involved in

PES through REDD+ activities, with firms comprising nearly 40% of organizations engaged in preventative deforestation pilot projects globally (Gallemore and Munroe, 2013). While firms have been directly involved in PES advocacy networks, particularly in the case of REDD+, they remain at the edge of the policy community discussion, with limited engagement at the project level (Moeliono et al., 2014: Gallemore & Munore, 2013). Policymaker understanding of firm participation in PES remains limited, including motivating drivers and investment behaviors (Levy & Newell, 2005).

7. Top down prescription, *"Agency knows best"*

Many PES programs fund particular actions on a one-size-fits-all basis, which incurs the risk that would-be participants might recoil from such prescriptions due to conflicts with their own values or restrictions on their creativity and wisdom as stewards of the land. Dictated by regulators or third parties, PES regulations may thus not fit with the values and practices of ES providers. Such outside prescriptions are often far less attractive than home-grown solutions (e.g., the "follow the bright spots" approach, Heath & Heath, 2010). This problem applies to any design that dictates narrowly the kinds of actions that are eligible for payment, and it applies less to PES designs that invite suggestions for actions (e.g., Stoneham et al., 2003).

Farmers and other landowners often resist inflexible prescriptions, which seem to conflict with their values, and which deny their agency as effective stewards of the land (Chan et al, 2015). In one case, 'no touch' rules for a riparian buffer PES in the US Northwest conflicted with farmers' values to actively manage and care for their land (Chan et al., 2014). In another PES project, farmer buy-in was improved when it adapted to farmers' language and culture, e.g., framing ES as a product that farmers produce and a point of pride (Wynne-Jones, 2012). Farmers often prefer conservation actions that visibly demonstrate success or productivity—e.g., fences are preferred to overgrown buffers (Burton, 2004) (despite this, unmanaged buffers are a common feature of PES).

One reason for the conflict between ES providers and PES programs may derive from the values articulated by these programs and conventional environmental conservation (Vatn, 2005; Olmsted et al., in prep; Chapman et al., in prep). ES literature has generally focused on intrinsic and instrumental values of nature, though the latest IPBES framework makes key steps towards acknowledging a greater diversity of relationships between people and nature (Díaz et al., 2015; Chan et al., 2016). Agrarian values, for example, are often centered around the relationships between farmers and the land they work, so-called "relational values" that can also include instrumental and intrinsic components (Carlisle, 2013; Smith, 2003; Chan et al., 2016).

Solving the problems

Although many PES programs are vulnerable to the above critiques, some are less vulnerable, sometimes by accident. For example, Kosoy et al. (2007) show that many Central American

farmers in their sample participated in PES programs even though payments were lower than opportunity costs, which indicates that the program is successfully 'recruiting' inherent motivations. Outside the PES literature, Wilcove & Lee (2004) showed that many US landowners can forego opportunities for private gain (specifically, regulatory relief associated with endangered species legislation) under programs designed explicitly to foster trust and goodwill. Program participants who are investing considerable time and effort without full compensation, might experience the avoidance of cognitive dissonance (Cooper, 2007; Festinger, 1962). By this psychological process, those participating despite incurring costs (i.e., being compensated less than their opportunity costs) are likely to subconsciously justify their contributions (or foregone opportunities) as consistent with their stewardship values and/or identities, thus reinforcing those values and identities. There is ample evidence of this effect from psychology, e.g., homeowners told that they would be featured in a newspaper for their energy conservation achievements subsequently reduced their energy consumption (Pallak et al., 1980). Even more interestingly, the homeowners' conservation efforts increased after (later) being told that the newspaper could not run the article—apparently because the process had cemented their identity as a conserver of energy (Pallak et al., 1980; Cialdini, 2007).

PES could similarly crowd *in* existing motivations. One design that might facilitate this is the reverse auction, which includes a competitive bidding process that encourages ES providers to bid low, particularly when bids are closed (i.e., to have a greater chance of being funded) (Stoneham et al., 2003). Such reverse auctions are like other PES except that instead of a one-size-fits-all determination of payments for prescribed actions, participants propose both actions and requested payments in their bids; bids are then chosen by the program administrator based on cost-effectiveness (Vickerey, 1961; Ajayi et al., 2012; Bryan et al., 2016). Since it is now clear from the evidence of motivational crowding out (Rode et al., 2015) that many landowners have intrinsic motivations for stewardship actions, it seems quite likely that ES providers would undervalue their time in bids, because the chosen actions are likely to be ones they wished to undertake anyway (e.g., clearing invasive vegetation, or fencing to keep livestock from degrading streams, which might be 'intrinsically' desirable for both self- and other-oriented reasons). Ironically, Stoneham et al. (2003) assumed that reverse auctions would reveal the costs of management, but in a context of intrinsic motivation, bids are likely to understate the costs (which would help explain how in the Australian state of Victoria achieved a cost-savings of approximately seven times, relative to a fixed-price payment) (Stoneham et al., 2003). Underbidding ES providers would have the same crowding-in potential as noted above. An analysis of real programs in Tasmania, Australia revealed that such programs benefited landowners and also facilitated shifts in motivations and values (Zammit, 2013).

Such design features can be further leveraged to accomplish the value-change that is likely essential for sustainability (Table 1; sections below). First, program communication could explicitly label funding as awards for good stewardship. By explicitly naming desired values in this way, and publicly recognizing individual actions and commitments, we can 'grow'

leadership identities and also encourage future behaviours consistent with those identities (Heath & Heath, 2010; Cialdini, 2007). Second, by designating funding based on such identities as illustrated through past actions, we might further enhance these steward-growing effects.

Many of the seven problems stem partly from what we might see as an unhealthy obsession with individual-level additionality (Goldman-Benner et al., 2012). This obsession may stem from the logic that PES, as with all subsidy programs, are vulnerable to cost inefficiencies via paying for actions that ES providers would have undertaken even without the program. We would argue, however, that the focus on each individual misses the point. In addition to equity, what matters is that the program *as a whole* realizes conservation goals efficiently and that it sets the stage for future stewardship through value consolidation and norm change. Cost-effectiveness at the scale of the project can be enhanced by program designs that attract a large number of bids (thus incorporating many low-cost providers) that leverage existing motivations (e.g., for payments less than the full opportunity costs), and which crowd-in inherent motivations rather than crowding them out (thus securing future stewardship).

Problem	Suggested Shift	Tools for a New Approach
1. New externalities	Pay for services → Reward stewardship	• Multiple ecosystem service targets • Flexibility in supported activities
2. Misplaced rights and responsibilities	Beneficiaries pay → We all contribute	• Payments for stewardship, not avoided pollution/degradation
3. Motivational crowding out	Financial incentive → Supporting stewards	• Co-payments • In-kind payments
4. Project efficiency and equity	Small-scale → Landscape scale (monitoring and accounting)	• Rewards and support for *existing* good stewards
5. Burden of monitoring	Focus on compliance → Focus on norms, values and learning	• Peer monitoring • Landowner-identified valued activities (e.g., via reverse auctions)
6. Limited applicability	Two-party negotiations over externalities → Individual and collective responsibilities	• New institutions with calibrated funding duties (e.g., offsets) to engage *all* supply chain actors
7. Top down prescription	Agencies decide → Place-based solutions	• Landowner-identified valued activities (e.g., via reverse auctions) • Participatory program design

Table 1. Toolbox for a reimagined PES. Seven fundamental critiques levied at PES programs ('problems') are paired with approaches to solutions, including both proposed conceptual shifts and example design criteria ('tools') to enact those. Overarching shifts in program framing and communication may complement the proposed design changes (e.g., payments as awards rather than incentives). Appropriate tools will be highly context-dependent, but the hope is that the proposed conceptual shifts will inspire practitioners to improve or develop new methods and tools to address key sustainability challenges via PES.

Imagine a program designed as above. It would substitute fixed payments for 'additional' outcomes with publicly conspicuous co-payment awards for sustained stewardship commitments, thus replacing an implicit message of "If you do *X*, we'll pay you $*Y*" with "Land stewardship leader: How can we help you do even more?". Imagine further that the program was funded not by beneficiaries of threatened ES, but by the whole supply chain complicit in such impacts, including the retailers and consumers of the goods whose production incurs impacts (more details below). Here we outline how such thinking and subsequent program design features might address the seven categories of problems facing PES.

1. Reward Stewardship, Not Particular Actions [vs. New Externalities]

By rewarding stewardship instead of particular pre-defined actions or outputs, programs can close the loopholes that inevitably arise with any fixed metric for payment, thus reducing the risk of new externalities. By maintaining an adaptive evaluation process and rewarding patterns of behavior, programs can escape Goodhart's Law and encourage short-term and long-term stewardship (Newton, 2011).

Some programs are already functioning as a public recognition for overall stewardship—if unofficially. For example, more than a third of PES participants surveyed in the San Carlos region in Costa Rica said that recognition as someone who cares for the environment was an important benefit they received from participating in the program, and 68% reported both recognition and environmental benefits, whereas only 53% mentioned economic benefits (Anderson et al. in prep). Similarly, Kosoy found that many providers from a watershed PES in Central America perceived the payment as an '*apoyo*' or support for actions they would carry out anyway (Kosoy et al., 2007). Chapman found a parallel result among participants in Costa Rica's PES, where most providers say the payments as an 'ayuda,' a type of help or assistance to protect the forest and support rural landowners (Chapman et al., in prep). The 'Flowering Meadows' PES in France focuses on outcomes while leaving farmers flexibility to determine means, allowing farmers to demonstrate their competence while also helping to change farmer's perspectives on biodiversity (Fleury et al., 2015).

A focus on stewardship allows for greater flexibility in implementation. Rural landowners in Washington State valued flexibility and the option to adapt PES program conditions to their particular farm or land, for example, by varying the width of riparian buffers or allowing

working buffers that integrate riparian habitat and production (Chan et al., 2015). Flexibility not only makes PES programs more attractive to land managers but also allows them to apply their place-specific knowledge to achieve program goals, e.g., targeting riparian plantings to maximize shading of rivers or filtering of runoff (see also 7 below). For example, programs where farmers propose their own solutions to achieve ES goals or are involved collaboratively with other stakeholders to define the goals and means may be more motivating (Fleury et al., 2015). It is not only important to allow flexibility to find creative solutions in order to find synergies between conservation and land managers' other goals, but also because the process of problem-solving is in itself enjoyable and motivating for many (Kaplan, 2000).

2. Pay *stewards* and we *all* contribute, distributing rights and responsibilities inclusively [vs. misplaced right and responsibilities]

By paying for land managers to act as stewards rather than polluters, and by sharing the burden of payment across the supply chain, programs would distribute rights and responsibilities in a manner more conducive to sustainability (Figure 1). Such programs would avoid sending the signal that ES providers are free to pollute/degrade unless paid not to do so, or that ES beneficiaries are responsible for securing desirable behavior upstream. Instead, ES providers would be expected to bear some of the costs of management, and ES beneficiaries would not be solely responsible for ensuring continued ES provision. It is especially crucial to avoid putting the responsibility on ES beneficiaries when they are poor or disempowered, or when they have long relied upon the ES (as with indigenous peoples and clean water, wildlife, etc.). Furthermore, such programs would also assign responsibility to the rest of us who are complicit in such production processes, e.g., as the retailers and consumers of goods, sending the signal that it is unacceptable to profit from production that incurs ecological degradation without mitigating those harms.

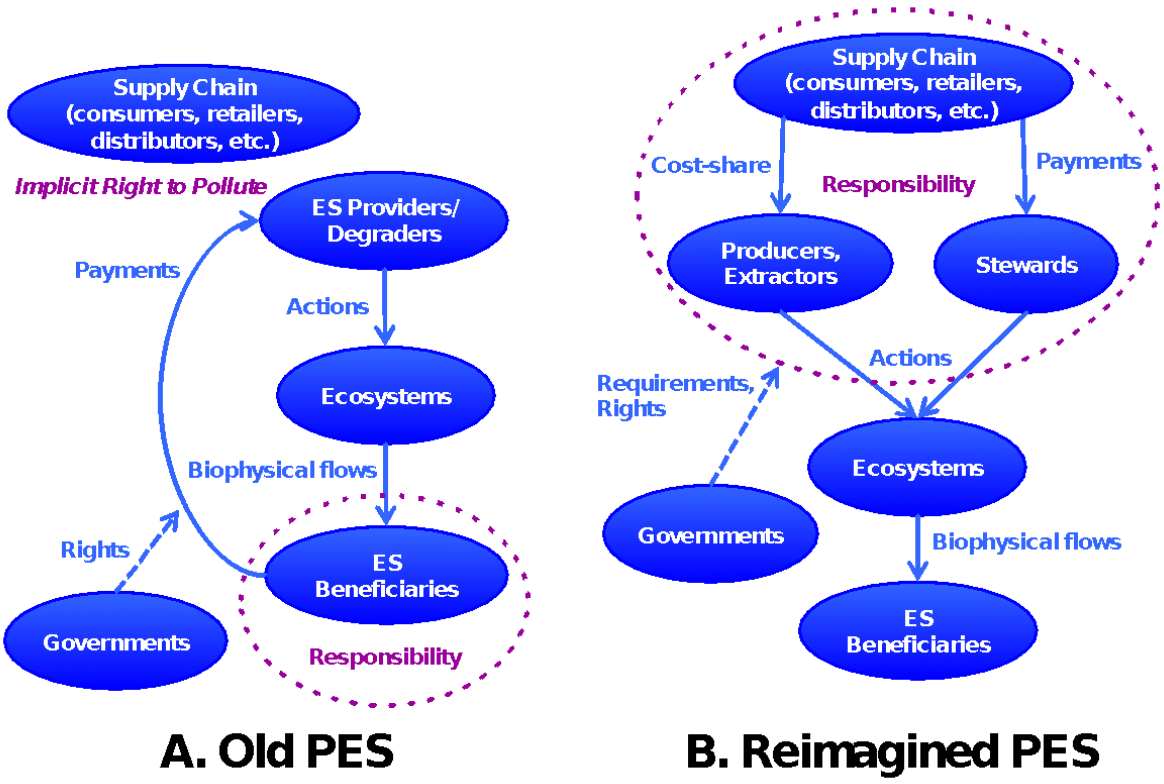

Figure 1. The current and proposed new models for payments for ecosystem services (PES), including their explicit and implicit distribution of responsibilities. A. Current models implicitly place the responsibility on beneficiaries of ecosystem services (ES) to protect ecosystems for the continued delivery of benefits, implicitly giving producers, extractors, and the supply chain the right to pollute (and the right to receive payments for ceasing to pollute, which penalizes those who were already acting as good stewards). Such rights and payments may undermine sustainability. B. In contrast, our reimagined PES puts the responsibility on producers, extractors, and the supply chain to mitigate their impacts, including by paying ES stewards to protect ecosystems. These responsibilities and payments may foster value and norm change towards sustainability. Governments have an important role to play, but they need not lead. The distributed responsibility may be crucial for achieving sustainability. The incipient movement called CoSphere (a Community of Small-Planet Heroes, Ecologically Regenerating Economies) embodies this logic of responsibility-taking.

An even sharing of responsibilities can be achieved in several different ways. First, 'policy mixes'—where different instruments work together—can distribute responsibilities and also rights to landowners, as is the case in Costa Rica where a ban on deforestation confers responsibilities while the nationalized PES program confers rights (Porras et al., 2013). Second, broad responsibilities for environmental degradation can also be indicated by paying only part of the costs borne by PES participants (see solution 3), and by inviting or even requiring firms and/or individuals to mitigate said degradation via co-funding a PES program (see solution 6). Our proposal to pay only part of the costs (co-pay) bears similarities to the notion of co-investment in environmental stewardship (CIS), discussed by van Noordwijk & Leimona

(2010). We agree wholly with van Noordwijk & Leimona's conclusion that "A language of CIS, 'co-investment' and 'shared responsibility' may be more conducive to the type of respect, mutual accountability, and commitment to sustainable development that is needed" because it "retains reference to social exchange rather than financial transactions" (p. 17).

3. Co-pay (sometimes in-kind), complementing and 'crowding in' intrinsic motivations [vs. crowding out]

By paying only a part of a participant's opportunity costs, a PES program can crowd in intrinsic motivations rather than crowd them out. If Chan et al.'s (2016) contention is true, that landowners, and farmers in particular, already possess a wide range of stewardship values ('relational values', to be distinguished from instrumental and intrinsic values), there should be abundant opportunities to crowd. We already know that non-cash/in-kind payments (e.g., supplying needed tools or resources, including technical assistance) are less prone to crowding out inherent motivations (Ariely, 2008; Leimona et al., 2015). This proposal goes even further, aiming for crowding in. By paying only a portion of the total costs, 'co-payments' should ensure that ES providers would participate only if they are subsidizing the project with their own time or resources. This commitment of one's own time or resources triggers the avoidance of cognitive dissonance to consolidate stewardship values (because only a commitment to stewardship can dissolve the dissonance of bearing costs for actions that don't yield profits). Furthermore, co-payments should preserve any motivations based on social approval (Fehr & Falk, 2002; Lapeyre et al., 2015) (because the action may still be perceived as moral rather than mercenary). Note that this proposal is decidedly at odds with prevailing economic advice about incentive schemes, which includes prescriptions that payments should exceed opportunity costs (Wunder, 2013), and that cash payments are preferable (e.g., Ferraro & Kiss, 2002).

As already noted, some programs are already functioning in the ways suggested. First, several PES in Central America are paying less than opportunity costs (Kosoy et al., 2007). Second, there are indications that Costa Rica's PES is functioning at least partially as a recognition of good stewardship (Anderson et al., in prep.). Third, technical assistance associated with landowner incentive programs can be both motivating (Chapman et al. in prep; Zammit, 2013) and productive in securing stewardship outlooks and future-oriented behaviours (Wilcove & Lee, 2004; Vignola et al., 2012).

There is some evidence in the literature that PES can act to reinforce non-economic motivations for conservation, thus "crowding in" rather than "crowding out" (Rode et al., 2015; Lapeyre, et al., 2015). Financial incentives including PES have the potential to reinforce or reduce intrinsic motivations and social norms such as pro-conservation norms, depending in part on how institutions and initiatives are structured and the context in which they are implemented (Bowles, 2008; van Noordwijk et al., 2012). For example, in Ireland a small tax greatly reduced plastic bag use by identifying such use as an anti-social behaviour (Bowles, 2008). Small incentives can also encourage people to take actions they support but do not prioritize, as was

demonstrated when an offering of a small amount of lentils increased child immunization in India (Banerjee et al., 2010). In this way, PES payments could act like a nudge to incite/inspire people to act based on existing motivations for conservation (Olmsted et al., in prep).

4. Forget small-scale additionality; focus on efficiency via attractiveness and norm change [vs. efficiency/equity dilemma]

If programs were designed to pay participants for good behaviours (both past and future), individual parcels may not achieve additionality in the short term, but the program may be more efficient in the long run. Long-term success would stem from the activation and reinforcement of stewardship values (as above), and from building trusting relationships between ES providers and program officials via an inclusive program that feels fair. Trust, after all, is central in such programs (Goldstein, 2005; Kerr et al, 2012). Including ES providers who would do the desired action without the program (or who are already doing it) would mitigate the perverse incentive for ES providers to pretend that they would not have done the action without the program (a self-reinforcing representation), or to undermine past efforts to make room for new additionality (e.g., setting fire to forests so as to qualify for a new set of payments for forest regrowth). Under an award model, it is acceptable and appropriate to pay ES providers for actions that they already wished to do: that is precisely how a program leverages small payments (less than opportunity costs) into full actions, and how it builds and consolidates stewardship norms.

Some programs have adopted this approach, at least partly. For example, some programs have intentionally chosen payments that are equitable across landowners regardless of the conservation opportunity of their land, in the intent to build goodwill (Chopra et al., 2012). In another Costa Rican example where the PES concept was more familiar, ICE, the national energy utility managing a dam was eager to pay upstream farmers to reduce sedimentation (Vignola et al., 2012). Rather than differentiated payments or even equitable ones, the farmers revealed that technical assistance was more desirable and seen as more fair; ICE was happy to comply (Vignola et al., 2012).

Our argument to forget additionality at the scale of the individual participant, focusing instead at the scale of the program, aligns directly with Pascual et al.'s (2010) definition of additionality as the "difference between the gross welfare effects induced by the scheme on society (...) and the total cost incurred to implement it" (p. 1239). 'Gross welfare effects' should also include the pleasure that ES providers receive from receiving payment to take actions they wished to do anyway, and the widespread happiness with a fair and equitable program.

5. Employ intrinsic motivations and peers to reduce monitoring needs [vs. burden of monitoring]

ES provider incentives to cheat are greatly reduced when providers make a publicly conspicuous commitment. The design of co-payments, which intend to ensure that the program is attractive

only to those with intrinsic incentives, thereby greatly reduces the individual motivation to cheat. Any public acknowledgement of a commitment to a stewardship identity would greatly enhance this individual motivation to comply via social approval/disapproval (Cialdini, 2007). In such contexts, people can 'police' each other, as occurs with universities that have adopted honour codes against plagiarism. Given sufficient intrinsic motivations to comply, exhibiting trust in the form of an honour code and an intentionally low-level of official monitoring can engender reciprocal trust and trustworthiness from participants. Such peer monitoring could be complemented by coarse-scale monitoring of the aggregate outcomes of the program, which would be important for ensuring additionality at the program-scale (see 4). The multiple levels of monitoring aligns with calls for polycentric governance systems (Biggs et al., 2012).

Peer monitoring has been employed in farm management and shown to be effective in both US and Brazilian cases. Carlisle's (2015) study of organic certification found that informal peer-to-peer monitoring and participation in a self-organized community were more important in ensuring compliance with organic standards than official regulation and monitoring. In addition to reducing costs, flexible and peer-based monitoring can encourage learning and innovation. In one case, inspectors able to offer advice and connections to other growers could have served as extension agents to help growers new to organic standards; new standards prohibited such assistance from inspectors (Carlisle, 2015: 16). When firms participate in PES as ES suppliers, community-based monitoring may provide opportunities for community participation in partnership with or as monitors for firms, further incentivizing positive innovation on the part of private sector actors. Despite research suggesting that community participation in Monitoring Reporting and Verification (MRV) results in high-quality, cost-effective assessments and increased legitimacy (Danielsen et al., 2013; Danielsen et al., 2005; Larrazábal et al., 2012; Brofeldt et al., 2014), community participation in monitoring remains underdeveloped (Danielsen et al., 2013; Pratihast et al., 2013). Reimagining PES as suggested here might involve increasing community monitoring.

6. Include funders seeking to mitigate their impacts, thus involving parties throughout the supply chain [vs. limited applicability]

Whereas traditional PES programs are designed for private or public beneficiaries to secure private or public benefits, a program designed to enable funders to mitigate impacts and/or pay "user fees for nature" could potentially involve large portions of supply chains. As we described above, firms can be hesitant to get involved in conservation initiatives like PES for a variety of reasons. While full treatment of this idea is beyond the scope of this paper, we see hope in uniting an offset funding model with a PES delivery mechanism (Chan et al., 2017 in press). A single payment, low-overhead program option that allowed a firm to not only mitigate their impacts across their entire operation (not just a single product), but also then identify their brand with an entire community or movement of "conscientious consumers and producers", could be

attractive to firms seeking simple ways to become more sustainable that are low-risk but potentially high-impact.

Such a broadening of the funding for environmental stewardship would appropriately recognize that, insofar as the whole supply chain benefits from the production of the product that has environmental impacts, the whole supply chain should share in reducing those impacts. Involving the supply chain in this manner might work against the "race to the bottom", wherein producers are incentivized to cut corners in environmental stewardship in order to supply low-cost goods, because many costs of environmental damages are not currently internalized into the cost of products.

This model we propose is complementary to certification. Whereas certification (e.g., organic) seeks to enable consumers to contribute to environmental improvements by paying a price premium for a certified product, the premium paid by consumers largely goes towards maintaining a distinct but parallel supply chain (to the conventional product), with relatively little for farmers changing their environmental management. Insofar as certified products often have a market share much smaller than the conventional product, the loss of economies of scale throughout the supply chain can result in a highly inefficient vehicle for consumer participation in production. A system of offsets for environmental damages could alleviate these inefficiencies (Chan et al., 2017 in press), enabling consumer funding to effect management via PES on both certified and conventional fields. Such an initiative is underway (www.CoSphere.net), and in theory would allow consumers to compare different levels of environmental impact associated with comparable products, and to contribute to paying for, and thus internalizing and taking responsibility for, each product's environmental impacts. Only when it is easy, enjoyable and affordable to enact personal responsibilities for distant environmental impacts is it likely to become normal to do so (Chan et al., 2017 in press).

7. Invite place-based solutions, inspiring agency [vs. top down prescription]

If program officials do not dictate appropriate stewardship actions, but rather invite ES providers to propose what they would like to do (that contributes to specified environmental outcomes), there's an immediate inspiration of the creative agency of producers as stewards. One of the more powerful leverage points for sustainability is to enable self-organized solutions (Meadows, 2009). In principle, such payments need not be constrained to farmers and landowners, but open to a wide range of citizens, organizations, and even possibly firms to engage as stewards and distinguish themselves as such.

As described above, reverse auctions generally enable a greater degree of agency among PES participants by funding a diversity of possible actions. Such flexibility may be partly responsible for the considerable cost-savings that seem to result from such programs (Stoneham et al., 2003; Ajayi, 2012), in part because ES providers may be choosing actions that they already wish to undertake, such that they are willing to perform conservation actions for compensation less than

opportunity costs. A further strategy is to incorporate the preferences of potential participants. Depending on the particular social and ecological context participants may prefer payments to be communal or individual, in-kind or cash, closely tied to concrete actions or focused on outcomes with flexibility for implementation (Kaczan & Swallow, 2013; Kolinjivadi et al., 2015). For example, Mexico's national PES program went through substantial changes between design and implementation, as local actors imprinted their own concepts and priorities, leading to a final design that was a better fit with local needs (McAfee & Shapiro, 2010).

Novel and flexible forms of PES could be more motivating to farmers and other ES providers. Rather than expecting people to adopt PES for either altruistic or economic reasons, we might use a form of participatory problem solving so that ES providers can look for options that are good for the environment and improve their lives, land or livelihoods. Such an approach has been suggested by Kaplan in the context of green consumerism and individual responsibility for environmental impacts (Kaplan, 2000). As an example, the successful Vittel PES case in France involved substantial participation by farmers and other stakeholders in the region to design the program rules and structure (Perrot-Maitre, 2006). Also from France, the 'Flowering Meadows' PES program involved participation from many different stakeholders and contributed towards shifting farmers' perceptions of biodiversity from "an obligatory restriction, into an asset" (Fleury et al., 2015: 111).

Implications and Applications: Scaling Up

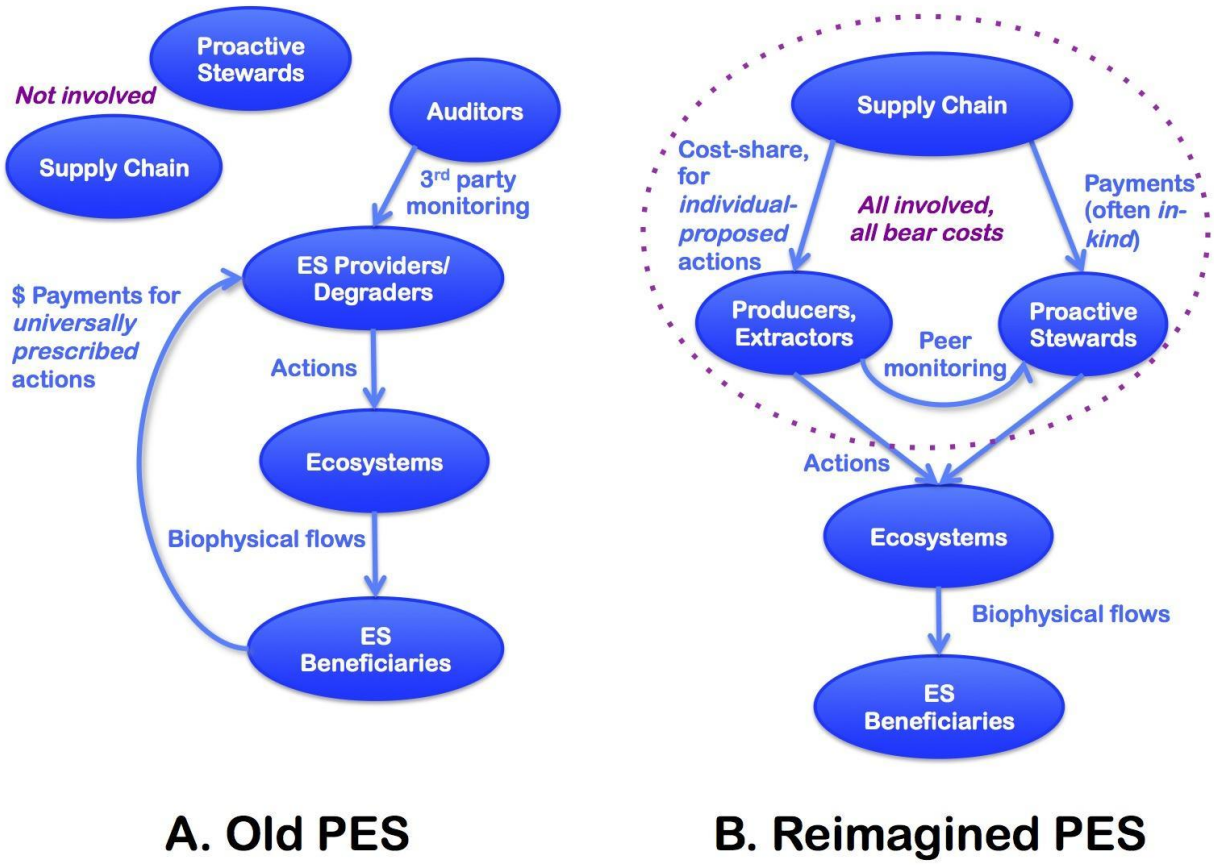

Figure 2. The current and proposed new models for payments for ecosystem services (PES), emphasizing design differences. (i) Whereas mainstream PES models (A) generally exclude the supply chain (including consumers, retailers, distributors, etc.), reimagined PES models (B) might include these firms and individuals as funders to share responsibilities broadly. (ii) Whereas mainstream models generally avoid paying stewards who are already undertaking positive actions (e.g., landowners who are already planting trees or maintaining set-asides), reimagined models would include such proactive agents—focusing on fairness, additionality of the whole program, and not sending signals that positive actions are worthless unless the landowners previously undertook negative actions. (iii) Whereas mainstream models favor cash payments, reimagined models favor in-kind payments and cost-share arrangements to crowd in inherent motivations (rather than crowding them out). (iv) Whereas mainstream models generally pay for universally prescribed actions, reimagined models would solicit proposals for individualized actions—enlisting agency in stewards and producers. (v) Whereas mainstream models generally require third-party monitoring (often at considerable cost), reimagined models might employ peer monitoring (with greatly reduced costs). Not all proposed changes will be feasible or appropriate everywhere.

Our analysis suggests that seven major shortcomings/limitations impede many PES programs from contributing substantially to sustainability, but that these problems are not insurmountable. Rather, several changes in program structure could have large effects (Figure 2)—leveraging and increasing non-monetary motivations to participate, fostering a self-organization in actions and monitoring, and spending funds on rewarding and encouraging stewardship rather than policing it. By directly addressing the concerns and needs of ES providers, such programs have the potential to enhance stewardship values, thus promoting and fostering an ethic of more sustainable production (Anderson et al. in prep; Chapman et al., in prep; Olmsted et al., in prep). Such an ethic among engaged participants might also facilitate more efficient monitoring and evaluation by reducing the motivation to exploit shortcuts. Large-scale PES and PES-like programs have been employed by governments in the EU, USA, Canada, China, Brazil, Central and South America, and beyond—all in pursuit of sustainable social-ecological relationships. By enlisting broader social-ecological literatures, we have proposed fundamental design shifts that might enable progress toward that worthy goal.

For PES to contribute meaningfully to sustainability, they will require substantial involvement from firms—which may benefit from new or revised regulations. Presently, firms participate in PES primarily for corporate social responsibility or institutional investing (Dixon & Challies, 2015), which are generally not seen as core business activities, although they may provide legitimacy to core activities. An estimated 58% of all forest carbon offsets in Asia are motivated by CSR-activities (Peters–Stanley et al., 2013), another form of philanthropy. The challenge from a firm perspective, then, is twofold: moving sustainability efforts from such peripheral activities into firms' core business models (Loorbach & Rotmans, 2010, Geels, 2004), and ensuring that CSR moves beyond marketing to have meaningful impacts on the ground. Several government policy changes might foster this: e.g., governments may incentivize firms to be more active in the field by mandating innovative accounting standards (Engel, et al., 2008) defining more stringent CSR policies (Lyon & Maxwell, 2008; Konar & Cohen, 2001), and adopting new taxation tools (Kemkes, et al., 2010). Through the introduction of these and similar approaches, it is possible that firms' engaging in PES, in partnership with local communities, results in a sustainable image that is not merely a green sheen but a substantial contribution to innovation for sustainability.

From a research perspective, the challenge is to address incentive programs from a variety of disciplinary and interdisciplinary perspectives with long-term outcomes as a priority. It is not sufficient to claim, for example, that schemes paying for activities that would have occurred anyway likely suffer from low effectiveness. If the goal—as suggested in solution 4—is to normalize conservation (Chan et al., 2017 in press), such programs cannot be evaluated only at the scale of the individual landowner. If programs that resonate with local cultural ecosystem services and relational values could both foster community-scale stewardship norms (see above) and a sustained deep relationship with the land (Chan & Satterfield 2016), individual

additionality may be a myopic metric. A more integrated interdisciplinary perspective will be crucial to investigate the effectiveness of PES as both social *and* economic tools.

Ultimately, reimagined PES programs could contribute to the crucial task of normalizing the taking of responsibility for one's impacts—a potentially powerful relational value (Chan et al. 2016). Such a goal extends well beyond primary producers and governments, including private firms and individual consumers who are primary drivers of ecosystem impacts. In many sectors there is a clear willingness to support responsibly derived goods (Hollender & Fenichell, 2004). Perhaps that latent willingness might be tapped much further, such that firms and consumers invest in PES not only to secure a sustainable supply of needed goods and services for their own benefit, but also to mitigate the impacts that accompany industrial production and consumption. As such, the PES that we imagine might enable not only ES providers, but also firms and consumers, to express moral values that are central to interpersonal ethics but are latent regarding environmentally mediated impacts. Many ethical approaches, including utilitarian and deontological, might recognize a responsibility to mitigate any impacts we have on others via our consumption and the environmental impacts entailed. And yet we are all complicit in environmental impacts via our purchases and lifestyles (albeit to highly variable degree, given concentrations of wealth and power), the vast majority of which go unmitigated. Our reimagined PES would therefore provide an important new means for all consumers to express that core value in environmental settings.

This vision of shared-stewardship for collective impacts has inspired an incipient movement called CoSphere (a Community of Small-Planet Heroes, Ecologically Regenerating Economies, www.CoSphere.net). This new movement seeks large-scale market transformation by providing the missing infrastructure to enable individuals and firms to have net-positive impacts on our planet's biodiversity and ES, via contributions to conservation and stewardship in the form of PES programs designed as above. While we have great enthusiasm for CoSphere in particular, it represents but one possible manifestation of the transformative potential in reimagined PES.

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Chapter 10

The “Teenage” Years: Organizational Interests and the Evolution of Private Standards

The "Teenage" Years: Organizational Interests and the Evolution of Private Standards

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Abstract

Civil regulations, such as private commodity standards, are an increasingly important component of transnational environmental governance. While there has been considerable work on the motivations of civil society and private sector actors in developing and deploying such standards, we have less knowledge about the ways in which the divergent interests of private sector and civil society actors interact with each other and with the evolving scope and ambition, or inclusion and rigor, of civil regulations. Using a grounded theory case study of the Roundtable on Sustainable Palm Oil (RSPO) developed from policy documents, news reports, and 60 interviews with participants in the 2016 European Roundtable on Sustainable Palm Oil, we find that the tension between scope and ambition is a key factor in the evolution of the RSPO standard. We illustrate this tension using examples of three key debates in the RSPO: smallholder participation, greenhouse gas emissions monitoring, and zero deforestation and exploitation supply chains. Based on our case study, we develop a simple verbal model of how the relative costs and benefits accruing to different groups affect motivations for increasing the rigor or scope of a standard. We suggest that while civil society organizations should be motivated to balance rigor with inclusion, this is not necessarily the case for private sector actors engaging with standards due to concerns about brand reputation. Under the right conditions, we argue, standards can enter a period of Ratcheting Up, in which scope and ambition increase simultaneously, but there are a variety of ways in which private standards can fail to live up to this objective, highlighting the potential importance of government support in the success of civil regulations.

Keywords: *RSPO, institutional fields, palm oil, private standards, sustainability*

Introduction

While addressing the RSPO 2016 European Roundtable delegates in Milan, Adam Harrison, the Vice-President and Senior Policy Officer for Food and Agriculture for the World and Wildlife Fund (WWF) characterized the sustainable palm oil industry as entering its difficult teenage years. While living with a teenager may be painful, as anyone can tell you from experience, he noted, it can also be exciting. Teenagers experiment with their identities, sometimes surprise their parents, and, ideally, hold out hope for the future. "We are now living in a world," Harrison concluded, "where the world's leading companies have made fantastic commitments, and where things are really changing fast." These remarks are a helpful observation about the burgeoning world of private environmental and social standards more broadly. Standards change and evolve and take on new roles and identities as a result of both internal debates and negotiations and external demands and pressures. There are, of course, several studies have noted the significant rise of private measures as a component of transnational environmental governance (Auld et al., 2015; Pattberg, 2005a, 2005b; Green, 2014; Gallemore & Munroe, 2013; Sasser et al., 2006; Vogel, 2010). Green (2014) finds 119 such "civil regulations" in the environmental sector in 2009 (Vogel, 2010; Zadek, 2001), of which 58% were originated after 2000 and 90% after 1990. What is lacking, at present, is a clear understanding of how all the diverse internal and external organizational interests affected by a given private standard interact to determine the ambition and scope of the standard in question. Here, using a grounded theory approach to a case study of the Roundtable on Sustainable Palm Oil (RSPO), we develop a simple verbal model connecting organizational interests to the evolution of membership and rigor a private standards.

In taking this approach, we draw on two strands of empirical literature on private standards. First, there has been considerable work discussing the functions that such initiatives might serve in global environmental governance, such as providing a way to reconcile multiple competing interests (Pattberg, 2005b), facilitating learning and exchange of best practices (Pattberg, 2005b, 2006), generating needed technical expertise (Green, 2014), and, ultimately, motivating environmental compliance (Potoski & Prakash, 2005a, 2005b). A second group of studies focus on the motivations for firms to support these programs, highlighting, for example, concerns with brand reputation (Garcia-Johnson, 2000; Prakash & Potoski, 2006), desires for supply chain

control (Dauvergne & Lister, 2013), the role of government support (Delmas & Montiel, 2008), civil society pressure (Delmas & Montiel, 2008), and the development of normative consensus, or, at least, pressure, across organizational fields (Delmas & Montes-Sancho, 2011; Dingwerth & Pattberg, 2009).

What is perhaps less well understood is how the interests of participants in a standard-setting process interact to affect the functions that the standard can perform. In other words, we could have a better understanding of how standards and memberships co-evolve. As Auld, et al. (2015), demonstrate, the purpose and features of private standards can change over their lifetimes, as different institutional logics, or ways of proceeding, are supported or opposed by different constituencies. We draw on the theory of fields (Fligstein & McAdam, 2012; Fligstein & McAdam, 2011) as an organizing framework to integrate considerations of organizational interest and evolving norms. Following the field theory approach, we adopt Padgett and Powell's (2013, p. 2) maxim that "in the short run, actors create relations; in the long run, relations create actors." In other words, we expect that, in the short term, actors' boundedly rational (Simon, 1996) strategic choices will determine the shape of standards and collective norms about sustainability but, in the long term, the development of these standards will change the strategic situation organizations in the field face, leading to changes in interests and subsequent behavior.

To develop our simple verbal model of the relationship between organizational interests and the scope and rigor of private standards regimes, we use an in-depth case study of the Roundtable on Sustainable Palm Oil (RSPO). Over the past several years, oil palm production - particularly in Southeast Asia - has been decried for its contribution to deforestation (Abood et al., 2015), biodiversity loss (Giam et al., 2015), climate change (Fitzherbert et al., 2008; Butler et al., 2008; Basiron, 2007), and human rights violations (Pesqueira & Glasbergen, 2013), among other social and environmental problems. In response, some firms across the palm oil supply chain have faced concerted efforts to curtail the impacts on biodiversity and livelihoods within the sector. Formally established in 2004, the RSPO remains the most iconic sustainability certification system in the palm oil industry, certifying about 17% of global production as of 2016 (Roundtable on Sustainable Palm Oil, 2016a). Its members, to a large degree, define the "rules of the game" (North, 1990) for the emerging field (Fligstein & McAdam, 2012) of

sustainable palm oil production. In response to further calls from civil society and consumers in some countries for firms to construct zero deforestation supply chains (McCarthy, et al., 2016), the RSPO recently launched an advanced standard, RSPO NEXT, which requires zero deforestation, zero use of fire in land clearance, greenhouse gas emissions reduction, and human rights protections (Roundtable on Sustainable Palm Oil, 2015b). Drawing on RSPO documents, news reports, and participant observation interviews with 60 attendees at the RSPO's European Roundtable in June 2016, we outline the strategic conflicts within RSPO, how these play out in members' positions on a range of issues regarding the standard, and how these positions, in turn, affect the balance between rigor and inclusion in the standard.

We begin this paper with a discussion of the field theory framework, which emphasizes the importance of complex, interactive relationships between actors and emergent norms and standards in explaining the development and evolution of organizational fields like sustainable palm oil production. Following this, we provide a brief introduction to the RSPO before moving on to our methodological discussion, detailing the data sources we use to develop our case study of organizational interests and regulatory evolution. We then discuss how the development of the scope and rigor of RSPO standards evolves as a result of the organizational interests of both members and other players in the field. We identify a tension between rigor and inclusion to lie at the heart of debates within the RSPO and then develop a verbal model, based on this tension, that translates organizations' interest in rigor and inclusion to expectations about the evolution of private standards' scope and ambition. We conclude with a series of policy implications resulting from the model and suggestions of further research that could be undertaken to improve and test it.

Debate and innovation in organizational fields

Recent work on international environmental policy has pointed to the importance of interactions between diverse types of organizations and governance regimes, drawing on theoretical tools such as organizational ecology (Abbott et al., 2016; Hannan & Freeman, 1993) and field theory (Auld et al., 2015; Dingwerth & Pattberg, 2009). Understood as the product of interactions among diverse organizations and professions collaborating or contesting a given issue area (Granovetter, 1985; Zukin & DiMaggio, 1990), fields often are understood as routinized, stable

settings in which participants share perceptions of opportunities, acceptable behaviors, and areas of interest (Greenwood et al., 2006; Fligstein & McAdam, 2012; Scott, 1994, 2001).

As the fields concept has developed, there has been considerable debate on the source of change within fields, which is sometimes seen as lacking in early work using the concept (Dorado, 2005; Rao et al., 2000; Bourdieu & Wacquant, 1992; DiMaggio & Powell, 1983; Fligstein, 1996; Fligstein & McAdam; 2012; Scott & Meyer, 1983). While acknowledging that fields emerge as a result of debate and negotiation on the part of organizations and other actors engaged in the field (Hargrave & Van de Ven, 2006; Hoffmann, 1999), the vast majority of research has explored mature and relatively entrenched fields as they approach consensus (Greenwood & Suddaby, 2006; Dunn & Jones, 2010; Reay & Hinings, 2009; van Gestel & Hillebrand, 2011; Boutinot & Mangematin, 2013). More recently, attention has turned to how fields change over time, and how the actors within them produce and navigate such changes (Greenwood & Suddaby, 2006; Abrahamson, 1997; Zietsma & McKnight, 2009; Auld et al., 2015). While in mature fields, actors have a consensus on general norms and standards of behavior, which become common knowledge and are sustained by mutual interest (Aoki, 2007), that does not mean that there is no change. Indeed, fields are constantly under review, with work being undertaken to maintain (Townley, 1997; Zilber, 2002; Fox-Wolfgramm et al., 1998; Schuler, 1996; Holm, 1995; Townley, 2002; Angus, 1993), as well as disrupt (Ahmadjian & Robinson, 2001; Jones, 2001; Leblebici et al., 1991), existing standards and practices (Hoffman, 1999; Sahlin-Andersen, 1996).

If even mature fields experience change, this is even more clearly the case for newly emerging fields, like sustainable palm oil production. Emerging fields, like teenagers, will generally engage in experimentation (Fligstein & McAdam, 2012; Harper, 2015; Scott, 2013; Greenwood et al., 2002). Actors working in novel efforts are not straddled with the legacy of old habits, standard practices, and power relations (Dimaggio, 1988; Fligstein, 1997); may create new practices and standards (Oliver, 1992); and have a chance to promote norms more in keeping with their particular interests (Fligstein & McAdam, 2011; Garud et al., 2002; Leblebici et al., 1991). As Purdy and Gray (2009, p. 372) put it, the emerging field may feature "ideological activists who combine hitherto unconnected beliefs and norms into an organizational solution" (see also Oliver, 1992; Becker et al., 1963)." During such periods, the emerging field may

"resemble institutional war" (Hoffman, 1999, p. 352) as actors with diverse interests develop and debate new standards. Tensions may develop when incumbent organizations attempt to defend the status quo (DiMaggio & Powell, 1983; Orru et al., 1991) against challengers seizing the opportunity to redirect the developing field (Fligtstein & McAdam, 2012; Barnett & Carroll, 1993; Hoffman, 1999). While conflictual, these debates can also be an opportunity for social learning (Galbraith, 1973; Duncan & Weiss, 1979; Hedberg et al., 1976). Nevertheless, innovations may remain a point of contention long after they are initiated (Fligstein, 1996; Marquis & Lounsbury, 2007; Scott et al., 2000), and, as noted above fields are seldom in perfect stasis (Greenwood & Suddaby, 2006).

While field theory does not necessarily provide predictive hypotheses, it does give us a helpful framework for thinking about the kinds of relationships that are worth investigating. In the "teenage" years of evolving fields, we should not be surprised if the identity and direction of the field undergoes some dramatic and perhaps even rapid shifts. As organizational actors adjust to these changes, we would also expect debating and bargaining between groups with differing interests and concerns to have significant effects on the evolution of the field, as emerging norms and standards reflect the tensions between different objectives and the bargaining power of different constituencies.

While it is not our intention to generate specific hypotheses, then, we can nevertheless ask a few key questions about our case. First, how is influence divided between different types organizations impacted by the development of a field of sustainable palm oil production, as exemplified by the RSPO? Second, how do the interests of these different groups differ? Third, how do these different interests interact to affect the scope and ambition of the RSPO standards? In the following section, we explain how we used a grounded theory approach to interpret a range of data on the RSPO to provide answers to the first two research questions and develop a verbal model to provide a preliminary answer to the third.

The Roundtable on Sustainable Palm Oil

Archeological evidence suggests that palm oil has been cultivated for thousands of years with a recorded case from Egypt dated to 3000 B.C (Berger & Martin, 2000). With the onset of the Industrial Revolution, palm oil became an important lubricant, used particularly in the railway

business (Aghalino, 2000). More recently, its use has expanded to a variety of goods, including food products, cosmetics, and biofuels (Tan et al., 2009; Boons & Mendoza, 2010). US Department of Agriculture (2016) estimates anticipate global palm oil production to be around 65.5 million metric tons in 2016/17, over a 10% increase on the previous year.

Ideal growing conditions for palm oil are limited to high rainfall areas within 7 degrees of the equator (Verheye, 2010), where it often is the most profitable land use, particularly in Malaysia and Indonesia, where government subsidies support the industry (Butler et al., 2009; Pye & Bhattacharya, 2013). While palm oil production contributes substantially to the Malaysian and Indonesian economies, its numerous negative environmental externalities and contribution to land use conflicts has often made it a problematic commodity (Ruysschaert & Salles, 2016). The negative environmental externalities of palm oil production, which include deforestation (Carlson et al., 2012; Busch et al., 2015; Abood et al., 2015), biodiversity loss (Vijay et al., 2016), smoke and particulate matter generated by the use of fires for land conversion (Carlson et al., 2013), and greenhouse gas emissions (Harris et al., 2012) are generally not reflect in its price, an example of transnational market failure (Lemos & Agrawal, 2006).

Governments in countries that account for the largest production of palm oil, mainly Indonesia and Malaysia, have committed to reducing the negative impact of the industry by stimulating low-carbon investments and stressing green agriculture as one of the main components in their green economy (Anderson et al., 2016; Basiron, 2007). However, the political context in these countries, particularly Indonesia, may not be adequate for such green ambitions (Anderson et al., 2016).

In response to considerable public pressure driven by palm oil's environmental externalities and perceptions of lackluster engagement on the part of national governments, the Roundtable on Sustainable Palm Oil (RSPO) was formally established in April 2004, with a Statement of Intent (SoI) signed by 47 organizations. The process began in 2001with a collaborative effort between the World Wildlife Fund (WWF) and a variety of private actors in the palm oil sector (RSPO, 2016a). By 2005, RSPO members had developed initial Principles and Criteria (P&C; RSPO, 2013c), setting out the standards for Certified Sustainable Palm Oil (CSPO). Work began the

same year, as 14 companies initiated two-year pilot implementations, which were reviewed and approved by the RSPO Certification Board in 2007 (RSPO, 2016a).

Further additions to RSPO came in 2008 and 2009, when the RSPO Supply Chain Certification Systems (SCCS), which guarantee to the end-user that the product in question has been produced in a sustainable manner, were adopted (RSPO, 2016a). These four systems, namely Identity Preserved (IP), Segregated (SG), Mass Balance (MB), and Book & Claim (B&C), provide differing levels of traceability, allowing for different types of certification claims. On the upper end, Identity Preserved CSPO comes from a single certified source and is kept separate from other palm oil throughout the supply chain. Book & Claim, the lowest level of certification, is essentially an offset system, in which certified producers sell credits for sustainable production before selling their products as regular palm oil. The certificate buyer can then claim to have produced certified palm oil in the amount of the purchased certificate, while buying from non-certified suppliers. The higher the level of traceability, the more control points are required, which in turn increases the costs (RSPO, 2013a).

From its inception, the RSPO has had considerable success in increasing the supply of CSPO. The volume of supply increased 250% between 2009 and 2011, while sales volume increased 620% (India Energy News, 2012). In the United Kingdom, where the government issued a statement aiming at 100% CSPO consumption by 2015, somewhere between 72% and 93% of consumption was certified in 2014 (Central Point of Expertise on Timber Procurement, 2015). The global spread of the RSPO is evident in that certified oil palm area is not only found in Indonesia and Malaysia, where the majority of the world's palm oil is produced, but also increasingly in Latin America and Africa (Potter, 2015).

Methods

Research Design

Adopting a grounded theory approach to model creation, we rely on the relatively modest ontological assumptions outlined above that organizational actors will come to private regulations with different objectives and interests and that standards will result from negotiations within and between these groups.

Our research design, as a result, is aimed at examining the way organizational actors engaged in the development of the RSPO frame, debate, and negotiate issues of concern. Our data collection and analysis is based on the idea that, in order to rationalize their positions as fields change, actors construct frames that provide interpretations of existing concerns and point out future directions (Fligstein & McAdam, 2012; Battilana et al., 2009). We would expect actors to create these frames strategically, based on their organizational interests (Goldstone, 2004; Tarrow, 2011), in an attempt to redirect the evolution of fields in ways more consistent with their core values (Rokeach, 1973; Turner & Killian, 1972), leading to relatively similar frames across organizations with similar strategic interests.

Guided by these ontological commitments, we conduct qualitative coding to identify key interests and interorganizational relationships, which, in turn, support building a model that can be subsequently tested (Yin, 1994; Eisenhardt & Graebner 2007; Corbin & Strauss, 2008; Chamaz, 2006). We take an abductive approach (Peirce, 1940 [1955], p. 150-156, 1957, p. 235-255) to interpreting our coding results. That is, we use our grounded theoretical approach to develop a verbal model intended to account for our most important findings, which can then be used to generate further hypotheses that could be tested in future research. As Richertz (2007) explains, abduction is a core method of grounded theory. It involves developing mental constructs that help account for surprising facts. By developing mental constructs that help reduce the rich data gathered in a study guided by a grounded theoretical approach, abduction avoids simply reduplicating the data in other terms and can provide a tool for more progressive research.

Our ultimate objective is to develop a clear verbal model that clarifies the strategic relationship between and among private sector and civil society actors engaged in the development of private standards. Considerable work in the philosophy of science has suggested that scientific theories are best understood as selective models of aspects of world that are neither true nor false but, instead, are best judged on their fitness for particular purposes (Giere, 1999, 2004; Cartwright, 1999). Clarke and Primo (2012) apply this argument to the social sciences (specifically, to political science), suggesting that we always use two types of models in explanations. The first is an empirical model of the data to be explained. This corresponds to the classification scheme developed from our coding, as described above. The second is a theoretical model that specifies

a set of mechanisms whereby features of the data, as summarized in the data model, were generated. This second type of model can in turn be used to develop new predictions, imagine counterfactual scenarios, or, if formalized check the logical rigor of theory (Axelrod, 1997; Cederman, 1997; Hoffman, 2005). The verbal model we propose should be understood as part of our data interpretation, as it helps make sense of key aspects of our data and can generate subsequent predictions that can inform further research on private standards (Bates et al., 1998, p. 17).

Data collection

We rely on data from a range of sources. First, we utilize official documents from the RSPO, as well as news articles collected from *Lexis-Nexis Academic Universe*. Additional background context was provided by semi-structured key informant interviews with representatives from six NGOs engaged in the RSPO process. Our most important data, however, was collected at the 2016 European Roundtable in Milan, hosted by the RSPO. The conference was held over two days from June 8-9. The first day offered a number of side-events before an opening reception in the evening, with a series of panels and workshops taking place the next day. Teams of trained interviewers conducted brief interviews with attendees during the opening reception and breaks between scheduled events where participants engaged in discussion of the topics presented at the conference. 60 interviews were conducted, accounting for approximately 19% of attendees.[2]

Interviews were guided by an interview protocol with nine questions designed for individuals astutely aware of the palm oil sector. The first three questions were used to determine the background of the interviewees, asking what type of organization they represent, if it is international and whether it is an RSPO member (see Table 1), while the remaining were open-

[2] Before proceeding with the interviews, each participant was asked whether they understood the purpose and procedures, and if they agreed to have the responses recorded and transcribed. The interviewees were informed that participation was involuntary and possible to withdraw from the study at any time. To preserve anonymity, we did not ask for any personal information other than a description of their role in the industry (e.g. NGO, certification body, producers, growers, etc.). A possible benefit from conducting the interviews anonymously is a more honest or open discussion, considering the responses cannot be traced back to any individual (Ong & Weiss, 2000). For identification purpose, we labeled each transcription with a non-descriptive code that was given to the participant if they wished to receive a copy. To this end, it was highlighted that any significant contextual details could be changed or omitted if they worried over reprisal from their organization or harm from any other source.

ended questions on the topics of sustainability, certification, influential individuals and groups, and their overall motivation for being at the conference. The interviews were concluded asking the respondents whether they had any last questions or additional comments and to expand if there was any topics left uncovered. It was an integral part of the design to provide a high level of openness in the questions to allow for topics to emerge that fell beyond the scope of the interview while still remaining important for the person being interviewed (Alvesson, 2003; Järvinen, 2001). We selected an open-ended approach in order to elicit frames naturally, allowing respondents to highlight issues of concern to them without direct prompting.

Question Groupings	**Questions**
Group 1 - Background	1) What type or organization do you represent, NGO, Private Firm, International Organization, etc? 2) Are you an RSPO member? 3) Where is your organization's headquarters located? Would you consider your organization as international?
Group 2 - Open-ended	1) What brings you to the RSPO conference? 2) Are you familiar with the Indonesian Estate Crop Fund for Palm Oil? If so, what do you think it should be doing with its funds? 3) Who do you think are the three most influential individuals or groups in RSPO? Why? 4) Do you think that the way RSPO certification works is adequate? Why or why not? 5) What are the three most important things that could be done to improve sustainability in the palm oil industry? 6) Are you familiar with the concept of commensurate effort and how do you interpret it? 7) Any last questions or comments? Any other questions you think we should be asking? If you were running this research, what would you want to find out?

Table 1: RSPO European Roundtable interview protocol.

All interviews were transcribed in their entirety from the audio recordings (McLellan et al., 2003; Atkinson & Heritage, 1984; Miles & Huberman, 1994). Among the 60 respondents from 19 different nationalities (see Table 2), the majority had little or no difficulty answering questions in English, however, in a minority of cases some answers were unclear and therefore could not be used for subsequent analysis.

Aided by the NVivo 11 software, the entire data set, comprising 60 interviews equaling 6 hours and 8 minutes of recorded length, was coded line-by-line (Charmaz, 2006, p. 50-53). The coding team specifically looked for the kinds of strategic and normative relationships that have been explored in field theory (Fligstein & McAdam, 2012). Interactions with the research setting, the collected data, experts in the field, and exchanges within the team led to the construction of a verbal model that that clarifies the observed mechanisms (Charmaz, 2008; Glasser & Strauss, 2009).

Organization Type	**Number of Respondents**
RSPO employees	8
Other certification bodies	7
Private sector	23
Industry association	3
Nongovernmental organization/nonprofit	16
Academic/research	2
Government agency	1

Table 2: Distribution of organizational types represented by interview respondents (N = 60).

Interests, coalitions, and bargaining in the RSPO

Member motivations

The RSPO faces the considerable challenge of providing sufficient benefits to incentivize actors across the supply chain, from producers to retailers and consumers, to switch to sustainable palm oil. Not surprisingly, the organization has worked to engage stakeholders from across the palm oil industry. These stakeholders collaborate (and often debate or negotiate) as they manage the standard (RSPO, 2016a, 2016d).

As a membership-based organization, the RSPO fundamentally rises and falls on the basis of members' interests in the standard. Depending on whether the members in question are in the private or civil society sector, their ultimate interests are generally either commercial on the one side or normative on the other. Central to the RSPO narrative as voiced either by private sector or civil society actors, however, is the idea that sustainable transformations are demanded by consumers. We saw this theme was in several sessions at the 2016 European Roundtable, particularly when presenting the rigorous new RSPO NEXT standards discussed below, but attention to consumers interests is a longstanding and wide-ranging concern. In 2010, for example, the general manager of Greenpalm, which handles the Book & Claim system, noted that "consumers are increasingly aware of what's in their food, where it comes from and how it was made, and many want to make purchasing choices based on the companies that are responsible players in a global marketplace" (qtd. in Prynne, 2010). In discussing a zero deforestation policy announced in 2013, similarly, Wilmar's CEO described the effort as a way "to ensure our supply chain meets stakeholder aspirations and expectations" (qtd. in Chin, 2013b). The Malaysian Palm Oil NGO Coalition asserted in 2014 that "buyers of palm oil and products containing palm oil globally will demand evidence of high social and environmental standards" (qtd. in Geraldine, 2014).

Consumer perceptions are central to private sector members' motivations, and brand reputation is a key fixture of the RSPO's approach to sustainability. A spokesperson for Kulim, for example, said in 2008 that the move was a core component of the firm's corporate social responsibility strategy (Phoon, 2008), and the head of sustainability at Sime Darby noted that European vegetable oil labelling standards introduced at the end of 2014 provided an

opportunity for the firm to differentiate itself (Heng, 2015). In 2014, regarding a strengthened supply chain commitment, a Wilmar spokesperson noted that "this is something we have to do, both for the business and the environment" (Soh, 2014). Other major brand spokespersons see these efforts not just as a response to consumer demands, but as a proactive risk-management strategy. A sustainable development manager for Marks & Spencer noted in 2014 that "brands and retailers have to lead, not wait for consumer demand. […] So don't wait for campaigns, don't wait until your customers say they don't trust you to deal with these issues" (qtd. in Moulds & Howard, 2014). A representative of Galaxy Surfactants, one of the first Indian firms to achieve RSPO certification, described the company's strategy as an attempt "to be ahead of the curve" as CSPO demand on the part of Western consumers created a "trickle-down effect to regional and local customers" (qtd. in *Progressive Grocer*, 2015). Once these commitments are made, as one industry analyst noted in 2013, it can be risky to back away (Thean, 2013b).

While brand reputation is an important motivation for consumer-facing, downstream firms, upstream suppliers of these firms can find certification to be essential for maintaining large customers focusing on Western markets and the European market in particular. When IOI Corporation's RSPO certification was suspended in 2016, for example, following a series of documented incidents of orangutan habitat peatland destruction, the firm saw several major brands, including Unilever, Kellogg's and Johnson & Johnson, declare temporary stops on palm oil sourcing from their renegade supplier (Adnan, 2016a; Taufik, 2016). As one industry analyst put it at the time, "It's all about brand reputation and consumer perception. They [the major brands] have no choice but to start disengaging from IOI" (qtd. in Fogarty, 2016). IOI brought suit against the RSPO for the revocation, but dropped the case in June, 2016 (Mathiesen, 2016). Following the drafting of a plan, the RSPO removed IOI's suspension in August 2016, but the incident was estimated to potentially cost the firm 7% of its annual earnings (Adnan, 2016a). Other firms have been more proactive. In 2013, Bumitama Agri halted planting by three subsidiaries that were found to be in violation of RSPO standards a day before Greenpeace released photos showing clearing in unapproved areas (Chin, 2013a), presumably as a means of damage control.

Traceability and supply chain management can be an important motivation, particularly for downstream, consumer-facing firms, but firms upstream in the supply chain also acknowledge

the pressure of global brands seeking improved supply chain traceability (Indian Grocer, 2015). As the Malaysian Palm Oil Association's representative on the RSPO board noted in 2015, improved remote sensing, geospatial analysis, and tracking tools mean that "the days of going unnoticed as a 'black sheep' are over" (qtd. in Heng, 2015).

Though brand considerations can be a powerful motivation for firms, they are not perfect. One limitation is that palm oil itself is seen as unhealthy in some markets, particularly in Europe, and some firms forego the RSPO trademark for this reason (Bates, 2015). Second, the price premiums attendant on certification have been volatile, and premiums differ by level of traceability, with Book & Claim generally enjoying the lowest premiums. Were CSPO to take over all production, as RSPO leadership have noted, the price premium would, by definition, disappear (Ng, 2011), but in the meantime the scheme is at least in part based on price premiums as a way to internalize environmental externalities. While when the initiative was first launched certified palm oil could fetch premiums as high as $50 (Ng, 2009a) or even $80 per ton (Thean, 2013a), prices began to drop (Thean, 2013b). In 2010, only 27% of present CSPO supply for Europe was sold (Hickman, 2010), and, by 2013, price premiums in the Book & Claim system were down to $2.70 (Thean, 2013a). As the price declined, supply chain members became concerned. In 2012, a member of the Malaysian Palm Oil Association noted that "growers are not satisfied" and that the low price and complexity of the standards "discourages existing RSPO growers from expanding their certified areas and new entrants from invested in the certification" (qtd. in Damodaran, 2012). Since then, there has been some recovery. In May of 2016, the price premium on a ton of certified sustainable palm oil (CSPO) was around US$25 (Adnan, 2016b). The final problem is that RSPO's primary successes are limited to the European market. Even WWF spokespersons admit that the Chinese and Indian markets are unlikely to reach the same standards as European brands in the short term (Schonhardt, 2011).

Bargaining power

While consumers are placed at the center of the RSPO message, they are generally understood to be mobilized by NGO campaigns. As Annisa Rahmawati, a Greenpeace forest campaigner, notes, "palm oil is too difficult a commodity to expect consumers to make conscious decisions on" (qtd. in Moulds & Howard, 2014), providing an important role for NGOs as drivers and

mediators of consumer sentiment. WWF, for example, strategically combines support of the RSPO with naming and shaming campaigns. In one 2009 report, for instance, WWF highlighted British retailers' deficiencies in purchasing CSPO, calling for improved uptake (Hickman, 2009). Greenpeace International (2016) and the Union of Concerned Scientists (Goodman & Sharma, 2015) both produce scorecards tracking major brands' action on palm oil, and the Rainforest Action Network (2015) recently combined a shaming campaign directed at PepsiCo with an offer to support drafting of a comprehensive sustainable palm oil policy.

NGOs' role is recognized, though perhaps not embraced, by industry actors. Kaisa Hietala of Nest Oil, a Finnish firm that came under fire for purchasing oil from IOI Corporation, a supplier that ultimately lost their RSPO certification, noted diplomatically in 2014 that "NGOs do valuable work in highlighting issues and problems" (qtd. in *India Energy News*, 2014). In 2010, Nestle and Golden Agri Resources, in response to a series of Greenpeace campaigns (Hickman, 2010b), made a commitment to improve supply chain sustainability.

From some growers' perspectives, these efforts amount to Western imposition on the part of conservation groups. One, for example, was quoted in 2011, rhetorically asking "Why tie our hands and legs so tightly? But that's what the world wants" (qtd. In Ng, 2011). An article in Malaysia's *New Straits Times* in 2014, reflects a common sentiment that, "skillful in communication and blackballing tactics, these activists harass oil palm planters into submitting to the standards and criteria that they dictate" (Ching, 2014). In 2011, the Indonesian Palm Oil Association withdrew from the RSPO, claiming the organization was too cozy with environmental groups (Vanguard, 2011). In actuality, however, the evidence is that civil society concerns are generally balanced by the negotiating power of other actors. While civil society actors have pushed to include more stringent conservation and livelihoods requirements in the RSPO, they have met with limited success, and some more critical civil society voices have increasingly kept the organization at arm's length (Ruysschaert & Salles, 2016).

There is a similar division between upstream and downstream firms. As one 2016 European Roundtable attendee noted, there is a need to ensure that "companies for the downstream aren't just passing the buck onto their suppliers." As the Malaysian Sustainable Palm Oil standard was launched in 2013, the Director-General of the Malaysian Palm Oil Board characterized the

RSPO as creating "an unhealthy monopolistic situation" (Thean, 2013c). In 2016, an industry insider asserted that the balance of organizational members in the RSPO was shifting away from the upstream players, particularly the growers, suggesting that "from the grower's point of view […] Western retailers and food manufacturers and the NGOs are the ones who dictate the hard and fast rules for oil palm growers/exporters" (qtd. in Adnan, 2016b; see also Lee, 2016). On the other hand, RSPO's multistakeholder process can be a source of legitimacy. Spokespeople for both Unilever and Marks & Spencer, for example, have favorably contrasted the RSPO to government-backed standards developed by Malaysia and Indonesia, in part due to its multiple inputs (Ng, 2012).

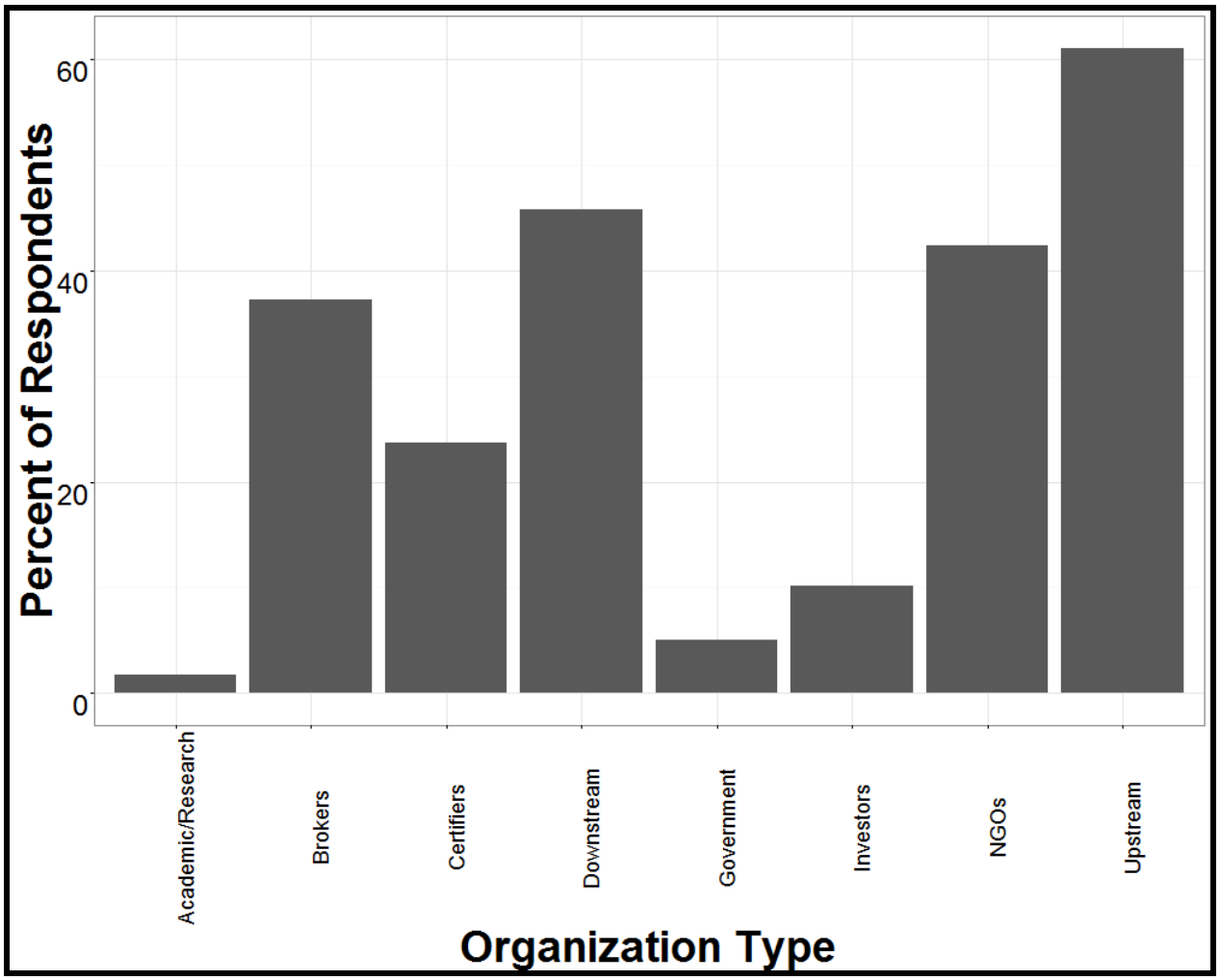

Figure 1: Types of organizations mentioned as particularly influential in RSPO process. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2016).

Figure 1 presents 2016 European Roundtable interview respondents' assessment of the most influential types of organizations in the RSPO process. The findings here are interesting. While consumer demand looms large in the RSPO narrative, downstream, consumer-facing actors are not seen as the most influential. Instead, the RSPO process, as discussed above, appears to involve negotiation between four key groups: the upstream supply chain members, such as growers and refiners, who were most likely to be reported as influential; the brokers who help make deals along the supply chain; the downstream supply chain members, such as the big brands and retailers; and the NGOs.

Reflecting the dispute on the relative The perception of influence, however, does seem to follow Miles's (1978, p. 399) Law: "where you stand depends on where you sit." Figure 2 splits the perceptions of influence displayed in Figure 1 between the private and civil society sectors, revealing some interesting differences of opinion. Civil society players tended to see upstream actors like growers and brokers to be more influential than downstream players like consumers and consumer-facing brands, while private sector actors tended to see NGOs as the most influential groups in the process, while upstream and downstream actors were seen as equally influential, with brokers less so.

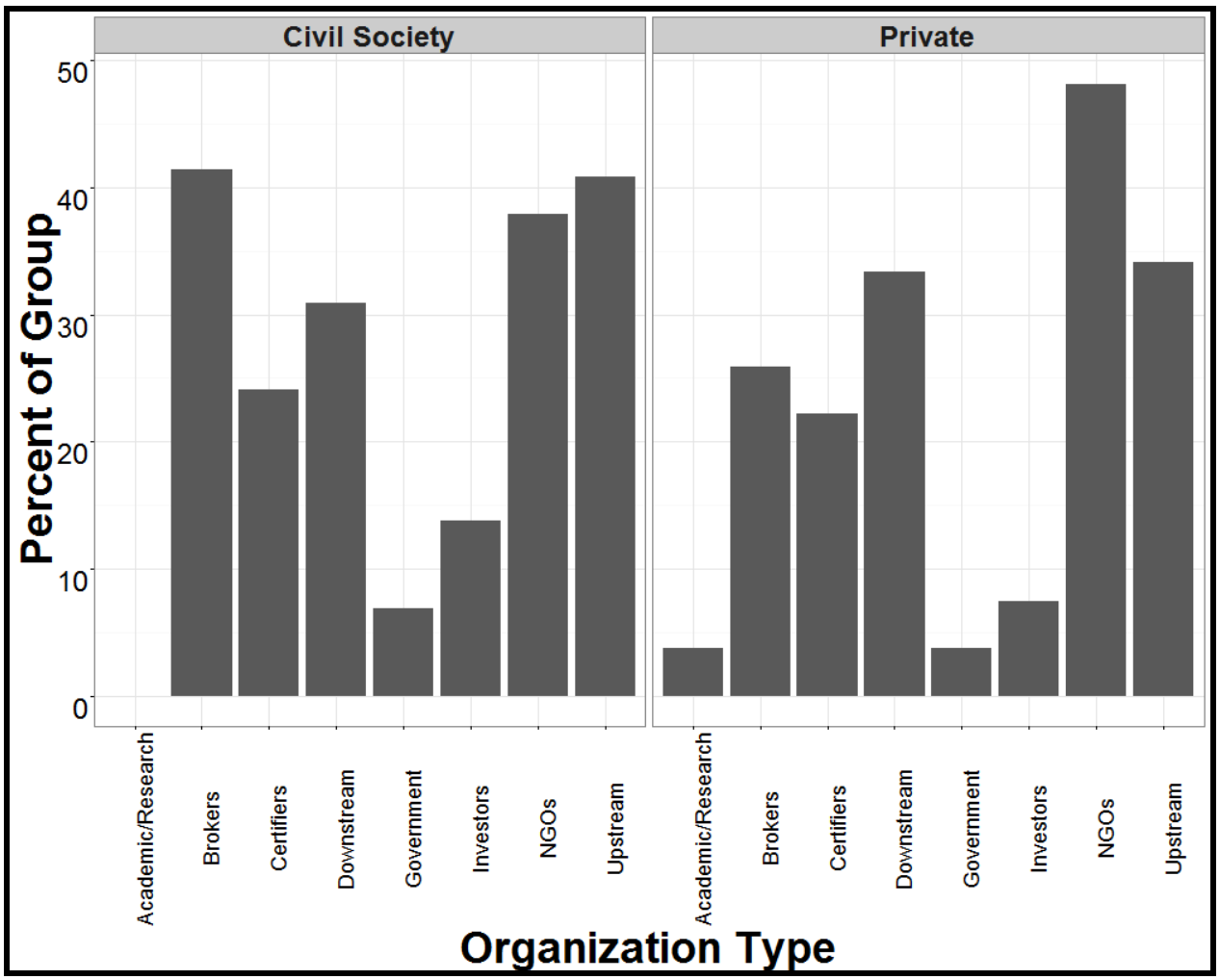

Figure 2: Types of organizations mentioned as particularly influential in RSPO process, by respondent sector. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2016).

Absent governments?

Figures 1 and 2 are also interesting in that government actors were very seldom mentioned as influential in the RSPO process by either private sector or civil society actors. While not a central player in the process, however, the potential importance of government actors is considerable. Governments can provide resources to help actors overcome the transaction costs involved in certification, as well as help build demand for certified oil. In 2012, as noted above, the Government of the United Kingdom committed to sourcing 100% certified sustainable palm oil, helping increase demand in that country (Central Point of Expertise on Timber Procurement, 2015). Industry members have also called for government endorsement. A Marks & Spencer

spokesperson, for example, called in 2014 for better support of the RSPO on the part of the then-incoming Indonesian government (Mould & Howard, 2014).

Government agencies can also be at odds with RSPO efforts. In 2007, the Malaysian Plantation, Industries, and Commodities Minister called for palm oil firms in the country to adopt RSPO standards (Adam, 2007), yet also excoriated the RSPO for being too strenuous for smallholders and characterized the sustainable palm oil movement as a potential threat to free trade (Damodaran, 2007). In 2013, the Ministry head, in discussing the Malaysian Sustainable Palm Oil certification backed by the government, argued that the RSPO "is very costly and their goalposts keep changing. It's time we set our own standards" (qtd. in Ching, 2013). As RSPO's vice-president noted in regard to ISPO and MSPO in 2013, standards like MSPO can be a way for firms to borrow the mantle of sustainability without putting in the labor (Thean, 2013c). The Indonesian government has had a similarly stormy attitude toward certification. In 2016, the Director-General for plantations in the Agriculture Ministry came out against the Indonesian Palm Oil Pledge, whose adherents committed to zero deforestation supply chains, arguing that it harmed smallholders and could be considered a cartel and involved commitments contrasting with those of the Indonesian Sustainable Palm Oil (ISPO) standard (Arshad, 2016).

Tensions between rigor and inclusion

The evolution of the RSPO standard, similarly to other transnational private standards (Auld et al., 2015), hinges on a tension between rigor and inclusiveness, or, put another way, between scope and ambition. Often, this tension manifests in debates on the need for simplication versus strengthening, which, while not necessarily diametrically opposed objectives, are nevertheless difficult to achieve simultaneously. One NGO respondent at the 2016 European Roundtable, for example, referred to "the miasma of complexity" surrounding the certification process and suggested an important goal for the organization would be to "cut the bureaucratic red tape." Another argued that the RSPO should be a "facilitator" of enrollment and that easing the challenges of enrolling in RSPO certification could be good "for the whole organization." Yet another said that "simplified language is always good." Fewer firm respondents discussed simplification, though one noted that "the criticism you hear is, of course […] that it [the

standard] is very complex and complicated to implement," while another suggested there were "too many types of certification."

RSPO members recognize the tensions and tradeoffs between inclusion and rigor. One private sector respondent at the 2016 European Roundtable admitted that "it's difficult," but argued that the RSPO must simultaneously provide "more audits, more controls within the supply chain" and at the same time direct resources to support smallholders' inclusion. NGOs, as noted above, often push for more rigorous standards. At the same time, some refiners and growers, who to some degree bear the brunt of many of the required changes, can be resistant to increases in requirements, which could lead to increased costs.

This tradeoff can also be seen in the divergent visions for the future of the organization held by private sector and civil society actors. Figure 3 presents initiatives mentioned as potential future directions for the RSPO, by the 2016 European Roundtable respondents' sector. As with perceptions of influence, there is a clear divergence between sectors on two key issues. Civil society actors are much more likely to mention support for smallholders as a key future objective, with almost 50% of civil society respondents mentioning the importance of engaging smallholders, while only slightly over 20% of private sector respondents do so. Second, consistent with the discussion of NGOs' role in the RSPO process undertaken above, they are much more likely than private sector attendees to mention improvements in monitoring and traceability as an important future goal.

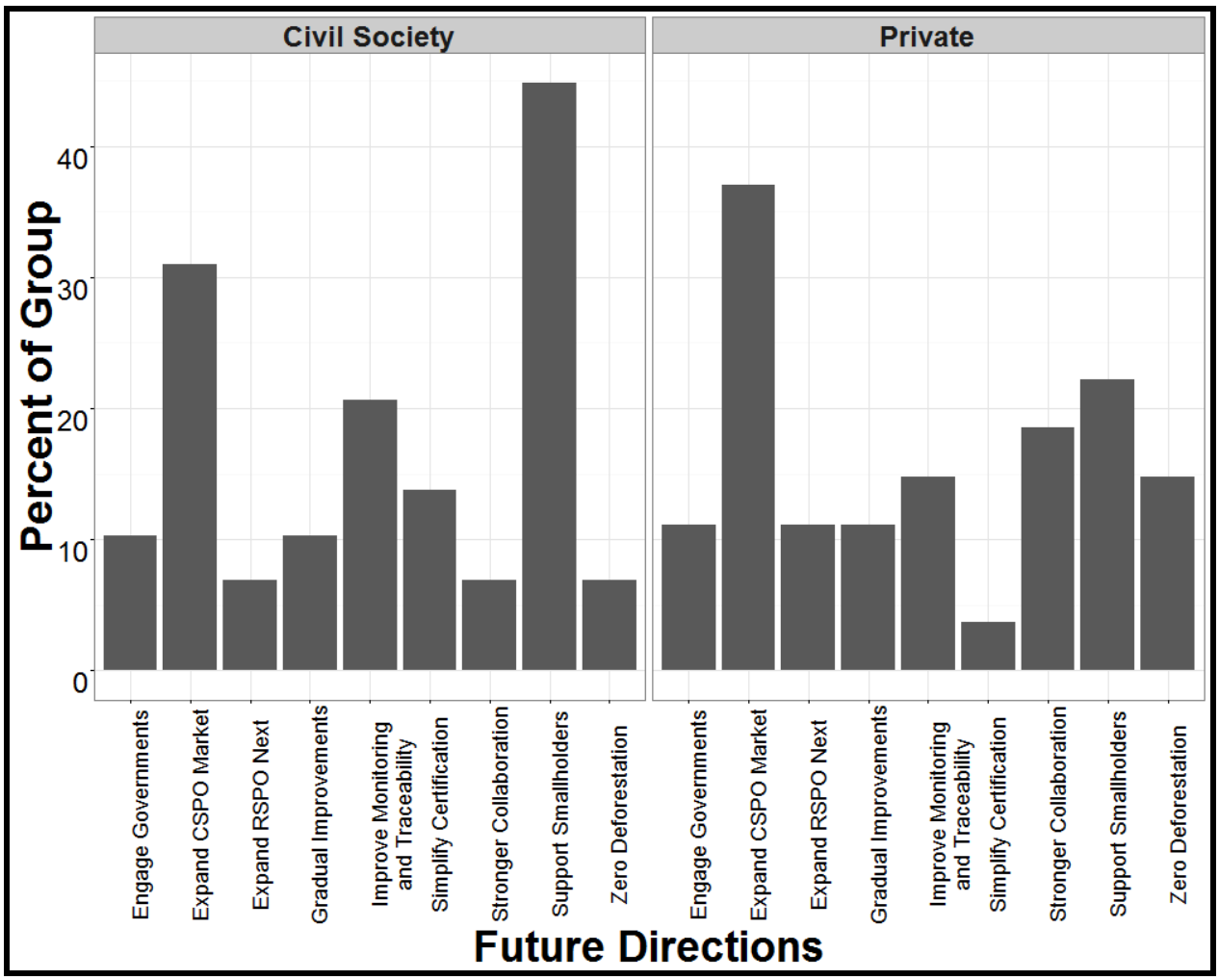

Figure 3: Initiatives mentioned as potential future directions for the RSPO process, by respondent sector. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2016).

The smallholder challenge

Figure 4 presents initiatives mentioned 2016 European Roundtable respondents as possible future directions for the RSPO process. While it is not surprising that many respondents saw expanding the market for certified sustainable palm oil as a key objective, as this is in essence the organization's entire purpose, the need to include smallholders is clearly an outsize concern. Though estimated account for 40% of global palm oil production (RSPO, 2016g), smallholders were often seen as sidelined by RSPO standards. One firm respondent, for example, argued the RSPO should be "focusing on smallholders and let[ting] them speak and encourag[ing] them to certify via [the] RSPO standard." The president of Malaysia's National Association of

Smallholders, similarly, declared in 2016 that the association was "not happy" with RSPO due to the cost of meeting its certification requirements (Ambia, 2016).

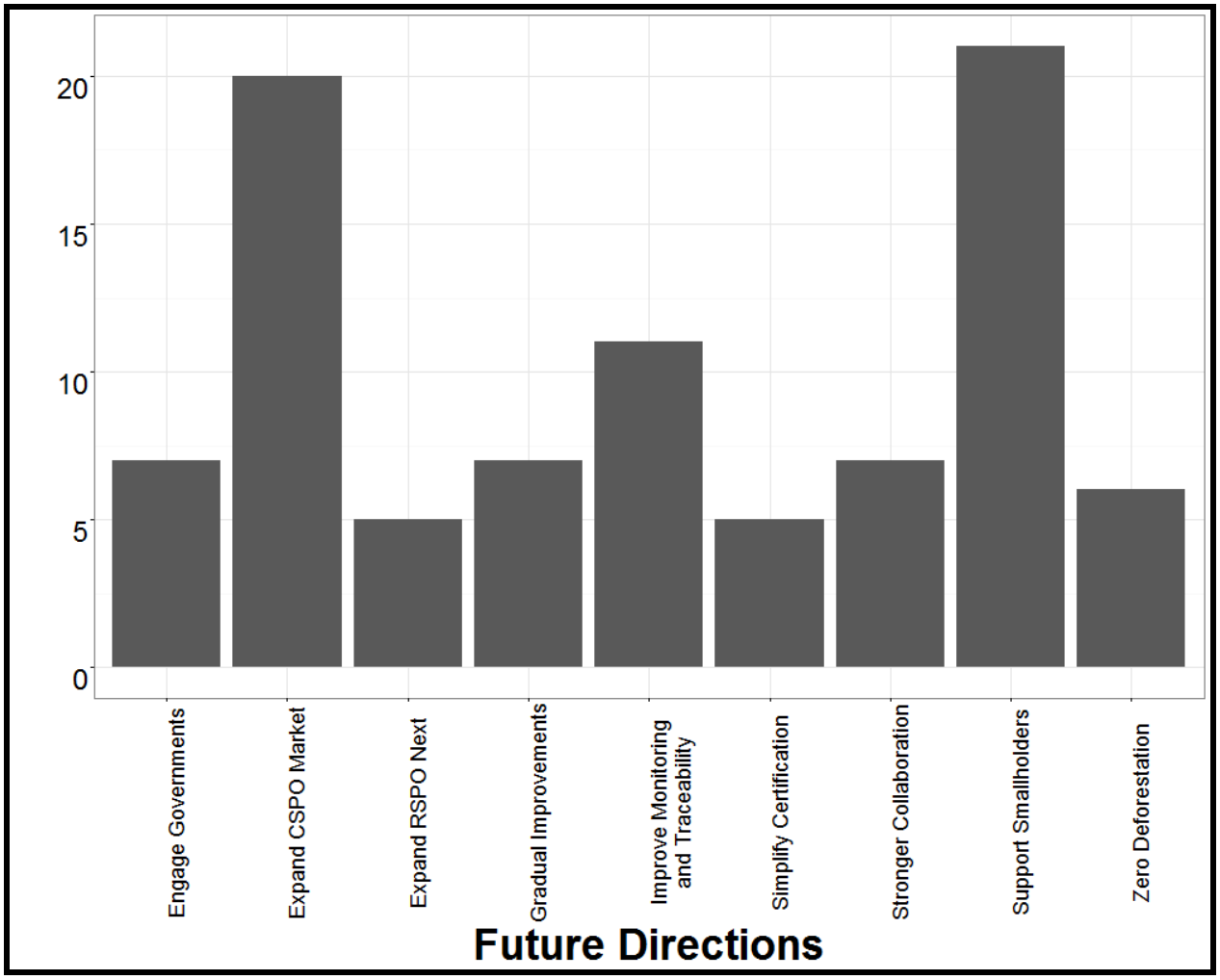

Figure 4: Initiatives mentioned as potential future directions for the RSPO process. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2016).

Smallholders are a unique group of upstream actors, who tend to have a harder time accessing the certification system and achieve lower yields than major players (Thean, 2013a). As one NGO respondent at the 2016 European Roundtable put it, "Only the guys that are incorporated with the, with the bigger guys and have the resources" are likely to have a reasonable chance at certification. Another said, "we want to see the big guys adopting smallholders." A private sector actor pointed out that smallholders "need to pay disproportionately compared to multinationals - at least more than the capability of many smallholders." Another pointed out that, with relatively low premiums for CSPO, certification was not "necessarily adding value

back to people […] like the smallholders." Yet another argued, "It's a day-to-day struggle for them [the smallholders] to put food on the table. Why would they care about sustainability and stuff like that?"

Traceability is a particular challenge for smallholders, who often do not have contracts with mills or rely on middlemen, making the exact palm oil source difficult to determine (Balch, 2015). The fact that sourcing non-certified oil from smallholders could lead RSPO-certified refiners to lose their certification, as one 2016 European Roundtable respondent pointed, out, can put both sides in a bind, potentially disincentivizing smallholder engagement with the RSPO process. As another interviewee noted, referring to growing pressure for traceable zero deforestation, zero fire, and zero peat planting commitments, "They're just thinking about physical uptake of oil, which is great, but then the consequences, unintended consequences, are that smallholders and smaller growers are kind of left out of the whole physical supply chain. They don't have the infrastructure to ship oil to here [Europe], certified oil."

The demand for physical traceability, in other words, might further squeeze smallholders out of the sustainable palm oil market, as it sidelines approaches such as mass balance and book and claim. As one private sector respondent noted at the 2016 European Roundtable, "with the Book & Claim we can also reach the smallholders and to get them involved in the certification scheme." Of course, as noted above, the Book & Claim system does not necessarily command the level of price premiums associated with more highly traced products. In addition, smallholders face growing objections to the Book & Claim system. Some conservationist NGOs, such as the Sumatran Orangutan Society, argue book and claim is less desirable than physical CSPO that can be tracked across the supply chain (Jenkin, 2015). A firm respondent at the 2016 European Roundtable, when asked what could be done to improve the RSPO, replied, "Let's say with the exception of Book & Claim, I would say it's appropriate." Another private sector respondent said they were "much against the Book & Claim module - just buying without being put to proper use." Others defended the system. One respondent, for example, admitted that "Book & Claim is not widely perceived to be a very nice model" but argued that "the origin is still certified oil, right, so it's the same oil, it doesn't matter if its physical or book and claim, they all stick to the same level of rigor."

To help limit the transaction cost barrier, RSPO has procedures for certifying smallholder groups collectively, permitting economies of scale in application (RSPO, 2010). Even this approach, one NGO respondent argued at the 2016 European Roundtable, was "very, very challenging to deliver," resulting in limited uptake. Recognizing the problem, the Indonesian RSPO director announced in 2013 RSPO's commitment would provide 50% of surplus in an annual fund, about US$2 million, to support smallholder certification (*South East Asian News*, 2013). As of 2015, the fund had reached about US$3.5 million (Balch, 2015). As an NGO respondent at the 2016 European Roundtable pointed out, however, this amount pales in comparison to the actual number of smallholder producers, thought other programs also attempt to bridge the gap and help smallholders overcome the transaction costs of certification.

Given these constraints, existing smallholder programs often involve external support. One early smallholder program certified under the RSPO's Smallholder Principles and Criteria, for example, was connected to a Cargill plantation in South Sumatra (Right Vision News, 2010). In 2012, a project in Thailand funded by the German Environment ministry allowed another group of smallholders to be certified to sell Book and Claim certificates, which were purchased by Johnson & Johnson (The Nation, 2012). Another example is a partnership between Henkel and BASF and Solidaridad, providing certification support to an estimated 5,500 smallholders in West Kalimantan, Indonesia (Progressive Media, 2016). An alternative model is development of jurisdictional pilot programs for RSPO certification, such as the one developed for Sabah, in Malaysia, where all plantations in the province, including those run by smallholders, would gain joint certifications (New Straits Times, 2015). The Sustainable Palm Oil and Traceability (SPOT) project, supported by Clariant, Wilmar, and L'Oreal, is aimed to allow about 500 smallholders in the province to achieve RSPO certification by 2020 (Kumar, 2015).

These efforts, however, are not always successful. The CEO of Felda Global Ventures Holdings, which in 2010 became the first RSPO-certified firm with significant smallholder involvement (Ismail, 2010), argued at the RSPO roundtable in 2015 that the complexity of the program and its unclear value was a barrier to smallholder uptake (Howe, 2015). In May of the following year, Felda withdrew its RSPO certificates, possibly in anticipation of sanctions due to clearing almost 1,000 hectares of high conservation value peatlands and allegations of failure to live up to RSPO labor requirements (Foo, 2016). Firm spokespersons, however, announced the

withdrawal was a way to develop programs supporting smallholders' sustainability and that the pause would allow the firm to "handhold and guide smallholders and settlers," who number around 102,100 and account for 30% of the group's production (qtd. in Ching, 2016).

Some more radical approaches have also been suggested to address the smallholder challenge. As one NGO respondent at the 2016 European Roundtable noted, the inclusion of smallholders might also rely on greater involvement on the part of governments, looking toward potential expansion of the jurisdictional certification approach. One NGO respondent advocated the creation of a new standard from scratch, tailored to the specific needs of smallholder producers. Another said the standard needed to be simplified, noting that "if we make it simple then we can get more." In Malaysia, some smallholder groups are turning to alternative certification schemes, adopting the Malaysian Sustainable Palm Oil standard as a lower-cost alternative (Adnan, 2015).

Greenhouse gas requirements

The challenge of smallholder inclusion is not the only domain in which the tension between scope and ambition appears. Another important point of debate is measurement of greenhouse gas emissions associated with palm oil production. In 2008, in response to NGO and consumer concerns about the lack of detailed requirements in the RSPO P&C for reducing greenhouse gas (GHG) emissions, the Greenhouse Gas Working Group was established. The aim of the first and second Greenhouse Gas Working Group (WG1 and WG2) was to develop a framework which could take into account all relevant sources of GHG emissions and establish a voluntary process for RSPO members to reduce GHG emissions (RSPO, 2016f). In 2011, WG2 issued a series of reports and recommendations to the RSPO Executive Board (RSPO Greenhouse Gas Working Group 2, 2011), the most important of which was advocating the use of a standardized assessment tool developed by the group, Palm GHG, a spreadsheet-based life-cycle assessment model for estimating greenhouse gas emissions from palm oil production (Bessou et al., 2014). Ultimately, these recommendations would be reflected in part in the 2013 version of the RSPO P&C (RSPO, 2013c), which incorporate emissions monitoring and reporting into requirements for environmental impact assessment and planning as major indicators.

The process of adding greenhouse gas monitoring requirements to the RSPO standards, however, was far from smooth. In 2009 the adoption of the Greenhouse Gas criteria proposed by WG1 was reported to have "almost led to a walkout" on the part of growers (Damodaran, 2009), and, with the RSPO itself issuing a press release asserting that "if a decision was forced either way too soon, RSPO could implode" (qtd. in Hardy, 2009), the inclusion of the criteria in the P&C were deferred to the following year (Ng, 2010), as the task was passed on the WG2 (Hardy, 2009; RSPO, 2016f). With the proposed greenhouse gas rule made voluntary, both the Malaysian and Indonesian Palm Oil Associations dropped their objections (*New Straits Times*, 2009). One meeting participant noted at time that growers should not "keep bending backwards to meet the stringent demands of the European Union market" (qtd. in Damodaran, 2009), and the changes were contested even by industry leaders like Sime Darby, a spokesperson for which noted in the run-up to the 2009 Roundtable that "the existing principles and criteria should be tested over time before introducing any changes" (qtd. in Ng, 2009b).

Following WG 2's work, the 2013 P&C were debated at an extraordinary meeting of the RSPO membership in April 2013. In the run-up to the conference, the RSPO's secretary-general called on the membership to "address this issue now within the RSPO rather than wait for policies (shaped without consultation) to be imposted on the industry in the near future" (qtd. in *New Straits Times*, 2013). While the criteria were included in the P&C this time around, there were again vociferous objections from some corners. At the time of the 2012 Roundtable, for example, the President of the Malaysian Estate Owners Association argued that the connections between greenhouse gas emissions and palm oil production were not scientifically defensible and that "the RSPO is detached from reality" (qtd. in Ching, 2012).

RSPO NEXT

A more recent initiative increasing the ambition of the RSPO standards takes a different tactic than that used in the greenhouse gas case. Faced with external pressure to increase the standard's rigor, several leading firms pushed RSPO to create an additional voluntary standad to layer on top of the existing P&C. Impetus for this new initiative arose initially from concerted civil society campaigns contending that RSPO standards did not go far enough. In 2013, Greenpeace International (2013) released a short report called *Certifying Destruction*, which

criticized RSPO traceability in non-segregated supply chains, particularly Book & Claim, and challenged the absence of complete bans on fire use and peatland planting, calling for firms to go beyond extant RSPO requirements. This and similar campaigns were met with announcements from several downstream brands that they would commit to zero deforestation and exploitation supply chains (Progressive Media, 2014a, 2014b; Heng, 2015). Their motivations were quite clear. When Wilmar adopted a policy going beyond RSPO requirements, the firm noted that even though it adhered to RSPO standards it was subject to accusations of indirect deforestation as a result of its purchases (Ng & Thean, 2014). Kellogg's chief sustainability officer, similarly, linked the firm's supply chain commitments to its branding "as a socially responsible company" (Progressive Media, 2014a).

The problem with the commitments was a lack of a mechanism to monitor and certify them, and this led to calls for the RSPO to fill the gap. In 2015, for example, a small firm-NGO coalition founded the Palm Oil Innovation Group, issued an open letter advocating more stringent action on palm oil, including an expansion of palm oil protections to include human rights and stricter anti-deforestation commitments (Howard, 2016). Backers suggested both that the RSPO standards were insufficient and that the letter was a "constructive attempt to strengthen standards and enforcement" (qtd. in Moodie, 2015).

This demand for third-party verification led to the most recent addition to the RSPO is RSPO NEXT, intended to support supply chain members' efforts to achieve zero deforestation, halting use of fire for clearing fields, prohibiting planting on peat, reducing greenhouse gas emissions more generally, and the commitment to uphold human rights and transparency (RSPO, 2015b). Proposed in late 2015, RPSO NEXT is a set of voluntary criteria for palm oil producers wishing to exceed the requirements of the RSPO P&C. The main components of the RSPO NEXT are no deforestation, no fire, no planting on peat, reduction of GHGs, respect for human rights and transparency. The RSPO NEXT also focuses strongly on "commensurate effort," a term used by the RSPO leadership to refer to the idea that all parties in the supply chain have a common but differentiated responsibility to put forth efforts to ensure the sustainability of the palm oil value chain (RSPO, 2015b).

While the voluntary nature of RSPO NEXT has allowed it to be developed without the level of political contestation that characterized the greenhouse gas criteria, it nevertheless has garnered critics concerned with the risk of creating a "two-tiered" market. A sustainability manager at Boots, for example, voiced just such a reservation: "You don't want to make it [RSPO NEXT] so complicated that only companies like ours that can afford to pay people like me to look at it can understand the system" (qtd. in Howard, 2016). These concerns, again, point to the challenge of managing the tension between scope and ambition. While RSPO, like other private standards, relies on brand concerns to motivate demands for rigor, brand advantage is competitive. That is, brand image is often based on differentiation, meaning that increase scope and inclusion may not be in the interest of leading firms. We discuss how these tensions might drive standards evolution in the following section.

Discussion and verbal model

In making sense of the evolution of the RSPO, it is helpful to consider a contrasting case in which corporate concerns came to support environmental protection. The Montreal Protocol is generally regarded as one of the most successful international environmental treaties (UNEP, 2015). It is, sadly, one of the few cases in which measureable impacts on a significant global environmental problem can be attributed to concerted decisions (Susskind & Ali, 2014), credited with making material progress on mitigating the deleterious effects of chlorofluorocarbon (CFC) production on the stratospheric ozone layer. While the details of the treaty's negotiation are complex, one significant point concerns us here. In the 1970s, when concerns about the thinning of the ozone layer were first raised in the scientific literature, the United States produced about half of CFCs manufactured globally. About half of these, in turn, were produced by the DuPont Corporation (Parson, 1993, p. 29). When concerns began to lead to regulatory restrictions on CFC production in the United States and elsewhere, DuPont, not surprisingly, led a campaign arguing that the science was too unsettled to warrant regulation (Parson, 1993, p. 34-35). By the mid-1980s, however, the firm had invested tens of millions of dollars in research and development of CFC alternatives (Parson, 1993, p. 41) and in 1986 expressed support for an international freeze of CFC production at current levels (Oye & Maxwell, 1994, p. 197). By 1988, following a major international scientific report on the ozone problem, DuPont reversed its longstanding position, supporting a full, global, CFC phaseout (Parson, 1993, p. 46), a key

victory for proponents. Soon, other major manufacturers followed suit (Chasek et al., 2014, p. 110-111).

Oye and Maxwell (1994) argue that, in the ozone depletion case, regulatory benefits were concentrated on relatively few parties, while the costs of CFC substitutes were borne diffusely, by consumers. A global ban on CFCs provided both a new market for non-CFCs and, because DuPont and other incumbent firms were further along the learning curve, a means of controlling entry into the market, protecting against competition from smaller and developing country producers. Corporate interests converged with regulatory demands, producing a potential win-win for large firms and environmentalists, though leaving some firms out in the cold.

While this mechanism can support strengthening mandatory environmental regulations, Green (2014, p. 43-44) argues that the logic extends to private regulatory tools, such as standards and certification. As discussed at length above, competitive concerns around branding are a key motivator for firms engaging with RSPO. Nevertheless, we argue here that civil regulation has some important, though subtle, differences from the Montreal Protocol case. To illustrate this point, we develop a simple verbal model. Because we are primarily interested in the dynamics of private market standards - our model addresses only two broad classes of actors, the private sector, understood primarily as firms, and the civil society sector, understood primarily as NGOs. We consider NGOs to be an exogenous force and focus our primary attention on divsions between firms that seek to differentiate themselves by environmental branding, a group we call leaders, and those who do not, whom we call laggards.

These groupings are by no means unique to the RSPO. Large corporations can have significant influence on the development of international environmental policy (Tienhara et al., 2012; Epstein & Buhovac, 2014; Orsato, 2006), not least due to the disproportionate effects their internal policies can have on environmental outcomes (Dauvergne & Lister, 2013; Russo & Fouts, 1997). Of course, even for many firms that have emerged as relative leaders on environmental concerns, the motivation to engage with environmental standards is not intrinsic, so much as it is a response to consumer and NGO pressures (Sasser et al., 2006; Reinecke et al., 2012; Reinecke, 2010). As Yaziji and Doh (2009) point out, NGOs can have advantages over firms in campaigns, despite their relative dearth of resources. Firms - especially large firms -

have a wide range of stakeholders, such as shareholders, boards of directors, consumers, and even employees. Given the heterogeneity of this group, maintaining a common sense of identity and purpose may be difficult or even impossible. NGOs, on the other hand, draw from a much more limited set of supporters and, all else equal, the more radical the NGO, the more limited - but also the more homogenous - its pool of supporters is likely to be. For this reason, Yaziji and Doh (2009) argue, NGOs can in many situations afford to carry on campaigns much longer than larger firms can sustain resistance. In addition, NGOs often play a key role in the development and management of private standards, helping to provide credibility to the process (Green, 2014; Fombrun, 2005). Indeed, the role of NGOs in legitimizing standards is so important that many more radical NGOs resist becoming members of standards regimes like the RSPO in order to avoid legitimizing them (Ruysschaert & Salles, 2016).

While traditional views might cast private sector actors as always in opposition to environmental regulations, firms are quite heterogenous, their strategies more nuanced (Tienhara et al., 2012). Oye and Maxwell's (1994) account of the Montreal Protocol, for example, applies Stigler's (1971) economic account of regulatory lobbying by industries to support the idea of leader firms like DuPont came to see a CFC ban to be in their interest. Stigler (1971) contends that incumbent firms with sufficient political clout might be motivated to seek regulation for a variety of reasons. Under the right conditions, regulations can provide a range of advantages for leading firms. These include subsidies, price regulation, new markets for substitutes, and barriers to future market entrants. Given that the first two advantages accrue only in the presence of government backing, it is the latter two motives - new markets and barriers to entry - that are of primary concern in the case of private standards like the RSPO. In addition, a range of other benefits might reward leading firms supporting strengthening standards. Private standards can make it easier for firms to make credible commitments to environmental quality and help firms build or protect reputations, and the vast majority of private environmental standards include some form of third-party verification to support such objectives (Green, 2014, p. 41-44, 91-92). Indeed, the development or adoption of private standards is often a response to concerted civil society campaigns (Vogel, 2010). Large brands and retailers can also use

standards implemented across the supply chain to support resilience, risk management, and governance of suppliers (Dauvergne & Lister, 2013).[3]

These motivations not only can incentivize firms to sign up to private environmental standards in the first place, they potentially provide reasons to support strengthening those standards over time. In the case of the RSPO, access to new markets (or, in some cases, protection of existing markets, as consumers turn away from palm oil due to environmental and other concerns), reputational benefits, and supply chain governance all benefit from stringent standards that are monitored and enforceable across the supply chain (Mueller et al., 2009; Vermeulen & Seuring, 2009). Such concerns are likely to be most important for consumer-facing brands, which bear the brunt of civil society concerns about the environmental and social effects of unsustainable palm oil production, as illustrated in the case study above. While strengthening standards can be a significant win from an environmental perspective, however it may simultaneously increase the costs of entry for non-leaders (Portney, 2016; Rao & Holt, 2005; Dowell et al., 2000; Palmer et al., 1995; Porter & Van der Linde, 1995). As production restrictions increase and monitoring requirements become more stringent, these changes potentially squeeze out less well-resourced operators. This problem is illustrated clearly in the tensions outlined above between growing demands for traceability and the attendant barriers to smallholder inclusion in more traceable certification streams.

Because private standards are not automatically extended throughout jurisdictions, as would be the case with governmental standards like those developed under the Montreal Protocol, there is a tension between strengthening standards and expanding the scope of their application, as illustrated numerous times in the case study above. Generalizing beyond the RSPO case, we can imagine a range of possible outcomes for different standards, depending on the benefits leaders

[3] This should not be taken to exclude the wide range of other motivations to engage in private standards identified in the literature. Green (2014, p. 41-44), for example, argues private governance can reduce transaction costs by providing information or supporting coordination. Dauvergne and Lister (2013), further, note that, particularly for major brands and large retailers, "eco-business" strategies can lower costs and support lobbying efforts in the face of potential regulation. Civil society, also, can benefit from the arrangement, as private sector organizations, if properly motivated, may be able to move faster on environmental issues than government agencies (Dauvergne & Lister, 2013). These considerations, however, are more likely to motivate firms to join private standards than to strengthen them.

accrue by strengthening the standard, and the benefits that laggards accrue by adopting the standard.

		Laggers	
		Benefits of adhering to standard outweigh costs	**Costs of adhering to standard outweigh benefits**
Leaders	**Benefits of strengthening standard outweigh costs**	Ratcheting up	Market separation
	Costs of strengthening standard outweigh benefits	Convergence	Stagnation

Table 3: Outcomes resulting from different distributions of costs and benefits for strengthening or joining a standard for leaders and laggers.

Table 3 presents a stylized typology of the possible strategic situations in which members and potential members of a private standard might find themselves. We can imagine four possible situations. In the case that the benefits of strengthening the standard outweigh the costs for leaders, while the benefits of joining the standard continue to outweigh the costs, we would expect members to continuously strengthen the standard, while its adherents expand in number, the most ideal situation from an environmental perspective. If the costs of strengthening the standard are prohibitive for leaders, while laggers still find it in their interest to join up to the standard, we would expect convergence, as all players in the field settle on a common and relatively stable set of standards. When the benefits of strengthening the standard outweigh the costs for leaders but the costs of joining the standard are prohibitive to laggers, we would expect the market to separate into a set of high-quality providers adhering to relatively high standards from which less well resourced operators are excluded. Finally, when the costs of strengthening the standard are prohibitive for leaders and the costs of adhering to the standard are prohibitive

to laggers we would expect a state of stagnation, in which the standard does not change, nor does it attract new adherents.

A variety of forces can change the relative costs and benefits for leaders and laggers highlighted in Table 1. The degree to which standards increase costs of production, clearly, are important for all potential adherents. Even if changes in practices are not particularly costly, the measurement and monitoring required for most standards can impose significant transaction costs (Lee et al., 2011; Thompson, et al., 2013), which can be prohibitive for smaller operators, in particular (Brandi et al., 2015). For leaders signing up to standards for reputational benefits or to secure markets, the benefits depend on how widely certification is adopted. All else equal, the more providers that are certified, the more competition leaders face, and the lower the premium their certification garners, relative to the mean benefits for operators in the field. While more members may decrease prestige, growing membership also means that the standard takes on greater "network power" (Grewal, 2008; Castells, 2011). That is, the higher the proportion of operators that adhere to the standard, the more costly nonadherence becomes to those who remain outside, as failure to adhere to the standard may come to be seen as a serious deficiency in quality. In addition, more widespread adoption of the standard may lower transaction costs as increased membership provides greater opportunities for social learning, diffusion of best practices, and markets for consultants who can specialize in lowering transaction costs for operators (Pattberg, 2005a, 2005b).

Any given standard might be expected to move between the cells of Table 1 as the balance of costs and benefits change for leaders and laggers. Many of these changes may come as a result of (relatively) exogenous shocks, such as civil society campaigns, new technologies, and new government policies. A variety of factors, such as changed market dynamics, regulation, social norms, and technology can result in transformations in the internal dynamics of fields (e.g., Davis et al., 1994; Fox-Wolfgramm et al., 1998; Garud et al., 2002: Kraatz & Moore, 2002; Lounsbury, 2002; Ruef & Scott, 1998), pushing the standard into different boxes.

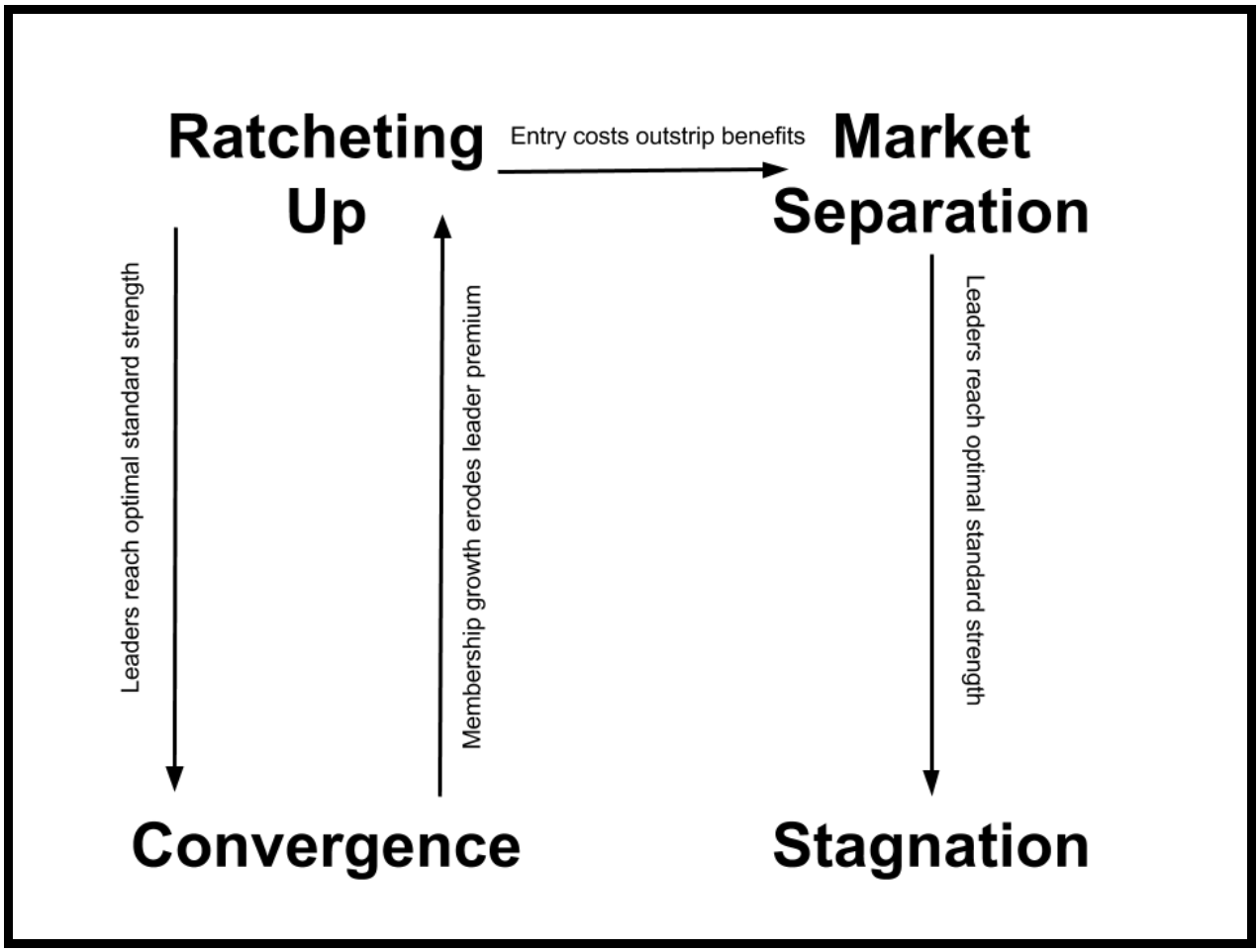

Figure 5: Endogenous transitions between states within a standard.

Other changes, however, can take place endogenously. Figure 5 outlines the possible mechanisms by which a standard could endogenously move from one state to another. If a standard is in a state of convergence, for example, the reputational premiums enjoyed by leaders will be steadily eroded by the influx of new members, increasing the attractiveness of strengthening the standard to retain or increase reputational benefits. On the other hand, leaders will only be motivated to support ratcheting up so long as the benefits outweigh the costs. When leaders are satisfied, the standard will move back into a state of convergence. If, in the ratcheting up process, the costs of entry exceed the benefits for non-members before leaders reach their optimal level, the standard may fall into a period of market separation, leading to the two-tiered market outcomes feared by some critics of RSPO NEXT. From there, once leaders are satisfied, the standard should settle into stagnation. This may happen particularly quickly if the standard is not only not growing, but actively losing adherents.

Figure 5 suggests an important strategic problem faces proponents of stronger private environmental standards, as outlined in the case study above. If the standard becomes so stringent that new members approach zero - or, worse, become negative - it will be difficult to get the engine going again without an exogenous shock. On the other hand, if the standard relies on leaders bent on differentiation to propel development, it is important to keep that motivation active. The challenge is to reconcile these two pressures.

One possible way to resolve this dilemma is to develop a tiered system, with the hope that the upper tier could take on its own expansionary dynamics, kicking the standard into a new phase of Ratcheting Up. This could be done either by developing a premium standard within an existing standard, as described above in the case of RSPO NEXT, or by developing a new standard altogether. This approach has the advantage of allowing leaders to set the pace of standards strengthening, while keeping the door open for new members.

While the above analysis focuses on firms, civil society actors are generally also critical for both managing and motivating firms to join private standards. Indeed, the relationship between leader firms and civil society can be an important factor in the rigor of a given standard. Sasser et al. (2006), for example, argue that US forestry firms have resisted joining the Forest Stewardship Council, preferring the domestic industry based - and much criticized - Sustainable Forestry Initiative due to distrust of conservation NGOs. In the RSPO case, we have seen that civil society actors - both members and non-members - are an important force motivating brands to seek greater rigor.

To a certain extent, of course, the interests of firms and civil society actors involved in a private standard will never be completely congruent. Generally, civil society actors will be motivated to see effective standards with widespread adherence. By contrast, even leader firms will generally be motivated to seek only those standards that maximize benefits, which will not necessarily be either rigorous or widespread. NGOs also differ in their strategies and motivations, walking fine line between desires for inclusion and for rigorous control (Auld et al., 2015). In the case of environmental standards, the position hinges on two primary considerations. First, it is important how the group in question balances concern for improved livelihoods and strict conservation. Second, the share of small producers in the market in question matters. If small producers are

collectively a significant force in the market, then there will be an incentive on the part of NGOs to err on the side of inclusion. As argued above, this motivation does not necessarily hold for leading firms.

These divergences between private sector and civil society actors were made clear in the case study above. As Figure 3 illustrated, private sector actors are generally less concerned about smallholder inclusion that civil society actors, though both camps agreed on the need to expand the CSPO market. Private sector actors were also more likely to report interest in expanding RSPO NEXT and zero deforestation efforts than civil society organizations, and outcome that might not be part of our general expectations of NGO attitudes but that is nevertheless consistent with the strategic considerations outlined here, in which firms - but not NGOs - should be more motivated to err on the side of ambition than on the side of scope. We discuss the implications of these strategic considerations for the development and deployment of private standards more broadly in our conclusion below.

Conclusion

As civil regulations become an increasingly important part of transnational environmental governance (Green, 2014), there is justifiable growing interest in the motivations behind the creation of these standards, in addition to their impacts on environmental outcomes. Here, we have used an in-depth case study of the RSPO using the grounded theory approach to develop a simple verbal model that allows us to consider the complex interactions between the diverse interests of standards members and the evolving scope and ambition of civil regulations. Our analysis suggests that the ideal condition of Ratcheting Up, in which scope of membership and ambition of targets increase simultaneously, is one of only a range of possible conditions in which standards may be found. In the absence of a government mandate that can extend standard adherence throughout a jurisdiction by fiat, managers of private standards must walk a tightrope between scope and ambition, or, in other words, rigor and inclusion. In the case of the RSPO, these tensions manifest in several debates, particularly those on smallholder involvement, emissions accounting, and traceability.

Organizational actors' attempts to balance these tensions, our model suggests, can have significant effects on the evolution of a given standard. Smallholder inclusion, for example, is

stymied because the benefits of adherence to the standard often do not outweigh the costs for this group. In the case of greenhouse gas emissions monitoring, conflicts between leaders' desires for more robust standards and laggards reluctance to embrace additional costs and risks resulted in serious political confrontation in 2009 that required nearly four years of consultation and reformulation to begin to be overcome. Perhaps in response to the political tensions that emerged as a result of the greenhouse gas debate, leaders seeking robust monitoring of strong supply chain commitments took a different approach in 2015, supporting RSPO NEXT as an add-on standard.

These findings, of course, are only preliminary, though instructive. To further develop the discussions begun here, a few research directions might be taken. First, the verbal model developed here could be formalized to provide more specific and rigorous hypotheses (Bates, et al., 1998). These hypotheses should then be tested on other private standards. It would be particularly interesting, for example, to use data on membership numbers from multiple standards to test hypotheses about switching between the different possible regimes identified in Figure 5 above.

While only preliminary, our findings suggest that the tension between scope and inclusion lies at the heart of private standards evolution, and our model suggests that government actors - or their absence - can still be critically important for transnational civil regulation. As several respondents at the 2016 European Roundtable noted, government involvement may be an essential criterion for expanding the standard into a larger share of the market. As European governments, in particular, begin to adopt goals for CSPO uptake, this could market an important shift in the evolution of the sustainable palm oil field.

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