

---

# Eco-Certification of Natural Rubber: Demand, Supply, and Potential Implications of Private Global Environmental Governance

**Sean F. Kennedy, MURP**  
University of California, Los Angeles

*Abstract: In recent years, concern over the environmental impacts of natural rubber cultivation has generated considerable interest in eco-certification, a form of private environmental regulation designed to encourage more sustainable land-use practices. This paper explores the emergence and potential sovereignty implications of this approach to environmental control with an emphasis on the natural rubber industry. I argue that although eco-certification is advocated as a form of networked governance representing a range of political interests, the way certification programs position themselves as transparent and accountable alternatives to state-based regulation potentially serves to delegitimize the role of the state in the arena of environmental regulation.*

The intensification and expansion of natural rubber cultivation over the twentieth century has had a profound impact on landscapes and traditional livelihood strategies in Southeast Asia. Rubber cultivation has generated wealth for many smallholders and landowners, but comes at the cost of forest conversion, habitat and biodiversity loss, disruption of watershed functions, increased livelihood vulnerabilities, and in some cases, dispossession of land (Fox and Castella 2013). In parts of Sumatra—one of the world’s largest rubber-producing regions—expanding rubber monoculture production has resulted in a decline of both forest cover and traditional rubber agroforests, posing direct threats in terms of carbon stock loss and reduced biodiversity (Ekadinata and Vincent 2011).

In response to these concerns, considerable effort has been devoted in recent years to assessing the potential of agroforestry rubber eco-certification (Bennett et al. 2007; Gouyon 2003; van den Beemt 2011). Eco-certification aims to promote socially and/or ecologically sustainable production practices by securing premium prices for commodities that are produced in accordance with ecologically and socially responsible private standards. In this way, eco-certification can be viewed as a form of private environmental regulation that relies on market forces to generate alternative incentives for smallholders to encourage more “sustainable” behaviors. Over the past two decades, eco-certification has become an increasingly common approach for promoting the dual goals of reduced environmental degra-

---

dation and improved smallholder livelihoods across a range of commodities including forest products, coffee, fruits and vegetables, and even clothing. Fair Trade coffee, which guarantees producers a living wage for their commodity, and the Forest Stewardship Council (FSC), which certifies wood products that meet socially beneficial and economically prosperous management standards, are two notable examples of this rapidly expanding approach to environmental regulation and governance (Taylor 2005).

This paper explores the emergence of eco-certification and potential sovereignty implications of this approach to environmental control using the case of natural rubber. Following an overview of the global rubber industry, I present the case of Bungo District, Indonesia, which has been the subject of considerable research on the potential for natural rubber eco-certification. Here I argue that the preference for eco-certification is a product of two factors: (1) an overemphasis on the role of smallholders as drivers of land-use change, and (2) a general shift over the past several decades away from public regulation towards private global governance. The second part of the paper examines the potential sovereignty implications through an exploration of the way private forms of environmental governance transcend existing frameworks of public accountability and governmental authority, and thus carry potential implications for state sovereignty as it pertains to control over the use of natural resources. I argue that although eco-certification is advocated as a form of networked governance capable of accommodating a range of political interests, the way that certification programs position themselves as transparent and accountable alternatives to state-based regulation potentially serves to delegitimize the role of the state in the arena of environmental regulation.

## Natural Rubber: A Global Industrial Commodity

Rubber latex, a white liquid obtained through the tapping of the Pará rubber tree *Hevea brasiliensis*, is the primary input for various forms of industrial rubber used in the production of tires, tubing, medical gloves, shoe soles, condoms, and rubber bands (Gouyon 2003; Tekasakul and Tekasakul 2006). Of these products, the tire industry is the predominant user, accounting for approximately two-thirds of global demand (Freedonia Group 2012). Natural rubber comprises approximately 47% of global rubber demand, the remainder consisting of synthetic rubber (Fox and Castella 2013). Natural rubber exhibits a much greater ability to withstand extremes of heat and cold than its synthetic counterpart, making it a superior option for a range of high-stress uses such as jet and truck tires and medical instruments (Gouyon 2003).

*Hevea brasiliensis* is native to the humid equatorial regions of Amazonia between 10° N and 10° S, and traditionally grows best at temperatures of 20–28°C with an average annual rainfall of 1800–2000 mm (Arokiaraj 2000; Gouyon 2003). After initial efforts to increase the scale of rubber production in the Amazon were thwarted by outbreaks of leaf blight, the center of global rubber production shifted to Southeast Asia around the turn of the twentieth century (Hecht and Cockburn 2010). In recent decades, rapid economic growth in China and India has fuelled an equally rapid increase in demand for cars, resulting in a direct flow-on effect on demand for natural rubber. Asia currently accounts for almost 70% of global demand, driven largely by China (33.5%), India (8.7%), Japan (6.6%), and Malaysia (4.6%). Demand from Europe and North America represents a significantly lower share, at

---

13.5% and 10.7%, respectively (FTP Securities 2013). Asia accounted for over 90% of the 11.4 million tonnes produced globally in 2012, followed by Africa (4-5%) and Latin America (2.5-3%) (FTP Securities 2013). Production is concentrated in Thailand, Indonesia, Malaysia, and Vietnam, which combined are responsible for 82% of global production and about 87% of global natural rubber export volume. The majority of natural rubber is produced by smallholders, who are responsible for 93% of rubber production in Malaysia, 90% in Thailand, 89% in India and 85% in Indonesia (Fox and Castella 2013).

Since its introduction in the region, production has expanded and intensified at a rapid pace. Between 1960 and 2000 the area dedicated to intensified rubber monoculture plantations in Southeast Asia approximately doubled, replacing vast areas of forests, swidden cultivation, rubber agroforests, and other forms of subsistence agriculture (Aratrakorn, Thunhikorn, and Donald 2006). Over the course of the last century, increasing rubber prices and rising demand linked to the expanding market for automobiles have contributed to a shift from complex rubber agroforestry systems to intense rubber monoculture plantations throughout much of Southeast Asia (Feintrenie and Levang 2011). The conversion of forest and complex agroforestry systems to monoculture plantations has resulted in widespread habitat and biodiversity loss, disruption of watershed functions, increased livelihood vulnerabilities, and in some cases, dispossession of land (Fox and Castella 2013). In some areas, such as the Indonesian island of Sumatra, concerns over environmental degradation have given rise to interest from environmental nongovernmental organizations to investigate the potential for eco-certification as a means of addressing these impacts. In the next section, I examine a number of studies conducted in a particular area of Sumatra to understand why eco-certification has emerged as the “policy option of choice” among this particular group of researchers.

## **‘Only Market Incentives Can Save Agroforests’: the Case of Bungo District, Indonesia**

Bungo District, located in Jambi Province on the island of Sumatra, is one of the most productive rubber-producing regions in Indonesia. Jambi was originally covered with natural forest, and limited transportation infrastructure meant the region did not experience economic development until the end of the twentieth century (Joshi et al. 2002). In the early twentieth century, local farmers began planting *Hevea brasiliensis* seeds introduced by colonial plantations and Chinese and Malay traders in their traditional slash-and-burn rice fields, letting them grow with the natural, secondary vegetation (Feintrenie and Levang 2011). This approach resulted in a secondary forest with a high concentration of rubber trees known as “jungle rubber” or rubber agroforestry, which became the dominant land use for much of Sumatra over the course of the twentieth century. In addition to rubber, rubber agroforestry systems produce a range of secondary products including petai, durian, and rattan (Lehébel-Péron, Feintrenie, and Levang 2011). In the mid-1900s, however, monoculture rubber plantations began to emerge across the landscape, perceived by many smallholders as a more profitable land use compared to traditional rubber agroforestry (Feintrenie and Levang 2011). In Bungo District, forest cover decreased from 75% to 30% between 1973 and 2005, while rubber monoculture increased from 0% to 30% and rubber agroforestry decreased from 15% to 11% over the same period (Ekadinata and Vincent 2011).

---

The extent of land use change in Bungo District has captured the attention of international forest research organizations such as the World Agroforestry Centre (ICRAF) and the Centre for International Forestry Research (CIFOR). Over the past two decades, ICRAF and CIFOR have conducted numerous studies to identify the extent of land use change (Ekadinata and Vincent 2011), the drivers of land use change (Feintrenie and Levang 2009), and proposed interventions intended to promote more sustainable land use practices (Leimona et al. 2010; Leimona and Joshi 2010). In a number of studies produced by these organizations, the narrative of land use change in Bungo has been constructed as one of smallholders responding to external economic stimulus in order to generate short-term profit with little regard for environmental or cultural consequences of their actions. Central to this narrative is the notion that smallholder economic motivations are the primary driver of land use change in the region (Feintrenie and Levang 2009; Gouyon 2003). Rising natural rubber prices, a high return to land, and relatively easy commercialization are factors most commonly identified as motivating farmers to convert agroforests and other forms of subsistence agriculture into clonal rubber plantations (Feintrenie, Schwarze, and Levang 2010; Pensuk and Shrestha 2008; Therville, Feintrenie, and Levang 2011). Feintrenie and Levang actively reject the notion that smallholders are innocent victims subject to international business and government interests, and argue that the majority of smallholders are engaged stakeholders actively pursuing economic development (Feintrenie and Levang 2011). In general, these studies of the region argue that compared to oil palm and improved rubber seedling and fertilization techniques, agroforestry does not compete in terms of economic returns, and thus smallholders have been forced to expand and intensify areas of cultivation, leading to increased incidences of environmental degradation (Feintrenie and Levang 2009).

Economic reasons are also attributed to cases in which smallholders have yet to convert to more financially lucrative methods of cultivation. Monoculture plantations require capital and intensive management, the absence of which are commonly identified obstacles to monoculture conversion (Feintrenie, Schwarze, and Levang 2010). While agroforestry is acknowledged as possessing a number of technical advantages over monocultures including resistance to pests, low labor requirements, a wider variety of products, no seasonality, tree cover that protects workers against sun and rain, protection of soil fertility and erosion prevention, and the ability to operate a staggered planting cycle, these features are also presented as producing benefits that are ultimately economic in nature (Feintrenie, Schwarze, and Levang 2010). Secondary income from fruits such as petai and durian has been identified as another, although less prominent, reason for resisting agroforest conversion to monoculture (Lehébel-Péron, Feintrenie, and Levang 2011).

Social, cultural and environmental factors including historical attachment to agroforestry methods and biodiversity protection are acknowledged as having a role in land use decision-making, although to a lesser extent than economic considerations (Feintrenie, Schwarze, and Levang 2010; Feintrenie and Levang 2011; Therville, Feintrenie, and Levang 2011). Generally, cultural or sentimental attachment to the forest in terms of inheritance from grandparents, staple food production and daily domestic consumption products, attractive scenery, and site of usual daily work is not considered sufficient to prevent forest conversion (Feintrenie, Schwarze, and Levang 2010). A study on transition dynamics from agroforests to monoculture plantations in Indonesia found the majority of community members who supported forest conservation lived in areas that had already been converted, which was interpreted as indicating a low preference for conservation among agroforest-based

---

smallholders (Feintrenie, Schwarze, and Levang 2010). Feintrenie and Levang (2009) firmly reject the notion that agroforestry has come about due to smallholders' desires to promote biodiversity, arguing that the positive correlation between agroforestry and biodiversity has come about as an unintended consequence of adaptations to changing economic environments.

While some studies note the influence of political and historical factors such as failed Dutch attempts at conservation and the transmigration program (Transmigrasi) on rubber expansion and intensification (Feintrenie and Levang 2009), these factors are typically viewed as footnotes to the primary narrative, which targets smallholders as the root of the problem. As an example, an analysis of land use trajectories in Bungo District found a mere 1% of rubber agroforest remained intact between 1973 and 2005, and that this area only remained intact as it remained inaccessible (Ekadinata and Vincent 2011). These findings led researchers to the conclusion that improved accessibility to local, national, and international markets by way of transportation infrastructure is one of the main drivers/enablers of conversion to monocultures, and has greater impact on forest clearance than agricultural population density (Miyamoto 2006; Therville, Feintrenie, and Levang 2011). Feintrenie, Schwarze, and Levang (2010) follow this line of thinking and argue that one of the factors that reduces the profitability of rubber agroforests compared to rubber monocultures is that rubber agroforests tend to be in more remote locations, whereas monocultures are planted along roads and highways. In both studies, however, the politics of infrastructure provision and the ways in which political dynamics manifest in land use change are conspicuously absent.

Overall, smallholder desires to expand or intensify rubber cultivation are generally attributed to a profitability discrepancy between agroforestry and alternatives such as monoculture cropping systems or oil palm. While some scholars claim that “no specific improvement will enable agroforests to compete with the economic and labor performances of monoculture plantations” (Therville, Feintrenie, and Levang 2011, 13), other scholars, and ICRAF in particular, have sought to make agroforests competitive with alternative, more intensive and environmentally damaging methods of cultivation (Leimona et al. 2010). In line with efforts to improve the profitability of rubber agroforestry, a number of studies have been devoted to exploring certification options (Gouyon 2003; van den Beemt 2011; World Agroforestry Center [ICRAF] 2011). Such efforts have been indirectly supported by interventions aimed at improving the quality of agroforestry rubber in order to make certification more viable (Leimona et al. 2010). Echoing the rationale underlying other ICRAF efforts promoting payment for ecosystem services (PES) programs, certification is viewed as a desirable policy option as it offers a means of addressing the profitability gap by securing a price premium equal to the margin between the social and private benefits of the agroforestry approach.

In sum, the formulation of land degradation in Bungo as a problem stemming from uncontrolled smallholder economic motivations—one which centers on issues of profitability—has led to a preference for a policy solution that aims to alter economic incentives at the smallholder level. This conclusion is explicitly stated by Feintrenie and Levang (2009): “Only market incentives can save agroforests” (331). Despite the questionable role the Indonesian federal and regional governments have played in the historical and continuing development of Indonesia's forests more generally (Peluso 1993; Peluso 1994), from the analysis presented above, it is not immediately clear why there is a preference for private governance

---

as a legitimate and viable substitute to improved public regulation. It is to this issue that I turn in the following section.

## The Rise of Private Global Environmental Governance

The analysis conducted by ICRAF and CIFOR reviewed here, with its emphasis on small-holder economic motivations as drivers of land use change, largely neglects the complex interacting social, cultural, environmental, and political contexts within which land use decisions take place (Robbins 2004). This form of analysis—a typical example of “apolitical ecology”—not only overlooks potential drivers of land use change in the region, but also leads to policy responses that too are apolitical and ahistorical in their assumptions (Robbins 2004). Eco-certification, with its grounding in the apolitical and ahistorical “rational actor” logic underpinning neoclassical environmental economics, appears as a logical policy response when the problem is framed in this way.

Apolitical ecological analysis, however, is not the only cause of the pronounced interest in eco-certification. Over the past four decades, governments have increasingly delegated regulatory authority to private bodies, as evidenced by the Iran-Contra affair, the emergence of private prisons, disaster response to Katrina, and the use of private contractors to provide military security in Iraq (Verkuil 2007). In recent years, the delegation of authority to private bodies has taken an ever more international character in the form of private regulation of financial and product markets (Büthe and Mattli 2011; Büthe 2010a). Within this context a range of private environmental regulations has emerged, from individual efforts by companies to manage their supply chains, to industry-wide codes of conduct, through to efforts by multi-stakeholder organizations to regulate and monitor using third-party verification (Auld and Gulbrandsen 2013). Payments for environmental services (PES), another form of private environmental governance, has emerged as a major component of sustainable development policies, representing an alternative to command-and-control or cap-and-trade environmental policy measures (Stringer et al. 2009). PES operates on the principle that by providing environmental service providers with a payment in excess of the cost incurred by not engaging in activities that contribute to land degradation, land-users will be incentivized to adopt sustainable land-use practices. PES refers to a wide range of potential incentives made to environmental service providers, ranging from one-off direct payments by service beneficiaries to service providers to more complex “market” mechanisms involving offset credits traded among many buyers and sellers (Leimona, Joshi, and Noordwijk 2009).

Eco-certification can be viewed as a subset of PES, in that the objective of certification is to generate a price premium for rubber that is produced in accordance with ecologically and socially responsible standards. Notable programs include the Forest Stewardship Council (FSC), which emphasizes sustainable forest management, and Fair Trade coffee, which guarantees producers a living wage for their commodity (Taylor 2005). Certification programs typically issue labels for products that have been certified as adhering to environmentally and/or socially responsible standards. The labels in turn give consumers the option to choose products—usually for a price premium—that have been produced in an environmentally and socially responsible manner. Over the past twenty-five years, eco-certification and eco-labelling have witnessed rapid expansion. Ecolabel Index, “the largest global directory of eco-labels,” currently tracks 437 eco-labels in 197 countries, and 25

---

industry sectors (Ecolabel Index 2013). Since its inception in 1992, the Europe-wide voluntary environmental scheme EU Ecolabel has awarded more than 1,300 licenses and can now be found on more than 17,000 products (European Commission 2013). By the end of 2011, 7% of wild landings of seafood for human consumption, 9% of the world's productive forests, and 17% of coffee produced globally were certified (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012).

The emergence of private regulation is often attributed to the convergence of two trends. First, the rapid internationalization of trade and growing complexity of financial instruments and markets has made it difficult for public domestic and emerging international regulatory bodies to keep pace, thereby creating a regulatory gap in these emerging markets (Büthe 2010b). Second, a broader shift toward neoliberal ideology is considered to have delegitimized government intervention in the economy, thereby increasing the acceptability of private responses to the emerging regulatory void created through increased speed and complexity of global trade (*ibid.*).

In contrast to the notion that private regulation has somewhat recent origins, perhaps going as far back as the era of Reagan, Thatcher, and Kohl in the 1980s, Agnew (2005) argues that the roots of this trend can be found in the emergence of a “marketplace society” that developed in the United States in the nineteenth and twentieth centuries. Agnew focuses on the exertion of “soft” power, which in contrast to the coercive militaristic forms of “hard” power, is characterized by the spread of cultural values, tastes, and preferences. Over the course of the last half-century, and particularly through the period of the Cold War, the U.S. government, corporations, and other institutions exerted a form of soft power to help garner acceptance of the American way of doing business (Agnew 2005). In situating neoliberal ideology within the history and geography of the American experience, Agnew brings a strong geographical element to the otherwise placeless philosophy of neoliberalism. The spread and acceptance of American cultural values, tastes, and preferences has in turn generated a far-reaching acceptance of American ideals that date back to the drafting of the U.S. constitution, including notions that public institutions should be granted limited involvement in the economy, and that private actors are best placed to regulate their own affairs. In this way, the rise of neoliberalism can be viewed more as a return to a limited role of the state as envisaged during the drafting of the U.S. Constitution, and less as a completely novel set of ideas.

The rationale for private forms of governance—with its emphasis on a limited role for public institutions and a recognition that private actors are best placed to regulate their own affairs—shares obvious similarities with these historical American ideals. However, as with neoliberalism, the roots of eco-certification are much deeper than the Reagan-era efforts to limit regulation and promote free trade and flows of foreign investment. The studies by ICRAF and CIFOR cited previously are emblematic of a long history of apolitical ecology, an ecology grounded in Malthusian notions of eco-scarcity and perceived failures of technology diffusion, appropriate economic valuation, and modernization efforts (Robbins 2004). Following this reasoning, smallholders are targeted as responsible for land use degradation due to their failure to control themselves or change their ways. This failure in turn justifies external policy intervention, regardless of whether such intervention may impinge on sovereignty as it pertains to the control over natural resources. The historical ideological foundations of ecology can therefore be viewed as having as great, if not greater, contribu-

---

tion to the emergence of eco-certification as the broader adoption of neoliberalism since the 1980s.

## Politics of Eco-Certification

Private regulation raises a number of political questions due to the differing motivations that lie at the core of the issue of private provision of regulation. Bütthe (2010b) employs a threefold distinction among stakeholders of private regulation: those who demand private regulation; those who supply private regulation; and those who are the targets of private regulation. Each group within this typology consists of a subset of actors. Consumers, for example, play an important role in certification, as they are the ones who ultimately provide the price premium that allows the system to function. Consumers may be driven by altruism, concern for the environment, health benefits, or a desire to know exactly what it is they are buying (Searle, Colby, and Milway 2004). However, consumers are just one group of a vast number of stakeholders that influence the stringency of standards and the creation of market incentives. For example, while consumers play an important role in promoting certification uptake, consumer concern generally comes about in response to initial campaigning by environmental nongovernmental organizations, driven by their own political agendas (Gouyon 2003).

In his summary of a special issue of *Business and Politics* dedicated to private regulation in the global economy, Bütthe (2010a) raises a number of issues relating to the supply of private regulation, which involves the tasks of standard design and implementation, monitoring and verifying compliance, as well as aspects of public relations in order to generate adequate support. Given the substantial costs involved in these processes, the motivations of private regulation suppliers raise a number of questions. In many cases, the costs of delivering private regulation are offset by efficiency gains or the provision of public goods (Bütthe 2010a). Rarely does this occur, however, without some form of political-economic gain for the private body, be it increased market share, secure links in the supply chain, or preempting government regulation in order to create their own standards before stricter and less-flexible regulations are enforced (Searle, Colby, and Milway 2004). In this way, firms set standards in order to create the standards that incur the least private cost: a goal that by no means guarantees maximum social benefit (McCluskey and Winfree 2009).

Bütthe suggests that the need for providers of private regulation to generate some level of private benefits jeopardizes the viability of the approach in the long-term. For example, not all actors can enjoy increased market share simultaneously (Bütthe 2010a). To date, however, there are no examples of self-funding certification schemes (Searle, Colby, and Milway 2004). The majority of certification schemes are dependent on grant aid and thus donor-driven, which subjects program design to the political motivations of funders and potentially limits the community's capacity to undertake sustainable commercial decision-making of their own accord (Colchester et al. 2003). So while the long-term viability of eco-certification may be a concern, a more pressing issue is the way that private interests exercise political power through the funding of these programs in the short-term.



---

## Geopolitical Considerations: Power, Accountability, and the Legitimacy of the State

The shift from purely domestic to transnational forms of private regulation gives rise to a range of new geopolitical dynamics that potentially serve to alter traditional notions of sovereignty and associated concepts of territorial authority and accountability. Cashore et al. (2006) go as far to argue that markets have the ability to sidestep inadequate governments and gridlocked international negotiations. So what does this mean for the role of the state in terms of control over natural resources?

Considerable attention has been directed at the perceived threat posed by private regulation to traditional state-based forms of regulation. In his *Outsourcing Sovereignty*, Verkuil (2007) addresses the issue of what he sees as national and global privatization gone too far. To Verkuil, the privatization of government functions relating to decision-making and oversight represents a direct threat to sovereignty, which he defines from a “traditional perspective” as the “exercise of power by the state” (14). Verkuil presupposes the existence of a once-clear boundary between public and private sectors of society, arguing that it is the increasing ambiguity of this distinction that poses the greatest risk to sovereignty, as he defines it.

Of particular concern to Verkuil are the inherent differences between the motivations of public and private actors. He assigns a certain nobility to the motivations of public actors, whereas private actors are viewed as likely to respond to the perverse incentives that arise from outsourced government functions to act solely in their own interest, with little regard for the consequences for society. He thus cautions against the rampant outsourcing of government functions, and emphasizes the need to retain core decision-making capability to ensure legitimacy and accountability (Verkuil 2007). The new industry of certification professionals means governments can outsource much of the work relating to the development and management of certification programs (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). For Verkuil, governments should limit the potential for situations where the efficiency gains from outsourcing government functions to specialists in order to tap into economies of scale are offset by a loss of oversight and accountability.

Critics of this somewhat alarmist view caution against confusing the reality of private regulation with the ideal of public regulation when discussing issues around private regulation. Adopting a more positive stance, Büthe (2010a) notes that there is no need to think of public and private as in opposition to one another, but rather, that there exists significant scope for co-regulation, with private and public actors engaged in a symbiotic relationship. This theme echoed through much of the literature on the networked governance aspects of private regulation. Smith and Fischlein (2010) suggest that “the establishment of private sustainability governance can be understood as the emergence of a hybrid form of organizational field, where network actors draw on reputational and legitimacy resources from existing fields and collectivize in an effort to gain control of, and authority over, the emerging rules of sustainability governance” (513). Cashore et al. (2006) argue that in some cases certification has actually forced disparate stakeholders to come together. LEI, a certification program operated by the Indonesian Ecolabel Institute, has contributed significantly to public awareness and engaged the interest of certifying bodies, companies under assess-

---

ment and assessors, NGOs, local communities around the forest area under certification assessment, and other individuals involved in the assessment process and sustainable forest management issues (Cashore et al. 2006). In this way, larger, more inclusive networks comprised of public and private actors are seen to help disparate actors to appreciate each other's perspectives and work towards compromise, especially when efforts are made to integrate all actors into the process (Cashore et al. 2006).

According to Büthe (2010a), private regulation is least likely to pose a threat to public authority when authority is clearly and explicitly delegated, and when the state has adequate capacity from the outset. As such, the forms of public authority most likely to be threatened by the emergence of private regulation are the ones located in countries characterized by weak political and regulatory institutions. At the risk of gross generalization, it could be argued therefore that there is a much greater risk posed to public authority in developing countries than developed countries. This issue is magnified when taking note of the geography of certification efforts. Returning to Büthe's (2010b) distinction between those who demand private regulation, those who supply private regulation, and those who are the targets of private regulation, it appears that the first two groups are overwhelmingly concentrated in the global North, while the targets of eco-certification tend to be located in the global South (Büthe 2010a). Certification is driven to a large degree by the demands Northern consumers for ecologically or socially responsible products, the majority of which originate in developing countries such as Indonesia. In this way, certification creates considerable potential to shift power from public institutions in developing countries to the hands of consumers in the global North (Taylor 2005).

One final point concerns the notion of legitimacy. Private governance networks organize across multiple heterogeneous organizational fields whereby participation and consensus serve as a substitute for traditional democratic legality (Smith and Fischlein 2010). As such, the conditions of emerging private environmental governance require actors to access legitimacy and reputation resources beyond a single organization, industry, or advocacy domain (Smith and Fischlein 2010). The process of accessing legitimacy across a range of sources stands in stark contrast to traditional sources of state-based legitimacy, which has historically (at least in a democratic settings) been derived from the collective support of a relatively homogeneous population. In this way, networked private global governance potentially changes the rules in the game of legitimacy. No longer is democratically invested authority consummate with legitimacy to control and make decisions over the use of a country's natural capital. The powerful role of the end consumer in emerging certification programs means that countries no longer seek legitimacy from their own citizens when making decisions over resource use and control, but are being forced to derive legitimacy from consumers in the global North.

## Conclusion

As private environmental regulation evolves, the complexities of this approach to environmental control are becoming increasingly apparent. In this paper, I have demonstrated that although advocated as a form of networked governance capable of accommodating a range of political interests, the way that certification programs position themselves as transparent and accountable alternatives to state-based regulation potentially serves to delegitimize

---

the role of the state in the arena of environmental regulation. In addition, an understanding of the deep roots of private environmental regulation and eco-certification helps to illuminate the underlying assumptions of this approach to environmental control and the possible outcomes for those targeted by such interventions.

Despite considerable research on the topic, industry-level interest in environmental standards for natural rubber is a relatively recent development, making it too early to predict the potential political and ecological outcomes of eco-certification for an area such as Bungo District. What has emerged up until now is a somewhat disparate array of certification efforts applied to niche products such as condoms, pillows, and mattresses. These recent certification efforts, including the recent development of the Global Organic Latex Standard (GOLS), appear to have come in response to industry demands for third-party accreditation in order to meet consumer demands in Europe and the United States, rather than in response to concerns raised by environmental research organizations close to the source of production (Rathnayake 2013). While organic certification such as GOLS serves to limit the use of chemicals and pesticides, such a standard does little to address more serious concerns such as deforestation, biodiversity loss, disruption of watershed function, and poor working conditions. Limited consumer awareness of environmental impacts of natural rubber production beyond the realm of what may or may not be “organic” provide little incentive for certification bodies to develop comprehensive standards to address these issues. This form of eco-certification developed in response to the demand of Western consumers—who are often not aware of the complete production process—is unlikely to serve as an effective substitute for local, public environmental governance.

This paper has largely been devoted to issues around upstream governance of certification. However, in focusing on the upstream governance, policy, and market conditions, there is a risk that too little attention will be paid to local needs, local particularities, and community realities. As noted by Colchester et al. (2003), “thinking globally is no substitute for acting locally” (25). Concerns over the geopolitical implications of private environmental governance need to be balanced by an understanding of the socio-political and ecological specificities of the locations that form the stage for emerging approaches to environmental governance. While certification may serve to bring disparate groups together and bypass ineffective government institutions, it should not be viewed as a substitute for policy reform in the public sphere. ■

## REFERENCES

- Agnew, John A. 2005. *Hegemony: The New Shape of Global Power*. Philadelphia, PA: Temple University Press. [http://books.google.com/books?hl=en&lr=&id=0N5x68P32DsC&oi=fnd&pg=PR5&dq=agnew+hegemony&ots=Nz836tZLOP&sig=GF23JAJI\\_tK2UaLAAEiHrzOBk8](http://books.google.com/books?hl=en&lr=&id=0N5x68P32DsC&oi=fnd&pg=PR5&dq=agnew+hegemony&ots=Nz836tZLOP&sig=GF23JAJI_tK2UaLAAEiHrzOBk8).
- Aratrakorn, Sirirak, Somying Thunhikorn, and Paul F. Donald. 2006. “Changes in Bird Communities Following Conversion of Lowland Forest to Oil Palm and Rubber Plantations in Southern Thailand.” *Bird Conservation International* 16 (1): 71–82.
- Arokiaraj, P. 2000. “Genetic Transformation of *Hevea Brasiliensis* (Rubber Tree) and Its Applications Towards Crop Improvement and Production of Recombinant Proteins of Commercial Value.” In *Molecular Biology of Woody Plants*, edited by S. Mohan Jain and Subhash C. Minocha,

---

305–25. *Forestry Sciences* 66. Dordrecht: Springer Netherlands. [http://link.springer.com/chapter/10.1007/978-94-017-2313-8\\_14](http://link.springer.com/chapter/10.1007/978-94-017-2313-8_14).

Auld, Graeme, and Lars H. Gulbrandsen. 2013. "Private Regulation in Global Environmental Governance." In R. Faulkner (ed), *The Handbook of Global Climate and Environment Policy*, Oxford, Wiley-Blackwell, 394–411.

Bennett, Mica, Laxman Joshi, Chandra Panjiwibowo, Suseno Budidarsono, Meine van Noordwijk, Hesti Tata, and Endri Martini. 2007. "Eco-Certified Jungle Rubber: A Safety Net for Disappearing Species?" <http://www.worldagroforestry.org/sea/Publications/files/poster/PO0115-07.PDF>.

Bütthe, Tim. 2010a. "Global Private Politics: A Research Agenda." *Business and Politics* 12 (3). <http://www.degruyter.com/view/j/bap.2010.12.3/bap.2010.12.3.1345/bap.2010.12.3.1345.xml>.

———. 2010b. "Private Regulation in the Global Economy: A (P)Review." *Business and Politics* 12 (3). <http://www.degruyter.com/view/j/bap.2010.12.3/bap.2010.12.3.1328/bap.2010.12.3.1328.xml>.

Bütthe, Tim, and Walter Mattli. 2011. *The New Global Rulers: The Privatization of Regulation in the World Economy*. Princeton, NJ: Princeton University Press. <http://books.google.com/books?hl=en&lr=&id=LDYVI5Ym3-oC&oi=fnd&pg=PP2&dq=buthe+mattli+new+rulers&ots=Rwy2BySPg5&sig=Rsv1Yd2BS4nV7qr0Jycc87eUuFY>.

Cashore, Benjamin, Fred Gale, Errol Meidinger, and Deanna Newsom. 2006. *Confronting Sustainability: Forest Certification in Developing and Transitioning Countries*. Yale University Faculty of Environmental Studies Publication Series. <http://eprints.utas.edu.au/2205/>.

Colchester, Marcus, Tejaswini Apte, Michel Laforge, Alois Mandondo, and Neema Pathak. 2003. *Bridging the Gap: Communities, Forests and International Networks*. CIFOR. [http://www.cifor.org/publications/pdf\\_files/occPapers/op-41.pdf](http://www.cifor.org/publications/pdf_files/occPapers/op-41.pdf).

Ecolabel Index. 2013. "Ecolabel Index." <http://www.ecolabelindex.com/>

Ekadinata, Andree, and Grégoire Vincent. 2011. "Rubber Agroforests in a Changing Landscape: Analysis of Land Use/Cover Trajectories in Bungo District, Indonesia." *Forests, Trees and Livelihoods* 20 (1): 3–14.

European Commission. 2013. *Facts and Figures*. <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html>.

Feintrenie, Laurène, and Patrice Levang. 2009. "Sumatra's Rubber Agroforests: Advent, Rise and Fall of a Sustainable Cropping System." *Small-Scale Forestry* 8 (3): 323–35. doi:10.1007/s11842-009-9086-2.

———. 2011. "Local Voices Call for Economic Development Over Forest Conservation: Trade-Offs and Policy in Bungo, Sumatra." *Forests, Trees and Livelihoods* 20 (1): 35–49. doi:10.1080/14728028.2011.9756696.

Feintrenie, Laurène, Stefan Schwarze, and Patrice Levang. 2010. "Are Local People Conservationists? Analysis of Transition Dynamics from Agroforests to Monoculture Plantations in Indonesia." <http://goedoc.uni-goettingen.de/handle/1/7418>.

Fox, Jefferson, and Jean-Christophe Castella. 2013. "Expansion of Rubber (*Hevea Brasiliensis*) in Mainland Southeast Asia: What Are the Prospects for Smallholders?" *The Journal of Peasant Studies* 40 (1): 155–70.

---

Freedonia Group, The. 2012. "World Rubber: Industry Study with Forecasts for 2015 & 2020". Cleveland, OH: The Freedonia Group.

FTP Securities. 2013. "Natural Rubber Industry Report 2013." FTP Securities.

Gouyon, Anne. 2003. Eco-certification as an Incentive to Conserve Biodiversity in Rubber Smallholder Agroforestry Systems: A Preliminary Study. World Agroforestry Centre Indonesia. [http://www.worldagroforestrycentre.org/sea/publications?do=dl&pub\\_id=67&file=http://www.worldagroforestry.org/sea/Publications/files/workingpaper/WP0003-04.PDF&first\\_last=ok](http://www.worldagroforestrycentre.org/sea/publications?do=dl&pub_id=67&file=http://www.worldagroforestry.org/sea/Publications/files/workingpaper/WP0003-04.PDF&first_last=ok).

Hecht, Susanna B., and Alexander Cockburn. 2010. *The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon*, Updated Edition. Chicago, IL: University of Chicago Press.

Joshi, L. G. Wibawa, G Vincent, D Boutin, Ratna Akiefnawati, G Manurung, M van Noordwijk, and S Williams. 2002. "Jungle Rubber: A Traditional Agroforestry System Under Pressure."

Lhébel-Péron, Ameline, Laurène Feintrenie, and Patrice Levang. 2011. "Rubber Agroforests' Profitability, the Importance of Secondary Products." *Forests, Trees and Livelihoods* 20 (1): 69–84.

Leimona, Beria, Ratna Akiefnawati, Rachman Pasha, and Suyanto. 2010. "Improving Smallholders' Rubber Quality in Lubuk Beringin, Bungo District, Jambi Province, Indonesia: An Initial Analysis of the Financial and Social Benefits." Working Paper 105. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Program.

Leimona, Beria, and Laxman Joshi. 2010. "Eco-certified Natural Rubber from Sustainable Rubber Agroforestry in Sumatra, Indonesia." Bogor, Indonesia. <http://www.worldagroforestrycentre.org/sea/Publications/files/report/RP0260-10/RP0260-10-1.PDF>

Leimona, Beria, Laxman Joshi, and Meine van Noordwijk. 2009. "Can Rewards for Environmental Services Benefit the Poor? Lessons from Asia." *International Journal of the Commons* 3 (1): 82–107.

McCluskey, Jill J., and Jason A. Winfree. 2009. "Pre-empting Public Regulation with Private Food Quality Standards." *European Review of Agricultural Economics* 36 (4): 525–39.

Miyamoto, Motoe. 2006. "Forest Conversion to Rubber Around Sumatran Villages in Indonesia: Comparing the Impacts of Road Construction, Transmigration Projects and Population." *Forest Policy and Economics* 9 (1): 1–12.

Peluso, Nancy Lee. 1993. "Coercing Conservation?: The Politics of State Resource Control." *Global Environmental Change* 3 (2): 199–217. doi:10.1016/0959-3780(93)90006-7.

———. 1994. *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley, CA: University of California Press. <http://books.google.com/books?hl=en&lr=&id=75wtk5jRKIAC&oi=fnd&pg=PR7&dq=peluso+nancy&ots=GA5jAm-YZS&sig=1tzaYAfl3aKq-pulSshYecLAOq4>.

Pensuk, Anisara, and Rajendra P. Shrestha. 2008. "Changes in Land Use and Rural Livelihoods: A Study of Phatthalung Watershed in Southern Thailand." *Changes* 18 (2): 143.

Rathnayake, Prabhath. 2013. "GOLS- Version 2.0 by Control Union Certifications | Global Organic Latex Standard." <http://prabhathrmcp.blogspot.com/2013/04/gols-version-20-by-control-union.html>.

Robbins, Paul. 2004. "Political Ecology: A Critical Introduction." Blackwell Critical Introductions to Geography. <http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IisScript=SIBEO1.xis&method=post&formato=2&cantidad=1&expresion=mfn=031301>.

---

Searle, Robert, Susan Colby, and Katie Smith Milway. 2004. "Moving Eco-Certification Mainstream." [http://www.rainforest-alliance.org/branding/documents/moving\\_mainstream.pdf](http://www.rainforest-alliance.org/branding/documents/moving_mainstream.pdf).

Smith, Timothy M., and Miriam Fischlein. 2010. "Rival Private Governance Networks: Competing to Define the Rules of Sustainability Performance." *Global Environmental Change* 20 (3): 511–22.

Steering Committee of the State-of-Knowledge Assessment of Standards and Certification. 2012. *Toward Sustainability: The Roles and Limitations of Certification*. Washington DC: RESOLVE.

Stringer, Randy, Leslie Lipper, Takumi Sakuyama, and David Zilberman. 2009. "Introduction and Overview." In *Payment for Environmental Services in Agricultural Landscapes: Economic Policies and Poverty Reduction in Developing Countries*. New York: Springer.

Taylor, Peter Leigh. 2005. "In the Market But Not of It: Fair Trade Coffee and Forest Stewardship Council Certification as Market-Based Social Change." *World Development* 33 (1): 129–47. doi:10.1016/j.worlddev.2004.07.007.

Tekasakul, Perapong, and Surajit Tekasakul. 2006. "Environmental Problems Related to Natural Rubber Production in Thailand." *J. Aerosol Res* 21 (2): 122–29.

Therville, Clara, Laurène Feintrenie, and Patrice Levang. 2011. "Farmers' Perspectives About Agroforests Conversion to Plantations in Sumatra. Lessons Learnt from Bungo District (Jambi, Indonesia)." *Forests, Trees and Livelihoods* 20 (1): 15–33.

Van den Beemt, Rosa. 2011. "Green Rubber: Potentials and Pitfalls of Upgrading Rubber Agroforests through Eco-certification." <http://dare.uva.nl/document/220192>.

Verkuil, Paul R. 2007. *Outsourcing Sovereignty*. New York and Cambridge: Cambridge University Press. [http://www.langtoninfo.com/web\\_content/9780521867047\\_frontmatter.pdf](http://www.langtoninfo.com/web_content/9780521867047_frontmatter.pdf).

World Agroforestry Center (ICRAF). 2011. "Maintaining Agrobiodiversity and Improving Local Livelihood of Smallholder Rubber Farmers in Bungo District, Jambi: Assessing Community's Readiness in Eco-certification of Rubber Agroforestry System." Bogor, ICRAF Southeast Asia