

This PDF includes a chapter from the following book:

## **Assetization**

### **Turning Things into Assets in Technoscientific Capitalism**

© 2020 Massachusetts Institute of Technology

#### **License Terms:**

Made available under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International Public License

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

#### **OA Funding Provided By:**

The open access edition of this book was made possible by generous funding from Arcadia—a charitable fund of Lisbet Rausing and Peter Baldwin.

The title-level DOI for this work is:

[doi:10.7551/mitpress/12075.001.0001](https://doi.org/10.7551/mitpress/12075.001.0001)

## 9 Turning Nature into an Asset: Corporate Strategies for Rent-Seeking

Les Levidow

### Introduction

Since the turn of the twenty-first century, financial concepts have become prevalent in managing natural resources. For example, UN institutions have increasingly promoted market-type instruments such as carbon credits, biodiversity offsets, payment for ecosystem services (PES), and so on. Such instruments involve financial transactions meant to reduce or compensate for environmental harm.

Beyond financial transactions, the metaphor of “natural capital asset” has been used to highlight the source of ecosystem services on which all economic activities depend. Together they face threats of resource degradation, resulting from the economic “invisibility of nature” (UNEP 2011, 16; TEEB 2008). To render these assets more visible, natural capital accounting (NCA) has been elaborated for three different contexts: nature conservation policy, tradable permits, and business strategies. In the latter context, a multi-stakeholder coalition has been devising methods for companies to assess their dependence on natural capital assets as a basis for future corporate strategies (e.g., NCC, 2016, 2018). This chapter investigates this process and asks: How does corporate NCA turn nature into an asset? With what drivers, roles, and stakes?

The chapter has the following structure: it first outlines theories of assetization and their valuation, especially nature; then agendas for reifying nature as an asset and the “global justice” critiques of this agenda; then a business protocol to operationalize natural capital accounting (NCA), with specific companies that have done so; then business strategies for stewarding natural capital as “shared assets.” It concludes by answering the above questions.

## Nature as Asset: Theoretical Perspectives and Research Methods

For several centuries, nature has been characterized by various economic metaphors, each reifying human constructs and processes as eternal things in various ways. In late eighteenth-century Germany, for example, the complex biological dynamics of forest stands, the basis of natural forest regeneration, were simplified for a more efficient “rational forestry.” This scientific-managerial model served to maximize wood production for greater economic returns through tree plantations, thus redefining forests (Scott 1998, 11–22).

Nature has had shifting personifications since the eighteenth century. Until then it was characterized as an organism, an anthropomorphic projection of communities maintaining commons, whereby everyone’s fair access was understood as a natural right. With the enclosure of commons, however, nature was recast through metaphors of a mechanism and market (Williams 1980); land was turned into an asset for capital accumulation. Across history nature metaphors “have ranged from inherent and inevitable bitter competition to inherent mutuality or co-operation,” each version eternalizing human behavior (Williams 1983).

In the nineteenth century, evolutionary theory understood ecological niches and species change through market-like competition as an anthropomorphic projection: “All organic beings are striving to seize on each place in the economy of nature,” argued Darwin (1859, 90). His theory naturalized capitalist markets, as Karl Marx observed: “Darwin did not know *what a bitter satire* he wrote *on mankind*, and especially on his countrymen, when he showed that free competition—the struggle for existence, which the economists celebrate as the highest historical achievement—is the normal state of the animal kingdom” (Marx 1862, 156–57, emphasis in original). Those successive metaphors have served private-interest claims on natural resources. This literature survey focuses on the asset-stocks metaphor of nature, toward analyzing corporate NCA in subsequent sections.

### Assetization as Rent-Seeking

As in some examples above, ontological metaphors reify a process as a thing. For example, viewing price inflation as an entity allows us “to quantify it, to identify a particular aspect of it, see it as a cause, act with respect to it, and perhaps even believe that we understand it” (Lakoff and Johnson

1980, 26–27). Through everyday experience, some ontological metaphors become taken for granted, seen as natural rather than as metaphors.

Such naturalization is illustrated by carbon credits. As a financial metaphor, credit originally denoted a social relationship—confidence that a creditor would repay a debt. Credit was later reified as a quantifiable, interchangeable thing through the carbon-credit scheme. To implement the 1992 UN Framework Convention on Climate Change (UNFCCC), the 1997 Kyoto Protocol created tradable carbon credits, entitling permit holders to pollute the atmosphere. The institutional shift divided NGOs. Some helped develop the financial infrastructure of carbon markets (Andonova and Hoffmann 2012, 59), but their involvement provoked criticism from other NGOs and especially social movements in the global South. A contingent reason for this criticism was the fall in the carbon price, which weakened the incentive to reduce greenhouse gas (GHG) emissions.

More fundamentally, some critics denounced the scheme for “commoditizing nature” (see later section). In practice, commodity production generally adds to the surplus value which can be realized through market exchange. By contrast, carbon credits entitle the owner to emit GHGs, as necessary conditions of production. Their purchase thereby imposes an extra cost, redistributing value which already exists.

Hence, carbon credits are analogous to a “form of rent” rather than new commodities: “The distribution and circulation of these entitlements through market-based mechanisms should not lead us to treat them as ‘commodities,’ but rather as a form of rent.... Emissions rights do have an exchange value and a use value, but they do not represent value” (Felli 2014, 254, 268). This analysis draws on Marx’s concept of rent—“the price paid to the owner of natural forces or mere products of nature” for the right to use them (Felli 2014). As necessary conditions of production, carbon credits relate to the right to use the environment as a pollution sink.

A cap on GHG emissions would restrict a key condition of production, so it became a focus of rival capitalist claims. For the 1992 UNFCCC, restricted access to the sink was foreseen as incentivizing capital flight: “Governments across the world have faced the contradiction between the need to ensure the reproduction of the conditions of production (and of social reproduction), which would mandate drastic reductions in GHG emissions, and the need to ensure that they retain capital within their boundaries, which generally requires as few regulations as possible” (Felli 2014, 258).

Although the protocol sets a political limit on global emissions, their distribution among producers is effectively “regulated by the law of value”—that is, financial power—thus depoliticizing the global use of space and resources. This rent-seeking role complements the neoliberal project of allocating resources according to polluters’ ability to pay rather than regulatory criteria (Felli 2014, 274). This role complements the wider neoliberal agenda of “non-decision making in economic processes”—in other words, the state relegating policy decisions to market exchanges among formally equal parties (Felli 2014, 655).

The neoliberal agenda more generally has promoted rentiership—rent-seeking through various forms of proprietary control. As noted by David Ricardo, rent denotes the transfer of profit from capitalist to property owner, rather than being the basis for generating more overall profit. Today rent more generally denotes ownership and control over a resource, such as nature, knowledge, financial assets, or technology (Birch 2019).

For example, R&D expenditure has been recently understood “as creating an asset with annual depreciation costs, i.e., as capitalized property, meaning that the value of R&D spending will stretch beyond its immediate contribution to production” (Birch 2017, 169). Control over the priorities and commercial use of such knowledge becomes a proprietary matter: “Knowledge assets give owners exclusion rights *and* use rights for copies derived from the asset” (Birch 2017, 172, emphasis in original). While an asset status could justify greater state investment for the public good (see Milyaeva and Neyland, this volume), it has instead been conflated with private interests, which devise rent-seeking strategies to restrict or exclude rivals’ access.

Such rent-seeking has several financial forms, including capital ownership, tradable credits, offsets, and payment for ecosystem services. More broadly, rent gains a performative basis in nature-as-asset.

### **Nature-as-Asset Warranting Investment**

Mainstream agendas for sustainable development and natural-resource protection have undergone a shift over the past two decades. The 1990s saw debates over conflicts between economic growth versus social equity and ecological resilience, but more recently such conflicts have been obscured. Instead, economic growth has been relegitimized as a crucial basis for the fair distribution and protection of natural resources. From the earlier

focus on state planning and regulation, responsibility has been shifted to municipalities, private companies, and NGOs. Moreover, environmental protection has undergone a commodification process through market-type values, language, and instruments (Gómez-Baggethun and Naredo 2015).

This process has generated new conflicts. For example, financial instruments have expanded the scope for “green-grabbing” in the global South. Here, land grabs have been justified as resource protection, for instance through carbon credits, biodiversity credits, biofuels quotas, payment for ecosystem services, or related offsets (Fairhead et al. 2012). Such instruments reduce the environment to standard measures of resource accounting; this obscures the resource needs and uses of nearby communities, thus serving to dispossess them (Forsyth and Sikor 2013).

Through tradable permits, multiple environmental values are reduced to a single unit of valuation, thus homogenizing those values. This has been theorized as a broader strategy of “depoliticization by economization” (Adaman and Madra 2014). Yet the opposite can happen. As is well documented, REDD+ forest credits have often intensified political conflicts over natural resources and land use, thus jeopardizing corporate reputations. Nevertheless, the scheme expands because they offer various benefits to companies buying the carbon credits.

As motives for carbon credits, companies seek to support environmental claims for corporate supply chains and thus for corporate social responsibility (CSR), or they seek to offset risk from investments in potentially stranded carbon-intensive assets (Laing et al. 2015, 3–4). In that regard, “green supply chain” has become a new buzzphrase replacing or supplementing “sustainable production and consumption.” Companies recognize the need to protect their brands and sales through environmental claims such as carbon neutrality and deforestation-free (Kill 2016, 114).

Analogous instruments have been devised for nature conservation over several decades. The 1992 Convention on Biological Diversity (CBD) was foreseen as potentially limiting businesses’ access to natural resources, especially through regulatory constraints and benefit-sharing arrangements. To avoid such limitations, business has cooperated with non-governmental conservation organizations (NGCOs) to develop entrepreneurial strategies around market mechanisms for allocating access to sites of nature as capital, such as schemes paying for ecosystem services (Robertson 2006). Funds from US AID and the UN’s Global Environmental Facility helped expand

the roles of these NGCOs, especially the International Union for Conservation of Nature (IUCN), World Wildlife Fund (WWF), and Conservation International (MacDonald 2010).

Companies seek such partnerships “as necessary risk management to protect their reputations and markets and as a way to open up new markets” (Robinson 2012, 969). Through joint biodiversity initiatives, NGCO-business partnerships have helped to give companies the imprimatur of environmental stewards. Meanwhile NGCOs themselves have become corporate-like entities (Corson 2010).

When such nature-conservation partnerships elaborated the natural capital metaphor, this was critically analyzed as equating nature with financial investment and its potential returns. Indeed, nature becomes personified as a billable service provider (Sullivan 2013; cf. Williams 1980). Valuing natural capital “makes nature legible by abstracting it from social and ecological contexts and making it subject to, and productive of, new market contexts” (MacDonald and Corson 2012, 159). Capital metaphors, moreover, imply that “the environment can be considered, valued, and managed as an asset like any other” (Coffey, 2015, 215). According to Akerman (2005, 48–49), “Instead of approaches which would give a new insight into the evolving everyday practices through which humans are connected with their natural environment, the concept of natural capital seemed to marginalise these discourses and strengthen the ahistorical and non-contextual view of environmental problems.”

By highlighting and naturalizing a market return on investment, the nature-as-asset metaphor favors specific types of economic activity and stakeholder participation. Neoliberal conservation practices have a chameleon-like flexibility in creating “both environmentally and market-friendly subjects” (Holmes and Cavanagh 2016, 204). Local people “are increasingly now being incorporated into conservation every time they conduct their new conservation-friendly livelihood activities.” Many initiatives have been “working within the lives of rural people, changing their behaviour”; appeals to economic rationales, especially for a return on investment, end up displacing other social values and bonds (Holmes and Cavanagh 2016, 206).

Those critiques extend earlier critical perspectives on neoliberal conservation and more generally neoliberalizing nature. The latter “involves the privatization and marketization of ever more aspects of biophysical reality, with the state and civil society groups facilitating this and/or regulating only its

worst consequences”; such ecological fixes are devised in the name of remaking, conserving, or expanding nature (Castree 2008, 142–43, 150). Internal state contradictions are addressed “by off-loading responsibilities to the private sector and/or civil society groups,” as if they could provide environmental protection in lieu of interventionist states (Castree 2008, 146, 149).

As critical academics argue, ecosystem degradation has worsened because extractive industrial development models benefit some private interests at the expense of the public good, which lacks adequate protection (see Gilbert this volume). Evading those systemic drivers, natural capital agendas instead attribute ecosystem degradation to a cognitive deficiency—natural capital being financially invisible—whose remedy lies in a holistic valuation and management. This agenda extends broader historical patterns: capitalist environmentalisms “generate their own imaginary featuring powerful managerial agents, situated above both nature and society, that can step in to govern their mutual relations.” In this imagined society/nature binary, non-natural humans produce commodities from a supposedly non-human nature (Lohmann 2019, 235–236).

As a metaphor, capital implies investment in something that could yield a return. “In financial parlance, capitalisation is about envisaging the value of something in the terms of an investment” (Muniesa et al. 2017, 11–12). This concept gains commonsense force from its metaphorical meaning—getting the most out of something or maximizing advantage—thus thinking like an investor. In order to capitalize on something, “It must be either considered an asset, or turned into one” (Muniesa et al. 2017). Financial valuation plays a performative role in defining something as an asset. Valuation concerns “a relational property of objects,” which is performed in the process (Dewey 1939, 5). Extending that insight, capital valuation has a performative role conferring value on something (Muniesa 2012, 33), thus warranting investment. This role has been deeply naturalized, taken for granted, while shaping specific forms of capital (Muniesa et al. 2017, 13).

### Research Methods

Drawing on those theoretical perspectives, this chapter analyses how corporate natural capital accounting (NCA) turns nature into an asset warranting financial investment and private-sector stewardship. This study began by analyzing various metaphorical and practical meanings of natural capital, especially changes in meaning since UN bodies gave the concept



a higher profile around 2010. Sources analyzed included stakeholder and policy documents, such as UNEP, TEEB, NGCOs, NGOs, business organizations, and consultancies advising them. Preliminary analysis provided a basis for interview questions with nine individuals, mainly around natural capital alliances, during 2015–2016.

Various agendas for NCA have generated significant debate where both sides imply that NCA has direct effects: proponents emphasize the ecosystem benefits, while opponents emphasize harms. But its role cannot be understood as directly causal, because NCA remains embryonic and because it functions within a wider strategic process. Hence, interview questions asked how actors use or understand NCA's key terms (e.g., capital, asset, shared, natural resources, ecosystem services, supply-chain changes, and regulatory standards). They also asked about environmental stewardship as multi-stakeholder engagement. In the light of interviewees' answers, the study reexamined the above sources. This method helped to identify multi-stakeholder processes and their internal tensions, beyond public disputes over NCA (see table 9.1).

### **Reifying Nature as an Asset: From TEEB to Business Strategies**

As a flexible metaphor, natural capital has been given diverse meanings and roles over several decades (e.g., Pearce et al. 1989; MEA 2005; Porritt 2006). It was originally promoted as a persuasive tool for environmental protection. According to the leading UK environmentalist Jonathan Porritt, for example, "If there is any genuinely sustainable variant of capitalism, then it will need to work within the conceptual and linguistics conventions that people are now so familiar with," such as extending financial to natural capital (Porritt 2006, 113).

For development theorists, natural capital has meant a resource empowering community development for better livelihoods through sustainable development. Conversely, human capital enhances natural capital within a wider framework for understanding the institutional design and societal governance of natural resources. A multifaceted capital became a ready metaphor to capture the range of enabling conditions that development conservation advocates might promote in order to achieve desired aims (Wilshusen 2014, 129). Such metaphors highlighted various forms of labor and power relations, but these became obscured by later versions of natural capital.

Initiated by the G7, The Economics of Ecosystems and Biodiversity (TEEB) studies have promoted natural capital evaluation, understanding natural resources as assets delivering flows of ecosystem services, analogous to financial capital yielding dividends. Here, ecosystem services flow from natural capital, seen as stocks or assets—separate from human activities, except for maintenance and restoration costs (TEEB 2008, 32, diagram). Given that “you cannot manage what you do not measure,” these studies argue that governments must promote “ecosystem-biodiversity accounting in physical and monetary terms” (TEEB 2008, 6, 54).

As a rationale for such accounting, nature is portrayed as the “GDP of the poor”; poverty is worsened by ecosystem loss. So this must be alleviated in order to ensure “the right of the world’s poor to livelihood flows from nature which comprise half of their welfare or more” (TEEB 2008, 4–5, 31). As a plea for fairness, “social justice will be threatened if the world continues to deepen the gulf between those who have the use of ecological goods and services and those who do not” (TEEB 2008, 25). This euphemistic language evades issues of dispossession, its everyday reality and political-economic drivers.

The TEEB initiative had been sponsored by the Convention on Biodiversity (CBD), whose 2010 Conference of Parties (COP) in Nagoya promoted several TEEB reports on a metaphorically resonant website called the Bank of Natural Capital. At the COP, natural capital valuation was portrayed as a win-win solution for the environment, the economy, and the poor. According to a subsequent UN report, natural capital stocks are “invisible engines of sustainability” (UNEP 2011, ii), as in nineteenth-century metaphors recasting nature as a machine (see, for example, Williams 1980). These multiple metaphors come to frame a specific global agenda: “The development path should maintain, enhance and, where necessary, rebuild natural capital as a critical economic asset and as a source of public benefits” (UNEP 2011, 16).

In the TEEB and UNEP perspectives, natural capital acquires humanlike powers to deliver services, thus anthropomorphically projecting financial assets onto nature: “In more economic terms, it can be said that ecosystem services flow from ‘natural capital stocks’ (also sometimes termed ‘natural assets’), like interest or dividends from the financial stocks” (ten Brink et al. 2012, 5). Why such a metaphor? “We try to use language familiar to people,” according to a lead author (interview, Institute for European Environmental Policy [IEEP], February 18, 2015). Indeed, this ontological

metaphor has resonance for decision-makers familiar with financial assets and for would-be managers of nature investments.

According to some proponents, though, the valuation of nature may neglect important aspects of natural capital. Payments for ecosystem services (ESS) create risks “where there are collective responsibilities sustaining resources through the commons and/or a culture of stewardship based on responsibility, culture and social norms”; moreover, the natural capital metaphor may give priority to protecting “areas that are more directly used by humans” (ten Brink 2015, 45, from the original English-language version).

Again, according to a lead author of the TEEB report: “Econometrics of natural capital and ecosystem services can open up people to a wider valuation of nature, but there is a risk of closure, seeing only the numbers” (interview, IEEP, February 18, 2015). Indeed, the asset metaphor can render socionatural processes less visible, especially those outside a formal economy. For example, those social relations maintaining nature are reified as relations between things, by analogy with labor productivity being reified as dividends of financial capital assets.

### **Questioning “Natural Capital”: Global Justice Movement**

At the Rio+20 summit in 2012, the UNEP agenda featured natural capital as an investment imperative. In particular, the metaphor “natural capital asset” highlighted the source of ecosystem services on which economic activities depend (UNEP 2011, 16). Perhaps unsurprisingly, however, this metaphor provoked suspicion from the global justice movement (BankTrack 2012; People’s Summit 2012; No to Biodiversity Offsetting 2013; WDM 2013).

Critics gave several reasons for their suspicions. As a form of nature pricing, natural capital accounting ignores the communities who help to maintain ecosystem services; indeed, such concepts “obscure the social context” of resource flows and usage (Unmüßig et al. 2012, 28). Speaking for many groups at the summit, one NGO elaborated on the commons as a more suitable community defense against global market pressures: “Where markets seek to take power away from the people and distribute resources according to the participants’ ability to pay rather than need, a commons-centered approach treats nature, the environment, food, water and other vital aspects of our lives as something we all share rights to and a responsibility for” (WDM 2012). At the 2012 People’s Summit, numerous stories

emphasized how resistance to enclosure helps communities to defend and develop commons, as a basis for a different global future. “

Such conflicts arose at a World Forum on Natural Capital held in Edinburgh in 2013 and again in 2015. The publicity warned: “With Natural Capital, when we draw down too much stock from our natural environment we also run up a debt which needs to be paid back” (WFNC 2015). Here the creditor is reified as an anonymous thing. The forum’s economic metaphor was contrasted with the ecological debt owed to the global South by the North (cf. People’s Summit 2012). In both years the Forum was targeted by a North-South global justice network, denouncing the natural capital metaphor. Conference participants “are confusing value with price, and by doing so they open the door for green markets that price everything but value nothing” according to this network (WDM 2013). Others in the network argued that the natural capital metaphor “serves to permit the commodification of nature” (No to Biodiversity Offsetting 2013), and that “It is a con that promotes the interests of businesses in the name of environmental and social protection,” representing “corporate polluters seeking to greenwash malpractice” (Open Letter 2015).

The notion of pricing nature empowers financial interests rather than protecting resources, according to a political activist:

Putting a price tag on nature...will encourage commodification of natural resources and not serve the interest of biodiversity. It will give much control of such resources to corporations and rich members of society. Instead of advocating for market solutions to protect natural resources, we should strengthen local institutions and empower communities. (Teresa Pérez, World Rainforest Movement, quoted in Kenner 2014, 6)

Moreover, the nature valuation process cannot be neutral vis-à-vis the methods, tools, and applications: “The process of valuation is intrinsically linked with the tools that will be used in such valuations. Some argue that the process of valuation is separate from the tool of pricing. However, history clearly shows that the development of the methods is shaped by the tools to be used and vice versa” (Thabit Jacob, co-organizer of the Green Economy in the South conference, Tanzania, 2014, cited in Kenner 2014).

Moreover, argue critics, natural capital depoliticizes the resource issues and power relations: “This economization of nature changes how it is viewed and ultimately undermines political action, which really ought to be committed to public welfare and all nature’s functions” (Unmüßig 2014,

12). Natural capital accounting (NCA) helps avoid or displace state responsibility for resource protection: “Good intentions around natural capital are entirely understandable, but reinforcing the idea that everything has a price will not engender the ability to treat the natural world differently” (director of WDM, now Global Justice, quoted in NCI, 2015, 27).

Such global activist networks have opposed NCA for facilitating financial instruments and undermining regulation. They counterpose alternative concepts and metaphors—for example, environmental justice, commons, and a Mother Earth metaphor (Espinosa 2014). With such alternatives, critics have questioned the corporate interest in NCA.

In the form promoted by UN initiatives and business, the natural capital metaphor has divided those claiming to protect the environment. By contrast with the global justice movement, non-governmental conservation organizations (NGCOs) have played a central role, initially in TEEB and later in the Natural Capital Coalition (see next section). Contradictory forms of political engagement have been theorized as a typology. On the one hand, an “embrace” strategy accepts financial metaphors within neoliberal assumptions about NCA. By contrast, a “reject and replace” strategy criticizes those assumptions, while counterposing different metaphors such as organic ones, ecological debt, or Mother Earth (Coffey 2016). This typology was meant to analyze academic perspectives, though it also has relevance to stakeholder agendas (see table 9.1). Let us next trace how NCA has been operationalized.

### **Strategizing Supply Chains: The Natural Capital Protocol**

Natural capital accounting (NCA) has been promoted for and by many business organizations, especially the World Business Council for Sustainable Development (WBCSD). Drawing on the natural capital metaphor, the new TEEB for Business Coalition sought to promote a shift in corporate behavior toward preserving natural and social capital. It formalized earlier collaborations between the WBCSD and non-governmental conservation organizations (NGCOs), such as Conservation International, IUCN, and WWF.

As the coalition warned companies, environmental externalities may jeopardize their economic competitiveness: “Those businesses that fail to adapt... will lose competitiveness as the value of these resources is realized through tighter regulation, consumer choice and limited supply,” warned the director (cited in EY 2014, citing CIMA 2014). This rationale motivated

Table 9.1

Contrary multi-stakeholder alliances vis-à-vis natural capital

Alliance	Natural Capital Coalition (NCC)	Global Justice network
Members	TEEB for Business Coalition, WBCSD, NGCOs (IUCN, WWF, Conservation International), Trucost	Transnational advocacy networks under the slogan global or social justice, e.g., FERN, GJEP, BankTrack, WDM/Global Justice Now, etc.
Nature: ontology	Stocks-assets yielding ecosystem services	Mother Earth protected and maintained by communities
Causes of environmental degradation	Invisibility of nature in economic valuations Vulnerability of natural capital stocks, as the source of ecosystem services	Resource commodification undermining common goods Unequal distribution of land and accumulation of power in a few hands
Fair remedy	Company investment decisions considering all impacts and dependencies on natural capital Anticipate how NC may be internalized via markets and regulation [Silent on development and social equity]	Environmental justice linking commons, communities and resource sovereignty Stronger local economies and territorial rights of communities
Natural-capital accounting (NCA) roles	NCA can help business to manage companies' opportunities and risks (financial and reputational), especially by better managing their supply chains	"Pricing nature" shifts control over resources to powerful financial and corporate interests, rather than protecting biodiversity
Knowledge: valuation methods	Involve NGCOs to standardize NCA methods so that their application will be credible and robust Ensure that NC valuation methods be neutral as regards any application or interpretation	Oppose NCA because the methods are shaped by the tools to be used, especially financial instruments such as ecosystem pricing Share stories of how communities maintain Mother Earth as commons
NC metaphor (Coffey 2015)	Embrace NC for company accounts and supply-chain management	Replace NC with commons and Mother Earth

a new organization to devise and trial a Natural Capital Protocol for supply-chain strategies, as analyzed in this section.

In 2014, the TEEB for Business Coalition was expanded and rebranded as the Natural Capital Coalition (NCC). That change notwithstanding, the earlier problem diagnosis was reiterated: “Economic invisibility has been a major reason for the neglect of natural capital” (NCC 2014, ii). It devised a Natural Capital Protocol which was meant to provide “a comprehensive guide to measuring and valuing natural capital in business decision-making.” It promotes the vision of “a world where business conserves and enhances natural capital ... by providing a standardized framework for business to measure and value their direct and indirect impacts (positive and negative) and dependencies on natural capital” (NCC 2015a, 14). The Protocol would start by understanding the business case, impacts and dependencies, risks and opportunities. Such aims set the priorities for identifying relevant activities that benefit from ecosystem services.

This initiative had anticipatory drivers. It frames nature’s stock as providing free goods and services, but these “are not typically bartered and sold in the marketplace, so their value is exceedingly hard to price on corporate or government financial statements” (NCC 2014). As a potential driver, more stringent environmental regulation has been anticipated—but not advocated: “The future shock for business is the potential for profit to be wiped out as natural capital is internalized through regulation and markets. ... Companies who act now to future-proof are better positioned to manage and thrive in a future ‘resource-constrained’ world” (Maxwell 2015, 6, 29). Such future anticipation lacks strong regulatory pressures, as one interviewee noted: “Some people see a coherent metrics for natural capital accounting as a driver for improvement. Business people understand the issues around ecosystem services but feel no pressure to internalize the externalities of their operations. Mother Nature calling in her invoice would impose higher financial costs” (interview, industry consultant, January 11, 2016). With this anthropomorphic projection, nature-as-creditor substitutes for regulatory pressures. NCA anticipates future changes in a business’s dependence on ecosystem services (ESS), its vulnerability to regulatory changes, and thus options for future strategy. All this warrants more anticipatory management of investment and supply chains.

According to the NCC’s first director, business wants to make smarter decisions. Ecosystem services are the Achilles’ heel of the economy, so “We

must get our ankles covered.” By identifying potential impacts on natural capital, the Protocol will help management make the right decisions (van der Gaag 2014). Greater competition for resources “endangers corporate reputations and marketability of products” (CISL 2015, 17). Some companies seek a first-mover advantage in securing their supply chains (NCC director, interview, May 1, 2015).

The Protocol distinguishes between its putatively neutral methods and their specific application by each company. Such assumptions are shared by conservation experts jointly drafting the Protocol: “The method must look with both lenses (society and business) at the same resources, without any moral judgment on choices. The valuation method aims to be neutral regarding any interpretation or application, though neutrality may be difficult to achieve” (interviews, Conservation International members of NCP’s Technical Group, June 23, 2015). Likewise, the accounting methods are separable from any subsequent ethical judgments (interview, WWF, June 23, 2015). Indeed, NGOs see their role as ensuring value-neutral methods.

Despite the putative neutrality of NCA, some insiders emphasize its special relevance to financial instruments. According to a business liaison staff member: “Natural capital valuation could help with the tradable credits already in place. It could help current ones by carrying out a valuation exercise, e.g., of restored wetlands to feed into a wetlands bank, or create potential for a new market” (interview, NCC-WBCSD, June 29, 2015). Likewise, “NCA can potentially play an important role in developing and implementing market-based instruments, such as payment for ecosystem services and biodiversity offset markets,” argues a business consultancy (Spurgeon 2014, 6).

Regardless of such schemes, NCC member companies seek methods relevant to their own strategies for investment, supply chains, and product marketing. The Protocol warns companies that their agro-food assets “could become stranded by threats to critical ecosystems” (NCC 2016, 9, citing Oxford University 2013). As a strategic response, “Businesses in the food and beverage sector can use natural capital assessments to inform decisions such as where to grow and invest capital, or withdraw and divest assets, or how to weigh environmental constraints for new or different business models” (NCC 2016, 56). Competitive advantage includes intangible benefits, such as “reputational benefits from own-brand differentiation” (NCC 2016).

Meanwhile a further UNEP report elaborated a strategic rationale for corporate NCA. By linking natural, financial, and reputational assets,



environmental stress tests can inform company decisions on investment and supply chains. Such tests would help to avoid “disorderly market responses” to both financial and reputational threats, for example, from “the rise of the civil society divestment movement.” For business to deal with such threats, “environmental regeneration will need to be placed within the price system of the real economy” through NCA (UNEP 2015, 15, 4). While “stress” formerly referred to ecosystems, these are newly linked with company reputations and thus resource access—potentially threatened by divestment or boycott campaigns, as well as environmental degradation.

Next, let us survey how the NCA framework relates to practical changes by specific companies.

### **Turning Nature into an Asset: Three Cases**

The Natural Capital Protocol (NCP) has been elaborated and publicized through pilot studies by several companies, which thereby became the NCC’s Business Engagement Partners, advised by NGCOs. Although the consequent report remains confidential, the process apparently contributed to those companies’ wider CSR strategies. In some cases, the company had been facing attacks on social and/or environmental grounds from NGOs. Each company seeks to protect its reputation and stabilize its natural resource access through environmental stewardship strategies. This section briefly examines three such companies in turn: Kering, Olam, and Coca-Cola. These cases illustrate diverse means and forms of turning nature into an asset.

#### **Kering Group**

The Kering Group, encompassing textiles and luxury goods, underwent reputational problems in the early 2000s. Its Puma subsidiary faced NGO protests for causing environmental degradation and labor exploitation. For both issues Puma soon took remedial measures, which became precedents for the entire Kering Group (Baumann-Pauly et al. 2016). For its public relations strategy, one subsidiary funded a film warning against ecological damage, released on World Environment Day, while also cross-promoting environmentally sustainable products (La Redoute 2009). In parallel Kering’s Gucci Group decided to eliminate all paper made from Indonesian rainforests and plantations, in partnership with the Rainforest Action Network (Kering 2009).

In 2012, Kering set ambitious environmental targets for 2016, as regards leather traceability, gold sourcing, water pollution, chemical use, and carbon emissions. To guide its efforts, the company developed Environmental Profit and Loss (EP&L) methods. A specific focus was the company's Puma brand of denim products. Its Re-Cut Project redesigns the process "to waste less, recycle more and steer our materials through a more efficient chain."

Puma piloted NCA methods, which were later incorporated into the NCC's framework: "We have now fully integrated this pioneering natural capital accounting tool into our business... as we explore different options to improve the sustainability of our supply chain." Using such methods, the Group achieved a 10 percent reduction in impact intensity between 2012–2015 (Kering 2015, 3, 7). The methods were extended for comparing the EP&L effects of various supply-chain options, toward its 2025 target for a 40 percent reduction in EP&L, relative to its business growth. Going beyond resource accounting, the company has devised a multi-stakeholder engagement, for instance, for Gucci's cashmere supply.

Over the past couple of decades, cashmere production has been causing environmental degradation and economic insecurity for suppliers. After the end of Mongolia's communist regime in the 1990s, regulations became more lax, export opportunities greatly expanded, and cashmere production increased accordingly, generating a global mass market. As habitual overgrazers, goats depleted grazing areas. For similar reasons, cashmere quality declined, yielding a lower price per unit and so pressurizing herders toward more intensive grazing. The government had abandoned its agricultural extension services, so herders lost any advice on better practices (WCS 2017).

Facing supply-chain difficulties, the company has promoted more sustainable animal husbandry practices and better management of pasture lands (Mehta 2018). "Cashmere supply is the main economic activity in a landscape where we don't own the land" (interview, Kering, February 1, 2019). Its strategy has sought to reconcile economic, social, and environmental goals, as publicized by the Natural Capital Coalition: "Under the Sustainable Cashmere Project, herders receive better or more reliable market prices in return for best practices. They are also afforded more direct market access, and support for improved quality and sustainable, wildlife-friendly grazing practices, pioneered by Wildlife Conservation Society" (NCC 2018, 24).

Herders are given a premium price for cashmere from less-intensive practices, alongside expert support and veterinary care from the WCS.

Environmental improvements have been monitored through ecosystem modeling techniques, provided by a mining company (Hume 2018).

In this case, a multi-stakeholder partnership brought expertise and legitimacy for community-based ecosystem maintenance, illustrating principles of natural capital conservation. This improvement has been turning nature into a shared asset which can more stably and lucratively supply global luxury markets.

### **Olam International**

Olam International, an agro-food conglomerate, became one of the NCC's Business Engagement Partners. It helped develop and test the NCP's Food and Beverage Sector Guide, led by the IUCN. Olam praised the process as helpful for "holistic decision making" to deliver corporate culture change (NCC 2016). Meanwhile the company entered a multi-stakeholder engagement process, responding to protest.

In 2015, Olam had established a joint venture with Gabon's government to establish oil palm plantations (Olam 2015), which were then denounced by NGOs. Although the company had promised to make its operations sustainable, the NGOs argued that "there is still a threat that the plantation project could result in significant deforestation and provoke conflicts over land rights" (Oxfam Australia 2014, 40; also FERN 2016, 11). A protest campaign targeted Olam's oil palm and rubber operations, with a complaint to the Forest Stewardship Council. The environmental damage was further documented by the NGO Mighty Earth (2016); it sought to persuade the world's largest food and agriculture companies "to adopt policies to eliminate deforestation and human rights abuse from their supply chains."

In response to those demands, Olam sought to validate its environmental policy of "Growing Responsibly." It became the first company globally to complete a High Conservation Value assessment under the HCV Resource Network System, and then the first company whose Gabon plantation fulfilled the standards of the Roundtable for Sustainable Palm Oil (RSPO). These activities involved the World Wildlife Fund as a technical partner in certifying Olam's production methods (WWF 2016). Beyond advising the company on compliance, WWF also co-led the RSPO national interpretation process in collaboration with Olam and SIAT, another agribusiness company (WWF 2016). Olam then aimed for 100 percent compliance with the RSPO certification by 2020 (Olam 2016, 6).

Olam also undertook to respect the Central African Forest Initiative (CAFI), which was signed in 2017 by the Gabon government. It undertook to reduce GHG emissions, preserve all High Carbon Stock (HCS) and High Conservation Value (HCV) forests, and cap the amount of deforestation. Olam also signed on to the international convention on “No Deforestation, No Peat, No Exploitation” (NDPE). Olam’s undertakings were a change in words rather than practice, according to NGOs such as the World Rainforest Movement, representing social movements (GRAIN and WRM 2017).

In response to such criticism, the company reached an agreement: It suspended any further forest clearing for palm and rubber plantations in its supply chain, while protest was suspended by two international NGOs, Mighty Earth and World Resources Institute. All those parties sought “common ground...on a sustainable and prosperous path forward” (Mighty Earth 2017).

Olam then hosted a visit by international NGOs for discussion with them and a joint platform of twenty civil society groups, “Gabon, Ma Terre, Mon Droit.” According to a joint report by the foreign NGOs and the company, its Social Team “has strong connections to the villages and has previously addressed and documented both the grievances expressed and the solutions proposed” (Olam 2017).

Eventually the company announced its Olam Living Landscapes Policy (OLLP) for a “net-positive” approach for regenerating natural and capital (NCC 2018a, 2018b). This would require “the ongoing support of our partners, including civil society” (Schroeder 2018). Beyond its freeze on deforestation, Olam has been helping Gabon’s National Parks Agency set up more parks for nature conservation and ecotourism (Rosner 2018); this presumes a wild nature protected from people.

As the wider political context, any expansion of oil palm monocultures has been opposed by community-based organizations such as Brainforest and Muyissi Environnement. Although welcoming the company’s moratorium, Muyissi has seen no environmental improvement in plantation areas, which degrade traditional forest ecosystems: pesticide-based monocultures “lead to an environmental imbalance among plant and insect populations; some species disappear and more powerful pests appear” (WRM and Muyissi 2018). Moreover, such plantations remove or pollute the land necessary for villagers’ light economic activities such as food cultivation, which maintain ecosystems (email message, Muyissi, February 2, 2019).

The company established community committees to consult villagers on amenities such as clean water supply. But such consultation has an inequitable basis, given the villagers' difficulty to know long-term consequences, as well as the recent legacy of government repression (interview, *Mighty Earth*, January 31, 2109).

In sum, Olam was cooperating with international NGCOs for sustainability certification, and it was engaging with communities for a less conflictual basis to source palm oil. Yet its supply chain turns forests into plantations as an asset, undermining and obscuring traditional modes of ecosystem maintenance. Amenities at best play a compensatory role.

### **Coca-Cola**

Coca-Cola has faced significant reputational damage from complicity with death squads (*Killer Coke 2004*), as well as from large-scale water extraction, drawing attacks for "drinking the world dry" (*War on Want 2007*). Boycott campaigns became a wake-up call for the company. In response, the company sought to replenish the source of all of its products' water use by 2020. In 2015, the company announced that it had nearly achieved this goal, thus making its production "water neutral" (Kent 2016).

Water replenishment projects aim to enhance its water stewardship role. Their evaluation integrates methods of natural capital and ecosystem services assessment (Denkstatt and Coca-Cola 2016, 8). The company carried out a pilot study of the NCC's Food and Beverage Sector Guide (NCC 2016).

To manage water stress, Coca-Cola devised a Source Water Protection Plan (SWPP), for which "we engage the community, local government, civil society and other businesses to look for ways to collaborate" (Coca-Cola 2016). This program is carried out "with local communities and governments and other respected third-party partners" (Coca-Cola 2015), especially WWF and the Nature Conservancy (WWF 2018). Such NGCOs potentially legitimize the expert methods for identifying multi-stakeholder dependence on natural resources, as a basis for a company to claim water stewardship. Yet its water replenishment substitutes only a small fraction of the water consumed across the company's entire supply chain (MacDonald 2018).

Its water-intensive supply chain has been especially contentious in India. To soften public criticism, the Coca Cola's India Foundation (Anandana) has expanded water replenishment across the country. One means is the "golden triangle"—collaboration between business, government, and

community; in some projects Anandana involved local or national NGOs as partners. Its water stewardship program has had “three mantras”: providing up-to-task professional resources, including education; empowering small landholders by building water-secure and climate-resilient agricultural capacities; and taking a water-plus approach to raise livelihoods for India’s neediest and most water-scarce communities (Coca Cola 2017).

Despite Anandana’s efforts at water replenishment, by 2016 at least one-fifth of the company’s bottling plants in India were closed—in response to community protests, resource shortages, or orders from India’s National Green Tribunal (Down to Earth 2016; India Resource 2016). Since then the company has faced more protest and boycotts, especially in India (Bloomberg 2017). Coca-Cola continues to undergo financial and reputation damage, even supply-chain blockages there. These conflicts arise from a perpetual growth model (Elmore 2015), whose supply chain depends on intensive water extraction. This model turns nature into a non-proprietary asset which can be only somewhat substituted through replenishment activities.

### **Stewarding Shared Assets, Depoliticizing Resource Conflicts**

The business strategies discussed above illustrate some general patterns. In particular, the companies seek to protect access to natural resources which are largely nonproprietary—that is, beyond their own legal ownership or balance sheets, on which the latter depend. Some do so through partnerships with non-governmental conservation organizations (NGCOs) and together they turn natural resources into shared assets, as described in this section.

Global business has sought NGCOs as partners for many environmental initiatives, especially natural capital accounting (NCA). A leading role has been played by the International Union for Conservation of Nature (IUCN). As advertised at IUCN’s World Conservation Congress: “Business is increasingly recognized as part of the solution, and NGOs are more than ever willing to discuss and collaborate with business,” according to the World Business Council for Sustainable Development (WBCSD 2012). The latter sees an important role for nature conservation groups as “progressive” NGOs:

NGOs and business have converged in understanding the value of nature for business and for society.... They have had some convergence in the language they use. It’s difficult to say that “natural capital” has helped convergence across all

NGOs, except among the most progressive NGOs, meaning those which want to help business to improve rather than shut the door. (interview, NCC-WBCSD, June 29, 2015)

IUCN has led some pilot studies of the Natural Capital Protocol discussed above. In this role, the IUCN expects that the Natural Capital Protocol will “help businesses understand the risks and opportunities that arise from accounting for natural capital in their decision-making processes” (IUCN 2014). Thus the IUCN projects its social and environmental aims onto business: “We will ensure that the Protocol becomes a valuable and critical tool for the business community to contribute to IUCN’s mission of a just world that values and conserves nature” (IUCN 2014), though the concept “justice” appears in no relevant documentation.

The IUCN has had a central role in the Natural Capital Protocol, which elaborates a method for its Business Engagement Partners (BEPs) to identify “natural capital impacts and dependencies across a supply chain” (NCC 2015a). It emphasizes prospects “to unlock hidden value in the supply chain,” especially by reframing natural resource issues around “commercial opportunity” and creating “shared value with stakeholders.” With such an approach, BEPs can enhance business reputation and thus their social “license to operate” (NCC 2015b).

Indeed, the financial stakes are reputational, given that companies remain vulnerable to public protest. Relative to other environmental approaches: “Natural capital gets more traction with finance departments. At one time, 80 percent of companies’ value was tangible—that is, on the books. But now it’s only 20 percent; the rest depends on its reputation. Through natural capital accounting, we become aware of negative impacts and how to fix any problems. Otherwise outsiders will push us to do so” (NCC director, interview, May 1, 2015). This warning is reinforced by nature conservation groups: “A company may face blockages from consumer or community action,” among other reasons to consider natural capital implications (interview, WWF, June 23, 2015). Such threats and opportunities have been elaborated by several expert reports.

The Trucost consultancy report warns that when companies seek to grow, they encounter several limits and “their ability to achieve revenue targets may be constrained by the potentially rapid, non-linear internalization of natural capital costs through regulation, social campaigns and shortages—and identify alternative strategies to minimize costs and enable

growth” (Trucost 2016, 2). A company can turn risks into business opportunities by reconsidering its supply chain through a “resilient sourcing strategy” and “stewardship” interventions (Trucost 2016). By positioning “their business for a low carbon, resource efficient future,” they can “demonstrate the shared value they are creating for stakeholders and customers” (Trucost 2016, 12). According to the report’s lead author, business interest in natural capital has several motives and aims. Going beyond previous methods, NCA brings all natural resources within a common framework, toward a holistic long-term view. The accounting methods focus on tangible but nonproprietary assets; these are more at risk and less under a company’s control than proprietary ones (interview, Trucost, August 26, 2016).

NCA helps a company’s sustainability unit obtain engagement from its finance unit, for example by monetizing resource dependencies or by signaling potential jeopardy of its social license to operate. Such methods have gained much interest from companies in resource hot spots, especially societal conflicts around water, such as Coca-Cola in India or the Columbian coffee industry after the long civil war there. Thus NCA can inform company strategies to gain a stewardship role by restructuring its supply chains and engaging community representatives (interview, Trucost, August 26, 2016).

Working with IUCN experts, a Cambridge University program has been asking companies how NCA could inform their strategies. Rather than focus on one resource, a company intervention could “collectively manage water, soil and biodiversity” (CISL 2015, 28). Along those lines, business stakeholders had shifted their focus “towards a more forward-looking, opportunistic approach when assessing natural resource challenges. ... The inclusion of these concerns in business decision-making is now considered as a financial and market opportunity by business” (CISL 2016, 6). This implies a holistic basis for a company stewardship strategy to gain legitimacy.

For such opportunities, accounting methods describe natural resources through a universal equivalence, thus homogenizing them, as in a joint academic report with the Kering Group. Here all environmental effects are quantified as “profit and loss”; biodiversity becomes a “portfolio” which confers resilience on ecosystems; and, in the name of contextualizing environmental issues, other stakeholders are relegated to casualties of potential damage or scarcity (CISL-Kering-NCP 2016).

Nature accounting likewise turns water into homogeneous quantities that can be substituted and replenished. These remain separate from



community maintenance and its cultural meanings, which are rendered invisible (as in the Coca-Cola case above). In those ways, a socionatural process is reified as an a-social asset, whose nonproprietary “portfolio” warrants a holistic responsible investment manager, as if the asset were proprietary.

By contrast to that prevalent nature/society binary, one TEEB report highlighted social tensions inherent in maintaining and accounting for natural capital. “If valuing biological resources is a tool to improve *in situ* conservation, it assumes that local stakeholders have sufficient incentives to maintain a given ecosystem against other competing uses,” so contradictory drivers warrant attention and caution. Yet nature accounting readily separates people from nature by “simplifying its meaning and value to human societies” (Brondízio and Gatzweiler 2010, 19, 28).

This caveat has been echoed by some NGCO experts. For example, communities routinely maintain natural capital, so “the valuation methods should make their labor visible, especially in a local context, though the relations can get buried in multiple metrics” (interviews, Conservation International members of NCP’s Technical Group, June 23, 2015). Indeed, ecosystem services are generally attributed to natural assets, while communities protecting commons readily become invisible. Likewise, the analogy with financial capital has limitations for fairness issues: “The capital metaphor has the disadvantage that it cannot encompass shared resources, and sometimes capital is destroyed. . . . There is a justice challenge if multinational companies value natural capital only for its dividends, at the expense of indigenous people and small businesses” (interview, NCC ex-director, March 10, 2015). Indeed, such conflicts arise pervasively around business claims and strategies for shared resources. Yet NCA guidance implies that corporate investment in natural capital can assess diverse services as comparable, readily protect ecosystems, and accommodate their multi-stakeholder dependents. On this basis, NCA guidance envisages consensual win-win scenarios for companies stewarding nonproprietary shared assets as if they were proprietary.

### **Conclusion: Turning Nature into an Asset, Reifying Socionatural Processes**

Coming from development theorists, “natural capital” originally meant a socionatural resource empowering community development for better environments and livelihoods (Wilshusen 2014). Dominant institutions later took up the metaphor “natural capital *asset*” for evaluating and

protecting the source of ecosystem services. This metaphor reifies socio-natural processes as a thing-like a-social asset providing ecosystem services for market-based economic activities.

In the imaginary of capitalist environmentalism, managers holistically govern mutual relations between nature and society; in practice, they construct such a nature/society binary for specific production aims (see, for example, Lohmann 2019). Ecosystem services become analogous to dividends, which are likewise reified as an inherent property of finance capital. Here “natural capital asset” serves as an ontological metaphor (cf. Lakoff and Johnson 1980). It extends a long history of conferring capitalist metaphors on nature, thus naturalizing specific forms of private appropriation (Williams 1980).

Underlying the asset metaphor is a problem diagnosis that ecosystem degradation results from the economic invisibility of nature. As the remedy, therefore, it must be made visible through natural capital assessment or accounting (NCA), which has various institutional contexts. Corporate NCA has a more specific driver: a company’s access to natural resources faces several threats. These could jeopardize the basic conditions of a company’s production process, by analogy with restrictions on GHG emissions (see, for example, Felli 2014).

To address those threats, NCA methods have been elaborated by a partnership between business organizations, non-governmental conservation organizations (NGCOs) and other experts. Their joint Natural Capital Protocol provides “a comprehensive guide to measuring and valuing natural capital in business decision-making.” NCA evaluates how a business depends on ecosystem services—especially by identifying biophysical, financial, and reputational risks. Such accounting plays a performative role in attributing value to entities (see Muniesa et al. 2017).

Beyond a company’s own resource demands, NCA can identify multi-stakeholder dependence on shared assets. In practice, especially in the global South, ecosystems are generally maintained (or transformed) by everyday social-communal labor, involving distinctive cultural meanings. This socio-natural process becomes reified as inherent properties of natural capital assets, though some NGCO experts highlight their maintenance by communities. NCA informs corporate strategies for managing supply chains, stakeholder engagement, and reputations.

Such strategies turn nature (or ex-nature) into a more effective asset, functioning as if it were proprietary, even if outside a company’s ownership.

Each strategy remains contingent on specific actors, contexts, and global markets—for example, Kering-Gucci facilitates less-intensive animal husbandry, while making visible the herders' role in ecosystem maintenance as shared value for a luxury product. Olam turns forests into monoculture plantations-as-assets, distinguished from forests as non-human nature, meanwhile keeping invisible and undermining villagers' role in ecosystem maintenance. Cola-Cola seeks to stabilize water sources as an asset, amidst rival burdens on state-run water services; the company implements conservation and replenishment initiatives, which hardly compensate for the significant depletion by its water-intensive supply chain.

These strategies extend the long-standing process of neoliberalizing nature—"off-loading responsibilities to the private sector and/or civil society groups" (Castree 2008). This process depoliticizes mutual dependencies, societal conflicts, and power inequalities around natural resources (see, for example, Holmes and Cavanagh 2016; Unmüßig 2014). Those efforts can help incorporate community activities or representatives into a company's economic logic and development model (as in nature conservation initiatives; see Holmes and Cavanagh 2016). These strategies facilitate rent-seeking—that is, a company's favorable access to natural resources on which its supply-chain depends.

### Acknowledgments

Helpful editorial comments were received from Romain Felli, Jutta Kill, Larry Lohmann, and the editors of this book, Kean Birch and Fabian Muniesa.

### References

- Adaman, F., and Madra, Y. 2014. Understanding Neoliberalism as Economization: The Case of the Environment. In *Global Economic Crisis and the Politics of Diversity*, edited by Y. Atasoy, 29–51. London: Palgrave Macmillan.
- Akerman, M. 2005. What Does "Natural Capital" Do? The Role of Metaphor in Economic Understanding of the Environment. *Environmental Education Research* 11 (1): 37–52.
- Andonova, L. B., and Hoffmann, M. J. 2012. From Rio to Rio and Beyond: Innovation in Global Environmental Governance. *Journal of Environment & Development* 21 (1): 57–61.

BankTrack. 2012. Position on the Natural Capital Declaration, [http://www.banktrack.org/show/news/banktrack\\_position\\_on\\_the\\_natural\\_capital\\_declaration](http://www.banktrack.org/show/news/banktrack_position_on_the_natural_capital_declaration).

Baumann-Pauly, D., Scherer, A. G., and Palazzo, G. 2016. Managing Institutional Complexity: A Longitudinal Study of Legitimacy Strategies at a Sportswear Brand Company. *Journal of Business Ethics* 137: 31–51.

Birch, K. 2017. Financing Technoscience: Finance, Assetization and Rentiership. In *The Routledge Handbook of the Political Economy of Science*, edited by D. Tyfield, R. Lave, S. Randalls, and C. Thorpe, 169–181. London: Routledge.

Birch, K. 2019. Technoscience Rent: Toward a Theory of Rentiership for Technoscientific Capitalism. *Science, Technology and Human Values*, doi:10.1177/0162243919829567.

Bloomberg. 2017. Pepsico, Coca-Cola Fight Patriotism in Drought-Hit Kerala, March 16, <https://economictimes.indiatimes.com/industry/cons-products/food/pepsico-coca-cola-fight-patriotism-in-drought-hit-kerala/articleshow/57665983.cms>.

Brondizio, E. S., and Gatzweiler, F. W. 2010. Socio-cultural Context of Ecosystem and Biodiversity Valuation. In *The Economics of Ecosystems and Biodiversity Ecological and Economic Foundations*, edited by P. Kumar, 50–181. London: Earthscan.

Castree, N. 2008. Neoliberalising Nature: The Logics of Deregulation and Reregulation. *Environment and Planning A* 40: 131–152.

CIMA. 2014. *Accounting for Natural Capital: The Elephant in the Boardroom*. London: Chartered Institute of Management Accountants, [https://www.cimaglobal.com/Documents/Thought\\_leadership\\_docs/Sustainability%20and%20Climate%20Change/CIMA-accounting-for-natural-capital.pdf](https://www.cimaglobal.com/Documents/Thought_leadership_docs/Sustainability%20and%20Climate%20Change/CIMA-accounting-for-natural-capital.pdf).

CISL. 2015. *Doing Business with Nature: Opportunities from Natural Capital*. Report by the Natural Capital Leaders Platform, Cambridge Institute for Sustainability Leadership (CISL), <https://www.cisl.cam.ac.uk/resources/publication-pdfs/doing-business-with-nature.pdf>.

CISL. 2016. *Operationalising Natural Capital: Managing Opportunities and Risks from Natural Resources*. Cambridge, UK: Cambridge Institute for Sustainability Leadership.

CISL-Kering-NCP. 2016. *Biodiversity and Ecosystem Services in Corporate Natural Capital Accounting: Synthesis Report*. Cambridge, UK: Cambridge Institute for Sustainability Leadership.

Coca-Cola. 2015. Collaborating to Replenish the Water We Use, <http://www.coca-colacompany.com/stories/collaborating-to-replenish-the-water-we-use>.

Coca-Cola. 2016. Mitigating Water Risk for Communities and for Our System, <http://www.coca-colacompany.com/stories/mitigating-water-risk-for-communities-and-for-our-system>.

Coca-Cola. 2017. Vision for a Water Positive India: Coca-Cola India's Three Mantras on Reinforcing Water Stewardship, August 28, 2017, <https://www.coca-colaindia.com/point-of-view/vision-for-a-water-positive-india-coca-cola-india-s-three-mantras-on-reinforcing-water-stewardship>.

Coffey, B. 2016. Unpacking the Politics of Natural Capital and Economic Metaphors in Environmental Policy Discourse. *Environmental Politics* 25 (2): 203–222.

Corson, C. 2010. Shifting Environmental Governance in a Neoliberal World: US AID for Conservation. *Antipode* 42 (3): 576–602.

Darwin, C. 1859. *On the Origin of Species by Means of Natural Selection*. London: Murray.

Denkstatt and Coca-Cola Company. 2016. *Natural Capital Accounting: The Coca-Cola Water Replenishment Program*, [http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/Denkstatt\\_Natural\\_Capital\\_Accounting.pdf](http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/Denkstatt_Natural_Capital_Accounting.pdf).

Dewey, J. 1939. *Theory of Valuation*. Chicago: University of Chicago Press.

Down to Earth. 2016. Coca-Cola Has Closed 20 Per Cent of Its Bottling Plants in India: Report, <https://www.downtoearth.org.in/news/environment/coca-cola-has-closed-20-per-cent-of-its-bottling-plants-in-india-report-53273>.

Elmore, B. E. 2015. *Citizen Coke: The Making of Coca-Cola Capitalism*. New York: Norton.

Espinosa, C. 2014. The Advocacy of the Previously Inconceivable: A Discourse Analysis of the Universal Declaration of the Rights of Mother Earth at Rio+20. *Journal of Environment & Development* 23: 391–416.

EY. 2014. Natural Capital Depletion Will Leave Businesses Dangerously Exposed, Warns New Report,

Fairhead, J., Leach, M., and Scoones, I. 2012. Green Grabbing: A New Appropriation of Nature? *Journal of Peasant Studies* 39 (2): 237–261.

Felli, R. 2014. Climate Rent. *Historical Materialism* 22: 251–280.

Felli, R. 2015. Environment, Not Planning: The Neoliberal Depoliticisation of Environmental Policy by Means of Emissions Trading. *Environmental Politics* 24 (5): 641–660.

FERN. 2016. *Financing Land Grabs and Deforestation: The Role of EU Banks and Investors*. Brussels: FERN.

FoEE. 2012. Pursuit of the Green Economy in the Rio+20 debate, <http://www.foeeurope.org/green-economy-rio-conference>.

Forsyth, T., and Sikor, T. 2013. Forests, Development and the Globalisation of Justice. *Geographical Journal* 179: 114–121.

Gómez-Baggethun, E., and Naredo, J. M. 2015. In Search of Lost Time: The Rise and Fall of Limits to Growth in International Sustainability Policy. *Sustainability Science* 10: 385–395.

GRAIN & WRM. 2017. L'escroquerie des plantations de palmiers à huile "verts": le cas d'Olam, [https://www.grain.org/fr/bulletin\\_board/entries/5715-1-escroquerie-des-plantations-de-palmiers-a-huile-verts-le-cas-d-olam](https://www.grain.org/fr/bulletin_board/entries/5715-1-escroquerie-des-plantations-de-palmiers-a-huile-verts-le-cas-d-olam).

Haeckel, E. 1866. *Generelle morphologie der organismen*. Berlin: Reimer.

Holmes, G., and Cavanagh, C. J. 2016. A Review of the Social Impacts of Neoliberal Conservation: Formations, Inequalities, Contestations. *Geoforum* 75: 199–209.

Hume, M. 2018. The Wild Best. *AFR* magazine, April: 40–44, [https://www.riotinto.com/documents/afr\\_mag\\_mongolia.pdf](https://www.riotinto.com/documents/afr_mag_mongolia.pdf).

India Resource. 2016. Campaign to Hold Coca-Cola Accountable, <http://www.indiaresource.org/campaigns/coke/>.

IUCN. 2014. IUCN Leads the Way towards Valuing Nature in Business, International Union for Conservation of Nature, <https://www.iucn.org/content/iucn-leads-way-towards-valuing-nature-business>.

Kenner, D. 2014. Who Should Value Nature? <http://whygreeneconomy.org/wp-content/uploads/2014/12/Who-should-value-nature.-Why-Green-Economy.pdf>.

Kent, M. 2016. Our Water Wake-Up Call; What Will Be Yours? [CEO, Coca-Cola], <http://naturalcapitalcoalition.org/our-water-wake-up-call-what-will-be-yours/>.

Kering Group. 2009. Gucci Group Commits to Protecting Indonesia's Rainforests, <https://www.kering.com/en/news/gucci-group-commits-protecting-indonesia-rainforests>.

Kering Group. 2015. *Environmental Profit & Loss (E&PL): 2015 Group Results*,

Kill, J. 2016. *The Kasigau Corridor REDD+ Project in Kenya: A Crash Dive for Althelia Climate Fund*. Re:Common, [www.recommon.org](http://www.recommon.org) and Counter Balance, [www.counter-balance.org](http://www.counter-balance.org).

Killer Coke. 2004 (start date). <http://killercoke.org>.

Laing, T., Taschini, L., and Palmer, C. 2015. *Understanding the Demand for REDD+ Credits*. Centre for Climate Change Economics and Policy Working Paper No. 218. Grantham Research Institute on Climate Change and the Environment Working Paper No. 193.

La Redoute. 2009. La Redoute soutient le film "Home," <https://www.kering.com/cn/news/redoute-soutient-film-home>.

Lohmann, L. 2019. Natures, Rights and Political Movements. In *The Right to Nature: Social Movements, Environmental Justice and Neoliberal Natures*, edited by E. Apostolopoulou and J. A. Cortes-Vazquez, 234–247. London: Earthscan/Routledge.

MacDonald, C. 2018. Coke Claims to Give Back as Much Water as It Uses: An Investigation Shows It Isn't Even Close. *The Verge*, May 18, <https://www.theverge.com/2018/5/31/17377964/coca-cola-water-sustainability-recycling-controversy-investigation>.

- MacDonald, K. I. 2010. The Devil Is in the (Bio)diversity: Private Sector “Engagement” and the Restructuring of Biodiversity Conservation. *Antipode* 42 (3): 513–550.
- MacDonald, K. I., and Corson, E. 2012. “TEEB Begins Now”: A Virtual Moment in the Production of Natural Capital. *Development and Change* 43 (1): 159–184.
- Marx, K. 1862. Letter to Engels, June 18, 1862. In *K. Marx and F. Engels, Selected Correspondence*. Moscow: Foreign Languages Publishing House.
- Maxwell, D. 2015. *Valuing Natural Capital: Future Proofing Business and Finance*. Austin, TX: Greenleaf.
- MEA (Millennium Ecosystem Assessment). 2005. *Ecosystems and Human Well-Being: Synthesis*. Washington, DC: Island Press.
- Mehta, A. 2018. Natural Capital Case Study: Kering Gets to the Bottom of Its Supply Chain with EP&L. *Ethical Corporation*, <http://www.ethicalcorp.com/natural-capital-case-study-kering-gets-bottom-its-supply-chain-epl>.
- Mighty Earth. 2016. *Palm Oil’s Black Box: How Agribusiness Giant Olam’s Emergence as a Major Palm Oil Trader Is Putting Forests in Southeast Asia and Gabon at Risk*. Washington, DC: Mighty Earth/Brainforest.
- Mighty Earth. 2017. Olam and Mighty Earth Agree to Collaborate on Forest Conservation and Sustainable Agriculture in Highly Forested Countries, February 21, <http://www.mightyearth.org/olam-and-mighty-earth-agree-to-collaborate/>.
- Muniesa, F. 2012. A Flank Movement in the Understanding of valuation. *Sociological Review* 59 (s2): 24–37.
- Muniesa, F., Doganova, L., Ortiz, H. Paterson, F., Bourgoin, A., Ehrenstein, V., Juven, P.-A., Pontille, D., Saraç-Lesavre, B., and Yon, G. 2017. *Capitalization: A Cultural Guide*. Paris: Presse des Mines.
- NCC. 2014. *Valuing Natural Capital in Business. Taking Stock: Existing Initiatives and Applications*. Natural Capital Coalition, <http://naturalcapitalcoalition.org/>.
- NCC. 2015a. *Developing the Natural Capital Protocol and Sector Guides for Business*.
- NCC. 2015b. *The Natural Capital Protocol: Feedback Report from Business Engagement Partner Interviews*.
- NCC. 2016. *Natural Capital Protocol: Food and Beverage Sector Guide*, [http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/NCC\\_FoodAndBeverage\\_WEB\\_2016-07-12.pdf](http://naturalcapitalcoalition.org/wp-content/uploads/2016/07/NCC_FoodAndBeverage_WEB_2016-07-12.pdf).
- NCC. 2018a. Coalition Organization Olam Announces New Approach to “Creation & Restoration of Natural & Social Capital,” <https://naturalcapitalcoalition.org/coalition-organization-olam-announces-new-approach-to-creation-restoration-of-natural-social-capital/>.

NCC. 2018b. *This Is Natural Capital*, <https://naturalcapitalcoalition.org/this-is-natural-capital-2018/>.

NCI. 2015. *Natural Capital Initiative 2015: Valuing Our Life Support Systems 2014. Summit Summary Report*, <http://www.naturalcapitalinitiative.org.uk/wp-content/uploads/2015/06/Valuing-our-Life-Support-Systems-summit-report.pdf>.

No to Biodiversity Offsetting! 2013. <http://no-biodiversity-offsets.makenoise.org/>.

Olam. 2015. Sale and Lease-Back of Plantation and Milling Assets in Awala for US\$130m, <https://www.olamgroup.com/news/all-news/press-release/olam-palm-gabon-enters-sale-long-term-lease-rights-land-sale-lease-back-plantation-milling-assets-awala-us130m.html>.

Olam. 2016. *Corporate Responsibility and Sustainability Report 2015*, [http://olamgroup.com/wp-content/uploads/2014/02/16395-Sustainability-Report-2016-Exec-summary\\_V17\\_20p\\_lowres.pdf](http://olamgroup.com/wp-content/uploads/2014/02/16395-Sustainability-Report-2016-Exec-summary_V17_20p_lowres.pdf).

Olam. 2017. Olam Hosts Mighty Earth in Gabon, <https://www.olamgroup.com/news/all-news/news-bites/olam-hosts-mighty-earth-gabon.html>.

Open Letter. 2015. Natural Capital or Corporate Greenwash?. Open Letter on World Forum on Natural Capital. November 23, Edinburgh, <http://bellacaledonia.org.uk/2015/11/23/open-letter-on-world-forum-on-natural-capital/>.

Oxfam Australia. 2014. *Banking on Shaky Ground: Australia's Big Four Banks and Land Grabs*. Carlton, Victoria: Oxfam Australia.

Oxford University. 2013. *Stranded Assets in Agriculture: Protecting Value from Environment-Related Risks*. Stranded Assets Programme, Smith School of Enterprise and the Environment, <http://www.smithschool.ox.ac.uk/research-programmes/stranded-assets/Stranded%20Assets%20Agriculture%20Report%20Final.pdf>.

Pearce, D., Markandya, A., and Barbier, E. 1989. *Blueprint for a Green Economy*. London: Earthscan.

People's Summit. 2012. Final Declaration, People's Summit at Rio+20 for Social and Environmental Justice in Defence of the Commons, Against the Commodification of Life, <https://globalforestcoalition.org/wp-content/uploads/2012/07/PeoplesSummit-FinalDeclaration-ENG.pdf>.

Porritt, J. 2006. *Capitalism as if the World Matters*. London: Earthscan.

Robertson, M. M. 2006. The Nature that Capital Can See: Science, State, and Market in the Commodification of Ecosystem Services. *Environment and Planning D: Society and Space* 24: 367–387.

Robinson, J. G. 2012. Common and Conflicting Interests in the Engagements between Conservation Organizations and Corporations. *Conservation Biology* 26 (6): 967–977.



Rosner, H. 2018. Palm Oil Is Unavoidable. Can It Be Sustainable? *National Geographic*, December, <https://www.nationalgeographic.com/magazine/2018/12/palm-oil-products-borneo-africa-environment-impact/>.

Schroeder, E. 2018. Olam Introduces New Sustainability Policy. *World Grain*, June 4, <https://www.world-grain.com/articles/9648-olam-introduces-new-sustainability-policy>.

Scott, J. C. 1998. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.

Spurgeon, J. P. G. 2014. *Comparing Natural Capital Accounting Approaches, Data Availability and Data Requirements for Businesses, Governments and Financial Institutions: A Preliminary Overview*. Final report to the EU Business and Biodiversity Platform, performed under the ICF contract.

Sullivan, S. 2013. Banking Nature? The Spectacular Financialisation of Environmental Conservation. *Antipode* 45 (1): 198–217.

TEEB. 2008. *The Economics of Ecosystems and Biodiversity: An Interim Report*, edited by Pavan Sukhdev, Study Leader. Brussels: European Commission, [http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb\\_report.pdf](http://ec.europa.eu/environment/nature/biodiversity/economics/pdf/teeb_report.pdf).

ten Brink, P. 2015. What Is Natural Capital? In *Nature et richesse des nations*, 41–51. Paris: Service de l'Économie, de l'Évaluation et de l'Intégration du Développement Durable (SEEIDD) du Commissariat Général au Développement Durable (CGDD), Gouvernement de France.

ten Brink, P., Mazza, L., Badura, T., Kettunen, M., and Withana, S. 2012. *Nature and Its Role in the Transition to a Green Economy*, TEEB, <http://www.teebweb.org/wp-content/uploads/2013/04/Nature-Green-Economy-Full-Report.pdf>.

Trucost. 2013. *Natural Capital at Risk: The Top 100 Externalities of Business*. Report for TEEB for Business Coalition, [http://www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB\\_Final\\_Report\\_v5.pdf](http://www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB_Final_Report_v5.pdf).

Trucost. 2016. *Growing Business Value in an Environmentally Challenged Economy*. London: Trucost.

UNEP. 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Nairobi: UN Environment Programme.

UNEP. 2015. *Pathways to Scale: Aligning the Financial System with Sustainable Development*. Nairobi: UN Environment Programme.

Unmüßig, B. 2014. *On the Value of Nature: The Merits and Perils of a New Economy of Nature*. Berlin: Heinrich Böll Foundation.

Unmüßig, B., Sachs, W., and Fatheuer, T. 2012. *Critique of the Green Economy*. Brussels: Heinrich Böll Foundation.

van der Gaag, P. 2014. Protecting the Achilles' Heel of Our Economy. Speech at Natural Capital Initiative (NCI) Conference, November, [www.youtube.com/watch?v=U4W0w31r\\_cw](http://www.youtube.com/watch?v=U4W0w31r_cw).

War on Want. 2007. Coca-Cola: Drinking the World Dry, <http://www.waronwant.org/media/coca-cola-drinking-world-dry>.

WBCSD. 2012. *Key highlights: WBCSD at IUCN's World Conservation Congress*. World Business Council for Sustainable Development. Jeju, South Korea, September 6–15.

WCS. 2017. Sustainable Cashmere Stakeholder Debate: Stakeholder Viewpoint Handout. New York: World Conservation Society, Education Programme, <http://bronxzoo.com/programs>.

WDM. 2012. *Rio+20: Whose Green Economy?* London: World Development Movement [renamed Global Justice Now].

WDM. 2013. World Forum on Natural Capital: The Great Nature Sale, [http://www.globaljustice.org.uk/sites/default/files/files/resources/nature\\_sale\\_briefing.pdf](http://www.globaljustice.org.uk/sites/default/files/files/resources/nature_sale_briefing.pdf)

WFNC. 2015. World Forum on Natural Capital, <https://naturalcapitalforum.com/news/archive/december-2015/>.

Williams, R. 1980. *Problems in Materialism and Culture*. London: Verso.

Williams, R. 1983. *Keywords: A Vocabulary of Culture and Society*. Oxford: Oxford University Press.

Wilshusen, P. R. 2014. Capitalising Conservation/Development: Dissimulation, Misrecognition and the Erasure of Power. In *Environmental Conservation in the Neoliberal Age*, edited by B. Büscher, W. Dressler, and R. Fletcher, 127–157. Tucson, AZ: University of Arizona Press.

WRM and Muyissi Environnement. 2018. Gabon: OLAM's Industrial Oil Palm Plantations Deprive Community of Sanga of Access to Safe Water. *WRM Bulletin* 240, <https://wrm.org.uy/bulletins/issue-240>.

WWF. 2016. Strong Message that Palm Oil Companies Can Expand Responsibly. Washington, DC: World Wildlife Fund, <http://wwf.panda.org/?284530/WWF-welcomes-first-RSPO-certification-of-a-new-palm-oil-development-in-Africa>.

WWF. 2018. WWF and the Coca-Cola Company Have Worked Together. October 18, <https://www.wwf.org.uk/who-we-are/who-we-work-with/coca-cola>.

