Review of Social Economy

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rrse20

The Expanding Techniques of Progress: Agricultural Biotechnology and UN-REDD+

Alexander Antony Dunlap

a Global Studies, University of Sussex, Room C168, Arts Building C, Arts Road, Brighton BN1 9SJ, UK

Published online: 08 Dec 2014.

To cite this article: Alexander Antony Dunlap (2014): The Expanding Techniques of Progress: Agricultural Biotechnology and UN-REDD+, Review of Social Economy, DOI: 10.1080/00346764.2014.988053

To link to this article: http://dx.doi.org/10.1080/00346764.2014.988053

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the “Content”) contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly
The Expanding Techniques of Progress: Agricultural Biotechnology and UN-REDD+

Alexander Antony Dunlap

Global Studies, University of Sussex, Room C168, Arts Building C, Arts Road, Brighton BN1 9SJ, UK

Abstract This paper provides a comparative analysis of agricultural biotechnology and the United Nations program for reduced emissions from deforestation and forest degradation (REDD). Despite the existing differences between the technical manipulation of biological systems and a conservation program aimed at reducing carbon and protecting forests, the two share commonalities in ideological origin, application, and values. Presented as positive developments, both seek to address large-scale issues such as global hunger and climate change, but while receiving national and international support they remain controversial issues. Both issues are critically assessed, beginning with a brief history, followed by the application of William Dugger’s four invaluation processes: contamination, subordination, emulation, and mystification. This approach unravels the subtle social power of state and market forces that seek to control genetic material and forest frontiers as new outlets for growth and investment.

Keywords: neocolonialism, four invaluation processes, biotechnology, REDD, forests

INTRODUCTION

This inquiry seeks to engage in a comparative analysis of agricultural biotechnology and the United Nations program for reduced emissions from deforestation and forest degradation, referred to as REDD. Despite the existing differences between the technical manipulation of biological organisms and a conservation program aimed at reducing carbon footprints and protecting forests, the two share commonalities in ideological origin, application, and values. These values are emblematic of modern scientific inquiry that separate, categorize, and centralize knowledge as a means to make sense of the world, which has come to
necessitate the discipline, control, and acquiescent of the natural environment and its resources as a means to support the progress and growth of industrial economies. These values of modern scientific epistemology inherent in agricultural biotechnology and UN-REDD are presented and justified as positive developments working for the “higher good,” purporting to address the large-scale issues of global hunger (McGlouglin 1996) and anthropogenic climate change, but have nevertheless remained contentious and controversial issues.

The integration of biotechnology and REDD/REDD+ to the “developing world” requires a critical analysis. Both these programs are imposed with national and international institutional support, requiring large sums of public and private funds, while biotechnology dedicates large expenditures to advertising and public relations, projecting an image of positive environmental change (Newell 2009, 2010; Shiva 2013; Spitzer 2001). Before examining these two environmental-directed ventures, the origin and framework of this approach will be discussed. Then each section will begin with a brief background of these interventions into the environment, followed by the application of Dugger’s (1980, 1988, 1989) four invaluation processes as a means to unravel the social relationships and contradictions inherent in the development and application of these programs. This inquiry acknowledges biotechnology and UN-REDD/REDD+ as advancing techniques of neocolonialism at the molecular and international level by entrenching relationships of control and market dependency within the genetic and “wild” frontiers of nature.

The Four Invaluation Processes

In the tradition of Thorstein Veblen, Max Weber, John Kenneth Galbraith, and C. Wright Mills among others, Dugger develops the four invaluation processes. Inspired by Mills’s (2002 [1951]) critiques of the American managerial class, Galbraith’s (2007 [1967]) critique of technology and corporate organization, and Weber’s (1946) conception of power, bureaucratic rationality, and habitus originating from Kant and Aristotle (Caygill 2000). Dugger builds on Veblen’s observations of emulation and status-based consumption in Theory of the Leisure Class (2009 [1899]) and the processes of subreption outlined in The Higher Learning in America (1965 [1918]) that detailed the reconfiguration of the institutional values of American universities with those of business enterprise. The four invaluation processes: contamination, subordination, emulation, and mystification are an institutional framework of analysis that examines the way cultural values are constructed, influenced, and dominated by other values.

This approach attempts to identify the processes and shifts taking place within people and institutional structures.

Contamination is used to describe the way values and ideas can be contaminated—the way an individual’s or institution’s value can be displaced or dominated by an external value system. Contamination often refers to the conversion from an internal (anti-authoritarian) to an external (authoritarian) value system by means of coercion, reward, and necessity—among a range of combinations. Dugger (1989: 144–148) originally used this to outline the values of corporate culture and how they contaminated the social institution of the school, church, family, and state and their participants. Explained as a dichotomy (Staveren 2009), it should be noted that contamination is a fluid and multifaceted process that dissolves and pacifies internal tensions and conflicts by integrating people into particular mentalities, structures (state/economic), and even ideologies, operationalizing both positive (investments) and negative (repression) interventions into people and their environments. This conditions the possibilities for action, while progressively and collectively inserting and fusing people into a particular values system—both cultural and material—dissolving dichotomies, social boundaries, and traditional conceptions of centralized control (Dunlap 2014a). Next, subordination, reminiscent of Foucault’s (2003 [1997]: 181) hierarchicalization among the other three mechanisms of disciplinary power (selection, normalization, and centralization), subordinates knowledge and values to other values and constructions of knowledge. The idea is if individual’s or institution’s values cannot be contaminated, then the next step is to subordinate or fuse one set of values with another. Subordination is the hierarchicalization of values that reorganizes ethical or cultural value above another in importance. This is seen with the arrival of a new factory, which will pollute the environment (intrinsic values of no additional industrial toxins), but will also provide jobs (the external value of modern work). The value of work through a variety of social and disciplinary interventions in space, time, and through the body subordinates and blends “internal” and “external” values in practice, but nevertheless results in social, psychological, and environmental consequences on land and people (Devetter and Rousseau 2011), where internal and external distinctions serve to highlight different habits and social change. The situation—imposed or welcomed—causes values to conflict and choices to be made, forcing values to clash with different short- and long-term consequences dependent on existent mentalities and material conditions of people (Dugger 1989: 153–157).

Third and most importantly is emulation, the social reproduction of habits, ideas, and dispositions, most notably as they emanate from influential sources—institutions—public/private, television, magazines, teachers, even the local bully, and the “really cool” kid at the end of the street. Everyone brings some form of energy, disposition, and image into the social sphere that contributes to the social cross pollination of
people and their ideas. Dugger’s (1989: 136–143) work focused on the way emulation functioned in society and within the corporate hierarchy, noting personal ambition as the primary catalysis for conforming to the demands of work and climbing the corporate ladder. Finally, mystification is the semiotic equivalent of the latter three processes, which uses valued symbols and language to bring about the acquiescence of people to a particular cause or value system. Mystification is equated to Orwellian “newspeak” and advertising and public relations firms remain specialists in the art of manipulating language and symbols for a desired identity, emotional feeling, or response—most often consumer demand (Dugger 1989: 156–158). This is akin to notions such as “sustainable mining,” ballistic missiles named “Peacekeepers,” and referring to dentistry offices as “smile centers” (Dugger 1989; Kirsch 2010).

This framework of approach provides a neglected and powerful insight into the everyday social functions of the modern industrial economy. This analysis proceeds by examining the introduction, insertions, and modification of new values as well as the intensifications of preexisting social and economic relationships that build on previous structures, technologies, or ideological attitudes. The four invaluation processes work to unravel as Foucault (2007: 108) coined “governmentality” the way people’s mentalities are altered, acquiesced and ultimately governed by institutional and social arrangements. This is done by locating shifts and changes, in addition to emphasizing the contradictions and contentions within these interventions—technological and programmatic. By pinpointing the shifts, impositions, and subtle premises in agricultural biotechnology and REDD/REDD+, an opening is established to identify the value systems and possible social outcomes of these programs.

By locating the subtle premises and changes in the application of new technologies and institutional systems, we are able to find commonalities. Even when there are structural (as opposed to superficial) differences, we may find that the same intentions, values, and dispositions still underlie the foundations of vastly different projects. The substance or intentions coded in the contents of projects are just as, if not more, important as the physical form they take. The four invaluation processes enable us to locate these shifts and insertions into social structures, further allowing us to identify points of confluence and commonality, where we might otherwise accept uncritically the premise or situation that justifies a particular mode of development, production, and attitude. The information gathered here seeks to question the inception and existence of these two environmental interventions as a means to assess their social imposition and proliferation as appropriate pathways of development, food, and climate crisis mitigation. This also questions the ideas of internalizing and integrating environmental costs into the economy (Booth 1995; Hahnel 2011), which has resulted in new “green” or environmental markets that
have had deep ecological and social effects on the land and its inhabitants. The next two sections will critically engage with agricultural biotechnology and REDD/REDD+, glimpsing into their underlying premises, social effects, and programmatic affinities.

**BIOTECHNOLOGY: FOUNDATION AND DISPOSITION**

In order to grasp the origins of biotechnology, we must understand the concept of progress—the original techniques and its rising institutional developments. Early biochemical engineering, in its broadest definition, was said to appear in Sumeria and Babylonia with the conversion of sugar into alcohol by yeast to make beer, with the Egyptians in 4,000BC also using brewer’s yeast to leaven bread (Fiechter 2000). This knowledge spread and developed within and between Empires with a philosophical doctrine forming with Giambattista della Porta’s 1558 book, *Magiae Naturalis* (Natural Magic), which advocated the importance of altering and changing nature in order “to make nature to be his [man’s] instrument” (Merchant 1983: 111). At a time when the metaphor of the earth as an organism was still dominant, Della Porta instrumentalizing of nature was not seeking to control nature but to support and serve the seasons and growing periods (Merchant 1983). This disposition changed, from serving nature to dominating it with the rise of the mechanical metaphor that replaced the organism metaphor for earth, allowing mechanical science to flourish. This simultaneously discredited the hermetic sciences such as Vitalism and Alchemy during the scientific revolution in the seventeenth century, leading to the establishment of the Royal Society of London in 1660 (Merchant 1983; Shiva 2002). Also, arising from this period and from the ashes of the Witch–Hunts and religious wars was not only the ascendancy of mechanical sciences and newly forming nations-states, but also the notions of peace and progress (Dunlap 2014b; Kende 1989; Merchant 1983).

Accompanying the mechanical metaphor of the social body—the leviathan, notions of progress and growth emerged, spawning and reinforcing ambitions to live up to these projected standards of modernization that “penetrated all strata of contemporary societies” (Shanin 1997: 69). Shanin (1997: 68–69) laid out two indispensable points about the power of the concept of progress that took hold with its social acceptance. First, those people who originally adopted the idea progress, such as mechanical philosophers, were able to define its meaning and refine its ideological content. Second, the modern state became emblematic of progress, which legitimized its power, bureaucratic rationality, and use of “objectivity” to manage subjects. This is an immense power that often goes unacknowledged, constructing mechanization and industrialization as the emblem and standard...
definition of progress to mimic and emulate in all facets of social order—from individual to governmental conduct.

Important to the rise of biotechnology was the organizational context of modern agriculture. Polanyi (2001: 188–190) saw in England the violence and hardships that came with the rise of the Enclosure Acts, “commercialization of the soil,” and the “industrial agricultural division of labor.” These were organizational traits characteristic of the “English model of 1689” that enforced the freedom of export coupled with import taxes centered on an agricultural division of labor focused on specialization akin to what Veblen (1904: 313) calls the “machine process” applied to agriculture (Foucault 2007: 34). The idea of efficiency through specialization spawned monocropping, a farming technique organized by maximizing yields of one crop in order to accommodate an export-oriented economic strategy. Specialization created a centralized food system dependent on machines, market centers (cites), and eventually global supply chains with the spread of modern agriculture through the colonial project and laissez-faire economics.

Colonization and its export-oriented agricultural strategy had detrimental and devastating effect on the developing world. In India, Shiva (2002: 58, 83) notes the British for introducing “scientific management” into agriculture and forest management of which, clear cutting was introduced as a harvesting technique. The colonial mindset that emerged with modern nation states with a utilitarian discourse and logic viewing nature as “natural resources” applied the scientific and economic gaze to the project of state territorialization and enrichment (Scott 1998: 13), reducing the intrinsic value in forests, water, or people. The tendency was to view life and qualitative interactions of the world through the lens of resources and labor. Industrial agriculture regimented and imposed an industrial framework on the land, disregarding seasonal cycles and natural soil regeneration in the name of economic rationality,² causing long-term problems in the name of short-term economic gains. This agricultural layout soon required chemical fertilizers and pesticides as substitutes for depleted soils, and insect infestations, which eventually led to the application of biotechnology to agriculture (Shiva 2013).

As mentioned earlier, molecular manipulation began with fermentation techniques during Antiquity and advanced considerably in the late nineteenth and twentieth centuries, leading to gene splicing, cloning, and ergonomics common to biotechnology today. Louis Pasteur and John Tyndall’s theories of microbial life in the nineteenth century and the antibiotic industry in the twentieth century

---

² Notable is how rents and taxes prevented people from rehabilitating the soil in the eighteenth and nineteenth centuries (see Merchant 1983).
inaugurated processing strategies for strain improvement, laying the foundations for biological engineering (Fiechter 2000). Research for molecular engineering for plants emerges around 1941, with a research center established by the Rockefeller Foundation for plant breeding in Mexico, taking the name in 1961 as the International Maize and Wheat Improvement Center (CIMMYT) (Shiva 2002). By the 1950s, this center created HYV wheat, which laid the foundations for the Green Revolution in India with gene technology taking hold after 1973 with the first gene transfer into Escherichia coli. This brought investments into research and development, while gene transfer in microbes, animals, and plants emerged as a common practice (Fiechter 2000). In the USA, Kimbrell (1996: 133–134) views the formal origins of commercial biotechnology starting in 1980 with the Supreme Court case Diamond v. Charkrabarty, which concluded that “life forms were simply chemical products that could be patented just like any other ‘manufacture.’” This idea was furthered in 1985 by the US Patent and Trademark office (PTO) extending patents under the Charkrabarty ruling to seeds, plants, and plant tissues—and again in 1987 to include “all living organisms including animals.” Then in 1996, genetically modified (GM) crops entered the mainstream of industrial commercial production (McCullum et al. 2003).

GM seeds emerged as the embodiment and the intensification of agricultural progress, representing new market opportunities for entrepreneurs, and a new adaptation strategy for farmers. Publicly and privately funded, biotechnology gained widespread support particularly from developed countries with USAID, Ford Foundation, OPEC Special Fund, UN Economic and Social Commission, UN Food and Agriculture Organization (FAO), Japan, the UK, and Shell Chemical Company to name a few (Shiva 2002: 100–103). Despite the claims and aspirations of biotechnology to produce higher yields, alleviate hunger, reduce the use of chemicals, and act as a solution to climate change resilience, these attempts have been heavily criticized if not denied altogether (Kloppenburg and Burrows 1996; Newman 2009; Shiva 2013).

Dugger’s (1988: 92–101) four invaluation processes: contamination, subordination, emulation, and mystification are able to display the complicated and underlying techniques of power that shift, conceal, and alter the values and perceptions of people. The four invaluation processes originally written to unravel the social mechanisms of corporate power that enabled its institutional ascendance within U.S. society retain a double meaning applied to biotechnology as the private sector leads the charge in research and development (Shiva 2013). The following will examine the way the personal and cultural values of people within society are acquiesced and persuaded into accepting formally and informally the values of agricultural biotechnology.
Contamination refers to the reconfiguration of internal (anti-authoritative) values with an external (authoritative) value system. This means creating a situation to introduce—forced or welcomed—new political and ethical values into the lives of people. Representing the new frontier of scientific progress and the free market, biotechnology acquires a cultural footing as the logical progression to “improve” the output of nature as well as advancing market practices. The proliferation and dominance of biotechnology in India that is common around the world, Shiva (2013) says, gets its footing from structural adjustment programs (SAPs) recommended and imposed by the World Bank (WB), International Monetary Fund (IMF), and dispute rulings of the World Trade Organization (WTO). Economic liberalization associated with SAPs such as rolling-back of social spending, privatizing national industry (that erode democratic protections for market governance), while also eliminating or significantly reducing trade and tariff barriers, allows the penetration of foreign direct investment or large sums of capital into smaller economies of scale that cannot compete with large companies from robust economies. In short, small-holder agriculture cannot compete with American and European-subsidized and genetically engineered crops that flood the country at remarkably low prices (Bello 2004, 2009; Klein 2007). This proliferation of free market ideology enables the advancement of corporate controls—both direct and indirect—to be exerted and refined toward nature through the control, patenting, and marketing of biological material to create new products. In a sense, the values of the free market are coded in biotechnology and vice versa.

Mexico as one classic example among many, after SAPs, the privatization of communal property, and North American Free Trade Agreement had roughly 15 million people displaced from agrarian lifestyles into less traditional jobs in maquiladora’s (factories), informal jobs, and cities within Mexico and the USA (Bello 2009). This process was strengthened, secured, and spread globally by the WTO enforcement of trade-related intellectual property rights, trade-related investment measures, and their predecessors agreements that protected and enforced seed and gene patents that allowed trade to facilitate monopoly control over agriculture (Bello 2004, 2009; Shiva 2013). Even these agreements with enormous social and environmental consequences are notorious for closed-door decisions and excluding parliamentary bodies, in addition to concealing the implications of the agreements. Newell (2010: 480) notes the “exercise of coercive diplomacy from key exporters of GMOs,” such as the USA, has threatened the immediate withdraw of international aid from countries wanting to impose moratoriums on GM products.

Dugger (1989: 94) notes the contamination of corporate values to begin in schools, where the contamination of GM products, supported by subsidies, begins
in supermarkets. The integration of GM foods was not framed as a political issue, but dumped onto mainstream society as a normal technological advancement with productive outcomes and no adverse health effects (Durham 2005). These claims appear misleading, as one 2009 study, among many, finds GM corn to cause adverse health effects on a variety of organs in mammals, but specifically the liver and kidneys (Shiva 2013: 180). Biotechnology, just as lassie-fair economics and later SAPs, were not innate processes, but a structurally enforced top-down approach. The contamination or imposition of values is calculated and begins at the top of the institutional hierarchy, where regulatory policies are often known to be “consciously designed to exclude the possibility of wider debate and to contain resistance to the promotion of controversial technologies” (Newell 2010: 478). For example “risk assessments” only challenge aspects biotechnology’s social integration, leaving larger social, ethical, and political issues marginalized, creating a situation where the state defines the problem and remedy, subsequently placing responsibility on individual consumers for their intake of GM products (Newell 2010). Reminding us of the limited accountability for the social integration of agricultural biotechnology, Newell (2010: 479) writes, “[t]he principle way in which the public enters the area of decisions as to the research and development of genetically-engineered products is as consumer.”

If values refuse contamination, then the next step is subordinating them, establishing a hierarchy of values. In this sense subordination is a process that ranks, hierarchicalizes, and prioritizes some cultural values over others. This is done indirectly by calling on a “higher good,” for biotechnology this is feeding people and preventing starvation and food shortages. However, this notion is rejected on two points. First, starvation and food shortages are a result of poor distribution and poverty. Second, biotechnology does not address the needs of destitute people (Altieria and Rosset 1999). McGlouglin (1996: 163–174) responded against these accusations on the grounds that (1) there is an absence of practical alternatives and (2) GM rice strains are injected with vitamin A as a response to children going blind from hunger. These responses are problematic as they assume the structure of industrial agriculture as the only way of farming, denying the wide-range farming alternatives such as natural farming, urban permaculture, various visions of transition towns, and food sovereignty. Not to forget the institutional support and investment of small-holder agriculture that are acknowledged to “feed millions of peasant families,” preserve biological diversity, and are more efficient in their use of land and water (de Schutter 2011: 546; Otero and Pechlaner 2009: 31).

In response to the second, there are radical problems with food availability, health, and social structures that biotechnology is unlikely to alleviate. Food distribution, quantity, and quality are the real problems—GM rice escalates the
problem of poverty into a new market—making vitamin A deficiency a market opportunity for agribusiness corporations, infusing the cost of research and development into the problem of hunger. These companies give the impression that biotechnology is the superior way of farming, while subordinating agriculture to the corporation’s legal obligation to profit maximization.

*Emulation* is the acceptance, embodiment, and reproduction of social processes. Once the discourse and process of biotechnology takes hold within a society, contaminating and subordinating different social and cultural values, emulation expands and reaffirms that power—creating an example to admire and mimic. The root of emulation is ambition, in farming the ambition is focused on increasing the productive output of farms—a concern facilitated by the economy and a task GM products claim to provide (McGlouglin 1996). However, it has come to the attention of The Union of Concerned Scientists that genetically engineered crops have not contributed to yield increase (Gurian-Sherman 2009), but in many cases have resulted in increasing debt. In India, Monsanto attempted to “create a captive customer base” with Round-up Ready Crops, Round-Up II, and Smart Stax that endowed the hopes and aspirations of farmers of the possibility of yield increase, but in the end have contributed to generating debt (Shiva 2013: 169). In the Indian cotton belt, gene and seed monopolies have transformed a bioregion with 1,500 varieties of cotton to now with 95% of the region populated with Monsanto’s Bt. cotton (Shiva 2013). With the takeover and cost of Bt. cotton, it is not surprising that a quarter-million suicides occurred in the Indian cotton belt among indebted Indian farmers over the last 16 years (CHR & GJ 2011: 1). Dugger (1988: 97) writes, “[t]he pressure of emulation has placed a heavy hand of competitive conformity over everyone.” Food insecurity makes people susceptible to emulate biotech farming, especially with its claims as a superior method of farming. Subsidies and wealth-generating effects influence formal and informal social hierarchies that influence the use of “improved” crops that are marketed to increase yield as well as prove resilient to unfavorable farming conditions—arid soil, drought resistant, pest resistant, and so on. Adherence and acceptance of biotechnology by farmers creates a cumulative social effect, often exacerbated by public relations and advertising that dominate mass-media outlets, which degrades and minimizes other alternatives and value systems. This reinforces modern norms dictated by the law, subsidies, and the free market, where dialog on long-term effects is marginal, or had at all, seeks to turn food shortages or environmental disaster as with UN-REDD+ below, into a new investment scheme (Fletcher 2012; Klein 2007; Sullivan 2009, 2013b).

Emulation is not limited to farmers, but simultaneously has a deeply surreptitious effect on consumers, as national and international institutions and regulatory boards allow GM foods into global supply chains. Building on the
framework of industrial agriculture and supermarket distribution, agricultural biotechnology appears as an unsuspecting intensification of this process as it appears unnoticed on the shelves of supermarkets. Here, without widespread public discussion, anyone and everyone who goes to a corner store or supermarket and buys a product that contains in whole or in part GM foods will naturally emulate those actions and process of buying food (bending down or pulling off the shelf food and beer), unless the people around them throw down the food shouting in protest and engage in conversation with the people next to them. This brings up two issues, first labeling and second the class aspect of eating well. First, how would someone know there are genetically engineered ingredients in food unless they are publicly notified and labeled? This is an issue that is voted on and often denied for a variety of reasons, often because they contradict or are incompatible with global trade accords (Newell 2010), but labeling would at the least allow a semi-conscious choice (if you care, read labels, and can read) to engage with the still uncertain long-term risk of the mass consumption of GM products, which introduce new genes into the land and bodies of people. Second, a class issue arises when all the cheap foods are genetically engineered and non-genetically engineered foods are expensive and are available in specialty health food stores. Not only does this make a class issue out of eating, the message portrayed is that eating healthy is only possible for wealthy people, which adds another dimension to the status-based consumption to food—it is not only in their preparation, but also how food is grown and with what genes. This helps to establish new “green” markets with “organic,” “certified,” and “non-GMO” food that has both a status and counter-status appeal to their purchase (McCormick 2006), which have influenced the social terrain and rise of environmental identities and subsequent data-sets (Owen et al. 2010). Non-GM food is where the wealthy and the rebellious: anti-capitalist, anti-corporate, local, and environment loving people can buy a “morally superior” food product that came as a reaction to adding GM food into global food supplies. This new market was the legal and culturally prescribed outlet left to people to salvage and maintain a food system without new deoxyribonucleic acid (DNA), gene transfers, and the overall integration of reproductive technological applications into food. With the integration of GM food, emulation of consumer choice takes on a whole new and diverse meaning.

Mystification is the manipulation of valued symbols to promote a given cause or product, often akin to Orwellian “Newspeak” that solidifies and binds the latter three processes. Mystification—a surreptitious manipulation of meanings—appears in varying instances and scales. Monstanto’s website provides an

---

3 Or Veblinian counter-snobbery, see McCormick, Chapter 10.
excellent example\(^4\) with a headline link that states: “Monsanto ∼ A sustainable agricultural company.” Inside the website a title reads: “improving agriculture” and “improving lives.” These are difficult claims to assess, especially since it constructs a market out of what was once traditionally free or in the public domain. Nevertheless, there is little sustainability about market dependency on bioengineered inputs in farming, except the possibility of financial sustainability. Another example that Kloppenburg and Burrows (1996: 63) point out is that “Monsanto has constructed the problem as the Potato Beetle, not as potato monoculture,” which displaces and reformulates ecological problems by disregarding the structural layout of monocultures and the ability of weeds and pests to adapt to farming inputs and processes. Mystification displaces the problem, misleads consumers, and devalues the meaning of language in the process. The purpose of mystification is to confuse people and their values as well as to make positive linkages between biotechnology and agriculture. The mass-media, advertising, and public relations firms and even the political systems governing agricultural biotechnology play a vital role in articulating and refining techniques of mystification.

As mentioned above, not only are people’s participation generally limited to consumer choices, occasional votes, and generally do not question the potential long-term dangers of biotechnology, but also mechanisms such as the Biosafety Protocol implicitly affirm the marketing and circulation of GM foods into national and international food chains, while making debate difficult to reopen ounces measures are adopted (Newell 2010). The lack of civic and democratic engagement combined with the implicit, coercive, and self-reaffirming cycle of the free market creates a positive feed-back loop around biotechnology that mystifies and reconfigures values and by extension the mentalities of people as industrial agricultural manipulations are integrated in local and global markets. This makes politically feasible and acceptable the integration of agricultural biotechnology and its “green” antithesis into food systems that results in a multiplication of new markets—engineered or certified.

**UN-REDD/REDD+: THE OLD REPACKAGED WITH FLAIR**

The idea behind the United Nations-reduced emissions from deforestation and forest degradation (UN-REDD) is to provide economic incentives to developing countries and land owners to preserve their forests. Initially rejected as a program before the Kyoto Protocol, REDD was then reintroduced in 2005 by a group of countries under the name of Coalition for Rainforest Nations; making it a topic

issue in 2007 at the Conference of the Parties to the UNFCCC in Bali (COP-13). In October 2008, the general idea was accepted, with continued debate, negotiations, and later implementation in 2012. Supported by the UN-Food and Agriculture Organization (FAO), the UN Development program (UNDP), the UN Environment program (UNEP), along with the WB saw deforestation as the leading contributor to climate change seeking to place a financial value on forest for conservation. REDD, over time, developed into REDD+, which extended to include forest management and conservation, and carbon sink enhancement. And later again updated as REDD++ integrating the preservation of biodiversity (IISD 2009). REDD a mechanism largely responding to market failure sought to reduce the externalization of cost to the natural environment by placing a value on forests.

REDD has three main funding mechanisms proposed. First, a voluntary fund, national or international, that raises funds from both the public and private sectors. Second, a direct market mechanism developed by the European Emission Trading Scheme and WB payment for ecosystem services (PES) programs that integrate REDD credits into an existing framework of verified or certified emissions reduction (CER) schemes and cap and trade systems a part of the clean development mechanism (CDM) emerging from the Rio + 20 Earth Summit in 1992 (Corbera 2012). Third, a combination of the two, utilizing a hybrid between a voluntary fund and market mechanism that establishes an auction process or a dual market system compatible with CERs, which has gained interest and support from the WB from its inception.

The basic premise of UN-REDD is problematic in two ways. First, forest reservations were traditionally a colonial technique used to control and cut-off villagers from accessing forest resources that resulted in the displacement of people into planned settlements and cities (Antipode Special Issue 2010; Escobar 2012; Peluso and Vandergeest 2001, 2011; Shiva 2002). The term “forests” for example was originally used to demarcate the land and hunting ground of the kings and English nobility that used enclosures, game laws, and taxes among other methods to control and displace local populations into work-houses and later factories during the rise of industrialism (Merchant 1983: 63; Perelman 2007). Peluso and Vandergeest (2001, 2011: 588) coined the term “political forests” that refers to the political and often violent relationships underlying the discursive and functional aspects of territorial control that establish domesticated forests of the state as opposed to wild jungles of the anti-state insurgents or autonomous communities.

---

5 http://www.redd-monitor.org/redd-an-introduction/
7 REDD+ for simplicity will be referred to as REDD.
This political and social construction of nature was widespread during the colonial period around the world, but continued into post-colonial regimes with notions of “fortress conservation” and “participatory conservation.” The former militarized, displaced, and excluded native populations from nature reserves by any means necessary, which has been critiqued as an indirect way to arm foreign governments during the Cold War and to control land that has compiled an outstanding record of human rights abuses in Africa, Asia, and Latin America (Duffy 2000; Hitchcock 1995; Neumann 2004; Ojeda 2012; Peluso 1993; Ybarra 2012). The latter was a more progressive adaptation that sought to integrate people into forestry and resource management, but surprisingly are known to continue this trend of displacing local forest dwellers (Benjaminsen et al. 2012; Benjaminsen and Bryceson 2012; Cooke and Kothari 2001). Conservation-induced displacement is widespread, Agrawal and Redford (2009: 4) estimate conservation-induced displacement to be in the range of 8.5–136 million people between the 1980s and 2003. UN-REDD stands as the next advancement in this progression of conservation, combining both the legal and enforcement of fortress conservation, the integration of local populations with participatory conservation, and integrating market mechanisms guided by PES and CDMs.

Second, acknowledging the extensive and deep-seated causes for deforestation may expose REDD’s obsolescence. *Getting to the Roots* (Global Forest Coalition [GFC 2010]), 3-year report on deforestation, lists two primary categories for deforestation. First, industrialization: urbanization, infrastructure, increasing demand for monocropping and tree plantations (biofuels). Second, government policy: enforcement, corruption, illegal logging, and neoliberal economic policies. These two historical points already raise the question: why impose a program on small-scale farmers and indigenous, least responsible for the industrial economy? Why not reform the industrial economy dependent on industrial production and consumption? The following will look at the value formation and premises inherent in UN-REDD.

*Contamination*, as with biotechnology, the principle justifications for REDD remain the international market supported by modern scientific outlooks and measurement procedures. The economy is presented as both the problem and the solution and modern science as the means to measure REDD+’s progress.9 Sullivan (2009, 2010: 113, 2013a, b) demonstrates the way in the tradition of Polanyi’s (2001: 75) “commodity fiction” how PES and CDMs are creating a “new commodity fiction” out of nature—reducing and abstracting nature to distinct services and commodities to be bought, sold, and traded. Sullivan (2013a)

---

analytically breaks down four ways the natural environment is integrated into the market. First, **nature work**, aided by the UN’s Millennium Ecosystem Assessment, established 24 service categories, such as provisioning services (food, water, timber, etc.), regulating services (natural environmental crisis), supporting services (soil formation, nutrient cycling, etc.), and so on. This separates and commodifies nature in order to provide the building blocks for PES, which seeks to sell nature to save it (Sullivan 2010). Second is **nature finance** that integrates nature as a commodity into financial systems with indexes designed to develop and enhance investment strategies into emerging “green markets”—carbon and biodiversity—with Inflection Point Capital Management and the WB’s Forest Carbon Partnership Facility that encourages investment by conventional banks into green markets. Third, **nature banking** creates bank accounts out of industrial tree plantations and conservation sites with carbon sequestration and biodiversity preservation that can be developed and managed in financial markets. Finally, **nature derivatives** transfer the logic of derivatives to the domain of species survival and carbon sequestration. Working in accordance with carbon credits and other commodity systems to quantify nature and pollution, REDD acts as a vehicle spreading market relationships to the furthest jungles and forests around the globe.

Through the valuation and commodification of nature combined with global capitalism, REDD operates as a mechanism to make forest conservation and marketization dependent on pollution. The market mechanisms integrated into the REDD program, merging the idea of economic growth with sustainability, reaffirm the markets dominance by failing to address the inherent non-sustainability of the modern industrial economy. REDD is not a program that attempts to facilitate a shift toward sustainable agriculture, addressing the non-sustainability of the industrial economy, but to advance it. The authoritative language concerning certain stakeholders is telling, giving a “role” to “rural populations,” where they are “properly involved,” and establishing “guidelines of free, prior, and Informed Consent (FPIC)” (Duncan 2012; FPP 2012; Lawlor et al. 2010). This gaze of management is colonial in nature, creating subjects, by integrating unmanaged territories and previously excluded people into a legal system, where FPIC represents the equivalent to indigenous Miranda rights under this new imposition of law advanced by REDD. It is no surprise when Corbera (2012: 616) says that REDD enhances “inequalities in income and access to resources, particularly when pro-poor management measures are not adopted, as well as create economic enclosure through territorialization for biodiversity and carbon conservation.” Rights are useful for protection against a legal framework,

---

10 Derivatives are financial instruments that promise payments derived from bets on the future value of something else (Sullivan 2013a: 207).
but they often do not question the framework itself. In the end, REDD’s progressive bureaucratization is reminiscent of the Bureau of Indian Affairs and the Indian Claims Commission in North America, which acted as a mechanism of legitimizing colonial land acquisition through a legal framework that provided monetary compensation, not the return of land (Churchill 2003). Forced acquisition, with compensation acts as the velvet glove of territorial usurpation, which makes the violent battle between police and villagers in Jambia, Indonesia, because of a REDD eviction notice in December 2012 seems not only necessary, but also an inevitable outcome of the imposition of REDD (Dorr et al. 2013).

Subordination, the hierarchicalization of values, is done with REDD by placing natural environmental issues under market mechanisms. Justified as a program working for the “higher good” of stabilizing anthropogenic climate change, emphasis is placed on the need of participation and integration of rural populations into REDD programs. This includes market integration as well as creating a framework of legal rights. Despite its seemingly positive connotation, this effort must remain in question, especially given the importance of forests and their potential speculative monetary value as natural resources. For starters this could take us back to the Roman Empire with the concept of “equalitarization,” a tactic of war, where once a territory was invaded, the idea of equality was used to persuade people into a framework of rights instead of revolting (Foucault 2003: 145). The idea of equality and protection of rights under Empire or the modern state was historically no more than shifting to a low-intensity war to manage an orderly and productive social body (Trocchi 2011). Illich (1978: 43–44) brings us up to date by pointing out the difference between liberties and rights. “Liberties protect use-values as rights protect the access to commodities.” Illich (1978: 43–44) continues stressing the social subreption inherent with rights that encourage people to “believe that the publicly sponsored pursuit of rights leads inevitably to the protection of liberties.” When REDD introduces rights, it also introduces a legal system that enforces the free market, intellectual property rights, and by extension bio- and nano-technologies that advance the progress of privatization. As Schroeder (2010: 321) points out, “[T]he relationship of states with their indigenous peoples in the REDD design negotiations exemplifies the continuing dominance of the state.”

REDD’s introduction to the Amazon, Africa, India, and the Far East serves to expand state and corporate control, which inherently subordinates the intrinsic values of nature to production and corporate services. This misleading disposition of REDD is multiplied significantly with the United Nations definition of “forests”

11 It should be remember that the current mode and conception of work is not only bad for people (health, psychology, etc.), but also drives the degradation of the natural environment (see Devetter and Rousseau 2011).
and “forest management” that are so vague they can include monoculture tree plantations and commercial logging, which include the use of genetically engineered trees on the basis that you can grow more trees on less land (Boas 2011). This definition subordinates the qualitative aspects of trees and eliminates the social and ecological processes and potential relationships people can have with forests, while conveniently reinforcing the practices of the industrial economy, timber exploitation companies, and the narrative of “pristine nature.” This narrative emblematic of the US Wildlife Act of 1964 views humans as having no place in “nature,” which limits the possibility of humans living in balance and with the natural environment, fostering the limited vision of the so called modernity. More control means more bureaucracies that require funding for enforcement, or under neoliberalism, allows corporations to utilize legal code, law enforcement, and paramilitaries in order to protect mining and logging activities (CEC 2011). This suggests not only an increase in conflict, but also a diminishing of liberty and agency as land is enclosed and militarized, changing the relationship between humans and the natural environment—furthering the separation of humans from their vegetative environments through control. In the end, under UN-REDD the natural environment becomes subordinated to the double-bind of bureaucracy and privatization, managing an industrial progress that limits forests of its qualitative and ancient processes to a resource colony of raw materials in support of the state organization and its economy.

REDD then promotes emulation on two broad levels. The first as mentioned above, on a micro level, where people will begin to socially accept their subordination to forest reservations, property rights, or their resettlement into strategic hamlets and planned reservations. With industrial agriculture, mining, agroforestry, and cattle-ranching designed for an export-oriented economy are left unscathed or a best legalized and “managed” under REDD, while promoting forests conservation enclosures, their militarization, and their financialization with PES in preparation of the emerging “green” economy. REDD places forests at the mercy of a legal system, where deforestation can be legitimized, where the delicate ecological cycles are often not recognized, and where “corruption” appears inherent (GFC 2010). In short, REDD reinforces the social emulation of an industrial relationship with forests. Second, on the macro level, the more REDD is proclaimed an international success as both a source to prevent deforestation, stabilize anthropogenic climate change, and provide investment opportunities acclaimed by the UN, WB, and their subsidiaries, REDD will gain

12 Militarized rural settlements that seek to observe, control, and strategically use populations in counterinsurgency warfare as well as integrate them into national political and economic systems. Deployed in Malaya during the British Colonial wars and coined strategic hamlets during the Vietnam War, and subsequently called development poles or model villages.
more power and international entrenchment as a program. Creating new markets in a feel good, top-down from the bottom up investment scheme, which increases the commodification of nature, limits the agency of indigenous people by giving them a framework of rights, makes forests dependent on pollution for conservation, increases the values of nature banks with rising pollution and environmental degradation, which also reduces the space and avenues for alternative values and lifestyle of peoples—human and non-human—to flourish.

REDD’s mystification of valued symbols and concepts remains fundamental to the program. The establishment of “protected areas,” the foundation of the idea of conservation, has had adverse effects under REDD. The notion of protected areas has failed to prevent deforestation over the last 20 years, instead creating a value attracting potential for investors (GFC 2010), with the resource demands of national security apparatus often overriding protected areas (Sullivan 2013b). In essence, REDD creates “option value” for forests, adding an option to cut forest down at a later date with an increased market value (Dunlap 2011). This is orchestrated though a discourse that speaks, in broad terms, about the consent of “developing countries” and establishing “farmer’s rights” (Zerbe 2007). These terms are general and homogenize the different values and relationships farmers hold with the land into a one-size-fits-all neat public relations package suitable for marketing to local people as well as international investors. The differences between natural, organic, small-holder, and industrial farmers as well as cattle ranchers and other life industries—cannot be minimized—because each has a different relationship and effect on their environments. Reducing the application of consent to countries and farmers reduces the complexity of the problem to a manageable issue that will advance market relations that encroach on local and regional value systems. When it comes to preventing deforestation and promoting the conservation of wild nature, what is the difference between legal and illegal logging? Furthermore, what is the difference between industrial illegal logging and subsistence illegal logging? REDD mystifies the radical problems facing natural environmental degradation—while advancing the modern states’ control and its economies capacity for acquisition and usurpation of natural resources.

CONCLUSION

Both biotechnology and UN-REDD advance and intensify the relationships of control and profiteering of the natural environment. Biotechnology advances market relationships and state/corporate control at the molecular level, while REDD at the frontiers and remote territories in South America, South East Asia, and Africa. Operating at different scales, they are part of the same project of progress, seeking to homogenize and control the diversity of nature and man,
transforming the world into a controlled, industrialized order, based on large networks of consumption and production. Alternative approaches to climate change, biodiversity loss, and deforestation that challenge the market, state control, and cybernetic systems supporting the latter two are neglected and marginalized, if not rejected all together.

Norway currently has committed $600 million a year to REDD activities (Tänzler 2013), but if preservation and rehabilitation of the natural environment is the intention of these programs, why make forests the object of law, when the industrial economy and the market are the catalysts for degradation and destruction? The United Nations and the Bretton Wood Institution, the modern state and the private sectors, form managerial layers resembling the good cops and bad cops of global industrial order that mediate relationships, subordinate values, and degrade soil and human and biological diversity into categories of labor and resources in order to be integrated into financial markets. Alternatives to biotechnology and REDD should resemble the opposite in scale, values, and relationships than the present encroachment of market and state control at the molecular and international level.

It appears food insecurity and climate crisis are being used to advance new market imperatives in multiple sectors of the global economy, but the importance of challenging the industrial economy and creating alternatives cannot be underestimated. REDD and biotechnology funds should be transferred to support programs that investigate alternatives to industrial waste, sprawling urbanization, and food systems dependent on widespread use of plastics and high transaction costs. This may include subsidizing alternative projects that nurture an agriculture that improves soil quality without dependency on inputs, and a localized market independent from subsidy ripples and violent market fluctuations. This should also include programs that promote urban self-sufficiency with urban permaculture techniques such as green walls, roof top gardens, radical home gardening systems, and community gardens just to name a few. The alternatives and solutions are there, it is just a question of institutions and financial networks cooperating to support value systems built on genuine social and natural environmental sustainability as opposed to project, market, and financial sustainability. The latter imply a profit motive, which have complicated social and natural environmental relationships, teaching people the economy is more important than the land that supports it. Climate change, desertification, and modern poverty are anthropogenic industrial problems, which purported solutions such as biotechnology and UN-REDD suffer an industrial pragmatism that demonstrate clear signs of intensifying the problem as opposed to addressing them. A gradual shift away from industrial values and profit motives may begin to step in the direction of attempting to rehabilitate the systemic problems of food insecurity, climate crisis, and the industrial system as a whole.
REFERENCES


Monsanto-Corporation, “Monsanto Company Website”. Available at: http://www.monsanto.com


NOTES ON CONTRIBUTOR

Alexander Antony Dunlap is currently a doctoral candidate and associate tutor in Social Anthropology, School of Global Studies at the University of Sussex. His current research focus is on the effects of rural and urban sustainable development projects. This includes examining how these projects affect the livelihoods of people, if they contribute to migration either directly and/or indirectly as well as the long- and short-term ecological impacts on their respective environments. Recent publications include ‘Permanent War: Grids, Boomerangs, and Counter-insurgency’ in the Journal of Anarchist Studies and the, “The Militarization and Marketization of Nature: An Alternative Lens to ‘Climate-conflict’,” in the journal Geopolitics, special issue: Rethinking Climate Change, Conflict and Security. Global Studies, Arts C 162 University of Sussex Falmer Brighton BN1 9SJ. E-mail: A.dunlap@sussex.ac.uk