

“Reconsidering sustainable development: Urbanization, political-economy, and deliberative democracy”

Section 1: Sustainability

1.1. Introduction: defining and measuring sustainability

“Sustainability is a valuable concept precisely because it does require us to focus on the integration of social, economic, and environmental concerns. However, like 'holistic thinking,' which it resembles, this is much easier said than done.” (Hecht, 2007: 3)

Sustainability is most commonly described in the vein of the concept of “sustainable development” elaborated in 1987’s *Brundtland Report*, also known as *Our Common Future*. In this seminal work, *un-sustainability* was defined as the point where resource use permanently damages a natural system’s resilience and hence future generations’ ability to sustain further use. Unfortunately, as useful as the definition may have been, this concept of sustainability is almost impossible to apply to such a complex system as global human economies. Shifting efficiency of resource use, often related to technological development (Smil, 2000), shifting geographies of resource extraction and use (UNEP, 2011), differential expectations of quality of life (Harvey, 1974), and shifting capacities for subsystem renewal (as mediated by human management [Dagget, 2005] and natural processes) all complicate the picture. Most sustainability indicators are local system phenomena reflecting processes that may originate outside those systems; it can be difficult (if not impossible) to define effects of particular human behaviors on crucial

thresholds for particular natural systems when those systems' bounds are so often arbitrarily and unreasonably circumscribed. Urban households, for example, can contribute to environmental degradation; this much has been proven (Hardoy, 2001). Inductively then, it is easy to reason that *more* urban growth will at some point prove unsustainable. However, in this paper I will show that there are means to ameliorate the impacts of urbanity, that urbanization may in fact correlate with net environmental and quality of life benefits compared with alternative development patterns, and that (at least in theory) cities may articulate well with the construction of new political-economic social choice mechanisms that will better lead to long-term sustainability.

The relationship of urbanity to environmental sustainability is clearly one of interest to an increasingly urbanized world, and it behooves society to determine the wisest course of development and attempt to implement that course through policy, rather than continue thoughtlessly or recklessly towards environmental destruction. The main arbiters of development policy and implementation (business leaders, policymakers, politicians, scientists, and urban planners) assume that the urbanization trend will continue and should be accommodated, as there are potential social and economic benefits from the trend (UNFPA, 2007). Since the ultimate causes of environmental destruction may hinge more on high-consumptive lifestyles (Satterthwaite, 2003) and the political-economic structures which favor them (Foster, 2002) than simply the physical forms of human settlement and development, predictions about urban growth and its relation to environmental sustainability should be moderated by analyses of these non-urban-specific factors. Still, I will use the urbanization question vis-à-vis environmental destruction and consensus building throughout the paper to illustrate the point that environmental sustainability is best conceived as a process rather than an achievement, since this sustainability

process (which to succeed must by nature occur in all human spaces, rural and urban) demands particular attention to the urban, as that is both where most of the human population concentrates itself, and where the most convoluted connections between human behavior and environmental effects occur.

There will be some limit to how big and widespread cities—as proxy representations of economic growth and the expansion of human-led land use change—can become without compromising the resilience of worldwide ecosystems¹. As mentioned, a defined limit is hard to pinpoint due to so many complicating factors² and the fact that sustainability on any level is only knowable in hindsight. That is, if we define sustainability purely from the perspective of resource availability, we can only know that our actions were unsustainable once that action can no longer be done (Sayre, 2011). A fishery can be described as “overfished” when the catch has lowered fish populations to a certain percentage of its perceived “normal” size, but we only know for sure that our actions were unsustainable when there are no longer fish to be caught.

It is true that sustainability indices and indicators can tell us how we are damaging ecosystems and at what rate, and as such they can indicate whether we are heading towards un-sustainability. But they cannot define what it would take to have reached a point of sustainability. Similarly, even if they indicate that our level of extraction or pollution is lower than the expected threshold for compromising resilience, these indices can't guarantee that our actions are truly sustainable

¹ Daly (2008) warns of “uneconomic growth”, when the environmental and social costs increase faster than the social benefits of economic (and therefore, most often, urban) growth.

² The wide, intricate networks of resource extraction, transportation, processing, and consumption are mediated by politics, international and regional competition, cultural values, environmental factors and climate change, and these factors themselves are each interdependent and interacting.

since non-linear ecological dynamics, external influences, and quick shifts in behavior can alter the results from those actions.

Fear of resource depletion is certainly valid, as resource depletion is possible to observe statistically and empirically, but predicting the point of complete exhaustion of a particular resource (especially one that is renewable) is difficult. Carrying capacity is a foundational concept for the creation of many measures of sustainability, for example the “Ecological Footprint” (Wackernagel & Rees, 1997). A concept from the science of ecology, carrying capacity denotes the maximum population size a particular species can reach in a particular environment without damaging its resource base.

Theoretically, if we know how much use or pollution a particular system can support, we should be able to determine how many people that system can support (assuming certain average levels of resource use and pollution by those people). While pinpointing carrying capacity of a petri dish or small pond may be possible, in relation to earth-wide physical and social resources carrying capacity becomes more metaphorical than useful (Sayre, 2011), since those use levels are so dynamic, while population size and economic growth each act as both independent and dependent variables (Livi Bacci, 2007). Resource use efficiency and culture also interact with these variables, resulting in a dynamic carrying capacity; decoupling the impacts of growth, as promoted by the United Nations Environmental Program (UNEP), can expand carrying capacity while higher expectations of standards of living and consumption (Leichenko & Solecki, 2005) can lower it. Ecological economics researchers are continually refining and improving measures of carrying capacity, ecological footprint, and sustainability (van den Bergh & Verbruggen,

1999), but successfully simplifying complex world systems into workable datasets will likely prove an ongoing challenge for scientists and sustainability advocates.

1.2. Humility should guide sustainable development

Some of those sustainability advocates have taken to what some call “deep ecology”; beyond basic calls for more environmentally friendly products and energy sources, deep ecologists insist on placing humanity conceptually at level with the rest of the ecosystem. As ecosystems are too complex for us to understand fully, we should defer to the biosphere’s power and beauty as above us, the way one might deify animate beings. At the very least, deep ecology insists on an intrinsic value for nature, aside from human economic considerations. “Ecofeminism” holds some of the same concepts, ascribing femininity and mothering traits to Earth’s abundant provision of the goods, services, and meaning necessary for life. While these ecological worldviews may be helpful, they are not necessary for the process for sustainability.³

What is strategic, and does not require a particular environmental philosophy to accept, is humility in regards to our own purview and actions. Researchers and policy makers (for example) never know everything they need to about a situation to make “completely informed” decisions, especially the larger, more complex, or open the system in question is. Further, even if we know what we think we need to know, unintended effects can result from human interventions in nature, and so humility must guide implementation of erstwhile environment-

³ To this author, these philosophies are normative worldviews, not prescriptions for policy or actions directed towards creating sustainable lifestyles. They may be useful to individuals in reframing their beliefs about socio-nature, but they will never on their own contribute to a more widespread acceptance of the imperative of environmental sanity, at least so long as anthropocentric culture continues to dominate the political and economic worlds.

saving actions as well.⁴ This key role of this principle of humility in sustainability efforts has been well developed by both political scientists (Dryzek, 1987) and environmental economists (Noorgard, 1994).

“Permaculture”, developed by two Australians in the early 1970s (Mollison, 1988), can be described as a set of design principles motivated by three primary ethics, with the goal of enabling sustainable human culture (hence a “permanent culture”). Though its ethics (“people care”, “earth care”, and “return the surplus”) can be seen as marking permaculture as essentially normative, its principles are extricable to contribute to more intelligent and efficient design, regardless of the goals of the design or designer. One such principle that is applicable here is that designers intervene the least way possible when seeking a “yield”. Small and slow solutions, envisioned to improve a system towards a goal (here, to reach sustainability in human/non-human interactions worldwide) can fail but be learned from without inordinate damage to the system overall, while large-scale interventions from a position of perceived certainty can wreak unexpected havoc. Alternatively, small or slow solutions can work, then scale up, thus making the “least change for the greatest effect”.

1.3. Iterative mitigation as a key process

⁴ A commitment is also necessary to raise as many perspectives on an issue as possible, and to put to challenge and testing all theories and proposed solutions. In general, a diversity of perspectives increases information available, and more information is better for high stakes decision-making (though most important is the ability to glean valuable, useful insights from information, not the compilation of masses of data with no purpose). As in ecology, diversity is crucial to resilient systems, in this case the system for social decision-making vis-à-vis environmental issues.

In this vein, I propose a model for reaching towards sustainability that will rely, at various points, on the explication and adjudication of varying systems of value and their concomitant norms to guide decision-making; however, this model does not require for its function a *particular* value system or an *a priori agreement* about what is worth sustaining or what is prioritized between vying objectives in question. I call this model “iterative mitigation”, to clarify that as a process it constantly reflects back on itself and considers itself improvable, and that its immediate goal is not the achievement of macro (or “true”) sustainability but of mitigation of specific conditions *towards* sustainability.

Hence “iterative mitigation” refers both to a science-based experimentation process for addressing specific environmental problems, and the intersection of this experimentation with decision-making processes wherein communities and societies determine how to approach and re-approach socio-natural problems, considering balances between the three legs of the stool. Values are articulated and adjudicated amongst stakeholder groups; plans of action are determined from these values; these plans and their resulting actions’ effects are continually judged in relation to their desired social and environmental effects. This process would give participants a chance to truly learn from differing perspectives, to change minds, and to become more effective participants in decision-making, and would likely result in better social and environmental outcomes than current forms of decision-making (Baber & Bartlett, 2005: 231).

One aspect of iterative mitigation is its inherently longer time span for viewing change, and for being able to say with confidence that we are heading in the right direction. Since environmental changes are occurring on such a large spatial scale, and the time it will take for human action to

redirect the course of these effects is expected to be long, iterative mitigation requires longer scales of analysis. For instance, climate change: greenhouse gas emissions don't quickly correlate to temperature increases or decreases, and climate changes are experienced long after their initiation. There wasn't enough scientific understanding of climate to gauge anthropogenic influence until at least one hundred years after the industrial age (which sparked climate change) began. So like many other global environmental issues, once it is determined with relatively strong conclusiveness what is causing what problem, it may take a similarly long time to deliberate solutions, and even more time to gauge whether the implementation of solutions has been helping.

Some environmentalists may argue that this emphasis on process will create too much lag time and risks letting destructive processes go on too long; I counter by noting that this proposed process (iterative mitigation) has only been seen in parts and with some successful results, while the more dominant environmental decision-making processes (and existing relations between government and industry, citizens, masses, civil society groups, "experts", and those most directly affected by environmental issues) have clearly failed to prevent the continual destruction of the planet. Even the more ostensibly people-centered institutional forms of social choice (the representative democracies of the majority of the planet's nations) have failed to address the trajectory of environmental destruction as a whole, even if they have made progress on a few specific issues (such as ozone depletion) or displaced certain environmental damages (from, for example, industrial production) to other geographic regions. It behooves those who accept the imperative of worldwide ecological improvement to consider new avenues for social choice to replace or supplement forms of decision-making that have proven ineffective.

If it is accepted that most environmental problems are examples of “death by a thousand cuts”, then there are multiple ways that these problems might be approached. Do we respond with a thousand Band-Aids? By dulling the knife? By reducing the number of cuts? Or do we attempt to change the underlying conditions that lead to cuts? With iterative mitigation, each of these approaches receives individual consideration and would be implemented in considered relation to the others, while existing models for environmental improvement most often implement tactics in isolation, and rarely if ever consider the question of underlying conditions. Further, iterative mitigation implies that large-scale solutions (like geoengineering to mitigate climate change) and technocratic solutions (like cap-and-trade regimes based on “true-cost” pricing of carbon emissions), with their potential large-scale negative effects, will be avoided or at least heavily critiqued and monitored.

It seems clear, from the many international reports on biodiversity loss, pollution, and global poverty (MEA, 2005; UNEP, 2011, UNFPA, 2007), that something new is needed for social and environmental sustainability. Two questions, then, are crucial: why is the current dominant concept of sustainability (the three-legged stool) not enough to achieve the needed changes, and what relation does this failure have to the decision-making processes called upon to achieve the concept⁵? It is to these questions that I now turn.

Section 2: Mainstream context of sustainability

⁵ These processes can be based on implicit or explicit values, and (as we will see) institutions may adopt the language of deliberative democracy, even if they do not implement it in actuality. We *can* analyze different decision-making procedures by their stated norms and rules, but we are better served looking at practices and outcomes and not just words (see Ribot, 2004).

2.1. Problems with the three-legged stool

Mainstream views of sustainability are founded on a commitment to economic growth. Growth, usually but not always measured by GDP, is considered necessary for sustainability, because it leads, historically, to technological development and hence resource decoupling. Some believe the “Kuznets Curve” (Chowdhury & Moran, 2012) claim that countries also become more environmentally concerned as their incomes increase. On their face, these claims could be credible: there is perhaps more “green” propaganda (or “moral persuasion”) in technologically advanced nations⁶; there is more likelihood that wealthier citizens respond affirmatively to surveys about such topics⁷; some environmentally helpful technologies rely on advanced science⁸; it is easy to imagine that people without money—in both “advanced” and “developing” countries—have more pressing considerations than abstract environmental degradation at hand, like survival.⁹

⁶ Yet some low-GDP (Gross Domestic Product) countries like Cuba implement sustainability initiatives (at least in agriculture) not to proselytize but to survive. Perhaps income isn’t as important as motivation.

⁷ Yet the cultural dynamics of international surveys aren’t often called into question. *Culture and Sustainability*, a book based on these kinds of environmental values surveys, admits that these surveys can unintentionally misconstrue values by their need to be written in cross-cultural language (Ester, et al., 2003). Environmental beliefs and values are place and culture based, and are better understood on their own terms, not reductively, in relation to other cultures and places. Perhaps environmentalism looks and sounds different around the globe because its manifestations *are* different.

⁸ Yet the most failsafe and cost-effective remedies for environmental damage involve low or no technology, being mainly directed at improved land management and the decreased use and production of toxic substances. Often, new environmentally helpful technologies are developed out of government support, the product of conscious societal shaping. Yet they also emerge from independent whim and the unconscious cultural efforts of individuals and businesses. Perhaps GDP and average income aren’t as important as the cultural priorities that lead or don’t to goals of environmental action alteration.

⁹ Yet, studies have shown and stories abound of poor populations’ connection to and concern for their environment (Kollmuss & Agyeman, 2002). While some observations may indicate that poor people do not see or worry about the environmental situation, it might be that their inaction stems more from the difficulty of finding a way to make a difference than a lack of caring.

But how connected are economic growth and technological development, or growth and overall human wellbeing?¹⁰ How can we be sure that growth's ostensible positives outweigh its much more apparent negatives? What if, by presuming that economic growth has a function ('intention towards sustainability' lets call it) that it doesn't, we are avoiding giving it the scrutiny it deserves?

The Brundtland Commission Report—responsible for mainstreaming the concept of sustainable development—was written in the context of “first world” nations recognizing their increasing environmental impacts, while “third world” nations attempted to catch up to the first economically. The first didn't want its position of power to change while the third wanted to accomplish what seemed like an unavoidable step forward: industrialization and creation of a consumer society. These desires, strangely enough for a globe divided into “worlds”, made for a mutually held desire to preserve “development”, commonly equated with economic growth. In this context, the three-legged stool can be seen to have been a necessary diffusion of analyses too critical of economic growth itself; if poverty and environmental destruction could be seen as results of a lack of “development”, then business as usual could continue. William Ruckelshaus, appointed to the Brundtland Commission, exemplifies the ideological contradiction of growth-loyal sustainability: as head of the EPA, Ruckelshaus held environmental credentials, yet he also worked for timber company Weyerhaeuser, responsible for some of the world's clear-cutting deforestation.

¹⁰ Since Richard Easterlin's (1974) original work on the connection between economics and individually reported happiness, evidence has amassed that income matters much up to a certain level (basically, enough to transcend poverty), but after that, happiness is more dependent on how individuals compare their lot to a “reference standard” of wealth they perceive to be normal and expectable. Therefore, inequality itself can in some cases affect happiness levels as much as collective averages of wealth.

The positional importance of people (like Ruckelshaus) in policy decision-making and discourse-formation is described well by Bill Domhoff in his book *Who Rules America* (2010). Domhoff argues that a “power elite” does exist in the United States, even if the borders for entry to the group are somewhat porous. This group’s cultural values and practices are mostly homogenous around economic issues and pervade the dominant resource-marshaling institutions (governments, banks and finance, businesses and industry, education and universities, philanthropy). These values, shared with other groups and institutions that are not uniformly elite, are what Richard Norgaard calls “economism” (Norgaard, 2010). Economism is the belief that all aspects of the social and natural worlds can and should be understood in terms of money, markets, and profit, for the purpose of promoting generalized economic growth. Economism thus forms the foundation for environmental discourse and management decisions in the United States, prioritizing solutions to problems that expand markets while dismissing and marginalizing solutions that do not.

Looming over this economic discourse and world shaping are the Bretton Woods institutions and their progeny: the World Bank (WB), International Monetary Fund (IMF), and the United Nations (UN). In creating the concepts of development, these institutions operationalized “modernization theory” (Rostow, 1960), believing they could both civilize “underdeveloped” regions and spread liberal, secular capitalist nationhood as the best possible form of government. The IMF directed monetary and spending policy in many developing nations, the WB used their financial power as lenders to promote economic priorities, and the UN crafted documents that codified these priorities (as in the Universal Declaration on Human Rights, which promoted nation-state secularism if not capitalism per se). While these institutions have experienced

withering criticism from the global south over the course of their existence, and have even accommodated and adapted these critiques in their rhetoric and projects, their primary function continues to be the elaboration of solutions to the world's social, economic, and environmental problems that do not fundamentally alter existing (capitalist, nation-based) power relations.

In the fourth section, I will show the dysfunction of economism's promotion of growth through examples from the United States of America, China, and Brazil. Growth in these cases seems to be driven primarily by capital's valorization of capital within a political system most concerned with sustaining itself, and since this process holds a single logic towards sustainability (the logic of growth), myopia on the part of capital, and corruption in the function of government—both contributing to an erosion of the environmental sovereignty of peoples—are practically inevitable. The normative idea embedded in the three-legged stool that growth “should” be balanced with environmental and social concerns is shown to be an exhortation at best, and is more accurately described as empty rhetoric.¹¹

In all these examples, economic thinking has driven conditions towards continual resource extraction and profit making in favor of other considerations, and there may be a potential structural (rather than ideological/evaluative) basis for this. Fred Block (1977) presents a convincing analysis of the growth obsession of state actors in particular. Block claims that since states require taxes to survive, and individual state actors (politicians) in representative

¹¹ I would argue that those seeking poverty alleviation, sustainability and democracy change tactics, from the elaboration of ever-more normative documents and theories, to the enactment of alternatives that can be monitored, tested, and vetted for their usefulness in achieving the normative goals. If the myriad theories already written and the extent of justice and sustainability rhetoric adopted by dominant institutions were any indication, our achievement of these goals might seem more apparent. Clearly, norms—or the expectation that others should adopt some determined set of norms—are not enough.

democracies require consent of the governed, the tendency of government is towards supporting economic growth above any other value. Yes, the capitalist or owning class may “capture” the state in various ways to achieve its ends, but it doesn’t need to, since all members of the state apparatus must accommodate profit-making in order to satisfy constituents (by maintaining low unemployment), retain and gain higher levels of revenue (by taking in more tax monies), and avoid making enemies with the power elite who can speed their removal from power (by circumscribing very limited parameters for political discourse and action via rhetoric and policy).

2.2. Economism’s relation of the individual to the polity

“Economists hope to avoid reliance on controversial theories of human well-being by defining it in terms of the seemingly uncontroversial good thing of getting what one wants.” (Kelleher, 2012: 2)

Unfortunately, economic thinking moves from the structural and institutional to the individual level (as much as it moves from individuals’ economic actions up, to form and become our institutional values—as is the presumption of economists and market enthusiasts). Transition into a consumer society involves the deification of the individual and family unit, resulting in a reduction of other-considering democratic impulse and more libertarian attitudes to the environment, government intervention, and social responsibility (because in a market society it is more socially acceptable to do socially or environmentally damaging work if it is done in order to feed one’s family). The transition process itself entails the enclosure, erasure, and transformation of commons and public goods, from use values to exchange values. These

commodifications affect individual and community options vis-à-vis forms of livelihood, social relations, and human/non-human interface. The results on society, politics, and culture can also be self-reinforcing, percolating back up from the individual to the societal level, changing how we conceive and do politics. If resources are themselves seen as individualized, zero-sum, and instrumental, so will be the means for societal decision-making about those resources (and this perspective certainly underlies the functioning of interest-group-based democracy).

The reduction of decision-making to a way of getting what one wants or needs in opposition to (or even superseding) the wants or needs of others seems like the antithesis of a functioning polity, yet that is precisely how politics operates in most modern democratic nation-states.

Further, this operation is increasingly couched in terms of the responsibilities of the government to ensure individuals' happiness, equated with economic wellbeing¹². Inasmuch as the economic wellbeing of individuals within a nation constitutes the central arbiter of good policy, and that wellbeing is measured by the growth rate of a country's GDP (as it is in most modern nation-states), policies that sacrifice other values like future generations' right to resources, or equality between polities, are wont to be defended.

While appealing to individual happiness may have a place in determining the course or direction of society (like Bhutan's measurement of "Gross National Happiness" instead of GDP), these personal valuations must be combined and contrasted with (or directly set against) more other-concerning valuations in order for iterative mitigation processes to work well. And in contrast to more extreme perspectives—held by a minority of economists yet associated in the popular mind with Adam Smith and other "free market" economic thinkers—iterative mitigation assumes that

¹² This, of course, contradicts Easterlin's widely accepted hypothesis.

government (in the sense of organized human decision making) *is* an important agent of intervention in the market, and that government *could be* made truly representative of individuals in society, and thus will be a key progenitor of efforts to improve human/non-human relations.

Therefore, when crafting solutions to the decision-making failures of modern nation-states vis-à-vis environmental issues, one must consider ways to transcend the individual in politics, ways to gauge human happiness honestly and effectively, ways to structure and format the state such that its primary directive is to remain representative of deliberated citizen need, and ways to balance the imperatives of contemporary human happiness with the happiness of future generations. To accomplish these, however, requires an assessment of the articulation of our existing capitalist economies with chronic environmental destruction. Only after assessing this articulation (and its relation to existing social choice mechanisms) can we construct alternative modalities that might prove more useful.

2.3. Political-economic bases for environmentally destructive tendencies

If we were to attempt to pin the blame of modern environmental destruction on one primary cause, it might be the prevalence in our economy of capital accumulation. Some refer to capitalism vaguely, or to accumulation more specifically, as the definitive aspect of the world's dominant economic structure. Vandana Shiva (2005) and others (Federici, 2004) have pointed out how incomplete this reckoning is, as it ignores the role of the always present but overlooked economies of nature (the resource base) and the subsistence or household economy (as in all the unpaid social reproductive work done by homemakers and subsistence farmers). For the

purposes of this paper, I define capitalism as the investment of capital (land, money, labor, resources) into a production process in order to return larger amounts of capital to the original investor. What makes capitalism unique and incomparable to other economic frameworks is its tendency towards accumulation. Nature doesn't accumulate, and unlike a person, who can reach a point of economic satisfaction and thus exhibit what is called "satisficing" economic behavior, capitalist firms (generally above a certain size, and with certain organizational structures) tend to exhibit only "maximizing" behaviors. There is a large body of literature on the question of why this is so, from Karl Marx (1867) to Shumpeter (1942), to contemporary analysis of the financial collapse of 2008 (Harvey, 2010), but overall we can point to a handful of general causes and associated conditions.

First is the force and cycle of "first mover advantage": competition pressures push individual firms to constantly seek ways of maximizing profit (by cutting the costs of labor, resources, and land), but over time, any efficiencies created by this process (say, the introduction of labor-saving machinery) are incorporated into the price of whatever commodity this particular industry produces. Though this "first mover" benefits at first from their innovation, the profit rate falls for their industry as a whole, and (as the innovation spreads) their advantage is lost. Then, some firm must repeat the process of moving first in order to re-gain higher profit levels.

Second is the structure of our capital-accumulating industries as incorporated bodies (LLCs, S-Corps, etc), or what we generically call corporations. The entire purpose of incorporation is to envelop some people-based process (like that of producing commodities) under the name of a new entity. That entity is subjected to certain additional relations with government (as in the

chartering process from which corporations emerged), but in general it has many of the rights of a real person but lacks equivalent responsibilities. No one is held personally financially responsible when a corporation is run out of business. Similarly, it is a rare case that someone who is legally tied to a corporation (as part of its board of directors or staff) is held legally or criminally liable for the illegal or criminal actions of the firm itself. The subprime mortgage fiasco of the late 2000s was a prime example, and while the reasons vary for a lack of criminal cases against top executives of negligent or willfully deceitful financial firms, the protection that incorporation law provides is one cause.

Additionally, the dissociative effects of corporate structure are worsened by conditions of stockholder ownership. This condition includes a legally prescribed mandate that a publicly held corporation serve first the interests of its shareholders (i.e. their interest in profit) over other goals, often putting its actions in direct conflict with social responsibility or any attempts to pursue an environmentally and socially conscious “triple bottom line” approach.

Third, we add the geopolitical regulatory context in which corporate firms now operate. The world has long had global trade (Wallerstein, 1974), but modern globalization finds corporations legally based in nation states, but operating transnationally. Beyond the pro-growth dynamic inherent in the nation-state described by Block, transnationalism has further constrained government control over capital flows. Thanks to modern technologies, ease of communication and transport has enabled a vast network of corporate action, regulated with less and less frequency and force by national governments (Harvey, 2007). With increasing political influence and ideological force, proponents of “free markets” have succeeded in directing and dismantling

international regulations through institutions like the World Trade Organization, World Bank, and International Monetary Fund, and multinational trade rules like North American Free Trade Agreement (NAFTA).

These tendencies of modern capitalism lead to breakdowns in environmental health, as seen in the steady dismantling of environmental regulations around the world and the dominance of multinational resource extraction industries in crafting the political framework in which they work¹³. Capitalist exigencies plus this liberalized regulatory context lead inexorably to a "race to the bottom" for the price of commodities, meaning that the lowest possible price will be paid for the labor or resources needed to produce these commodities. (Of course there may be variations in price levels that diverge from a downward trend; the downward trend can be seen in spending on commodities in specific locations by specific capitalist entities, not just macro-condition averages of the diverse, speculation driven world market). The takeaway is that the drive for capital accumulation inherently demands as many externalities as socially and environmentally possible.¹⁴

As investment is primarily considered as a means to produce more capital, commodities produced are almost incidental to the goal of production. Capitalism frames production around needs of abstract capital—not humans or nonhuman nature—so economic decisions (especially of investment) are made via the institutionalized desires to reduce costs and grow which are

¹³ The WTO and IMF have been accused of being unaccountable and directed mainly by corporate interests, and even sympathizers acknowledge this critique has some validity and is cause for concern (Woods & Narlikar, 2001).

¹⁴ Some environmentally-minded economists have developed models and theories positing that externalities may be incorporated into the true price of commodities (that which is paid by consumers), thus bringing about a "socially optimal outcome" where profit-making is balanced with environmental needs. Critiques of this idea argue that it unduly privileges market logic (Norgaard, 1985) and that it may not be achievable with regards to most aspects of market failure (Ayres, 2008).

embedded in large firms. Capitalism, in its drive towards growth and innovation (acknowledged long ago by economist Joseph Schumpeter¹⁵), also tends towards the commodification of everything—including resources held in common by communities or all of humanity. This is evidenced in brand new realms of commodity trade: the sale of human organs, the ownership of genetic sequences, and the privatization of rainwater. The push to marketize “ecosystem services” (Costanza, 1997), evidenced in the emerging market for carbon emissions, follows this logic. Unfortunately, ecosystem service markets, like carbon markets, have not proven to accomplish their purported environmental goals, and have in some cases been considered failures (Buscher, 2012; Böhm, et al, 2012). Part of this is due to the same aforementioned exigencies, and companies will do what they can to profit from these markets, even if their actions don’t actually provide environmental benefits. Though many reforms have been suggested to improve implementation and monitoring of such environmental marketizations to improve their effectiveness, the underlying logic of ecosystem commoditization has yet to proven particularly or clearly helpful.

2.4. Growth: only contradictory to sustainability under capitalism?

“That behavior mode [of the earth] is a steady state—a system that permits qualitative development but not aggregate quantitative growth. Growth is more of the same stuff; development is the same amount of better stuff (or at least different stuff).” (Daly, 2008: 1)

¹⁵ “Capitalism...is by nature a form or method of economic change and not only never is but never can be stationary”. (Schumpeter, 1942, p 82)

Is it necessary to temper or abolish capitalism in order to have sustainable, qualitative-type development in an urbanizing world? Or can values-based decisions supporting environmental health and social sustainability thrive in a circumstance of profit as the “bottom line”? There are two main “sides” of this argument: those that believe capitalism just needs better rules, and those that feel that we cannot solve the problems caused by the market by calling upon the market. But this dichotomy (“green capitalism” versus “anti-capitalism”) is false, like the dichotomies of capitalism and socialism, or free trade and governmental regulation of trade¹⁶. Actions exist to create *more sustainable* economies, whether or not it is possible to reform capitalism to allow for *complete sustainability*; reformulating the rules by which capitalism operates can help mitigate its worst tendencies (Hawken, 1993). Some of the solutions to over-exploitation of resources will likely come from outside the market, in a revival of commons: in addition to solutions that can exist within the current juridical and cultural parameters of private property, solutions to resource use issues (iterative mitigation) can be developed (through democratic deliberation) by those holding or using those resources in common (Ostrom, 1990). These solutions, proffered mostly from the local level, can in turn affect both juridical and cultural frameworks, enabling solutions to scale upwards.

Regardless of the exact form of productive firms in the economy (whether state capitalist as in pre-reform China, stockholder-owned, or owned as worker or consumer cooperatives), the important thing is that these firms' decisions are made within regulatory frameworks that encourage right action and disallow anti- social and anti-ecologic action. Those frameworks, in

¹⁶ The sectors of trade and market-based interactions have never been free of the influence of humanity's various arrangements of political decision-making structures, nor have governing structures been free from the influence of economic circumstances (Ingham, 2008). These interlocking forces have been intellectually teased out into separate worlds, but must be brought back together in order to address the limitations of both.

turn, rely on governmental forms that are accountable to local communities who are negatively affected by anti-social and anti-ecologic action. These governmental forms include decision-making processes that are accessible, deliberative, and democratic, so that these regulatory frameworks are well thought out, appropriate to place, representative of local community interest, and ultimately respect the sovereignty of individuals and communities¹⁷. In the end, these governance contexts (discussed further in section five) may determine sustainability more than whether industrial and economic processes are state-, private-, or worker-run. Each form of political economy has its failures and limitations, and so solutions must stem not just from critiques of these failures but also from lived experiences of mitigating them, case by case.

Section 3: Urbanization

3.1. Urbanization: good or bad?

The human population continues to grow¹⁸, and those new people must live somewhere. It has been reasoned that urban growth is driven not only by population growth, but also its relation to the expanding and changing nature of the global economy (Fischer-Kowalski, 2010). Since the dispossession of people from land-based communities and lifestyles continues, caused in part by consolidated land ownership and the underpayment of farmers for their goods, and rural populations continue migrating to urban locales, motivated in part by urban amenities, mitigating

¹⁷ Of course there are constraints on the usefulness of a local focus. Mohan and Stokke (2000, p 247) argue that “focusing so heavily on ‘the local’ ...[can] underplay both local inequalities and power relations as well as national and transnational economic and political forces”. That is, local empowerment should not be seen as a simple solution to problems that may stem from larger scale forces and contingencies, and efforts to bring democratic control to local communities must be thought out in relation to political processes happening beyond local dynamics.

¹⁸ According to demographer Massimo Livi Bacci, it will reach 9 billion by 2050 (Livi-Bacci, 2007).

humanity's environmental impact will likely be centered around making city life more sustainable. The alternatives—addressing rural dispossessions, migrations, and fertility rates—seem unlikely since so much private, public, and civil society effort is currently directed at promoting growth and urbanity¹⁹.

There are convincing arguments indicating that urban development patterns (as the hallmark of modern agricultural industrial society, and in contrast to hunting and gathering societies) are inherently environmentally taxing and therefore unsustainable (Rees & Wackernagel, 1996). Some evidence for this is found in known city consumption habits—of food, energy, and products (Jones, 1989), the extent of embodied energy in city infrastructure, or the environmental pollution emerging from or traceable to cities (due in part to the historic interpenetration of urban and industrial development). The connection between industrialization, urbanization, environmental resource use, and pollution—a dangerous contention to “modernization” and economic discourses—has become a quietly understood if not relatively well accepted, even by the major international institutions themselves (UNEP, 2011). Even U.S. president Barack Obama lamented in his pre-election 2006 speech how “our continued use of fossil fuels is pushing us to a point of no return”²⁰, indicating his belief in climate change and that its origins lay in processes of industrialization and urbanization.

¹⁹ Efforts to control population have received much funding and attention (Connelly, 2008), but have largely failed. Less common have been attempts to alter cultural and economic conditions that promote high fertility rates and push rural populations to cities. Fertility rates are lowered when the social status of women improves, as indicated by their access to independent income and education. Amartya Sen has argued that the best strategies to combat high fertility are promoting a social safety net and elevating the status of women (Sen, 1994). These goals can easily dovetail with sustainable urban development, and as they are achieved, we will likely see synergies (of qualitative growth) between women's increased role in the economy, smaller family sizes, and lower rates of population growth and consequent migration and urbanization.

²⁰ April 3rd 2006 speech in Chicago, IL.

One example of consumption's damaging reputation would be food. San Francisco's "Foodshed Assessment" (Thompson, et al., 2008) combines statistics of what that city eats (935,000 tons every year) and the known annual production (20 million tons) of various products from the city's surrounding "Foodshed" (10 million acres in all) to produce an amount of what foods the city might be able to source locally (which would be an environmental plus, assuming energy-efficient transportation infrastructure is in place). The report attempts to answer the question: "Could the city of San Francisco feed itself entirely from food produced within 100 miles?" While certainly an interesting question to ask for purposes of regional food *security*, the report's answer, that the city indeed could feed itself (with certain crops, within certain parameters) skirts tougher questions of larger food production *sustainability*, as it looks at San Francisco's consumption (and California's production) in isolation, out of its actual global context. Even if San Francisco eats only 1/20th of what its hinterlands produce, the question remains, where does the other 95% go? In California's case, that food goes around the world. Should that food be redirected to serve local populations first (as local and sustainable food activists often argue), it begs the question: from where would California's export consumers source that missing sustenance?

This indicates the tenacity of the argument that cities are inalterably unsustainable, for even when proving that a relocalized food economy could begin to serve urban communities with greater percentages of sustainably-farmed, less-shipped products, one is challenged by the notion that even in this "more sustainable" model the city remains in the role of the taker of life produced by the rural, and that this taking comes necessarily at the expense of some other

population of potential consumers. This indicates how “a prerequisite for sustainable cities is sustainable use of the global hinterland (Rees & Wackernagel, 1996: 236)”.

Environmental and social critiques of urbanity’s failings go partially together, historically. They emerged from 19th century upper class concerns for the preservation of a wilderness landscape that didn’t truly exist (unless you removed from consideration the native peoples who inhabited and managed the landscape long before European arrival), and from racialized fears of uncivilized masses of poor gathered together by industry into city centers, who needed to be assimilated and civilized lest they organize politically or drag down society with their (African, Irish, Eastern European, and “Other”) cultures (Cronon, 1995). Cities as places of crime, danger, and bad people; cities as “un-environmental” places fundamentally opposed to a “nature” that exists only in landscapes empty of human economies: these are the narratives that still propel arguments against the city as potentially environmentally or socially sustainable.

However, there is an increasing incidence of writing that proclaims urban spaces as less damaging than we think, and more hopeful than we assume (Norman, et al, 2006; Madlener & Sunak, 2011). Books like David Owen’s *Green Metropolis* (2010) use relatively simple arguments about *per capita* resource use to show that anti-city prejudices are misguided and unfounded (should we be searching for “sustainability” in human settlements). At its most basic, the argument pits rural and suburban lifestyles of the developed world (where automobility is central to most life tasks, and distance between household units requires substantial investment in infrastructural elements) against their urban counterparts (where density confers potentialities of transportation efficiencies and by design reduces per-capita costs for infrastructural elements).

In this model, total resource use increases more drastically with suburban growth than urban growth. If we define urbanity by minimum population densities, we can reasonably argue that urban spaces hold more promise for absorbing expanding populations with minimized additional environmental impact than low-density exurban or suburban developments (Keilman, 2003). Policies can be implemented which encourage urban infill and appropriate densities, and discourage sprawling, low density developments. Considering especially the trend of population growth, authors like Owen and Keilman see cities as hopeful in consolidating human inhabitation, lessening the overall planetary impact of population growth, achieving efficiencies of scale and proximity, and aiding the development of more sustainable technologies.

The crucial fact about sustainability is that it is not a micro phenomenon: there can be no such thing as a “sustainable” house, office building, or household appliance, for the same reason that there can be no such thing as a one-person democracy or single-company economy. Every house, office building, and appliance, no matter where its power comes from or how many of its parts were made from soybeans, is just a single small element in a civilization-wide network of deeply interdependent relationships, and it’s the network, not the individual constituents, on which our future depends. Sustainability is a context, not a gadget or a technology. This is the reason that dense cities set such a critical example: they prove that it’s possible to arrange large human populations in ways that are inherently less wasteful and destructive. (Owen, 2010: 40)

It is clear that cities, by the fact that they concentrate human metabolic activity (in all its essential and frivolous iterations), entail use of environmental resources and (to the inverse degree of the development of toxic-free technologies) some pollution. It is equally clear that, in comparison to other potential geographical forms of human settlement, cities provide environmentally benefits. They also may provide a benefit of amplifying human capital by bringing diverse agents together: as cities concentrate large numbers of people into small places, they also concentrate the knowledge, financial, social and institutional resources required for

sustainability-oriented innovations. This captures the dilemma of cities for sustainability: they drive the global unsustainable use of resources, but they are also where the greatest potential exists for sustainability-oriented innovations. (UNEP, 2011: 45)

While advocates continue to argue for and against urbanization as a means towards achieving environmental sustainability, unequal power dynamics within and between urban constituencies, and even more prevalent inequities of power between urban and rural populations, continue to present barriers to the elaboration of specific initiatives that could protect or restore the environment. It is to these challenges I now turn, indicating that (regardless of one's position on the debate of urbanity) their confrontation by society may be more crucial to long term sustainability than efforts to promote or fight urbanization.

3.2. Power dynamics and their relation to urban environmental impact

Environmental justice as a concept has been used to uncover how populations with less social or political power (often, stemming from membership in a marginalized status category) tend to have had lower levels of recourse for change in issues of environmental pollution. Conversely, communities with political voice can achieve much greater mitigation of environmental and social breakdowns. This concept entered academic, policy-making, and public discussion by the early 1990s, when various urban constituents (like residents of San Francisco's Bay View/Hunters Point neighborhood, located near polluted ex-Naval yards) and rural constituents (like the Navajo of New Mexico, threatened with nuclear waste disposal on their sacred sites) created a fabric of critique from threads of their diverse subjections to environmental pollution.

Though the “environmental justice” frame has been critiqued as too simplistic in certain instances (Ishiyama & TallBear, 2001), the overall tactic of looking at power relations in cases of environmental inequity is quite useful. In the case of issues of city life vis-à-vis the environment, it is illuminating to examine who has what (the locations of power) by seeing who gets what (the results of power). Here, I use a political ecology approach (Robbins, 2012) of identifying where resources are extracted, where they end up being consumed, and where the polluting aspects of these processes leave their mark, to posit that, counterfactually, in the absence of such power differentials, environmentally minded efforts improving our use of rural resources would achieve quicker and wider traction.

Within cities, there are manifest examples of environmental racism and classism (Beaulac, et al, 2009; Bullard & Johnson, 2000; Pastor, et al, 2001; Davis, 1999). Between cities and their rural base exist similar power dynamics. The booming capitalist engine of U.S. growth in the late 19th century relied on increasing amounts of product from the rural hinterland; power elites in the cities directed the yoking of the “wild west” to the benefit of increasing numbers of the urban middle class, while those who earned their living away from the cities suffered isolation, poverty, and difficulty. This was even more evident during the great 1930s dust bowls of the United States (Worster, 2004). Worster, an environmental historian, shows how the imperatives of growing capitalism and the inability of the state to effectively or intelligently intervene led to the over-exploitation of the soil and the impoverishment of many. Homesteaders who may have been considered lucky to access such fertile land for free were actually caught up in an economic bind: producing the most grain possible when prices were so low entailed using a promoted model of production that was ill suited for dry, western climates. Like the later “pesticide

treadmill” (Altieri & Nicholls, 1997) that trapped post-“Green Revolution” farmers, dust bowl farmers required capital to purchase mechanized farming equipment, which indebted them to urban bankers and equipment peddlers. When prices fell out from under them, and production declined due to diminishing returns from overexploited soils, farmers were left destitute, by and large abandoning all farming efforts (until it once more became economically possible).

There are also more recent examples for this trend of destruction as the result of unequal power relations between populations regarding resource use (or between pollution makers and populations subject to pollution). For instance, the proposed raising of California’s Shasta dam, which will effectively destroy the cultural identity of the Winnemem Wintu tribe (Garret, 2009). This instance echoes the common story heard around the world of dams displacing indigenous populations and decimating their once-vital natural resources (Leslie, 2005). Sadly, though the rights of the indigenous have been “protected” by covenant 169 of the UN’s International Labor Organization (requiring “consultation” wherever governments desire to develop natural resources of indigenous areas), these rights are often denied in practice. If these rights were authentic and enforced, the world’s many environmentally damaging dam projects would likely find greater difficulty reaching completion.

Power relations that compound environmental conditions can be analyzed even when a clear perpetrator-victim connection is lacking²¹. One example is “non-point source” pollution of nitrogen runoff from dairy manure: this pollution accumulates in watersheds like the Mississippi delta from thousands of individual dairies’ manure piles, creating dead zones of anoxic water off

²¹ Analyzing these situations will be especially helpful in trying to deal with the complex dynamics of our interdependent economy, where each resource’s trajectory is so diffuse and difficult to track.

the delta coast. The milk from these dairies is consumed predominately in suburban and urban areas, where populations are concentrated, and each dairy only contributes a portion of the problem. The problem is cumulative, dispersed, and can be traced back to the consumption habits of many, while the effects (in the main, decimating fisheries and aquatic food webs) are equally cumulative, dispersed and traced to the consumption habits of many. Dairying has been one of the most challenged agricultural sectors in the U.S., with a recent history of bankruptcies, price fluctuations, and industry consolidation. The trend, like elsewhere, is to get big or get out, and in that context the manure piles are simply inevitable (a smaller farm might be able to find an outlet for this output but for larger operations the volume makes this difficult). To blame either the dairy farmer (who is paid so little for her product) or the consumer (who pays what seems like a lot for it) for this unfortunate externality seems unfair. The profit, as in so much of in U.S. agriculture, goes to merchants of technologies and inputs, middlemen and marketers who produce nothing but exchanges, and the finance interests who make such required scale and growth at all possible.

Rural environmental problems are often seen by rural residents to be economic problems, as those residents' livelihood tends to be more intimately tied up with the natural world. Negative environmental changes, made against the wishes of rural populations, can often result from urban political dominance. This can be seen across the developed and developing worlds, in case studies of indigenous groups forced to accept resource exploitation by outside (profit making) interests (Peluso, 1992)²², hydraulic fracturing in the farmlands of Pennsylvania, or the effects of industrial pollution on farmers in rural Futian, China (Tilt, 2010). Dispossession from land and

²² Peluso's work reminds us that these interests might not always be multinational corporations: the state itself can use its power to position itself as the main beneficiary of natural resource exploitation.

denial of meaningful voice in decisions around land use are the main results of urban/rural power dynamics. Often, a rural population is subjected to anti-environmental development to suit the needs of urban consumers, even when the rural population has a legal “right” to a resource or to a clean environment. As has pointed out by Ribot and Peluso (2003), the difference between *stated rights* to a resource and *meaningful access* to it is as important as the stated rights themselves. This has been shown in examples like the Marlin mine in Guatemala where the UN-recognized “right to consultation” of indigenous groups has proven toothless when opposed to the power of multinational extractive corporations over government officials and their police and military forces (Joyce, et al, 2010). In the case of Marlin, indigenous groups opposed to the mine have failed to prevent the project through legal channels and were even physically attacked by local forces in the course of their demonstrations.

Water availability for farmers in the central valley of California might be cut by court decisions mandating use of upstream water for the creation of endangered fish species habitat (Kimmerer, 2008), or it might be constrained by increases in water demand from urbanizing areas. Though the external outcomes may vary (in favor of the environment in the first case, and with no positive difference in the second), the effects on farmers remain to them perceived in economic terms, and the origins of these decisions are still traced back to powerful urban constituents. Though much can be said for agribusiness’s general command over the state’s regulatory power (see the later discussion on genetically modified organisms), its hegemony seems called into question in the case of California’s water politics when other urbanized constituents are considered.

David Schlosberg (1992) develops Environmental Justice further, in the direction I am advocating, incorporating *recognition*, whereby marginalized groups are recognized as such and as having the right to be recognized as a cultural group (as the previously mentioned UN documents intend to acknowledge); *distribution*, whereby the redistribution of wealth improves justice; and *participation*, whereby greater accessibility to meaningful participation in democratic processes improves outcomes for environmental policy. Schlosberg argues that “a thorough notion of global environmental justice needs to be locally grounded, theoretically broad, and plural–encompassing recognition, distribution, and participation. (ibid: 102)” This notion of justice is important to implement in all instances of environmental policy, not just those effecting ostensibly marginalized groups. In section five, I will sketch out directions towards this implementation, through the development, expansion, and institutionalization of deliberative democracy.

3.3. Cities *can* grow without compromising sustainability

Theoretically, urban growth can occur while a society’s overall resource use and impact remain the same. This would entail that people in these new and expanding cities are using resources more efficiently (decoupling the creation of the products and services necessary for society from resource use)²³, that ecological agriculture systems are thriving in close proximity to population concentrations, that renewable natural resources are stewarded, that technologies are developed which reduce or eliminate pollution, and that use of non-renewable resources is constantly

²³ Unfortunately, there is not much information on how this actually happens. For example, why do some firms spend so much on research and development (which can aid decoupling) while others do not at all? What are the incentives and conditions helpful to developing decoupling? This is an important area for further research.

diminishing. These goals are not impossible, but they do require massive shifts in investment towards innovative technologies and effective policies to adjust the economic playing field to encourage the adoption and spread of these technologies. This, in turn, requires the ascendancy of mass deliberated choice over elite-controlled representation; deliberative democracy is more likely to push these shifts than the status quo for social choice.

3.4. Urbanization in the developing world

To some degree, the urban question is most crucial to the developing world, as populations there are growing fast than those in developed nations (most of which have already passed through the “demographic transition” from high to low fertility and mortality rates [Livi Bacci, 2007]). The rise of “slums”, sometimes referred to as “informal settlements” (AlSayyad 1993), has amplified concern for the poor’s impact on urban development. Older theoretic frameworks of informal settlers as “marginal” or criminal have been gradually replaced with new frameworks emphasizing the self-help and local scale organizational aspects of informal settlement formation and evolution (Turner, 1977)²⁴. Seen as having agency, and as capable contributors to both the informal and formal economic sectors, informal settlers are now gaining self-respect, property rights, and political power. These developments, though fraught with complications²⁵, generally

²⁴ This process, curiously, is paralleled by a transition from an explicitly anti-communist state-led modernization theory of the post WWII era, which emphasized the importance of a strong state in defending private property and constructing economy-boosting infrastructure, towards an emphasis on promoting trade liberalization as the driver of growth from the 1970s on. In the absence or dismantling of the State’s role in providing a minimum quality of life for its citizens came the contracting out to NGOs of social welfare provision, including the provision of housing. This articulated perfectly with Turner’s self-help ideal.

²⁵ For example, though some see it as *the* solution to problem of poverty stemming from informality (De Soto, 2000), the effect of legalization of land titles varies in its effects (Parsa, 2011 and Durand-Lasserve, 2006). New political power, as well, may emerge from the grassroots and serve the real interests of the community base, but may also be an outcome of patronage relationships, opportunistic local political figures, or ethnic segmentation (Işık and Pınarcıoğlu, 2008) Some (Burgess, 1982) claim that Turner’s emphasis on the local is an application of neoliberal

have led to greater service availability and quality of life. Their effects on the environment, however, are unknown. While informal settlements can have less environmental impact per capita than other urban developments (McGranahan, 2007) their construction materials (cement, metal, wood) are still connected with larger commodity flows, and as such throughput is indexed to increases in construction. International groups like Habitat for Humanity, along with urban planners and architects, have been aiding local communities in developing least-cost, high-decoupling strategies for housing construction. These physical solutions, when combined with a collaborative and accessible municipal government, an empowered and cohesive local grassroots community, and financial investment in infrastructure by government, can do wonders for both social and environmental sustainability.

One example of this process comes from Mumbai, where an informal slum has been given the right to redevelop itself, as a housing cooperative, with the aid of governments and NGOs (Mukhija, 2006). Maintaining density while improving livability and economic productivity, this model could be replicated in informal housing of a similar nature and (with more research into the dynamics of new versus established informal housing communities) could possibly be used to create new settlements where needed.

3.5. Elements of sustainable city development

ideals to the problematics of informal housing: instead of addressing the inequalities of resource access (effects of economic structure which engender the necessity of informality) these solutions put the responsibility for better conditions on the settlers themselves. In addition, the solutions proffered solidify dominant capitalist relations of production and distribution, as in the commodification of housing, the privatization of land title, and the driving down of wages for workers due to the increased burden they bear for social reproduction.

With foresight, technological “leapfrogging” can occur; less-developed countries can “skip some of the dirty stages of development experienced by industrialized countries” (UNEP, 2011: 42) by quickly embracing ecological development and technologies. Due to the lack of infrastructure in developing countries, this may be easier than shifting directions in the developed world, which is constrained by the embodied energy and momentum of its current, unsustainable technological infrastructure. Helpful dispersion of new technologies, products, and techniques is made even more possible by speedy communication, transportation, and information flows. “Open Source Appropriate Technology” (OSAT) especially holds promise in providing communities with low-cost, accessible solutions to their infrastructural and technological needs, whether in the realm of agriculture, computing, production, reproduction, or transportation (Pearce, 2012). OSAT requires a reversal of current legal trends towards the expansion of intellectual property rights, putting its success in direct competition with certain kinds of profit making. Nonetheless, open source has succeeded in many parts of the world, as evidenced by software like *Linux* and *Firefox*, and its continued success and expansion merely requires international trade policy to accommodate “creative commons” approaches to property law.

Public transportation is a pivotal part of a less resource demanding multimodal urban transportation system. Because it relies on certain minimum population densities to function economically, public transportation requires tighter clusters of settlement. Transit-oriented development (TOD) is a new approach to achieving that density while retaining a human scale, as one part of a suite of techniques for planners that can be gathered under the name “New Urbanism”. New Urbanism, according to the website www.newurbanism.org, consists of planning cities for walkability, connectivity, mixed-use and diversity, mixed housing, quality

architecture, and traditional neighborhood structure. Combined with community-based planning and social programs (especially in areas of poverty), TOD and New Urbanist approaches can help cities remain dense but livable. A prime example of transportation planning that considered environmental, economic, and social conditions is Curitiba, Brazil's *BRT*, an efficient and widespread bus system that operates alongside private vehicles and is partially supported by revenues from a recycling-for-bus-token program (Schwartz, 2004 and Macedo, 2004).

The collection of rainwater can decrease urban populations' reliance on imported water (which often comes from dammed watersheds, altered at the expense of river and estuary ecosystems), especially when implemented at both household and larger scales. Low-impact development (LID) is a new approach to urban water management that challenges conventional, harmful, and expensive strategies that treat storm water as a problem, rather than an asset. Using techniques like bio-retention of water, permeable pavers, tree box planters, and disconnected downspouts, LID can conserve water in the urban landscape, reduce water usage for landscaping, reduce runoff management costs, replenish local aquifers, and save money for local governments and property developers.

Local food systems (composed of ecologically-focused farms and well-developed distribution systems at appropriate scales) can reduce water and fuel usage and soil loss, while creating sustainable livelihoods and abundant sustenance, and preserving ecosystem services rendered by agricultural land (Keller & Brummer, 2002). Since so many urban sites are located adjacent bodies of water, fresh and saline, "restoration aquaculture" may become a strategy for mitigating pollution and producing useful products. Recent reports have shown the ability of banana peels

to filter heavy metals (Castro, et al, 2011) and the ability of shellfish to filter particulate matter (Rice, 1999). The appearance and rapid spread of non-native but edible seaweed species in San Francisco bay provides additional promise that certain invasive species problems may in fact be solutions, as all of the above factors can be combined in a systemic fashion to produce food and fertilizer from bays, rivers, and estuaries (seaweed and shellfish shells are both useful in organic agriculture), while improving water quality over time²⁶.

Using the wastes from one industrial process as the feedstock for another, it is possible to reduce and reuse materials flows—what is sometimes termed “industrial ecology” (Garner, 1995). Similarly, urban ecological systems, with linked flows of resources, people, and wastes, can be redesigned to mitigate impacts and increase efficiencies. Individual products can be designed “cradle to cradle” (McDonough & Braungart, 2002) instead of “cradle to grave”, saving material resources throughout the entire lifecycle of the product. Production processes can in general be designed to use less inputs and produce less “waste” as outputs.

All the above examples are but a surface level examination of the physical and technological changes and developments possible to contribute to iterative mitigation of sustainability issues, intended to show that not all is hopeless on the urban front. However, the more important developments are those of political economy, as the circumscription of decisions that the structures of political economy create determine whether the required physical and technological solutions can or cannot find footholds. In turn, creating a political economy attuned to the needs

²⁶ Restoration aquaculture can be considered a larger version of “aquaponics”, where fish are raised in water tanks, and their wastewater is provided as fertilizer to plants grown in an aquaculture; the plants generate food for both humans and the fish; plant residue left over from crop production can be composted for heat and to grow further food for fish (worms); the result is a highly productive and almost input-free system.

of people and the environment requires more accountable (not growth-driven) forms of government. Governmental accountability in the era of the nation state sometimes requires the presence of a mass social movement capable of forcing state concessions²⁷. In the absence or suppression of such movements, activists often put their efforts elsewhere. As discussed further in section five, many efforts have gone into civil society or “non-governmental” organizations (NGOs). These efforts have attempted to alleviate conditions of failed social choice mechanisms, to various degrees of success (in fact, many of these above mentioned solutions developed out of the work of NGOs), and their decentralized, autonomous character has both aided and stymied them in these efforts. This paper suggests that a conscious decentralization of political power to urban consumers as well as rural producers would emulate this existing transfer of governance function from state to civil society. If tied to increasing amounts of deliberation and suffused into existing government bodies, this decentralization of power would result in more spaces for iterative mitigation, greater accountability of government and increased civic culture, and a refined regulation of economic activities that is less encumbered by economistic priorities.

Urban places have a special role to play in the creation of a new social choice mechanism, and thus a new political economy. Being the center of political, economic, and cultural capital, and the catalyst of environmental despoliation, urban populations must be part of reconciling their needs with the needs of the hinterlands. After the next section’s case studies of nation-state forms of environmental decision-making, I will explore hopeful elements of new political decision-making forms that move towards democratic deliberation in the service of iterative mitigation.

²⁷ Frances Fox Piven and Richard Flacks cover the particular situation of the USA in their work, arguing that it is only by the force of mass social movements that substantial changes to the social contract have been made. Some of the best examples of this literature are Flacks, 1988 and Piven, 2006.

Section 4: Case studies of the USA, Brazil, and China

4.1. United States of America

In the United States of America, sustainability has emerged as a challenge for conventional economic prioritization. Presidents since Jimmy Carter have bemoaned our use and dependence on fossil fuels, while Rachel Carson, Love Canal, and the first Earth Day—contributing factors in the development and passage of the Clean Air, Clean Water, and Endangered Species acts—put the U.S. at the front of environmental regulation. Since that time, government-based efforts to support environmental ends have increasingly followed the neoliberal turn in the economy, reflecting the underlying economic values of both government and industry.

Over the past 40 years, regulations have been ignored or consciously rolled back by regularized forms of corruption: legislative councils like ALEC craft policies from corporate priorities and implement them through legislators beholden to campaign contributions; a “revolving door” between business and regulatory agencies has flattened any potential value differences between the two sectors; and even when environment serving initiatives do survive through the legislative process, they are litigated against and attacked by all means possible by corporations and their elite managers²⁸. Meanwhile, business leaders were developing the concept of “Corporate Social Responsibility” (CSR) and taking on the rhetoric of sustainability whilst remaining dedicated foremost to profit. CSR is seen by its promoters as a way to prevent environmental damage by incorporating into the corporation’s fabric and structure efforts to increase efficiencies and

²⁸ See for example how AB32, California’s 2006 legislation intending reduce carbon emissions, was fought by the energy industry through litigation and an initiative to repeal it which was placed on the ballot in 2010. See also (Piven, 2012) for a critique of ALEC.

reduce pollution. Ideally, this results in a monetary savings for the firm as well. This is the ideal espoused by Paul Hawken and other “natural capitalism” enthusiasts. CSR’s detractors maintain that it disguises wrongdoing with a veneer of care and commitment to values other than profit, and that when choices between care and profit must be made, the structure of the firm (as discussed in section two) will mandate prioritizing the latter. The ideal of “win-win” solutions, where making environmental choices leads to higher profits, has been found more elusive than available (Ayers, 2008: 289).

The most recent playing out of CSR’s compatibility with economism is found in the concept of a “green economy”. By this concept, the redesign of society is directed towards replacement of unsustainable technologies with “green” ones, within an otherwise unchanged capitalist growth economy. This idea saw its greatest promotion from within the international institution circuit at the 2012 UN Conference on Sustainable Development. There, dominant world powers and their delegates pushed for a green but capitalist economy, while those left out of the conference’s discussions (per usual, many NGOs, citizens groups, and indigenous people were refused entry as delegates) criticized the “green economy” as mere “green-washing” (see Pearsall, et al, 2012; Unmüßig, et al, 2012). Biofuels were one specific example of such undesirable “green economy” initiatives.

Biofuels are fuels derived from new biota rather than fossilized biota, usually from corn and soy in temperate regions and sugarcane and jatropha in equatorial regions. The U.S. government promotes the development of such fuels, ostensibly to reduce reliance on fossil fuels; yet many energetic studies show that more calories are required to produce a given amount of biofuel than

the caloric value they provide (see Houtart & Wallerstein, 2009; Graffy, 2012: 519-525). By financially subsidizing this “solution” to the problem of fossil fuel use, governments like the U.S. are promoting an expansion of agriculture into as-yet unexploited areas, the conversion of food producing agriculture to fuel producing agriculture (resulting in world food price spikes as was seen in 2009), and the continuation of a patently unsustainable transportation model centered around the individual combustion engine-driven vehicle.

Similarly, Genetically Modified Organisms (GMOs) are promoted as contributing to equality and sustainability, when their real effects are very likely the opposite. GMOs pose novel potential threats to the environment and consumers, and they contribute to already existing threats to the environment and agricultural producers. These threats can be described as follows: herbicide- and pesticide-resistant GMOs have been found to lead to increased pesticide use, and to the evolution of input-resistant “super-bugs” and “super-weeds”. The introduction of GMOs into the ecosystem may have potential deleterious effects on the genetic diversity of our major (non-GMO) food crops. GMOs, as they come part and parcel with industrial agriculture models of production, contribute to the “get-big-or-get-out” consolidation of agriculture worldwide, aiding the replacement of small-scale locally focused production with export-based agribusiness. Finally, health damages from GMO-containing foods have yet to be discounted, even though there is uncertainty as to the extent of this damage. Knowing all this, it would seem that GMOs fail the “three-legged stool” test, even on its own terms. Yet political and economic leaders in the United States (like Barack Obama’s appointee to head the USDA, Tom Vilsack, or Microsoft’s Bill Gates, highly regarded for his GMO-promoting philanthropic efforts in Africa) continue to push GMOs, using language of “sustainability” and “equity”. The reason for this seems apparent:

GMOs are a source of private profit, and hence potential economic growth, but to convince others of the importance of their adoption requires appealing rhetorically to the other legs of the stool (Shiva, et al, 2011).

4.2. China

An analogous process, whereby conventional economism is dressed up in environmental clothes, is occurring in China. Uneven geographic economic development in China has led many members of the ruling communist party to look at the impoverishment of the western portion of the country as imperative to remedy. Reliant on many of the west's resources, the eastern seaboard holds almost all political power; pushed to relinquish some of the benefits of economic development to rural populations, China has within the last 15 years embarked on its own version of "sustainable development" for its neglected west. This is known as "ecological modernization". Yeh (2009) offers a political ecology critique of this conventional view of China's megaprojects in the west. Instead of providing evidence for "eco-rational modernity, in which environmental improvement and economic growth are intertwined in a virtuous, mutually reinforcing circle", these tree-planting and grazing land management schemes are "more productively understood as a set of discursive practices that authorize differential interventions...rework the relationship between different categories of citizens and the state, and produce subjects, whose desires may or may not align with those desired by state institutions". In other words, these interventions may not be about achieving the social and economic components of the three-legged stool, as much as they are about consolidating state power,

producing Chinese subjects out of the myriad ethnic groups of the west, and improving the state's image as an environmental actor.

Another case study from China is presented in *The Struggle for Sustainability in Rural China* (Tilt, 2010). The book examines the history of environmentally polluting (and tax revenue-generating) industry in the rural town of Futian. Futian's industry's transition through the economic liberalization of the 1970s onwards from state- to privately-owned entailed a change in Futian's socio-political ecology. The relationships amongst the local, regional, and state governments, their respective regulatory agencies, the media, and civil society have been transformed. According to Tilt, the need for China's single Communist Party (CCP) to maintain its power has influenced its longstanding focus on rapid economic growth. This has shifted over the past twenty years to a discourse on ecological modernization. While criticism of the Party's contribution to local pollution was once intolerable, post-transition private ownership of factories (and with the concurrent development of environmental state agencies) has allowed citizen groups, informed by a more critical and open media, to make claims of environmental injustice and seek reparations. Farmers whose lands were destroyed by industry in particular organized for environmental rights. Meanwhile, Futian's local government responded negatively to higher levels of government regulation, since the shuttering of their industry resulted in a steep drop in tax revenue. Farming, they argued, was not enough to achieve the social betterment goals of "warm [house] and full [stomach]". This local example plays out the essential disjunction (especially in the poorer parts of the world) between economic development and environmental protection.

The increasing numbers and stature of Chinese environmental NGOs have also played a part in China's movement towards environmental recognition, though the NGOs' role in achieving ecological modernization is problematic to a CCP so concerned with losing power. While the government remains concerned foremost with economic growth and political stability, its need to "save face" in relation to increasing environmental disquiet amongst the public has forced it to concede that there is a problem with the environmental situation, promise to do something about this via various policies and proclamations, and allow a certain amount of civil society environmental activism (but not so much as to compromise the CCP's tight control of dissent). A read of Tilt's case study or any of the more general treatments of China's environmental governance landscape like Elizabeth Economy's *The River Runs Black* gives credence to the contention that only when state or economic power is challenged by masses from below do elites respond with concessions, and even then, those concessions are limited by the needs of the state to continue to pursue economic growth.

4.3. Brazil

Brazil has led the so-called "emerging" economies with an odd mix of socialist and industrialist policies that support the equity pillar of the three-legged stool while prioritizing economic growth. Part of this dynamic is the role of international debt, which has kept Brazil in search of foreign currency (as opposed to pursuing internal non-economic societal health, which is clearly of interest to many politicians and members of the state apparatus). Brazil continues developing industrialized agroexports as a means towards debt payment, subsidizing the sector and supporting it with development policies like road construction. And while Brazil's development

policies are known to be contributing to the degradation of rural agricultural land and the destruction of the Amazon²⁹, negative environmental impacts on rural demographics are seemingly countered by policies that support for the urban and rural poor. Some of these policies show elements of “permaculture” thinking as they create synergies by “stacking functions”: for instance, the national School Meals program procures its produce from local, small family farms while providing free meals to the poorest of city children (Rocha, 2009: 58).

Brazil’s Landless Peasants Movement (MST by their Portuguese acronym) has been pushing for broad agrarian reform since the 1980s, when they began to occupy large acreage “latifundios” owned by the country’s wealthy to create agroecological farm settlements for the landless poor. Using a constitutional statute as its basis for legal legitimacy, the MST’s land occupation tactic has led to the settlement of 370,000 families on over 17.2 million acres of land (Wright & Wolford, 2003) and a great rethinking of the relationship between the agricultural economy and the social distribution of wealth. With the election of Luiz Inacio Lula de Silva, a leftist union leader with the Workers Party, it was believed that agrarian reform would benefit from a key ally in the presidency. However, as predicted by Wright and Wolford, “the government’s focus on [large-scale, highly capital intensive, export-oriented agricultural policies] is likely to continue given that Brazil depends heavily on agricultural exports for the foreign currency to finance its debt payments. (ibid: 431)”. Looking back on the past 10 years of the de Silva presidency, we see that indeed agroexports continued to play a role in Brazil’s economic expansion and debt pay-down, but authentic efforts to alleviate urban and rural social conditions were also pursued. There are many potential readings of this, including a cynical assumption that the state only

²⁹ The construction of Belo Monte Dam, pushed by the last two Brazilian presidential administrations, is threatening to displace thousands of indigenous people and destroy millions of acres of biodiverse habitat.

responded to the great needs of the great many in order to ensure its own survival, aware that insurrectionary movements tend to emerge more readily in times of massive inequality.

However, there are other, more hopeful explanations. One simple consideration is that the Brazilian government is large and multi-faceted, and due to its diversity of scales and levels of corruption acts in favor of different interests in different places and at different times. Another aspect is the large role of social movement pressure (like that exerted by the MST) in Brazilian politics. Lastly, civil society organizations have succeeded in “challenging the long-held, dichotomous view of a world shaped by only markets and states (Rocha, 2009: 59)” and—through their relative incorporation into the governance strategies and philosophies of politicians like De Silva—have actually altered the functioning and shape of government, not just its policies.

The success of the socialist Workers Party in winning elections and implementing participatory government initiatives and the presence of social movements continuously pushing an agrarian reform agenda thus complicates a uniformly economic read of Brazil’s policies. Though the state has occasionally conceded to peasant citizens in response to their militant movements, the continued ability of international finance institutions to demand certain policies of the ostensibly democratic state has proven more powerful in total than the counter-power of semi-legitimated non-governmental social movements. It also indicates that the promotion of economism as a belief system is largely irrelevant (since clearly many members of the ruling Workers Party prefer equity to economism). In Brazil, land ownership remains amongst the most concentrated of the world’s nations, agricultural production remains predominantly industrial, and the rural poor remain more often subjects of formal political power than agents of it (for example, in 2009

the MST almost had its self-constructed school system shuttered due to the ire of a newly-elected conservative governor of the state of Rio Grande do Sul).

4.4. Case study conclusions

These short examples illustrate the power of the economic growth imperative for nation-state governments, and the relative unyielding nature of government programs and economic structures to that imperative. Social movements, while not emphasized in this paper, have been shown to be tempering forces on state myopia that nonetheless have limits in the changes they can achieve and retain. While it is essential for sustainability-seeking to inform nation-state policy—as much as is possible given these constraints—it is just as incumbent to supplement the nation-state form with alternative avenues for social choices to be made, within and across communities, regions, and nations. In the case of Brazil, we see the state, supported and prodded by social movements and civil society, beginning to loosen its command of its policies and regulations not just in the service of the market and deregulation, but in collaboration with civil society and through true decentralization.

Based on research into decentralization of resource management decision-making and the recent history of environmental “New Social Movements”, the next (and last) section will argue that a re-localization of political power, along with a networking of civil society and municipalities into larger deliberative bodies that interact with existing state, national, and international government institutions, would most benefit sustainability. The limits to localism as a panacea for either democratic or sustainable development will be raised, however, as crucial realities for “localists”

to consider. Ultimately, what makes a difference is not an exact location along the local/large-scale spectrum but the extent and quality of deliberation and that deliberation's resulting effects on power dynamics and institutional values. This quality and those outcomes, in turn, rely on the acknowledgement and addressing of initial power inequities between participating stakeholder groups, practiced principles of maximal inclusion, the tempering of value-neutral scientific language and the technocratic mindset with an acknowledgement of uncertainty and the need for humility, and seeking social sanctions when governmental sanctions prove inadequate—and vice versa.

Section 5: Solutions

5.1. Localized, deliberative alternatives to nation-state economism

In their book, *The Local Politics of Global Sustainability*, Herman Daly, Thomas Prugh, and Robert Costanza outline their belief that to achieve global sustainability will require the development first of “strong democracy”. Strong democracy is evident in real world examples: watershed councils, citizen juries, conferences that bring together scientists and lay people on important issues that face their region or country as a whole, or in participatory budgeting processes being developed in places like Vallejo, California and Porto Alegre, Brazil. These are some of the instances that the authors propose expanding and developing as quickly as possible, to create a more involved citizenry who are likely to be the most responsible decision makers when dealing with very locally-based issues. Ultimately, even if environmental issues are

increasingly conceived of as global in nature, their effects are felt locally, and so (the authors argue) will the solutions by necessity be local.

Richard Norgaard is another thinker whose work bolsters conviction that decentralization, deliberation, and plurality-based consensus building are better ways towards sustainability than a physical, technological, or economic approach. Having been involved in the Intergovernmental Panel on Climate Change (IPCC), Norgaard also sees the benefit of international science panels as contributors to “strong democracy”, inasmuch as such efforts are not limited by elite interests and are able to address the value concerns of the scientists and citizens involved. The “coevolutionary” process he describes holds uncertainty as guiding principle, similarly to iterative mitigation (Norgaard, 1994). We don’t know and won’t know everything, but from what we do know, and from the values we can identify and defend in relation to others, we can coevolve (between the natural and social worlds) a new way of being on the planet that is less destructive to cultural or biological diversity.

Norgaard reminds us “we have no formal process by which [our specialized society’s] dispersed knowledge is assembled into an understanding of the whole to inform collective action.”

(Norgaard in Kellert & Speth, 2009: 49). As such, what we require is a way of assembling that knowledge, and wider, deeper deliberation offers such a way. Deliberation in this form is wider in that it is practiced beyond just state contexts: in the workplace, at school, in civil society, and at the boundaries in interactions between these elements of society. It is deeper in that deliberation focuses on argument towards building consensus, assembling knowledge, and

enlarging loyalties, not just the instrumental achievement of particular interests that inheres in election-centered representational democracies.

This deliberation may also improve feedback mechanisms to society, for our current models negatively mediate, obstruct, and deconstruct the connection between our economies (ways of extracting and utilizing resources to achieve use values) and the feedbacks the natural world gives us pertaining to that process. Coevolution of pre-agricultural societies supported nature-regarding actions, as destructive acts were apparent in their destruction, quickly and to whom it mattered. With the diffuse, dispersed effects of the global resource economy, attention must be paid not just to what destruction occurs, but to whom it matters, and from whom it originates. And we must encourage processes that bring these populations together, in venues that flatten power differentials, to discuss and debate solutions to their mutual predicament.

“Decentralized Natural Resource Management” (DNRM) is one such process-based reform, and is the subject of Jesse Ribot’s analysis in *Waiting for Democracy* (2004). Here, Ribot examines the trend in international aid projects towards rhetoric and implementation of decentralization, localization, and democratization of decision-making, in particular in regards to natural resource use. Usually, the subjects of these efforts are agrarian and indigenous populations, mostly considered to be “poor” or otherwise part of the “underdeveloped” world. Ribot provides an important analysis of how iterative mitigation would work on the ground in these contexts, and brings up equally important barriers and challenges to such efforts. One such challenge is committing to subsidiarity (the principle of local primacy) while allowing some development of “minimal standards” delimiting environmental management decisions made on a local level.

Acknowledging that local decisions do not *automatically* correlate to better outcomes, Ribot and other DNRM enthusiasts have been working towards workable methods for identifying justifiable limits to local resource decisions.

In addition to this challenge, there is the difficulty of implementing DNRM when so many contingent power inequities inhere in markets, governments, civil society and local communities themselves. These inequities can complicate DNRM reforms, especially when external forces pressure local actors to act in ways they wouldn't otherwise. Ribot (ibid: 9) also warns of the difference between privatization and decentralization, since many reforms being made under the DNRM name are actually forms of privatization of resources, and result in even greater social and ecological problems. The difference between decentralization and privatization, Ribot argues, is the presence and direction of accountability and the extent of actual discretion given to local democratically elected authorities. Here we see reflections of Peluso's "theory of access" discussed earlier.

Other authors have focused on efforts to reform regulatory processes in established interest group democracies like the United States. Deliberative democracy is conceived as part of a new regulatory policy-making process in *Beyond Backyard Environmentalism* (Sabel, et al., 2000). "Rolling-rule regulation" is the innovative idea; working from the idea that centralized mandates rarely succeed, the authors promote a process of "cooperative, participatory, flexible, and decentralized (ibid: 55)" locally-driven information collection and rule-making, iterating and corresponding with similar processes around the country. In this model, the government's role is mostly one of consolidating local solutions to influence larger scale standards.

The choices offered in American policy are often equally unappealing and unrealistic: unfettered markets operating with no social standards, or public hierarchies commanding our behavior. The kind of regulation proposed here suggests that we can have both standards and flexibility, common norms and local experimentation in how we achieve them. (ibid: xi)

The book, luckily, also offers pointed critiques of its lead authors' model, showing its limitations and encouraging us to consider an approach that synthesizes the model with its critiques. One such critique is that governments provide the "stick" that make such "carrot" approaches (wherein polluting companies themselves are involved in the rule-making process) work; without the threat of enforced government action, this liberalized approach is more an abdication of the essential role of democratic government than a replacement for it. Additionally, asking citizens to participate in these developments, without compensation and alongside highly-paid corporate representatives and scientific experts, imbues the process from the outset with unequal power relations, and asks much of citizens while essentially empowering non-citizen participants in the process. We must also wonder about participants in *any* regulatory process: "who will anoint them, what incentives and resources [will they] have to participate constructively, and how [will] their performance be assessed (ibid: 79)"?

Also of concern is what could prevent a "race to the bottom" for local areas that prioritize economic activity over environmental protection (as was the case in Futian). Some of the improvements proffered in the critical section of *Beyond Backyard Environmentalism* included governmental sunshine (information about any regulatory process being widely available), citizen oversight over negotiations (whereby civil society groups have ultimate veto power over compromises developed by government and industry), and inclusion in the process of "hard-to-represent" interests (like future generations of effected populations), perhaps by proxies.

Meynen and Doornbos (in Ribot & Larson, 2005: 250) conclude their meta-analysis of DNRM by emphasizing the importance of addressing preexisting inequalities amongst members of the policy making process, and the importance of ensuring adequate financial and judicial powers to local decentralized bodies. Beyond these local issues, the authors remind us (as did the Brazilian case study) that extra-national forces (like debt, capitalist investment, or the interventions of international institutions) can counter the success of DNRM by influencing the processes of mechanism and standard formation, and in promoting inauthentic decentralizations that result in privatization or consolidated state control over resources.

Considering these challenges (and regardless of whether the social choice contexts are developed, underdeveloped or undeveloped nations, rural or urban areas, poor or rich populations, or at local or broad scales), decentralized democratic deliberation remains a hopeful possibility, and a key to well directed and functional iterative mitigation.

5.2. New Social Movements and civil society in deliberative reforms

The decades of the 1960s and 1970s saw the worldwide creation of “New Social Movements”. This literal term hides much complexity, as the many movements to which the designation is assigned were and are diverse in origins, organization, function, and effects. Yet they were all “new”, in that they focused not on changing state policy towards general economic wellbeing (like so many workers’ movements prior), but on specific issues like peace; women’s, ethnic, and colonial liberation; and ecological health. After few wins and so many losses in confronting

entrenched powers, many NSMs lost much of whatever national electoral-political focus they might have once had. Later NSMs (of the 80s and 90s) included anti-nuclear, open source/free software, and anti-eviction movements, and were even less state-focused and even more expressly autonomous and grassroots. The 1994 Zapatista uprising in Chiapas, Mexico helped define the *newest* of social movements (as outlined in Day, 2005) by declaring war with poetry and guns made of wood, and building power from below with democracy so deliberate that even Zapatista supporters have complained of its pace in making decisions for and as a community. Zapatista communities operate by consensus, led by rotating-membership councils, and all members of the community (even children) are allowed to participate in deliberation.

Though not monolithic, NSMs have generally not focused on achieving state power. They have eschewed vanguardism, preferring identity politics and the power of the direct personal act. Together, the approach of NSMs has been to find space for political change in the personal (with individuality as basis for rights or recognition) and the universal (with global humanity requiring a global citizenship), not the state or the party. In a way, NSMs both anticipated and followed the retrenchment of the nation-state. First, they predicted the neoliberal turn by consolidating the obviousness of the falsity of nation-state-led “progress” and reflecting the power of the state as ossified and unyielding, convincing an activist to turn her efforts elsewhere, but also convincing citizens to disengage, distrust, and give up on government. Ronald Reagan, the neoliberal clincher of the U.S., was elected president on a wave of disillusionment with government’s ability to address the issues of the day.

The “NGOization” of the NSMs occurred as available philanthropic interest combined with activist interest in “doing well by doing good” to provide individuals livelihoods via projects with a social welfare component. It was hard enough for activist citizens to get the government to accommodate desires for liberation, equality, or sustainability. It was harder still (and remains uncommon) for activists to see NGOs as replacements for initiatives that a responsive government once might have been expected to spearhead, once movements had morphed, economic conditions had changed, and livelihoods were tied up with what some call the “Non-profit Industrial Complex” (Incite, 2007).

This trend away from the state can be seen positively, as an assertion of the right to a more direct democracy, but it can also be seen as a sign of giving up on the ideal of collective self-governance. The state cannot be left to its own devices by social movements and NGOs, and the effects of such coevolutionary, grassroots efforts will be multiplied if interpenetrated with state forms of organization. The more the state can participate in this coevolution, the more expansive and effective it will be for a goal of sustainability. Ultimately, there can be no to-scale replacement for the nation-state system until greater capacities for democratic deliberation, self-governance, and functional inter-regional federation are developed, and this is bound to take some time (just as the iterative mitigation processes to which these developments would contribute will not emerge quickly or arrive in complete, all-encompassing form).

Instead of “romanticist views that pin all their hopes on resurgent civil societies (Heller, 2001: 159)”, we need to see how exactly civil society and government forms can and do work together. “Movement character”—which is “messy, nonlinear, and driven by distinctly conflictual

processes (ibid: 157)” and which stems from mass participation and direct, vigorous relation to the state—is what determines whether civil society-based efforts at decentralization work. That is, decentralization must not be approached as just “institutional redesign”. As Heller puts it

Because of [its] movement character, [Porto Alegre’s] popular budgeting benefited from constant negotiation and renegotiation of methods and goals, and thus captured many of the synergies that can result from blending the institutional capacities of the state and the associational resources of civil society. ... The synergies that can result from a state’s partnership with social movements can be summarized in several dynamics: engaged and sustained state-society negotiations in which conflict is carefully accommodated creates new associational incentives and spaces, it allows for a continuous and dynamic process of institutional learning, it promotes deliberation and informed compromise over zero-sum interest bargaining, it helps promote innovative solutions to the classic tensions between representation and participation, and it bridges the knowledge and authority gap between technocratic expertise and local involvement. (ibid: 158-159)

In the end, grassroots democratic impulses are only “given life and successfully scaled up [when they are] underwritten by a political project and given state support. (ibid: 158)”

5.3. Enlarging loyalties via deliberative democracy

We can find in philosopher Richard Rorty’s vision for how human rights might be achieved³⁰ a parallel to the process of democratic deliberation for iterative mitigation of environmental problems. Rorty asks us to conceive of “justice” as an expansion of loyalty, a transition to “thin” moral precepts that encompass more subjects, from “thick” lived experiences of existing relationships and loyalties. The main way this is accomplished, Rorty argues, is through collaborative problem solving. The book *Are We Born Racist?* (Marsh, et al, 2010) agrees. It tells of how prejudices are put to the test when someone with prejudice has to work on a problem

³⁰ In the essay “Justice as a Larger Loyalty” (Rorty, 2007), the author tackles human rights from a position that appreciates the postmodern condition of difference that problematizes attempts at a universalizing moral discourse, like that of the Universal Declaration on Human Rights.

with someone who is part of the prejudiced group: having to switch cognitively from seeing this person in terms of their membership as an “Other” to seeing them as an ally, without whom one’s goal cannot be achieved, one begins to see this member of the Other with an expanded loyalty. Eventually, cognitive dissonance makes it increasingly difficult to maintain conflicting beliefs—partly thought and partly lived through experience—and so prejudices break down. If deliberation plays more of a role in more peoples’ lives, in the service of solving problems of society (including environmental ones), it would seem that deliberation could aid this “enlargement of loyalty”.

The authors referenced in this section present the importance of a pragmatic commitment to expanding loyalties wherever and however possible, for humanistic reasons, but also to further global environmental sustainability. While it is difficult to make a case for novel social choice structures (considering the lack of many examples and empirical evidence exhibiting many challenges to what examples do exist), the process of enlarging loyalties, and of seeing others as necessary partners in the construction of a better functioning world, is clearly operational in many instances of decentralizing democratic deliberation efforts worldwide—and holds potential for expansion. If anything, the lack of examples only serves as further evidence of a need to secure a greater commitment of time and resources to such initiatives, to create a better understanding of how to improve its functioning and secure desired outcomes, and to develop the deliberative democratic culture that makes such initiatives more and more feasible, and less and less unknown.

5.4. Conclusion

Thomas Malthus continues to haunt the thinking around resource use with a theory of population-resource dynamics that can be indefinitely extended and never fully disproved (Malthus, 1798). Resource depletion can always happen, at “some point later on”, but there is no surefire way to know when that point is. So focusing efforts on difficult-to-define goals like achieving “sustainability” may result in a perpetual trudge towards an unknown destination.

Knowing what we know about the complexities of defining and measuring sustainability’s physical components, and acknowledging the limits to nation-state based technocratic approaches to the regulation of environmental issues that stem from economic processes, we must begin in crafting solutions to sustainability by looking at the role of values. That is, perhaps the focus on physical sustainability of natural resource use should begin on the other end of sustainability—the human end. Efficiency provides an example: advocates like Hunter Lovins emphasize the importance of increasing efficiencies in all things, from appliances to automobiles and industrial processes (Lovins & Cohen, 2011, chapter 2). But how does efficiency as a goal fit within our societies’ overall human values? Efficiency can reduce resource use intensiveness per unit of output, while still demeaning human dignity (witness the working conditions that emerged with the Fordist assembly line). If policy-making processes purely focus on physical efficiency of resource use, it could easily result in the displacement of exploitation from the natural world to people.

As individuals, people do not often express desires for an efficient marriage or an efficient family. A more holistic, values-based approach to policy-making might help more than simple

numerical efficiency³¹. An example of this can be found in sustainable agriculture, which has been equated with farming done at smaller scales (Delind and Howard, 2008). If smaller scale is more truly environmentally sustainable, more physical workers will be needed to work on these farms, in ways that might not be as efficient in terms of labor time as huge mechanized farms. Small scale, non-chemical-fertilizer-based farming has been shown to be more productive than industrial farming in terms of calorie input to calorie output (Altieri & Nichols, 2005), but considering labor costs, these farms can become less efficient economically—one reason why sustainable foods tend to cost more. If values-based deliberation holds the bottom line as environmental health, treatment of workers, a fair living for farmers, health of consumers, and longevity of the farming system as well, small scale becomes a more obvious choice (Keller & Brummer, 2002).

Ultimately, physical sustainability may not be the best framework for approaching policies to environmental issues; this is not to say that we should ignore environmental deterioration, but that it may be more effective to focus on the development of better policy-making processes for both social and environmental ends. New mechanisms for social choice are more likely to lead to policies that decouple use value from resource use (and that *de-marketize* as opposed to *increasingly* marketize use values), create equity and quality of life for humans by reducing poverty and inequality, and bring about a political-economic context where people have viable economic choices that are progressively less environmentally destructive. These social choice mechanisms will require a process by which communities and stakeholder groups identify what

³¹ Especially considering the Jevons paradox, which challenges notions that efficiency itself can solve the problem of sustainability by positing that increases in efficiency, by cheapening the cost of the product or process, tend to result in increased use of that product or process, resulting in even more resource use than before the efficiencies were introduced. See (Alcott, 2005).

quality of life means and what its enactment demands. This renewed ability to co-create values and norms towards sustainability will be incomplete, however, if not accompanied by a political process that better translates collective desires for the prioritization of environmental issues into regulatory regimes that are not subject to the whims of the economic drives of politicians and capitalist institutions.

Resource use is fundamentally associated with the economic choices available to individuals, firms, and societies. A subsistence farmer unable to subsist without deforesting their surroundings can be said to be living unsustainably, as is a city resident whose lifestyle requires the deforestation of other countries' forests. The drivers of harm to environments can be traced back to economic structures within which economic choices (to cut down a tree or plant one; to buy old growth forest products or those harvested with ecological consideration) are or are not available. How much the environment is prioritized in relation to social and economic goals, which social and economic choices lead to better environmental outcomes, and how to change underlying institutional and value structures to enable those choices: these are the central questions for deliberation around sustainability, and the keys to creating a more sustainable world society.

References

- Alcott, B. "Jevons' paradox." *Ecological Economics*, 54, (2005): 9-21.
- AlSaiyyad, N. "Squatting and Culture: A Comparative Analysis of Informal Developments in Latin America and the Middle East." *Habitat International*, 17, no. 1 (1993): 33-44.
- Altieri M., & Nichols, C. *Agroecology and the search for a truly sustainable agriculture*. D.F., Mexico: UNEP, 2005.
- Altieri, M.A, and Clara Nicholls. "Conventional agriculture development models and the persistence of the pesticide treadmill in Latin America." *International Journal of Sustainable Development World Ecology*, 4, (1997): 93-111.
- Ayres, R. U. "Sustainability economics: Where do we stand?" *Ecological Economics*, 67, no. 2 (2008): 281-310.
- Baber, W. F., and R. V. Bartlett. *Deliberative Environmental Politics: Democracy and Ecological Rationality*. Cambridge: MIT Press, 2005.
- Beaulac J., E. Kristjansson., and S. Cummins. "A systematic review of food deserts, 1966-2007." *Preventing Chronic Disease* 6, no. 3 (2009).
http://www.cdc.gov/pcd/issues/2009/jul/08_0163.htm. Accessed [11/30/2012].
- Block, Fred. "The ruling class does not rule: Notes on the Marxist theory of the state." *Socialist Revolution*, 33, (1977): 6-28.
- Böhm, S., Misoczky, M.C., and Sandra Moog. "Greening Capitalism? A Marxist critique of carbon markets." *Organization Studies*, 33, (2012): 1431-1450.
- Bookchin, Murray. *The Limits of the City*. Montreal: Black Rose Books, 1986.
- Brundtland, G. H, et al. "Our Common Future, Report of the World Commission on Environment and Development, World Commission on Environment and Development." Published as Annex to General Assembly document A/42/427, 1987.
- Bullard, R. D. and Johnson, G. S. "Environmentalism and Public Policy: Environmental Justice: Grassroots Activism and Its Impact on Public Policy Decision Making." *Journal of Social Issues* 56, (2000): 555–578. DOI: 10.1111/0022-4537.00184
- Burgess, R. "Self-Help Housing Advocacy: A Curious Form of Radicalism. A Critique of the Work of John F. C. Turner." In *Self Help Housing: A Critique*, edited by P. Ward, 55-97. London: Mansell, 1982.

- Buscher, B. "Payments for Ecosystem Services as Neoliberal Conservation: (Re)interpreting Evidence from the Maloti-Drakensberg, South Africa." *Conservation and Society* 10, no. 1 (2012): 29-41.
- Castro, R. "Banana Peel Applied to the Solid Phase Extraction of Copper and Lead from River Water: Preconcentration of Metal Ions with a Fruit Waste." *American Chemical Society's Industrial Engineering Chemistry Research*, Vol. 50, (2011): 2446-2451.
- Chowdhury, R.R., and E.F. Moran. "Turning the curve: A critical review of Kuznets approaches." *Applied Geography*, 32, (2012): 3-11.
- Connelly, Michael. *Fatal Misconception*. Cambridge, MA: Harvard University Press, 2008.
- Costanza, Robert. "The value of the world's ecosystem services and natural capital." *Nature* 387, (1997): 253-260.
- Cronon, William. "The trouble with wilderness: or, getting back to the wrong nature." In *Uncommon Ground: Rethinking the Human Place in Nature*, edited by William Cronon. 69-90. New York: W. W. Norton & Co., 1995.
- Cronon, William. *Nature's Metropolis: Chicago and the Great West*. New York: W.W. Norton and Company, 1991.
- Dagget, Dan. *Gardeners of Eden: Rediscovering our importance to nature*. Santa Barbara, CA: Thatcher Charitable Trust, 2005.
- Daly, Hermann. E. "Economics in a full world." *Scientific American*, Vol. 293 (Issue 3), 2005.
- Daly, H. E. "A steady state economy." *Sustainable Development Commission of the UK*. 2008. http://www.sd-commission.org.uk/data/files/publications/Herman_Daly_thinkpiece.pdf
- Davis, Mike. "The case for letting Malibu burn", in *Ecology of Fear: Los Angeles and the Imagination of Disaster*. New York: Vintage, 1999.
- Day, R.F. *Gramsci is Dead: Anarchist Currents in the Newest Social Movements*. London: Pluto Press, 2005.
- DeLind, L. B., and P. H. Howard. "Safe at any scale? Food scares, food regulation, and scaled alternatives." *Agriculture and Human Values* 25, (2008): 301-317.
- De Soto, H. *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books, 2000.
- Domhoff, William. *Who rules America? Challenges to corporate and class domination*. (6 ed.). McGraw-Hill, 2009.

- Dryzek, John. *Rational Ecology: Environment and Political Economy*. New York: Basil Blackwell, 1987.
- Durand-Lasserve, A. "Informal Settlements and the Millennium Development Goals: Global Policy Debates on Property Ownership and Security of Tenure." *Global Urban Development* 2, no. 1 (2006).
- Easterlin, Richard, et al. "The happiness-income paradox revisited." *Proceedings of the National Academy of Sciences of the United States of America*, 107, no. 52 (2010): 22463-22468.
- Economy, Elizabeth. *The River Runs Black*. Ithaca, NY: Cornell University Press, 2010.
- Ester, Peter, Vinkin, H., Simoes, S., and Midori Aoyagi-Usui. *Culture and sustainability: A cross-national study of cultural diversity and environmental priorities among mass publics and decision makers*. Amsterdam: Dutch University Press, 2003.
- Federici, Silvia. "The Accumulation of Labor and the Degradation of Women: Constructing 'Difference' in the 'Transition to Capitalism'." In *Caliban and the Witch: Women, the Body and Primitive Accumulation*. New York: Autonomedia, 2004.
- Fischer-Kowalski, M. "Globalizing patterns of natural resource use in relation to human development." *Institute of Social Ecology*, Vienna Alpen Adria University, 2010.
- Flacks, R. *Making History: The American Left and the American Mind*. New York: Columbia University Press, 1988.
- Foster, J. B. *Ecology Against Capitalism*. New York, NY: Monthly Review Press, 2002.
- Garner, A, et al. *Industrial ecology: An introduction*. Ann Arbor, MI: University of Michigan, National Pollution Prevention Center for Higher Education, 1995.
- Garret, B. L. "Drowned memories: The submerged places of the Winnemem Wintu." *Archeologies: Journal of the World Archeological Congress*, 2009.
- Graffy, E. Agrarian Ideals, Sustainability Ethics, and US Policy: A Critique for Practitioners. *Journal of Agriculture and Environmental Ethics*, 25, (2012): 503-528.
- Greenspan, Alan. Interview with Alan Greenspan. ABC News, ABC News Video. April 4, 2010. Available at <http://abcnews.go.com/ThisWeek/video/interview-alan-greenspan-10281612>
- "Growth." *Apple Dictionary Application*. Version 2.1.3 (80.4).
- Hardoy, J., Mitlin, D., and D. Satterthwaite. *Environmental problems in an urbanizing world*. London, UK: Earthscan Publications, 2001.

- Harvey, David. "Population, resources, and the ideology of science." *Economic Geography* 50, no. 3 (1974): 256-277. Accessible at: <http://www.jstor.org/stable/142863>
- Harvey, D. *A Brief History of Neoliberalism*. New York, NY: Oxford University Press US, 2007.
- Harvey, D. *The Enigma of Capital and the Crises of Capitalism*. New York, NY: Oxford University Press US, 2010.
- Hawkin, Paul. *The Ecology of Commerce*. New York: HarperCollins Publishers, 1993.
- Hecht, J. "Can indicators and accounts really measure sustainability? Considerations for the U.S. Environmental Protection Agency." Paper presented Dec 2, 2005. Available at www.epa.gov/sustainability/pdfs/hecht-epa-ord-paper.pdf
- Heller, P. "Moving the state: The politics of democratic decentralization in Kerala, South Africa, and Porto Alegre." *Politics and Society* 29, no. 1 (2001): 131-163.
- Houtart, F. and Immanuel Wallerstein. *Agrofuels: Big Profits, Ruined Lives, and Ecological Destruction*. New York: Pluto Press, 2009.
- Incite! Women of Color Against Violence (Eds.). *The Revolution Will Not Be Funded: Beyond the Non-Profit Industrial Complex*. Cambridge, MA: South End Press, 2007.
- Ingham, G. *Capitalism*. Cambridge, UK: Polity Press, 2008.
- Ishiyama, N, and K. TallBear. "Changing notions of environmental justice in the decision to host a nuclear fuel storage facility on the Skull Valley Goshute reservation." Paper presented at *Waste Management Symposia*, session 51, 2001.
- Işık, O., and M. Pınarcıoğlu. "Not Only Helpless but also Hopeless: Changing Dynamics of Urban Poverty in Turkey, the Case of Sultanbeyli, Istanbul." *European Planning Studies* 16, no. 10 (2008): 1353-1369.
- Johnston, J., Gismondi, M., and Goodman, J. (Eds.). *Nature's Revenge: Reclaiming Sustainability in an Age of Corporate Globalization*. Ontario, Canada: Broadview Press, 2006.
- Jones, D.W. "Urbanization and Energy Use In Economic Development." *The Energy Journal* 10, no. 4 (1989): 29-44.
- Joyce, S., Cabrera, M. Huamani, G., and L. Lipsett. *Human Rights Assessment of Goldcorp's Marlin Mine*. Prepared by On Common Ground Consultants, 2010; Available at <http://www.hria-guatemala.com/>
- Keilman, N. "The threat of small households." *Nature* 421, (2003): 489-490.

- Kelleher, J.P. "Energy Policy and the Social Discount Rate". *Ethics, Policy and Environment* 15, no. 1 (2012).
- Keller, D. R., and E. C. Brummer. "Putting Food Production in Context: Toward a Postmechanistic Agricultural Ethic." *BioScience* 52, no. 3 (2002): 264-271.
- Kellert, S. R., and J.G. Speth. (Eds.). *The Coming Transformation: Values to Sustain Human and Natural Communities*. New Haven, CT: Yale School of Forestry & Environmental Studies Publications, 2009.
- Kimmerer, W. J. "Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta." *San Francisco Estuary and Watershed Science* 6, no. 2 (2008).
- Kollmuss A. and J. Agyeman. "Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?" *Environmental Education Research* 8, no. 3 (2002): 239-260.
- Leichenko, R. M. and W. D. Solecki. "Exporting the American dream: the globalization of suburban consumption landscapes." *Regional Studies* 39 (2005): 241-253.
- Lenzen, M., Wier, M., Cohen, C., Hayami, H., Pachauri, S., and R. Schaeffer. "A comparative multivariate analysis of household energy requirements in Australia, Brazil, Denmark, India and Japan." *Energy*, 31 (2006): 181-207.
- Leslie, J. *Deep Water: The Epic Struggle over Dams, Displaced People, and the Environment*. New York: Farrar, Straus and Giroux, 2005.
- Livi Bacci, M. *A Concise History of World Population*. Malden, MA: Blackwell Publishing, 2007.
- Lovins, H., and B. Cohen. *Climate capitalism*. New York: Hill and Wang Publishers, 2011.
- Macedo, J. "City Profile: Curitiba." *Cities* 21, No. 6 (2004): 543-549.
- Madlener, R., and Yasin Sunak. "Impacts of urbanization on urban structures and energy demand: What can we learn for urban energy planning and urbanization management?" *Sustainable Cities and Society* 1, no. 1 (2011): 45-53.
- Magdoff, F., and J. B. Foster. *What Every Environmentalist Needs to Know About Capitalism*. New York: Monthly Review Press, 2011.
- Malthus, T. *An Essay on the Principle of Population*. London (1798); available at esp.org/books/malthus/population/malthus.pdf

- Marsh, J., Mendoza-Denton, R., and Jeremy Adam Smith. (Eds). *Are We Born Racist? New Insights from Neuroscience and Positive Psychology*. Boston, MA: Beacon Press, 2010.
- Marx, Karl. *Capital: Volume I*. New York: Vintage Books, 1977 (1867).
- McDonough, W. and M. Braungart. *Cradle to Cradle: Remaking the Way we Make Things*. New York: North Point Press, 2002.
- McGranahan, G. "Urban Transitions and the Spatial Displacement of Environmental Burdens." In *Scaling Urban Environmental Challenges*, edited by G. McGranahan and P. Marcotullio, 18-45. London: Earthscan, 2007.
- Meynen, W, and Martin Doornbos. "Decentralizing Natural Resource Management: A recipe for sustainability and equity?" In *Democratic Decentralization Through a Natural Resource Lens*, edited by Jesse Ribot and Anne M. Larson, 235-254. London: Routledge, 2005.
- MEA (Millennium Ecosystem Assessment). "Ecosystems and Human Well-being: Synthesis." Washington, DC: Island Press, 2005.
- Mohan, G., and K. Stokke. "Participatory Development and Empowerment: The Dangers of Localism", *Third World Quarterly* 21, no. 2 (2000): 247-268.
- Mollison, B. *Permaculture: A Designer's Manual*. Sisters Creek, Australia: Tagari Publications, 1988.
- Morikawa, Masayuki (2012). "Population density and efficiency in energy consumption: An empirical analysis of service establishments." *Energy Economics* 34, no. 5 (2012): 1617-1622.
- Mukhija, V. "Property Readjustment and a Tenants' Cooperative in Mumbai." *Environment and Planning* 38, (2006): 2157-2171.
- New Urbanism. Retrieved June 25, 2011 from <http://www.newurbanism.org/>
- Norgaard, Richard B. "Environmental economics: An evolutionary critique and a plea for pluralism." *Journal of Environmental Economics and Management* 12, no. 4 (1985): 382-394.
- Norgaard, R.B. *Development Betrayed, the End of Progress and a Coevolutionary Revisioning of the Future*. London, England: Routledge, 1994.
- Norgaard, R.B. "A Coevolutionary perspective of ecological civilization." Presented for the *Fourth International Symposium on Ecological Civilization*: May, 2010. Claremont, California. Available at http://neweconomicsinstitute.org/webfm_send/23

- Norman, J., MacLean, H., and C. Kennedy, "Comparing High and Low Residential Density: Life-Cycle Analysis of Energy Use and Greenhouse Gas Emissions." *Journal for Urban Planning and Development* 132, no. 1 (2006): 10–21.
- Ostrom, Elinor. *Governing the Commons: the Evolution of Institutions for Collective Action*. New York: Cambridge University Press, 1990.
- Paavola, J. "Interdependence, pluralism, and globalisation: implications for environmental governance." In *Environmental Values in a Globalising World: Nature, justice, and governance* edited by J. Paavola, and I. Lowe, 143-158. New York: Routledge, 2005.
- Parsa, A, et al. "Impact of formalisation of property rights in informal settlements: Evidence from Dar es Salaam city." *Land Use Policy* 28, no. 4 (2011): 695-705.
- Pastor, M., Sadd, J. and J. Hipp. "Which Came First? Toxic Facilities, Minority Move-In, and Environmental Justice." *Journal of Urban Affairs* 23 (2001): 1–21.
DOI: 10.1111/0735-2166.00072
- Pearce, J. "The case for open source appropriate technology." *Environment, Development, and Sustainability* 14, no. 1 (2012): 1-7. DOI: 10.1007/s10668-012-9337-9
- Pearsall, H., Pierce, J., and Robert Krueger. "Whither Rio+20?: Demanding a politics and practice of socially just sustainability." *Local Environment: The International Journal of Justice and Sustainability* 17, no. 9 (2012): 935-941.
- Peluso, Nancy. *Rich Forests, Poor People: Resource Control and Resistance in Java*. Berkeley: University of California Press, 1992.
- Piven, Francis Fox. *Challenging Authority: How Ordinary People Change America*. Lanham, MD: Rowman & Littlefield Publishers, 2006.
- Piven, F.F. "Beating back the corporate attack." *New Political Science* 34 (2012): 81-90.
- Prugh, T., Costanza, R., and Herman Daly. *The Local Politics of Global Sustainability*. Washington, DC: Island Press, 2000.
- Rastow, W.W. *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge University Press, 1960.
- Rees, W. and Mathis Wackernagel. "Urban ecological footprints: why cities cannot be sustainable and why they are a key to sustainability." *Environmental Impact Assessment Review* 16 (2006): 223-248.
- Ribot, Jesse. *Waiting for Democracy: The Politics of Choice in Natural Resource Decentralization*. Washington, DC: World Resources Institute, 2004.

- Ribot, Jesse, and Nancy Peluso. "A Theory of Access" *Rural Sociology* 68, no. 2 (2003): 153-181.
- Ribot, J., and A. M. Larson. *Democratic Decentralization through a Natural Resource Lens*. New York: Routledge, 2005.
- Rice, M.A. "Control of eutrophication by bivalves: Filtration of particulates and removal of nitrogen through harvest of rapidly growing stocks." *Journal of Shellfish Research* 18, (1999): 275.
- Riley, J. *Rising life expectancies: A global history*. Cambridge, U.K: Cambridge University Press, 2001.
- Robbins, P. *Political Ecology: A Critical Introduction*. West Sussex, UK: John Wiley & Sons, 2012.
- Rocha, C. "Developments in National Policies for Food and Nutrition Security in Brazil." *Development Policy Review* 27 (2009): 51–66. DOI: 10.1111/j.1467-7679.2009.00435.x
- Rorty, Richard. "Justice as Larger Loyalty" in *Philosophy as Cultural Politics: Philosophical Papers, Vol. 4*. Cambridge: Cambridge University Press, 2007.
- Sabel, C., Fung, A., and B. Karkkainen. *Beyond Backyard Environmentalism*. Boston: Beacon Press, 2000.
- Satterthwaite, D. "The links between poverty and the environment in urban areas of Africa, Asia, and Latin America." *The American Academy of Political and Social Science* 590, no. 73 (2003). DOI: 10.1177/0002716203257095
- Savory, Alan. *Holistic Management*. Washington, DC: Island Press, 1988.
- Savory, A. "Holistic Resource Management: a conceptual framework for ecologically-sound economic modeling." *Ecological Economics* 3 (1991): 181-191.
- Sayre, Nathan. "Lecture on Carrying Capacity. *University of California Food and Environment Podcast*. March 15, 2011. Podcast retrieved from http://webcast.berkeley.edu/course_details_new.php?=2011-B-36469&semesterid=2011-B
- Schumpeter, J. *Capitalism, Socialism, and Democracy*. New York: HarperCollins, 1942.
- Sen, Amartya. "Population: delusion and reality." *New York Times Review of Books* 41, no. 15 (1994).
- Shiva, V. *Earth Democracy: Justice, Sustainability, and Peace*. Cambridge, MA: South End Press, 2005.

- Shiva, V., Barker, D., and Caroline Lockhart. *The GMO Emperor Has No Clothes: Synthesis Report*. India: Navdanya International, 2011.
- Smil, Vaclav. *Feeding the World: A Challenge for the Twenty-First Century*. Boston: MIT Press, 2001.
- Tao, J. "Relational resonance with nature: The Confucian vision." In *Environmental Values in a Globalising World: Nature, Justice, and Governance* edited by J. Paavola and I. Lowe, 66-79. New York: Routledge, 2005.
- Thompson, E., Harper, A. M., and S. Kraus. *Think Globally, Eat Locally: San Francisco Foodshed Assessment*. SAGE Publications/American Farmland Trust, 2008.
- Tilt, B. *The Struggle for Sustainability in Rural China: Environmental Values and Civil Society*. New York: Columbia University Press, 2010.
- Turner, J. *Housing by People*. New York: Pantheon Books, 1977.
- UNEP (United Nations Environment Program). "Decoupling natural resource use and environmental impacts from economic growth; A report of the Working Group on Decoupling to the International Resource Panel." By Fischer-Kowalski, M., Swilling, M., von Weizsäcker, E.U., Ren, Y., Moriguchi, Y., Crane, W., Krausmann, F., Eisenmenger, N., Giljum, S., Hennicke, P., and P. Romero Lankao, 2011.
- UNFPA (United Nations Population Fund). "State of world population: Unleashing the potential of urban growth." Released in 2007. Available at http://www.unfpa.org/public/publications/search_pubs/swpreports
- Unmüßig, B., Sachs, W., and Thomas Fatheuer. *Critique of the Green Economy: Toward Social and Environmental Equity*. Berlin, Germany: Heinrich Böll Foundation, 2012.
- Van der Bergh, J., & Verbruggen, H. "Spatial sustainability, trade and indicators: an evaluation of the 'ecological footprint'." *Ecological Economics* 29, no. 1 (1999): 61–72.
- Wackernagel, M., and W. Rees. "Perceptual and structural barriers to investing in natural capital: Economics from an ecological footprint perspective." *Ecological Economics* 20, (1997): 3–24.
- Wallerstein, I. *The modern world-system, Vol. I: Capitalist agriculture and the origins of the European world-economy in the sixteenth century*. New York/London: Academic Press, 1974.
- Wickboldt, A. "Growing Clean? Property Rights, Economic Growth, and the Environment." In *Mapping Sustainability: Knowledge e-Networking and the Value Chain*, edited by N. Choucri, 277–300. Springer, 2007.

Woods, N., and A. Narlikar. *Governance and the limits of accountability: the WTO, the IMF, and the World Bank*. Oxford, UK: Blackwell Publishing, 2001.

Wright, A. and Wendy Wolford. *To Inherit the Earth: The landless movement and the struggle for a new Brazil*. Oakland: Food First Books, 2003.

Yeh, Emily T. "Greening Western China: A critical view." *Geoforum* 40 (2009): 884-894.