

THE BASIS OF LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED) AS A
MODEL ENVIRONMENTAL GOVERNANCE MECHANISM

By

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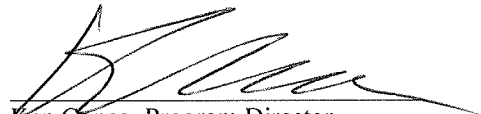
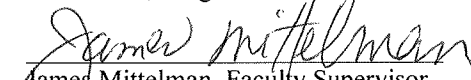
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DEDICATION

For Jessica, Jacob, Mom and Dad; for your boundless, limitless support in my life
through the peaks and valleys, in tempest and tranquility.

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ABSTRACT

In light of emergent global environmental challenges, this project explores the extent to which the Leadership in Energy and Environmental Design (LEED) green building rating system is a model environmental governance mechanism. Through an assessment of LEED and U.S. Green Building Council linkages to the environmental movement and environmental governance sectors and systems, linkages between LEED and environmental governance are identified within an increasingly dynamic, multi-scalar and interdependent governance context. While LEED is found to be a unique, effective and integrated environmental governance mechanism in the marketplace, it is concluded that LEED could not easily be deployed to other industries without significant modifications, and without the presence of an industry-specific blend of market and environmental governance conditions.

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CHAPTER 1

INTRODUCTION

More than 2,000 years ago, the beginnings of a global economy took shape with the establishment of the Silk Road, an intercontinental network that stretched some 4,000 miles from Rome to China. Rome offered gold, silver and precious gems, while merchants along the route and in China traded spices, ivory and silk. An ongoing exchange of cultures and ideas also flourished along the routes (American Museum 2009). Today, the underlying mechanisms of the global economy continue, albeit on a scale, level of complexity and speed that would be incomprehensible to our forbearers.

Indeed, the pace of globalization and the rate at which Earth's inhabitants consume have continued to intensify with the efficiencies and technological advancements supported by the market-based economic system. Rapid improvements in food production, transportation, communications and medicine—driven by extraordinary technological advancements in the 20th century—provide the foundation for the 21st century global economy. These advances are fueled today by more than 8.3 trillion metric tons oil equivalent¹ (IEA 2011) in world energy use per year, as world gross domestic product soared from \$33 trillion in 2002 to more than \$63 trillion in 2010.² And despite a

¹ Ton oil equivalent (TOE) represents a unit of energy generated by the combustion of a metric ton (7.4 barrels) of oil, which equates to 1,270 cubic meters of natural gas, 1.4 metric tons of coal, or in energy terms, 11.63 megawatt hours or 39.68 million Btu (BusinessDictionary.com 2013).

² In 2012 dollars.

global financial crisis and economic downturn in 2008-2009, economic development continues apace: life expectancies continue to increase, literacy rates are rising, and growing access to the global communications infrastructure has empowered individuals as never before (World Bank 2012a).

Consistent with the scale and pace of this development, however, has been the rapid decline of environmental quality across the world's continents and oceans. Rivers and oceans are more polluted than at any point in recorded history. Forest area continues to decline as the world's deserts increase their footprint on the landscape. And the release of atmospheric pollutants such as carbon dioxide, methane, and nitrous oxide emissions threaten natural systems that regulate world climates (UNEP 2007) and oceanic chemistry. Emphasizing the human impacts of environmental mismanagement, United Nations (UN) Secretary-General Ban Ki-moon has noted that the "assault on the global environment risks undermining the many advances human society has made in recent decades. It is undercutting our fight against poverty. It could even come to jeopardize international peace and security" (UNEP 2007, xvi).

Such a conflicted landscape between economic and environmental interests has existed for centuries, resulting in the establishment of different actors and institutions that attempt to manage and govern these competing interests. However, while achieving some notable successes at the national level, environmental governance at the global level has continued to be weak in terms of public support, illustrated by small budgets, little enforcement power, and relegation to the perimeter of critical, high-level political and economic decision-making. In addition, processes of globalization have made political control of economic activity more difficult and complex at the global level, often

masking the systems, actors and linkages that sustain the global economy (Scholte 2005).³

But while these conditions have sparked numerous debates over broader issues of governance, alternative approaches to the management of economic and environmental systems have slowly taken root where traditional, public institutions have failed or become inadequate. In the environmental arena—of primary interest in this paper—third-party governance mechanisms have proliferated as a complement to traditional public-sector institutions in regulating and correcting market failures.⁴ These mechanisms span an array of industries from manufacturing, to agriculture and fisheries, to commodities such as coffee and wood products, to green building standards (Smith and Fischlein 2010). One particular mechanism, the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) rating system, has made significant progress over the past decade in bringing greater consideration of environmental sustainability in building design, construction, and rehabilitation.

³ Jan Aart Scholte describes globalization as a “reconfiguration of social geography marked by the growth of transplanetary and supraterritorial connections between people” (2005: 8). Impacts of globalization are both positive in negative: in some cases, it has resulted in heightened security, social equality and democracy (e.g., drivers of the “Arab Spring” toward democracy), but in others, increased insecurity, inequality and erosion of democracy (e.g. drivers of global terrorism). Scholte notes that the positive and negative outcomes of globalization are primarily the result of policy decisions in response to globalization, rather than a result of globalization itself (Scholte 2005).

⁴ In economic theory, a “market failure” occurs when the market fails to deliver an efficient allocation of resources. An example is the appearance of acid rain in the northeastern United States in the 1960s caused by the burning of coal for electricity generation. Sulfur dioxide and nitrous oxide releases into the atmosphere resulted in acid rain that damaged trees, crops and killed scores of fish in lakes and streams. In this case, the price of electricity did not fully account for the environmental and social costs of a coal-fired power plant. Today, government policies are in place that limit emissions from coal power plants, raising the price of electricity generation closer to its true costs—economic, environmental, social (health)—so that the market is closer to maximum efficiency (Krugman et al. 2011).

Before discussing LEED specifically, however, it's essential to lay out the reasons why buildings are a prime target for enhancing environmental performance. As far as products go, buildings represent an enormous part of modern infrastructure and resource usage that have major, global impacts on society and the environment. At the global level, buildings represent about 40 percent of total energy use (IEA 2013). In the U.S, buildings represent 68 percent of electricity consumption, 30 percent of landfill waste, 38 percent of carbon dioxide emissions and 12 percent of water consumption (WNCGBC 2013). In addition, a building's design can have significant impacts on worker productivity, health, and local transportation infrastructure. Benefits of buildings designed to "green" standards, are of equal breadth: environmental benefits consist of financial savings, protecting vital ecosystems, increasing air and water quality, reducing waste, and conserving (and recycling) natural resources. Economic benefits include lower operation costs, higher worker productivity, higher rents and asset value, and better building life-cycle performance. Finally, social benefits encompass improved worker health and comfort due to better air quality and lighting, reduced strain on utility infrastructure, and overall improved quality of life (WNCGBC 2013). The purpose of LEED as a green building rating system is to attempt to achieve these direct and indirect benefits through a more purposeful, integrated and strategic approach to building design.

To investigate LEED, however, one must first understand the USGBC as an organization. The council, a 501c(3) non-profit, was established in 1993 by Rick Fedrizzi, David Gottfried, and Mike Italiano, with a mission "to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality

of life” (USGBC 2013a, 1). Critical to its success and legitimacy has been its engagement with a diverse set of stakeholders consisting of builders, environmentalists, corporations, nonprofits, civic groups and individuals. The council consisted of 77 chapters, 13,000 member organizations and 181,000 LEED-certified professionals as of this writing (USGBC 2013a).

The LEED rating system, the centerpiece of USGBC operations, is a voluntary set of standards that is market-driven and consensus-based, allowing for verification of green buildings. For the purposes of this project and to frame the discussion, I will focus on the current version of LEED that is active in the marketplace, known as LEED 2009 (also known as LEED v3), launched on April 27, 2009 (USGBC 2013l). LEED uses evolving criteria for seven major areas that define a green building—(1) Sustainable Sites (location), (2) Water Efficiency, (3) Energy and Atmosphere, (4) Materials and Resources, (5) Indoor Environmental Quality, (6) Innovation in Design Process, and (7) Regional Priority (Meisel 2010). Using these focus areas as a basis for measurement, LEED is applied through nine different rating systems: (1) New Construction and Major Renovations, (2) Existing Buildings, Operations and Maintenance, (3) Commercial Interiors, (4) Core and Shell, (5) Schools, (6) Homes, (7) Neighborhood Development, (8) Retail, and (9) Health Care. Through a set of LEED committees, new or modified standards are developed, implemented and maintained (USGBC 2012). (A more complete discussion of LEED is presented in Chapter 3).

LEED, and by extension, the USGBC, exists at the intersection between private industry and public governance institutions in exerting a type of regulatory authority in the building and construction industry; but as noted above, this authority is accepted on a

voluntary basis, as opposed to a set of legal requirements, as one would find with local building codes.⁵ Although the idea of certification schemes is not new, tremendous strides in legitimacy and force of such systems are notable with the rapid adoption of LEED and other certification schemes over the past decade, such as the Forest Stewardship Council (FSC) for wood products and Quality Assurance International (QAI) for organic farming. In addition, as traditional environmental governance mechanisms—primarily public sector institutions—grapple for legitimacy and authority in balancing economic and environmental interests, such industry-based governance mechanisms offer a new avenue for a diverse set of stakeholder groups to collaborate, interact and develop mutually-beneficial standards. Though only one type of strategy addressing the vast array of environmental challenges that confront us, environmental governance mechanisms like LEED may be a linchpin between the need for higher environmental standards in the private sector, strengthened coordination among institutions and actors, and the equally legitimate need for continued economic development. Indeed, this paper investigates the possibility that LEED, and environmental governance mechanisms like it, may represent a promising, scalable model that values active engagement and partnership across actors and institutions to mitigate negative environmental externalities. Although no silver bullet to solving the planet's increasing environmental problems (LEED has its share of challenges), such a path forward stands in stark contrast to the often adversarial relationships between the public and private sectors.

⁵ For example, the requirement for sprinkler systems and fire alarms to be installed in buildings.

As a result, the purpose of this project is to explore LEED in the context of environmental governance as one mechanism among many across the public, private and civil society sectors (this environmental governance frame is discussed in Chapter 2). That said, this discussion is grounded in the reality that there are limits to the ability of third-party environmental governance mechanisms to raise environmental standards beyond what is economically prohibitive (Biermann et al. 2012).

To explore the potential adaptability of the LEED rating system across other sectors, this research project seeks to investigate the role it plays as an environmental governance mechanism—to the extent that it does—by examining its basis of legitimacy, structure, and the practical and theoretical linkages to the larger sphere of global environmental governance. Through my analysis, findings and conclusions are offered with respect to LEED's long-term viability and potential linkages within the realm of environmental governance, and several questions are raised for further research in connection with LEED.

To accomplish this task, I will seek to answer the following research questions:

(1) What are the theoretical and practical linkages between LEED and environmental governance? (2) What is the basis for legitimacy of the LEED certification system within the building industry? (3) How does LEED play a role in industry standardization that promotes environmental sustainability? (4) Does LEED meet standards in the literature as an entity or force that administers environmental governance? And if so, (5) how might such a mechanism operate amidst challenges of global governance and globalization? Finally, (6) does LEED offer a flexible, scalable environmental governance mechanism that could be applied successfully to other industries in need of more stringent

environmental standards that existing business, nonprofit and public organizations do not provide? Careful analysis of LEED in these areas will augment existing research on environmental governance structures, including their benefits and challenges, while addressing how LEED may be a new kind of force and linkage between the public, private and civil society sectors with the leverage and incentives to spur rapid deployment of policies and measurable outcomes to support the overall goals of environmental governance. (In Chapter 2, I explain how environmental governance is framed in terms of the public, private and civil society sectors in this investigation of LEED.)

This project consists of six core arguments that seek to answer the questions raised in the problem statement above:

(1) LEED is linked theoretically to environmentalism and environmental governance through its alignment (a) with major environmental governance conceptions, such as the UN Brundtland Report, *Our Common Future*, that served as the first internationally-agreed upon definition of sustainability (WCED 1988), (b) with Karl Polanyi's observation of a "disembedding" of the market from broader society: the subordination of "nature" (the environment) and historical social structures to the market (Polanyi 1944), (c) practically through its association with tangential standard-setting and rating systems (and organizations) that promote environmental sustainability, and (d) through its connectivity to multi-actor and multi-level modes of governance across geographic and political boundaries, as broadly defined by Rosenau and Czempiel in their concept of "governance without government" (Smith and Fischlein 2010).

(2) The basis of legitimacy of LEED is found primarily in wide acceptance by the building industry of the LEED rating system promulgated by the USGBC, with additional market adoption by the public, civil society, and private sectors as an independent way to illustrate a commitment to environmental sustainability and the greater public good. As a result, the LEED system represents the leading edge of a new bridge between public environmental regulators and private industry that generates broad consensus and buy-in to limit environmental degradation while maximizing potential economic returns.

(3) LEED develops and implements standards and processes through a careful vetting process that balances the need for consistency with the need for flexibility, particularly in leveraging its elaborate network of regional and local chapters. Central to the legitimacy and effectiveness of this process is the participatory nature of the USGBC organizational structure, which strengthens and sustains the effectiveness and reputation of the LEED system and the USGBC itself.

(4) Using a definition of governance as a “social function centered on the efforts to steer societies or human groups away from collectively undesirable outcomes,” LEED meets the definition and standard of an *environmental governance*⁶ mechanism through a hybrid approach to governance manifested through linkages to many authorities and forces that administer governance in the context of the environment—a process that has been spurred by the decentralization and growing interconnectedness of governance actors and apparatuses, buoyed by globalization (Delmas and Young 2009, 6).

⁶ In this project, I define “environmental governance” as a programmatic or systematic effort to control environmental conditions, processes or outcomes.

(5) Globalization and global governance offer important opportunities for LEED and the USGBC to rapidly broaden the scale and reach of their influence, but risks are ever-present as the USGBC has limited control over the use of the LEED brand and certifying authorities outside the United States. This increases the potential for damages to the LEED name should unacceptable practices be associated with the LEED brand.

(6) The LEED model has the ability to be integrated into other multi-level and multi-scalar environmental governance systems, but in the context of a regulatory proxy or technical governance extension in specific industries, or conversely, environmental issues. Mechanisms like LEED, in this case, will likely play the role of technical governance tool designed to manage and address certain sector-specific nuance and detail, while attracting multi-stakeholder buy-in. At the higher level, institutions will utilize such sophisticated policy tools within large-scale policy development and implementation, connecting one policy tool with others to formulate broad-based strategies that span the range of cross-cutting and overlapping environmental issues. With appropriate modifications, the structure of LEED is suitable for application to industries in which environmental governance is nonexistent, weak, or outright rejected—industries that have the most to lose in incorporating more stringent environmental standards.

CHAPTER 2

THEORETICAL BASIS

This chapter outlines general conceptions of the rise of environmentalism and environmental governance. The purpose of this discussion is to lay the foundation and context for a deeper examination of LEED, beginning in Chapter 3, enabling a more robust evaluation of the system's role and potential applicability across industries for addressing environmental challenges. Before diving into specific aspects of environmental governance, however, it is important to address the underlying, historic basis for environmentalism, from which the need for environmental governance emerged. The following sections first provide an overview of the historical, theoretical, and practical considerations that form the basis of environmental governance, and second, discuss in brief terms the major sectors that play a role in administering environmental governance.

Throughout this project, it is important note that I frame much of my discussion of environmental governance—and the intersection of LEED—through the tripartite sectors of public, private and civil society. There is much historical debate on the subject of civil society and its relationship to the state and private interests, with such figures as Antonio Gramsci, Thomas Hobbes and John Locke, among many others, writing at length on the subject. However, for the purposes of this discussion, I simplify sectors that exert environmental governance authority into public (state interests), private

(economic interests), and civil society (social interests), in alignment with Delma and Young (2009). It is worth noting, however, that each of these sectors are necessarily both part of and apart from each other in different instances, an integration and overlap that causes many of the complex relationships (and corresponding tension points) inherent in governance more broadly, public opinion being an integral link between different sectors or groups, as Gramsci has written (Fontana 2006). As a result, while this paper uses a distinct tripartite frame for the purpose analysis, it is important to keep in mind that there are alternative theoretical constructs of the state and civil society that could be used to investigate LEED's position of authority within environmental governance.

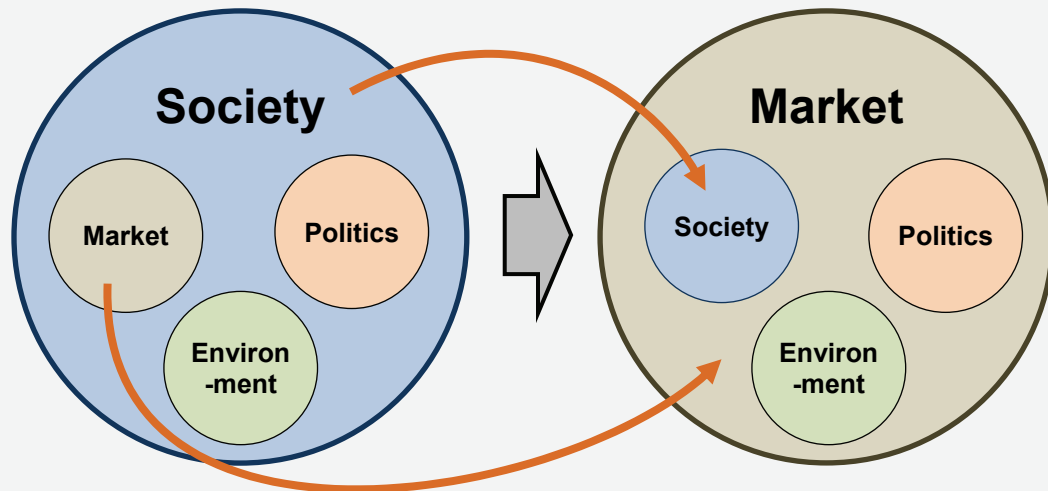
Historical Considerations

From a historical perspective, the link between environmental challenges and economic development can be drawn from the rise and dominance of market capitalism over the world's social, political and environmental systems. The process was marked by Adam Smith's *Wealth of Nations* (1776), demonstrating the principles of liberal economic theory and the start of the Industrial Revolution in the late 1790s. The shift in social and economic power structures, in addition to the commoditization of land and labor, had major implications for how society and the environment—and by extension the goods and services extracted by people from it—would ultimately be valued and utilized. As Karl Marx noted, the rising capitalist mode of production presented the potential for a “contradiction between public and private life, on the contradiction between general interests and private interests” (Newell 2005, 81). The tension created by the new economic system, despite the innumerable societal gains, continues apace as nations

grapple with eroding environmental conditions, diminished natural resources, and in some cases reduced quality of life during a period of rapid, consumer-fueled global economic expansion.

In *The Great Transformation* (1944), Karl Polanyi chronicles the systemic changes that took place during the Industrial Revolution, describing the process as a kind of inversion or “disembedding” of the market from society, to a system where society, politics and the environment became embedded within the market. Such a transformation can be thought of a system ascending and taking control of the system in which it once operated (**Figure 1**). Today, this would be akin to self-aware computer systems taking control of human-controlled systems, as they did in *The Matrix* (1999), inverting an existing power structure. The transformation was exemplified by the rise of industrialists and businessmen in political, economic and social power during the Industrial Revolution at the expense of the old social order of nobility and aristocratic classes, characterized by entitlement and privilege based on lineage rather than productivity or ingenuity. Success within the market, rather than by familial nobility, began to play the dominant role in determining the extent of an individual’s power and influence in society, with significant long-term implications for the global environment.

Figure 1. Social Transformation



Description

This figure illustrates the rapid changes that occurred during and after the Industrial Revolution as control of capital, production and labor shifted away from traditional actors in the economy. Karl Polanyi refers to this change as the “disembedding” of the market from society (1944). Rigid social structures and hierarchies that had controlled the **market**, **politics** and the **environment** for thousands of years were overcome and displaced by market capitalism, inverting the traditional social order. This shift resulted in enormous economic gains, with the market now the driving force in society. As with any change, tradeoffs occurred as social life, politics and the environment became subordinate to economic growth.

This period was marked by the rapid commoditization of both land and labor in order to meet the supply demands of the “free” or open market, to which environmental and social considerations were displaced by market dominance. Political control became an asset like any other, with a price (illustrated today by the Washington lobbying establishment). But the rapid transformation to a market-dominated political and economic system was not without consequences: the horrors of the French Revolution are but one example. Polanyi notes in painstaking detail the events leading to the global economic collapse that culminated in World War I—and later World War II—where

political and economic infrastructures had not been adequately developed to provide balance of payments support in the new global economic system. Afterwards, global political and economic institutions such as the United Nations (UN), International Monetary Fund (IMF) and The World Bank were instituted to better manage the global political and economic systems. But the most powerful and influential of global institutions would continue to be the ones (IMF and the World Bank) that are designed to sustain and promote economic development, continuing the dominance of the market system over other areas such as social needs or environmental considerations.⁷ For example, the IMF utilized an operating budget of roughly \$1 billion in 2011, with additional financial resources of more than \$739 billion (targeted) by 2012 (IMF 2012). This stands in contrast to other global organizations⁸ that focus on environmental issues, such as the United Nations Environment Programme (UNEP), which operated within a set budget of \$225 million in 2011 (UNEP 2010). While these two organizations clearly have different missions and funding structures, the disparity between them financially is reflective of the priority level that member countries give economic issues versus environmental issues. Indeed, debates continue over the need to reform and address the weakness of UNEP in particular (Biermann, “The Emerging Debate” 2001).

⁷ This is neither indictment nor affirmation. It is beyond question that the market system has positively transformed and opened societies to new political and economic freedoms, raised health and living standards, and brought the gift of opportunity to countless individuals. Alternatively, the market system has at times been characterized by the reinforcement of disparities in wealth, opportunity, and political control for many as well as the negative social and environmental impacts that cannot easily be assigned quantifiable economic value.

⁸ Although UNEP is the primary environment-focused organization in the UN system, many other UN organizations, such as UN Development Programme (UNDP), administer their own environmental programs (UNDP 2013).

Theoretical Considerations

Along with vastly improved economic opportunity (and in some instances, newfound political freedoms), the new economic order ushered in the age of environmentalism. The theoretical basis for modern environmentalism arises from the relatively well-known “tragedy of the commons” concept coined by Garret Hardin (1968), linking environmental degradation to the ills of unbridled economic activity. In its initial framing, Hardin wrote of the potential insolvability of overpopulation leading to mass destruction of the environment and exhaustion of environmental goods and services. His principal illustration is one of an open pasture that, after being shared successfully shared for centuries, eventually becomes overwhelmed and exhausted by the individual decisions of self-interested herdsman. “Each herdsman,” he notes, is compelled to “increase his herd without limit, in a world that is limited” (Hardin 1968, 1244). Such activities were driven, he claimed, by the actions of many individuals seeking their own economic gains without regards to the underlying environmental limits of the pasture. Hardin also links the concept to water and air pollution, which, he writes, “cannot readily be fenced,” (1245) and he describes how expanding populations place undue pressures on limited ecologic systems. Indeed Adam Smith, he claimed, contributed to the widely-accepted economic rationale in *Wealth of Nations* (1776) that individual decisions will always result in the best decisions for the broader society (Hardin 1968).

This fear of exploiting environmental systems was further underscored in the *The Population Bomb* (1968) by biologist Robert Ehrlich. Ehrlich predicted mass starvation in 1970s and 1980s due to shortages in food and other resources, although overpopulation fears seem to be allayed to a certain extent today (Goldstone 2010). However, the

general concept that limited, shared resources (such as air, land, water) can be abused by the aggregate economic decisions of self-interested individuals, and debates over the ability of Earth's finite resources to sustain an ever-growing, consuming population, remains.

Nevertheless, this long-term, theoretical perspective based on scarcity of resources is only one element in the basis for environmental governance. Immediate and direct impacts on individuals from environmental damage or exploitation have also propelled a desire to better manage environmental systems.

Practical Considerations

From a practical standpoint, public support for tighter environmental regulation has long stemmed from instances of harms to public health. One of the earliest documented public pro-environmental decrees was actually much earlier than *Wealth of Nations*, in 13th-century England, when King Edward I banned the burning of a sea-coal,⁹ which had caused enough localized pollution that anyone found burning the sea-side fossil fuel was to be executed (EPA 1994).¹⁰ But it would not be until full-scale industrialization and the rise of global chemical and energy industries that significant environmental disasters would garner widespread support for greater accountability and more stringent environmental protection standards.

⁹ "Seacoal" was an early name for mineral coal used for fuel in 13th century England. The coal was found either washed up on beaches or extracted from mines (Simpson 2009).

¹⁰ Residents, however, continued burning seacoal despite the threat of severe punishment because the alternative, wood, was far more expensive (EPA 1994).

For instance, John Snow, a 19th-century English physician, is credited with discovering that cholera was being transmitted from a contaminated street pump in London (known as the “Broad street pump”), a high-profile incident that led to stronger environmental and health standards, and resulted in better sanitation and disease control around the world (Kovarik 2012). In India, one of the world’s most catastrophic industrial environmental disasters occurred at the Union Carbide plant in the city of Bhopal in 1984. Water leaked into a methyl isocyanate (MIC) storage tank (used to produce pesticide), resulting in the release of toxic MIC gas. More than 2,500 died within a week of the release, and between 15,000-20,000 deaths are estimated to be linked to chronic conditions from exposure including eye lesions, severe respiratory problems as well as neurological, reproductive, and psychological impairments in exposed individuals, some of which were present in victims’ offspring (Dhara 2002). Other high-profile environmental incidents include the Chernobyl nuclear plant disaster in 1986, resulting in more than 4,000 deaths, as well as the 2011 Fukushima nuclear plant disaster that was triggered by an earthquake. Finally, major oil spills such as the 1989 Exxon-Valdez disaster in Alaska that spilled an estimated 11 million gallons of crude oil (Kovarik 2012), and the 2010 Deepwater Horizon oil platform explosion that released an estimated 168 million gallons of crude oil into the Gulf of Mexico, damaged local economies, fisheries and critical ecosystems (Oil Spill Commission 2011). Usually, however, the effects of air, water, and land pollution are felt less spectacularly: the aggregate effects on public health and natural environmental systems is more a cumulative process with impacts that are usually much less visible and take place over longer time horizons.

These are only a few of many notable and ongoing environmental disasters that spur public debates over how to balance economic activity and issues of environmental and public health. Concern for the environment is not only driven by practical hazards generated by human activities, they are also driven by the vast array of goods and services—known as *ecosystem services*—that all of humankind ultimately depend upon to survive.

The concept of ecosystems services is based on the idea of assigning economic value to the goods and services provided by earth's ecosystems. Typically, the goal of such a valuation is to shed light on the need for greater accountability of the market system and the decisions of many individuals in how ecosystem services are utilized and consumed. As Costanza et al. note, “the services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life support system” (1997, 253).

Well-known instances of quantifiable ecosystem products include items like timber or fish stocks, but ecosystem services also include the value-added functions of natural biological and geological processes and systems. These systems support everything from crops that are grown and animals raised for food, to cycles that continuously clean the air we breathe and the water we use to drink, bathe, flush toilets and to refine or manufacture virtually every product in existence. For example, enormous volumes of fresh water are used throughout the process of extracting and refining energy sources such as coal, oil and natural gas, in addition to vast quantities of water used in the production of electricity. Without continuous support from natural hydrologic cycles and

global climate systems, inexpensive fuels that power the modern economy would not exist, with major ramifications for the lifestyles achieved in developed economies.

Indeed, the full range of ecosystem goods and services (**Table 1**) links to a wide array of systems and processes on which human welfare depends, but in many cases the market may fail to adequately account for the value of each good and service. This failure stems from the near infinite number of linkages between ecosystem services and more easily valued goods and services that are directly controlled or produced by individuals and organizations.

As an illustration, the process for manufacturing paper can easily account for the cost of water, labor and timber used in the production process. But paper manufacturing is also known for specific negative environmental costs that cannot easily be economically quantifiable: what are the costs of biodiversity reduction, erosion from deforestation, and monoculture practices of timber plantations that produce the more than 250 million tons of paper produced each year (Spenser et al. 2009)?

Table 1. Ecosystem Goods and Services. Adapted from Costanza et al. (1997, 254).

Ecosystem Service	Ecosystem function	Examples
Gas and climate regulation	Regulation of atmospheric chemical composition; regulation of global temperature, precipitation, and other biologically mediated climatic processes at global or local levels.	CO ₂ /O ₂ balance, O ₃ for UVB protection, and Sox levels; Greenhouse gas regulation, DMS production affecting cloud formation.
Disturbance regulation	Capacitance, damping and integrity of ecosystem response to environmental fluctuations.	Storm protection, flood control, drought recovery and other aspects of habitat response to environmental variability mainly controlled by vegetation structure.
Water regulation and supply	Regulation of hydrological flows, water storage and retention.	Provisioning of water for agricultural (such as irrigation) or industrial (such as milling) processes or transportation. Provisioning of water by watersheds, reservoirs and aquifers.
Erosion control and sediment retention	Retention of soil within an ecosystem; soil formation process.	Prevention of loss of soil by wind, runoff, or other removal processes, storage of silt in lakes and wetlands. Weathering of rock and the accumulation of organic material.
Nutrient cycling	Storage, internal cycling, processing and acquisition of nutrients.	Nitrogen fixation, N, P and other elemental or nutrient cycles.
Waste treatment	Recovery of mobile nutrients and removal or breakdown of excess or xenic nutrients and compounds.	Waste treatment, pollution control, detoxification.
Pollination	Movement of floral gametes	Provisioning of pollinators for the reproduction of plant populations.
Biological control	Trophic-dynamic regulations of populations	Keystone predator control of prey species, reduction of herbivory by top predators.
Refugia	Habitat for resident and transient populations.	Nurseries, habitat for migratory species, regional habitats for locally harvested species, or overwintering grounds.
Food production	That portion of gross primary production extractable as food.	Production of fish, game, crops, nuts, fruits by hunting, gathering, subsistence farming or fishing.
Genetic resources	Sources of unique biological materials and products.	Medicine, products for materials science, genes for resistance to plant pathogens and crop pests, ornamental species (pets and horticultural varieties of plants).
Recreation	Providing opportunities for recreational activities.	Eco-tourism, sport fishing, and other outdoor recreational activities.
Cultural	Providing opportunities for non-commercial uses.	Aesthetic, artistic, educational, spiritual, and/or scientific values of ecosystems.

What are the economic, cultural and health impacts on local communities where plantations and pulp mills are built? The World Rainforest Movement (WRM) notes the expansion of the pulp and paper industry into the global South:¹¹ “The reality for people living in the areas where plantations have been established is that plantations have destroyed their livelihoods and sucked streams and rivers dry. The few jobs created are dangerous, poorly paid, and often seasonal” (Lang 2008, 4).

By highlighting or quantifying the economic value contributed by these ecosystems to human welfare, the market system is better able to account for natural scarcity limits of goods and services that include ecosystem goods and services, and in theory, mitigate the risks of permanent, irreversible damage to the functioning of those systems (Abson and Termansen 2011). This concept is similar to what was discussed earlier in calculating the true costs (economic, social, environmental) of producing a good: if *all* the costs of a product are included in its price, the market will be more efficient in allocating resources in a way that does not irreversibly diminish or damage, say, an ecosystem or human health. It is important to note, however, that economic quantification is virtually impossible to measure in terms of intrinsic, cultural or spiritual value of some ecosystems—for example, the inherent value of national and state parks. This particular point is an ongoing challenge for environmental governance, though in some cases it has been tied to the concept of conservation.

However, some have attempted to quantify the economic value of all the goods and services provided to humans “for free” by earth’s natural systems: in their 1997

¹¹ The term “global South” refers to predominantly underdeveloped, albeit increasingly differentiated, countries in Earth’s southern hemisphere.

calculation, converted to 2012 dollars, Costanza et al. estimated the total economic output of 17 categories of Earth ecosystem functions to be \$47 trillion, excluding non-renewable resources such as minerals, fuels, and the atmosphere (1997, 253). For comparison, gross world product in 2011 was estimated at \$80 trillion in 2011 (CIA 2012). As a result, the purpose of quantifying ecosystem services is to identify ways to correct the market so that it includes not only the human production costs of a specific good or service, but the production costs borne by Earth's ecosystem functions. While prices of goods and services are virtually always higher if ecosystem services are included, the idea is that the market will be much more sustainable (that is, "Pareto efficient"¹²) in the long-term since it is factoring in *all* the costs of production. Future generations, of course, will be the primary beneficiaries of these higher costs, an obvious point of tension for current generations.

Taken together, major historical shifts in world economic and social structures, increasing impacts on public health from the economic activities of industry and consumers, and greater attention to the value of ecosystem services have built the foundational basis for environmental governance. As a result, demands for more effective governance systems have risen across the spectrum: the academic community, nonprofit and public sectors, and many private businesses have recognized both the importance and strategic (business) advantages of considering the environmental (and often social) impacts of their organizations. These multifaceted, multi-scalar approaches to strengthened environmental governance are discussed in the next section.

¹² In economic theory, a market allocation is said to be Pareto efficient (optimal) if it is not possible to improve the welfare of one individual without reducing the welfare of another. For example, pollution from a coal-fired power plant may improve the welfare of some, while reducing the welfare of others (i.e., reduction in health quality of individuals from air pollution caused by the burning of coal) (Yesuf 2012).

Environmental Governance

Environmental governance institutions and actors span the public, private, and nonprofit sectors from the global to local levels. Before considering *environmental* governance, however, it's important to address the concept of *governance* more broadly—a notion that carries with it a great deal of political, cultural and economic connotations, some of which are often misunderstood.

The concept of governance is based on the idea that systems, biological or otherwise, rely on processes and rules in order to maintain the integrity, reliability and sustainability of a given system. The laws of physics that govern the activities of the universe are one example. Without such governance, of course, gravity would disappear, the Earth would fly quickly away from the sun, and its inhabitants flung into the vacuum of space. Closer to home, natural geologic and biological systems are governed by cycles that are supported by complex subsystems that link biology, chemistry and geology together, following critical processes and procedures that sustain life. At the human level, things become a little more complicated, but the same concept applies, albeit much less reliably: humankind develops and deploys systems and processes that follow sets of rules in order to sustain everything from the global economy and the operations of a major corporation, to the proper functioning of an individual household and the transportation networks on which all of us depend. The integrity of these systems is maintained by adherence to laws, rules and procedures, which are the structures that support *governance* of the systems in question.

In contrast, *government* corresponds to human-derived and controlled systems that *administer* governance in directed ways. In contrast to natural systems, which require

little to no human interaction or control to sustain themselves, government is an anthropocentric, or human-centered concept of controlling many of the systems with which we interact on a daily basis. Usually the term “government” refers to public institutions at any level—local, regional, national or global—that respond to various conditions of a shared, societal and public nature. If you buy a new car, for example, chances are that you are required to register it with the county or state where you live so the vehicle is officially part of broader the economic and political system, under your ownership. Similarly, as part of a subsystem to control localized pollution, urban localities often require vehicles to pass emissions tests, or their owners risk paying the consequences in the form of a fine or other penalty. *Government*, then, implies human control over the political, economic and social conditions in which society exists, whereas *governance* refers to general management of all the systems that exist in the universe, human or otherwise. To reiterate from Chapter 1, I define *environmental governance* as a programmatic or systematic effort to control environmental conditions, processes or outcomes.

The distinction between *governance* and *government* (**Table 2**) is important to environmental governance because government often has limited ability to perform its functions effectively or efficiently because of its status as publicly-managed entity. Magalia Delmas and Oran Young point out in *Governance for the Environment* (2009) that demand for *governance* has increased as political and economic systems become more complex and variable, while confidence in the ability of *government* to effectively provide its type of *governance* is declining. A good illustration of this is the issue of illegal immigration in the United States: most members of the public agree that a better

Table 2. Governance versus Government

Example	<u>Governance</u>	VS.	<u>Government</u>
Natural Water Cycle	Natural processes of water cycle including Water Storage, Vapor, Clouds, Rain (EPA 2013).		National, Provincial and Local public laws restricting pollution or usage of surface and groundwater.
Market Economy	Forces of supply and demand.		Interventions by public institutions to stabilize or modify economic activity using policy tools such as subsidies, tax breaks, quotas, tariffs and regulations.
Corporation	Internal policies and procedures designed to promote effective operation of a business, such as a travel policy.		Public regulation of businesses such as minimum wages, fair labor practices, and corporate accounting requirements.
Household	Household procedures for effective operation such as trash removal, laundry, cleaning and budgeting.		Public regulation of residential buildings such as requirements for fire alarms, sprinkler systems, recycling and snow removal.

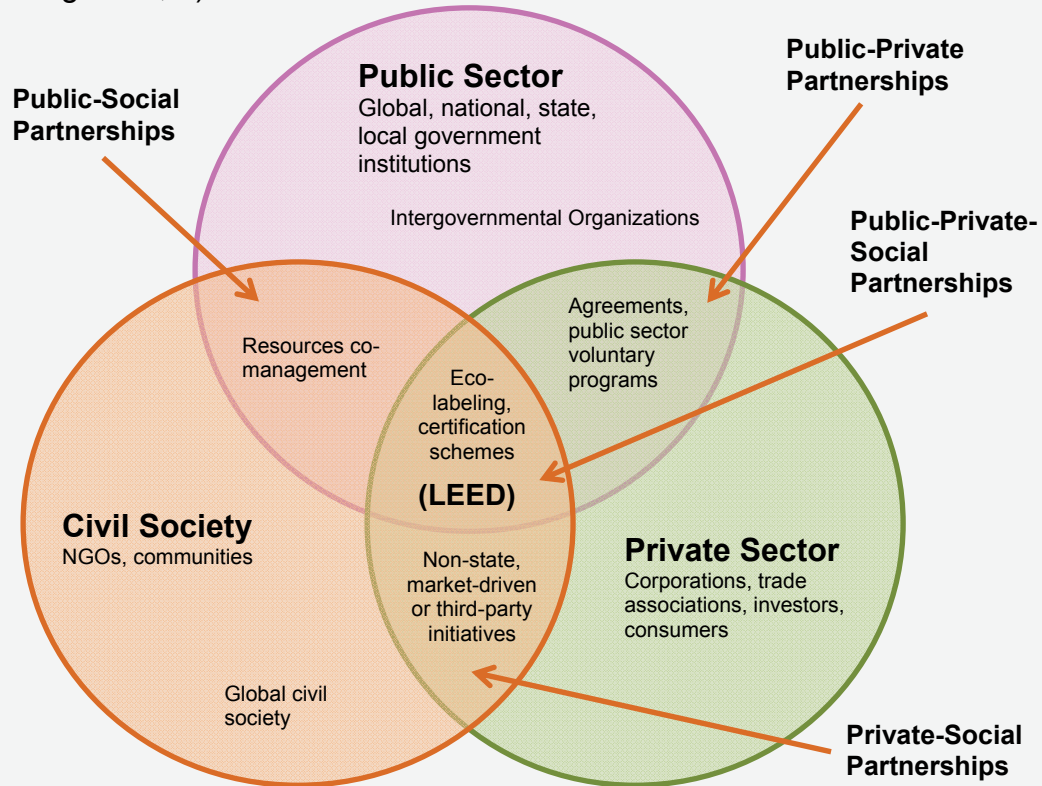
management (or governance) system should be developed to address negative impacts of illegal immigration, but few have confidence in the government's ability to actually address the issue effectively, let alone agree on how the system should be designed.

In addition, demand for greater governance is highest where the public believes they have the least amount of control over the conditions that affect them: in particular, environmental issues are not easily managed or controlled due to the difficult and diffused nature of environmental systems. Air, water, land, and energy-related environmental challenges are not usually confined to any one space. Indeed, global environmental systems shift pollutants around the planet without regard to territorial

boundaries: oceans continue to accumulate the world's plastic garbage, eutrophication¹³ of coastal areas has dramatically increased, while airborne emissions of carbon dioxide, methane and sulfur dioxide continue from the burning of fossil fuels. Such issues are not easily addressed from a local or even national level because of dynamic air and water flows around the globe, and it is difficult to identify specific offenders or polluters. Because of the complexity of global economy and the weaknesses of traditional government institutions, environmental governance has emerged as a highly complex system comprised of many levels, facets and dimensions. As a means to organize these systems and organizations, I follow the groundwork laid by Delma and Young (2009) and divide current environmental governance mechanisms into three governance sectors: (1) public sector, (2) private sector, and (3) civil society (**Figure 2**, next page). Each sector brings with it a portfolio of needs, perspectives and expectations, and there is undoubtedly overlap between each sector. At the same time, each remains dynamic and fluid across boundaries over time, as the realities of political, economic and social conditions drive sources and levels of authority and influence.

¹³ Eutrophication is a process whereby a body of water acquires high levels of nutrients, such as phosphates and nitrates. Usually this process is associated with increased growth of algae, sometimes referred to as "algae blooms." Because the algae eventually dies, the decomposition process depletes the water of oxygen, resulting in the death of aquatic organisms such as fish. The source of excessive nutrients is mostly fertilizer runoff and sewage discharge (USGS 2012).

Figure 2. Environmental Governance Sectors (Adapted from Delma and Young 2009, 8)



Description

This figure illustrates the three major formal environmental governance sectors that operate in the marketplace. It does not represent other, less formal governance forces that exert authority, such as global crime syndicates or the forces of globalization. The U.S. Green Building Council, the developer of LEED, is actually a member of the Civil Society sector, but its LEED rating system is a product of partnerships across all three, a potential factor in its broad success. Figure adapted from Delma and Young (2009).

In order to introduce LEED more fully as a component within this environmental governance framework, I will review each major governance area in the following paragraphs, providing examples for each. The purpose of this review is to illustrate the context, breadth and complexity involved in environmental governance sectors.

Public Sector Governance

Governance in the public sector is manifested as government in the form of public institutions that exist on a permanent, legally-based legitimacy that attempts to manage various aspects of society—from health care and education systems, to legal, security, and law enforcement systems, to transportation networks and the management of public property. These institutions also have jurisdiction over environmental matters, depending on the level of authority and enforcement authorized by public institutions (with varying degrees of legitimacy and effectiveness). As such, environmental governance in the public sector includes all levels of government structures: (1) towns, cities and counties at the local level, (2) states, departments or provinces at the regional level, (3) national or federal authorities at the state level, and (4) global and intergovernmental institutions, such as the UN system, at the global level. Together, these levels of authority comprise the official, traditional governance structures that have regulated environmental issues for hundreds of years.

At the local levels (indeed all levels of public institutions), environmental governance is highly variable in scope and specificity depending on population size and density, available financial resources, as well as political and social values that emphasize or de-emphasize environmental governance. For example, the Hays County government, a medium-sized (680 sq. miles) county located in a semi-rural, suburban area near Austin, Texas, offers recycling services, provides enforcement of state and federal environmental laws, has instituted a county habitat conservation plan, and implements standard water and wastewater plans (Hays County 2012b). These services are provided as part of the county's total FY2012 budget of \$224 million (Hays County 2012a).

In contrast, Arlington County, Virginia, the smallest county in the U.S. (26 sq. miles), bounded by the District of Columbia, performs similar local functions within a much smaller geographic region, but at a much grander scale, including a large environmental services department offering an array of services related to recycling, improved public transportation infrastructure, and incentive programs for LEED-certified county government buildings. These services are provided as part of the county's total FY2012 budget of \$1.3 billion (Arlington County 2012b). The environmental services program includes development and enforcement of a wide array of policies and programs related to energy conservation, pollution reduction, environmental protection of streams and watersheds through promotion of "sustainable living" initiatives involving local parks, community gardens and other public spaces through engagement with local nonprofit and volunteer groups (Arlington County 2012a).

At the regional level, similar disparities in public sector environmental governance exist from state to state within the United States in terms of public emphasis and budgetary support. All states have implemented distinct environmental governance programs, laws and policies due to their larger scales, and are typically linked between departments of public health, conservation and natural resources protection (EPA 2012). State and local governments are required to enforce federal environmental laws such as the Clean Water Act, with financial and technical assistance from the U.S. Environmental Protection Agency (EPA) (Copeland 2010). Reflecting the dynamism of the global economy, economic fluctuations have impacted designated funding for public environmental governance, which is visible over time. The Environmental Council of the States (ECOS) notes that during the economic recession of 2008-2009, budgets for

environmental protection and quality programs declined between \$9 and \$12 million across 24 U.S. states surveyed, with a total decline of about 11.4 percent, from \$4.4 billion to \$3.9 billion (excluding EPA grants to states) (ECOS 2012).

At the national level, similarities and differences between national governments in public sector environmental governance mirrors that of the regional and local levels. Available public resources and emphasis on environmental governance vary widely from country to country. In general, national governments are responsible for enacting, implementing and enforcing national environmental laws, providing reports and data across a variety of environmental protection issues, while engaging the public, business and civil society groups in carrying out their mandates (EPA 2012, South African 2012, New Zealand 2012). National governments also interact with global and intergovernmental organizations—private, public and civil society—to varying degrees, though individual commitments and influence are restricted by the disjointed structure of the current global-level public governance institutions, particularly UN-based environmental protection and sustainability initiatives (Conca 1995; UN 2007).

Finally, global-level public sector governance exists in the form of global, regional and intergovernment organizations that directly support environmental agreements, protocols or programs, and/or support and coordinate implementation of bilateral and multilateral environmental agreements (BEAs and MEAs) between states. In addition, some major global institutions, such as the World Bank have implemented internal policies and programs that promote environmental sustainability as part of development-oriented programs (World Bank 2012b). Unfortunately, global public institutions have suffered from poor and outmoded organizational structures, redundancy

and lack of coordination across programs, lack of legitimacy and authority, and inadequate funding from constituent states (illustrative comparison: The budget of American University, a single university, was \$479 million in FY2011, while the UN Environment Programme (UNEP) budget, a public institution tasked with addressing vast, global environmental challenges, was much less at roughly \$225 million (AU 2009; UNEP 2010). In addition, these traditional, public governance structures have been strained and weakened through processes of globalization that have slowly diluted the effectiveness and extent of their authority (Strange 1996).¹⁴ Together, these conditions are reflective of a general unwillingness of states to commit to environmental regulatory frameworks that cede any more than a minimal level sovereignty to global-level institutions, even if doing so would boost economic, social and environmental benefits.

Private Sector Governance

Before delving into environmental governance in the private sector, it is important to address how the role of the private sector has shifted over the past few decades as it relates to governance, authority, and responsibility in society. The increasing interconnectedness of economies, societies, and cultures from globalization has brought with it a second transformation of the marketplace (beyond the Polanyian changes mentioned earlier) since the 1970s that has deemphasized the broader social and environmental role that businesses have previously maintained in society. Melaver and

¹⁴ Susan Strange (1996, 7) outlines the declining authority of the traditional state, driven largely by the “accelerating pace of technological change as a prime cause of the shift in the state-market balance of power.” Examples of forces that undermine the ability of traditional governments to control activities within their borders include global telecoms, organized crime, insurance companies, the “Big Six” accounting firms, cartels and international organizations. The idea is that state power is weakened by global networks that allow organizations to operate beyond the oversight or control of public authorities.

Mueller (2009) explain this change by comparing the concepts of “capitalism with a difference” and “indifferent capitalism.”

On one hand, *capitalism with a difference* (pre-1970s) implies “a multiple bottom line focus, taking into account stewardship of the environment, nurturing the social fabric of community, providing a living livelihood, job security, diverse work opportunities, craftsmanship and purpose.” The value that businesses earn from this perspective is multi-dimensional and reaches much farther than baseline financial returns into the realm of social and environmental benefits (that are more difficult to measure, but nevertheless retain value), with both short and long-time horizons that help integrate businesses and society through shared purpose and values.

In contrast, indifferent capitalism (post-1970s) reflects a business environment where the financial bottom line is paramount, businesses are accountable mainly to shareholders (versus their employees), the perspective is increasingly macro, global and data-dependent, and the deployment of investments and capital are characterized by high mobility in order to generate short-term returns. *Value*, from this perspective, is measured predominately in terms dollar figures and share prices, with businesses focused around only one dimension—economic—with a relentless push for greater efficiency and increasing profit margins at all costs (**Table 3**)

Table 3. Contemporary Shifts in Private Sector Priorities (Adapted from Melaver and Mueller 2009, 10)

Concept	Indifferent Capitalism	Capitalism with a Difference
Basis in Economic Theory	Free circulation of money, goods, labor, specialization for market efficiency (<i>The Wealth of Nations</i> (1776)).	Balance commercial liberty with moral sympathy, holding that the efficient market is composed of small enterprises located in community. (<i>The Wealth of Nations</i> (1776), <i>The Theory of Moral Sentiments</i> (1759)).
Bottom Line	Financial performance only.	Includes social, environmental and financial performance measures.
Governance	<u>Shareholder</u> theory: business is answerable to shareholders.	<u>Stakeholder</u> theory: Business is answerable to a wide constituents including employees, community and shareholders.
Scope	Globalization	Internationalization (each country sets its own rules) or localization (self-sustaining local economies).
Notion of Growth	Maximize growth; the bigger the pie, the better.	Optimize growth: smaller pie, more equitably distributed.
Integration	Efficient integration of global supply chain.	Effective integration of social, environmental and economic issues.
Mobility	Highly mobile in terms of investment, production, capital; will move in and out of markets based on cheap costs and high returns.	Place-centric (grounded), tending to put down long-term roots in a locale. Strong investment in community.
Value and Investment Threshold	Focus on quarter-to-quarter short-term returns; value based on stock price.	Greater focus on long-term value, total return across social, environmental and economic arenas.
Company Profile	Large transnational companies, typically publicly traded, with short-term investment horizon.	Often smaller companies or larger publicly traded companies with stable, long-term shareholders.

To illustrate this dichotomy: after World War II, it was fairly common for workers to be employed for many years with one organization, be unionized, and receive generous benefits in the form of vacation and sick leave, health care, retirement pensions, and even scholarship opportunities for their children. It might be said that after the war, there was a heightened desire for security and stability. To put this into perspective, in 1954, 34.8 percent of U.S. workers were unionized (Mayer 2004). By 2013, in contrast, the number had fallen dramatically to only 11.3 percent, one the lowest levels ever recorded, with over half in the public sector (BLS 2013). In addition to a business climate generally more opposed to union formation, Barry T. Hirsch notes:

“Unionized companies obviously raise wages and benefits for their workers, and while they often raise productivity, typically they’re at a cost disadvantage [in the marketplace], and unionized companies haven’t fared as well...In addition, in an increasingly globalized, very fast-moving world, unionized companies may not be able to adjust as quickly” (Greenhouse 2011, 2).

In addition, pensions, health care coverage and other benefits have been dropped over the past few decades. Indeed, in the United States, from 1989 to 2010, the net worth of 90 percent of wealth owners decreased, while concentration for the top 10 percent rose, from 67.2 percent to 74.5 percent of all wealth (in other words, three-quarters of U.S. wealth was held by 10% of wealth owners) (Levine 2012).¹⁵ As Melaver and Mueller point out, “while consumers and investors have gained...in the form of lower prices of goods and strong economic gains, most citizens have lost ground both

¹⁵ In addition, the net worth of the top 1 percent of wealth owners was 34.5 percent of all U.S. wealth in 2010, an increase of 4.4 percent from 1989 (Levine 2012).

financially and in terms of their overall welfare” (2009, 6). Private businesses may have found cost savings in these changes, but the overall need for income, health and environmental security by individuals is persistent. And this condition has been aggravated by stagnant wages and a globalizing world where economic, environmental and social changes occur rapidly, and traditional governance mechanisms (i.e., government) are either unable (economically) or unwilling (politically) to protect individuals or make up the difference.

Although these conditions may seem more economically focused, they are related to environmental governance mechanisms like LEED because they have largely originated in the private sector, which has in some cases begun to come full circle in taking on governance roles and responsibilities to include social and environmental issues.

Indeed, the private sector has entered multiple governance arenas historically reserved for public institutions, particularly from an environmental standpoint (although corporate social responsibility is a growing area). Private industry, which controls vast global networks of supply chains, finance flows and infrastructure networks, has rapidly increased its focus on environmental sustainability, and it has the leverage points and power to actually make a difference. Global corporations including Walmart, McDonalds, Coca-Cola, and Nike, which are linked to hundreds of billions of dollars in global economic activity, have identified business cases that raise profits through greater efficiencies, but also strengthen their brands in terms of being more environmentally and socially-conscious enterprises (Dauvergne and Lister 2011).

For example, by 2011, Walmart had completed 100 on-site solar energy installations with 80 more in development, increased its U.S. trucking fleet efficiency by 69 percent, and reduced its U.S. operations waste by 80 percent through its zero landfill waste program—the latter returning \$231 million to the business, illustrating the all-important financial factors and incentives involved in sustainability (Walmart 2012a). And these are only a few of its global sustainability initiatives. While these numbers may only be moderately impressive, it is the enormous global scale of this private sector-led environmental governance that is important: Walmart has more than 10,300 retail stores in 27 countries, with global sales of \$443.9 billion as of this writing. At such a scale, the possibilities for discovering greater efficiencies and increased sustainability are virtually limitless (Walmart 2012b). In addition, McDonalds made headlines in 2013 when it declared that the entire supply for its Filet-o-Fish sandwiches would be Marine Stewardship Council (MSC)-certified for sustainably-sourced fish products (Tepper 2013).

To underscore the scale of the shifts taking place in larger governance authority, corporations such as Adidas, Unilever, Pepsi and McDonalds were some notable attendees at the World Economic Forum promoting sustainable practices across supply chains and in the broader economy; in contrast, high-level political leaders from the United States were notably absent (Enochs 2013; Easton 2013).

There are advantages and disadvantages, of course, to this private sector-led manifestation of environmental governance. The advantage is that in contrast to traditional public sector governance—that is, regulation—companies and entire industries that know their processes best will identify the most efficient methods for reducing waste,

energy and water usage that improve their brand and earn profits, reducing the so-called economic “dead weight-loss” that occurs through public sector regulations that force companies to meet specific targets.

On the other hand, despite the newfound interest in (and solid environmental achievements from) what has been termed “corporate greening,” businesses ultimately remain interested in selling more products to consumers, which perpetuates many of the environmental challenges the world faces. As Dauverge and Lister point out, “effective global environmental governance will ultimately involve a shared governance approach with strong regulation and sustained advocacy to go beyond the important but incremental big brand market improvements” (2011, 37). Like other environmental governance approaches, the private sector plays a major role in moving the world to a “greener” operating condition, but it will take many stakeholders and a strong commitment to dialogue and negotiation to ensure gains are made across the board—not only from the very limiting standpoint of what makes purely *economic* sense.

Civil Society Governance

As the final major component of environmental governance sectors in this discussion, civil society plays an important role outside economic and political interests, promoting the interests and values of groups and organization across a wide range of issues and topics, from the local to global levels. In terms of environmental governance, civil society groups, typically in the form of nongovernmental organizations (NGOs), exert pressure on local, state, national and global public sector institutions as well as the private sector industries to raise environmental standards, often linking environmental

issues to challenges of poverty and opportunity. Like their public and private sector counterparts, NGOs routinely operate at multiple levels, lobbying businesses and governments alike to raise standards. The World Resources Institute (WRI), a prominent global NGO, plays an important research function across a variety of environmental and social issues including climate, energy and transportation, governance and access, markets, and ecosystem sustainability. It also publishes reports, develops recommendations for industry or commodity governance, operates sustainability programs and initiatives around the world, and works collaboratively with the public, private, and civil society sectors to address specific environmental concerns (WRI, “Our Work” 2012).

Other organizations that work collaboratively across industry and the public sector include the International Organization for Standardization (ISO), which develops a wide range of standards across industries, including environmental standards (ISO 2012). In addition, The Nature Conservancy, World Wildlife Fund and Conservation International are some of the largest global NGOs that engage local, regional, state and global actors to strengthen environmental governance standards while preserving and recognizing the need for economic viability for businesses and local communities. Commodity-focused organizations, such as the Forest Stewardship Council (FSC), Marine Stewardship Council (MSC), Rainforest Alliance, and Fair Trade USA are among many that work across sectors to develop frameworks, certification systems and standards that work to reduce land degradation, pollution and loss of biodiversity.

Taken together, public, private and civil society environmental governance sectors represent both a tremendous opportunity for realizing significant gains in

reducing waste and reversing major environmental challenges, but also represent an immensely complicated, multi-scalar and multi-dimensional soup of actors and institutions that poses its own set of challenges, as environmental governance expands away from politically-derived, public-sector models.

CHAPTER 3

U.S. GREEN BUILDING COUNCIL AND LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

Overview and Background

LEED exists at the intersection of and overlapping areas across the public, private and civil society sectors that share a great deal of interest in how governance is developed and deployed (refer to **Figure 2**). One reason mechanisms like LEED are connected to each sector is because they derive their overall legitimacy and power from each sector individually, as well as collectively. This is the case with the U.S. Green Building Council, the creator and operator of LEED.

The USGBC was founded in 1993 and has succeeded by using its foundational idea of engaging “builders and environmentalists, corporations and nonprofits, teachers and students, lawmakers and citizens,” spanning each of the three major sectors (USGBC 2013j), “with the radical idea that our built environment should nurture instead of harm, restore instead of consume, and save money instead of waste it” (Dimeo 2009, 1). With a vision of “buildings and communities [that] will regenerate and sustain the health and vitality of all life within a generation,” the USGBC carries out its activities in alignment with seven guiding principles: (1) promote the triple bottom line (balancing economic, social and environmental needs) (2), establish leadership, (3) reconcile humanity with nature, (4) maintain integrity, (5) ensure inclusiveness, (6) exhibit transparency, and (7) foster social equity (USGBC 2006c, 1).

The LEED program is actually only one part of the many programs administered by the USGBC, which exists in a more general context to support and promote green building. In addition to operating (1) the LEED certification system, which uses credits for a project to earn a certain LEED rating (Certified, Gold, Silver, and Platinum), the USGBC (2) advocates at all levels of government to encourage action on sustainable built environments, (3) provides green building education to professionals in the building industry, and (4) engages its network of member chapters to provide education, resources and networking opportunities at the local level (USGBC 2013k).

Before embarking on a specific overview of LEED, it is essential to explain the broader role and activities of the USGBC across the public, civil society and private sectors, which are ultimately bound together and supported by the force and legitimacy of the LEED certification system in the marketplace, like a hub and spoke model. Generally, the activities of the USGBC fall into four categories: Community, Advocacy, Initiatives, and LEED (USGBC 2013k). The following four sections describe these major focus areas, concluding with a detailed overview of the LEED rating system.

USGBC - Community

The idea of community and active engagement with stakeholders is especially vital for a non-governmental entity exercising environmental governance within the market—after all, there are no public laws that give it legitimacy or power to govern through institutional fiat.¹⁶ As a result, the USGBC has built a robust network of

¹⁶ Institutional fiat refers to the authority and legitimacy of public institutions to govern on the basis in laws, orders or rulings.

members (individuals and organizations), chapters, advocates, professionals and students to spread the word about green building, but also to further establish itself as a leader in the sustainability movement (USGBC 2013e).

Membership with the USGBC can be either individual or through an organization, with notable distinctions between the two. Membership with the USGBC is entity-to-entity, so that only an organization may officially join the council, with membership flowing down to individuals affiliated with that organization. There are four levels of membership: Organizational, Silver, Gold, and Platinum. Each level offers a certain fee and corresponding set of benefits, and are designed to accommodate everything from small businesses and nonprofits, to large global conglomerates, depending on the type of engagement it has with the USGBC. For example, some organizations may only wish to support the council loosely and may have little direct relationship with the marketplace to green construction, but would still gain some discounts and better access to its services and resources through membership. At the same time, some organizations, for example a large construction or architectural firm, would have a higher level of interest in engaging the USGBC in a greater capacity, such as playing an active role in refining LEED standards or participating in special USGBC-sponsored projects and initiatives, such as GreenBuild (discussed below) (USGBC 2013e).

Alternatively, if an individual wishes to join the USGBC outside of an enterprise-based membership, they may join only through a local USGBC chapter, which is a wholly separate 501(c)(3) nonprofit organization from the national USGBC. As of this writing, there are 77 chapters in the United States. Chapters provide a local context for raising awareness of LEED and building local partnerships to promote green building

through education and outreach, tailoring activities to the context of a given region (for example, local climate, business culture, political landscape, etc). Although chapters operate independently of the national USGBC, they share some main focus areas; for example, in 2013, national priorities included LEED and Performance, State and Local Advocacy, Organizational Excellence, Green Schools, and Community Engagement. For individuals, chapters offer a personal connection to the green building industry and movement by providing volunteer and professional development opportunities and resources, in addition to ways to engage the local community to embrace green building standards (USGBC 2013e).

As an extension of both types of membership, the USGBC also coordinates and engages USGBC volunteer advocates, LEED professionals, and students. Advocacy volunteers essentially carry the torch of green building in local communities, engaging local leaders and policy makers on behalf of the green building movement. LEED professionals represent the growing cadre of LEED-certified and experienced professionals who participate in the creation of LEED-certified buildings. Finally, USGBC offers students the opportunity to get involved and connected to the green building industry, primarily through its Center for Green Schools initiative (USGBC 2013e).

The USBGC is also part of the global green building community, principally the World Green Building Council (WGBC), headquartered in Toronto, Canada. As of this writing, 92 countries had green building councils at one of several levels of development—Associated Group (Level 1), Prospective Member (Level 2), Emerging Member (Level 3), and Established Member (Level 4) (USGBC 2013e).

Within the realm of advocacy, the USGBC works from its LEED Platinum-certified headquarters in Washington, D.C. to advance a green building movement that it believes, “has the power to change the way we live today and the ability to transform the legacy we leave tomorrow” (USGBC 2013a, 1). The USGBC carries out a wide array of vertically and horizontally-integrated activities to support this ideal, including (1) maintaining and engaging a diverse and growing green building community, (2) expanding and refining the LEED system, (3) advocacy for specific policy and topic areas related to green building, and (4) carrying out special initiatives (USGBC 2013b).

USGBC - Advocacy

Advocacy is a major element of USGBC’s strategy to transform the building industry into one that is more healthy and sustainable, by focusing on specific leverage points in the economic and public policy system to effect change. Through the promotion of specific policy priorities, topical communications campaigns and the development of green building coalitions, the USGBC takes a multi-faceted approach that includes top-down, bottom-up and horizontal engagement strategies to foster change both in industry and the public at large as it relates to demonstrating the value, legitimacy and importance of green building (USGBC 2013b). In terms of specific policy priority areas, the USGBC advocates for the following:

- **Green Building Policy.** Advocates for LEED-inspired laws, incentive programs and administrative policies at all levels of government that promote increased demand for sustainable real estate, green building technology, and green building

professionals. Existing policies span cities, countries, states, federal agencies, public schools, utilities, and colleges and universities.

- **Better Buildings.** Supports the Obama Administration’s “Better Buildings Initiative,” which directs the U.S. Department of Energy and the U.S. Small Business Administration to incentivize energy efficient retrofits of buildings through tax deductions and loan guarantees, respectively. The goal of the initiative is to make commercial buildings 20 percent more energy-efficient by 2021 and to spur job growth.
- **Incentives and Financing.** Supports financing strategies and incentives for green building at the state and local government levels such as tax credits, fee reductions, waivers, grants and technical and marketing assistance, or conversely, penalties for “non-green” practices such as fees for excessive waste generation. The goal is to reduce strains on public infrastructure and resources, and drive job growth and economic development at the local level.
- **Green Schools.** Through its Center for Green Schools, USGBC engages teachers, students, administrators, public officials and communities to develop and implement programs that ultimately transform all schools into healthier learning environments.
- **Green Affordable Housing.** Supports healthier, more sustainable affordable housing partnerships and initiatives through engagement with public housing networks and coalitions. Coalitions include Enterprise Community Partners, Public Housing Authority Sustainability Network, and the Green Affordable Housing Coalition.

- **Sustainable Communities.** Promotes sustainable design and planning at the local levels (i.e. smart growth”), such as cities and towns, that promote community integration, safer and healthier neighborhoods, and economic growth through lower-impact development and community sustainability improvements that seek a variety of housing and transportation choices in a multi-use environment.
- **Code Adoption.** Supports adaptation and integration of green building standards to local building codes to set minimum requirements for energy, water and other building efficiencies.
- **Resiliency.** Supports idea of resiliency in the face foreseeable risks and threats to humans, the economy and the environment, within and beyond green buildings. The goal is to integrate proper foresight and preparedness into standards, designs and plans to mitigate the negative (human, environmental, economic) effects of harmful events, such as natural disasters.
- **Green Jobs.** Supports development of a future workforce centered around green buildings and sustainability, including construction managers, carpenters, architects, and cost estimators, among others (USGBC 2013b).

In addition, USGBC manages several ongoing outreach campaigns designed to facilitate adoption of green building practices and remove barriers to a cleaner, greener future economy, many of which correspond to the policy priorities outlined in the previous section:

- **Leadership with LEED.** The campaign seeks to engage and connect green building advocates, such as companies and building professionals, with public

officials and policymakers to craft policies that encourage market adoption of LEED in a way that is relevant and appropriate to local conditions.

- **Data Access.** The campaign seeks to build large-scale availability of building energy consumption data, which is used not only for monitoring energy usage, but for quantifying the value-added benefits of green building. The five-pronged strategy (1) engages local utilities and regulatory commissions, (2) helps advance public sector policies and programs on data accessibility, (3) educates government agencies and officials on data accessibility best practices, and (4) partners with public policy organizations within the utility arena to bolster the mission for better data access. To support these activities, the USGBC has partnered with the Building Owners and Managers Association, the Real Estate Roundtable and the Institute for Market Transformation to form the Data Access and Transparency Alliance (DATA), which advocates for access to building energy consumption data throughout the market.
- **Benchmarking.** This campaign, known as the “Mainstream Building Benchmarking Campaign,” focuses on advocating state and local policies that require benchmarking performance data for commercial buildings. While building operators may be able to measure their energy and water usage, there may not be relevant standards available (locally or regionally) to which they can compare their performance and identify areas for improvement.
- **Green Schools.** Directly linked to the USGBC’s Green Schools policy priority area, the purpose of this campaign is to engage educators and public officials to create frameworks that support healthier, more sustainable educational

environments for students through green building practices. The focus of this engagement (and resources) are targeted to K-12 schools serving lower-income families, resource-constrained public institutions and community colleges.

- **Green Affordable Housing.** Known as the “Value Healthy and Efficient Affordable Housing,” this campaign targets affordable housing programs, where energy consumption is often much higher than in medium-income households. The campaign targets public housing authorities and funded projects and advocates for the inclusion of green building systems and standards in competitively awarded loans in the context of affordable housing projects.
- **Greening the Multiple Listing Service (MLS).** This campaign seeks to improve real estate MLS systems by adding and standardizing green data entry fields for buildings so that realtors can more easily identify green credentials, features and certifications of a property. Since MLS systems are privately-run and non-uniform by region or locality, the USGBC takes a more operational approach through engagement with the National Association of Realtors to provide tools and resources to “green” local MLS systems.
- **Green Code Adoption.** This campaign, known as “Build Better Codes,” seeks to broaden the range of risk areas (for example, the requirement for sprinkler systems or carbon monoxide detectors) in local building codes to include areas addressed by green building practices, particularly in energy usage (USGBC 2013b).

The final element in the USGBC's advocacy strategy is to build and foster coalitions with fellow green building advocates, including both individuals and groups.

At this writing, major organizational partners include:

- **Coalition for Better Buildings.** A coalition of businesses and organizations focused on enhancing the energy efficiency of commercial and multi-family buildings, from the design phase to the operating phase, to achieve economic and environmental gains.
- **Commercial Buildings Consortium.** A large group of public and private organizations that engage the U.S. Department of Energy to establish and implement technologies, policies and best practices to achieve a transformation to net-zero-energy usage in commercial buildings by 2050.
- **Climate Positive Development Program.** A collaboration between the USGBC and William J. Clinton Foundation Climate Initiative to develop large urban projects that showcase the idea that it is possible for cities to be positive in their interaction with climate (i.e., not contributing to climate change).
- **Data Access and Transparency Alliance.** This group, comprised of green building organizations and the real estate industry, works with a broad number of stakeholders to furnish building operators with energy usage data to support energy efficiency and savings.
- **GLOBE Alliance.** The Global Leadership in Our Built Environment (GLOBE) Alliance is an international group of business, nonprofit and public entities (including environmental, business, faith-based and academic organizations,

among others) that advocate for green building practices with the goal of reducing climate change.

- **Green Affordable Housing Coalition.** A national forum and network that provides a mechanism for collaboration and advocacy for the development of green affordable housing, such as research, policy solutions and outreach coordination. The coalition includes a wide variety of partners, including the AFL-CIO Housing Investment Trust, the Center for Housing Policy, the Affordable Housing Institute, Habitat for Humanity, and the Chicago Housing Authority, among others (GAHC 2013).
- **Real Estate Network for Energy and Climate Policy.** Facilitated by the USGBC and the Natural Resources Defense Council, this network engages real estate professionals interested in supporting clean energy and climate goals and policies within the realm of green building.
- **UNEP-Sustainable Buildings and Climate Initiative.** A partnership of major public and private real estate and building industry stakeholders and the U.N. Environment Programme that supports a network and platform for collaboration and consensus-building across buildings and issues related to climate change.
- **U.S. Climate Action Network.** A loose network of climate change-focused organizations that collaborate on strategy development and advocacy at the local, state, national and international levels.
- **World Green Building Council.** International body of state (country)-level green building councils focused on collaboration and building power among existing and newly-established councils (USGBC 2013b).

USGBC - Initiatives

Finally, the USGBC administers several special initiatives that combine and support elements of its major policy priority areas and advocacy goals. USGBC's main initiative is the Center for Green Schools which seeks to ensure "every student has the opportunity to attend a green school within a generation" (USGBC 2013d, 1; USGBC 2013b).

The center was launched in 2006, and works with national, state and local leaders through subprograms that target specific groups: at the national level, the Congressional Green Schools Caucus was established to educate members of Congress on both the impact they have on school buildings from a legislative standpoint, and also to inform them of how they can support greener schools. The "50 for 50" program, targeted to state-level legislators who also have a great deal of influence over school systems, performs a similar educational role in providing tools and resources to leaders to support green schools. In addition, USGBC supports another important leverage point in public governance structures that influence school systems: the mayors of cities and towns. This initiative, called the "Mayor's Alliance for Green Schools," fits into USGBC's strategy to promote green building at all levels, including the "grass roots" level. Specifically, local leaders work with local USGBC chapters to support local discussions and initiatives that result in public-private partnerships to retrofit existing schools with sustainable building improvements, such as the installation of sustainable roofs, recycling and sustainable procurement programs. The Center also engages another important leverage point that impacts US schools systems: educational associations. Known as the "Coalition for Green Schools," organizations such as the National PTA, support and lead change for

greener schools through an alliance with leading environmental organizations. Finally, the Center supports green building advocates at college campuses who are called Green School Committee volunteers by providing tools and resources to promote greener building on campuses (USGBC 2013g).

I mention all of these USGBC initiatives because they illustrate the expansive range of programs and focus areas, which all link to the USGBC's organizational influence in environmental governance (USGBC is part of organizational, civil society environmental governance; refer to **Figure 6**). LEED, which I discuss below, is an essential piece of USGBC linkages to environmental governance, but it is far more critical to USGBC's authority and force in the marketplace: not only does the LEED system carry technical weight, but the fees charged by the USGBC for LEED certification likely fund many of its other special programs and initiatives. Later, I discuss how this has unique implications for the long-term viability of LEED and USGBC as permanent, major forces in the marketplace.

USGBC – Leadership in Energy and Environmental Design (LEED)

At the highest level, LEED is a green building design tool and voluntary rating system that verifies green, or sustainable buildings. The program encompasses the entire lifecycle of a building, from design and construction to operations and maintenance, and includes virtually all types of built structures, with special requirements and criteria for certain types of buildings. The certification process is administered by a separate entity

from USGBC known as the Green Building Certification Institute (GBCI), which also administers the LEED professional credentialing programs (GBCI 2013a).¹⁷

The USGBC markets LEED-certified buildings as having lower operating costs through reduced waste, energy and water usage, improving the health and safety of occupants, reducing generation of polluting greenhouse gases, and qualifying for a range of public incentives such as tax rebating and zoning allowances. From the business perspective, USGBC states that LEED “boosts your bottom line, makes you more competitive, limits risk, and attracts tenants” (USGBC 2013i, 1). From the governance perspective, this means the USGBC implicitly claims that LEED attributes cover environmental, social and economic issues, resulting in a win-win for adopters.

The LEED rating system consists of sets of requirements for projects to achieve certification. In LEED 2009, there are nine different rating systems associated with different types of projects (**Table 4**). Requirements are driven by unique needs or attributes of a specific project or building—for example, a health clinic or elementary school. Projects must receive a certain number of credits, or points, (both individually and collectively) across several credit categories to achieve certification based on the type of project. The final level of certification is based on the number of points earned, including satisfaction of any required credits for the project. **Table 5** shows LEED credit categories along with definitions and examples of how a project would earn the associated credit.

¹⁷ Industry official, personal communication, March 5, 2013, Arlington, Virginia.

Table 4. LEED Rating Systems. Adapted from U.S. Green Building Council (USGBG 2012).

LEED Category	Definition	Example(s)
New Construction & Major Renovations	Applied to the design and construction activities for both new and major renovations for existing buildings.	Major HVAC improvements, envelope modifications and interior rehabilitation. Buildings include offices, libraries, churches, hotels and government buildings.
Existing Buildings	Applied to existing buildings (entire buildings, not single units) that implement sustainable practices and reduce their environmental impacts.	More efficient water and energy use, waste stream management, ongoing indoor environmental quality, exterior site maintenance programs. Applies to any "building" as defined by local code.
Core and Shell	Applied to the design and construction of a building's core and shell "base building" in situations where developer has little control over tenant fit-out. Links to Commercial Interiors.	Limited to mechanical, electrical, plumbing, fire protection systems. Includes construction activity pollution prevention, heat island effect, water use reduction, refrigerant management, recycled content.
Commercial Interiors	Applied to tenant spaces within commercial or institutional buildings where tenant has little control over building's core and shell design or operations. Links to Core and Shell.	Limited to tenant or leases-spaces within a building. Includes water use reduction, energy performance, storage and collection of recyclables, low-emitting materials, daylight and views.
Retail	Applied to the unique project conditions of retail environment that differ from other commercial buildings, such as occupancy characteristics, parking and transportation. Links to New Construction & Major Renovations and to Commercial Interiors.	Banks, restaurants, apparel and big box stores. Includes brownfield redevelopment, alternative transportation, light pollution reduction, optimal energy performance, certified wood, recycled content, low-emitting materials.
Homes	Applied to single family homes, low-rise multi-family (1-3 stories), mid-rise multi-family (4-6 stories).	Homes are certified differently from other projects by LEED for Homes Green Raters using a separate but similar rating system that accounts for energy and resource efficiency, healthy indoor environment, etc.
Neighborhood Development	Applied to entire neighborhoods, parts of neighborhoods, or multiple neighborhoods.	Leverages principles of "smart growth" and green building by focusing on reduced necessity for automobiles, encourages pedestrian and bike friendly-streets and public transportation, preserves open space, promotes mixed-use development.
Schools	Based on LEED New Construction standards and applied specifically to K-12 schools. Projects can also receive certification via LEED Existing Buildings: Operations and Maintenance.	Can be applied to university educational buildings, K-12 athletic facilities and other centers but use of LEED for Schools is optional. Focuses on classroom acoustics, master planning, mold prevention, and environment site assessment.
Healthcare	Applied to the unique conditions of the healthcare delivery environment. Uses combination of modified traditional LEED credits and separate, specific healthcare-focused credits to achieve certification.	Addresses healthcare-specific needs such as 24/7 operations and special regulatory requirements. Applies to inpatient and outpatient facilities, long-term care, medical education, research centers. Some projects required to use LEED for Healthcare.

The LEED rating systems apply different combinations of the credit types listed in **Table 5** to achieve one of the four levels of LEED certification. Of 100 base points, plus six possible for Innovation in Design and four possible for Regional Priority, 40-49 achieve basic Certification, 50-59 achieve Silver, 60-79 achieve Gold, and 80+ achieves Platinum level. Some categories are linked, and others have special attributes or requirements, such as Homes, that require different means for certification. All LEED rating systems involve Prerequisites, Core Credits, and Innovation Credits, which combined lead to a certain level of certification (USGBG, “LEED Rating Systems” 2013).

Table 5. LEED Credit Categories (v3). Adapted from U.S. Green Building Council (USGBG 2012).

Credit Type	Definition	Example(s)
Main Credit Categories:		
Sustainable Sites	Encourages strategies that minimize the impact on ecosystems and water resources.	No invasive plants, heat island reduction, nontoxic pest control.
Water Efficiency	Promotes smarter use of water, inside and out, to reduce potable water consumption.	Water metering, total water use, indoor and outdoor water use.
Energy & Atmosphere	Promotes better building energy performance through innovative strategies.	High efficiency appliances, efficient hot-water distribution.
Materials and Resources	Encourages using sustainable building materials and reducing waste.	Environmentally preferable products, certified tropical wood.
Indoor Environmental Quality	Promotes better indoor air quality and access to daylight and views.	Combustion venting, enhanced ventilation, low-emitting products.
LEED for Neighborhood Development Categories:		
Smart Location and Linkage	Promotes walkable neighborhoods with efficient transportation options and open space.	Wetlands conservation, housing and jobs proximity, brownfield remediation.
Neighborhood Pattern & Design	Emphasizes compact, walkable, vibrant, mixed-use neighborhoods with good connections to nearby communities.	Walkable streets, mixed use neighborhoods, transit facilities, access to civic and public spaces.
Green Infrastructure and Buildings	Reduces the environmental consequences of the construction and operation of buildings and infrastructure.	Building reuse, historic resource preservation, solar orientation, district heating and cooling.
LEED for Homes Categories:		
Location and Linkage	Encourages construction on previously developed or infill sites and promotes walkable neighborhoods with access to efficient transportation options and open space.	Site selection, floodplain avoidance, access to transit, community resources.
Awareness and Education	Encourages home builders and real estate professionals to provide homeowners, tenants and building managers with the education and tools they need to understand and make the most of the green building features of their home.	Guidance on installed equipment, proper maintenance methods and choices, i.e. water-efficient landscaping, nontoxic fertilizers/pesticides, efficient lighting, information on green power.
Bonus Categories:		
Innovation in Design or Operations	Addresses sustainable building expertise as well as design measures not covered under the five LEED credit categories. Six bonus points are available in this category.	Meet or exceed other credits (or credit intent) through innovative/pioneering means.
Regional Priority Credits	Addresses regional environmental priorities for buildings in different geographic regions. Four bonus points are available in this category.	Meet listed regional priority credits unique to geographic regions—for example, hot or cold climates, high or low precipitation rates.

On the surface, certifying a project is a relatively straight-forward process. A builder or remodeler will (1) decide which rating system they will use for their project, (2) register their project with GBCI, (3) submit their application for certification, and lastly, (4) receive a decision from GBCI on whether or not their project is certified (USGBC 2013h). However, as simple as this process sounds, much depends on the experience of the builder and the complexity of a particular project, which can take years to plan, develop and realize all of the savings and efficiencies from the initial investment of more thoughtful and purposeful planning and negotiation between developers, financiers, tenants, and local governments, such as a LEED for Neighborhood Development (ND) project (Melaver and Mueller 2009).

LEED rating systems are continuously updated through USGBC staff and volunteers who work through committees and advisory groups to test and evaluate the effectiveness of LEED rating systems. Specifically, credits are reevaluated, clarified or adapted to the market or other conditions as necessary to ensure the system remains leading-edge. There are also different types of LEED development activities, each of which are outlined below (USGBC 2013f).

First, the USGBC continues support for implementing and maintaining the current or baseline version of LEED, which for this discussion is LEED 2009 (or LEED v3). The process involves reviewing language relevant to specific credits and revising them, as necessary, in concert with market or other conditions. In addition, the review process addresses significant errors or omissions that might be found as the system is used throughout the world. As one might suspect, given the level of detail and complexity found in the different LEED rating systems, combined with virtually limitless conditions

and challenges that might be found in a given project, maintaining the current version is no small undertaking (USGBC 2013f).

In addition, because LEED operates in the market as a non-governmental mechanism, without the fiat authority of a public institution, it must ensure adaptability to other “green” building rating systems. As a result, the USGBC has a process for adapting its standards to alternative rating systems to ensure market flexibility and integration with a patchwork of existing or competing rating systems that may address an entire project, such as Green Globes, but also the numerous subcomponents of a project. Examples include ENERGY STAR-compliant Heating, Ventilation and Cooling (HVAC) systems or Forest Stewardship Council (FSC)-certified timber (USGBC 2013f).

Finally, the USGBC is responsible for developing new formal versions of LEED. As of this writing, LEED Version 4 was in draft format. Development occurs through a periodic review and revision process that engages USGBC stakeholders (i.e. real estate and construction industries, public and civil society sectors) and is ultimately approved by USGBC committees and members (refer to **Figure 4**) (USGBC 2013f).

One important goal for the USGBC through LEED is to ensure global consistency for projects in any location while balancing the need for appropriateness to certain conditions, whether geographic, economic, social, political or otherwise. One avenue the USGBC has sought to address this need at the global level is by creating Global Alternative Compliance Paths to certification. Further, the USGBC is developing Regional Alternative Compliance Paths that address differences in geographic and climactic areas, while at the same time addressing local challenges with solutions that allow projects to meet a given standard in an alternative way (USGBC 2013f).

LEED Professional Credentials

An important underpinning to the LEED framework and systems is the wide availability of professionals with the knowledge, skills and abilities relating to LEED to actually manage the implementation of the system. This is accomplished through a system of LEED professional credentials, that allow an individual to be accredited as a LEED professional at different levels. It is also another way for the USGBC to establish itself at the individual level as a brand, leader and authority within the building industry, but also in the international labor pool as a meaningful component of professional development in a growing movement for sustainable development. Indeed, just like a business or institution may use the LEED label to bolster its reputation, this carries over and links to individuals who also wish to bolster their personal brand and career as a professional with green building expertise.

There are three major tiers of LEED credentials. The most basic level is LEED Green Associate, which certifies an individual's basic knowledge of green building principles and practices. LEED Green Associate casts the widest net in terms of its reach across different disciplines—professionals can range from lawyers to architects to policymakers and educators who need a strong understanding of the basic underlying concepts of green building design and implementation. The second level credential, LEED Accredited Professional (AP), builds on the foundation of LEED Green Associate by certifying specific knowledge and hands-on experience with a particular LEED rating system (refer to **Table 3**). Currently, there are five LEED AP specialties:

- LEED AP Building Design + Construction (LEED AP BD+C)
- LEED AP Operations and Maintenance (LEED AP O+M)

- LEED AP Interior Design + Construction (ID+C)
- LEED AP Homes
- LEED AP Neighborhood Development (LEED AP ND)

Each credential level, including LEED Green Associate, requires an individual to register, take and pass an exam to ensure they have the knowledge necessary to obtain the credential. In addition, LEED-certified professionals must maintain their credential(s) through continuing education credit hours, similar to other professional certifications.

The third and highest level of LEED credential is that of LEED Fellow. LEED Fellows represent the most accomplished and exceptional professionals in the green building industry, and must be nominated by someone else to be considered for the Fellow designation, in addition to an array of other requirements, including at least 10 years professional green building experience.

Finally, the USGBC offers two professional certificates for two areas of the LEED framework: Homes and Schools. Because LEED for Homes projects require on-site verification, a certified LEED for Homes Green Rater must conduct a review of any project that seeks LEED certification. The LEED for Homes Green Rater program develops competencies and standard qualifications for Green Raters. Additionally, USGBC offers the Green Classroom Professional certification, which is directed towards pre-K-12 teachers who desire to make their classrooms healthier for a higher-performing environment for their students (USGBC 2013c).

Structure of LEED

The importance of LEED as an environmental governance mechanism—beyond its results—is *how* it manages to orchestrate those results. At a time when the complexity of environmental problems and their solutions seem to grow exponentially—the USGBC administers a framework that more than keeps LEED afloat: it proactively pushes the boundaries of the green building niche and strengthens LEED’s authority in the global marketplace. This governance juggling act may be typical for nonprofit organizations who establish their own certification standards and processes within any industry, but where LEED stands out is in how effectively it has been managed as a proactive, transformative organization that leads rather than follows—the result of a combination of solid organizational structures and skilled leaders who understand the real estate business.

The internal structure of LEED is encapsulated in an official USGBC governance document called “Foundations of the Leadership in Energy and Environmental Design (LEED) Environmental Rating System: A Tool for Market Transformation,” dated August 2006. The document, required reading for members of all major LEED committees, includes the LEED Policy Manual, LEED Product Development and Maintenance Manual and the LEED Committee Charters.

There are five distinct elements that comprise the “essence” of LEED that link to the strategic goals of LEED and USGBC’s higher-level goals and objectives. Each of the five elements have played—and continue to play—an important part of USGBC’s strategy in deploying a sophisticated environmental governance mechanism in the marketplace. First, (1) LEED is a product of (and therefore subordinate to) the USGBC as a program that supports USGBC as an organization, among the multiple programs that

the USGBC administers. Second (2), LEED is a certification standard applied in the real estate market that sets green buildings apart in terms of design, construction and operation. To be clear, it does not *bring* buildings into compliance—it merely sets standards that may be met or exceeded in a multitude of different ways. It also serves as a design guide and training program to move the real estate industry toward sustainability, in addition to an accreditation system that distinguishes and supports green building professionals in the market. Third (3), and crucially, LEED is a *brand* that signifies the benchmark in green building, leading to demand from a variety of interested parties (business, public, nonprofit sectors) looking for external validation of a corporate commitment to a sustainable ethos. Fourth (4), LEED is a balanced system that is flexible, responsive, and resilient to needs in the market while maintaining adherence to the core goals and objectives of the system. Fifth (5), and finally, LEED operates under sound business strategies that ensure a sustainable, realistic operating environment through revenues and sponsorships for the development of new LEED products (USGBC 2006a).

LEED's ten strategic goals are equally as important to note, as they guide the decision-making and priorities of the LEED program at different levels. The goals include:

1. *Promote the tangible and intangible benefits of green buildings including environmental, economic and social benefits over the life cycle of buildings.*
2. *Achieve high profile and successful product launches.*
3. *Earn widespread and routine endorsement by private and public real estate industry leaders and stakeholders.*
4. *Earn widespread and routine endorsement by Federal, State and Local Government and adoption as a vehicle for policy development and implementation.*

5. *Deliver superior customer service that is professional, timely, and targeted to the customer's needs.*
6. *Offer a comprehensive portfolio of programs to meet the diverse needs of the real estate industry.*
7. *Develop innovative technical tools and support services for LEED products.*
8. *Consolidate LEED as the standard for green building practices for our homes, non-residential buildings and developments through the U.S. and internationally.*
9. *Lead the industry state of knowledge about practical implementation of the most up-to-date and practical innovations.*
10. *Improve LEED's performance criteria as the industry gains experience with integrated design and green construction (USGBC 2006a, 4).*

These goals tie directly into how LEED is positioned in the market to lead a transformation of the way in which the entire real estate industry approaches design, construction, operations and maintenance of buildings. According to the USGBC, LEED is targeted towards “early adopters” of green practices that see value in bringing their products into alignment with sustainable building techniques from a business standpoint, but also from an image standpoint. It is not targeted towards those who may make risky albeit innovative investments in what could be termed “extreme green” techniques that go far beyond what is currently economically feasible (i.e. integrating a fully-functioning organic farm on a school premises to provide half its food), although the risk takers and innovators could represent the future of LEED standards. The balance is, of course, to be as innovative and value-driven as possible without excluding any one party, while broadening standardization and increase the uptake of green building principles. To this end, LEED continues to raise its standards for certification to encourage early adopters—while ensuring there remains an incentive for steadily increasing the overall performance and refinement of green buildings.

Further, LEED is designed around the primary drivers of change in the marketplace—the drivers that continue to expand the ranks of early green building adopters and, at a higher level, overall demand for sustainable building. The framers of LEED believe that the main drivers of change tie straight into the environmental triple bottom line—social, economic and environmental impacts that everyone experiences. For example, if you work in an old building with tiny windows, long, dark corridors and limited ventilation, you are impacted economically because the environment the building creates may negatively affect your health, which can reduce your productivity and economic output, in addition to impacting social and family commitments. But even as research has shown that a building’s design and structure has significant implications for the individuals who live and/or work in them, such as in the example above, this awareness is rarely self-evident to the general public because the impacts are indirect and dispersed—a notorious problem for addressing environmental challenges.

Because the benefits of green buildings vary widely from the tangible to intangible, LEED relies very much on the media to explain and translate the direct and indirect, short and long-term, benefits of green building to the public to encourage uptake and demand (in terms of influencing public opinion). Assuming the media transmits these benefits to the public and they are receptive, developers of LEED point to four ways that those individuals—whether as consumers or citizens—can make a direct difference in the environment, economy and social context in which they live: they can (1) modify their consumer choices, (2) select different ways to invest savings, (3) vote for public officials that represent their values, and (4) choose their occupation and where they labor (USGBC

2006a). Although the USGBC doesn't elaborate on these particular options for the public to respond to sustainable building preferences, I deduce their implications accordingly:

- (1) **Consumer Choices.** The public has the option of preferring sustainably built environments over standard, minimum-grade construction. This could manifest itself in business owners and corporations choosing LEED-certified building space or individuals choosing to shop at a company with values that reflect the triple bottom line.
- (2) **Savings Investments.** Individuals can choose where to invest savings—whether in an ethical, values-driven company that promotes sustainable, long-term development, or, for example, investing in their own home (preferably, a LEED-certified home!). The USGBC is actively developing an index that links with the financial sector that allows investors to identify organizations or funds that are committed to green building and/or sustainability.¹⁸
- (3) **Voting.** Citizens have the option of voting for and supporting public officials who promote a balanced approach to government that emphasize the importance of economic, social and environmental well-being and opportunity, of which LEED is a recognizable and tangible component.
- (4) **Workplace Choices.** Individuals can identify and choose to work for organizations that align to their values (assuming a flexible labor market).

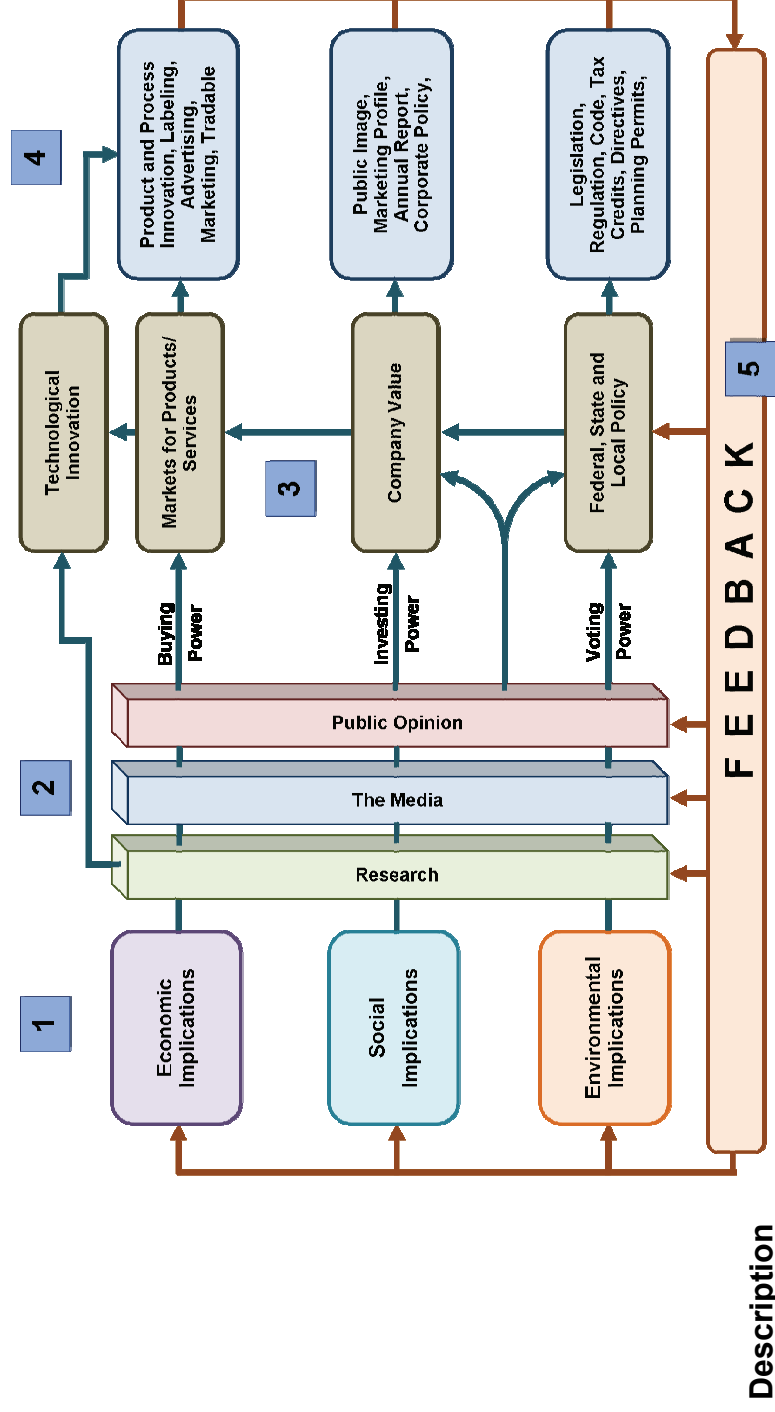
The results of these decisions, in theory, result in greater uptake in the marketplace of green building standards. It is at this point that LEED plays a pivotal role in showing demonstrable value to individuals and businesses—particularly in economic

¹⁸ Civil society official, personal communication, March 8, 2013, Washington, D.C.

terms. From a business standpoint, adherence to LEED is another way to strengthen a brand and show the public that corporations and businesses are as value-driven as they are bottom-line driven—ultimately resulting, in theory, in increased revenue for the organization. From a practical standpoint, adherence to LEED results in measureable savings—whether from reduced energy and water costs, lower insurance premiums, fewer workers who get sick, higher productivity, and other benefits.

The process described above, where triple bottom line values are linked to choices made in the marketplace, is designed to drive a transformation in the marketplace that creates an expanding, positive feedback loop leading to greater sustainability within the built environment—with LEED an important tool as a brand-strengthening label, and as a practical, technical governance tool. (Here lies a direct link between LEED and the goals of environmentalism and environmental governance.) A slightly modified version of the cycle as devised by LEED developers is shown in **Figure 3** below. Through each step, LEED plays a role in reshaping and influencing public opinion. Not only does the cycle illustrate a process for market transformation, it also is indicative of the complex, multi-scalar governance environment in which USGBC and LEED operate, offering as many opportunities as risks as it relates to the continuing strength of the LEED brand. Indeed, one might ask, does the marketplace need LEED specifically in order for it to transform? Who and what other actors and institutions play a role in this process? These and other questions are addressed Chapter 4.

Figure 3. LEED and Market Transformation. Adapted from U.S. Green Building Council (USGBC 2006a, 9).



This figure illustrates the process for market transformation from standard to green buildings, as envisioned by the USGBC. Drivers (1) are ultimately economic, social and environmental, and implications of each are (2) discovered in research, interpreted by media, and spread into public opinion. This influence is (3) fed into technology, markets, business value, and public policy, which (4) results in a variety of transformed outputs. These outputs, through feedback, (5) reshape the paradigm of economic, social and environment implications. This cycle continues, leading to market transformation. LEED, as a policy instrument, design tool, and rating system, is designed to influence each stage of the cycle.

LEED is guided by the idea that a cornucopia of diverse decision-makers (builders, investors, building managers, tenants, etc.) in the marketplace contemporaneously and over time must have a common language in which to speak about sustainability, especially given the technical complexity associated with integrated, purposeful design of green building. For example, if a client desires to build a LEED Platinum-certified football stadium, they can ask an architectural design firm to include design elements that will meet the credit requirements for that level of LEED certification. Without LEED or an alternative framework (or language) in which a nontechnical client may speak, it becomes far more difficult for the developer to meet an enigmatic standard for sustainability. In short, LEED clarifies what is desired by the consumer and what is delivered by the producer—leaving the technical details to the experts. Finally, decisions informed by the LEED standard can indirectly influence other decisions made by leaders that connect to the broader social, economic and environmental values, such as greater emphasis on investing in the quality of life of workers, students and individuals (i.e., better health, education, and retirement benefits) that build stronger trust and commitment within organizations and among individuals in society.

To support this process, LEED influences the market through a collection of “horizontal” and “vertical” market products. Horizontal market products are the primary LEED products, particularly the individual ratings systems (i.e., LEED for New Construction & Major Renovations, LEED for Homes) that span many different building types. For example, LEED for New Construction could apply to anything from a large warehouse to a football stadium. Other types of buildings have common, yet unique

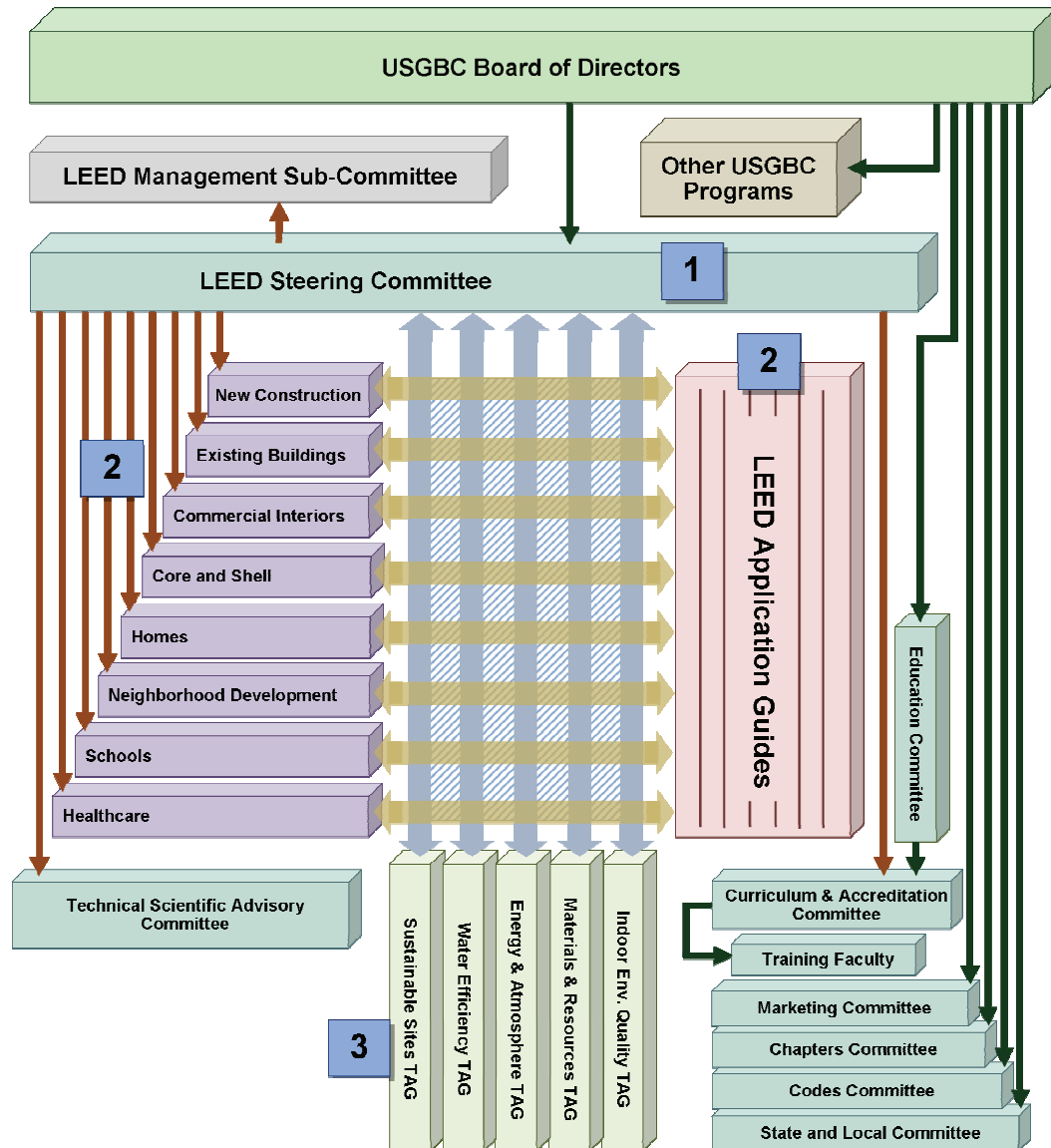
characteristics that required their own rating system—for example, LEED for Healthcare and LEED for Retail. Evolution and support of these products are of primary concern to the USGBC and take precedent over its “vertical” LEED products. The primary example of a vertical product are LEED Application Guides, which provide guidance on how to apply LEED in special circumstances or unique conditions of a given project. An example would be a situation where a project might achieve a specific LEED credit but the effect would actually conflict with the intent of the credit. Such guides may attempt to adapt LEED credits to a given situation, or simply provide guidance on which credits are preferable. Of note, the USGBC explicitly states that efforts should be focused on horizontal products over vertical products.

From a governance standpoint, it is important to note the emphasis on LEED’s horizontal products over its vertical products. The rating systems are designed to be as far-reaching and flexible as possible to accommodate the vast majority of major building types, which are all linked by common credit categories (Water Efficiency, Energy & Atmosphere, Materials & Resources, etc.) while remaining as simple and straightforward in structure as possible. If LEED were to adapt or modify these systems for a potentially infinite number of unique conditions for different projects, this would likely undermine the value of and dilute the systems and infrastructure supporting each system. At the same time, limited resources would be diverted to a kind of judicial review process on any number of unique circumstances of different projects—the risk of entangling LEED in thousand proverbial rabbit holes, damaging its brand.

The USGBC relies heavily on a framework of committees to manage LEED, which guide the development of new products and rating systems, and ensures

consistency across the system. The LEED Steering Committee, which reports to the USGBC Board of Directors and to the LEED Management Sub-Committee, largely charts the course of LEED and manages the evolution of the program. **Figure 4** shows an adapted committee and management structure of the LEED program (USGBC 2006a).

Figure 4. LEED Committee Structure. Adapted from U.S. Green Building Council (USGBC 2006a, 11).



Description

This figure illustrates the committee structure critical to LEED operations. The **(1)** LEED Steering Committee plays a central management role. LEED sub-committees and groups are organized by **(2)** Product Committees (rating systems and application guides) and **(3)** Technical Advisory Groups (TAGs). The TAGs ensure consistent product development across the core focus areas of the LEED rating system. The committee structure provides a glimpse of the policymaking apparatus of LEED, central to its role in exerting governance authority in the building industry. As LEED and environmental governance evolves (in the building sector or otherwise), it is likely this structure will change to adapt to both foreseen and unforeseen changes in the marketplace, linked to the fluctuating influence of LEED and USGBC.

As mentioned, most of the focus is on so-called “horizontal” products: the rating systems that not only apply to large swaths of the real estate industry, but across the credit categories. The “vertical” products—the application guides—receive less attention. It’s also important to note the Technical Advisory Groups (TAGs) that relate to each credit category, advising work taking place on each rating system and application guide from the standpoint of a given credit category—for example, Sustainable Sites. In addition, LEED has several mechanisms that help in interpreting existing LEED standards, modifying LEED standards, or defining alternative paths to compliance (USGBC 2006b).

Primary Stakeholders of LEED

Although the any member of the human species—or the animal kingdom for that matter—is a potential stakeholder in an environmental governance mechanism, the USGBC pays careful attention to specific groups of stakeholders from which it draws much of its legitimacy. Like any private individual or organization, the strength of reputation and brand aligns closely to strength of force in the marketplace. Since I have already grouped major stakeholders into three environmental governance sectors—private, civil society and public sectors—I will discuss the relationship between USGBC and its stakeholders according to each sector. An important reminder: any organization can be a member of USGBC—and by association, the employees of any member organization.

The USGBC’s relationship with the private sector is first and foremost through real estate developers, building owners (especially of large portfolios), construction

firms, architects and LEED consultants. These stakeholders are most critical to LEED because if they do not adopt LEED, then LEED immediately loses support in the market for its products. Such private sector groups see green building (i.e. LEED) both as a way to add value to their products, and an avenue in which to link economic development to social and environmental values—a popular and growing movement across the globe. From this nucleus of stakeholders most impacted by LEED and other green building standards, demand for LEED also comes from small, medium and large organizations (who build and renovate many buildings) looking for a publically recognizable way to increase their brand value in the eyes of their customers.

USGBC's relationship with civil society groups is largely through environmental organizations that promote better health, energy and water efficiency, conservation, sustainability, smart growth and urban planning. These groups, which can range from small local environmental nonprofits to global nongovernment organizations (NGOs), such as the World Resources Institute or Forest Stewardship Council (FSC)—the latter of which has a close relationship with LEED—are impacted in varying degrees depending on their relationship to USGBC.

The USGBC's relationship with the public sector is similar to the private sector, except that it has the ability to mandate by law that both public—and at times private—buildings must be LEED certified, or that building codes include LEED standards. For example, the U.S. General Services Administration (GSA) had required that all new federal buildings be designed and constructed at least to LEED Gold standards (although in March 2012 a U.S. Department of Energy report recommended Green Globes as a slightly better choice for federal agencies) (GSA 2012, DOE 2012). In addition, some

cities and localities either require or provide incentives for private buildings to obtain a LEED certification, as is the case with New York City (NYC 2013).

In Arlington, Virginia, the county uses density incentives to encourage developers to achieve and acquire LEED certification, among other items,¹⁹ (allowing greater density, or taller buildings, beyond purposely low-density limits in exchange for LEED certification), since it does not have the authority from the State of Virginia to mandate LEED certification for new buildings (however, some jurisdictions, like the District of Columbia, have the authority to mandate LEED certification²⁰). Yet, in Arlington, LEED is not seen as an end to itself, as certification doesn't necessarily²¹ mean a building is high-performing, and it is exploring the possibility of adding building data access in its negotiations with developers to more accurately derive performance and return on investment. Indeed, since LEED represents a green building standard at only one point in time, and credits become easier to achieve over time, the county continues to identify areas in which it can raise standards beyond LEED requirements.²²

¹⁹ The county government routinely allows exceptions for adhering to county development rules in exchange for funding public infrastructure improvements such as park areas, affordable housing, public art and public transportation projects. For example, one new apartment building project in Crystal City was approved by the county board after the developer pledged to obtain LEED Silver certification for the building, add electric vehicle recharging spaces and a landscaped roof, improve nearby sidewalks, curbs and parking meters, upgrade a nearby traffic signal, and contribute \$272,273 to public open space improvements in the locality (ARLNOW 2013).

²⁰ Public official, personal communication, February 25, 2013, Arlington, Virginia.

²¹ The county found that one of the first LEED-certified buildings in the county was actually less efficient than comparable, standard buildings. Public official, personal communication, February 25, 2013, Arlington, Virginia.

²² Public official, personal communication, February 25, 2013, Arlington, Virginia.

CHAPTER 4

ANALYSIS

Now that we have established a solid foundation for the USGBC and the LEED rating system(s), it is possible to investigate the explicit linkages between it and the larger sphere of environmental governance, and seek ways to answer the research questions outlined in Chapter 1. This first section investigates the unique characteristics of USGBC's legitimacy and authority that set it apart from other environmental governance mechanisms (assuming it is one). The second section explores incentives and deterrents for adopting LEED, while the third section outlines the various challenges and risks associated with applying LEED within the marketplace. In the fourth section, I show how LEED integrates into the framework of environmental governance systems, including private, civil, and public authorities, in addition to its peers that also leverage certification systems to administer governance in the marketplace. Finally, in the fifth section, based on my overarching analysis, I attempt to introduce the fundamental basics of LEED into other industries that have not (yet) found success in implementing a similar model to generate economic efficiencies and reduce social and environmental harms. In particular, market sectors that rely on or are heavily involved in energy. As I show, acquiring widespread legitimacy and demand in the market will determine the fate and effectiveness of any one mechanism.

Legitimacy and Basis of Authority

The foundation and heightened force of authority in the marketplace by the USGBC and LEED are tied to four important and intrinsically related drivers: (1) industry value and acceptance of LEED, (2) the widespread, enabling force of the LEED brand (3) the comprehensive, physical manifestation of LEED that directly impacts individuals, and (4) the broad-based *integrating* type of governance it delivers in the marketplace. Without these four drivers, LEED would very likely have ended up as just another among the multitude of certification systems that have arisen during the 21st century movement toward sustainable development (see **Table 5**).

The first driver of LEED's visibility and authority in the marketplace comes from its initial origins with architectural firms, real estate developers, and construction firms, which stand to gain (or lose) the most from a building industry transformation. Crucially, adoption of LEED standards must make both strategic and financial sense, and some developers merely use some elements of LEED standards to add value to their products, without obtaining certification. Like many other mature industries, the building industry has a long-established way of doing business. When it comes to changing the whole approach, it is not easy. As Martin Melaver and Phyllis Mueller in *The Green Building*

Bottom Line note:

A conventional real estate development firm works in a linear fashion. A company ties up a piece of land, and the development team creates a vision for what the project will look like. A design team, comprised of architects and engineers, develops a plan for how the project will look, while a financial team develops a plan for how the project will be profitable. A construction team executes the plan, constructing the conceived buildings, while a leasing or sales team works on filling in the project with tenants and/or owners. Finally, a management team steps in to maintain the project to desired standards...In contrast, a green building

bottom line company is shaped through integrated design, where envisioning, building, executing and maintaining come together (Melaver and Mueller 2009, 74).

While Melaver and Mueller go on to discuss how to design an entire business around the principles of a “green building bottom line,” their perspective speaks to the process changes the building industry has had to undergo in order to incorporate a more integrated, less linear approach to doing business. Having LEED as a final standard requires companies to operate more as the actual environment does—fitting design pieces together in a carefully balanced, integrated system that meets the needs of each component without upsetting the needs of others—for example, the social, environmental and economic needs of the triple bottom line.

Voluntary industry adoption of LEED is critical if it is to be taken seriously as an environmental governance mechanism. As Rick Fedrizzi notes, “If we could invite business to the table, we could develop standards relative to building performance, buy in at the very top, and be able to transform the marketplace toward sustainable buildings” (Kamenetz 2007, 1). This is a major reason why the USGBC has strived to remain inclusive and transparent in its processes to refine its rating systems to be flexible but relevant to market needs. Just like a public organization may have public comment periods for new rules—for instance, U.S. EPA rules on coal-burning emissions—the USGBC has committees and forums in which members can vote on proposed changes, consistent with a consensus-based governance approach. At the same time, its robust internal processes for developing the rules and LEED rating systems are crucial to

ensuring new standards are usable, consistent but flexible across the multitudes of different building types and building materials.

The power that USGBC's major stakeholders wield is considerable: when LEED announced it was releasing LEED 2012 to replace and update LEED 2009, an uproar ensued from industry groups who believed the market was not yet prepared to handle the modifications coming to a still-growing and changing industry getting used to the idea of sustainable, green building design. Principally, industry groups claimed (1) the changes were too comprehensive and being released too quickly, particularly during a depressed market, (2) categories being modified needed to be more refined before market-wide launch, and (3) avenues to achieve certain new credits would not be broadly available by the time the new version was launched (LEEDdaily.com 2012).

That USGBC responded by delaying the changes and changing the new rating system's name to LEED v4, revealing the delicate balancing act the USGBC must maintain while it expands and increases the comprehensiveness of the LEED rating system. Not only must USGBC concern itself with maintaining a competitive edge within the marketplace of green building certification systems, it must also take into consideration the legions of LEED professionals who must maintain their knowledge and credentials. This, in addition to spurring increased LEED adoption amidst competing rating systems.

As a result, the USGBC cannot be effective in administering environmental governance in the building industry without a great deal of mutual trust and support between it and major building industry stakeholders. Unlike the public sector which has the force of law to mandate changes in industry, the USGBC must derive its authority

from the marketplace—a rather volatile, dynamic environment at the whim of the economy—compared to the typically slow, bureaucratic processes of public policymaking.

It is from crafting a mutually beneficial relationship with the building industry that LEED derives its core *legitimacy* and positive *brand* in the marketplace. If building industry professionals did not respect LEED, know how to implement it, and see little added value (both short and long-term) it would not take the form of branded concept that can be adopted and implemented by any person or organization. That is to say, LEED could not become a *common language* between producer and consumer (USGBC 2006a). Indeed, LEED has become a common language between environmental governance and the governed. Lastly, the USGBC has earned legitimacy by remaining nominally *independent*²³ of any particular private industry group, civil society group or public institutions—a major trap for certification schemes that originate in industry and end up losing credibility because of the outsized influence of deep-pocketed industry heavyweights. For governance to work properly, fairly and effectively, it must be as independent and transparent as possible from conflicts of interests—an important consideration in LEED foundational documents, which points to LEED’s “balanced representation of stakeholders and conflict of interest policies” as essential for maintaining the integrity of the system for all stakeholders (USGBC 2006a, 18).

The second significant driver of LEED’s influence in the marketplace is its brand. The USGBC is very sensitive to LEED as a brand, a sign of its critical importance to the USGBC’s ability to transform the building industry in the name of sustainability. Like an

²³ Although this assessment remains debatable.

individual, an organization can be made or destroyed by its reputation. Developing mutually beneficial relationships and building trust with stakeholders—establishing *legitimacy*—are key to garnering influence in a system of any size, and provide a solid foundation for building an influential, respected brand in the marketplace. Without government institutional fiat in the market, brand identity is absolutely essential to this kind of environmental governance mechanism.

LEED has carefully crafted its image in the market as an authority in setting a standards for green building. Not only in creating standards, as a variety of organizations might do (in a vacuum or otherwise), but by establishing an accessible *vision* and *mechanism* by which individuals and organizations can be led to modify their behavior, so long as important, tangible incentives are in place. The USGBC underscores the importance of the LEED brand, particularly in how it is used abroad, beyond the legal protections and watchful eye of its Washington, D.C.-based headquarters:

If members of USGBC are the LEED System's most valuable assets, then a close second is the value of the LEED brand and the intellectual capital comprised by the LEED rating criteria, the consensus processes for their development and the rigor, and consistency of the certification processes. These assets must be protected in order to protect the integrity of LEED and [the] further advance of LEED in the market. As LEED becomes widely used in the U.S. and internationally, upholding the rating system's core environmental performance levels while allowing for regional supplementation and sectorial and national adaptation becomes increasingly important. A LEED rating must mean the same to the market in all circumstances (USGBC 2006a, 17).

A couple of important points arise from these statements. First, the USGBC is both excited by and concerned about the implications of LEED playing a stronger role in

green building (environmental governance) at the global level. Environmental challenges are as local as they are global, and it is an opportunity for LEED to harness resources and leverage points at the global level to transform the building industry around the world. However, just as the USGBC discourages “independent” adaptation of LEED standards at the local level, adaptations can also occur outside or “above” the USGBC’s U.S.-based sphere of influence, which risks weakening the integrity of the LEED brand.

One of the chief complaints of LEED has been that its standards are at times *too consistent*. LEED may mean the same thing anywhere in the market—good for branding—but sometimes its credit allocation systems result in projects earning LEED credits for design elements that actually make a building less efficient. For example, higher grade insulation in a building might make sense in a cold, dry climate, but that same insulation might trap heat and moisture in a warm, wet climate, resulting in the project meeting the letter, rather than the intent of credit, potentially with adverse impacts on the building in the long-term. USGBC has tried to address regional climate variations and other local adaptations through a number of avenues such as LEED Supplements and Adaptations, but it is very protective of keeping the core framework—a carefully balanced system—intact so it can remain recognizable both as a brand and from a technical perspective (USGBC 2006a).

The third driver of LEED’s authority is the nature of the industry on which it exerts environmental governance. Buildings and people have a universal, unique relationship: in the United States, Americans spend more than 90 percent of their time indoors (EPA 2009). That is to say, people have an important, personal connection to the space they occupy, whether it is at work or at home, and it is something most individuals,

at least in developed countries, have in common. Besides the universality, this relationship is similar to other products that are produced and certified as “green” or “sustainable”—for example, Rainforest Alliance-certified coffee. However, coffee can be consumed and enjoyed only for a short period or in intervals, and some people do not care much for coffee, or only drink it occasionally. Buildings and coffee are similar in that they are both products: a building is essentially an empty space that has been developed into a product for individuals to consume. In contrast, consumption of buildings is virtually ongoing and infinite, from the inside-out, creating a sort of “secondary environment” that is manufactured within, but separate from, the outdoor environment. Such a unique consumer-product relationship makes buildings ripe for a public, multi-stakeholder focus on sustainability and, as it were, environmental governance, because of the complete immersion of the individual within the product.

In so being, one of the promised benefits of LEED-certified buildings is a healthier environment for occupants. Design enhancements might include better air circulation, more natural light, more open, spacious corridors and use of non-toxic materials (such as paints and carpeting) that reduce or eliminate volatile organic compounds (VOCs). That is to say, green buildings create a more “natural” environment—one that is more similar to being outdoors—where air circulates and where lighting is optimal. The EPA notes that indoor pollutants can be two to five times higher than the outdoors, and in some cases up to 100 times higher from indoor pollutants such as building materials (paints, carpets, flooring), household cleaning, heating and cooling systems, among others in addition to outdoor pollutants such as radon, pesticides and combustion-derived pollutants (EPA 2009). These have real health (and economic)

effects: for example, asthma, which is aggravated by pollution, is the third highest cause of hospitalization for children under 15 years. This is one reason why LEED focuses on the unique conditions of schools—both from an occupant standpoint and from a design standpoint.

If one compares the public uptake of LEED over other product certification standards—especially certifications that involve a commodity like coffee—there is far less public interest in the sustainability of a commodity chain that is far removed from the consumer, versus a product that is designed, built and consumed all in the same location, where the connection between consumer and product is well established and ongoing. Case in point: Certified Fair Trade coffee constitutes only 1 percent of global coffee sales, while the percent of buildings constructed to green (not necessarily LEED) standards had risen to 44 percent in 2012 (Valkila 2009; McGraw Hill Construction 2012). This driver of governance authority is important because it suggests that LEED has a natural advantage in an otherwise difficult set of conditions for environmental governance where other governance mechanisms—whether public, private or civil society-based—have made only minimal progress in gaining widespread traction and influence.

The fourth critical driver of LEED's force in the marketplace is its highly-visible location atop other private environmental governance systems and the environmental *macrogovernance* it provides in the market. As discussed later in looking at LEED's linkages to other environmental governance mechanisms, LEED plays a particular type of environmental governance role in the marketplace at an *integrating* or horizontal level where many products and commodities come together to form a final, large product (a

building). This stands in contrast to other environmental governance systems that exert environmental *microgovernance* within the sphere of a single product, commodity, or subsystem where governance is highly vertical, and spans multiple levels (**Figures 4 and 6**). Depending on a certification system's location in this framework, it will have certain boundaries of influence that will shape its authority and position in the marketplace.

Of course, while LEED has visibility as a highest-order product, all of this depends on the product in question. Layers and silos of other “green” rating and certification systems crisscross the products and commodities that feed into a green building (**Table 5**). Further, the boundaries between macro and microgovernance are blurred and, consistent with the state of environmental governance more broadly, a confusing patchwork of overlapping and competing mechanisms.

Figure 5. Macro governance (Horizontal) vs. Micro governance (Vertical) Systems

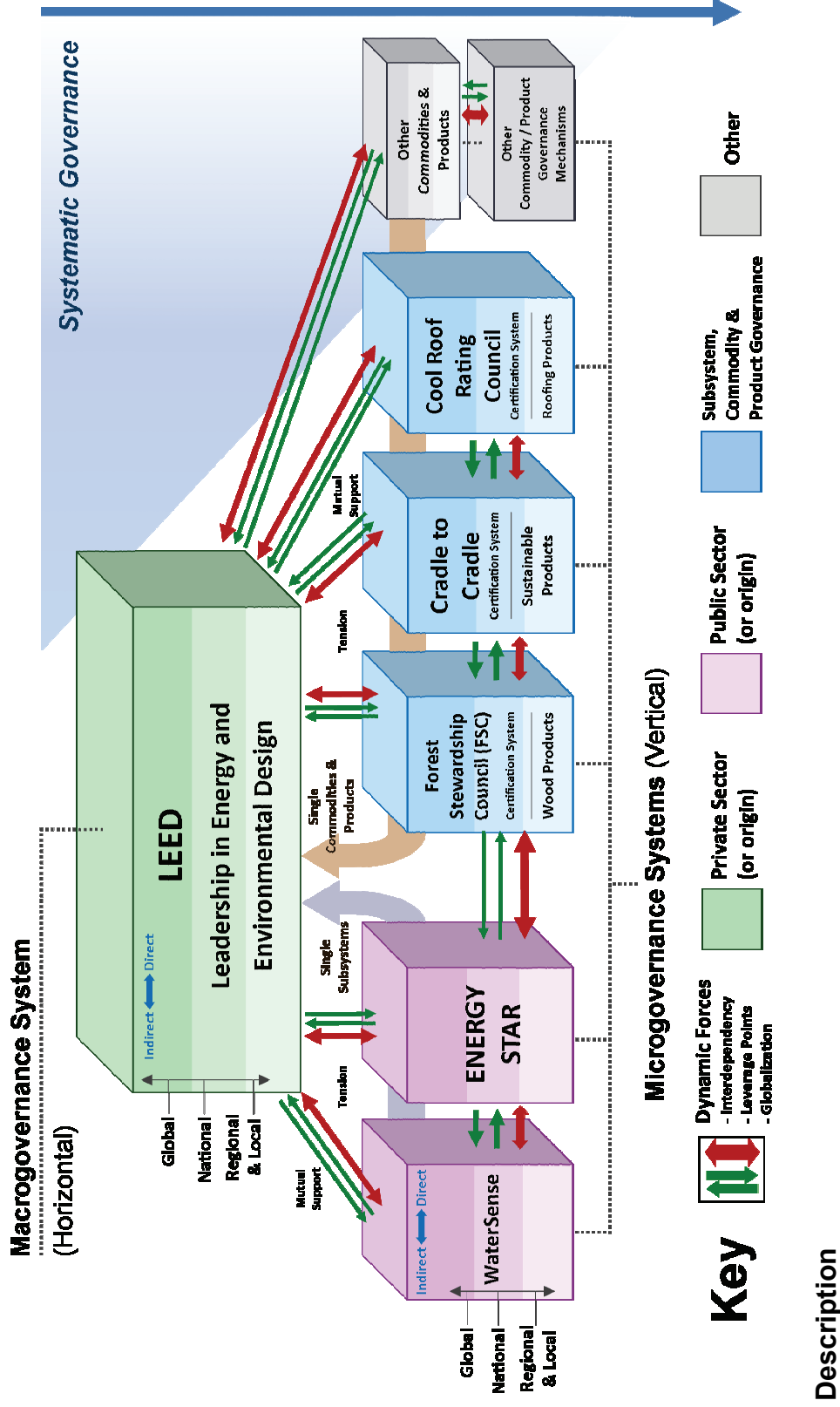


Table 6. Green Building Products and Certification Systems (Abbreviated list, adapted from GBA 2009).

Name	Product Type	Governance Model
Cool Roof Rating Council	Roofing	Rating; Third Party Certification
ENERGY STAR	Appliances, building products, commercial food products, electronics	Label; Third Party Certification
FloorScore	Ceramic flooring, laminate flooring, linoleum, rubber flooring, vinyl, wood flooring	Label; Third Party Certification
GREENGUARD	Bedding, building products, cleaning and maintenance products and systems, furniture, office equipment	Label; Third Party Certification
Green Label	Carpet	Label; Third Party Certification
Cradle to Cradle	Building Products	Certification; Third Party Certification
WaterSense	Residential, commercial plumbing products	Label; Third Party Certification
Forest Stewardship Council (FSC) Certification	Wood, paper and other wood products	Certification; Third Party Certification
Sustainable Forestry Initiative (SFI)	Wood, paper and other wood products	Certification; Third Party Certification
CSA Sustainable Forest Management (SFM)	Wood	Certification; Third Party Certification
Ecologo	Automotive, building/construction, business cleaning and janitorial, consumer electricity, fuels and lubricants, furniture, packaging/containers, paper, services in automotive and printing sectors	Certification; Third Party Certification

However, it is important to differentiate LEED and other green building certification systems from the above table. While LEED may be at the highest, macrogovernance level for green buildings—there are no rival environmental governance systems in existence at this particular product level (beyond other green building rating systems). Third party environmental governance systems are noticeably absent from other large and highly-visible capital-intensive products like cars, trucks, boats, airplanes

or other large, complex machines and infrastructure products. One reason is likely the enormous size and diversity of stakeholders involved in the building industry: the entire U.S. construction industry accounts for 13.4 percent of U.S. gross domestic product (GDP) (roughly \$2 trillion dollars in 2011), comprised of 223,114 businesses involved in the building industry with more than \$531 billion in annual revenues (Unions.org 2011; World Bank 2011; EPA, “Buildings and Their Impact” 2009).

To conclude this section, LEED’s basis of authority is driven primarily by industry acceptance of LEED. As a governance mechanism originating from the private sector, acceptance by its peers is crucial to its authority. Tied to this industry acceptance is another crucial asset: the LEED brand, which reinforces its broader force and acceptance in the market place. Third, the nature of the building industry itself—its vast and diverse products and stakeholders along with a special connection to consumers, make LEED a widely recognizable standard both within green building and across sustainable development more broadly. And fourth, the level of product at which LEED operates—the macrogovernance level—reinforces LEED’s broad-based recognition across many sectors and avoids the potential pitfalls of private, environmental microgovernance organizations that focus on only one specific product or commodity in the marketplace.

Incentives and Deterrents for Adopting LEED

Even with the current momentum of LEED, it is important to point out the wide array of deterrents and incentives existing in the marketplace that are weighed for any user of USGBC’s green building rating system. Because LEED does not have the force of

law necessarily²⁴ on its side, most stakeholders choose LEED after considering the goals of their organization and whether or not obtaining LEED certification adds the appropriate mix of short and long-term value. While the question of whether or not to use LEED necessarily intersects with its role as an environmental governance mechanism, this section specifically considers the *practical* tradeoffs of LEED in the marketplace.

The many actual and perceived incentives of LEED are as wide and diverse as LEED's notoriety in the market. Like the environmental ecosystems services we discussed earlier, the benefits of green building can be direct, indirect, short-term and long-term, and are usually a combination of all four. In addition, the benefits range from the directly observable and specific to the generalized and theoretical. Finally, green building benefits and incentives can be divided into the individual, regional, and global categories (Global Green USA 2008).

From a financial standpoint, green buildings (LEED-certified or otherwise) tend to use significantly less energy and water than standard buildings, generating an immediate, calculable return on the 2 percent average added cost of a LEED-certified building. In the United States, where 70 percent of electricity is consumed by buildings, the economic efficiencies generated by an average 20-30 percent in energy savings for a single building is not insignificant (Kats 2003). Further, research has shown that globally, energy efficient, "green" buildings have higher resale value (2-17 percent), higher rental rates (6-35 percent), higher occupancy rates (1-18 percent), lower operating costs (30 percent), increased net operating income (6 percent), and higher productivity gains (5

²⁴ With the exception of government or corporate mandates that specifically require the use of LEED standards.

percent). Green buildings are also healthier for occupants, particularly given the very high portion of time that individuals spend indoors. The average 5 percent increase in productivity gains is linked to better (natural) lighting, quieter working conditions, better ventilation, improved control of one's workspace, and generally, an improved overall working environment for occupants. For LEED-certified buildings, research has shown that these gains are due to less employee use of sick time and heightened productivity (Johnson Controls 2012). Considering all of these gains together, the potential economic multiplier effects are substantial: these savings, representing millions if not billions of dollars in the aggregate, are reinvested into other areas of the economy.

However, the potential savings of green buildings are not purely economic or easily quantifiable, especially social and environmental benefits. For example, if occupants of green buildings are healthier and generally more productive, this likely feeds into broader society as a whole, such as reduced demands on the healthcare system. We have discussed localized benefits, but from a regional, aggregate perspective, LEED buildings improve waste management while increasing the use of recycled and reused materials, among other benefits, all of which expand advantages that benefit untold numbers of individuals and organizations. At the global level, green building can reduce the carbon dioxide emissions of buildings (as a result of their energy usage) to reduce the likelihood of human-caused climate change, while enhancing protection of forests around the world.

Of course, all of these benefits are the tip of the iceberg: improved environmental governance as a result of LEED offers innumerable benefits to society at large in terms of what might be conceived as an "environmental multiplier": just as an expenditure has a

positive economic “multiplier” or ripple effect throughout the economy (for example, stimulus spending), so can enhanced environmental governance have an environmental ripple effect that results in positive social and environmental gains throughout society, which, due to interdependency between the environment, society and the economy, will likely result in economic gains.

Deterrents to embracing LEED primarily originate from an alternative financial perspective: building to LEED specifications can be costly, time-consuming, overly complex, consultant-dependent, and the benefits of LEED may be difficult to prove or quantify, particularly in the long-term. In a return-on-investment-driven economy, these impediments—real or perceived, have hampered LEED’s adoption in the building industry.

First, there are considerable costs associated with acquiring LEED certification. There is a significant amount of knowledge and expertise needed to accomplish both the design and construction of a building that meets LEED standards, in addition to substantial registration fees, which range from \$500-\$27,500 (GBCI 2013b), excluding any energy modeling costs or consultants for added safety in ensuring the project actually meets LEED standards (Melaver and Mueller 2009).

For example, in the U.S. federal government, property management officials have complained of the slow and expensive LEED certification processes for federal projects (the USGBC or designated contractor must review each project once it is complete in order to provide certification²⁵), particularly in comparison to competing standards, such as Green Globes, which is run by the Green Building Institute—a fierce competitor to the

²⁵ Industry official, personal communication, March 5, 2013, Arlington, Virginia.

USGBC—and a rating system known for being more flexible and affordable in comparison to LEED (although, according to one official, a report commissioned by the U.S. General Services Administration indicated that Green Globes was preferred for new construction, while LEED was better-suited for operations and maintenance).²⁶

In addition, from a procurement perspective, LEED certification means a no-bid, single-source contract for certification, placing LEED users at significant disadvantage in the market place.²⁷ Indeed, interest from company executives in pursuing LEED has fallen from 62 percent in 2008, to 53 percent in 2010, and to 43 percent in 2012, who overwhelmingly cited high certification costs, significant staff time commitment, a slow process and overall perceived difficulty with the certification process (Turner 2012). Finally, in the international arena, LEED may be an aspiration but not at all practical in the context of a developing country: in states where available funds are scant for construction projects in general, and infrastructure is limited, there is limited potential for return on investment by gaining official LEED certification, although certain aspects of LEED design elements may be utilized.²⁸

Second, from an environmental standpoint, there is legitimate criticism that the design of LEED, using credits to reach certification, promotes “gaming” of the system. For example, since LEED’s point system is not weighted, it means that some design elements (for example, adding a bike rack to a parking garage) receive the same amount of credit as other very costly design elements, such as the redevelopment of a formerly

²⁶ Public official, personal communication, February 4, 2013, Washington, D.C.

²⁷ Public official, personal communication, February 11, 2013, Washington, D.C.

²⁸ Industry official, personal communication, June 13, 2012, Quito, Ecuador.

contaminated site. The project would meet the letter, but not the intent of the standard, potentially minimizing cost but equally minimizing environmental benefits. There have also been concerns that the USGBC exerts too much influence in the development and implementation of green building standards for U.S. federal agencies, resulting in standards that link unusually closely to that of LEED, or provide agencies with greater flexibility in achieving certain credits.²⁹

In addition, because LEED is primarily focused on the design of a building with less emphasis on its *location*, some have argued buildings that meet the criteria for certification remain fundamentally *unsustainable* due to a variety of factors. An example: imagine constructing a 5-star resort in the middle of the Sahara desert. Even if the project ultimately met LEED standards, the entire concept is ultimately at odds with sustainable, environmentally-friendly development: untold quantities of fuel would be used and emissions released simply to build the project, say nothing of maintaining the operation. Criticism has also been leveled at the USGBC for limiting the flexibility of credits used for gaining LEED innovation design points, and by not requiring LEED building owners to report the energy or water usage, which limits the ability for LEED or other researchers to collect non-self-reported data on overall energy and water savings (Quirk 2012).³⁰

It remains essential, however, to place these deterrents and criticism in perspective. Many of the complaints about LEED result from its robust and

²⁹ Public official, personal communication, February 4, 2013, Washington, D.C.

³⁰ Although, it should be noted that LEED is a design tool, rather than a performance measurement tool.

comprehensive approach to governance. Without the technical rigor of its rating systems, it is probable that “easier” or “more flexible” certification systems would reduce the overall effectiveness of its systems for the benefit of all three sides of the triple bottom line. Furthermore, the designers and managers of LEED must perform a very, very careful balancing act of carrots and sticks to promote adoption of LEED in the marketplace, while ensuring the integrity of the system and quality of its brand is maintained. At the same time, modifying, upgrading and expanding LEED is fraught with risks: at the size and scale of the building industry, any change can have major consequences—both intended and unintended. A major governance design mistake could doom the USGBC’s LEED system overnight, in contrast to the public sector, where trial-and-error policymaking is commonplace, with comparably few repercussions. Above all, the biggest challenge for the evolution of LEED is managing and stretching a dynamic spectrum of governance in the building industry: there is the need for continued strengthening and innovation in its standards (raising the bar), but an equal need that it remains accessible to new adopters (the lowest bar remains in reach).³¹

Implications of LEED in Environmental Governance

If we make the assumption that LEED meets the definition of an environmental governance mechanism, where does it fall exactly within the realm of environmental governance? What are the relationships it must build and strengthen within environmental governance, and within the larger civil society, public and private sector arenas? To further complicate matters, we must also investigate the dynamic elements of

³¹ Civil society official, personal communication, March 8, 2013, Washington, D.C.

these relationships: the interdependencies between LEED and its stakeholders, the power to alter environmental governance located within leverage points, and the power of all-encompassing forces such as globalization. Although there are myriad other sources of positive and negative tension within components of the existing environmental governance system, we will limit this discussion to these three major sources.

Figure 6 on the next page attempts to place LEED within the broader framework of world environmental governance sectors. Environmental governance exists in the form of many overlapping layers of actors, institutions and forces that shape the way humanity interacts with the environment. That is to say, it is virtually impossible to list every single one, as even at the individual level, each one of us exerts governance within our own environment every day—whether it's by walking instead of driving, or by choosing to recycle. This model, however, focuses on overarching systems, and merges existing, traditional sources of governance to illustrate the complex relationships that emerge from so many different actors and institutions, all with highly variable interests, that have crowded the environmental governance arena, creating a sensitive, sticky soup of networks and nodes of environmental governance authorities.

Description of Figure 6

Figure 6 depicts relationships and linkages between world environmental governance sectors and systems and as they relate to Leadership in Energy and Environmental Design (LEED). The proposed model is an extension of and adaptation to the environmental governance mechanisms model demonstrated by Delma and Young (2009) in Figure 1, which divides major governance mechanisms (in this model, described as “sectors”) by civil society, private sector and public sector. The model is divided into two types of environmental governance, *organizational* and *systematic*, illustrated on the far right side of the model. Systematic governance is an *extension* of organizational governance that is used as an environmental governance technical tool.

Organizational Governance refers to organizations that exert environmental governance from the three main sectors (civil society, private sector, and public sector), and a miscellaneous category shown in the first row. The sectors frequently overlap as sources of environmental governance, both sharing and competing for governance authority. In addition, each sector has the ability to exert environmental governance indirectly or directly. Finally, each sector contains organizations that focus and have influence from the global to local levels, and in some cases spanning the entire range.

For **Civil Society**, and example would be the World Wildlife Fund (WWF), a global environmental nonprofit organization, that exerts governance authority through its programs and influence at multiple levels. In contrast, Arlingtonians for a Clean Environmental (ACE), a local environmental nonprofit in Virginia, United States, primarily exerts its authority and influence within a small geographic region. However, due to the interconnected nature of the environment, each organization actually exerts both direct and indirect authority. The U.S. Green Building Council (USGBC) falls into the Civil Society sector. In the **Private Sector**, multinational corporations, national companies and small businesses can also exert environmental governance authority, for example by committing to sustainable business practices and supply chains. In the **Public Sector**, organizations at all levels of government such as the United Nations Environment Programme (UNEP) and the United Kingdom Environment Agency, including state, provincial and local authorities, set and enforce policies concerning the environment—the traditional form of environmental governance.

Systematic Governance, shown in the second two rows, refers to the global suite of technical systems that have been developed and deployed to either regulate a (1) specific part of the environment or (2) a specific product or set of products. As this model is focused on LEED, the rating system appears alongside similar rating systems concerning the built environment. I should reiterate that these are *technical systems or tools* used as *extensions of governance* from the organizations represented in the first row of organizational governance sectors. The USGBC, the developer and manager of LEED, remains as an organization in the top level Civil Society sector, part of organizational governance. Similarly, the Forest Stewardship Council (FSC) as an organization remains in the Civil Society sector, within organizational governance. However, the certification systems of both USGBC and FSC exist as technical governance systems shown below within systematic governance.

Since the model is focused around LEED, the third row illustrates a wide array of design and product standards that flow into its green building rating system. This high level, horizontal governance is referred to as **macrogovernance**. The individual subsystems, products and commodities that flow up to LEED, resulting in a fully-constructed building, in some cases are governed *individually* by other technical systems or tools such as EPA’s WaterSense certification system or Forest Steward Council (FSC) wood certification system. This product or subsystem-specific, vertical governance is referred to as **microgovernance**. The final product, a LEED certified building, is ultimately a product that flows to the organizational governance sectors.

Dynamic Forces in the model (green and red arrows) represent dynamic relationships between different sectors and systems. Both the organizational governance and systematic governance mechanisms share interdependencies that effect how environment governance is exerted in the marketplace. These relationships also represent leverage points for increasing or decreasing influence between sectors and systems from the perspective of a particular organization or system (such as LEED). Lastly, the push-and-pull relationships between sectors and systems are illustrative of the forces of globalization that serve to simultaneously increase opportunities for collaboration and stronger relationships, but also represent risks and challenges to how environmental governance will be exerted in the marketplace as governance has become more complex, interconnected and multi-dimensional, especially as it relates to environmental issues.

An explanation of the above figure is in order. Beginning at the highest levels of environmental governance, the major sectors are divided into four groups by Civil Society, Private Sector, Public Sector and Other Actors & Forces. These formal governance systems exert *organizational governance*, in contrast to *systematic governance* exerted by the technical governance systems beneath them.³²

Like the subsequent governance layers connected to these sectors, each major sector has global, national and regional/local power and influence. Further, each sector has both indirect and direct influence that flows from its activities. These horizontal and vertical influences created a blended, multi-scalar and multi-dimensional mix of powers in the global marketplace across economic, social and environmental lines to various extents depending on the actor. At the same time, the mere existence of a particular group doesn't necessarily mean it *does* exert governance—it simply means that it has the capacity to, as governance vacuums in the marketplace are quite common.

For Civil Society, the World Resources Institute (WRI) is one example, which has programs that range the entire spectrum of political governance hierarchies. Similarly, organizations such as Arlingtonians for a Clean environment (ACE), a local environmental nonprofit group located in Arlington, Virginia, in the United States exerts governance authority at the micro level, but in a global environment where linkages are virtually infinite, its influence necessarily extends far beyond its geographic boundaries.

In addition, the private sector, which manages the complex supply chains that supply the global economy with goods and services—and has enormous impacts on the state of the global environment from its operations—exerts environmental governance

³² See **Figure 6** for description of organizational versus systematic governance.

authority through operational policies and guidelines that guide production and distribution; a few examples include Walmart, Unilever, and Boeing (although businesses exert their authority at any scale depending on the size and scope of their organization).

The same standard applies to members of the public sector. For example, the UN Environment Programme (UNEP) operates programs at the global level, but also influences locally. The power and influence of national governments, too, play a role far beyond formal borders: the U.S. Department of Defense (DoD) has military installations located throughout the world, many of which are being upgraded to more stringent environmental and efficiency standards, though a new law in late 2011 barred DoD from spending funds on LEED certification for buildings at the Gold and Platinum levels (Sumner 2012, Medici 2012).

Finally, Other Actors & Forces represent groups and individuals who exert governance authority outside of more formal systems—for example, the non-state actors and institutions (at any governance level) that are increasingly undermining the power of traditional governance mechanisms, such as organized crime, cartels and private protectionism, in addition to accounting, insurance and financial rating organizations (Strange 1996). One micro example would be the role of organized drug syndicates in illegal logging (Mexico is a recent example), a kind of inverse environmental governance (although one could apply this concept universally) (O’Conner and Booth 2011). Non-state actors can hit closer to home, too. The global, Internet-based “hactivist” group known as Anonymous has been known to exert decentralized authority on public, private and civil society actors by infiltrating and shuttering information technology networks, particularly websites of organizations or groups who perform activities with which it

disagrees or finds reprehensible—the U.S. Sentencing Commission (2013), the Syrian Defense Ministry (2012), the Vatican (2012), Karl Rove’s political organization (2012), and even other non-stake Actors & Forces, such as the Los Zetas (2011), the powerful drug syndicate in Mexico (CBS 2013, Bell 2012, ALTONIVEL 2013). Such groups operate with little public oversight, but there are many organizations that attempt to dismantle them. From the environmental perspective, INTERPOL administers the Environmental Crime Programme (INTERPOL is the only international organization that shares crime data globally) that leads operations to investigate and dismantle criminal networks behind environmental crimes, and develops international law enforcement guides and resources. Through an association of criminal investigators, INTERPOL also administers the Wildlife Crime Working Group and Pollution Crime Working Group to develop targeted projects for specific areas of environmental crime (INTERPOL 2013). Although the grouping of Other Actors & Forces may not seem to have a direct link to environmental governance, its critical role within the global political economy, often under the radar, suggests a dizzying array of opaque leverage points that most certainly impact the environment at all levels, indirectly or directly.

Linked to these overarching governance sectors are formal systems that exert *systematic governance* that address an area of the global economy from a technical standpoint, the level at which LEED and other green building standard-setting organizations operate (the USGBC as an organization operates at the higher level, within Civil Society). These formal governance systems stand in contrast to the *organizational governance* exerted by the overarching governance sectors. Within this group, LEED and other green building certification systems operate at a global scale, interacting with

important stakeholders both “above” and “below” their location in the broader environmental governance framework. At this level, we would also include other *macrogovernance systems* that address a large sector of the global economy, although few if any reach the diversity, scale and magnitude of the global building industry.

Finally, the third level within this framework represents what we discussed previously as *microgovernance systems* that address a subsystem, product or commodity which feeds into the governance provided by the macrogovernance systems—in this case, LEED. These systems represent a vast array of separate, overlapping and competing governance systems that also maintain organizational linkages to the overarching governance provided by the organizational governance sectors. They can also be thought of as *governance extensions* for the environmental governance provided by these sectors. A few U.S.-based examples of these systems are shown in **Table 5**, while **Figure 6** focuses on timber products, originating in the private sector, in addition to ENERGY STAR and WaterSense, originating in the public sector.

The “dynamic forces” shown in the model, illustrated by red and green arrows, illustrate important elements of dynamism and fluctuation between different components by adding the dimension of time to the model. Since environmental governance is inherently fluid, there are constant interactions between different programs and systems. These interactions have major effects on the quality and quantity of environmental governance available to and delivered within society, the environment and the economy.

First, the dynamic forces can be viewed as typical “give and take” *interdependencies* between different programs and systems. For example, private sector organizations that utilize the LEED rating system for their corporate-owned buildings

have both (1) a mutually-beneficial relationship (LEED strengthens the corporate brand image to the public, while private sector adoption reinforces LEED's brand and authority in the marketplace), and (2) a relationship with the potential for tension (LEED could raise standards so high that the private sector sees reduced benefits versus costs, while the private sector could either demand changes to LEED or ignore LEED altogether). These dynamics apply to all programs and systems in environmental governance, where trust, incentives and value (real or perceived) between individual groups come together to form complex, ever-changing relationships that offer opportunities and pose risks for each party. In addition, it is important to note that these relationships are not limited simply to what is shown in the model, which is structured around LEED and other green building rating systems: FSC and other product or commodity-based microgovernance systems have linkages directly to the larger programmatic governance sectors that entail their own unique relationships.

Second, the dynamic forces represent clear leverage points within the broader framework of environmental governance. These points represent specific avenues in which a program or system has the ability to influence another through specific actions (or levers), ostensibly for a particular outcome that in some way strengthens the health of the overall environment. For example, when there was an attempt to change LEED to accept both Forest Stewardship Council (FSC) timber products and Sustainable Forestry Initiative (SFI) for projects to achieve certain LEED credits (dubbed the "Wood Wars"), this had major implications for the legitimacy and authority of both timber product rating systems—FSC saw its authority and legitimacy potentially diminished in the marketplace by being equated with SFI (known for being more big-business friendly, with lower

standards), while SFI saw the potential for heightened authority and legitimacy (Cheatham 2012). This example is more of a negative leverage point, however. A positive leverage point would be LEED raising the standards of its rating systems by requiring stricter energy and water savings, and more robust requirements that take into account the location of a project, while retaining the standard Certified, Silver, Gold and Platinum rating scale. However, the amount of leverage within any one leverage point depends on the relationship in question: heightened LEED standards might not be as easily accepted by the private sector, which may be more concerned about the economic bottom line.

Third, the dynamic forces represent intrinsic forces, such as globalization, that can expand, contract or destroy interactions and relationships between systems and programs. A good example of this dynamic for LEED is the ever-present danger that its brand will be misused or misapplied in other countries where traditional governance structures designed to protect against, for example, copyright infringement, are weak. While the risk of a brand-damaging event is universal, the USGBC does not have the leverage in other jurisdictions to protect against the integrity of its systems or brands, although it has deployed a well-developed strategy that requires other countries to establish their own Green Building Councils, which adds a layer of protection to the USGBC brand. But this particular risk isn't that unusual: the heightened risk originates from a growing interconnectedness of the world, particularly in the free flow of information. With the advent of Twitter and Facebook, a scandal or inappropriate situation tied to LEED in another country could mushroom into a severely damaging event for the LEED brand throughout the globe, transmitted instantly around the world. The potential domino effect would be disastrous not only for the USGBC, for environmental governance more

broadly, as trust and value associated with LEED instantly evaporated. Examples of these situations occur regularly: In 2012, it was revealed that Walmart had potentially bribed Mexican state officials, causing an immediate uproar from critics of the global retailer (though Walmart is so large that the event is merely a momentary blip on the radar) (AP 2013). At the same time, it is essential to point out the positive aspects of globalization and growing interconnectedness: good news flows as quickly as bad, and organizations have the ability to construct a strong, concrete brand image quickly and consistently using a variety of new tools—brands strong enough to withstand the occasional setback.

Before attempting to apply elements of LEED to other sectors, as I do in the next section, it is worth taking a broader snapshot of the incredibly complex environment in which LEED and similar governance mechanisms operate. Seemingly at every turn, there are risks and opportunities. The model in **Figure 6** lends itself to understanding these interconnected relationships between different organizations and LEED, all of which have both shared and divergent interests that react to conditions that arise in the marketplace. The next two sections provide two separate cases of where the model can be used to show these relationships in action.

The first example involves a change in state-level public sector policies. While state and federal agencies have broadly supported LEED and green building in public projects, there have been instances of political flare-ups where an emphasis on LEED certification has backfired. One such instance involved three entities—LEED, FSC and the U.S. state of Maine. The conflict arose over LEED's preference for FSC-certified wood over any other timber product certifiers, like SFI, to achieve certain credits. The

argument put forth by Maine's governor was that because 90 percent of FSC-certified wood was from foreign locations, maintaining LEED requirements for public buildings, which calls for FSC-certified wood, was suppressing domestic jobs tied to Maine's timber industry. The result of this conflict was an executive order issued by Governor Paul LePage of Maine that effectively outlawed state buildings from pursuing LEED certification (Melton 2012). What this situation tells us is that LEED and FSC have found themselves wedged between a well-known relationship: the political establishment and big business. At the same time, political leaders have found themselves wedged between an extension of their own governance authority in using LEED (and as an even further extension, using FSC) and the individuals and entities they represent—an interesting yet potentially confounding dynamic that further complicates the broader environmental governance arena.

This public-LEED dynamic has other facets, however: U.S. states now appear to compete with each other for having the most LEED-certified buildings, with governors trumpeting their place in the U.S. Green Building Council's annual ranking.³³ But as systematic governance mechanisms like LEED proliferate as an extension or even replacement for traditional environmental governing authorities, third party governance systems, and the organizations that manage them, risk becoming entangled in conflicts between an ever-expanding cornucopia of stakeholders.

³³ State governors have begun proudly announcing their state's rank in new LEED certifications each year. In 2013, Illinois Governor Pat Quinn announced it had received 4th out of all 50 states, while Virginia Governor Bob McDonnell heralded his state's 1st place rank. The benefits of LEED appear to go well beyond the financial and environmental, to even the political sphere, illustrating some of the additional and unexpected incentives it provides in the marketplace (RealEstateRama 2013; ELP 2013).

A second example involves a proposed policy change to LEED standards by the USGBC that created a firestorm within certain segments of private and public sectors surrounding the use of chemicals in building materials. In the latest draft version of LEED (formally known as LEED 2012, now LEED v4), a new credit was added designed to reduce the amount of materials that contain chemicals that are known to “negatively impact human health (specifically in regards to cancer and reproductive toxicity),” according to a list developed by State of California (Cheatham 2012). To achieve the credit, known as Avoidance of Chemicals of Concern, designers must use at least 20 percent (in terms of cost) of three types of building materials that do not contain certain added substances.³⁴ One of the issues with the new credit was that the supply for building materials that meet the standards is very small; for example, the Center for Environmental Innovation in Roofing noted that over 90 percent of common roofing membranes and insulations would be ineligible for the credit. The Center’s list of concerns included the potential for market disruption, undermining broader sustainability goals, applicability and appropriateness of the chemical lists, lack of broad consensus on hazards of the chemicals in question (i.e., outside the State of California), and unintended consequences on material manufacturers for projects where the credit is applied to only single parts or systems of a building (i.e., a roof) to achieve a LEED rating (CEIR 2012). And this reaction was only from one type of product manufacturer. Fifty U.S. Congressmen responded to the new credit in a letter to the U.S. General Services Administration voicing their disagreement with the proposed change to LEED, asking

³⁴ Specific substances include polyvinyl chloride (PVC), hexabromocyclododecane (HBCD), Tris(2-chloroethyl)phosphate (TCEP), carbon black, titanium dioxide, bitumens and wood dust (CEIR 2012).

GSA not to adopt LEED 2012, arguing that too many products would be effected, particularly vinyl-based materials such as flooring, roofing, and wire. In addition, chemical companies also began lobbying against LEED 2012 (Cheatham 2012).

This second example provides another illustration of the delicate governance framework in which LEED functions, and perhaps how uncomfortable the public sector is with having environmental governance authority outside of its direct control. It also demonstrates the limits to how quickly the USGBC is able to update or increase green building standards, and raises questions about the capacity of its processes for developing strong, defensible credits that link to materials and supply chains that are far beyond the design and capacity of LEED to regulate (for example, playing the role of FSC and LEED at the same time).

At the same time, some have noted shifts in the marketplace in how the private sector now reacts to new LEED standards, which at times seem arbitrary or unreasonable: in previous releases of LEED, such as 2009, draft versions were released for public comment only one to three times before final publication. In the current version under development, LEED v4, the USGBC is now on its sixth draft, and v4 currently remains unfinished. This indicates some stumbling and tension as LEED attempts to broaden, deepen and reduce gray areas in the system, while confronting heightened resistance from private sector partners who appear less inclined to simply accept new requirements they find unreasonable, as they might have in the past.³⁵

³⁵ Industry official, personal communication, March 5, 2013, Arlington, Virginia.

Certainly, all these instances have been learning experiences for each sector that has a relationship to LEED—public, private and civil society—and, most importantly, for the USGBC itself.

Further, two valuable features of the model in **Figure 6** are that (1) it can be used as tool to understand the complex relationships between environmental governance organizations and systems and (2) can be used a strategic planning tool. While the model is centered around LEED, one could substitute any environmental governance system in place of LEED in order to raise questions about the potential incentives, deterrents and positions of different organizations as it relates to any set of certification standards. For example, the USGBC might use the model to consider the risks and benefits as it relates to each governance sector from the introduction of a new LEED credit or other USGBC program. Similarly, the model could be used to determine the leverage points (who has them, who doesn't) of different organizations in order to consider how to change the state of the system without totally upsetting it (for example, an important public sector leverage point is the U.S. Congress through the GSA, or the public sector in the form of local building codes). This way, one could test the broader consequences of using a specific governance lever—from any of the governance sectors. Finally, the illustration of globalization forces in between each sector/organization and system is a reminder to consider factors (such as technology changes, increasing homogenization, or simply forces outside one's control) outside the relationships in question when planning or testing changes to the existing environmental governance “ecosystem.” Some of these possibilities are explored in Chapter 5.

Potential Application of LEED in Alternate Industries

At the core of this paper is the question of whether LEED is an environmental governance mechanism, and if so, how and why does it govern in the marketplace in the way it does. The answers to these questions are important in terms of better understanding the current landscape of environmental governance, but they are even more useful if they can be applied actively to the urgent, existing environmental challenges around the globe. Indeed, with all of the acceptance and success of LEED across numerous influential stakeholders and the public at large, could the governance structure of LEED be applied to other sectors and improve environmental performance in other industries?

In assessing the unique characteristics of the building industry and that of LEED, there is a readily-apparent disconnect between the building industry and other industries in terms of private or “third party” environmental governance. As discussed in the model shown in **Figure 6**, there is a significant difference between microgovernance systems (i.e. third party certification schemes) for commodities and single products versus that of the building industry (macrogovernance). If we briefly review the elements that make LEED so popular, and compare them to other major industries, these differences become readily apparent.

At the most basic level, I discussed previously the critical importance of basic economic value returns as an incentive for broad-based industry acceptance of LEED (or other) green building standards. This means that companies of all sizes and varieties across the spectrum should realize a value incentive for pursuing LEED as part of building its brand, or in direct financial returns. However, if one looks at the other major

industries where environmental risks are common and well-known, such as the oil and gas industry, the incentives for pursuing both particular standards of a kind of “green” label are noticeably absent. Using the carrot and stick analogy, there are a lot fewer carrots and a lot more sticks that already exist in the marketplace for this (and other) commodity-based sector(s) that make developing and adopting industry-based green standards more unlikely and more difficult.

If one considers the oil and gas sector, the risk matrix for environment issues is completely different than that of the building industry, which feeds into the value and incentives proposition for developing and adopting “green” standards. In the building industry, if companies and organizations choose not to pursue and adopt LEED certification, they risk very little in terms of environmental damages. Typically, the presence of the public sector in the form of standard building codes addresses major health and environmental risks typical in the building industry—codes that architects and developers must follow. In the oil and gas industry, environmental and health risks are also addressed by public authorities such as the EPA—for example, in order to prevent catastrophic oil spills or leaks from hydraulic fracturing operations. However, the difference here is the value proposition in the building industry versus the oil and gas industry: while significant financial and branding incentives exist in the building industry—bolstered by broad-based demand from the private, civil society and public—few if any incentives exist in the oil and gas industry for developing and adopting more stringent environmental operating standards. And ultimately, few incentives exist within any governance sector (or for the general public) for higher standards because the gains are either not clear or not present. This begs an important question: does anyone

ultimately care how the gasoline for their car was produced, or are they willing to pay extra for gasoline that carries a green label? If sales of Fair Trade coffee, another commodity, are any indication, the answer is generally “no.” Like other commodities, where there is little differentiation in the market with few “premium” incentives, consumers and producers will be focused simply on whether plastics can be produced and machines are able to operate.

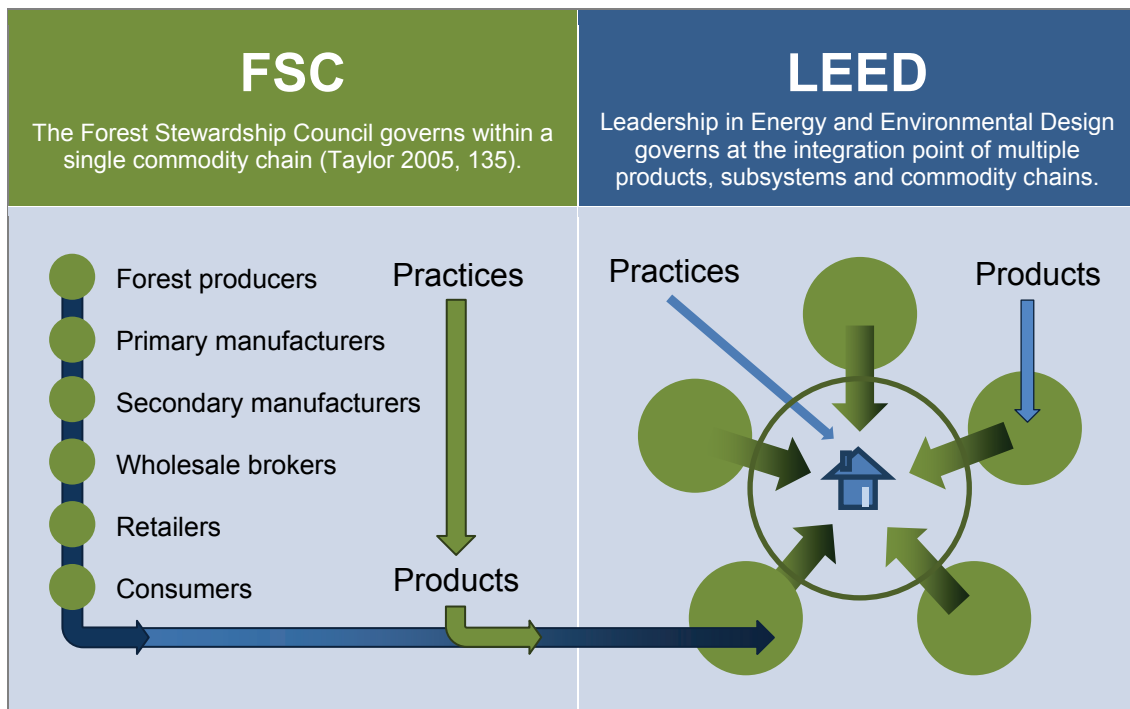
A second important element of LEED’s prominence in the building industry is related to the unique, self-propelling force of the LEED brand. The more that governance sectors and stakeholders believe in the value of LEED, the stronger LEED becomes as a governance mechanism that exerts control in the marketplace. If we again consider the oil and gas industry, we would have to look to an organization that originated from but is not controlled by the industry (i.e. an oil and gas-focused nonprofit organization committed to economic, social and environmental principles) to develop a standard-setting mechanism similar to LEED that garners support from across the private, civil society and public sectors. Currently, the main standard and best-practice setting body in the oil and gas industry is the American Petroleum Institute (API) (API 2013). However, as the main industry lobby, its primary function is to represent the industry in a favorable light to the public, and lobby for fewer environmental restrictions put forth by governments at the state and federal levels (Carney 2013). Not only does this set up a traditional conflict between the public sector and the private sector for economic benefits at the (potential) expense of social and environmental benefits, but it illustrates the lack of common ground and mutual incentives for cooperation in developing higher environmental standards in the production and distribution of oil and gas.

If we consider the third driver in the marketplace for LEED—its “comprehensive, physical manifestation that directly impacts individuals,” we find that other products and commodities have a less direct and extensive impact on individuals; therefore, demand for certified products may be less acute. Consider a comparison: People usually do not *experience* petroleum, but they receive substantial benefits from it. LEED-certified buildings, on the other hand, are visual, tactical, and odoriferous—meaning they can be fully experienced on a variety of levels by individuals—and people gain a range of direct and indirect benefits from better lighting and cleaner air, to a more anthropocentric design. To achieve this same experience, an individual would have to bathe in petroleum, an unlikely event. If we consider coffee, a commodity with a substantially higher “experience factor,” there are indeed a range of certification standards for which consumers are in some cases willing to pay extra—such microgovernance mechanisms were mentioned earlier in this paper. Again, the difference may be more psychological to the consumer than anything else in comparison to LEED: coffee has some variation, but for the vast majority of consumers, coffee is simply coffee—certified or not. Consumers can *experience* coffee temporarily, and this may play a role in encouraging some consumers to prefer certified coffees over non-certified coffees. But coffee is limited to taste and smell, and consumed in a relatively short timeframe—therefore limiting the number of experiential benefits available in comparison with a LEED-certified green building, which in contrast benefits hundreds if not thousands of individuals at once, continuously.

It is worth pressing this point a bit further. The benefits of LEED are both collective and individual—each person can experience the benefits of LEED-certified

building individually from a first-person, experiential perspective, but so can a wide range of individuals, investors, developers and politicians gain from LEED directly and indirectly from its benefits (financial, political, experiential). On the other hand, reduced air pollution and increased health gains from switching to non-leaded gasoline is primarily a collective incentive, as the benefits are largely indirect and dispersed throughout society—from a consumer and producer standpoint, the individual incentive exists primarily in the theoretical (which is why government regulators forced industry to switch to unleaded gasoline in the 1970s). It is perhaps this distinction that impedes widespread demand for certification schemes where the benefits are either perceived as mainly personal, or mainly collective. In this case, LEED is in the unique position to accomplish both at the universal scale.

Finally, it is useful to consider how LEED might be applied at the microgovernance scale, focused on one particular commodity, product or segment of products. In a sense, it already has, as third-party rating systems have proliferated globally across different products and supply chains. We discussed earlier the difference between macrogovernance and microgovernance—for example, where LEED is a design tool (or governance tool) at the horizontal, macro level, while similar governance mechanisms, such as FSC certification, exist at the micro, or vertical governance level, across many layers. FSC has carved a niche for itself by engaging relevant stakeholders and opponents of sustainable practices—but by using a more traditional or formal internal governance structure known as a General Assembly that contains representatives of three sectors, Economic, Social and Environmental (another link to the triple bottom line) to develop policy (Taylor 2005). Specific linkages between FSC and LEED are illustrated in **Figure 7**.

Figure 7. Macro and Microgovernance: FSC versus LEED

But the main similarity between LEED and FSC is essentially their proven adaptability to add value via certified products for stakeholders through their carefully-orchestrated governance systems. The primary difference, around which their strategies and systems have been designed, is their industry, which requires highly strategic, sophisticated foresight to continually show value, adaptability, and leadership in fast-paced, globalized conditions that offer as many risks to their continued viability as opportunities.

Given these comparisons, it is clear that third-party certification systems can systematically exert environmental governance and increase sustainability at the macro and microgovernance levels, but the overall condition of the market, the type of product and role of existing governance mechanisms play a crucial role for such a system to be

viable. In many cases, it very well may be, but in others, the critical ingredients may not exist or be present in the right quantities to reach critical mass for what the USGBC (and other governance providers) envisions as “market transformation.”

CHAPTER 5

FINDINGS, CONCLUSIONS, AND OPPORTUNITIES

Findings

This investigation has yielded as many new questions as answers to the question of whether LEED is a model environmental governance mechanism. Certainly in the realm of the building industry, LEED's influence is substantial, having been adopted and heralded across the civil society, public, and private sectors. But as the competition between and sophistication of green building rating systems increase—indeed, for certification systems in any sector—it remains to be seen whether market conditions and governance systems are ripe for the deployment of LEED-like systems across all sectors. This final section addresses this question by outlining the findings of my investigation in light of my original questions and hypotheses. I will then draw conclusions from my findings and identify opportunities for further research.

The first question posed in this paper concerns the linkages between LEED and broader environmental governance. Broadly speaking, my hypothesis in this respect seems to hold true in that LEED, and by extension, the USGBC, can be said to fit into the broader environmental governance sphere most concretely by its demonstrated ability to exert control over the marketplace to provide tangible benefits for the environment; these might include anything from remediation of environmentally polluted “brownfield” sites, to the use of renewable energy and locally-sourced building materials, among others.

These fit into the UN's relatively loose definition of sustainable development, while LEED makes limited success in attempting to “re-embed” the market, from the Polanyian perspective (in this case, the building industry), into the context of broader society needs and values (social, economic, environmental). And it is limited by necessity: LEED would be impotent without the legitimizing force of industry acceptance. In addition, as I demonstrated visually in **Figure 6**, LEED maintains important concomitant linkages to relationships with many actors within both environmental governance and larger organizational governance sectors. These relationships are secondary to LEED's acceptance in the building industry, but they are critical for the widespread dissemination and recognition of the LEED brand—a positive feedback loop that generates heightened interest.

The second question in this paper relates closely to the first, in examining the basis of legitimacy of LEED within the building industry. In this area, my hypothesis appears to be confirmed. I discussed previously that a valuable business imperative must exist initially for market adoption of any certification system, as the promise of profits are what drive business to invest in new opportunities. Even if we consider ENERGY STAR, an energy certification system that can be accommodated by LEED, adoption is also predicated by individuals recognizing the potential for value, directly or indirectly. Furthermore, the USGBC had to prove that its LEED system was robust enough to apply to broad swaths of the building market, generating interest from builders, developers and consumers alike, while being careful to maintain its independence from big business, purist environmental groups, and even the public sector. Its legitimacy, in essence, is based on the maintenance and continued improvement of a web of complex relationships

and positive feedback loops amongst many stakeholders, with the building industry occupying a critical node in this network.

However, a modification should be made to the idea that LEED might represent the “leading edge of a new bridge” between public environmental regulators and private industry. LEED is merely one of many rating systems across many industries, so it is difficult to claim that it is truly a leading edge. On the other hand, LEED *is* leading edge from the standpoint of broad and increasing market penetration, which demonstrates that its independent, efficient, and effective policymaking apparatus might offer an important alternative to the traditional, glacial processes found in the public sector, where clashes (or inappropriate relationships) between government and the private sector occur regularly, stifling progress towards better environmental governance.

The third question addressed in this paper surrounds the issue of industry standardization—the development and deployment of green building best practices. Based on the variety of programs that it operates, USGBC absolutely plays a role in industry standardization. In particular, there is great likelihood that LEED provides an important technical foundation for developing industry standards. USGBC work promoting the adoption of green building codes are illustrative of these practices. In Washington, D.C., the USGBC has played an active role in working with the District of Columbia Government to help enact green building codes, specifically based on the International Green Construction Code (IgCC), a set of standards in which the USGBC has been actively involved in developing (Perkins 2013, ICC 2013). It is notable that the USGBC has not relied exclusively on LEED to build its brand and influence—LEED is

merely a systematic (governance) tool that augments its portfolio of programs and initiatives that seek its goal of “market transformation.”

I also posed a fourth question of whether or not LEED meets the definition of an environmental governance mechanism in light of the substantial literature on environmental governance. I discussed before that governance can be called a “social function centered on the efforts to steer societies or human groups away from collectively undesirable outcomes” according to Delmas and Young (2009, 6). Ultimately, governance takes many forms and organizes in the context of any system—the universe, a household, or a basketball game. In terms of *environmental governance*, which I defined as a programmatic or systematic effort to control environmental conditions, processes or outcomes, the reductions in energy, water usage, use of recycled materials, renewable energy and inclusion of location-specific credits show that LEED is clearly involved in administering environmental governance, and at an accelerating rate buoyed by the forces of globalization.

But there is an important caveat to the sustainability and extent of LEED’s governance. LEED is first and foremost a design tool—not a building performance management tool, meaning that its governance is fairly static in nature. In other words, LEED sets a particular standard for the design and operation of a building statically, at a specific point in time; LEED does not regulate ongoing performance over time. To use an analogy, the quality of river water may be continuously “regulated” by local authorities through daily or weekly testing. However, if LEED were applied to a river, it would mean that the river water quality met a standard only at one point in time to achieve the LEED rating. The contrast here is important, as LEED actually delivers governance

statically within an infinitely dynamic environmental, social and economic context (though like other governance systems, it strives to keep up with changes in the private, civil society and public sectors). This means that while LEED exerts environmental governance, it does so within a limited scope that contrasts with an continuously-dynamic set of conditions and variables.

I also posed a fifth question concerning the increasing role that globalization plays in global governance, and how LEED is impacted. Globalization, like many other phenomena, is bound by tradeoffs, with risks and opportunities for organizations, institutions, actors, and individuals alike. The USGBC has found opportunities to grow its influence across international boundaries, such as by helping establish the World Green Building Council and licensing the LEED label, but as discussed in Chapter 4, there are risks involved in allowing LEED to be deployed in countries without the stringent standards and legal protections found in countries with strong democratic institutions, as well as in countries whose development faces climactic or natural resource challenges, in addition to an array of unique drivers or governance conditions that propel adoption depending on the country.³⁶ Of particular concern is the integrity of the LEED brand and rating systems: the USGBC is fearful of modifications to LEED that “adapt” to the rating system to specific circumstances and instances, domestically or internationally, because it risks altering the universality of the LEED language across the building

³⁶ The residents of some countries adopt LEED for different reasons or value certain aspects of the process differently from the U.S. At the same time, some countries accept greater public regulation in society and the market than others, as is the case in comparing the United States with many European countries. This changes the role that a standard like LEED will have in a given market. Understanding and leveraging such nuance is important as the global market is a major growth area for expanding the extent of LEED’s influence, comprising some 40% of new LEED-rated construction projects in 2013 (Civil society official, personal communication, March 8, 2013, Washington, D.C.).

industry and its customers. But globalization also offers the opportunity for the USGBC, through LEED, to address global environmental challenges (through “market transformation”) in a truly global, yet very tangible way. Global information has already led to greater data availability and visibility of the extent of green building around the world: the Green Building Information Gateway, a USGBC product, aggregates green building data on cities, regions and countries on virtually every continent, providing statistical information about regions and projects, even projects not affiliated with LEED (GBIG 2013). Indeed, data availability is a major focus area for the USGBC going forward.³⁷ Taken a step further, once these mechanisms are in place, continuous performance assessment and improvement becomes a greater possibility, and the data could be applied in myriad instances to calculate and improve environmental performance in real time. In a world still confined to viewing environmental challenges largely from a nation-state or geographic perspective, such conduits help link environmental management, an inherently global issue, to actions that are also global in scale and complexity.

The sixth and final question posed in this essay concerns the ability of LEED and/or its structure to be applied to other industries where there exists a noticeable vacuum in environmental governance. As discussed in Chapter 4, LEED in its current form relies heavily on several unique factors associated with the building industry to ensure its authority, whereas similar conditions are not present or the market structure is completely different in other industries (for example in the realm of oil and gas, and much of the energy sector). Though the LEED rating system is designed and built

³⁷ Civil society official, personal communication, March 8, 2013, Washington, D.C.

specifically for the building industry, its methods for representative and inclusive policymaking (its internal governance structure) may offer an array of innovations that could be suitable for other governance systems—public or private.³⁸ One innovation in particular is the efficient rate of policymaking and robust technical sophistication that accompanies LEED updates—a reflection of structural priorities identified by the designers of LEED as well as a keen understanding of how the building industry operates and is able to adapt to new standards.

Conclusions and Opportunities

This research project has endeavored to understand the dynamic role that LEED performs in the context of environmental governance. After laying the historical foundation for environmentalism and the necessity for more effective environmental governance, I explored the functional ability of LEED to exert authority within the building industry across the sectors of civil society, private sector and public sector as a technical extension of traditional governance structures. In addition, I contrasted the macro, horizontal governance of LEED with that of other certification and rating systems which are aligned more vertically in the market, typically around a commodity or suite of products. Further, this project has explored the many intricacies and risks associated with governance that originate and exist beyond the direct control of traditional public authorities, presenting unique and at times unforeseen challenges and opportunities for different organizations and authorities, depending on their interests and expectations—a

³⁸ For example, in streamlining public sector processes for developing regulations, or guiding current or new rating/certification systems focused on other products or commodities.

dynamic framework illustrated by the models in **Figures 4, 5 and 6**. Finally, I have touched on the potential application of a LEED-like system to other industries where greater consideration of environmental impacts are needed and found significant barriers that would preclude a successful deployment.

Taken together, my findings show LEED as an important systematic environmental governance tool among a growing cornucopia of third-party standards and systems in the marketplace. But as expansive and recognizable as LEED has become, there are risks that loom around every corner—with its stakeholders, its competitors, and the dynamic forces that are present in the marketplace. In particular, there are unmarked boundaries of governance to which USGBC and LEED must be careful in attempting to expand their influence, or to pull levers in the marketplace that they may not have the authority to pull. Indeed, one of the biggest tensions within LEED is how it will continue to push boundaries forward (that is to say, remain leading edge) and how quickly, while ensuring it remains accessible to new adopters.³⁹ With these findings as a basis, I conclude this project by raising several questions about the future of LEED and USGBC in environmental governance, which may very well provide opportunities for further research on the subject. In closing, I offer final thoughts on LEED as an environmental governance mechanism.

First, what conclusions and questions can we draw from the existence of governance boundaries between different organizational governance sectors and systematic governance systems? How can those boundaries, legal or otherwise, be defined in order to enhance the effectiveness of different systems, such as LEED?

³⁹ Civil society official, personal communication, March 9, 2013, Washington, D.C.

A crucial aspect of this project has been the importance of legitimacy. The USGBC, through LEED, has cultivated a striking level of legitimacy in the marketplace that has bestowed a level of authority traditionally reserved for public governance institutions. As discussed, there is a wide range of opportunities and risks associated with an institution whose legitimacy is not based in public law. An especially beneficial aspect of this is flexibility: governance boundaries are not explicit or necessarily defined, and accountability, though ever-present, occurs in a different (though similar) fashion compared with a traditional public agency. In the public sector, decisions and actions taken by the executive branch may be reversed by legislative or judicial authority, actions by the legislature may be ignored or overruled by the executive branch, and both executive and legislative actions can be foiled by the judiciary. With a rating system like LEED, there are no formal, well-established governance mechanisms that check its power or define its scope of authority. Indeed, there is no inspector general that conducts audits of USGBC activities nor are there legislative committees that oversee USGBC operations. Essentially, although USGBC is a nonprofit organization, USGBC operates much like a commercial entity⁴⁰ that charges fees for services and funds operations that promote LEED and USGBC further in the marketplace. A significant difference from a “normal” business, is that USGBC provides environmental governance through LEED as an extension of traditional governance authorities, but without all of the pesky issues that arise amidst the democratic process (assuming a democratic context). One might call it a governance loophole: the USGBC operates with the flexibility of a commercial or nongovernmental enterprise but with similar authority to that of a public institution.

⁴⁰ Public official, personal communication, February 4, 2013, Washington, D.C..

These conditions create a great deal flexibility that may fuel a desire for USGBC to build on the success of LEED by expanding its governance role beyond natural boundaries that are “safe” for it to operate. Referring back to **Figures 5 and 6**, because LEED is integrated with so many different governance sectors and systems, attempting to expand its authority into other environmental governance areas raises several interlocking questions: where does USGBC or LEED have the legitimacy to expand its authority? And, where are its boundaries depending on the environmental issue in question? What are the long-term consequences of expanding too little or expanding too much? I mentioned previously an issue that arose with LEED v4 where product manufacturers were outraged at LEED’s attempt to govern the chemical qualities of certain products. This is an excellent example where the USGBC found a boundary where it probably does have the capacity, power or legitimacy in the marketplace to cross, even if chemicals within certain products are problematic from a health or environmental perspective. Additionally, looking back at **Figure 5**, with respect to wood product rating systems, this is a good example of where LEED attempted and failed to exert authority at the microgovernance level where vertically-aligned stream of products flow into the macrogovernance level occupied by LEED.

Assuming the USGBC will continue to expand the influence of LEED, though carefully and subject to budgetary constraints, how can some of these brand-damaging situations be avoided? From a strategic standpoint, an organization must realize its limitations. That is to say, the developers of LEED must assess LEED’s current level of legitimacy in areas directly or tangentially related to green building, and they must attempt to identify the boundaries of LEED’s governance authority as well as potential

“governance gaps” in the marketplace into which LEED could realistically expand. After completing such an assessment, relationships must be established and trust cemented with the most important stakeholders (for example, through a stakeholder analysis) in order to acquire the amount of legitimacy necessary to consider expanding LEED into a new area. As mentioned, strong relationships are intrinsically related to effective governance: in the public sector, it is readily apparent when political leaders build the relationships necessary to enact laws and create consensus around effective government policies. Certainly, there are many more facets, interests and incentives involved here. But because of the nature of LEED’s (and other third-party governance systems’) alternatively-derived legitimacy and authority in the market, it will be critical to assess gaps and overlaps in governance boundaries before considering an expansion or a contraction in the scope of the LEED rating system. And most of all, the hard work of stakeholder engagement and relationship building will be critical.

Second, I want to return to **Figures 5 and 6** and draw some conclusions and questions from a complex, dynamic framework of interdependent relationships in environmental governance. Critically, the model as an analytical tool is not limited to the environmental conditions and perspectives of LEED only. Replace LEED with Green Globes, and a new set of relationships *from its position and perspective in the marketplace* can be built around a different rating system. Similarly, one could replace LEED with a system at the microgovernance level such as FSC or ENERGY STAR. These new relationship sets could be analyzed to determine the relative governance boundaries of each system, and the state of their relationships with other governance

systems and sectors, which are critical to each system's long-term governance authority in the market.

Further, the model in **Figure 6** is useful for asking probing questions. Who are the biggest stakeholders within civil society that give LEED the most authority *from that governance sector*? This could be a project for investigation to understand how civil society groups interact and support third party governance systems such as LEED and, for example, the BRE Environmental Assessment Method (BREEAM) green building rating system, a United Kingdom-based mechanism. On the other hand, where are the greatest points of tension between LEED and the public sector? Or, where might the forces of globalization most directly impact LEED's governance ability in the marketplace? What about Green Globes or SFI? In addition, possible scenarios abound: how might LEED's position and relationships change with respect to other sectors or systems if, for example, major stakeholders within civil society, the private or public sectors decided to ignore or bypass LEED and draw value only from microgovernance systems? Another possible scenario: What would happen to this framework if the public sector, through legislative or executive power, decided that third-party governance systems had usurped their authority to govern in society, and simply established a public-sector entity that operated in the same fashion as the USGBC in developing standards or establishing a certification process for green buildings, as the WaterSense and ENERGY STAR programs in the U.S. have done? Such a move would undoubtedly be completely legal as an extension of public sector authority over environmental issues. Indeed, it has become common within industry to refer to adopters of LEED standards without pursuing

certification as pursuing “LEED light”.⁴¹ What would happen to the value of LEED certification if building codes simply adopted LEED design standards?⁴²

Further, there are deeper relationships illustrated in **Figure 6**. The nature of a disparate and multi-scalar environmental governance framework necessitates that sectors and systems operate at and from different levels simultaneously. For example, FSC may govern the wood commodity change, but how do the positive local environmental impacts of that system link to an organization, like UNEP, committed to macro-level, global environmental governance issues? These are the multilevel and multi-scalar questions that can be raised and investigated to enhance the relationships that are crucial to improved environmental governance. Another question is: how might the WaterSense certification program, originating from the U.S. EPA, be integrated into private sector buildings constructed around the world? In effect, a policy developed by a traditional governance institution, which is used on a volunteer basis, is picked up and applied in contexts completely outside the scope and authority of the U.S. government. Taken even further, how might this benefit or hurt U.S.-based foreign policy or environmental policies abroad?

Lastly, consider the points of tension and shared governance between each system and structure within the framework. What *specific, unique conditions* might exist

⁴¹ Industry official, personal communication, March 5, 2013, Arlington, VA.

⁴² The U.S. state of California sparked controversy when it released its new green building initiative known as CalGreen, which is part building code requirements and part green building rating system. San Francisco-based Built It Green and the USGBC have complained that it dilutes existing national green building rating systems (i.e. creates competition from the public sector) and could promote “greenwashing”. As EverBlue, an educational company involved in sustainability, notes, the uniqueness of LEED and other systems are lessened in the public eye as more buildings become LEED certified, and more rating systems complicate an already-crowded governance arena. Indeed, there is little special about a building that simply meets local building code (EverBlue 2013).

between two systems? How might a particularly tense relationship (for example, between Green Globes and LEED) affect the relationship that either LEED or Green Globes has with, for example, FSI or NGBS. Or more deeply, how might disputes or the existence of shared and overlapping governance dilute the overall effectiveness of certification standards from the perspective of civil society, the private or public sectors? Conversely, there are positive, mutually beneficial relationships that exist between each system and sector. How might these be improved? To put an economic spin on environmental governance, how does “trade in governance” provide mutual benefits for parties with divergent interests, or better yet, aligned interests? Shared governance, particularly with the expansion of civil society and private sector environmental governance, implies that gaps or vacuums in environmental governance are being eliminated. How will rating systems like LEED, Green Globes, FSC and ENERGY STAR mature and integrate in the long-term if competition leads to consolidation in a particular “governance market” occupied by many competing standards? Already, LEED is developing equivalency credits with BREEAM (USGBC 2011). To put this question in political economic terms: who wins, and who loses as the market for rating systems expands or contracts? Will governance standards consolidate or evaporate? Far beyond the sphere of LEED, these are questions for global environmental governance more broadly.

Third, it is essential to revisit the context and purpose of LEED as a governance mechanism within the vast environmental challenges facing states around the world. Although this paper has sought to identify a general “location” in terms of how LEED is situated within environmental governance, it is clear that LEED is applicable to environmental challenges primarily as a positive environmental *byproduct* of an

economic activity centered on the production of a physical product. This stands in contrast to the viewpoint that LEED is positioned around addressing important *environmental issues*. Indeed, this is illustrated by the design of the LEED committee structure shown in **Figure 2**, with product committees crisscrossed by environmental issues, clearly defining the purposeful structure and focus areas for LEED, which cleverly link economic, social and environmental considerations into one package. However, the contrast between viewpoints towards addressing environmental challenges (that LEED has linked together) is indicative of much larger differences in approach between civil society, the private and public sectors in addressing environmental problems. Whereas the public sector and civil society may typically see environmental problems as *issues to be addressed*, or *an end unto themselves*, the private sector may largely view environmental issues as a means to an economic end, or as a means to achieve other, related benefits, such as risk management.

Finally, it is worth noting some surprising insights as a result of this investigation. First, the level of complexity in which any environmental governance mechanism operates is far more vast and nuanced than initially assumed, a mere snapshot of which is illustrated in **Figure 6**. Yet, even with the sophistication of such governance mechanisms, they remain no match for the incredible complexity of earth's natural environmental systems, all of which are impacted continuously, both positively and negatively, by the concerted actions of humanity around the world. Absolutely, no one system, no one program can solve the environmental crises confronting the planet. Second, the extent to which private industry is adopting green or sustainable practices (of which green building is only one component) as part of the business model showcases a marketplace that is not

as far beyond triple-bottom-line sustainability as the more critical perspectives of capitalism might suggest. There remains a wide variety of incentives for sustainability beyond immediate, basic financial incentives. Third, it is with some disappointment that a mechanism like LEED might not be so quickly adapted and deployed in other industries that are in need of market transformation from an environmental perspective, though that is no reason to believe that the future does not offer such a possibility. And fourth, it is encouraging that there remains a growing, voluntary movement towards transparency (i.e. in terms of sharing data) seemingly from all governance sectors (though resistance and reluctance are ever present), whether it is with monitoring building performance, or in other industries where rating systems have proliferated. Such a movement upholds and extends the ideals of accountable, fair, and democratic governance beyond the traditional limitations and authority of the public sector.

Going forward, will LEED be able to hold together these competing perspectives in environmental governance? How will it continue to add value and innovate to remain relevant to an rapidly-changing global landscape, both physically and figuratively? Will it add a new level of certification to remain leading edge, similar to that of the International Living Future Institute's Living Building Challenge, a much more stringent green building design and performance standard in comparison to LEED?⁴³ One avenue is in the realm of data and analysis: already, a movement seems to be afoot to actively monitor

⁴³ Living Building Challenge (LBC) employs an even more stringent and philosophical approach to green building beyond that of LEED, using "petals and imperatives" as primary elements in its standards, including net zero water and energy usage, health, democracy and social justice, beauty and spirit, and inspiration and education. In 2013, Walgreens became the first retail organization in the U.S. to attempt gain LBC certification for one of its stores, in Evanston, Illinois. The store contains more than 800 solar panels, two wind turbines, geothermal energy sources, LED lighting and daylight harvesting (LBC 2013, *BusinessWire* 2013).

LEED certified buildings through wireless, centralized data networks in order to fully report, analyze and score the performance of buildings in real time (Roberts 2012).

Competition in environmental governance is as fierce as it is in business, and with the spread of rating systems and technical governance tools like LEED, it is reasonable to suspect that competition between environmental governance systems and sectors will only grow as environmental issues become more dire. Unlike traditional, public governance institutions, LEED will be forced to adapt quickly and innovate within the changing dynamics of environmental governance, supplying both a tremendous array of opportunities to improve governance (some are expecting a greater focus on data and the health of occupants within buildings⁴⁴), but also a minefield of known and unknown governance boundaries that could damage the LEED and USGBC reputations. In other instances, LEED could be subsumed by local or regional public authorities, adopting its design practices as law, negating much of the value the LEED brand might have to individuals and organizations. Still, LEED will likely remain an important mechanism and force in the marketplace for some time, as it has become firmly entrenched in the building industry, despite the challenges it faces in continuing to raise standards.⁴⁵

In closing, I have endeavored to explore the basis of LEED as an environmental governance mechanism at a time of rapid global integration amid emergent global environmental challenges. LEED occupies a special position of authority outside of traditional governance structures, and time will tell how long or in what capacity this

⁴⁴ Public official, personal communication, March 4, 2013, Washington, D.C.

⁴⁵ Industry official, personal communication, March 5, 2013, Washington, D.C.

governance mechanism will be able to influence the political economic systems that largely determine the extent of environmental damages. While LEED does contribute to mitigating negative environmental externalities, environmental problems will likely continue to grow unless environmental governance is strengthened to the level at which economic pursuits and social needs are sustainable for many future generations. Certainly there is much uncertainty. Nevertheless, LEED is currently playing an important, albeit new role in a dynamic context during a time of heightened focus on environmental issues, regardless of its approach and occasional missteps as it navigates many competing interests, because its rating system *yields tangible results* in terms of economic value and environmental benefits. This is no small feat, and this fact is perhaps most illustrative of its inherent value in environmental governance. Although LEED may not be a model environmental governance mechanism for many other products or systems, as I discovered in this project, it certainly raises the bar for what is possible beyond traditional, formal actors and structures in environmental governance.

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