GREEN BUILDING IN THE RUSSIAN CONTEXT: AN INVESTIGATION INTO THE ESTABLISHMENT OF A LEED®-BASED GREEN BUILDING RATING SYSTEM IN THE RUSSIAN FEDERATION

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ABSTRACT

Given the tremendous impact of buildings on the ecosystem, the Russian Federation (RF) is under pressure to become more ecologically sound in its building construction and operation practices. Under the same pressure, several other countries that have been less explicit about their environmental commitment than the RF have established green building rating systems (GBRSs) like LEED® of the US Green Building Council. This diagnostic pilot study investigated why there is no such system in the RF, expecting that there are potent contextual impediments to it. The study was designed as a fluid interaction between archival ethnographic research and in-depth qualitative interviews. Its preliminary phase assessed the introduction and adaptation of LEED® in five non-US contexts. The primary investigation involved in-depth interviewing of representatives of five major stakeholder sectors in three bioregionally, socio-politically and economically different Russian cities: Moscow, St. Petersburg and Novosibirsk.

The results suggest that prevalence of one-sided and short-sighted decision-making, lack of information, the cost of "green," inadequate regulatory system and all-prevailing fragmentation are the most acknowledged impediments to green building in the RF. Impediments are perceived differently by the various industry sectors and vary with geographic location of the stakeholders. The results were translated into several adjustments of LEED® that counteract the conflicting paradigms and impeding forces of the context and capitalize on contextual assets laden in the Russian history, vernacular tradition and mentality to make the resulting GBRS viable in the Russian context.

The study provides a comprehensive assessment of factors that influence the establishment of a GBRS in the RF, captures tacit knowledge and contributes to the understanding of a cross-cultural adaptation of market mechanisms. In addition, it may provide insight into transition economies as a whole, by exposing the springboards and impediments to sustainable building practices that they share.

BACKGROUND

Shelter is one of the necessities of human life, making the property industry the largest industry in the world (Gottfried, 2003). Building and inhabiting built structures is also one of the most energy-intensive activities that humans do. Conventional building practices in the developed countries are far from sustainable and contribute to approximately 78% of the carbon emissions from human activities, 76% of industrial wood use, and 60% of the water tapped for use by people globally (Brown, 1999). Buildings alone consume 32% of the world's resources, including 12% of its water and up to 40% of its energy use and another 40% (3 billion tons annually) of raw materials (Lenssen & Roodman, 1995). They also produce 40% of waste going to landfill and 40% of air emissions (OECD, 2003).

In response to this understanding, a number of countries such as Australia, Canada, Spain, UK, and the US have launched programs that encourage *green building*, or design, construction, and operation practices that significantly reduce, eliminate, or offset the negative impacts of buildings on their occupants and the biophysical environment. The practice of green building aims to harness synergy between the economic (Grierson, 2003; Young, 2002; USGBC;

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the Kyoto Protocol, US DOE and the EPA), social ("Green Buildings and First-Costs", 2004; Sachs et al, 1998; McDonough, 1983), and ecological systems. Although today green building qualifies for a growing array of federal, state, and local government incentives in the US and Europe, it still fights, and often loses, in systems that have evolved to favor economic considerations.

Green building operates under natural laws that negate the concept of waste, and demand sustainable resource use, place-specific solutions, and reliance on current solar income. Thus, a truly green building does not use more than it gives back and sits lightly on the landscape that inspired it, as it is either highly durable or reversible. It offers its occupants sustenance, partnership, comfort, and stability, and connects them to the larger ecosystem while protecting or restoring their health and dignity (GAIAM; Hawken, 1994; McDonough, 2004; McLennan, 2004).

While the impacts of the building industry increase dramatically within the expanse of the Russian Federation (RF), no programs to encourage green building are prominent in that country. The transition from socialism to capitalism may be the best time to transform building practices; yet, there are no potent incentives to build green in the RF. Although one may argue that countries that encourage green building are more environmentally strategic, RF ratified the Kyoto protocol on October 22, 2004, while neither the U.S. nor Australia has. Although minor adjustments will meet the requirements of the first phase of the Kyoto Protocol, the RF is under pressure to become more sustainable.

Based on the experience of other countries, a green building rating system (GBRS) could go far in reducing the RF's energy consumption, Greenhouse Gas (GHG) emissions, and overall environmental impact. The absence of one raises a number of questions, including: 'Why does the RF have no GBRS?' and 'Could the RF adopt an existing GBRS?' To examine these questions, LEED[1]® of the US Green Building Council (USGBC) was chosen for evaluation against the Russian context as it is the most internationally used GBRS.

USGBC formed largely to define green building via a GBRS and engage free market mechanisms in propelling it. Its founder David Gottfried (2003) believed that if the USGBC could change the thinking of the world's largest industry in the most consumption-oriented country, it might be able to ensure a more sustainable life for future generations. LEED® is "a national, consensus-based, market driven building rating system designed to accelerate the development and implementation of green building practices." Through third-party certification, LEED® gives green buildings higher status in the marketplace to acknowledge that its benefits (e.g., environmental, economic, health and safety, and community) are tangible, comprehensive, and logical. In fact, many advocates of green building argue that no other type of building should be allowed.

LEED® has had unprecedented success since it was piloted in 1998 and officially released in 2000. As of July 2005, 278 (61 under version 1 and 217 under version 2) projects have been certified in the world.[2] In the US alone, that amounts to 2% of all the dollars spent on construction, and to 6% of all constructed floor area.[3] 2420 additional project teams have registered their buildings,[4] thus expressing their intent to apply for LEED® Certification. After its success in the US, LEED® went international. LEED-NC (LEED® for New Construction) is being licensed to Spain and India, and has registered projects in France, Italy, Japan, Hong Kong, Guam, Cote D'Ivoire, Guatemala, Mexico, and China (USGBC, 2004). It has been adapted into LEED® Canada-NC, and informed Australia's Green Star®. The history of LEED®'s evolution and success in the US demonstrates the potential of this GBRS to benefit the RF, and provides insight into characteristics that make it viable.

CONTEXTUAL ADAPTATION OF ENVIRONMENTAL STRATEGIES

Contextual adaptation, and the neglect of such, receives scholarly attention because it may be pivotal for long-term acceptance over the short-term entertainment of an environmental strategy. Even when exported thoroughly, good Western models have failed in the RF and elsewhere because they did not accommodate the existing ethnographic context. Wedel (1998) discusses the US foreign aid in the early 1990s, and Kvint (2004, p. 65) provides examples from the World Bank programs.

The issue of contextual adaptation of environmental strategies is at least addressed or even refuted

for the sake of contextual innovation (Hart, 2002) for developing countries. However, with respect to the transition economies, it is insufficiently covered in the literature. In regards to the RF in particular, post-Soviet business (Puffer et al, 2000) and sustainable development (Danilov-Danilian, 2000) have to date been explored separately, revealing a void in the understanding of the way the two interact within the RF. This void is not surprising since the transition economies emerged only 15 years ago.

THE RUSSIAN CONTEXT

In order for commercial green building to take root in the Russian context, the context must be thoroughly understood. This is not simple. It is a complex environment in which conflicting paradigms and latent forces from the past, the present, and overseas often shape development in unusual ways.

The Russian Federation spans eleven time zones and includes climates ranging from arctic to semi-tropical, from maritime to extremely continental. With the total area of 17,075,400 sq. km., Russia is the largest country in the world with over 12% of the world's land, 26.9% of its fresh water, and 8% of its shoreline (Sdasuk, 2002, p.235). For years, the country's size has relaxed the Russian government's standards of environmental stewardship:

> The idea of boundless space and inexhaustible resources . . . created the illusion of the unlimited opportunities and superiority (Wolfson, 1992, p. 57).

The RF's overwhelming size also indicates its influence within that ecological region.

Wetlands, with their unique role in ecosystem regeneration, occupy 22% of the Russian land, and the rest of the area hosts the largest portion of the world's untouched forests. The RF represents an ecological donor to the world with most of its GDP coming from the export of raw materials (Sdasuk & Mokrushina, 2002, p. 237). The RF has accumulated potentially dangerous assets like nuclear and chemical weapons, defense industries, pipelines, nuclear and large-scale hydro power stations, and a great mass of often contaminated obsolete infrastructure.[5] Yet it has been argued by Sdasuk and Mokrushina (2002) that the RF's real ecological impact has been comparable to other countries if normalized against its population, economy, and share of the Earth's resources.[6]

Industrial pressure per unit of developed territory in the RF is 10 to 20 times lower than that of Western Europe, the US, Japan, or Korea, and 56 times lower than that of the Netherlands. Although the RF is the only country in the world where the area of forest is increasing, research demonstrates that the country expends more natural resources per unit of production than any developed country. 20% of Russian industry output comes from oil and energy, with another 17% from metallurgy. When one adds the 10% that result from electricity generation and 14-15% from food, it becomes clear that manufacturing of high technology and consumer goods and services still plays a subservient role in the Russian economy (The Economist Intelligence Unit (EIU), 2004).

Large industrial enterprises dominate the economy. Small and medium-sized enterprises account for only 10-15% of Russian GDP, compared with the typical 50% in the more developed market economies (EIU, 2004). Until the Communist Party was discredited and the USSR disintegrated in 1991, the economy was centrally planned and owned, and the country's political system was based on the one-party rule. Since Gorbachev's reforms of the mid-1980s, the country has moved away from the "administrative command" planning (Ryan, 1993, p. 2) towards market-driven enterprise and private ownership of property. The relationships between government, business, and civil society have been shifting markedly since then (Puffer et al, 2000).

Politically, the RF is a Federal state with a republican form of government. Like the former Union of Soviet Socialist Republics (USSR), the RF is a collection of diverse territories at vastly different stages of development. The RF's heterogeneity can be seen from at least three standpoints: latitudinal diversity, East-West asymmetry, and center-periphery contrasts.

Latitudinal diversity of the country refers to the significant differences in the natural environment, economy, and politics of the RF's horizontal belts. While the actual North of the country occupies 50% of its territory, accounts for 7% of population and provides much of its natural resources, it is barely developed. The middle belt represents one third of the Russian territory, yet accounts for 75-77% of the country's population and GDP. The Russian South is

small, agricultural, densely populated, and relatively poor.

East-West asymmetry exists because the European and central (Ural) Russia account for 1/4 of the country's territory while contributing 4/5 of its population, 71% of its GDP, and 80% of all businesses (this number is continually increasing).

Center-periphery contrasts are already grave and still increasing. Moscow, with 12% of national GDP, 20-30% of industry and taxes, and an overwhelming portion of capital for the 6% of population, has become the object of envy and hatred (Sdasuk & Mokrushina, 2002, p. 300). Regional inequality has grown to the point that the most advantaged areas such as Moscow have per capita incomes up to seven times those of the least advantaged areas (Manning & Tikhonova, 2004, p. 2), yet only one fifth of their unemployment (Manning, Shkaratan & Tikhonova, 2000, pp. 65-66). Regional centres across Russia are more similar than the center of a region is to its periphery. And once again, modernization of cities brings about stagnation of the periphery, which at ten million square km still equals the area of Europe.

The RF is immensely diverse culturally. At the turning point in 1989, the RF was home to 40 indigenous peoples, which at the time comprised 12% of its total population (Ryan, 1993, p. 12) of 147.4 million people. From a different angle, the territory contained 120 different indigenous groups. This has hardly changed since.

Economically, the RF is a transition economy. This term refers to the 28 countries of the former Soviet Block, or the Second World, which are in the process of the transition from socialism to market economy. The RF is the largest emerging market in the global business world. Vladimir Kvint (2004), a renowned economist, argues:

> No executive can overlook this country, whether or not he plans to be directly involved in this market, because it directly or indirectly influences the political, social, cultural, economic, and business life of the entire planet.

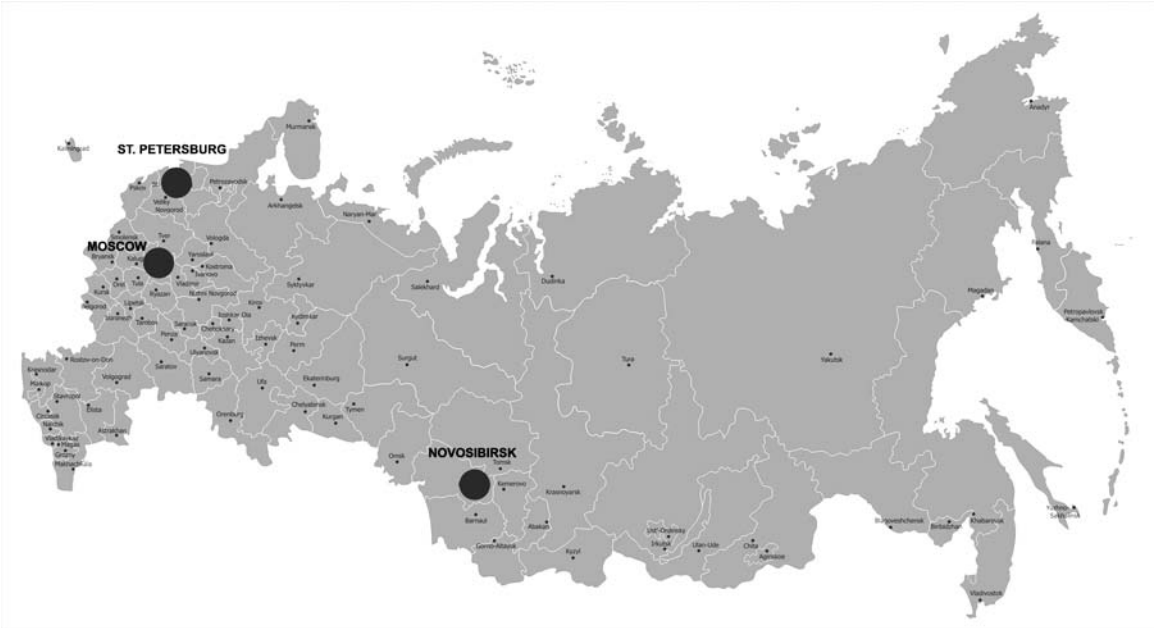
GREEN BUILDING RATING SYSTEMS (GBRS) AND THE RUSSIAN FEDERATION

A long agrarian history followed by seven decades of Soviet rule has made the RF very different from any other context in which a GBRS such as LEED® has operated. The literature review surfaced a number of characteristics of the Russian context that can affect the establishment of a GBRS. Some of the major liabilities of the post-Soviet environment are egalitarianism (Iankova, 2002), fragmentation (Neidhart, 2003, p. 68), and the conquest of nature in the name of socialization (Day, 2003; Manning & Tikhonova, 2004, p. 2). Other ones are: the country's volatility (Twig & Schecter, 2003, p. 3; Puffer, McCarthy and Naumov, 2000; Nemtsov, 2003, p. 304); an infant market replacing one where both suppliers, producers, and consumers were nominated by the party (Iankova, 2002); monopolization with 20 large conglomerates accounting for up to 70% of the national GDP (EIU, 2003); and polarity between classes (Bonnell, 1996, p. 20; Manning & Tikhonova, 2003), between degrees of development (Manning & Tikhonova, 2004, p. 5) and between developmental trajectories (Udaltsova, 1999, p.7; Manning & Tikhonova, 2004, p. 1).

There are also a few relevant social phenomena: identities confused by scrapped ideals (Bonnell, 1996, p. 2; Breslauer, 1996, p. 1; Twig & Schecter, 2003, p. 4; Neidhart, 2003, p. 11); all-prevailing corruption (Sheehan, 2003; Matveeva & Shlyapentoh, 2000, p. 121) that accounts for about 12% of the national GDP in bribes (Korchagina, 2002, p. 1); very high level of national erudition (Wedel, 1998; Pokrovski, 2001, p. 61); and *anomia*[7]—a tradition of lawlessness that characterizes a society hostile to the very idea of a legal code (Pokrovski, 2001, p. 53). Anomie could hamper LEED® completely unless the GBRS is effectively reinvented.

The very foundation of the Soviet society was shaken when the USSR opened up their country and allowed people to take control of their past and future (Neidhart, 2003, p. 172). Kern (1991) believes that possessing freedom of action opens one's future. Inversely, an open future is the source of human freedom. Individual initiative suddenly became possible, if not mandatory, yet for most of the nation no precedent existed. Fear had doomed the society for drabness and stagnation (Matveeva & Shlyapentoh, 2000, p. 102).

The new entrepreneurs encompass several different groups. Some have come from the ranks of the USSR nomenclature and the Soviet Red Directors; others from the 'shadow' economy or previous con-



nections with the criminal world; yet others have risen from the ranks of the Soviet educated elite (Bonnell, 1996, p. 17). Finally, some entrepreneurs are young and have operated solely in the open market, yet all are novices to the free market.

Understanding how these characteristics of the capricious Russian context may affect the establishment of a market-driven GBRS such as LEED® defined the challenge for the study.

RESEARCH DESIGN

To explore why the RF has no GBRS, this pilot study attempted to surface the contextual impediments to green building in general, and to a GBRS in particular. Thus, the hypothetical workability of LEED® acted as the dependent variable, and the contextual impediments to it as the independent variables.

A diagnostic[8] approach was chosen for this study because, by way of setting the scene for a more detailed study, it allowed the researcher to surface and collect suggestive evidence on a broad realm of contextual impediments without demanding conclusive evidence on any of them (Zeisel, 1981, p. 60). The study was designed as a fluid interaction between archival ethnographic research and in-depth qualitative interviews. Such interaction enabled cross-verification of emerging themes.

To determine the initial set of impediments (independent variables), briefs of the history of introduction and adaptation of LEED® to five non-US countries (Canada, Australia, China, India and Mexico) were generated by supplementing archival research with interviews with Chairs of relevant Green Building Councils (GBCs). The information generated in this preliminary investigation informed the conversational guide and interview process used over the three-week course of the primary investigation. During this time, the researcher conducted 17 in-depth personal interviews in the RF. To examine whether geographical location of the city was a confounding variable, interviews were conducted in three bioregionally, socio-politically and economically different Russian cities: Moscow, St. Petersburg and Novosibirsk. They also happened to be the three largest cities in the country and centers of commercial building.

The theoretical population of interest comprised all industry sectors potentially influential in the establishment of a GBRS in the RF. However, the accessible population was limited to the four that have been pivotal in LEED®'s international experience: design professionals, scientific community, non-governmental organizations (NGOs), and government. An additional group of respondents, agencies that

certify building materials in Moscow and Novosibirsk, was engaged for their insight into mandatory and voluntary certification in the RF.[9] Purposive (heterogeneity and snowball) sampling solicited one or more respondents from each group in each city.

The objectives of a diagnostic study suggested that the interview method be a hybrid between standard tree-and-branch and river-and-channel methods (Rubin, 1995, p. 160). While the first approach allowed the researcher to explore separate parts that went together in a context that was generally understood, the second provided flexibility to surface new information by exploring an emerging theme in depth, even to the exclusion of others (Rubin, 1995, p. 160).

Qualitative data analysis of the interviews assessed trends and points of consensus, first in the whole sample, then by industry sector, and then by geographic location. Each interview was transcribed, translated and analyzed qualitatively through coding, local integration, and assembly of diagrams. The researcher grouped the codes into three sub-coding categories developed by Patricia Cross (1981): dispositional, situational, and institutional. Dispositional impediments are those that relate to the mentality, attitudes, and aptitudes of individuals. Situational impediments include circumstances in which those individuals find themselves, and institutional impediments refer to the system of institutions, policies, and practices in which they operate (Cross, 1981). The diagnostic nature of the study necessitated the focus on the impediments that were mentioned by the majority of the respondents (either as a whole sample or as a subcategory by industry sector or city) rather than on response ratios.

RESULTS OF THE STUDY

Despite their diagnostic nature, the results of the interviews supported most of the findings of the literature review and of LEED®'s international experience. One-sided and short-sighted decision-making (dispositional factors), inadequate information (situational factor), quality of regulations, and lack of systematic approach (institutional factors) concerned an

TABLE 1. Key impediments.

Dispositional:	
One-sided decision-making	*Price determines aspiration. (Certification Agent, Moscow)*
	There has developed a grave disconnect between price and quality—people do not realize that these categories are linked. (Certification Agent, Moscow)
Short-sighted thinking	*Profit—only short-term. If not profitable now in money terms, will not use. Do not think about perspective, future, well-being, self-organization of the city. (Architect, Novosibirsk)*
	Grab-and-flee mentality (Architect A, Moscow)
Situational:	
Inadequate Information	*Norms work, but there is not a working system of informing the citizens about what is going to happen to them. (NGO B, St. Petersburg)*
	We do not know how the plastic will behave with time because there is no experience in our climatic conditions. (Scientist A, Moscow)
Cost of "green"	*There is a cost to the manufacturer [to certify product], therefore there must be interest on the part of the consumer to pay the premium. (Certification Agent B, Novosibirsk)*
	Reality of eco village: A lot of money for eco-villages; even the most expensive housing (elite) in the city is cheaper. (NGO, Novosibirsk)
Institutional:	
Fragmentation	*. . . but when the state is so fractured and destitute. (Architect A, Moscow)*
	Almost nothing is included in present norms. Minimum—bare minimum, no significant influence on the quality of life for people. . . . Norms for city planning [could change] for sure. If big issues are not solved, details cannot reach a reasonable level. (Architect, Novosibirsk)

overwhelming majority of the respondents as factors that hindered effective integration of environmental principles into design and construction. The cost of building 'green' (situational factor) was also a prominent impediment, but to a lesser majority of respondents. So was a whole range of impediments that are sector-specific or span the activities of several industry sectors, like insufficient social organization, institutional rigidity or absence of economic incentives.

TRENDS BY STAKEHOLDER SECTOR

A number of impediments were heavily discussed by a single industry sector, suggesting that they surface in a particular line of work. A peculiar role, with 75% mention by government, went to irresponsibility—an impediment that had not received significant attention from any other industry sector. Government also expressed concern about enforcement of regulation:

Citizens cannot influence [policy] in practice because what is written is not enforced. (Government A, Moscow)

The letter of the law is fulfilled post factum. (Government A, Moscow)

Other factors were perceived by the respondents in two industry sectors, suggesting overlap in the two sectors' activities. Both design professionals and certification agencies may be concerned about public lack of knowledge and the volatility of the setting because they provide paid services that depend on the client's willingness and ability to buy.

Our country is unpredictable, volatile." (Certification Agent B, Novosibirsk)

What is hindering that now is little attention to this in general. (Architect, Novosibirsk)

Design professionals share the activity of advocacy with the NGOs and it is possible that the absence of economic incentives hinders them when they promote change.

It is not profitable because there is a lot of oil and gas. Unfortunately there are no urgent effects and [people] think we will make it through the next couple of decades. (NGO B, St. Petersburg)

The scientific community and the NGOs both act as think-tanks and innovators. Institutional rigidity may restrain their progress, national poverty may hinder rising above the basic needs, and lack of leadership may prevent taking their innovation into the society.

State cannot adjust the norms, the system does not allow fast and flexible solutions. (Scientist, Novosibirsk)

Not all problems are covered by a person—and if there is no person, the problem persists. People are a problem—not enough of them. (Scientist, Novosibirsk)

The design professionals and the scientific community are generators of practical solutions to problems. References to the need for change to run its due course may be important because solutions are best to fall on ready soil.

But a ripe apple will fall. (Architect A, Moscow)

It will take time on the one hand and sharp legislative policy [on the other]. (Scientist B, Moscow)

The responses suggest that a lack of expertise impedes initiation of solutions, and lack of their business value jeopardizes their acceptance by the people.

Commercial—no hindrances, if these owners want to build and they have an expert who can teach them—but not yet, no school. (Scientist, Novosibirsk)

TRENDS BY GEOGRAPHIC LOCATION

Geographically, the results suggest that low social ethic, corruption, poor enforcement of regulation and falsified reality are more troublesome in the capitals than in Novosibirsk. Bioregional difference and the lack of environmental awareness and business value of 'green' are the opposite. Some impediments seem more prominent in one city over the other two. The lack of leaders, unequal playing field, degree of development and inadequate feedback mechanisms concerned the majority of the respondents in St. Petersburg.

Major hope—emergence of strong competition, which comes from investment. . . . Therefore until the investment climate is favorable and small and medium business is developed, nothing significant can happen in the realm of ecological innovation. (Scientist B, Moscow)

TABLE 2. Impediments by priority to industry sectors.

No. of sectors	Impediment	Design Professionals	Scientific Community	NGOs	Government	Certification Agencies
Three or more	**One-sided decision-making**	C	C	C	3/4	C
	Short-sighted decision-making	C	2/3			2/3
	Inadequate information	C	2/3	3/4	C	1/3
	Fragmentation	1/3	C	C	C	1/3
	Poor regulation	2/3	C	C	3/4	1/3
Two	**Cost of 'green'**	C	2/3			1/3
	Need for more time					
	Lack of expertise					
	Lack of business value of "green"					
	Absence of economic incentives for green building					
	Public lack of knowledge and experience					C
	Volatile setting					
	Institutional rigidity					
	Poverty					
	Lack of leaders					
	Poor enforcement of regulations					
One	Irrationality					
	Variation in definitions					
	Lack of environmental awareness/demand					
	Falsified reality					
	Perception of ecological abundance					
	Situational corruption					
	Lack of (green) technology					
	Bioregional difference					
	Lack of public engagement – leadership					
	Inadequate feedback mechanisms					
	Land and property system					
	Lack of enabling financial mechanisms					
	Inadequate information					
	Insufficient social organization					
	Insufficient state budget					
	Unequal playing field					
	Lack of consideration of public interest					
	Irresponsibility					
	Inadequate measurement and precision					

bold – impediments mentioned by the majority of the total sample
C – consensus among all representatives of the industry sector
3/4 – the fraction of the sector sample to mention an impediment
– concerns shared by design professionals and the scientific community
– concern shared by design professionals and the NGOs
– concerns shared by design professionals and the certification agencies
– concerns shared by the scientific community and the NGOs
– concern shared by the scientific community and the government
– concerns characteristic of a particular industry sector (majority mention within sector)

TABLE 3. Impediments by geographical location.

Type	Impediment	Moscow	St. Petersburg	Novosibirsk
Dispositional	Low social ethic		X	•
	Lack of environmental awareness/demand		•	X
	Lack of leaders		X	
	Public lack of knowledge and experience			X
	Irrationality			•
	Distorted market concept			•
	Make-believers			•
	Society of consumption			•
	Generational differences	•	•	
	Low regard for law	•		•
	Internal fragmentation		•	•
	Disorientation and helplessness		•	•
	Lack of cohesive national vision		•	•
	Rigid thinking		•	•
	Low land ethic		•	•
Situational	Corruption	X	X	•
	Lack of business value of "green"		•	X
	Bioregional difference		•	X
	Need for more time			
	Degree of development			
	Poverty		C	
	Lack of (green) technology		•	
	Lack of examples and pilots		•	
	Insufficient market maturity			•
	Lack of green materials	•		
	Industry fragmentation		•	
	Variation in non-single-family housing	•	•	
	Per capita resource scarcity		•	•
	Population dynamics		•	•
	Unhealthy market		•	•
Institutional	Poor enforcement of regulations	X	X	•
	Falsified reality	X	X	•
	Corruption	X	X	•
	Absence of economic incentives for green building			
	Institutional rigidity			
	Lack of public engagement – leadership			
	Unequal playing field			
	Inadequate feedback mechanisms			
	Insufficient state budget			
	One-size-fits all mentality		•	
	Lack of enabling financial mechanisms		•	
	Centralized decision-making			•
	Chaos in executive agencies			•
	Incoherence of national jurisdictions			•
	Monopolization			•
	Inadequate education		•	•

C – consensus among all respondents in the city
X – priority concern (majority mention) within a sector sample
• – no mention within a sector sample
– priority concern (majority mention) in one or more cities while no mention in the rest.
– priority concern (majority mention) in one city but not others

I do not know because I do not have feedback mechanisms . . . very bad statistics, not reliable (Scientist A, Moscow)

Public lack of experience and insufficient state budget play the same role for Novosibirsk, while the need for more time, absence of economic incentives for green building, institutional rigidity, and the lack of public engagement prevail in Moscow.

With all pretense of democratic principles, the idea of "state for people, not people for state" is still not well-taken by our apparatus. (NGO, Novosibirsk)

Logic is not in honor, and ecology is the highest form of logic—it is far looking. (Architect A, Moscow)

Bioregional differences as an impediment to green building are worth a second look. They may have concerned our Novosibirsk respondents because Siberia is perhaps the harshest climate for construction. Temperature swings from –50°C in winter to +50°C in summer, challenging the use of many green building techniques. Table 3 illustrates differences between the sampled cities (evenly mentioned ones were omitted).

DISCUSSION OF RESULTS

Russian cities are experiencing a building boom. While promising an abundant market, this phenomenon seems to undermine the quality of construction. The market is hypertrophied by the inflow of the investment capital into real estate as the most trusted asset. Demand overshoots supply and drastically increases the cost of real estate. The result is the buyers' preoccupation with the price that may even jeopardize their individual and economic goals for the property, perhaps a "natural and objective necessity" (Architect, Novosibirsk). Such one-sided decision-making seems to have penetrated most of the society in which middle class is still novelty. The situation is only aggravated by a volatile environment where immature market forces and democratic concepts attempt to take root.

Unpredictability breeds anxiety on the one hand and corruption on the other. It leads to attempts to capture benefit today and, if needed, flee tomorrow. Planning seems inescapably short-term and fragmented on all levels, which leads to substandard building practices. This puts the strategic and holistic concept of green building beyond the realm of business value. Another reason for decreased quality of building is inadequate and poorly enforced regulation. Danilov-Danilian and Losev (2000) blame the legislative powers for the "holes" in legislation: since the emergence of the market, they paid more attention to politics than to lawmaking, which is vital in a country with no former economic legislation (p. 289).

Nominal reality coexists with a shadow economy and all-powerful networking, further decreasing authority of the written rule. A thorough public understanding of the law could counteract this, but the legislation is inconsistent, and poorly supported by a system of public information. "Mass media is overloaded with anything but this [i.e., sustainability]" (Government A, Moscow), and the decision-makers are left with price as the deciding factor in consumer and civil dilemmas.

The scholars add that availability and reliability of information, especially environmental data, has always been a severe yet rarely discussed problem, for the "seventy-three year history of the Soviet system is a history of systematic misinformation of the environmental situation in the USSR" (Altshuler et al., 1992, p. 201). This was true in part because ecological services were not admitted to monitor territories occupied by the military, except for a few exceptions (Altshuler et al., 1992, p. 205).

The chosen research design was effective in surfacing various contextual impediments to establishing a GBRS in the RF. The greatest success of the study may be seen in its capturing of tacit, or previously unarticulated knowledge (Schutt, 2001), and in its amplified relevance (Bryman, 2001), for on June 1st Mayors of fifty of the world's largest cities, including Melbourne, Delhi and Moscow, signed the protocol to mandate a GBRS standard for all new municipal buildings by 2012. The protocol is a part of landmark Urban Environmental Accords signed at the recent UN World Environment Day event (held in San Francisco on June 1-5 of 2005). However, to summarize using the words of a Moscow architect, "until it is accessible and understandable to the people," green building will struggle against all these potent impediments in the Russian context.

Despite these contextual obstacles, the respondents described a wide range of contextual characteristics that could be seen as opportunities or even springboards to the establishment of a GBRS in the RF.

Among dispositional springboards are the high literacy and technical education levels of the Russian people and the immense endurance that has sustained a socially stable society. People's connection to, and appreciation of, the land is an invaluable force that has been a major contributor to LEED®'s success in Canada. In the face of undeniable ecological crises in many urban environments, there is also increasing public awareness of environmental issues:

> *Overall the population is quite, quite concerned and warmly thinks of the state of the environment. . . . The population is very, very active . . . overall, eco-mentality has sharply grown from 1992—very noticeable. (Scientist B, Moscow)*

> *Young people own this already—they want to be a part of it, they are the ones to changes this effectively. (Scientist, Novosibirsk)*

Scholars report a coincident merging of environmentalism and nationalism, giving the Russian environmental movement a character that sharply distinguishes it from most environmental movements elsewhere in the world. While most environmental movements are antinationalistic, Russian environmentalists are quite separatist (Goldman, 1992, p. 2) because in the USSR, environmental pollution was a result of Moscow's and Russia's domination over the rest of the regions (Ziegel, 1992, p. 25). This phenomenon may be an asset to establishing the local governance, which is a building block of sustainable development.

Another opportunity is the favor of Western products and practices over the national ones, which may ease the acceptance of the Russian GBRS and the accompanying influx of new materials and technologies from the developed countries. Coupled with this is the desire to impress and attract foreign involvement in the domestic market, and a strong push towards establishing the RF as a legitimate player in the global market. In fact, three respondents saw that "external market will be the push that increases standards of voluntary certification" (Certification Agent, Moscow) and green building:

> *WTO and EU—these factors are influencing the Russian economy, not internal. Need to comply, that is motivating us to reform. Because there is no [domestic] competition, external influences are more significant. (Scientist B, Moscow)*

> *If it used to be ok [to be inadequate], but now—have to produce to world standards, new technologies equal new opportunities. (Architect A, Moscow)*

Motivated by global market competition, third-party certification of sustainable practices is gaining prominence in Russia, with 40 systems of voluntary certification in place ("Ecocertification in Russia", 2005). If measurement and control of emissions is effectively addressed, the ratification and subsequent enactment of the Kyoto protocol is an incentive to further decrease CO_2 emissions in exchange for quota money.

Such trade relies on market forces, and some respondents were skeptical of the emergent Russian market:

> *Moscow is not there. Market is expressed, but in a caricature way. (Government A, Moscow)*

Others indicated that the maturing market forces are shaping positive aspirations:

> *Somebody might break the law, but people understand that it is in their interest because people are more informed, market dictates natural/ecological. . . . All of this is moving towards a more civil market, more complex over time and considerate of demand. (Architect A, Moscow)*

> *State can only stimulate, they are happy to write letters. But when it comes to money—private sector and business move [eco homebuilding]. These homes are market-demanded.*

Given the weight that the respondents assigned to the need for the change to run its due course, some of the impediments may naturally dissipate. Several respondents commented on the already increasing business value of 'green'.

> *It will come with time, just like certification of products. Five years ago people did not know, and now they ask for a certificate. (Certification Agent B, Novosibirsk)*

While most people know of the RF's history of subsistence and low-impact living, it may surprise many that the Russian Federation has a "Concept of Transition of the Russian Federation to Sustainable Development," legislated on April 1, 1996 by a Presidential Decree No. 440. The RF has ratified the Kyoto Protocol and "Agenda XXI", with a number of cities incorporating the document's goals into their development plans. In addition, the RF has a national Ecological Doctrine, and the Ecological Doctrine of Moscow is currently under government approval. Interviews indicated that along with the Energy Efficiency Act of 2003, the legislation of these documents raised the bar for building performance. Yet, the Federal Building Code has been officially abolished without replacement, and its future development is unclear.

Still, some respondents argued that the regulatory base is rather strong in the areas that have received attention. For example, mandatory ecological assessment for all building projects was announced in the beginning of 2005. The Housing Policy Act reform was launched last year, and there even used to be building classification according to energy efficiency, where building performance was classified as very high, high, average, low, and very low. The certification agents said that voluntary certification of construction materials gains popularity every year, and although today it does not directly address environmental impacts, it signifies a favorable trajectory.

While the Novosibirsk architect did not find the green materials selection adequate, the Moscow architects argued that "anything that is available in the world is available in Russia." A representative of a Novosibirsk NGO gave examples of emerging green materials and technologies: people insulate homes with empty plastic bottles, a manufacturer from Barnaul processes them into roof shingles, and an applied research facility outside of Moscow has launched production of compressed wallboards from unsorted waste.

Respondents reported signs of institutional support for green building. The center for ecological homebuilding in Novosibirsk received the equivalent of $2,000 US this year for establishing a working laboratory in the Hanti-Mansisk autonomous region, which came up in two interviews as progressive, serious about Agenda XXI and willing to raise the bar for its construction.

Examples of increasing social organization emerged during the interviews, like the Councils of Homeowners in Novosibirsk, pointing to the power of erudition and organization when the two are combined. Active international NGOs dealing with the issues of sustainable development in the RF are the World Wildlife Federation (WWF), GreenPeace, and the World Bank. Several major international conferences on ecology, and some on the interface of ecology and economy, annually take place in Moscow and beyond. There are also signs of industry collaboration, for "together it is easier to work on changing the system" (Architect A, Moscow).

The literature review surfaced a number of additional assets for green building in the RF. For example, RF has a strong tradition of subsistence agriculture, living light on the land, and revering the country's landscape. There is currently a further decrease of anthropogenic pressure on the Russian land: industries that were forced into the North are migrating into more favorable regions, where they can produce more with less (Danilov-Danilian & Losev, 2000, p. 278). Russian city planning and building traditions exhibit low anthropogenic impact: pedestrian urban spaces with expansive public transportation networks lend themselves to green building. Cultural fondness of wood, mentioned in a few interviews and in industry publications ("The Art of Building," 2005), is another asset in a country where this renewable structural and finishing material is in abundance. In the South of the country, straw bale and mud construction is still prominent. In the opinion of the authors, by mining this profound knowledge bank, green building can nurture Russian cultural heritage and provide a rightful leadership base to those groups that are currently deprived of it. It could simultaneously assure economic livelihoods to those people.

Another asset for sustainable living revealed in the literature concerns the Russian mentality. Danilov-Danilian and Losev (2000) argue that all environmental, social and economic problems of the modern civilization can be traced to the conscience of people that determines their actions in all areas of life (p. 316). The "Concept of the Transition of the RF to

Sustainable Development" emphasizes that sustainable development highly resonates with the Russian traditions, spirit, and mentality.

In the opinion of the authors, acutely Russian qualities that would inhibit LEED® with its reliance on a structured and dehumanized process may empower a Russian GBRS. For example, while most developed countries are monochronic cultures—they live in a linear, structured time—Russia is a polychronic one (Neidhart, 2003, p. 159). Such cultures live in a cyclical time and have strong communal ties (Matveeva & Shlyapentoh, 2000, p. 138; Pokrovski, 2001, p. 51). A polychronic culture may be inherently more susceptible to understanding the holism of green design (McLennan, 2004) and harness synergy in interdisciplinary work more easily than an individualistic one.

This research leads the authors to believe that the Russian identity could be redefined by affirming its positive heritage and putting an educated end to its reckless chase after Western ideals that take it away from the substantial degree of sustainability it already has. Restoring value to the positive can retain it, necessitating fewer changes towards sustainability in the future and putting the RF ahead of most developed countries.

The last asset for sustainable development as discussed in the literature is the position of the RF in respect to other countries. Pokrovski (2001) argues that Russia is not a barbarian periphery experiencing a slower adaptation to global changes, but a stage where development foreshadows that which is imminent in the West. Urban dwellers have gotten used to "the transient contacts and vanishing interactions, to the increasing pace of circulation, to a structural differentiation and functional integration of their lives" (Neidhart, 2003, p. 234), but RF's globalization is a symbiosis of active globalization tendencies with traditional, even feudal ones. This makes for a strange, exotic profile of the country (Pokrovski, 2001, p. 49).

Svyatoslav Zebelin (2002), the President of the Socio-Ecological Union of Russia, shares the same position and goes further to argue that the RF is already post-modern and ahead of the so-called developed world. Daniliv-Danilian and Losev (2000) also write that the RF is replicating the population, income gap, ratio of developed and undeveloped regions, and other proportions characteristic of the world as a whole. Therefore, they argue, it can serve as a social model of the world (p. 299).

If their theories are true, then the RF has no further need to look to the West for guidance. It must then look inward for assets laden in its own history, values and people, and synthesize solutions to environmental problems that harness synergy between environmental, economic and social interests for itself and the rest of the world.

CHARACTERISTICS OF LEED-RUSSIA

Consensus-driven standards, market orientation and third-party validation of achievement have remained at the heart of LEED® throughout its international experience. The findings of this study do not question the relevance of these characteristics. However, synthesis of the knowledge derived from the literature review, LEED®'s international experience and qualitative interviews suggest several general characteristics of what can be temporarily termed LEED-Russia. Although the resulting GBRS may not retain sufficient similarity with LEED® to carry its name, it would likely be more viable in the RF.

The results suggest that LEED-Russia be introduced as a product of a credible organization that has proven its not-for-profit agenda, be an officially Russian derivative of a Western product to harness favor, combine national leadership with regional management to acknowledge diversity and nurture self-governance, and be voluntary to negate corruption and instill a sense of ownership. Although the respondents disagreed on the latter, international experience supports the view of those who believe that "voluntary certification will mature, "Difficult to say when, but in not so distant future" (Certification Agent B, Novosibirsk). In addition, LEED-Russia should pursue a transparent process to invite trust and public engagement, allow for bioregional adaptability, and respond to national priorities such as proliferate waste, health, cultivation of the market, and restoration of the national social capital.[10] Results confirm that LEED-Russia should address social issues:

> The accumulation of social problems cannot stimulate the acceleration of the transition but rather threaten to break in and to send the

country into a situation even worse than in the 1990s. (Nemtsov, 2003)

Given the intimate connection between economic development and social capital (Twigg & Schecter, 2003, p. 15), the trade-off perceived by some of the respondents seems rooted in the lack of information and education. LEED-Russian can demonstrate that aspiration for equity does not have to jeopardize economic or environmental goals.

Furthermore, LEED-Russia should offer a comprehensive set of products and services to battle fragmentation, lack of expertise and feedback mechanisms, and a tiered reward system akin to that of Australia's Green Star®. To ensure institutional change and dispel the myth of the cost of 'green', LEED-Russia should act as a tool for education and advocacy.

BENEFITS OF LEED-RUSSIA

Transition to green building promises to meet many of the RF's pertinent needs. Among the more obvious are the environmental needs of preservation of productive land and non-renewable resources, more long-term management of renewable resources (i.e., forests, water, air), and defraying and reclaiming waste from overflowing landfills. In addition, sustainability holds political, economical, and social opportunities for the RF.

Politically, sustainability can ease the RF's pressure to increase political clout. It can enhance the RF's international image through increased political authority. Along with validity laden in third-party certification, sustainability in the form of a GBRS is likely to enhance Russia's recreational and foreign investment appeal (Sdasuk & Mokrushina, 2002, p. 235). In addition, it promises better public relations through enhanced corporate social responsibility—an issue gaining interest in the business community, as evidenced by the 2005 UN Global Compact Conference on the topic.[11]

The economic benefits of sustainability include increased national security through lessened dependence on global fossil fuel prices, increased availability CO_2 credits for trade within the Kyoto Protocol, and generation of new jobs. Through enabling niche marketing, as it has internationally, the sustainability movement can simplify differentiation of the building industry, nurture small business, provide opportunities for value-added production and inspire innovation that would benefit the emergent market. Environmental considerations have already inspired a major national automobile producer to release a hydrogen vehicle in 2006.

Social opportunities laden in sustainability are enormous for the RF. The most imminent lie in guiding the refurbishment of the aging building stock. By the end of their reign in 1991, Soviets urbanized 74% of the country's population and left ample built capital in the 3,256 towns and urban-type settlements (Ryan, 1993, p. 33). The positive influence of green building on public health will have both social and political power in the RF, perhaps winning long-term favor with the Russian people. The World Bank has acknowledged that "the society is in need of a strengthened sense of social justice, respect for individual rights, responsible citizenship and government accountability" (2004) that can be enhanced through sustainability. In the opinion of the authors, perhaps the most important and self-serving role of green building will be in redefining the devastated Russian identity around a strong land ethic.

Environmentalism can become a vision that the nation shares, as advocated by the Moscow NGO, and the "scores of accumulated slights and injustices" (Goldman, 1992, p. 1) can be engaged in propelling positive change. Interdisciplinary work and holistic philosophy of green building may be an answer to the confused individual and professional identities of the Russian people, while preventing the displacement of acutely Russian traits can help restore the national identity.

IMPLICATION FOR FUTURE RESEARCH

It would be valuable to conduct an analogous study to test the external reliability of these findings. It should employ a larger sample and quantitatively address each surfaced impediment to assess the degree of its actual influence. Conducting similar studies in several other transition economies would determine if the findings of this study are applicable. In addition, conducting such studies in the US and other developed countries may indicate which impediments are specific to a country's level of development, and which are a global challenge to GBRSs.

Another approach would be to study a specific region of the RF. For example, a detailed investigation of the Hanti-Mansiisk autonomous region may prove it most conducive to green building, as was the case with LEED-Canada in British Columbia. Lastly, focus groups with individuals from different industry sectors would shed light onto the effect that industry interaction has on the perceived gravity of impediments.

SUMMARY

- Unrivaled expanse, imperial history, Socialist rule, and rapid urbanization have shaped a country like nothing LEED® has encountered to date.
- In order to be viable in the RF, LEED® needs to counteract contextual impediments to green building, such as one-sided and short-sighted decision-making, lack of information, the cost of 'green', an inadequate regulatory system, and all-prevailing fragmentation.
- The Russian GBRS should acknowledge that although disrespect for the law and socioeconomic devastation characterize the entire country, impediments may be specific to industry sectors and geographic locations.
- History of low-impact living, the Russian communal culture, and erudition are among springboards for the establishment of a Russian GBRS.
- Green building has the potential to reaffirm Russia's social diversity, nurture national identity, and claim the country's role in the global transition to sustainable development.

CONCLUSION

> *Ecology will clean out the environment and the individual's soul. —Architect A, Moscow*

This study contributes to the understanding of compatibility between Western environmental strategies and the current RF. It sheds light onto impediments to mainstream green building in the RF and suggest context-driven adaptations that might make LEED® viable in yet another country offshore. While this study assessed the Russian context, the findings may complement the scarce understanding of transition economies as a whole, and contribute to the development of market-based strategies to guide the transition of the region's property industry towards sustainable development.

Echoing some of the respondents, this research suggests that an environmental market product that effectively addresses real needs of the majority of the population, rather than passes for a luxury, will be propelled into the mainstream in the current RF context. A number of characteristics of a Russian GBRS promise to counteract the conflicting paradigms and impeding forces of the context and capitalize on contextual assets.

The potent impediments that exist put LEED-Russia in a position of educator and advocate, and suggest embracing green building to integrate traditionally compartmentalized disciplines (e.g., design and natural and social sciences) and professions (e.g., education professionals, scientists and design practitioners). There are ample additional opportunities for environmental leadership in the RF. It can restore the sense of national identity by questioning the glamorous Western paradigm of quantitative growth and reclaiming value of traditional practices and values such as subsistence agriculture, low-impact construction and pedestrian transportation. It can nurture the discounted cultural heritage of the 40 peoples of the country by rewarding indigenous building practices and bioregional adaptation of building standards.

Other opportunities for sustainability in the RF can rise from turning contextual liabilities into assets. Collective decision-making prominent during Soviet times is only a liability when evaluated against a market-driven GBRS. Yet the infrastructure for such decision-making and people's experience of it are assets for sustainability.

In more than one way, LEED-Russia and the Russian people who emerge behind it are in a position of much needed leadership. Aware of the potent impediments surfaced in this study, they can transform the existing reality into a preferred one. Rather than holding on to the old rags of Soviet compliance, "the Russian people must instead become agents of change for their own lives and for the lives of others in their communities" (Twigg & Schecter, 2003, p. 15).

Kvint predicts that it will take the RF at least another 20 years to become a full player in the global market (Kvint, 2004, p. 8). In other words, the RF

has less than two decades do determine what kind of player it will be, and what rules of the game it will find acceptable. If Pokrovski, Zabelin and the many authors of the "Concept of the Transition of the RF to Sustainable Development" are correct and the RF is indeed a model of the future, deriving excessive guidance from the West and imbibing its paradigms may actually drive the RF backwards. It must then look inward for assets laden in its own history, values and people, and synthesize solutions to environmental problems that harness synergy between environmental, economic and social interests for itself and the rest of the world.

TABLE 4. Sources of Data

Data	Sources
Preliminary Investigation	
Canada	Electronic communication with Alez Zimmerman Presentation of CaGBC at GreenBuild on Novermber 10, 2004 Presentation of CaGBC at the 6th Annual International Congress of the World Green Building Council on June 1, 2005 Website of CaGBC, www.cagbc.org
Australia	Interview with Ché Wall Presentation of GBC Australia at the 6th Annual International Congress of the World Green Building Council on June 1, 2005 Website of GBC Australia, www.gbcaus.org
China	Lai Ming's presentation at GreenBuild on November 10, 2004.
India	Interview with Sundaresan Raghupathy, Senior Director and Head of the GBC, and S Srinivas, Senior Counselor of the GBC on November 10 2004 Presentation of the Indian Green Building Council at the 6th Annual International Congress of the World Green Building Council on June 1, 2005 Website of GBC, www.greenbusinesscentre.com
Mexico	Electronic communication with César Trevino Presentation of MGBC at GreenBuild on Novermber 10, 2004 Presentation of MGBC at the 6th Annual International Congress of the World Green Building Council on June 1, 2005
Primary Investigation	
Moscow	2 design professionals 2 scientists 1 NGO representative 2 government representatives 1 certification agent
St. Petersburg	2 NGO representatives 1 government representative
Novosibirsk	1 design professional 1 scientist 1 NGO representative 1 government representative 2 certification agents

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NOTES

1. LEED stands for Leadership in Energy and Environmental Design.
2. Information retrieved from http://www.usgbc.org/LEED/Project/project_list.asp?CMSPageID=247& on July 25, 2005.
3. From the presentation of the USGBC at the 6th Annual Congress of the WGBC on June 1, 2005.
4. For a list of registered projects, visit http://www.usgbc.org/LEED/Project/project_list_registered.asp.
5. Asbestos is prevalent in much of sanctioned and self-constructed buildings in the country. The same is true for lead, although regulations have banned the use of these materials.
6. Scholars have attempted to quantify environmental impact. Paul Erlich (1978) introduced the formula I = PAT, or Impact "equals" Population "multiplied by" Affluence "multiplied by" Technology.
7. The term was introduced by Emile Durkheim in 1893 and developed by Merton.
8. Also referred to as heuristic approach.
9. Although LEED® does not require third-party certification for building products, it is itself a third-party validation mechanism. Therefore, product certification agencies were interviewed for their insight into the status of third-party certification in the RF.
10. This list is not intended to be exclusive or arranged according to priority.
11. On June 7 and 8, St. Petersburg hosted the Eurasian 2005 Conference on the UN Global Compact with the theme "How to harness Corporate Social Responsibility to accelerate your company's growth and profitability. For more information about the conference, please see www.ethicalcorp.com/eurasia.