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Greening the Supply Chain in Emerging Markets: Some Lessons From the Field

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Not including the recent crisis in credit and lending practices in financial markets, global investment in developing and transitional economies rose to \$379 billion—the highest level ever—according to the 2006 report on foreign direct investment by the United Nations Conference on Trade and Development. Such large investments of capital, and the greater distribution of wealth creation opportunities generated around the world, are a response to a variety of factors. These include: liberalization of financial markets; privatization of state enterprises; outsourcing of product development functions across global companies; lower operating costs in developing nation markets; rising levels of education; the emergence, in selected markets, of a middle class and evolution of a consumer culture. Parallel to this large and growing transfer of wealth and opportunity is the rising level of public concern, among citizens and governments in both developed and developing nations, over natural resource consumption, public health and environmental quality and the transparency and effectiveness of decision making by business and government.

Global corporations are at center stage of this debate, in part, because of the growing environmental and social footprint of their supply chains in emerging markets. Whereas the supply chain components of such companies (e.g., raw material extraction, factories, storage facilities, distribution systems, retail stores, waste disposal and recycling units) are subject to extensive regulation in most developed nations, such requirements are far less developed and applied in major emerging markets. Nor is the infrastructure of scientific and technical talent, institutional development or consistent enforcement of regulations as evolved in such markets. As a result, global companies face increasing scrutiny and pressure to narrow the gap in the governance and performance of their operations, and that of their suppliers, across the global marketplace.

One of the lesser understood factors in the governance of global companies, especially with respect to management of their supply chains, is the limited number of their own employees that are located on-the-ground in developing market nations. Greening the Supply Chain (GSC) initiatives have emerged as one means to compensate for this limitation; they also aim to assist companies to achieve greater economic efficiencies and alignment of sustainability objectives across their operations while working with hundreds and, at times, thousands of independent supplier firms with differing objectives and capabilities.

This paper examines the definition and scope of Greening the Supply Chain initiatives, discusses the value they contribute to business, identifies selected key factors to success, presents an approach for managing successful GSC projects and reviews what remains to be done through business management, government policy making and financial management partnerships.

Definition and Scope of "Greening the Supply Chain" Initiatives

The term "Greening the Supply Chain" has emerged to describe a wide variety of actions that a growing number of companies (chiefly western companies) are presently conducting to install greater performance rigor and operational control over their extended supply chains. Greening the Supply Chain initiatives are part of a process for implementing a sustainable development plan aimed at achieving improved environmental, health and safety performance; increasing efficiencies in the use of energy, water or other natural resources or raw materials; reducing the environmental and societal impact of business operations upon local communities and the global biosphere; and expanding economic and quality of life enhancing opportunities that result from the company's business activities.

In this paper, the term "Greening the Supply Chain" refers to the following elements of a company's interactions with its suppliers:

- Applying common environmental and related standards and programs across the parent company and its suppliers, taking into consideration local legal frameworks and cultural characteristics.
- Extending management system implementation to ensure greater accountability of supplier performance on health, environment, safety, resource consumption and social factors.
- Examining opportunities for business process redesign or innovation, materials substitution or product design.
- Adopting specific performance goals and metrics to evaluate the performance of specific suppliers over time.
- Practicing greater transparency in reporting performance results.
- Developing partnerships with government agencies, non-government organizations and other
 institutions to improve specific aspects of performance beyond a company's specific capabilities
 or to leverage access to technical, managerial or financial resources.

Corporations must also improve their performance in a range of other measures including the employment of children, human rights, wage rates and anti-corruption initiatives, to name a few. While equally important to the above factors, they are not specifically addressed within the scope of this paper.

To maximize their effectiveness for the global company, Greening the Supply Chain initiatives should not exist separate from the mainstream activities of the business. Rather, they should be fully integrated with and reflect the core value proposition of the business strategy. They should yield measurable results that are part of an integrated business-sustainability plan. Business managers should directly participate in their design and implementation.

Over the past four years, the World Environment Center (WEC) has implemented eight GSC projects in a variety of geographic regions. WEC is an independent non-profit, non-advocacy organization whose mission is to advance the implementation of sustainable development in the business strategies and operations of global companies in partnership with national governments, multi-lateral institutions, non-governmental organizations and other stakeholders. WEC has undertaken projects in collaboration with the following organizations:

- 2004 project with fifteen suppliers of Alcoa in Mexico (funded by the U.S. Agency for International Development).
- 2004-2005 project with The Dow Chemical Company in Sao Paulo, Brazil with twelve suppliers (AID funding).
- 2004-2006 Johnson & Johnson project with six Tier 1 suppliers in Mexico and eight suppliers in Brazil (AID funding).

- 2006-2007 project in Romania with Alcoa Fujikura, a joint venture of Alcoa and Fujikura Ltd (funded by AID).
- 2006-2008 projects with fifteen suppliers to the beverage, food and hotel business sectors in El Salvador (AID funding).
- 2006-2007 project with eight suppliers to the General Motors Corporation in the Shanghai, China region (funding provided by General Motors).
- 2008 project with forty suppliers to Shanghai General Motors (SGM), a joint venture of General Motors and the Shanghai Automotive International Corporation (funding provided by SGM).
- 2008 project with fifteen suppliers to GM Holden in the Melbourne, Australia region (funded by the Australian Ministry of Innovation, Industry, Science and Research).

The focus of these initiatives was to reduce raw material use, conserve natural resources, advance energy efficiency, implement cleaner production techniques, improve recycling and reduce emissions to protect public health and environmental quality.

Business Value of GSC Initiatives

What is the business value that results from seeking to achieve a greener supply chain? Based on WEC's experience with the above referenced projects, the sources of business value include the following (see Figure 1):

Figure 1: Business Value of Greening the Supply Chain Initiatives

- Mitigating business risks
- Reducing costs
- Motivating better performing suppliers
- Preserving business continuity
- Enhancing market access and degrees of business strategy freedom
- Mitigating risks to the business. The incentive to implement GSC initiatives occurs at a time of rising awareness and concern among developing country policy makers and citizens to reduce environmental contamination; stakeholder, business peer and marketplace pressures to adopt formal sustainable development policies; evolving legal requirements; and a growing expectation for improved corporate governance of supplier performance. Reducing risks to the business from current environmental, health and safety factors, or responding to expectations of future controls on carbon emissions or other substances can both advance company-supplier learning and increase the operational integrity of business processes across the supply chain to create business value.

- Reducing costs. At a time of rising costs from energy consumption and other resource and raw material inputs, global companies have more direct incentives to improve the efficiencies of a variety of operating processes. These range from research and development priorities; building design and maintenance; manufacturing process design and operations; heating, ventilation and air conditioning systems; refrigeration; storage facilities; vehicle fleet maintenance and purchasing; procurement; materials and product distribution; and materials re-cycling and re-use. High cost structures are frequently embedded in each of these functions many of which result from continuing reliance upon previous generation technologies or operating standards and practices that result in higher than necessary consumption of energy, water and other inputs.
- Motivating better performing suppliers. The nature of supply chain management processes in global companies creates both growing economies of scale in the marketplace and increased interdependencies and complexity in product development and distribution. Such characteristics can also yield higher levels of vulnerability to the corporate customer if suppliers do not achieve expected levels of performance. Given the increasingly complex and extended supply chains of global companies—and the well documented performance shortcomings of suppliers in a variety of business sectors—the implementation of sustainability initiatives creates an opportunity to further focus and rationalize supply chains by eliminating low performers and focusing on a fewer number of suppliers that can meet more rigorous sustainability performance criteria while meeting the needs of the marketplace. Alternatively, GSC projects create the opportunity for customers to further stabilize and advance business relationships with their suppliers through a sustained, mutually advantageous, partnership.
- Preserving business continuity. Business operations in emerging markets frequently experience disruption from the interruption of electricity supplies or other energy or natural resource inputs necessary to production. The current year in China has witnessed power shortages in the aluminum industry as well as rotating blackouts in other manufacturing sectors as the government attempts to allocate scare energy supplies in the wake of growing industrial and consumer demand. Green supply chain initiatives that focus on energy efficiency and other aspects of sustainability can buffer business processes from such disruption while contributing to emission reductions.
- Enhancing market access and strategic degrees of freedom. Whether in emerging or developed markets, global companies seek to maximize the degree of freedom they possess to produce products in a market-based system. In some sectors, however, the need for business access to a natural resource competes with society's growing need for the same resource. Nowhere is this competition more direct than in the growing demand for water resources or for food supply ingredients that are also valuable for producing transportation fuels. Companies seeking to manage their demand for such resources while reconciling the needs of civil society will obtain greater long-term control over their business strategy by combining business process innovation with solutions to societal problems. For example, The Coca-Cola Company has established a corporate goal of becoming "water neutral" by replenishing the amount of water used in producing a variety of its beverage products, thereby reducing the competition for access to a scarce resource and avoiding the attainment of its business goals in competition with those of consumers. Companies that do not reconcile their business strategy with societal objectives

increase the risk that they will become the focus of increasing societal conflict and political action. This outcome will reduce the ultimate control of their business strategy and result in the significant diversion of management time and other resources.

Some Key Factors to Success

The World Environment Center's implementation of Greening Supply Chain initiatives in various regions of the world has, to-date, yielded the identification of six key factors for success. They are presented in Figure 2 and include:

Figure 2: Some Key Factors to Success in Greening the Supply Chain Initiatives

- Obtaining senior management commitment
- Providing direct, on-the-ground support to suppliers
- Acknowledging the wide range of supplier competencies
- Creating benefits for suppliers
- Recognizing external incentives for greener supplier performance
- Working within the national culture with local people
- Obtaining senior management commitment from both customer and supplier companies.

 The absence of such commitment at the very beginning of GSC projects will obscure agreement on their goals and value, add unnecessary complexity to decision making, diminish the willingness by mid-level managers to commit staff time and other resources, and minimize the opportunities for value creation through information-sharing, innovation and learning.
- Providing direct, on-the-ground capabilities to work with suppliers—including training, technical support, mentoring, monitoring and performance assessment. GSC initiatives cannot be managed from either global or in-country headquarters. Web-based training and other technological alternatives provide a timely and useful capability for working with suppliers but face-to-face interactions, preferably in supplier locations, are a critical element to gain support and trust from supplier company managers to ensure success.
- Acknowledging the wide range of supplier competencies. Suppliers to global companies exist in a variety of sizes and levels of sophistication. Many suppliers are "mom and pop" operations, while others are large and sophisticated global product and service providers. A successful GSC planning process will recognize the range of capabilities that exist along the supplier continuum and tailor specific projects to upgrading the talents and systems necessary to achieving project goals.

- Demonstrating the economic value to suppliers. Obtaining value from GSC projects is not a one-way street. There must be a clear and compelling case that benefits will accrue to supplier firms. Such benefits can take a variety of forms, including: strengthened competitiveness, improved manufacturing processes, cost reductions, improved productivity and closer business relationships with customers. Value creation, rather than "passing the audit," should be the primary motivation for both company and supplier participation in GSC projects. As many suppliers are themselves firms with increasing market presence that may work for a variety of global customers, their bargaining power with customers combined with their own quest for value should be explicitly recognized in efforts to green the supply chain.
- Recognizing external incentives for greener supplier performance. In many developing nations there is a relative absence of such external incentives such as effective government regulation and enforcement, stakeholder pressures for improved supplier performance or greater transparency and governance of supplier operations. In such instances, global companies should support steps to build competent government and non-governmental sustainability institutions; and increase the infrastructure of scientific, technical and managerial talent required to develop and implement effective regulations; and construct partnerships talent across business, government and non-governmental organizations to achieve common objectives. Absent business leadership and participation in such endeavors, the default assumption of many corporate stakeholders will be that the pursuit of market-based business strategies will occur at the expense of the broader interests of society.
- Working within the national/regional culture with local people. Given the relatively limited number of in-country sustainability professionals who are permanent employees of global companies, the use of local partners becomes a necessary virtue. Operating and communicating within an accepted cultural context with host country citizens can further enhance the legitimacy of GSC projects even while taking advantage of expertise from indigenous regions.

Management Approach for Greening the Supply Chain

The Key Factors to Success must be integrated with a rigorous process aimed at creating business value consistent with the corporation's sustainability objectives. WEC's management approach for its Greening the Supply Chain program continues to evolve based on the experience built through the eight previously identified projects. At present, this approach consists of an eleven step process (also depicted in Figure 3):

Figure 3: Steps in Managing Greening the Supply Chain Initiatives

- Obtaining written customer selection of supplier participation
- Organizing senior leadership involvement in project inauguration
- Forming a supplier core staff team
- Preparing an initial supplier self-assessment

- Developing key project goals and scope
- Conducting site visits and training
- Planning a mid-term assessment/making necessary adjustments
- Finalizing the project with documentation of results
- Providing customer feedback
- Learning and celebrating success
- Tracking future progress
- Obtaining a written customer invitation for supplier participation in GSC projects. Once the customer selects the suppliers it wants to participate in a GSC project, it is important to communicate in writing the purpose, goals, expected value and timetable of this effort. The acceptance by suppliers represents an important statement of their acceptance of accountability to achieve project goals. Both customer and supplier statements should have senior level management endorsement and support.
- Organizing a kick-off event with senior customer and supplier management followed by initial training of supplier staff professionals. The kick-off event is used to obtain senior leadership articulation and commitment to the GSC project's goals, reinforce these goals to participating staff and aid in establishing the personal relationships that will need to be sustained by those responsible for direct implementation of project tasks. Discussion of the details of a project timeline is also included in this step as is baseline training of staff to promote a common foundation of learning.
- Forming a supplier core staff team. Each supplier is charged with the responsibility of identifying those staff accountable for improving their organization's performance throughout the project's cycle. This would include agreement on reporting relationships, frequency of information sharing and the desired levels of staff competencies.
- Preparing an initial self assessment of supplier capabilities, needs and current performance. A self assessment template is distributed to enable supplier staff to develop a realistic profile of the current level of knowledge, skill sets, adequacy (or existence) of management systems and other barometers necessary to establishing an accurate baseline of capabilities and performance to determine subsequent actions.
- **Developing key project goals and areas of focus.** As previously mentioned, each supplier has its own capabilities and limitations depending on the size and sophistication of its organization and work history. A GSC project should aim to improve a supplier's performance in key areas, but these may differ for each firm. This phase of project management accounts for such variability by providing flexibility and encouraging customer-supplier dialogue to choose the specific areas

- of focus (e.g., energy efficiency, water conservation, environmental emissions) and the numerical goals to guide supplier planning and participation.
- Conducting site visits and Web-based training. Following the creation of a supplier core staff team and the completion of the initial self-assessment, more focused training is applied. The form of such training will be influenced by the selection of project goals and the number of participating suppliers. If the number is relatively small (≤50), individual on-site training is possible (depending on the geographic distribution of the supplier firms). If the number is larger, more reliance on Web-based training is recommended in order to effectively manage project costs. Dedicated Web sites can also be designed to foster information exchange and dialogue among supplier and customer staff and WEC experts. An iterative learning process is thus established to provide responses to questions, case examples and templates to guide supplier team decision making.
- Planning a mid-term assessment. WEC conducts continuous on-line tracking of each supplier's progress throughout the length of the GSC project and prepares periodic assessments for the customer. By the mid-term of the project's timeline, each supplier is directed to prepare an assessment of its progress against its original goals and areas of focus. Such an assessment can lead to adjustments such as additional targeted training in problem areas or refinement of goals. In addition to the mid-term assessment, suppliers participate in a workshop to share perspectives and areas of learning.
- *Finalizing the project.* As suppliers complete their individual project tasks they are asked to document their results based on the original goals and scope they defined; the measures they have implemented to achieve these outcomes; the investment/costs of such results; and other investments they could make if financing was available. Such documentation is essential in preparing for the final project audit whose conclusions and recommendations will be included in a final report to the customer.
- **Providing customer feedback.** Following its review of the final supplier report, the customer will assess whether the results achieved match its expectations of value for the GSC project. It can recommend further areas for supplier improvement in the future. This feedback process also plays a role in determining whether the customer wishes to maintain a business relationship with an individual supplier.
- Learning and celebrating success. A final workshop is organized to enable the customer and its suppliers to assess their respective learning, highlight successful results and share innovative processes or initiatives they developed. Senior executives and core staff teams of customer and supplier firms participate in this final event.
- *Tracking future progress.* As part of a process for ensuring continuous improvement, the customer will periodically survey those suppliers with which it maintains an on-going business relationship. This can also include access to Web-based training and other information resources to enhance skills and upgrade practices.

Who manages the GSC projects and how are they funded? Throughout the processes discussed in this paper, the World Environment Center has served as the project manager and was responsible for organizing the various activities described. WEC maintains an on-the-ground cadre of experts in various disciplines who work directly with customer and supplier firms. These experts are drawn from local consulting firms, universities, retired government or industry employees or other in-country WEC partner organizations. WEC appoints a senior level Technical Director for each project whose role is to support and advise the customer, while ensuring the effective organization and implementation of project milestones and deliverables from suppliers. Given the limited number of customer company staff, WEC staff and experts serve as a GSC "bridge" among the participating organizations, organize technical support and periodically highlight opportunities for the customer to communicate with individual suppliers to ensure that sufficient progress is achieved.

GSC projects are funded through a variety of mechanisms. As a non-profit, non-advocacy organization, WEC has received funds from government agencies to conduct "capacity building" projects to assist small and medium sized enterprises that are suppliers to global corporations. WEC member companies also provide resources for specific GSC initiatives.

Some Unfinished Business

GSC projects, if effectively designed and managed, can yield important benefits to corporations and society by advancing the integration of sustainable development across the business value chain. Such projects should not be viewed as one-off experiments but, rather, as part of a continuous process of onthe-ground learning and adaptation as companies, suppliers and their stakeholders commit to channeling the dynamic and disruptive qualities of the global marketplace through processes that further legitimize economic activities in ways that more directly benefit themselves and civil society.

This paper has summarized the value, lessons and processes of some selected GSC initiatives conducted by the World Environment Center during the 2004-2008 period. However, just as a major corporation cannot fully control the myriad of challenging economic, environmental and social problems around the world, neither can Greening the Supply Chain projects address all of the varied problems encountered by businesses and their suppliers.

Several additional steps can further complement the role and value of GSC activities. They include:

- Changing the culture of business decision making to acknowledge that returns on sustainability-related projects represent legitimate forms of investment. At present, too many business managers and external financial analysts regard returns on capital from sustainability investments as "less real," as if cost reductions from energy efficiency improvements or use of alternative materials in product development were less subject to calculations of value. Frequently, in the ever-intense competition for capital within corporations, business projects that don't account for life cycle impacts continue to find favor over those than reduce their environmental and societal footprint.
- Integrating sustainability goals and processes more directly into procurement decisions. While the number of companies with green purchasing policies continues to grow, the rate of progress is slow and uneven across business sectors and even within individual companies. Although the

efforts of corporate sustainability staff are admirable, procurement managers and departments should become the real owners of this process by establishing sustainability goals and timetables to drive their decision making.

- Building institutional knowledge and capacity among government agencies to advance sustainable development. In many national markets both public policies and government agencies are insufficiently developed to drive sustainability performance across small and medium sized enterprises as well as some larger firms. The lack of such a "policy floor" creates added limitations for GSC projects given that many suppliers do not possess or maintain effective management practices as part of their operations. More robust regulatory and enforcement programs would create a necessary complement to the actions of global companies to implement sustainability with their suppliers as well as create a more level playing field across the competitive landscape.
- Financing supply chain improvements to advance sustainable development. GSC projects identify a number of recommendations for technology investments or the upgrading of other practices to improve supplier performance. Depending on capital needs and payback times, individual suppliers can sometimes finance these improvements. Frequently, however, it is unrealistic to expect that either supplier firms or their global customers alone can provide the financing for many of these improvements. Partnerships involving global companies, their small and medium-sized suppliers and multi-lateral financial organizations can provide another alternative to identify, finance and implement specific actions to implement sustainable development and would represent a natural follow through from greening the supply chain projects.

Summary

Continued deterioration of public health and environmental conditions in developing nations, growing public awareness of sustainability challenges, and increasing stakeholder expectations relating to the governance and transparency of global corporations in their supply chain operations will exert added pressure to green the supply chain. To increase the prospects for success, GSC initiatives should reflect the implementation of a company sustainability plan that is integrated with a company's business strategy and operations. GSC projects should be measured by business indicators of success, such as cost reduction, risk mitigation or greater operational reliability, in addition to environmental and energy performance indicators.

This paper has synthesized the results of a small sample of eight greening the supply chain projects undertaken in differing markets across several business sectors during the years 2004-2008. The issues analyzed in this evaluation thus represent a small snapshot of a broader learning experience that is underway among global companies, their suppliers, non-governmental organizations and government agencies. Given the economic forces at work in the global marketplace, and the increasing concerns over natural resource consumption and the quality of the local and global environment, it is likely that continued experimentation with greening the supply chain initiatives will continue to expand. In addition, the changing economics of shipping raw materials, production components and finished products due to rising energy and other commodity costs will engender additional debate and discussion concerning how best to manage and rationalize global supply chains.