



ACHIEVING ENVIRONMENTAL SUSTAINABILITY OF SMALL AND MEDIUM ENTERPRISES THROUGH SELECTIVE SUPPLIER DEVELOPMENT PROGRAMS

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Abstract: *Some of the major issues in Environmental Sustainability relate to environmental burden associated with product's life cycle, and consequently, environmental practices within supply chains are receiving increased attention. The Environmentally Oriented Supplier Development is a critical aspect of this inter-organizational focus and refers to Green Knowledge Transfer, Investment and Resource transfer along with other Managerial practices. Most of the Suppliers being Small and Medium Enterprises do not possess the resources to address some of the serious environmental issues they face. They represent key stages in the supply chains of many Multinationals and are responsible for more than 60% of Green House Gases emissions and 70% of all pollution. They differ widely on the basis of internal characteristics like their environmental commitment, knowledge about such issues and business performance commitment. Based on these characteristics their behavior towards environmental issues is markedly different which may range from Mock Compliance to Minimum Compliance of the Environmental Regulations, and, from being Environment Driven to Proactive Advantage Driven.*

This paper suggests that the Supplier Development Programs focusing on helping the small suppliers to improve their environmental performance should be designed after taking into account internal characteristics of SMEs so that they acts as an impetus for adoption of environment friendly practices and is not counterproductive. As an example, Profit Driven small Supplier will revert back to previous practices which cause environmental damage once the financial support to them under the Supplier Development program is stopped, suggesting that financial support cannot change the environmental commitment of such SMEs. Similarly, Advantage Driven SMEs having very high degree of business performance commitment and environmental commitment will use the knowledge transfer and application of management and organizational practice for creative innovations and to pursue new opportunities. Such SMEs can become future targets for acquisitions by the MNEs enabling them to further strengthen their supply chains.

Key words: *Environmental sustainability, SMEs, MNEs, Supplier Development Program*

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1 INTRODUCTION

As per the **Carbon Disclosure Project Report 2011** over 50 % of an average corporations emissions are attributed to supply chain rather than from within its four walls. Increasingly, companies are recognizing that environmental management is a key strategic issue with the potential for a lasting impact on organizations performance. Focusing green practices only inside organization may expose the organization to negative environmental performance of other supply chain partners. For instance the poor environmental performance of small suppliers can affect badly the image of the buying company (**Christian & Taylor 2001, Cousins et. al. 2002, Faruk et. al. 2002, Daniel & Edwards 2006 and Hall 2001**). In addition external stakeholders often do not distinguish between focal organization's environmental practices and the practices of its suppliers (**Rao 2002, Sarkis 2006**).

Therefore, greening the supply chain is increasingly a concern for many business enterprises through Green Supply Chain Management Practices. These practices include assessing Suppliers based on environmental criteria, developing more eco friendly products and reducing carbon emissions. The manufacturers like Hewlett-Packard (**DCCA 2008**) and retailers like Walmart (**Planbeck 2007**) are actually pursuing reduction of the Carbon Footprint associated with their products through environmental improvements of Suppliers in their supply chains.

Small and Medium Enterprises (SMEs) are an important link in the supply chains of multinational companies (MNEs) and large firms. They are evolving to play a significant role within the modern global economy. If judged solely by the percent of all employees working in them, it may be said that the smaller firms are really the back bone of modern market. 80% of all global enterprises are considered SMEs (**OECD,2002**) They constitute 85% of business entities in USA (**Acs Zj,1999**) and 99% in EU and UK (**Cilberti et al, 2008, Walker et. al. 2008**). They account for at least 70% of world pollution (**O'Laoire D, 1996**). It has been estimated that SMEs have a greater impact per unit than large firms and are the largest contributors to pollution, carbon dioxide emissions and commercial waste (**Environmental Agency 2003**). They have been described as Fortress Enterprises detached from their environment, interested only in their own business activity and reactive to most issues that are not of immediate urgency (**Spence 1999**) such as environmental issues.



About 95% of all global enterprises are SMEs and therefore, development and implementation of strategies for promoting environmentally sustainable SMEs is highly important (**Kerr, 2006**). One of such strategies is to exert Supply Chain pressures where by large organization specify the Corporate Environmental Responsibility (CER) agenda as a precondition to purchasing decision. A 2010 survey by the Carbon Disclosure Project (**CDP 2010**) indicated that 89% of CDP member manufacturers had a plan to engage Suppliers in Green House Gases and Climate initiatives over the next 12 months. **CDP Supply Chain Report 2011** indicated that out of the suppliers who responded to the survey, 22% were SMEs which showed that environmental practices within supply chains were receiving increased attention.

2 THE EFFECT OF BUYER PRESSURE ON SUPPLIER SME - ADDED INCENTIVES OR COUNTER PRODUCTIVE

There is strong evidence from research that large firms benefit in many ways through adoption of environment friendly practices by their Suppliers:

- Reduction in a supply chains environmental impacts directly improves products sustainability profile (**Matos & Halli 2007**) because of decreased wastes and improved process efficiencies (**Hardfield et al 2005**),
- Improvements in cost, cycle time reductions and improved quality (**Carter & Dresner , 2007; Pil & Rothenberg, 2004**)
- Suppliers suggesting components that make products more efficient in terms of energy efficiency and resource consumption (**Klendorfe et. al. , 2005**)
- Suppliers exerting pressure on upstream suppliers to strengthen the environmental concerns in the supply chain network
- Buyers improving their own environmental capabilities by learning from the Suppliers.

Supply chain pressures are proving to be more effective for social and environmental changes than the governmental regulations (**Starcher, 2005; Studer et. al. 2008**). The incorporation of Corporate Environmental Responsibility criteria into purchasing decision may be an effective incentive for SMEs as it avoids the need for Governmental Regulations which are usually broad based (**European commission, 2002 a**).



2.1 Mock Compliance

A Supplier who is implementing CER standards only because of the Buyer pressure can find ways to evade compliance because implementation of such requirements result in higher costs, provide low returns and can be easily evaded unless properly monitored (**Jorgensen et al 2003**). Many Suppliers view the CER related Buyer requirements as an extra burden which initiates just a Box Ticking approach instead of a genuine engagement with the environmental issues (**Jorgenson and Knudsen 2006**). The Buyer's requirements, in the absence of contractual interactions and regular verification are unlikely to lead to any real change in the environment related behavior of Suppliers.

2.2 Ceiling Effect

A genuine concern for the environment, act as a powerful intrinsic motivator to engage in environment friendly practices. The pressure from the Buyer is of little importance (FSB, **2006**) and the external rewards/ punishments may undermine these intrinsic motivators (**Deci 1999**). Personal views and the beliefs of the owner / manager are the most important factor in determining the environmental commitment of the Supplier SME (**FSB 2007**). In such cases where the SME is already involved in CER, such additional external rewards (increased possibility of business) to engage in CER, may result in the perception of desired conduct as the ceiling rather than the floor and consequent reduced interest. (**D A Baden et. al. 2009 & Michael 2006**)

2.3 Danger of Reactance

SMEs have been described as Fortress Enterprises detached from their environment, interested only in their own business activity and reactive to most issues that are not of immediate urgency (**Spence 1999**) such as environmental issues. Reactance or instinctive protection of autonomy may be invoked by external Buyer pressures and may result in contrary attitude.

3 COLLABORATION WITH THE SUPPLIERS: SUPPLIER DEVELOPMENT PROGRAMS

Many times the Buyer pressure on the Suppliers is ineffective as it leads to non acceptance and Mock Compliance for reasons of extra costs and efforts which are needed to comply with such requirements. The collaborative relationships with the upstream Suppliers (**Klassen and Vachon, 2003**) in order to engage them in environmental practices along with



usual buyer pressure is another important strategy. (Chunguang Bai & Joseph Sarkis 2010). Supplier Development plans need to helping suppliers improve their environmental performance or relationships with buyer organization and may include practices such as Trust Building , Technical Assistance and other Collaborative activities (Narsimhan et al, 2008: Giannakis, 2008: Modi and Mabert,2007: Lawson et. al. 2009: Das et. al. 2006). Table 1 lists a number of activities under such programs.

Table1: Environmentally Oriented Supplier Development Practices and Activities.

<p>Green knowledge Transfer</p> <ul style="list-style-type: none">• Training to Employees of the Suppliers on environmental issues• Training Suppliers to understand expectations of the Stake holders• Training Suppliers on environmental and cost controls• Giving Green Manufacturing related advice and awareness raising for Suppliers• Giving green technological advice to suppliers• Giving Eco-design product development related advice to suppliers• Conduct training and education programs for supplier personnel• Supplier environmental evaluation and feedback• Develop supplier environmental assessment programs• Providing feedback about supplier environmental performance• Strong formal supplier environmental evaluation• Setting environmental improvement targets for suppliers• Auditing suppliers• Joint and team problem solving on environmental issues• Information sharing on environmental topics• Ongoing communication with supplier community via supplier environmental councils
<p>Investment and resource transfer</p> <ul style="list-style-type: none">• Invest in improvement of transaction processes• Reduce supplier environmental costs• Solve supplier environmental technical problems• Finance supplier major capital environmental expenditures• Transferring supplier employees with environmental expertise to buying firm• Transferring employees with environmental expertise to suppliers• Investment in supplier capacity building• Supplier rewards and incentives for environmental performance



Formal Process for Supplier Development

- Identification of high-performing critical suppliers for cost reduction and other improvement opportunities
- Criteria established about when to enter into supplier development
- Formal process to identify supplier cost reduction targets
- The participation level of suppliers in the eco-design stage.
- The participation level of suppliers in the process of procurement and production.

Adopted from : Bai & Sarkis (2010).

There are a large number of potential green Supplier Development practices which firms can adopt (**Table:1**), and all the firms cannot afford to incorporate all of them for supporting the environmental behavior of the suppliers (**Bai and Sarkis 2010**). The fact that the suppliers also differ in their response to the environmental concerns of various stakeholders with respect to their size, motivators and beliefs of the owner manager, the Supplier Development programs will have to be different for different SMEs to achieve the best results.

4 DIFFERENT CATEGORIES OF SMES

Size of SME is an important but not a sufficient factor for SME's behavior towards environmental concerns. Some authors found a positive relation between size of SME and environmentally favorable behavior (**Collins et al 2007; Hitchens, 2005** and **Lee , 2008**) . The environmental improvement efforts also depend on firm's internal capabilities rather the Size (**Aragon- Correa & Corden Pozo , 2005**) . Therefore, SMEs should be categorized on the basis of internal characteristics and not just the size.

There is empirical evidence that there are at least four extreme types of SMEs: Profit Driven, Compliance Driven, Environment driven and Advantage Driven SMEs. They differ primarily on contribution of two of the internal SME factors: Environmental Commitment and Business Performance Commitment (**Craig M. Parker, 2009**).

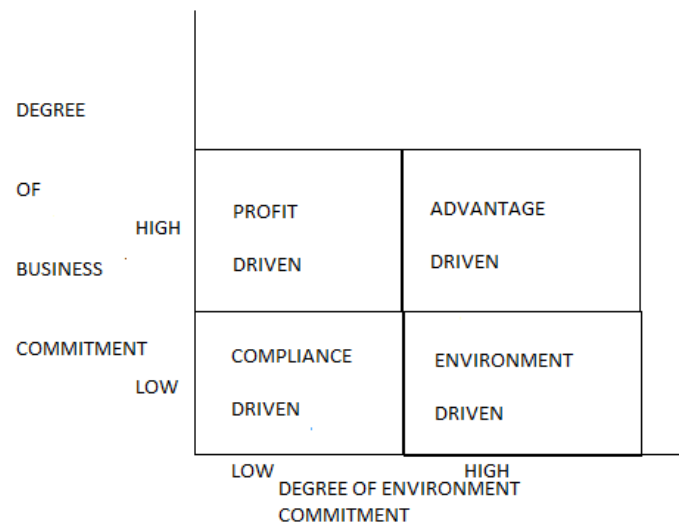


FIGURE 1: CATEGORIES OF SMEs ON THE BASIS OF INTERNAL CHARACTERISTICS
Adapted from Craig M Parker et al (2009)

Craig M. Parker (2009) explained different types of SMEs as follows:

Environment Driven SMEs:

Owner managers show environment commitment due to sense of duty or moral obligation to reduce negative environmental impact (**Walley & Taylor, 2002; Collins et al, 2007; Masurel, 2007**) and take proactive voluntary actions to make environmental improvements (**Aragon-Correa & Corden-Pozo, 2005; Roy & Therin, 2008**).

Advantage driven SMEs

They consider environmental challenges as an opportunity and drive financial gains while pursuing the environmental goals. They have high degree of business performance commitment focused on growth/ profit maximization. (**Walley & Taylor 2002**). They are innovative, opportunists and proactive because they acquire and have environmental improvement capabilities and knowledge. (**Aragon-Correa & Corden-Pozo 2005**) which enable them to pursue new business opportunities and markets among customers who demand green products with low environmental impact i.e they have high degree of environmental commitment also (**Craig M. Parker, 2009**).

Compliance driven SMEs

They focus on survival in competitive industries and are not proactive and react to customer demands or regulatory requirements. They have low degree of business performance commitment and the owner managers make environmental improvements up to the extent required for regulatory compliance. (**Bradford & Fraser, 2008; Studer et al, 2006;**



Williamson, 2006). They will not go beyond compliance and lack knowledge of environment improvements and how to achieve them (**Craig M. Parker, 2009**).

Profit Driven SMEs

They have high degree of business performance commitment and are proactive for reducing costs at every opportunity. They ignore regulations to save money when enforcement is weak and they can get away with it (**Drake et al, 2004**). They are not strategic or innovative. They have low degree of environmental commitment and are bound to enter into business practices which have negative impact on the environment if it means making profit. They lack knowledge about environment improvements but will not comply with regulations if it will reduce profits (**Craig M. Parker, 2009**).

4.1 Different Categories of SMEs Show Different Needs and Responses

Both Profit driven and Compliance driven SMEs will not adopt voluntary regulations and standards like ISO 14000 because they lack environmental commitment (**Revel and Blackburn 2007**). Compliance driven will adopt compulsory regulations. Advantage driven SMEs see regulations as long term advantage. Environment driven SMEs exceed the compulsory regulation. Compliance and Profit driven firm will adopt the environmental practice under the financial incentives but will revert back to the previous practice which cause environmental harm when these incentives are removed. Financial support will not change the environmental concerns of the compliance or profit driven firms unless the financial support can be maintained.

4.2 Different Categories of SMEs Will Respond to Different Development Programs

The buyer firms while helping to lower the transaction costs of getting the relevant information with respect to achieving environmental sustainability for all suppliers, also, need to develop different development programs to achieve maximum improvement in the environmental response of the different categories of SMEs.

4.2.1 Supplier Development Program for Environment Driven and Advantage Driven SMEs

The development program may be structured to :-

- i. Encourage Innovation through knowledge transfer as they are the best candidates for being converted into Sustainable suppliers. Joint teams can be organized for Eco Designing and SME may be enabled to get the latest technology. The employees of



SME can be trained to transfer tacit knowledge (know how) inherent in the practices and the processes of the buyer firm

- ii. Preventing *ceiling effect* and encouraging the continuation of existing environmental efforts while helping them to be still more efficient producers.
- iii. Creating networks within them to enable diffusion of tacit knowledge.
- iv. Highlighting the *champions of change* within them so that others in the cluster follow their practices. They can also be considered as future takeover targets which will also free the capital of the owner to try new opportunities of entrepreneurship.
- v. Avoiding practices which may invoke *reactance*.
- vi. Maximize collaboration.

4.2.2 Supplier Development Program for Compliance Driven SMEs

The development program may be structured for :-

- i. Educating and informing them about the benefits of improvements in the environmental commitment (Walker, 2007).
- ii. Preventing *ceiling effect* and encouraging the continuation of existing environmental efforts while helping them to be still more efficient producers.
- iii. Transfer of assets and financial incentives under strict monitoring.
- iv. Transfer of employees of the buyer firm to SME can be used to modify commitment about environment.
- v. Encouraging networking and *mimetic isomorphism* so that they try to copy the practices of the champions of change.
- vi. Avoiding practices which may invoke *reactance*.

4.2.2 Supplier Development Program for Compliance Driven SMEs:

The development program may be structured to:-

- i. Prevent mock compliance.
- ii. Educating and informing them about the benefits of improvements in the environmental commitment highlighting the financial benefit to them (Friedman et al , 2000).
- iii. Avoiding financial incentives and asset transfer.
- iv. Encouraging *mimetic isomorphism*.



5 CONCLUSIONS

SMEs have a great negative environmental impact and the MNEs or the large buyers suffer loss of reputation due to that as the external stakeholders attribute negative environmental to them. The environmental commitment of SMEs can be improved through buyer pressure but at times it proves to be less effective or even counterproductive. The collaborative relationships between buyer and SMEs can be used to achieve the desired results. SMEs differ in their internal characteristics due to which they react differently to different efforts under the supplier development plans of the buyer firms. So it is suggested that the different SMEs should be encouraged to adopt environmental practice through selective supplier development plans to achieve the best results.

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