Chapter 3

Explication of Strategic Environmental Management (SEM)

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Chapter 3A

Conceptual Foundation and Rationale of SEM

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Chapter 3A
Conceptual Foundation and Rationale of SEM

3A.1 Relevance of Enterprise Strategy to SEM

• Need for a Stakeholder Mind-set

Four fundamental macro-level developments in recent times, namely: (i) globalization of business and markets, (ii) liberalization of political institutions leading to new forms of capitalism and consequent deregulation of business and markets, (iii) the emergence of environmentalism (founded on the idea of planetary stewardship) and an increasing public awareness of business demanding a focus on more "social" values relevant to business, and (iv) the pervasive influence of information and communication technologies on business competitiveness have altered our understanding of the turbulence present in contemporary business environments in terms of the complexity and intensity of stakeholder relationships (Freeman et al., 2007: 26-30). These developments call for a steady move towards stakeholder capitalism that stands crucially on the adoption of a stakeholder mind-set. In this new milieu, business must create value for the sake of all identifiable stakeholders, by harmonizing their conflicting interests instead of trading off one set of interests against the other. This is the key insight gained from managing for stakeholders under stakeholder capitalism. Freeman, the pioneer of the stakeholder theory of the firm, cautions that under conditions of uncertainty, the supremacy accorded to shareholders over other stakeholders under managerial capitalism, can have unpredictable and usually negative consequences (Freeman et al., 2007: 23-25). Such a mind-set appears indispensable for building a stable platform on which committed business leaders can navigate their organizations in turbulent
weather. Nowhere was this more forcefully demonstrated than in the aftermath of the Johnson and Johnson Tylenol crisis in 1982, which served as an unusual and rare test of managerial integrity (Boatright, 2003: 9-11).

- Enterprise Strategy and Pro-Stakeholder SEM

Once the logic of a business existing to create value for stakeholders is endorsed, the seemingly all-important question (Drucker, 1972; 1974) in corporate strategy of “What business are we in?” would have to be reframed as: What do we stand for? What is our purpose? What are our key values? Finding the right answers to these questions hinges upon the adoption of a “managing-for-stakeholders” mind-set that seeks to find out ways of creating value for all stakeholders (Freeman et al., 2007: 11).

Although the strong moral and ethical core of strategic management has been repeatedly emphasized since a long time (by Barnard, 1938; Simon, 1948; Chandler, 1962; and Ansoff, 1965), this component has been largely ignored in strategic management literature until Freeman (1984) developed the concept of enterprise strategy, to be subsequently reinforced by Freeman and Gilbert (1988). The attempt to embed ethics into business strategy culminates in the formulation of an enterprise strategy or E-strategy (Freeman, 1984, Chapter 4) (End-note #1). The need for an E-strategy at the apex of the strategy hierarchy may be justified on three counts: (1) Most issues today that require strategic thinking also require ethical thinking; (2) Both strategic and ethical thinking are concerned with the development and realization of purpose; and (3) The language of ethics (values, rights, duties, benefit, harm, rules, morality) is useful for thinking and articulating strategy (Freeman and Gilbert, 1988: 195).

E-strategy allows firms to address the overriding strategic question: “What do we stand for?” to precede the principal question of corporate strategy—
"What business are we in?" As a logical priority, enterprise strategy dwells upon the following five key questions, namely: (i) What do we stand for? (ii) What are our aspirations? (iii) For which stakeholders do we want to create value? (iv) How do we make each of our stakeholder groups better off? (v) What legacy/impact/footprint do we want to leave behind on the world? Answers to these questions inform corporate managers that ethical reflection and value-shaping are integral to mainstream business decision-making, and that enterprise strategy can serve as a principal way to forestall systemic ethical lapses associated with an over-reliance on the shareholder-centric managerial model. This was strongly corroborated by the Enron-Arthur Anderson fiasco in the early part of this decade.

Owing to its primary focus on the moral dimension of stakeholder theory, which articulates that ‘behaviour that is trusting, trustworthy, and cooperative, not opportunistic, will give the firm a competitive advantage’ (Jones, 1995: 432), enterprise strategy is deeply rooted in stakeholder theory and stakeholder management (Stead and Stead, 2000: 314), which, are ‘imbued with ethical implications’ (Carroll, 1995: 56). Enterprise strategy removes much of the vagueness surrounding CSR, for companies that are committed to becoming more socially responsible, because it compels the strategic manager to define stakeholder responsibilities explicitly. If stakeholders are defined too narrowly, there is a signal to review and broaden the definition; if stakeholders are defined too broadly, it is necessary to search for opportunities to focus corporate resources and competences towards managing for stakeholder commitments. With an enterprise strategy in place, CSR comes to signify stakeholder thinking as a normal way to do business. In this connection, Freeman et al., (2007: 99) Suggest replacing the term “corporate social responsibility” with “corporate stakeholder responsibility".
An enterprise strategy must be built upon integrity to serve as the root of corporate strategy, because there is an integrity challenge in every stakeholder relationship and alongside, there is an integrity dividend to be reaped from successfully addressing these challenges (Simons, 2008: 229). This integrity dividend provides a source of power to the company born out of predictability, trust, credibility and loyalty in engaging with stakeholders. For instance, when corporate managers deal with customers the dividend is brand identity.

There are three alternative approaches to E-strategy formulation—(1) specific stakeholder approach, (2) multi-stakeholder approach, and (3) noble cause approach (Freeman et al., 2007: 91-95). The specific stakeholder approach is focused on satisfying the needs of a small number of stakeholder groups (e.g., shareholders or customers). Sometimes, this approach is a useful starting point for E-strategy. The multi-stakeholder approach regards all stakeholders involved in the value creation process—customers, suppliers, employees, communities and financiers. The basic contention of this approach is that the attention directed to a wide spectrum of corporate stakeholders enables the company to be consistent with and engaged in value creation that enhances the general quality of life in society. The noble cause approach answers the critical question of a corporate purpose reflecting a "noble cause" worth espousing on its own merit (e.g., partnering with national governments in the attainment of MDG targets through provision of affordable housing, health-care, BOP products, nutritional food, and microfinance.

3A.2. SEM: Balancing “Win-win” with “Win-lose”

SEM inspires thinking about environmental issues in a strategic way (Hoffman, 2000: 3). Presently, there are two recognizable schools of thought regarding the relationship between environmentalism (at the
macro/level of society and economy) and corporate competitiveness (at the micro/level of the business enterprise): (a) the win-lose perspective and (b) the win-win perspective. In a sense, both the perspectives are right, and yet both may also prove to be wrong. The answer lies somewhere in the middle requiring a need for strategic decision-making and working with trade-offs. The dichotomous framing of the economy-ecology debate has usually led researchers and writers to argue in favour of one of the two dominant approaches.

a. The Win-lose Perspective also known as the “distributive framework”, is the traditional formula for developing environmental regulation, based upon a comparison of the benefits accruing from pollution control and the costs necessary for industry to implement it. The overriding logic of cost-benefit analysis pitches environmental and business interests as a zero-sum game because of the ruling presumption that environmental benefits can be secured only by imposing an economic cost (Palmer et. al., 1995: 121), and that a trade-off is a “necessity” for achieving environmental improvements (Wally and Whitehead, 1994: 46-51; Ausubel and Sladovich, 1989). This view holds that environmental matters involve regulatory compliance and corporate social responsibility, and are unrelated to a firm’s competitiveness. The win-lose perspective is incomplete (Cohen, 1980) because it ignores the possibility of outcomes that can be beneficial for both interest groups. Distributive bargaining allows environmental gains to be achieved only at the expense of economic growth. As environmental protection is weakened, it is possible to move rightwards to point B (in Figure 3A.1a) for satisfying economic interests. As environmental protection improves, the movement is northwards to point C at the expense of economic interests. Solutions leading to mutual gain are outside the zone of possibilities. The win-lose perspective reinforces confrontational instead of cooperative behaviour patterns for resolving conflicting interests, and so, environmentalists are considered insensitive in their willingness to sacrifice economic
development, while corporate managers are judged as unscrupulous in promoting economic growth at all costs and willing to forfeit environmental quality to increase profits.

b. The Win-win Perspective, alternatively labelled the "integrative framework" involves mutual fulfilment of the demands of environmental protection and economic growth. The dominant line of argument is that the economy-ecology relationship is a fake dichotomy made real under the cost-benefit model; actually, there is no trade-off between the two. Win-win proponents maintain that the costs connected with environmental regulation can be minimized, if not eliminated through innovation that delivers unexpected competitive benefits to the firm (in Figure 3A.1b). The cost-benefit equation is revised to include economic gains that offset economic costs. Economic benefits are obtainable from "innovation offsets" (Porter and van der Linde 1995: 25), which can lead to absolute advantages for firms in the quest for creative response to environmental regulation that are consistent with the firm’s strategic objectives. Thus, the win-win school’s main line of argument is that the benefits of competitiveness rely upon a "new frame of reference for thinking about environmental improvement" (Porter and van der Linde, 1995: 127) that breaks away from the confines of the traditional cost-benefit model.

The win-win line of thinking is considered myopic in its failure to address the inevitable distributive aspect of most negotiations. Integrative bargaining allows for a progressive fulfilment of both business and environmental interests, but this is seldom possible in reality. The distributive aspect of the relationship between economics and the environment cannot be overlooked.

c. The Strategic Perspective represents a more balanced approach to addressing environmental issues in which the relationship between environmental and economic interests is considered neither purely cooperative nor purely competitive. The disagreement between the win-
win and the win-lose arguments centres around the extent to which real opportunities exist and can be identified for making environmental improvements across a firm’s value chain. Win-lose advocates are pessimistic, and win-win proponents counter the inherent pessimism by being over-optimistic that environmental improvements automatically point to highly profitable opportunities whether an environmental problem can be solved or not. Numerous opportunities are available, if only companies are on the right innovative mode to recognize and exploit them. However, business executives concede that problems like climate change will impose serious costs on business, while the concealed opportunities in energy conservation and substitution are not as abundant as it may appear in theory.

Figure 3A.1: Framing the Ecology-Economy Debate

(a) The Win-Lose Scenario

(b) The Win-Win Scenario

(c) The Mixed-Motive Scenario
The middle ground between the two views dwells upon two facets of the issue—(i) Markets and firms are not always efficient, and so, environmental improvements may offer strategic benefits in the form of integrative benefits; (ii) business managers are neither foolhardy nor naïve to admit that environmental initiatives entail no or low cost. Usually, they are resource- and investment-intensive commitments. Hence, the distributive aspect cannot be ruled out. This calls for a balance between integrative and distributive thinking, referred to as a “mixed motive model” in the negotiations literature (Neale and Bazerman, 1991; Bazerman, 1998).

The “mixed motive model” acknowledges the possibility of mutual gain solutions, while at the same time, conceding their distributive aspects. It points out to opportunities that merge both the win-win and the win-lose perspectives. Negotiators can expand the set of possible opportunities through increasingly creative responses to environmental pressures (i.e., from point A to point D) and then allow each party to argue over whether to move towards point E or point F (in Figure 3A.1c). To capture the essence of the “mixed motive model” model, it is necessary to think opportunistically about environmental protection (Hoffman, 2000: 8), not purely in terms of trade-offs. This model prompts a shift in managerial thinking from environmental management (EM) to strategic environmental management (SEM).

3A.3. EM versus SEM

The distinction between these two terms is more than semantic, representing a fundamental difference in the way one views environmental problems and the role of business enterprises in responding to them.
Within the confines of the traditional lens of environmental management, the relationship between economic and environmental objectives is fettered in the win-lose mind-set, manifested in two forms—regulatory compliance and social responsibility (Figure 3A.2a). Environmentalism is considered to be an unproductive intervention into the corporate calculus, a constraint on the central corporate goals and activities, often in the form retribution for non-compliance. Environmental problems are regarded as a negative economic externality or market failure, so that pollution results because firms are not required to pay a price for scarce environmental resources they consume such as clean air or water. Hence, solutions to environmental problems have to be artificially engineered through regulation. Corporate managers read the situation as one of regulatory compliance and their concern is how to discharge legal obligations as members of the community. This "command and control" approach has, undoubtedly, helped improve air and water quality in many industrial countries (Coglianese and Nash, 2001: 1; 7). But, it also has many limitations. Its success depends upon strict and timely enforcement, which is difficult in countries where state authority is weak, budgets are constrained or technical capacity is low. Secondly the rigidity of regulations curbs managerial flexibility to fix environmental problems efficiently, and does not encourage environmental improvements beyond legal stipulations. Thirdly, it fails to address governance challenges imposed by globalization of corporate activity. MNCs largely engage in self-regulation, with little accountability to consumers and communities for their adverse environmental impacts.

An alternative path for considering the relationship between economic growth and environmental protection is in terms of the impacts of business activities on the environment, depicted by the arrow moving from left to right in Figure 3A.2a. The focus here is on environmental damage caused by industrial activity and what companies must do to offset these
transgressions. In theory, large companies like MNCs are accountable to numerous stakeholder constituencies. But, in practice, they demonstrate little accountability to anyone except top-level managers, not even the shareholders. Civil society shows concerns that MNCs use their economic power to evade national regulatory requirements, engage in unfair labour practices, and damage the local environment. Another cause of public concern about CSR is the trend towards privatization of vital natural resources in many countries. Privatization shifts the decision-making processes for water and power provision, timber production, mining, and other natural resource-based activities to private sector business enterprises that cannot be effectively held accountable for by the government and civil society with regard to compliance with environmental quality norms and acceptable customer service. Corporate influence on government politics is a matter of concern too. Thus, environmental management becomes an important aspect of discretionary corporate social responsibility (CSR).

Figure 3A.2a: EM: Business vs. the Environment

In both the regulatory as well as the CSR approach, business enterprises will do little unless regulators compel them or society questions their legitimacy. Corporate environmental management is driven by regulatory sanctions or social sanctions, which are perceived as external and antagonistic to business interests. Environmental issues assume the
complexion of an unwanted external threat constraint on corporate activities.

However, the reality of corporate environmentalism is becoming more complex than regulatory compliance or social responsibility concerns. Today, environmental pressures emanate from wide-ranging pressures rather than government and social activism only. Corporate environmentalism is transformed from something external to the market environment to something that is of pivotal importance to a firm’s goal achievement. This requires firms to initiate strategic responses instead of warding off external regulatory and societal pressures, as economic competitiveness becomes increasingly interwoven with the imperative of environmental protection.

Figure 3A.2b: SEM: Aligning Business and Environmental Goals

As Figure 3A.2b indicates the intersection of the two issues is occupied by external constituents that demand economic as well as environmental performance from the company. This sets the stage for the emergence of the strategic aspect of corporate environmentalism, compelling companies to seek out ways to allocate resources to environmental initiatives that satisfy their dominant economic objectives. Thus, there is a visible shift from environmental management to strategic environmental management.
which moves environmental issues from the outside to the inside of the corporate managerial mind-set. Managers need to consider how environmentalism overlaps or converges with business strategy instead of denying or lamenting environmental pressures.

3A.4. Nature of SEM

In simple terms, SEM symbolises the synthesis of a firm’s business strategy with its environmental strategy (Friedman, 2003: 107). More importantly, it represents a culmination of the synthesis of varied strategic perspectives, namely, the resource-based view (RBV) of the firm (Rumelt, 1984), the competitive positioning school (Porter, 1985), the core competence perspective (Prahalad, 1990) and the Blue Ocean Strategy perspective (Kim and Mauborgne, 2005). It is the pursuit of competitive advantage through environmental management strategies, by identifying opportunities that transcend the “low hanging fruits”.

SEM works as a double-edged sword to build competitive advantage and improve environmental quality simultaneously. Through SEM, corporate managers can use strategic management to focus upon impacts to stakeholders across the firm’s entire value chain (Laszlo, 2005: 13), which can signal opportunities for creating sustainable business value with the fulfilment of social and environmental responsibilities. Over time, this gives a “sustainable value edge” in highly competitive markets.

SEM offers business enterprises the opportunity to create a new market space or blue ocean in the environmental field (Kim and Mauborgne, 2005; Orsato, 2009), thereby making the existing competition irrelevant. By embracing SEM, companies can use environmental prerogatives as a means to value innovation and hence, avoid competition altogether by
creating new market spaces. The consumer is provided with more value per product/service at lower costs. Companies can bypass competition by creating a new market-space or 'Blue Ocean' on the basis of sustainability driven environmental and social prerogatives, such as de-carbonization and poverty reduction through product and service offerings having better value to all classes of customers, including those at the Bottom of the Pyramid. This calls for radical sustainable innovations, including innovations in business models to support a long term commitment to product or service improvement. For this, it is necessary to think in terms of the ultimate service consumers are looking for. For an automobile manufacturer, this will imply a major shift in perception from making and selling cars to providing sustainable mobility solutions. This insightful shift on the part of business leaders in the industry will empower them to exert strong influence both upstream and downstream, over their supply chain and distribution channels.

Thus, we may infer that SEM unfolds the following different dimensions depending upon the view-point adopted to understand it.

- **As a business philosophy**, it seeks to incorporate within a firm’s core strategies the transformation of products and processes that an environmentally conscious society will increasingly demand (Goldstein, 2002: 495).

- From the point of view of strategy formulation, SEM refers to the positioning of a business to take advantage of environmental challenges, by transforming them into profit-making opportunities rather than threats that might curtail business operations and prospects (Marcus, 1998, p.5). This explains the use of the prefix “strategic” to qualify the environmental management effort.

- An instrumental view of SEM reveals its overriding aim of transcending the limitations of traditional environmental management tools (End-note #2) that offer only partial solutions to reducing
environmental impacts and improving environmental performance of business processes and products. SEM links up these tools within an integrated strategic framework of environmental management and assessment to enhance their functionality.

3A.5. Competitive Advantage from SEM

Competitive advantage gains through SEM (Piasecki, 1995) may manifest in three different forms: (i) Opportunity advantage is realisable when a firm is able to secure an early lead by virtue of a core competence (e.g., superior technological innovation) and competitors are not yet ready to imitate, replicate or duplicate; (ii) Terrain advantage exists when the conventions of science and law support the direction of the firm's growth; and (iii) Moral advantage is created when the public and the media accept and want the firm's corporate position in terms of image and reputation.

For example, the application of pollution prevention (P2) technologies by an automobile manufacturer helps reduction of operational costs, if we recognise pollution as a form of inefficiency; it opens up avenues for cost savings by identifying underutilization or waste of scrap, toxic substances and energy. On the flip side, P2 promotes the introduction of environment friendly products that could augment firm earnings because it would be possible to command premium prices based upon higher perceived customer value from product use. Thus, early movers in championing P2 process and product technologies (e.g., the hybrid fuel car) will have an opportunity advantage of offering customers a new product line at a premium price that has positive sustainability impacts. The terrain advantage is also strengthening as there is burgeoning scientific evidence regarding environmental damage and climate change impacts from the use of fossil-fuel powered vehicles, and regulators are endorsing the views of
scientists. The moral advantage stems from a growing recognition among members in civil society (e.g., green consumers, competitors, business partners, media, academia, etc.) of the firm’s image and reputation, consequent upon adopting an environment-friendly approach.

3A.6. SEM: A Transcendent Philosophy of “Going Beyond”

SEM rests on the assumption that businesses can identify opportunities to enhance long-term profitability and competitive advantage while progressively reducing environmental harm (Marcus, 2005: 27). In the quest for new strategic advantages, a company no longer views environmental management as a cost proposition, focused on achieving compliance, but seeks to apply beyond-compliance environmental management to reduce operating costs, increase revenue, provide added customer value, and create product or service distinction (Rice, 2000). Thus, SEM is also referred to as “Beyond-compliance environmental management”. A necessary condition for business survival is its ability to eliminate or prevent negative environmental impacts arising out of various activities. The sufficient condition for business success is to create positive opportunities that most competitors are unaware of. Unlike compliance-based, reactive, deontological environmental management, “beyond-compliance” SEM is pro-active, stakeholder-driven and, systems-development oriented.

“Beyond-compliance” environmental management is essentially strategic, because it holds every business enterprise to be capable of identifying opportunities to define its activities and time-frames for goal achievement, which it must do with discretion in order to enhance long-term competitive advantage. The pre-eminent goal of business, therefore, shifts from the creation of shareholder value only to creating sustainable value for all stakeholders.
3A.7. Climate Change Threats and SEM

As the issue of climate change assumes critical importance, its role in governing business competition is increasingly underscored as greenhouse gas (GHG) emissions are scrutinized, regulated and priced (Porter and Reinhardt, 2007: 22). Each company's approach to mitigating climate change will depend upon its particular business, the products offered and markets served, and should mesh with its overall strategy. Moreover, the approach embraced must involve initiatives to reduce climate-related environmental costs and risks all across the value chain to signal clearly that carbon emissions have a high cost. A firm that generates excess emissions in any of its business activities is operationally ineffective because it is wasting resources and incurring unnecessary escalating costs.

For some companies, however, the approach to climate change can transcend a concern for being operationally effective to becoming strategic. These companies will seek opportunities to enhance/extend their competitive positioning by creating products like Toyota's hybrid car, *Prius*, in order to exploit climate-induced demand. They would lead their industry by forging major restructuring and altering the rules of the competitive game for addressing climate change issues more effectively. These companies would also develop innovations in activities that adversely affect/are adversely affected by climate change to produce sustainable competitive advantage. Thus, the major difference between an operational effectiveness and a strategic approach to ecological issues such as climate change is that the former focuses upon more efficient ways or modified schedules to perform an existing activity whereas the latter involves reconfiguring the activity entirely.
It is worth noting that strategic environmental management does not provide any automatic guarantee to competitive advantage, but it does help to build a strong link between environmental protection and economic competitiveness so that strategic managers find it necessary to achieve both in concert. To assess the relevance and strength of a strategic opportunity, Porter and Reinhardt (2007: 23) recommend looking “inside-out” in order to understand the impact of the firm’s activities on the environment and “outside-in” to understand how the natural (bio-geo-physical) environment may affect the business environment in which the firm competes. To understand the inside-out impact, it is necessary for managers to analyse the firm’s “closed loop” value chain (discussed subsequently in Chapter 3C). The emissions impact of activities in the value chain could be direct or indirect, i.e., emissions can be generated by an activity such as production or outbound logistics that is under the direct control of the firm, or they may be induced by the firm via the activities of suppliers, distribution channels and end-user consumers.

For instance, it is imperative for a car manufacturer to recognise the emissions it causes its business partners to produce, as well as those that it generates itself. Both must be the focal point for reduction under SEM. Porter and Reinhardt (2007: 23) contend that emissions intensive activities add little (sustainable) value to the value chain, and hence should be viewed as potential candidates for elimination or outsourcing to more ecologically efficient firms. Consequently, those that contribute substantially to sustainable value are identified as strategic if a firm can reduce its emissions exposure relative to competitors through improvements in environmental performance. Firms can address outside-in effects, like climate change, strategically if they can manage them in ways that competitors cannot match or imitate (Porter and Kramer, 2006; Porter and Reinhardt, 2007: 26).
3A.8. SEM: A Milestone in Corporate Environmentalism

Strategic environmental management (SEM) represents a relatively advanced stage of “corporate environmentalism” where business-led environmental initiatives not required by law, play an increasingly visible role in environmental protection. In this connection, corporate environmentalism may be defined as the organization-wide recognition of the legitimacy and importance of the geo-biophysical environment in the formulation of organization strategy, coupled with the necessary integration of environmental issues into strategy making (Banerjee 2002::181).

It is interesting to note that within a span of four decades (Table 3A.1), the concept of corporate environmentalism was born and redefined through five successive evolutionary stages, each distinguishable in terms of the external pressures driving corporate activities as well as the internal structures and responsibilities by which companies responded (Hoffman, 2000:14). Each stage represents a particular period of time in the history of environmental management and captures the increasing intensity of business engagement in managing sustainability issues. It may be noted that the last two stages chronicle gradual SEM internalization for competitive advantage.

Table 3A.1: Evolution of SEM

<table>
<thead>
<tr>
<th>Stages of Corporate Environmentalism</th>
<th>Time</th>
<th>Ethical stance</th>
<th>Corporate Response with Environmental Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Industrial Environmentalism</td>
<td>1960-70</td>
<td>Denial, avoidance, and/or confrontation</td>
<td>Irrelevance of government intervention and environmentalist pressures; air and water pollution control focus</td>
</tr>
<tr>
<td>2. Regulatory Environmentalism</td>
<td>1971-81</td>
<td>(Regulatory pressure) Compliance-1st era</td>
<td>Externally driven, technically compliant; EHS departments as cost centres; no technological change</td>
</tr>
</tbody>
</table>
3. **CSR-based Environmentalism**
   - **1982-1988** (Societal pressure) Compliance—2nd era
   - Internally directed managerial compliance; waste minimization focus; origin of environmental and economic goal—integration; centralized, isolated environmental department

4. **Strategic Environmentalism**
   - **1989-1999** Beyond compliance
   - Birth of SEM; proactive environmental sustainability management by leading-edge, eco-efficient firms; ISO 14001 environmental management system (EMS); environmental management integrated with business strategy using stakeholder-dialogue; empowerment of sustainability officers

5. **Strategic Sustainability Management (SSM)**
   - **2000 to date** Partnerships for sustainability—(4-P: public-private-people partnerships)
   - Global climate change—the foremost social/ ecological problem and strategic issue; SEM extended to strategic sustainability management (SSM); integrated "triple bottom line" sustainability reporting; stakeholder collaboration continual renewal of economic, social and ecological systems enveloping business as source of "sustainable business advantage"

**Source:** Analysed by researcher

The five evolutionary stages of corporate environmentalism are:

1. Industrial environmentalism (1960-1970) (Denial and confrontation)

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3A.9. Microeconomic Foundations of SEM

The evolutionary path of SEM shows that business enterprises have been late starters in the race to save the planet as planetary stewards, given the length of time during which environmental degradation has been perpetrated since the inception of the Industrial Revolution. This perceptible time lag may be attributed largely to the inability of neo-classical economics to offer an appropriate economic rationale for SEM.

The basic premise of SEM as an emerging worldwide business practice is the possibility of firms to unearth profit opportunities by cost reduction and/or revenue generation while attempting to mitigate their environmental impacts. In this way, environmental and economic goals are harmonised by incorporating impact-reducing product and process design into the core strategic vision of a company. In its most advanced form, i.e., sustainable strategic management (SSM), SEM links individual products and services to a vision of systemic sustainability that calls for confining the environmental burden from the sum total of all individual activities within the earth's carrying capacity.

The evolving nature of SEM reveals a paradox of sorts in the strong economic justification of pre-SEM practice provided by neo-classical economics. Rational economic behaviour that has hitherto ignored available profit opportunities appears contrary to neo-classical economics, as it assumes that firms make rational use of all available information to maximise profits (Gabel and Sinclair-Desgagné, 1997). Neo-classical theories of the typical profit-maximising firm, including the transaction-cost theoretic variant as proposed by Williamson (1985), emphasize the following (Goldstein, 2002, p. 498-99):

- Individual decision-makers maximise well-being by contracting with one another and with the company.
• The firm itself faces a production function that is well-defined in a probabilistic sense, allowing it to reach an equilibrium that maximises profits subject to the constraints posed by its contractual and technological environment.

• If markets have been allowed to work freely, then that equilibrium should be optimal for the company and its participants.

• The optimal contracts and technical choices would be expected to change only with a shift in some external condition upon which the initial maximization was based.

• Given the limits and possibilities posed by its external environment, the firm will be doing its best at any point in time.

• Subject to the constraints of costly contracting, the firm will apply the available profit-maximising technique.

• Management teams that fail to perform efficiently would be expected to be replaced, and inefficient firms would become non-existent.

Given these conditions, firstly, it would be surprising to find firms that make ex-ante inefficient choices over significantly long time periods by failing to make optimal use of available information. Secondly, it is surprising that a managerial approach like SEM that has the potential of unfolding profit-making opportunities, should be systematically ignored and underexploited.

The ability of SEM to reveal hidden profit opportunities has been challenged and scorned by neo-classical supporters (Walley and Whitehead, 1994: 47) that stringent environmental regulation can trigger innovation, which in turn, can lead to enhanced competitiveness of firms. They reject the notion that the benefits of environmental management programmes will always outweigh the costs, and contend that improvement of profits and environmental performance simultaneously is a rare occurrence (Palmer et. al., 1995; Xepapadeas and de Zeeuw, 1999).
If the logic of neo-classical economics is applied, then firms that act to reduce their environmental impacts would expect to raise their costs and reduce profits. This line of thinking has pervaded the top corporate management’s understanding of the seemingly intrinsic economy-ecology trade-off so that the basic premise of SEM and the claims made by its advocates have met with considerable scepticism. Firms would be inclined to reject SEM projects, at the very outset, because the expected (search, information and analysis) costs would outweigh the potential benefits envisaged. An analysis of the profitability of SEM initiatives from the neo-classical standpoint would focus upon changes in the firms’ external conditions—changes in market demand, existing technologies, or regulatory regimes—that compel them to re-optimise as a new set of relative prices is generated, so that different environmental practices might become either profit maximising or loss minimising.

In this regard, evolutionary economics (Nelson and Winter, 1982) offers a more systematic approach to reinforce the significance of SEM. The basic differences between the two economic perspectives are outlined below (Table 3A.2)

### Table 3A.2: Evolutionary and Neo-classical Economics Perspective on SEM

<table>
<thead>
<tr>
<th>Economic Theory</th>
<th>Causes of change</th>
<th>View of the firm</th>
<th>Focus of investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neo-classical economics</td>
<td>Growth in labour and capital inputs; technological progress is exogenous</td>
<td>Production function of input/output process</td>
<td>Physical assets increases capital stock as a factor of production</td>
</tr>
<tr>
<td>(Solow, 1956)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolutionary economics</td>
<td>Innovation-led; evolutionary learning; technological progress is endogenous</td>
<td>Hierarchy of activities driven by &quot;routines&quot;</td>
<td>Innovative capacity triggers growth/ decline of firms</td>
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<tr>
<td>(Nelson &amp; Winter, 1982)</td>
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</tbody>
</table>
This branch of microeconomics recognises that organisational capabilities evolve over time in idiosyncratic ways, and operate through routines and tacit knowledge by acting upon only a part of the information that is ostensibly available (Goldstein, 2002: 496). The assumptions underlying SEM hint at its theoretical connection with the literature on organisational learning (Garvin, 1993) and quality management (Deming, 1986). SEM may, in fact, be viewed as the integration of organisational learning and quality management applied to the field of (adverse) environmental impact reduction. In this connection, it is necessary to point out that the underlying ideas of organisational learning and quality management are more consistent with the capabilities-based evolutionary theories of the firm than with the neo-classical economic theories (Goldstein, 1997; 2002).

3A.10. Benefits from SEM

The positive impact of SEM is palpable in two forms—(a) competitive benefits (Friedman, 2003: 107) to the firm arising out of outperforming competitors, and (b) welfare improvements (Lyon and Maxwell, 2004) for stakeholders.

(a) Competitive benefits to the firm arise from (i) margin improvements because of cost savings at every stage of the product life cycle, as labour, energy and material resources are more efficiently utilized; (ii) rapid cycle time as environmental issues are integrated with the "concurrent engineering" process during the early stages of design, thereby reducing time to market; (iii) market access through the development of global products that are environmentally preferable because they fulfil international eco-labelling standards; and (iv) product differentiation through the introduction of distinctive environmental benefits such as ease
of disassembly, biodegradability, energy efficiency to influence consumer purchase decisions.

(b) Welfare improvements for stakeholders are strongly intertwined with public policy in 'many subtle ways' (Lyon and Maxwell, 2004: xi). These welfare improvements are explained in terms of the following five arguments: (i) The *production efficiency* argument centres around the fact that SEM causes production efficiency reflected in resource utilisation patterns because pollution symbolises production inefficiencies; (ii) the *cost minimization* argument emphasizes that SEM offers ways to lower cost of value creation while reducing pollution load to create "win-win" opportunities; (iii) the *product differentiation* argument veers around the new generation, environmentally sensitive "green" consumers who experience an increased "perceived utility value" (PUV), and hence, are willing to pay a premium price for "clean" products; (iv) the *regulatory risk reduction* argument underscores that SEM encourages pro-active environmental strategies that enable businesses to avert conflict with the legal-political system arising out of threats of stringent regulation; and (v) the *institutional cost reduction* argument emphasizes that SEM reduces escalating political and resource costs of creating and enforcing command-and-control regulatory regimes.

3A11. Two Developmental Paths towards SEM

When pursuing SEM, strategic managers can choose between two alternative pathways (Piasecki et. al., 1999: 20-1). The first calls for building a "Green Wall" while the other allows environmental management that is interactive and ultimately integrated into mainstream business (Figure 3A.3). The "Green Wall" is a point at which the whole organization resists moving forward with its SEM programme, and the environmental initiative is nipped in the bud, just like hitting a wall.
(Piasecki et al., 1999: 11-12). Symptoms of hitting the "Green Wall" include deferred or negative decisions consequent upon lack of top management/financial management support for the SEM concept and programme, or lack of a distinct focus of such programmes, or the failure to demonstrate all across the organization the positive outcomes necessary to cost-justify additional investments in future SEM programmes.

**Figure 3A.3: Two Paths for SEM Development**

Recent experiences in the corporate world (Apple Computer, Warner Lambert, ABB, McDonalds) show that the "Green Wall" can be a real threat to SEM programme implementation. Scaling the "Green Wall" requires strategic thinking because compliance-based environmental management has neither been identified as an operational, nor as a staff function. This has necessitated the integration of environmental management with the business units for these functions to become effective and sufficiently corporate to provide independent perspectives for environmental quality assurance and enforcement. Hence, tearing
down an existing “Green Wall” requires developing a comprehensive environmental strategy, organization, operations, and culture that gradually follow the second path. Determining the appropriate path to follow and steering the environmental organization along it is the responsibility of the environmental management organization, even though benefits accrue organization-wide. However, it must be recognized that the success of SEM as an emerging and significant concept hinges largely on its adoption in the mainstream of the organization.

3A.12 Universality of SEM

Beyond-compliance SEM initiatives have mostly been pioneered by large companies, because of their inbuilt financial, technological, and managerial capabilities. Arguments to justify the exclusion of small and medium enterprises (SMEs) from the realm of SEM is based on the presumption of a lack of interest on the part of these organizations, in anything beyond regulatory compliance (Greening and Gray, 1994; Russo and Fouts, 1997; Sharma and Vredenburg, 1998), the low degree of public interest in SMEs (Scott, 1990), and the difficulty of obtaining data from SMEs (Aragón-Correa, 1997; Rutherfoord et al., 2000).

However, SMEs produce 70% of all the pollution created by industry (Smith and Kemp, 1998) and account for 60% of carbon emissions from world industry (Marshall, 1998). Hillary (2000) estimated that the sum total of the environmental impacts of SMEs outweighs the combined environmental impacts of large firms. Therefore, SMEs can and should also adopt the “beyond compliance” route to environmental management, considering the fact that they have a strategic advantage of being agile and flexible in making decisions for responding quickly to market changes. But, there is considerable debate between those who think that small firms can be analysed similar to large firms (Meyer and Heppart, 2000) and those who think that unique aspects of small firms necessitate specific
theories (Venkatraman, 1997). However, there is broad agreement that research specifically focused on SMEs is necessary (Dean et. al., 1998; Okada and Sawai, 1999; Way, 2002). Strategic differences between big and small firms makes it necessary for SMEs to exercise caution so as not to jump headlong into the bandwagon of 'sustainable practices' initiatives to imitate their big brothers, before the proper foundations have been developed and the resources and core competences identified. Beyond-compliance environmental management for promoting sustainable development efforts of SMEs deserves business forethought like any large enterprise is required to plan its business strategy and opportunities.

### 3A.13 Basic Strategic Options under SEM

Choice of strategy as a significant component of SEM depends upon managerial perceptions about potential environmental opportunity confronting a firm. Based on how the management of a business perceives its exposure to environmental threats and opportunities, four types of strategic options are possible. This may be presented by means of a 2x2 matrix combining high and low degrees of environmental opportunity and threat (Table 3A.3). Four alternative strategic pathways to car manufacturers (Exhibit 10) are possible combining managerial perceptions (high/low) regarding potential environmental threats and opportunities.

<table>
<thead>
<tr>
<th>Potential Threat</th>
<th>Potential Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOW</strong></td>
<td><strong>HIGH</strong></td>
</tr>
<tr>
<td>(1) <strong>INDIFFERENT STRATEGY</strong> (Environmentally negative firms)</td>
<td>(2) <strong>DEFENSIVE STRATEGY</strong> (Carbon-intensive manufacturers)</td>
</tr>
<tr>
<td>• Deny/ignore negative impacts;</td>
<td>• Resist to nullify climate-change threat</td>
</tr>
<tr>
<td>(3) <strong>INNOVATIVE STRATEGY</strong> (Innovative companies)</td>
<td>• Case-specific public relations</td>
</tr>
<tr>
<td>• Create sustainable value through environmental quality improvement</td>
<td>• Retreat &amp; relocate to avoid stakeholder retaliation</td>
</tr>
<tr>
<td>• Anticipate public pressure and engage stakeholders</td>
<td></td>
</tr>
<tr>
<td>• Differentiate products through eco-labelling</td>
<td></td>
</tr>
<tr>
<td>(4) <strong>OFFENSIVE STRATEGY</strong> (Creative firms)</td>
<td></td>
</tr>
<tr>
<td>• Outperforms competition with radical sustainability innovation</td>
<td></td>
</tr>
<tr>
<td>• Market penetration for loyal &quot;green&quot;</td>
<td></td>
</tr>
</tbody>
</table>

| Table 3A.3: Basic Strategic Options under SEM |
Defensive Strategy: This is the first strategic option to match a strategic posture combining low potential opportunity and high potential threat. A classic example of the defensive strategy is reaction of both the automobile and petroleum industry to suggestions that climate change is being aggravated by carbon dioxide emissions due to combustion of fossil fuels. The characteristics of a defensive strategy are as under—

1. **Resistance** is actively encouraged through the development of countervailing campaigns (e.g., publication of scientific surveys), lobbying, using expert legal advice or even passive resistance if the threat seems unjustified.

2. **Case-specific public relations** can be used to prevent erosion of reputation and loss of credibility where countervailing campaigns are superficial.

3. **Retreat** is a final option for business to escape escalating stakeholder pressure and loss of customer base and goodwill, requiring a firm to close its operations and shift to regions where resistance is though to be non-existent or at least weaker than at present.

Indifferent Strategy: This is the second strategic option that fits with a strategic posture that combines low potential opportunity and low potential threat. Since the public attention is not attracted, firms that have dubious or dirty environmental records, can still get by not making any concerted move to clean up because and yet not confront any adverse media or social pressure. A good example is the BPO industry and the financial services sector in emerging economies whose spectacular contribution to national economic growth have eclipsed the environmental hazards that they create.

(Source: Steger, 1988)
in the longer term. The important characteristics of an indifferent strategy are:

1. Ignore associated environmental impacts and continue with "business as usual".
2. Re-evaluation of traditional business fields if newly enacted environmental laws require environmental action.
3. Cost reduction through reduced resource consumption and lower volume of waste generation without any additional investment.

Innovative Strategy: This is the third strategic option that fits with a strategic posture that combines high potential opportunity and high potential threat. Since the public may be outraged consequent upon environmental lapses, firms need to develop innovative solutions constantly for improving environmental quality and mitigating adverse impacts so as to avail of potential opportunities enabling sustainable competitive advantage. An appropriate example is the automobile industry in Japan and its efforts to develop alternative fuel automotive technology in the form of electric, hydrogen cell and hybrid compact cars. The important characteristics of an innovative strategy are:

1. Anticipation of public pressure and resultant emphasis on the development of innovative solutions to perceived problems (e.g., CO₂-induced climate change), or the redesign of existing products or the awakening of management consciousness.

2. Differentiation if customers consider environmental problems serious, a firm can try to benefit from the marketing of environmentally differentiated (e.g., through eco-labelling) products in a credible way.

Offensive Strategy: This is the fourth strategic option that fits with a strategic posture that combines high potential opportunity and low potential threat. A good example is the industry for renewable (solar, wind, biogas, hydrogen cell etc.) energy development whose prospects...
appear bright with the heightened public awareness about the contribution of fossil fuel burning to climate change. The important characteristics of an offensive strategy are:

(1) **Personal distinction** of the business and its products is stressed to gain reputational advantage.

(2) **Market penetration** by redesigning existing products to make them environment friendly so as to get a positive market response, when adverse environmental impacts can justifiably be claimed to be reduced.

(3) **Market expansion** through a response to the latent, unarticulated needs of customer to be closer to nature, to take care of their health, welfare and longevity, and to create a sense of self-esteem and esteem from others.

### 3A.14 SEM Activities

Typical activities included under strategic environmental management are:

- **Pollution Control** is a reactive, ex-post, end-of-pipe (EOP) waste management approach that involves shifting wastes generated in terms of form or location, instead of an attempt to reduce or eliminate waste.

- **Pollution Prevention** involves reducing the rate and quantum of waste materials or emissions generated as a direct or indirect consequence of business processes. This can readily cause a reduction not only in waste disposal costs, but also in the raw material, labour and overhead expenses associated with producing something that does not get sold.

- **Total Quality Environmental Management (TQEM)** refers to the adoption of a total quality management (TQM) strategy for embedding environmental management within a company. It combines a customer satisfaction focus, resource productivity, commitment to continuous improvement, first mover advantage, technological innovations, product differentiation and managerial excellence with efforts to reduce the
environmental impacts and improve the environmental quality of business decisions and actions.

□ **Environmental Management System (EMS)** involves conceiving, designing, implementing and monitoring a system for managing a company's environmental impacts. The system should be comprehensive, systematic, planned, regular and documented. Some of the well-known models for an EMS are ISO 14001, EMAS, and BS 7750. An EMS involves written policies, objectives and targets for managing environmental impacts, documented procedures to control processes that impact on the environment, allocation of roles and responsibilities, measurements and audits, reviews of the system, and finally, assessment and registration.

□ **Environmental Audit** refers to an analysis and collection of information regarding an organization's impact upon the environment. The audit should be independent, objective, regular, systematic and documented. The different types of environmental audit that may be identified include preparatory review for creating an EMS, system or EMS audit, site audit, process audit, life cycle analysis, product audit, acquisition/divestment audit, supplier audit, third-party/certifier assessment.

□ **Design for the Environment** calls for redesigning the fundamental aspects of the company's strategy, facilities and/or products. A product's material content could be altered in favour of a less resource-intensive input and yet be able to provide similar or even better performance. The value chain might be substantially redesigned to permit the product to be returned and upgraded, or easily disassembled to facilitate the recovery and reuse of key parts.

□ **Industrial Ecology** requires locating a cluster of businesses that share similar core services and materials adjacent to each other so that they can share common resources and, thereby, reduce costs. Both source and residue materials are all “just in time” to all facilities.
- **Value Chain Management** focuses on assessing the true cost and environmental impact of a company’s products or services across the external and internal linkages of the value chain i.e., both within the company’s operations as well as its suppliers and customers. This often unearths opportunities to produce and sell a benefit based on a lower total cost over the product’s entire life cycle.

- **Competitor and Customer Intelligence** is concerned with obtaining key business information on competitors and/or potential customers by reviewing public environmental files for business information. These enable access to information on competitor’s business plans, production capacities and equipment inventories, as well as identification of the unarticulated environmental needs of potential customers.

- **Eco-efficiency** refers to "the delivery of competitively priced goods and services that satisfy human needs and bring quality of life while progressively reducing ecological impacts and resource intensity through the life cycle, to a level at least in line with the earth's estimated carrying capacity" (WBCSD, 1995, p.8). The four pillars of eco-efficiency include customer service, quality of life, life cycle approach to product and process impacts, and recognition of the earth’s carrying capacity as a bottom line for value creation. The even core elements of eco-efficiency are reduction in the *material intensity* of goods and services, reduction in the *energy intensity* of goods and services, reduction in *toxic dispersion*, enhancement and simplification of *material cyclability*, sustainable use of *renewable resources*, extension of *product durability*, and increase in the *service intensity* of goods and services.

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**End-notes**

#1: The idea of enterprise strategy is original to Drucker (1972; 1974) that describes the raison d’être for the firm, arrived at from a holistic conceptualization of the enterprise. The term, "enterprise strategy" was coined by Igor Ansoff (1979: 30-44), to discuss the idea that, it is imperative for firms to achieve legitimacy within their social and political...
environments, to be successful in the future. Schendel and Hofer (1979: 1-22) observed that the increasing societal and ethical demands confronting business enterprises justifies a new over-arching level of strategy—the enterprise strategy—for making explicit the firm’s relationship with society.

#2: Traditional corporate environmental management tools include environmental impact assessment, life cycle assessment, energy conservation, pollution control, pollution prevention, waste management, environmental strategy and policy, ISO 14000 certification, environmental accounting and reporting, environmental rating and performance indicators, environmental marketing, design for environment, and environmental labelling.

#3: As a branch of economic theory, evolutionary economics emerged in the early 1980s with the publication of the seminal work by Richard Nelson and Sidney Winter (1982). Traditionally, the theories of innovation rooted in neo-classical microeconomics assume that a firm chooses the level of innovative activity that maximises profits. Evolutionary theory has emerged to compete with the neo-classical tradition by not remaining confined to merely explaining growth, but directing attention towards the entire process of change, innovation and technological progress. Nelson and Winter (1982) offer a perspective on innovative activity that is a fundamental departure from the established neo-classical microeconomic perspective. They refute the assumptions of neo-classicism on three counts: (i) Technological progress is not determined exogenously, and must be treated as an endogenous variable in the process of economic development; (ii) Individual factors of production cannot be separated, and actually influence one another considerable; and (iii) Growth and economic dynamism are a function of the processes of learning and discovery, and not the outcome of a process of resource allocation.

References


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Chapter 3B

Drivers of SEM

3B.1. Corporate Philosophy Determines SEM Commitment
3B.2. Socio-Economic and Political Determinants of SEM
3B.3. Stakeholder Drivers of SEM
3B.4. Drivers of SEM in Different Industries
Chapter 3B

Drivers of Strategic Environmental Management

3B.1 Corporate Philosophy Determines SEM Commitment

A firm's propensity to adopt SEM is reflected by its concern for the natural environment that is usually embedded in the ethical stance that managers portray in the corporate philosophy. Concern for the natural environment includes a concern for others through the externality effect. In this regard, four stereotypes of ethical stances along a spectrum may be identified (Johnson and Scholes, 2002: 216-17):

- At one extreme are firms that consider enhancement of the short-term interests of shareholders as the sole responsibility of business. According to this ethical stance, it is the domain of government via legislation, to prescribe the constraints chosen by society to impose constraints on business enterprises (e.g., toxic emissions data, environmental clean-up costs, tail-pipe pollution control) while they pursue their economic and financial goals of efficiency and profitability.

- The ethical stance of firms in this category is similar to the first, except that it is moderated by recognizing the long-term benefit to shareholders resulting from well managed relationships with other stakeholders. Hence, many environmental and social issues are proactively managed as a matter of long-term, enlightened self-interest.

- The ethical stance of firms in this category is that stakeholder interests other than shareholders, should be explicitly built into the strategic intent, to steer the organization beyond the minimum obligations of corporate governance (Handy, 1995). Managers recognize that organizational performance should be measured in a pluralistic way rather than exclusively focusing on the financial bottom-line.
Therefore, a firm would refrain from producing and marketing ecologically damaging or socially irrelevant products. Sustainability driven strategic environmental management exemplifies this pluralistic ethical stance.

- The final category occupies the ideological end of the spectrum with few representative firms committed to shaping and navigating society towards a holistically sustainable future. The viability of this ethical stance depends upon the issues of corporate accountability that are put in perspective, and the corporate governance mechanism in force. It is often easier for privately held, family owned organizations to adopt this stance as they are not accountable to numerous and diverse external shareholders.

A concern for the natural environment is usually reflected in the latter two categories of ethical stance, based upon the view of environmental ethics held, i.e., the concern about the rights and wrongs of our treatment of non-human society (Benson, 2000: 11), which stems from a realization that living beings form intricate relationships of interdependence within their shared environment. Environmental ethics deals with the principles that should govern human interactions with the natural world, regarding our duties to (i) refrain from harming or (ii) protect from harm, or (iii) proactively promote the good of the following sectors apart from the normal adult human being (Midgley, 1983):

- Human sector—posterity; children; those who are senile; the temporarily insane; the permanently insane; defectives, ranging down to "human vegetables"; embryos, human and otherwise.
- Animal sector—sentient animals; non-sentient animals
- Inanimate sector—Plants of all kinds; artefacts, including works of art; inanimate but structured objects such as crystals, rivers, and rocks
- Comprehensive—families and species including un-chosen groups of all kinds; ecosystems; landscapes; villages and cities; countries; the biosphere
Environmental ethics involves two basic concerns: a social concern in terms of fairness or equity (present and future generations), and an ecological concern in terms of ecosystem integrity (Pannell and Schillizi, 1999). Ecological concern for ecosystem integrity can be viewed in either of two ways, as an expression of naturalism or of humanism. Conceptions of corporate environmentalism represent a constructive tension between these two major world-views (O’Riordan, 1989; Milbrath, 1984; Pepper, 1984; Capra, 1982; Cotgrove, 1982; O’Riordan, 1981; Sandbach, 1980; Passmore, 1974; and Glacken, 1967) expressed as two different modes of thinking about the significance of nature and nature’s services: (1) techno/anthropocentrism as a manipulative perspective in which human ingenuity and the spirit of competition dictate the terms of morality and conduct, and (2) ecocentrism, as a radically opposite perspective where nature serves as a metaphor for morality in determining how to behave, and as a guide to rules of conduct of behaving in prescribed ways (O’Riordan, 1989: 82). Anthropocentrism symbolizes the interventionist mode of relating to nature, whereas ecocentrism stands for a nurturing mode (Figure 3B.1). Occupying the middle ground between these two polar views is an influential “red-green” strand of thought in this field (Huckle, 1998).

**Figure 3B.1: Two Modes of Relating to the Natural Environment**
Norwegian philosopher, Arne Naess (1973), one of the founding fathers of environmental ethics, coined the terms “shallow” and “deep” with respect to the shade of green that each stance in the environmental movement epitomizes. A “light green” position is one that dilutes the concern for the environment to a concern for the interest of human beings (i.e., the anthropocentric perspective or reform environmentalism). A “deep green” view is committed to the “equal right to live and blossom” of all forms of life (i.e., the ecocentric perspective or radical environmentalism).

Light green anthropocentric environmentalism holds the following four propositions: (i) Environmental problems are identified as changes in some environmental conditions, whether local or global, that jeopardize human well-being; (ii) Human beings have reason (self-interested/ prudent or moral) to act in ways that will help avert the threat, wherever these changes can be controlled or reversed; (iii) human well-being is closely linked with the well-being of elements of the non-human society either because they are useful to us or because we care about them directly, and so, they are protected by actions designed to secure human well-being; and (iv) since only human beings have moral status, which Routley (1980: 117) refers to as “human chauvinism”, the protection extended to non-humans because of their instrumental value to humans, is all the protection it makes sense to demand.

The deep green, ecocentric environmentalism calls for fundamental structural change for progress towards sustainability. It endorses a fundamental examination of the relationship between human beings themselves and their environment, and maintains that traditional morality is inadequate for solving environmental problems. Hence, independent moral status is assigned to all living things, not merely to individual living things, but to populations and species, as well as comprehensive entities/
ecosystems that include both living and non-living elements (e.g., rivers, landscapes, cultures, the living earth) (Naes, 1989). The deep green position may be characterized by means of the following three propositions: (i) Environmental problems are identified as changes in some environment element that endangers anything within this unrestrictive field; (ii) action to prevent these dangers requires human agents to recognize duties much more extensive than those recognized by traditional moralities that accord independent moral status only to human beings; and (iii) living things and natural systems containing living things matter in themselves, that is have independent moral status.

Environmentalism seeks to embrace both these world-views, and the constant interaction between these two positions imparts special dynamic qualities to it. The anthropocentric orientation is essentially centralist, authoritarian, patriarchal, competitive, managerial, hierarchical, reductonist, exploitative, manipulative, progress-seeking, and considers the natural environment as a given. By contrast, the ecocentric orientation is decentralist, libertarian, feminist, cooperative, participatory, egalitarian, holistic, protective, nurturing, stability seeking, and considers the natural environment as a social construct. Table 3B.1 portrays ideal types of the pure versions, rarely found in reality (O’Riordan, 1989: 85-6).

Table 3B.1: Aspects of Environmentalism under the Two World-views

<table>
<thead>
<tr>
<th>TECHNO-ANTHROPOCENTRISM</th>
<th>ECOCENTRISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports retention of the status quo in the existing structure of political power, but demands greater responsiveness and accountability in political, economic, regulatory, and educational institutions</td>
<td>Demands redistribution of power towards a decentralized economy with more emphasis on informal economic and social transactions, and the pursuit of participatory justice.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCOMMODATION</th>
<th>INTERVENTION</th>
<th>COMMUNALISM</th>
<th>GAIANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Popularity</td>
<td>[55%-70%]</td>
<td>[10%-35%]</td>
<td>[5%-10%]</td>
</tr>
<tr>
<td>Ethical focus</td>
<td>Values life above all</td>
<td>Values progress above all</td>
<td>Values fairness above all</td>
</tr>
</tbody>
</table>

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Gough et al., (2000) propose a third dimension of environmentalism that balances the first two, namely, an ego-biocentric dimension that values the human being within nature as a symbiotic whole. It represents a degree of relative ecocentrism (Buell, 1995: 6-7) suggesting that the non-human environment is not only an ethical framing device but a pointer to the essential fact that human history is connected to natural history, that human interest is not the only legitimate interest, that human accountability to the natural environment is an acceptable ethical stance, and that the natural environment should be construed as a process rather than as a constant.

Although, “deep green”/ “strong” environmentalism is the most profound and forceful, the pragmatism of the “light green” anthropocentric perspective is believed by many to be currently instrumental in bringing about immediate change (Bebbington et al., 2001: 29) on a global scale to cope with the climate change crisis.
3B.2. Socio-Economic and Political Determinants of SEM

Strategic environmental management (SEM) typically represents a degree of voluntarism in the ethical stance of corporate strategic managers to improve the quality of the natural environment in which a business system is embedded. The degree of voluntarism demonstrated will influence both the pace at which SEM institutionalization takes place in the organisation, and the level of sophistication and detail that is built into the SEM system. The degree of corporate voluntarism for environmental care (V) bears a functional relationship with three elements (Lyon and Maxwell, 2004: 6):

1. The structure of the industry involved (S)
2. The institutional structure of the political environment (P)
3. The stage of the public policy cycle in which the issue is addressed (C)

Thus, \[ V = f \{ S, P, C \} \]

- **Industry Structure (I)**

Two important dimensions of industry structure need to be focused: (i) concentration of the industry (S1); and (ii) heterogeneity of the firms within it (S2). *Concentration of the industry* is the degree to which an industry is dominated by a relatively small number of firms. Seller concentration is characterized by a measure of the market structure, which refers to the number and distribution of firms in a market. This may be measured through a simple index such as the “N-firm concentration ratio” (CR-N) that gives the percentage of the combined market share of the N (often equal to 4) largest firms in the industry (Besanko et. al. 2007: 196), where N denotes a specified number of firms. The N-firm concentration ratio can be expressed as: \[ CR_N = \frac{s_1 + s_2 + s_3 + \ldots + s_N}{s_{total}} \]

Where \( s_i \) is the market share of the \( i^{th} \) firm.
If CR\(_N\) is close to zero, it would indicate an extremely competitive industry since the N (often equal to 4) largest firms in the industry would not have any significant market share. In general, if CR\(_N\) \(<\) 40, indicating that the four largest firms have a combined market share less than 40%, then the industry is considered to be very competitive, with a number of other firms competing but none owning a very large share of the market. At the other extreme, if CR\(_i\) \(>\) 90, then that one firm that controls more than 90% of the market is effectively a monopolist. Market share is usually calculated based upon sales revenues or production capacity. The higher the industry concentration, greater is the tendency to have higher prices, and hence, the potential success of launching price leadership campaigns, and of coordinating activities on the political front.

Although useful, the concentration ratio presents an incomplete picture of the concentration of firms in an industry because by its very definition, it does not incorporate the market shares of all the firms in the industry and does not provide information about the distribution of the firm size. Consequently, a major problem with the CR-N is that it is invariant to changes in the size of the largest firms in the industry. This problem is solved by the Herfindahl-Hirschman Index [HHI] that provides a fuller picture of industry concentration. The HHI is equal to the sum of the squared market shares of all the firms in the industry; thus, HHI in a market with N equal size firms is 1/N. Therefore, the reciprocal of HHI is referred to as the number-equivalent of firms. Thus, an industry whose HHI is .125 has a number-equivalent of 8. The HHI conveys the information that the relative size of the largest firm is an important determinant of industry conduct and performance. When calculating HHI, it is sufficient to restrict attention to firms with market shares of .01 or larger because the squared shares of smaller firms are too small to affect the index (Besanko et. al. 2007: 197-8).

Symbolically \(HHI = MS_1^2 + MS_2^2 + \ldots + MS_n^2 = \Sigma MS_i^2 (i = 1, \ldots, n)\);
Where MS = Market share of the \( i^{th} \) firm in the industry

\[ n = \text{Total number of firms in the industry} \]

The HHI can range from zero under perfect competition conditions, when

\[ MS_i^2 = 0 \quad (i = 1, ..., n) \]

to 1 in a pure monopoly situation where the monopolist has MSi = 100%. The range of HHI (Table 3B.2) will differ according to the nature of competition (Besanko et al. 2007, pp. 198).

**Table 3B.2: Range of Herfindahl-Hirschman Index (HHI)**

<table>
<thead>
<tr>
<th>Nature of Competition</th>
<th>Range of HHI</th>
<th>Intensity of price competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect competition</td>
<td>Usually &lt; 0.2</td>
<td>Fierce</td>
</tr>
<tr>
<td>Monopolistic competition</td>
<td>Usually &lt; 0.2</td>
<td>Fierce/ light depends on product differentiation</td>
</tr>
<tr>
<td>Oligopoly</td>
<td>0.2-0.6</td>
<td>Fierce/ light depends on inter-firm rivalry</td>
</tr>
<tr>
<td>Monopoly</td>
<td>( \geq 0.6 )</td>
<td>Light if not threatened by entry</td>
</tr>
</tbody>
</table>

Greater heterogeneity among firms renders coordination of industry action (collusive or political) difficult. Furthermore, firm heterogeneity creates market-based avenues for cost leadership, quality leadership and product differentiation, and non-market (e.g., application of regulatory processes to raise competitor costs) strategic moves at the firm-level.

- **Institutional Structure of Political Environment (P)**

This is a complex issue (Baron, 2003) characterized by business-government relations (P1), adversarial nature of the political-legal system (P2), and pluralist versus corporatist societies (P3).

Business-government relations are defined in various ways. It may involve public voluntary agreements (PVA), as in the USA to offer technical, information or publicity-based assistance to firms engaging in environmentally friendly actions, or negotiated agreements between government policy makers and industry associations or individual firms as...
in Europe to meet negotiated environmental goals to avert legislative norms.

Regarding the adversarial nature of the political-legal system, low adversarialism policy areas imply a higher degree of centralization of governmental and legal authority exercised hierarchically and rigidly. This causes a firm to build long-term relationships with a small number of key government representatives, which leads to a sharing of social surplus, cooperative outcomes, potential for linkages across issues, and the potential for interest group influence over government. Highly adversarial systems are decentralized, formal, legalistic, issue-specific, with low influence of interest groups over the government. Transaction costs associated with enacting new legislation is considerably high. Moreover, there is a strong incentive for individual firms to pre-empt new laws through voluntary environmental improvement.

A third way to characterize the political environment in democratic nations is to distinguish between “corporatist” and “pluralist” societies (Cawson, 1986: 104). In a pluralist system, a large number of interest associations compete with each other for members, resources, and access to government for influencing public policy. In a corporatist system, there are few non-competitive organizations with compulsory or semi-compulsory memberships. These organizations (e.g., banks, professional groups, universities, trade unions) have a privileged status vis-à-vis the government in that they co-determine public policy and are responsible for its implementation by disciplining members to accept bargained agreements. Cawson (1986: 104) clarifies that pluralism and corporatism are not mutually exclusive; they are end-points within a continuum, and the intensity of each is determined on the basis of the extent to which monopolistic and interdependent relationships between interest organizations and the state have been firmly established. For instance, the
U.S. political environment is typically pluralistic and adversarial whereas the European and Japanese approaches are cooperative and corporatist.

- Public Policy Life-Cycle (C)

This is a useful framework for strategic issues management because it reveals the relationship between business strategy and public policy. The public policy life-cycle has four identifiable stages: development, politicization, legislation and implementation. In the development stage, events build up leading various segments of society to become aware of a problem (e.g., carbon emissions of cars accelerating the pace of climate change). In the second stage of politicization, the issue acquires a label, opinion leaders begin to discuss the problem in public, the media cover the issue more extensively, and interest groups tend to mobilize around the issue at hand. This stage is often accompanied by a dramatic event that leaves an imprint on the public's mind. At the legislation stage, the issue acquires greater acceptance because of political-legal sanction through standardization of practices. At the implementation stage, relevant organizations internalize the issue in decision-making and performance management.

Thus, it may be summed up that corporate voluntarism (V) of large companies (V) depends upon: (1) Industry structure (I) identified as (a) industry concentration (I₁) i.e., the number of firms dominating the industry (low→ high) reflecting the strength of market competition (high→ low), and (b) heterogeneity of the firms (I₂) signalling opportunities for market leadership (low→ high) through product differentiation/cost reduction; (2) Institutional structure of the political environment (P) (Baron, 2003) defining business-government relations (regulatory→ supportive) (P₁), adversarial nature of the political-legal system (centralized/rigid→ decentralized/self-regulatory) (P₂), and the democratic set-up of society (corporatist→ pluralist) (P₃); and (3) Stage of
the public policy cycle (earlier/initiation—► later/implementation) in which an environmental issue is addressed (C).

Symbolically, \( V = f \{ I_1, I_2, P_1, P_2, P_3, C \} \); implying that

\( V \uparrow \) if \( I_1 \) is low (i.e., the industry is competitive);
\( I_2 \) is high (i.e., heterogeneity makes competitive strategies advantageous)
\( P_1 \) is high (i.e., political/legal system has a supportive relationship with business)
\( P_2 \) is low (i.e., political/legal system is decentralized and self-regulation oriented)
\( P_3 \) is high (i.e., political/legal system is pluralistic)
\( C \) is later (i.e., SEM is addressed when the public is environmentally conscious)

3B.3. Stakeholder Drivers of SEM

Empirical studies (e.g., Scott, 1990) provide little evidence that small firms resort to voluntary environmental improvements just as enthusiastically as large firms. Hence, the issue of voluntary corporate action leading to SEM is usually associated with large firms, prominently including MNCs. The stakeholder pressures that build upon large firms to volunteer for environmental quality improvements are broadly of five types:

- **Market/green consumer pressures** arising out of consumer needs for green products coming mostly from suppliers, distributors and consumers (Arora and Cason, 1996; Konar and Cohen, 1997; Khanna and Damon, 1999; Khanna and Anton, 2001);

- **Credibility** pressures coming from communities and the workforce concerning failure to meet environmental goals, and the resultant occurrence of accidents and catastrophes (Pargal and Wheeler, 1996; Dasgupta, Hettige and Wheeler, 2000; Maxwell, Lyon and Hackett, 2000; King and Lenox, 2000).

- **Competitive** pressures arising from competitors and the need to be competitively advantaged (Pargal and Wheeler, 1996; Khanna and Anton, 2001)

- **Regulatory** pressures from governmental regulations at all levels pertaining to environmental protection, health and safety (Dasgupta,
Hettige and Wheeler, 2000; Khanna and Damon, 1999; King and Lenox, 2000; Khanna and Anton, 2001

- **Financial pressures** coming the investor community within the capital market, a firm's level of spending in R & D, and a firm's poor environmental record that can adversely impact its financial results as well as its financiers and insurers (King and Lenox, 2000; Khanna and Anton, 2001).

Thus, the barrage of environmental pressures become drivers of environmental initiatives as an effort to listen to the polyvocal demands of multiple stakeholders (Lyon and Maxwell (2004: 22-25).

### 3B.4. Drivers of SEM in Different Industries

Strategic environmental management is a *sine qua non* for both the manufacturing and service sectors of the economic system (Table 3B.3).

#### Table 3B.3: Sector-wise SEM Drivers

<table>
<thead>
<tr>
<th>Manufacturing sector drivers</th>
<th>Service sector drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Energy efficiency; reduced waste and pollution</td>
<td>• Reduced threats to business model</td>
</tr>
<tr>
<td>• Sustainable value innovation (product/process)</td>
<td>• Clean-up of internal practices</td>
</tr>
<tr>
<td>• Product reliability; quality enhancement</td>
<td>• Ripple effect of service offered</td>
</tr>
<tr>
<td>• Lower entry barriers in sophisticated global markets</td>
<td>• Improved customer service</td>
</tr>
<tr>
<td>• Reduced insurance coverage, litigation threats, supply chain pressures and regulatory non-compliance costs</td>
<td>• Reputational advantage through &quot;green&quot; corporate image</td>
</tr>
<tr>
<td>• Lower reputational risks from loss of customers, adverse media exposure and community resistance</td>
<td>• Access to sustainable business opportunities</td>
</tr>
</tbody>
</table>

However, the movement towards environmental sustainability has, first and foremost, affected the manufacturing sector very conspicuously
(Hitchcock and Willard, 2008: 53-55) over the last two decades, just as the quality revolution hit it earlier, to change the competitive dynamics of multinational business, with new MNCs in the Asian countries, primarily Japan, beginning to assert their supremacy over the erstwhile domination of their Anglo-American and European counterparts. The importance assigned to sustainability initiatives may be argued in terms of the following points: Firstly, manufacturing is energy-intensive; secondly, it depletes natural resources; thirdly, it usually deals with hazardous chemicals during the transformation process; fourthly, it generates enormous solid, liquid and gaseous waste; and finally, global manufacturing leads to the establishment of production sites on a global basis. Service organizations have usually been less inclined to participate in and contribute to the sustainability movement, as most of their adverse environmental impacts are indirect and invisible. They do not have to worry about smokestacks oozing out of their premises; their greatest concern is about paper recycling. It is undeniable that the direct impacts of service sector operations as compared with that of manufacturing are miniscule, but it is necessary to recognize the indirect impacts they cause or influence through their service delivery patterns, and the consumer behaviour patterns they encourage.

References


Chapter 3C

Structural Aspects of SEM Strategies

3C.1. Sustainability Vision and the Strategy Hierarchy
3C.2. Value Chain for a 'Living System' Economy
3C.3. Relevance of the "Cradle-to-Cradle" Design Approach
3C.4. Hierarchy of SEM Strategies
3C.5. Relevance of the Eco-enterprise Strategy
Chapter 3C

Structural Aspects of SEM Strategies

3C.1. Sustainability Vision and the Strategy Hierarchy

Strategic environmental management has as its starting point, a sustainability-driven strategic vision infused with the core value of sustainability. An incisive sustainability vision (Hart, 1997: 71) of the entire planet as the context of doing business creates a roadmap revealing a significant challenge as well as an opportunity to progress towards a sustainable global economy in the future. Such a vision not only indicates how a company should position itself vis-à-vis social and environmental problems, but also acts as a "shaping logic" (Hart, 1997: 73) for an external focus on sustainable development that transcends the prevalent internal-operational focus on 'greening'. In short, a strategic vision rooted in sustainability serves as the very foundation of SEM strategies.

Conversely, SEM strategies help implement the philosophy of corporate sustainability (the enterprise-level equivalent of sustainable development), and inject life into the ecological, social, and economic dimensions of an organization’s performance. At an operational level, a sustainability vision guides the critical information needs of various users and the way an enterprise measures effectiveness of its triple-bottom line (ecological, social and economic) performance.
In order to develop an appropriate strategic perspective aligned to the new paradigm of an open living system economy (Stead et. al., 2004:10-11), systems thinking and generative learning should harness the collective ecological intelligence of organizational members and stakeholders to re-conceptualise the value chain underpinning the flow of business activities, together with its internal and external linkages. This is unavoidable, irrespective of whether strategic management is based on a planned, emergent, incremental or muddling-through approach (Mintzberg, 1994).

3C.2. Value Chain for a ‘Living System’ Economy

Collaborative capacity is inherent in the ‘living system’ paradigm, requiring a reconfiguration of Michael Porter’s (1985) classical linear value chain, used as a diagnostic tool to understand, analyse, and develop sources of competitive advantage for an organization.

■ Type I (Economic) Value Chain

The classical value chain depicts diagrammatically the entire progression of activities that create and build value, connecting a company’s supply side (raw materials, inbound logistics and production processes) with its demand side (outbound logistics, marketing and sales). It shows the total value delivered by a firm (the internal value chain) and by a group of value-creating participant firms (the value network). Value chain analysis (VCA) helps identify how to improve the value of a firm. For the purpose of managing the natural environment, environmental costs and benefits have to be superimposed onto the classical value chain (Table 3C.1) to indicate where such costs and benefits are linked to an organization’s added value to its customers. Improvements can accrue within particular segments of the value chain.
Table 3C.1: Potential Environmental Improvements across the Value Chain

<table>
<thead>
<tr>
<th>Value Chain Activity</th>
<th>Potential improvements for managing the environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inbound logistics</td>
<td>Raw materials selection and transportation</td>
</tr>
<tr>
<td>2. Operations</td>
<td>&quot;Clean production&quot; technologies; E2; just-in-time (JIT); total quality management (TQM)</td>
</tr>
<tr>
<td>3. Outbound logistics</td>
<td>Transportation and storage</td>
</tr>
<tr>
<td>4. Marketing and sales</td>
<td>Environmental education for customers; packaging</td>
</tr>
<tr>
<td>5. Service</td>
<td>Recycling/disposal; service; maintenance</td>
</tr>
<tr>
<td>6. SECONDARY ACTIVITIES</td>
<td></td>
</tr>
<tr>
<td>7. Firm infrastructure</td>
<td>Corporate responsibility, environmental valuation and risk analysis</td>
</tr>
<tr>
<td>8. Human resource management</td>
<td>Corporate culture, environmental awareness; training and development</td>
</tr>
<tr>
<td>9. Technology development</td>
<td>Cradle-to-grave perspective in product design and waste management</td>
</tr>
<tr>
<td>10. Procurement</td>
<td>Supply and waste chain management; supplier education</td>
</tr>
</tbody>
</table>

With a modified relationship between activities, VCA should underscore the linkages across the chain in a dynamic way, e.g., in car manufacturing, increased attention must be given to environmentally appropriate car design, as well as recycling and disposal of end-of-life vehicles (ELVs) in order to provide added value for the customer. By focusing on the entire supply and waste chain, eco-industrial supplier-buyer partnerships may be formed to impose environmental requirements on suppliers and assist them to satisfy the new standards of performance.

However, three major limitations are inherent in Porter’s classical value chain model that makes it incompatible with the emerging sustainability perspective of the business enterprise (Figure 3C.1)—(1) Stakeholder relationships in the model have a narrow focus, including the supplier-firm-customer relationship, but excluding the multiple stakeholder
networks indispensable for value creation (Freeman and Liedtka, 1998: 391). It does not account for natural capital and social capital that strategic managers must manage simultaneously. (2) Many value chain activities classified as support activities in Porter's classical value chain should be reclassified as primary activities because they directly contribute to corporate sustainability, e.g., sustainability accounting and reporting systems for tracking and communicate the usage of natural and social capital, to guide decision-making. (3) The value chain must be depicted as a closed loop rather than as a linear model, for showing the ecological and social impacts of business processes. (4) The narrow focus on a firm's stakeholders on suppliers and customers precludes the stake of employees that is assumed to have been accounted for through the work they do for the firm, as a factor of production, devoid of any humanistic considerations.
Figure 3C.1: Value Chain Implications of Type I Value Chain
With the growing acceptance of corporate sustainability as a way to do business, Porter himself acknowledges that the evolving concept of source impact reduction (popularly termed pollution prevention or P2) indicates inherent resource inefficiencies and associated hidden costs that are buried in the life cycle of a product (Porter and van der Linde, 1996).

The adoption of a ‘living system’ perspective brings with it representative new terminology to capture the degree of completeness in the life-cycle methodology adopted by the value-chain analyst. In general, life cycle assessment demands an integration of analytical vision to start with the manufacture (figuratively referred to as “cradle”) to the use phase, and finally to the disposal (or “grave”) phase. The evolving terminology to denote this progression includes the following: (i) Cradle-to-gate is an assessment of a partial product life-cycle from manufacture (i.e., cradle) to the factory gate, i.e., before transportation to the consumer. The use and disposal phases of the product are omitted. (ii) Gate-to-gate is a partial LCA focusing at only one value added process in the entire production chain. (iii) Cradle-to-grave involves the standard LCA extending from manufacture (i.e., cradle) to the use phase and finally to the disposal (i.e., grave) phase of value creation in the product. (iv) Cradle-to-cradle is an extension of the cradle-to-grave assessment where the end-of-life disposal phase becomes a recycling process that helps to originate new, identical products or different products. (v) Well-to-wheel is the application of the LCA methodology to analyse jointly the efficiency of fuels and the automobiles used for road transportation, using components such as “well-to-station” (petroleum refining), “station to wheel” (petroleum distribution), “well-to-tank” (involving petroleum refining, distribution and car fuelling), and “tank-to-wheel” (involving car-use and car-driving behaviour).
Type II “Cradle-to-Grave” Value Chain

A thoroughly adapted version of the Type I linear economic value chain is obtained by adding resources and wastes to depict an industrial ecosystem that relies upon ecological efficiency through resource reduction, process redesign, recycling and reuse (Figure 3C.2). This is the Type II linear ecological life-cycle value chain focusing on eco-efficiency. It accounts for low entropy resources and high-entropy wastes from cradle-to-grave, i.e., resources from the cradle and wastes to the grave. The adapted linear value chain system is designed to cause less ecological harm than the original linear model; nonetheless, some extent of ecological harm and value destruction is conceded as inevitable to economic value creation.
Figure 3C.2 Value Creation within a Type II Value Chain
The adapted linear value chain acknowledges stakeholder influence of employees and the community, both of which have symbiotic and co-evolutionary relationships with the firm. Human capital of the firm is considered as an instrumental asset in the value-creation process. All work is designed to be economically, intellectually and socially fulfilling in respect of personal development of the human capital and economic sustainability of the firm. The model extends the value chain to include community stakeholders—regulators, rights activists and pressure groups that can potentially influence the firm’s economic sustainability. The ability to enhance social capital of the community alongside the firm’s human capital, while contributing to the economic sustainability of the organization, is referred to as socio-efficiency (Hockerts, 1999: 25-35; Dyllick and Hockerts, 2002: 130-41). Socio-efficiency and eco-efficiency are the stepping stone towards sustainability as together they improve the state of the planet’s natural and social capital while contributing to the firm’s economic sustainability. However, achieving sustainability mandates the need to transcend the scope of the linearity of the basic value chain model, which must be transformed by closing the loop to form a circle.

■ Type III “Cradle-to-cradle” Cyclical Value Chain

Closing the value chain into a cycle, changes its orientation from ‘cradle-to-grave’, based upon an optimization methodology of minimizing ecological and social harm to ‘cradle-to-cradle’ that advocates optimization in terms of maximizing ecological and social benefit. This shift to a type III industrial ecosystem, shows renewable energy and resources as transformed into products whose wastes in turn serve as inputs for other biological or industrial cycles (Figure 3C.3). This attribute is referred to as eco-effectiveness, one of the major pillars of planetary ethics. The goal of eco-effectiveness urges human activity to follow nature’s design principles as a vision of business and industry that will benefit instead of harm ecosystems and social systems. By pursuing a vision of industry that does not damage ecosystems or social systems,
'cradle-to-cradle' design transcends the "less bad" aims of eco-efficiency, and proposes eco-effectiveness instead. Eco-effective design principles conceive of industrial systems that emulate the healthy abundance of nature (End-note #1).

The practicality of the 'cradle-to-cradle' philosophy as a new design paradigm for business, pioneered by McDonough and Braungart (1998; 2001), presages a closed loop value chain founded on the principles of biomimicry, i.e., mimic natural metabolic processes. The authors maintain that nature is not as efficient as it is effective because many natural processes have inherent inefficiencies resulting in waste; however, the waste generated is always absorbed and reused within the system, so that no waste remains as waste. In order to mimic the waste-to-food conversion mechanism of natural systems, the 'cradle-to-cradle' model uses effective nutrient cycles in the realm of human industry.

The 'cradle-to-cradle' industrial ecosystem recognises two types of metabolism—biological and technical—within which materials flow as healthy nutrients: (1) Biological nutrients (or products of consumption) bio-degrade and hence, can be circulated to the biological cycle, and technical nutrients that do not bio-degrade, but can be circulated continuously through the industrial cycle. (2) Technical nutrients (synthetic or mineral) are materials, which remain safely in a closed loop system of manufacture, recovery and reuse. They are used in 'products of service' that render a service to customers. The product is used by the customer but owned by the manufacturer, either formally or in effect. The product of service strategy is mutually beneficial to both the manufacturer and the customer. The manufacturer maintains ownership of valuable material assets for continual reuse while customers receive the service of the product without assuming its material liability (i.e., and "eco-lease"). The manufacturer or commercial representative of the product also fosters long-term relationships with returning customers through many product life cycles.
Figure 3C.3: Value Creation within a Type III Value Chain
An example of technical metabolism through the 'product of service' strategy is the well-developed system of lead-acid car battery recovery. Car batteries are valuable to customers for storing and providing electricity by design, but incidentally pose a risk to customers and the environment because of the hazardous materials they contain. To reduce the risk of releasing hazardous materials, economic incentives have been devised to induce customers to return old batteries to authorised locations with credit being offered towards a new battery. Old batteries are sent to secondary lead smelters where the material value of lead, plastic and the acid is recovered for use in new batteries. Over 95% of all lead and plastic from recovered car batteries is recycled, which makes them the most recycled consumer product in the USA. As technical metabolism exists within the natural world, and material releases to the ecosystems are inevitable, technical nutrients ideally should pose little or no hazard to the biological metabolism. However, lead is universally recognised as being so toxic, that even minor releases damage human and ecological health. For car batteries, there are safer alternatives such as lithium and zinc that can provide comparable performance. A 'cradle-to-cradle' strategy, therefore, entails a substitution of lead with these alternative materials to optimise the technical metabolism for material recovery. This example clearly indicates that the greatest potential for realising the positive benefits of a cradle-to-cradle perspective is in the early design phases of project development when the opportunity to influence outcomes is the greatest and the commitment of resources to a solution is the least. The cradle-to-cradle design methodology provides a framework for intelligent design decisions by allowing designers to consider innovative design opportunities through recognition of all material inputs and metabolism characteristics in the design and redesign of new or existing products.
3C.3. Relevance of the “Cradle-to-Cradle” Design Approach

Closing the value chain into a cycle through the “cradle-to-cradle” design approach (McDonough and Braungart, 2002) requires that the absolute rights and limits of human capital and social capital be accounted for via VCA (Table 3C.2). Employees, who represent the human capital of the firm, are viewed not only as instrumental in value creation, but also as possessing intrinsic value, as ends rather than means to an end. Moreover, like natural capital, the firm’s concept of social capital is characterised by the irreversibility of its deterioration, the non-linearity of its processes, and its non-substitutability. Thus, the loss of an indigenous culture is irreversible similar to the loss of a species. This form of stakeholder awareness is termed socio-effectiveness. Like eco-effectiveness, socio-effectiveness is based upon the assumption that the economy is an open subsystem subsumed within the greater society and ecosystem, expanding the community of stakeholders to include nature. This encourages a stakeholder perspective that requires corporate strategists to expand their paradigms to include the global community, and hence issues like global warming are important items on the agenda of strategic managers. The value chain based upon the cyclical Type III industrial ecosystem is fundamentally different from the revised Type II version (Table 3C.2).

Table 3C.2: Type II versus Type III Industrial Ecosystem

<table>
<thead>
<tr>
<th>Basic assumptions</th>
<th>&quot;CRADLE-TO-CRADLE&quot;</th>
<th>&quot;CRADLE-TO-GRAVE&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material flows cyclically in continuous biological or technical nutrient cycles; all waste is productively re-incorporated into new production and use phases</td>
<td>Material flows on a linear path, starting with extraction and ending up as waste</td>
<td></td>
</tr>
<tr>
<td>Evolutionary stage of industrial ecosystem</td>
<td>Type III new paradigm industrial ecosystem</td>
<td>Type II old industrial ecosystem</td>
</tr>
<tr>
<td>Optimization</td>
<td>Maximise ecological and social benefits over time</td>
<td>Minimise ecological harm over time</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Descriptor</td>
<td>“Waste equals food”</td>
<td>“Take-make-waste”</td>
</tr>
<tr>
<td>Focus of industrial ecosystem</td>
<td>Eco-effectiveness and socio-effectiveness</td>
<td>Eco-efficiency and socio-efficiency</td>
</tr>
<tr>
<td>Value chain orientation</td>
<td>Non-linear, cyclical value chain</td>
<td>Linear, one-way value chain</td>
</tr>
<tr>
<td>Resource Transformation</td>
<td>Renewable energy/resources are transformed into products whose wastes are inputs for other biological/industrial cycles</td>
<td>It accounts for low entropy resources and high-entropy wastes</td>
</tr>
<tr>
<td>Recognition of resources</td>
<td>Industrial ecosystem recognises biological and technical metabolism for materials to flow as healthy nutrients.</td>
<td>Industrial ecosystem recognises ultimate resources and wastes</td>
</tr>
<tr>
<td>Need for regulation</td>
<td>Requires no regulation</td>
<td>Complex regulations to prevent harm to humans and nature</td>
</tr>
<tr>
<td>Impact upon nature</td>
<td>Purifies air, water and soil; enhances nature’s capacity to thrive</td>
<td>Releases lesser toxic wastes every year into air, water and soil; produces fewer dangerous materials that will require future generations to keep vigil while living in terror</td>
</tr>
<tr>
<td>Stakeholder recognition</td>
<td>Acknowledges employees, the community and nature as key stakeholders</td>
<td>Acknowledges employees and the community as key stakeholders</td>
</tr>
<tr>
<td>Value creation</td>
<td>Grows health, wealth and useful resources; generates value and opportunity for all</td>
<td>Results in smaller amounts of useless waste, and puts smaller amounts of valuable materials in holes all over the planet from where they can never be retrieved.</td>
</tr>
</tbody>
</table>

The type III value chain provides a sound conceptual framework for seeking proactive strategic alternatives in managing product as well as environmental in addition to finding ways that enhance competitive capabilities for stakeholder integration, higher order learning and continuous innovation (Sharma and Vredenburg, 1998: 729-53).
Given that the pure type III industrial ecosystem does not exist as yet, it is
difficult to give any definite answer about the outcomes of value creation
from this model in the real world. But it must be acknowledged that the
pioneers of the “cradle-to-cradle” design approach, eco-entrepreneurs
Michael Braungart and William McDonough, have not only provided the
world of business with an ecologically sound foundation stone on which to
base future industrial systems, but have themselves led the way by
designing new products such as the patented compostable fabric line
Climatex Lifecycle. They have also collaborated, courtesy EPEA and
McDonough Braungart Design Chemistry (MBDC), with major industrial
manufacturers such as Aveda, BASF, Nike, Unilever and Ford Motors on
issues of materials assessment, waste and energy balances, life-cycle
design, design for reincarnation, and design for disassembly.

3C. 4. Hierarchy of SEM Strategies

SEM strategies exist as a distinct hierarchy comprising the corporate,
competitive (or strategic business unit level) and functional levels of the
firm. The binding force at all levels is the transcendent core value of
sustainability. We typify the evolution in strategic thinking from the Type II
to Type III value chain framework as the shift from classical SEM to
sustainability-centred SEM, or in a word, strategic sustainability
management (SSM) (Stead et al., 2004: 104-121). Subsequent references
to the term SEM imply this directional shift in strategic thinking about
environmental management, and hence, SSM is viewed as an extension
and a wider interpretation of SEM.

A Strategic Environmental Management System (SEMS) represents a 4-
level hierarchy of SEM strategies (Table 3C.3):

- Functional level strategies
- Competitive level strategies
- Corporate level sustainability portfolio
<table>
<thead>
<tr>
<th>Strategy level</th>
<th>Time horizon</th>
<th>Focus</th>
<th>Types</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eco-enterprise</td>
<td>Very long-term</td>
<td>Eco-centric perspective— Earth as ultimate corporate stakeholder; symbiosis between the ecosystem and a firm's economic activities to simultaneously fulfill biotic needs of society and corporate need for success</td>
<td>3 analytical components: (i) Values Analysis builds sustainability-based value networks; (ii) Societal Issues Analysis links ecological and strategic issues facing a firm with Ehrlich's E= P x A x T formulation; (iii) Stakeholder Analysis maps green stakeholders with Earth as the &quot;ultimate stakeholder&quot;</td>
<td>Eco-enterprise strategy addresses the basic question—&quot;What do we stand for?&quot; as the basis of a sustainability vision, balancing ecological and economic priorities.</td>
</tr>
<tr>
<td>Corporate</td>
<td>Long-term</td>
<td>Maintenance of five capitals; integrating sustainability-oriented and traditional SBU portfolios for synergies; developing entrepreneurial learning and stakeholder engagement competences; reporting TBL performance</td>
<td>SBUs based on impacts (social/environmental vs. economic): Black dogs, black cash cow, green dogs, green cash cow</td>
<td>Based on internal activities: Pollution prevention; Resource efficiency; cradle-to-grave; cradle-to-cradle; green consumerism</td>
</tr>
<tr>
<td>Competitive</td>
<td>Medium-term</td>
<td>Sustainable competitive advantage (through lower cost, and/or higher revenues, market share, profits, customer loyalty) with sustainable product offerings</td>
<td>Cost Leadership Strategies seek cost advantages with eco-efficiency benefits Product Differentiation Strategies seek reputational advantage based on</td>
<td>Entry into new markets/ market segments with &quot;green&quot; products/service s; eco-labelling of products, creating/redesigning low-impact</td>
</tr>
</tbody>
</table>
core competences of life-cycle management to differentiate environmentally superior products, recycling renewables instead of disposing as waste.

<table>
<thead>
<tr>
<th>Functional</th>
<th>Short-term</th>
<th>Harnessing dynamic core competences in all value chain activities</th>
<th>Marketing, finance, human resource and operations</th>
<th>Full cost accounting (FCA); sustainability reporting and assurance</th>
</tr>
</thead>
</table>

*Source: Researcher’s own analysis*

### 3C.5. Relevance of the Eco-enterprise Strategy

As discussed in Chapter 3 A, enterprise strategy (or E-strategy), as an overarching level in the strategy hierarchy, guides corporate strategy at the immediate lower-level, by directing top management to base decisions of the firm in light of their responsibilities to the society at large. By explicitly addressing the question about “what the organization stands for”, an enterprise strategy represents a framework for probing the ethical foundations of a firm’s strategic choices. Freeman (1984: 91) clarifies that setting corporate direction at this strategic level involves ‘understanding the role of a particular firm as a whole, and its relationships to other social institutions’. The only meaningful way to look at the enterprise as a whole when addressing “we” in the question “What do we stand for?” is to search for the deep-seated ethical principles to which the firm will continuously remain committed via its strategy hierarchy and the activities to be undertaken, instead of indulging in window-dressing through tricky public relations. Enterprise strategy compels corporate managers to develop an unconditional commitment to honesty (Freeman and Gilbert, 1988: 71).

A major difficulty in framing E-strategy is to decide who represents the “we” in the question “what do we stand for?” in relation to strategic
decisions. This basic question could actually have several ramifications as: “What does the top management team stand for?” or “What does all management stand for?” or “What do all the employees stand for?” or “What do all the stakeholders stand for?” As a result, there cannot be a unique conception of E-strategy. Distilling from their experience, Freeman and Gilbert (1988, p. 72) maintain that several “flavours” or “theories” of enterprise strategy are possible, assuming a different moral view about moral obligation and whose interest must be served. E-strategies vary according to financial outcomes, breadth, and scope (Meznar, Chrisman and Carroll, 1990; Judge and Fowler, 1994; Judge and Krishnan, 1994).

A special case of the enterprise level strategy is the eco-enterprise strategy, which represents its application for developing a profound understanding in strategic managers about a firm’s ethical foundation in handling far-reaching ecological issues (Stead and Stead, 2000: 324). Managing effectively in an ecologically sensitive way to bring about concordance between the economic activities of the firm and the greater ecosystem (Hart, 1995; Stead and Stead, 1996) requires the addition of an eighth “flavour” of E-strategy—the eco-enterprise strategy (Stead and Stead, 2000: 316). The ethical foundation of the eco-enterprise strategy stretches beyond narrow anthropocentric concerns to kindle into strategic thinking an eco-centric moral consciousness, to capture the essence of ecological ethics. This kind of ethical reasoning integrates the Earth’s biotic pyramid into the sphere of human ethical consideration (Leopold, 1949). Thus, the ethical basis of an eco-enterprise strategy provides that the present generation human inhabitants of the Earth, the future unborn generation of human beings, the other species that co-habit the planet, and the bio-geo-physical systems (i.e., the biosphere, hydrosphere, atmosphere and geosphere) that support life on Earth all deserve ethical consideration. In a word, the Earth is the “trump-card” or “ultimate” stakeholder in the organization’s strategic thinking under the eco-enterprise strategy. The
essence of the eco-enterprise strategy may be captured through the three analytical components of E-strategy formulation—values analysis, societal issues analysis and stakeholder analysis.

■ **Values Analysis ➞ Sustainability-centred values network:** Ethical systems are often depicted as networks of values consisting of a central core value at the pivot supported by a set of instrumental values. With respect to an eco-enterprise strategy, an appropriate core value is sustainability buttressed by instrumental values such as wholeness, diversity, posterity, quality, smallness, community, dialogue, and human spiritual fulfilment for its culmination. Sustainability can potentially serve as a core value that can pave the path for economically beneficial human activities to enhance economic prosperity, ecosystem viability and social equity (World Commission on Environment and Development, 1987; Milbraith, 1989; Stead and Stead, 1996; Hodge, 1997). It is a trans-disciplinary concept that explores what is required to bring human development into balance with nature for the sake of posterity (WCED, 1987; Daly and Cobb, 1994; Stead and Stead, 1996). This makes sustainability an appropriate core value upon which to base the formulation of eco-enterprise strategy.

■ **Societal Issues Analysis ➞ The ecological issues system:** Issues analysis with regard to eco-enterprise strategy involves clarifying the relationships between the ecological issues facing the earth and the strategic issues that confront the organisation, to give strategic managers an opportunity to assess the impact of a firm’s processes, products and services on the Earth’s resources, species, biophysical and socio-cultural systems, and how they contribute to planetary level problems facing humankind such as climate change. Thus, the term “ecological” does not merely imply the natural environment, but signifies a complex set of interrelated environmental, social, cultural
and economic factors relating to improving and sustaining quality of life on Earth. Ehrlich and Ehrlich (1991) view the potential ecological impact of human activities in terms of the formula: 

\[ E = P \times A \times T \]

(where \( E \) is the ecological impact of humankind; \( P \) is population growth; \( A \) is affluence measured by growth in per capita GNP; and \( T \) is technology measured by the ecological impact of producing each unit of GNP. With this functional relationship, Gladwin (1993) surmises that the current level of human ecological impact will require that the world’s goods and services be produced and delivered in ways that are 80% more ecologically efficient in 2050, than they are at present. This prediction is based on the assumption that population will double and per capita GNP will rise by 2.5 times so that a technology index of 0.2 will have to be achieved if we strive to have the same ecological impact in 2050 as we have currently (i.e., if \( E = 1 \)).

**Stakeholder Analysis**

The green stakeholder map: Central to the eco-enterprise strategy is the world-view of the earth as the "ultimate organisational stakeholder" (Post, 1991; Shrivastava, 1995; Starik, 1994 and 1995; Stead and Stead, 1996). Since the planet is the ultimate life support system for all, including humankind, the geographical location of all business activity, the source of the resources and energy necessary to run the economic engine, and the sink that absorbs all the wastes of economic activity, the Earth (including its atmosphere, hydrosphere, lithosphere and biosphere) is the central stakeholder in relation to business activity. Freeman (1994) suggests that considerations of the Earth as a central stakeholder is a normatively legitimate position. Although the Planet as a geographical entity may not voice its concerns in Board meetings directly, there are many ecological or "green" stakeholders to champion its cause indirectly, including legislators and regulators, shareholders and other investors, consumers, suppliers, insurers, employees, environmental activists, and industry standard setters. Their presence in different forums makes the
Earth an influential stakeholder with enormous scope and breadth (Starik, 1994 and 1995; Stead and Stead, 1996).

An organization's eco-enterprise strategy is framed in terms of the interaction of these three factors to answer the basic question posed by enterprise strategy—"What do we stand for?" The answers obtained by way of developing the eco-enterprise strategy helps articulate the firm's over-arching eco-centric ethical stance, namely, "We stand for sustainability" to serve as a guidepost for the emergence of its corporate level strategy.

By implanting the eco-enterprise strategy in the strategy hierarchy of a firm, sustainability has the potential to transcend its misconceived dichotomous nature (economy versus ecology) and the numerous ethical dilemmas encountered. Strategic managers learn to consciously create a framework within which the organization can work to balance economic success and ecological protection (Stead and Stead, 2000: 324).

Furthermore, the eco-enterprise strategy awakens the ecological intelligence of strategic managers to recognize the fact that the Earth is the ultimate stakeholder making their business pursuits possible—a stakeholder with significant power and breadth represented by committed "green" stakeholders holding the banner of regulators, consumers, investors, employees, lenders, insurers, NGOs, and environmental standard-setters. With the recognition of the Earth as the "trump-card" stakeholder (Stead and Stead, 2000: 324), eco-enterprise strategy emerges to symbolize an organization that "stands for sustainability".

Within the over-arching ethical framework of an eco-enterprise strategy, the entire gamut of strategies can evolve with sustainability as a core transcendental value. This evolved system of strategic management,
known as sustainability driven strategic management or, in short, sustainable strategic management [SSM] (Stead et. al., 2004), is an emerging idea and area of research in strategic management, focusing on the formulation and implementation of strategies for firms to seek competitive advantages by using ecological responsibility as a lever to reduce costs and differentiate market offerings for effective management of common resources.

End-note

#1: The key principles that govern the flow of materials in the “Type III” design paradigm were first systematically outlined, developed and articulated by Michael Braungart and his colleagues at EPEA International Umweltforschung GmBH in 1993 as the “intelligent process model”. The development of this model draws on advancements in related fields of science including industrial ecology, toxicology, chemistry, material science, and environmental science.

References


Robinson and Dechant, 1997


