

Corporate Environmental Management

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Abstract

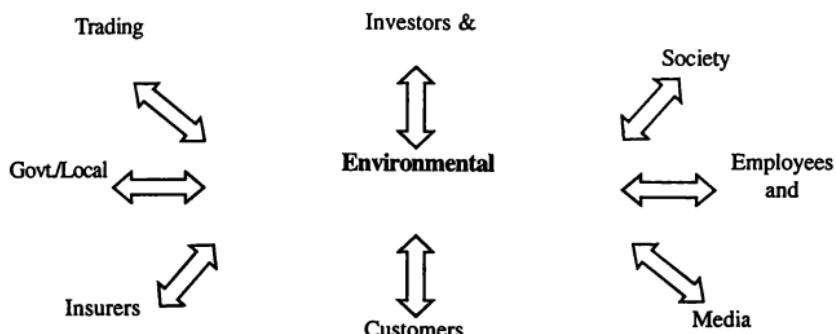
In this paper, the need for introducing a scientific environmental management system is stressed. Based on the discussion of various aspects of a strategic environmental management system, the author suggests An Integrated Environmental Management Approach for the corporate citizens.

Key-Words: Sustainable development; Competitive advantage; Environmental strategy; Strategic environmental management system.

1. Introduction

Corporate enterprises are some of the important vehicles of economic development in a country. There is a nexus between economic development issues and environmental management issues. Therefore, sustainable economic development should be environment-friendly. The social contract argument and the quality of life argument underpin a company's duty for managing its environmental activities in a responsible way (Jaggi, 1997). It has to be emphasized that, in the long run, there is no conflict between environmental management and profitability of a firm. But, a company may be guided by short-term considerations where environmental issues, in the absence of legal compulsions, may be ignored. Companies must not forget that, with economic development, the environmental awareness has been on the increase. Therefore, there is likely to be a stakeholder pressure on the corporate citizens for better environmental performance. This is shown in Figure 1.

Figure 1
Stakeholder Pressure and Environmental Performance



Source: Adapted from Welford and Gouldson, 1993.

The objective of this paper is to stress the dire need for introduction of a scientific environment management system to improve the environmental performance of the corporate citizens, examine its various aspects and then suggest an integrated approach to the management system to take care of the situation. The literature on cost-benefit analysis suggests that companies will tend to be more competitive if they respond to environmental challenges that affect their operations (Gouldson, Murphy, 1998). This is briefly focused in section 2. Section 3 gives an overview of how a firm can manage the environmental aspects of corporate activity innovatively, technologically, organizationally and strategically. In section 4, we deal with the need for environmental management system, and the limitations of traditional management system. Section 5 briefly addresses issues relating to sustainable economic development and the strategic environmental management system. Concluding observations are given in the last section.

2. Cost-benefit analysis of environmental management system

Any proposal to introduce an environment management system must satisfy the test of cost benefit analysis. This is more so when there is no legal compulsion to adopt a management system that contributes to the quality of life. In this context, the possible questions would be as follows:

- ◆ What are the costs of environmental management?
- ◆ What are its benefits in terms of (a) processes, (b) products, and (c) company in general?
- ◆ Does better environmental performance of the firm add to its profitability in the long-run?

The various costs and benefits are now briefly identified.

Environmental Costs

The direct, hidden and potential future costs are:

Direct Costs:

- ◆ Capital Expenditure
- ◆ Depreciation
- ◆ Maintenance

Hidden Costs:

- ◆ Waste treatment
- ◆ Compliance Management
- ◆ Training
- ◆ Legal Support

Potential Future Costs:

- ◆ Remediation (Contingent Liability Costs)
- ◆ Public relation and goodwill
- ◆ Higher insurance and lending costs.

Both hidden and potential future costs are of indirect nature.

There are many intricate issues relating to environmental cost management. Strategic environmental cost management should form part of the overall management system (Banerjee, 2005).

Environmental Benefits

The benefits of environmental management system may be listed in terms of (a) process benefits, (b) product benefits, (c) fiscal benefits and (d) overall other benefits.

(a) Process benefits:

- ◆ Materials savings resulting from more complete processing, substitution, reuse, or recycling of production inputs.
- ◆ Increases in process yields.
- ◆ Less downtime through more careful monitoring and maintenance.
- ◆ Better utilization of by-products.
- ◆ Conversion of wastes into valuable forms.
- ◆ Lower energy consumption.
- ◆ Improved energy efficiency.
- ◆ Reduced waste management costs.
- ◆ Reduced material storage and handling costs.
- ◆ Savings from safer workplace conditions.
- ◆ Elimination or reduction of cost of activities involved in discharges or waste handling, transportation, and disposal.
- ◆ Better quality of product due to process changes.

(b) Product benefits:

- ◆ Higher quality of products
- ◆ Lower product costs (e.g. product substitution)
- ◆ Lower packing costs
- ◆ More efficient resource use by by-products
- ◆ Safer products
- ◆ Lower net costs of product disposal to customers
- ◆ Higher product resale and scrap value.

(c) Fiscal benefits:

- ◆ Section 35CCB of the Income Tax Act - tax concessions.
- ◆ Sec. 54G of I.T. Act - Long-term capital gains are exempt from tax for shifting of industrial unit from an urban area to any other area by sale of assets.
- ◆ For installing pollution control equipment - 100% depreciation allowance.
- ◆ Production of building material using fly ash and phospho-gypsum in 25 per cent or more quantities as raw material is exempt from excise duty.
- ◆ Customs duty concessions for installation of appropriate pollution abatement equipment.

(d) Overall other benefits:

- ◆ Improved safety performance
- ◆ Reduced risk exposure
- ◆ Lower insurance premiums
- ◆ Lower cost of capital

- ◆ Increased staff commitment and productivity
- ◆ Improved public relations due to assured present and future compliance.

Thus, a cost-benefit analysis will put the management of the company on a solid footing to take a decision in favour of introducing a scientific environment management system.

3. Managing environmental aspects of corporate activity

Whether companies will choose to exploit these advantages is determined by their own cost-benefit analysis including an estimation of the uncertainty and risk that are associated with environmental improvements and investments for companies (Robbins, 2001). There are, however, a few organizational barriers (Ashford, 1993) that exist. They are lack of:

- ◆ information on the costs and benefits of environmental management because many environmental issues are not easily convertible into monetary values;
- ◆ awareness of the long-term benefits of environmental management;
- ◆ confidence in the performance of new technologies and techniques; and
- ◆ managerial capacity and financial capital to deal with transition costs associated with reorganizing the production process.

How should a firm manage the environmental aspects of corporate activity innovatively, strategically, organizationally and technologically? It may be pointed out that the ways in which corporations can take actions can be delineated into four groups (Gouldson and Murphy, 1998):

- ◆ Environmental innovation
- ◆ Environmental strategy
- ◆ Environmental management, and
- ◆ Environmental technology

(a) Environmental innovation

Innovation refers to engaging in new economic activity and may comprise all stages of this process from initial invention through product development and introduction to the market. In response to environmental challenges due to corporate activities, innovation can be thought of as corporate change or the process of making environmental improvements. It can take place rapidly involving new technologies or techniques or it can take place slowly with small incremental steps to new technologies or techniques. Whatever policy of environmental innovation a company may decide to adopt, the management needs to evaluate the role of existing and potential technologies used.

(b) Environmental strategy

A strategy is an integrated set of actions aimed at securing sustainable competitive advantage. A good management system must adopt suitable strategies. According to Porter (1985), the ultimate objective of a firm is to achieve a long term sustainable advantage over its key competitors in all of its businesses. Environmental strategy concerns focusing the attention towards environmental challenges and adopting suitable set of actions for better environmental performance of the firm. To put it in simple term, how does a firm organize its thinking for better environmental management?

According to Sharp and Pavitt (1993), senior management of organizations can approach strategic decisions in myopic or dynamic ways, which have direct relevance to understanding how they view environmental strategy. The former approach deals with traditional cost-benefit analysis focusing on the direct and tangible economic impacts of an investment. On the other hand, dynamic approach considers indirect and intangible economic impacts of an investment. Consequently, a myopic approach is less likely to advocate radical change where high risks and uncertainty are evident, as in many environmental investments.

Many Japanese firms have been following strategic environmental management (SEM). SEM aims into the overall economic strategy of the firm and seeks to exploit the growing green market. It goes beyond environmental management and audit and moves towards 'cradle to grave' analysis, environmental research and development. It responds to environmental challenges for strategic reasons by anticipating or pursuing potential green markets. In many cases, this can be part of a total quality management (TQM) strategy which most of the companies have been practising. As for example, Xerox and Volvo have been following life cycle or 'cradle to grave' policies (Shrivastava, 1996).

(c) *Environmental management*

Management systems are designed to promote corporate objectives. They help planning, coordination, control and decision-making. They define authorities, fix up responsibilities and facilitate flow of information throughout the organization. A good environmental management is, therefore, a *sine qua non* for improvement of environmental performance.

Many national and international organizations, viz. the Confederation of British Industry (CBI), International Chamber of Commerce (ICC), the European Industry Association (EUIA), the Global Reporting Initiative (GRI), etc. have issued guidelines and principles for environmental management to improve corporate environmental performance. There are many common elements in their guidelines. These are:

- ◆ There is a policy statement indicating the firm's commitment to improvement of environmental performance.
- ◆ The policy statement is translated into plans and programmes and implemented. Such plans and programmes are designed to cover all value-creating functions of the firm. The two important segments of the chain - suppliers and customers - are also covered by the organization's plans and programmes.
- ◆ There is integration of environmental plans into day-to-day operation of the organization. Innovative technologies and techniques are developed and applied to reduce the impact of organizational activities on the environment.
- ◆ There is provision for education and training of the people within the organization to increase their awareness and commitment in order to improve environmental performance.
- ◆ The environmental performances are measured, compared against targets, audited and reviewed vis-à-vis adopted policies.

Determining environmental performance is not an easy task. A good environmental management system also defines it in measurable units to provide a suitable 'index'. The index gives the overall impact of the corporate activities in the environment. Since 'sustainable development' comprises three important components - economic performance, environmental performance

and social performance - any effective management system must identify and adopt suitable criteria to measure them (e.g. see GRI Sustainability Guidelines, 2002). The measurement system should then be an element of a strategic management system.

The objective of having a good environmental management is to help companies to make decisions and channel the available resources into those areas where benefits to the environment will be the greatest. The system identifies the ecological weaknesses of the firm and focuses management attention to problem areas. It covers the entire product range, product techniques and processes, marketing and post-consumption disposition of the product.

(d) *Environmental technology*

All technologies have some impacts on environment. Environmental technologies reduce unfavourable impacts on environment. Gouldson and Murphy (1998, p. 29) define them as those that "reduce the absolute or relative impact of a process or product on the environment". Environmental technologies may be of two types - 'end of pipe' or 'control' technologies and 'green' or 'clean' technologies. Control technologies are easy and less-expensive to incorporate into existing systems in order to comply with environmental regulations. Green technologies are 'general processes or products' which integrate environmental considerations into their design and/or application in order to reduce their impacts on the environment. Accordingly, green technologies will tend to be more expensive and need to be properly planned and installed after cost-benefit (direct and indirect) analysis. They may have higher initial costs compared to control technologies but will have greater economic and environmental efficiency in the long run. So, a company may adopt control technologies in the short run and in the long run it should gradually switch over to green technologies. The implementation of these short and long-term policies concerning environmental technologies cannot, however, take place without an organizational structure that can effectively incorporate responses to environmental challenges (Robbins, 2001).

4. Need for and the Design of an Environmental Management System

There is a growing interest among the companies in improving their environmental performance. Once a company has decided to embark upon a concerted effort to improve its environmental performance, it must build a comprehensive environmental management system within the organization in as much as a lack of a comprehensive and effective management system may often lead to failure. Inadequate management systems may cause environmental damage and may cost firms and organizations heavily in terms of clean-up costs and damaged reputations. Exxon Valdez oil spill and Union Carbide explosion in Bhopal are examples on the point where the environment became irreparably damaged due, at least in part, to inadequacies in systems which were supposed to prevent such disasters.

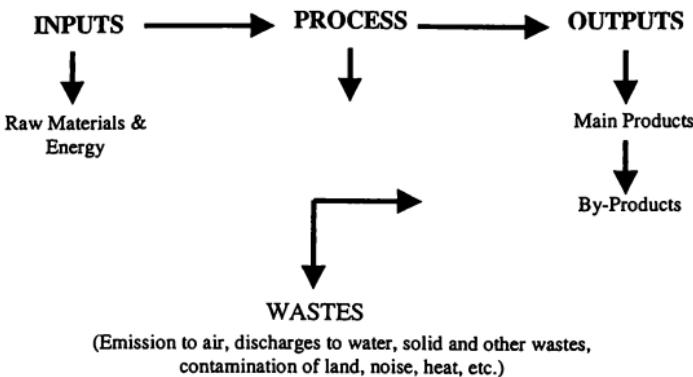
An effective management system is crucial for avoidance of environmental degradation. Such a system will pull together all the other tools and strategies for the avoidance of risks. It will provide a framework for a clear and focused approach to environmental improvement. The management system should be developed and implemented for the purpose of accomplishing the objectives set out in a company's policies to improve environmental performance and prevent degradation of environment.

What attributes are, then, essential in the environment management system? At least a number of attributes seem essential (Welford, 1996, p. 10). The comprehensiveness of the system is considered to be the first and foremost one. Every part of the organization must be involved in the implementation of the system and every individual in the organization must be clear about his/her responsibility for effective implementation of the system. Secondly, the system and procedures within the management system need to be understandable to everyone involved. Roles, duties and responsibilities must be clearly defined and communicated to the individuals. This helps fixing up responsibilities and promotes the reviewing and auditing function. Workers' participation and decision-making are part of the system. The commitment of senior management to the systems based approach is crucial. The next important element is that the system must be open to review and there must be a commitment to a continuous improvement in the operation of the system. Lastly, companies must recognize their wider responsibility and manage the entire life cycle of their products. This means that companies must insist on maintaining high environmental standards from suppliers, ensure that raw materials are extracted or produced in an environmentally conscious way to provide a good start. The processing operations need to be suitably designed to be environment-friendly. Damage to the environment during use and disposal of the product must also be kept at a minimum.

In view of the above, we have to design a suitable environmental system. The traditional approach to environmental management emphasizes control of various types of pollutions at the process and output levels (emission to air, discharges to water, solid and other wastes, contamination of land, noise, heat, etc.). Figure 2 sketches such an environment management system.

Figure 2

ENVIRONMENT MANAGEMENT : TRADITIONAL APPROACH



As shown in Figure 2, the system places emphasis on processing operations in reducing wastes, etc. But if the technology that is used for production purposes is not environment-friendly, the management system cannot be that effective in preventing environmental degradation. Recycling of waste materials, consumption of products by the consumers, disposal of packing materials after consumption, are some such important issues in an environment management that need to be properly addressed in any effective management system.

Any effective management system should not only take care of the present needs of the society but also promote sustainable economic development.

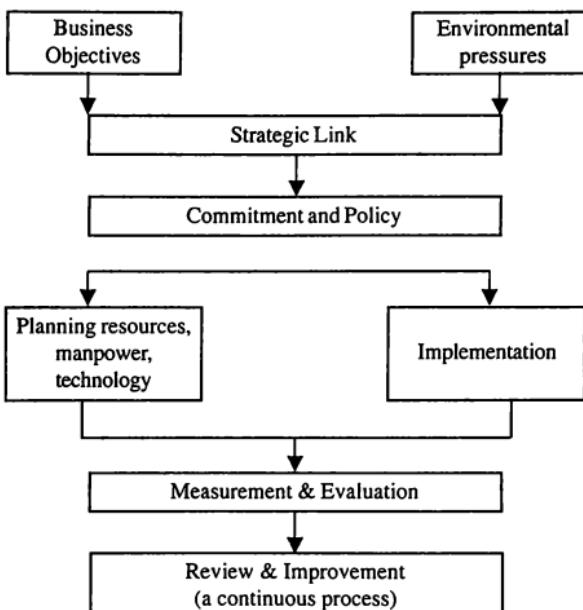
5. Sustainable Development and the Strategic Environmental Management System

Sustainable development is defined as 'development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (World Commission on Environmental Development, 1987). It refers to preserving the ecosystem as well as maintaining long-term profitability of the firm (Stead and Stead, 1996). At the macro level, any sustainable development has to take care of three aspects - economic growth, environment-friendliness and social justice (Welford & Gouldson, 1993). Ethical investing, popularly known as Socially Responsible Investing (SRI), is one of the key tools for building a sustainable future (Chakraborty, 2005). Sustainable economic development should, therefore, be environment friendly.

In order to be a good corporate citizen, a firm has to adopt policies and take actions that are environment friendly. It cannot gain competitive advantage without proper environmental management. The key issue is: how can internal performance drivers contribute to the development of environmental strategies? It may be through innovation of new products, control of pollution, conservation of energy, minimization of wastes and effluents, recycling of wastes, to mention a few. One of the popular examples of environment-friendliness and increasing profitability of the firm is to reduce generation of waste and maximise its recycling. Wastes may be systematically segregated as hazardous, bio-medical, nuclear, non-hazardous, biodegradable and non-biodegradable, to be appropriately treated, recycled or disposed. In many industries, recycling of wastes not only becomes environment-friendly, but it also reduces cost and increases profitability and competitive advantage of the firm. Thus, in the long run, there is no conflict between environment management and profitability of the firm. So, in order to be environment-friendly, companies must adopt definite policies and formulate action plans to implement them. Demonstrating firm's concern for the environment helps build up good corporate image that may increase its market share. This may be called strategic environmental management.

Strategic environmental management issues embrace formulation of suitable business strategies for decision-making. In order to realize competitive advantage based on environmental management, companies must seek to develop strategies, which translate actions into benefits, improving their environmental performance and addressing the environmental demands placed upon them by Government and stakeholders. By incorporating the increasingly important environmental dimension into the decision-making processes and strategies of the firm, managers can seek to exploit the opportunities offered by increased public environmental concern within a dynamic market place. The process can be shown in Figure 3 (Welford and Gouldson, 1993).

Figure 3
Strategic Environmental Management System

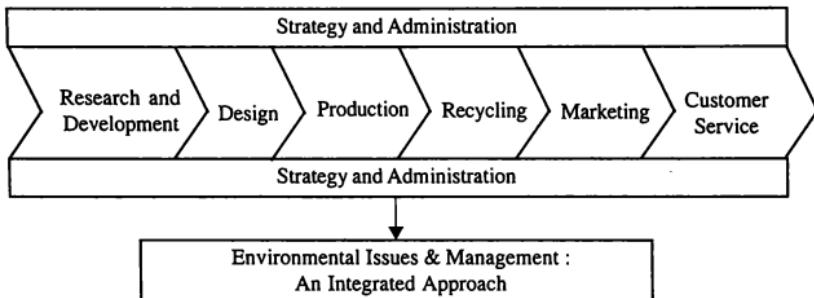


The Strategic Environmental Management System (SEMS) makes an altogether different approach. The environmental issues are incorporated in the corporate objectives that lead to commitment and policy formulation. Resources are accordingly planned, mobilized and put to use. Finally, performances are measured, evaluated and monitored for continuous improvement. This has a significant element within many successful Japanese firms which follow the "Kaizen" process for improvement. Literally translated from Japanese, "Kaizen" means "improvement" - it implies continuing and incremental improvement across a firm. Accordingly, planning, implementing, evaluating, monitoring and action-taking are all significant parts of the process. The slogan would be: "How can we do it better tomorrow than we did today?" It has to be recognized that for a highly visionary company, there is no ultimate finish line; there is no point at which they feel they 'have made it'. The journey for attaining excellence goes on - it is never-ending.

According to Klassen and McLaughlin (1996) "The long-term goal of environmental management is to move toward considering environmental aspects in an integrated fashion in product design, the entire manufacturing process, marketing, product delivery and use, consumer service, and post-consumer product disposition." A firm must seek to provide the products or services demanded by consumers with the minimum environmental impact at all stages. This is a far-reaching challenge as it involves redesigning not only of production

processes but also of the products themselves. In other words, no product or method of production will be allowed without its 'green justification'. Therefore, following Porter's value chain approach (1985), an integrated environmental management system may be suggested as in Figure 4 (Banerjee, 2002).

Figure 4
An Integrated Environmental Management Approach



The value-chain approach suggests that a company's main functions be segregated into value-creating activities and examined in terms of their value-creating capabilities. If an activity does not create any value, it is discontinued. Therefore, depending upon such analysis, activities may be merged, discontinued or outsourced to optimize value. The environmental issues be also integrated with the value-chain analysis so as to make the strategic environmental management system an integrated one.

5. Concluding observations

What purpose can a strategic environmental management system (SEMS) serve to the corporate citizens? As explained in the earlier sections, in general, SEMS would help:

- ◆ promoting a scientific approach to environmental management across companies;
- ◆ enhancing a company's ability to attain improvements in environmental performance;
- ◆ measuring and managing environmental performance more rationally and effectively so as to promote continuous improvement in the system, and
- ◆ enhancing competitive advantage.

We have explained earlier the relationship between competitiveness and environmental management. It is no longer enough simply to have resources. Using the resources productively is what makes for competitiveness today. Companies can improve resource productivity by producing existing products more efficiently or by making products that are more valuable to customers - products customers are willing to pay more for. Increasingly, the nations and companies that are most competitive are not those with access to the lowest-cost inputs but those that employ the most advanced technology and methods in using their inputs. This new paradigm has great implications for the debate about environment policy - about how to approach

it, how to regulate, and how strict regulation should be. The new paradigm has brought environmental improvement and competitiveness together. International competition has changed dramatically over the last two decades. Managers have now to accept that environmental improvement is a good business. Companies, regulatory bodies and environmentalists will reject old trade-offs and build the underlying economic logic that links environment management, resource productivity, innovation and competitiveness.

Let us dream of an economy where environmental awareness will be maximum among the citizens - both corporate and non-corporate, an economy where all corporate entities adopt strategic environmental management system, comply with environmental regulations, conduct environmental audit and disclose both qualitative and quantitative environmental information - all with the mission of enhancing quality of life. To quote Rig Veda:

मधु वाता ऋतायते मधु क्षरन्ति सिन्धवः।
माध्वीर्नः सन्त्वोषधीः ॥

मधु नक्तमुतोषसु भूमुत् पार्थिवं रजः।
मधु चौरस्तु नः पिता ॥

मधुमात्रो वनस्पतिर्मधुमाँ अस्तु सूर्यः।
माध्वीर्गावो भवन्तु नः॥

(ऋग्वेदः म० ९.सू० ६०)

- Let fresh air be emitted for all.
- Let rivers flow with water full of honey.
- Let herbs be used for medicine for all of us.
- Let each night and day be delightful.
- Let the dust of the earth be pleasant.
- Let our forest be charming.
- Let the sun be delightful.
- Let our cows pour nectar for all of us.

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