SHEDDING GREEN LIGHT: EMERGENCE OF THE ECO-SENSITIVE ORGANISATION

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ABSTRACT

With the progressive liberalization of the Indian economy from the early nineties, Indian companies (both public and private) are increasingly facing pressures to clean up their production and make products more eco-friendly. A few innovative companies chose to take proactive measures to internalize their environmental externalities. The process that these companies went through has produced lasting changes in their way of functioning. It is this process of transformation that the paper focuses on. While the principle aim is to trace the emergence of the "eco-sensitive organization" within the Indian context, the paper does take note of trends in industrialized countries that are likely to spread to developing countries in the near future.

Key words: environmental externalities, cleaner production, eco-sensitive organisation

1. INTRODUCTION

1.1 Environmental Degradation and Market Failures

In the post cold-war era there has been a growing reliance on market led strategies for growth and development all over the world. The preference for markets continues to grow despite some of its well-known limitations[2]. One of the major failures of the market system has been its inability to deal with the negative environmental externalities generated at various stages of the production-consumption cycle, viz. production, storage, transport, usage and disposal (Common, 1996). These externalities are known to cause irreparable damage to eco-systems and threaten to destroy life-support systems.

With growing awareness about the causes of environmental externalities, business corporations in the late twentieth century were placed in the unenviable position of having to face pressures from both below (local communities, consumers, shareholders, employees) as well as from above (international protocols, bans on hazardous products and services, stricter governmental regulations against polluting processes and products). The responses to these

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[2] The most well known failure of the market system is that it cannot ensure that development would take place in an equitable manner. In fact it was Karl Marx's critique of the capitalist model that led to the emergence of communism and other socialistic models of development. However, the failure to ascribe proper value to nature and natural resources has been another important shortcoming of the market system. This has serious implications for societies opting for this system especially if the rate of extraction of natural resources is far greater than the natural rate of regeneration.

mounting pressures have been varied. While some relied on good public relations and lobbying techniques, which would grant them a new lease of life to carry on business as usual, a small minority chose to innovate in order to internalise their environmental externalities. Through their pioneering efforts the latter showed to the rest that the problem of environmental externalities was not totally insurmountable (Kleiner, 1991). Interestingly, the process that many of these innovative companies went through left them completely transformed.

It is this process of transformation that I seek to explore in this paper. While the principle aim is to trace the emergence of the eco-sensitive organisation within the Indian context, the paper does take note of the trends in industrialised countries that are likely to spread to developing countries in the near future.

1.2 Organization of the Paper

In the next section I begin with a typology of environmental externalities, which helps to characterize the nature and magnitude of the problem. This discussion is crucial for understanding the challenges of internalising environmental externalities and identifying pathways of development that are in harmony with nature. In the third section I provide a brief description of the forces leading to the greening of industry, both abroad as well as in India citing examples of some of the successful corporations. These are organisations that have made a paradigm shift by contributing to the protection and/or conservation of the environment in significant ways while at the same time producing valuable goods and services for society. I then discuss the underlying assumptions and values of the alternative (sustainable) development paradigm with their implications for business organisations. In th fifth section, drawing upon the earlier discussion I present a profile of the emergent "ecosensitive organisation". In the concluding section I speculate about the rate and scale of change that one could witness in the coming decades.

2.0 THE PROBLEM OF ENVIRONMENTAL EXTERNALITIES

2.1 Typology of Environmental Externalities

Environmental externalities vary a great deal in scope, force and in the pattern of incidence. The ability to assess externalities and to control them also depends on a variety of variables. Since no single typology is comprehensive enough to capture the complexities of environmental externalities I have proposed the use of a set of five typologies which may be used in conjunction with each other. These typologies are based on the earlier work of Gupta and Prakash (1991)[3]

[3] A more detailed discussion is provided in a longer version of this paper, to be published in a forthcoming book entitled "Leading Issues in Organisational Change", edits. Sorab Sadri and Dinyar Pestonji.

a) *Scope of occurrence:* Externalities may vary in scope over time (borne by present versus future generations) or space (localised vs. non-localised) or across different types of living beings (human vs. sentient beings).
b) *Force of externality:* Externalities may vary in the magnitude of their impact (catastrophic vs. non-catastrophic) and direction (unidirectional vs. reciprocal).
c) *Pattern of incidence:* Externaliteis may vary in the pattern of incidence over two variables viz. spatial (point vs. non-point) and temporal (one-time vs. continuous).
d) *Scope of assessment:* The socpe of assessing externalities depends on whether these can be easily identified and whether these can be accurately measured.
e) *Scope of control:* the possibilities of controlling externalities depends upon their reversibility (reversible vs. non-reversible) and insulability (whether the environment and living beings can be insulated from the adverse impacts of the externality or not). In some cases the only available option would be to take preventive action by foregoing the use or consumption of a particular product or technology.

An analysis of the nature of an externality can be helpful in assessing the level of difficulty involved in controlling it.

2.2 Alternative Approaches for Internalising Externalities

Economists sought to deal with this problem in various ways. Among the first to recognise it was Pigou (1932), who suggested that state interventions either in the form of taxes or subsidies or "command and control" policies or a mix of these measures could be used to tackle the problems of environmental externalities. Since then governments, especially those of the industrialised countries have experimented with a number of such measures with certain amount of success. It became evident to governments that environmental externalities were so all encompassing and so varied in nature and intensity that command and control measures were just not sufficient to deal with these adequately.

It was then that Coase (1960) suggested that since environmental externalities involved "perpetrators" on one hand and "victims" on the other, the two sides could be encouraged to negotiate and come to mutually acceptable solutions. These solutions could involve compensation packages for externalities that have already taken place or the sharing of costs in order to prevent or mitigate the occurrence of on-going externalities.

Coarse's work was widely acclaimed. However, it was soon realised that such mutual solutions would not emerge until the change came from within. In other words, industry would need to reform itself from within. The last decade has seen the emergence of several corporations that have undergone such a transformation. In the next section I examine some important triggers of change. I begin with some of the forces affecting corporations worldwide, before zeroing in on those affecting the Indian corporation.

3.0 FORCES OF CHANGE

3.1 Global Trends

Catastrophic Externalities: Awakening of the sleeping giants

Several catastrophic accidents that occurred during the eighties compelled the captains of industry to realise that such externalities could cause a severe setback to their business interests apart from causing untold misery to humans and other life forms. Notable among these were the Bhopal gas leak from the pesticide manufacturing company of Union Carbide in India, the Valdez Oil Spill and the Three Miles island and Chernobyl disasters.

In the Bhopal case five American lawyers filed a $15 billion lawsuit for negligence and defects in the design and construction of Union Carbide's MIC (methyl icocyanate) storage facility at Bhopal. The company survived the crisis by managing to shift the legal case that it was defending, to Indian shores and finally negotiating an out-of-court settlement with the Government of India. In February 1989, the company paid $470 million to settle all litigation arising from the 1984 gas leak, including $45 million paid by Union Carbide of India Ltd. The incident shook the company out of its stupor and forced it rethink its mission and strategy.

Exxon was not as fortunate as Union Carbide. The oil spill that took place on 24 March 1989 in the state of Alaska involved a spillage of 10.1 million gallons of oil that spread over 1000 square miles and contaminated hundreds of miles of beaches. Exxon spent 2.5 billion US dollars in the clean-up efforts but the damage done to the image of the company was profound and lives on.

Predictably, the Exxon spill gave a bad name to the petro giants in the US. The prospect of introducing M85, a methanol fuel based on renewable resources became strong and posed a major threat to the existing oil industry. Finally it was ARCO that succeeded not only in averting this threat but also in restoring the sagging image of the industry through a crucial strategic maneuver. ARCO introduced a series of re-formulated gasoline products that projected the industry in a different light. Though its innovative products, not only did ARCO win back the consumers confidence, but also succeeded in creating an image of a corporation that cares – not just for the consumer but also for the environment. As a result, ARCO broke the ranks and emerged a clear leader compelling the rest of the industry to follow suit (see Piasecki, 1995 for a detailed case study).

Convergence of Producers' and Consumers' movements

One of the positive aspects of environmental externalities has been the widespread increase in awareness among consumers. This awareness has resulted in a movement for safe and environmentally benign products. Growing pressures both from consumers and regulatory agencies have also led to enlightened policies on the part of ecologically conscious producers. The consumers' movement for green products and processes as well as the green producers

movement seek to redefine the way business is conducted, providing some hope for retrieving the situation. These movements represent various initiatives of eco-conscious producers, consumers or concerned citizens to internalize, minimize, neutralize or preempt environmental externalities. The result is the introduction in the market place of a new genre of goods and services that are eco-friendly (Pastakia, 1998).

One of the areas where the convergence of these two movements seems imminent is in the field of agri-business. The demand for safe and wholesome food in the west gave birth to the concept of health food stores. Such stores began to stock food that was grown organically i.e. without the use of toxic chemicals. Green consumers were willing to pay as much as 30 percent more for organically grown food. The produce was certified by organisations of the farmers themselves. Among the oldest of such organisations is the California Certified Organic Farmers (CCOF) association. The organisation has evolved its own system of certifying the farms of its members and is large enough to support its own research programme. These farmers belong to a growing clan that has realised the need to adopt or return to eco-friendly methods of farming in order to avert the prospect of long-term failure of farming systems.

The Ladder of Cleaner Production

As pointed out by Ottman (1998), environmental standards represent a set of moving targets since these are continuously revised over time. Realising the futility of pursuing end-of–pipe solutions, many successful corporations have shifted the focus to minimising and even eliminating pollutants at source. A large number of incremental innovations, often resulting from the establishment of Environmental Management Systems (EMS) have led to substantial savings for such corporations. The case of 3M is often cited in this regard. A few examples from the Indian context are provided in the following section.

Once a polluting industrial unit decides to clean up its act, it finds itself gradually moving up the ladder of cleaner production (see Table 1). Starting with better housekeeping, where the investment is close to zero and the level of technology needed is also minimal, the unit graduates into innovations for waste minimisation and utilisation. The highest point of the ladder is reached when the company plans a complete change in either its process technology or product design making the business radically more eco-friendly than before.

Peer Support

Meanwhile industrial producers have also been taking a few lessons on ecology from Mother Nature. The concepts of “industrial symbiosis” and “industrial ecology” have gained currency among industrialists and planners. These concepts that recognise the need for industry to adopt systems of mutual dependence are particularly relevant in the planning of industrial estates where the waste generated by one unit may be used as a an input by another unit. Such a system makes it possible to minimise the net externalities generated due to the activities of an estate as a whole (Peck and Cote, 1998, Kalundborg center for Industrial Symbiosis, 1996).

Table 1. Ladder of Cleaner Production

Cleaner Production Initiatives	Level of Technology Needed	Level of Investment	Payback Period
- Shifting to eco-friendly business lines (*Highest rung of ladder*)	High	High	Same as Bankable Projects
- Complete replacement of technology	High	High	Same as Bankable Projects
- Redesigning products from the view point of ecological benefits - Conversion of waste into new products or by products - Partial modernization of process	Moderate to High	Moderate to High	2 to 3 Years
- Waste purification/ concentration - Recycling of waste - Waste minimization - Waste exchanges - Minor process improvements	Moderate	Low to Moderate	Few Months to 2-3 years
- Better inputs sourcing - Good House-keeping	None, Usually common sense based	Minimal, Often zero	Few days to few months

Source: Self-compiled

3.2 Greening of Indian Industry

Judicial Activism

In India, the ineffective regulatory system had resulted in large-scaled and blatant violations of the pollution prevention regulations. The worst offenders were the small-scale industry (SSI) units, which were accustomed to all kinds of concessions from the government. In the mid eighties and nineties a spate of public interest petitions spearheaded by eminent environmentalist and advocate, M. C. Mehta[4], succeeded in changing this scenario. The courts ruled that SSIs could not absolve themselves from their responsibility towards society and the natural environment merely on the grounds that it was not economically feasible for them to internalise their externalities (see for instance Kirpal, 1995). The courts directed all SSI units located in clusters, to set up common effluent treatment plants (CETPs) while passing strictures on the erring regulatory authorities. The judgements brought about a significant change among the small-scale entrepreneurs. Several of the CETPs established in the wake of these judgments are now operative.

End-of pipe solutions however, are not very economical in the long run for the entrepreneurs, since these involve additional recurring costs that eat into profitability. This has forced many an entrepreneur to examine his stream of wastes and search for alternative solutions to reduce, minimise, recover, recycle or convert wastes into useful by-products. The results have been dramatic in most cases.

International and Bilateral funds

The impetus for this kind of change is also coming to some extent from international donor agencies who are making available funds to less industrialised countries for minimising wastes and shifting towards cleaner technology. The National Cleaner Production Center (NCPC) was established under the National Productivity Council, with support from World Bank in the early nineties. The NCPC has promoted a large number of Waste minimisation circles among SSI units. The establishment of the Ozone cell in the early nineties within the Ministry of Forests and Environment was largely to facilitate the proper utilisation of bilateral funds to modernise old plants that generated ozone depleting gasses, with new technology that was free of such emissions. The USAID is also channeling funds for cleaner technology through the MoEF.

ISO Certification

Another source of change that is beginning to make an impact is the ISO certification for Environmental Management Systems (ISO 14001). This group comprises of relatively larger, export oriented companies that realise that if they have to compete in the international market, they would need to comply with international standards of environmental safety and quality.

[4] M. C. Mehta, a recipient of the prestigious Goldman Environment Prize for 1996, is a Delhi based public interest lawyer who has successfully fought and won over 40 landmark cases in the Supreme Court since 1984.

Arvind International's plant for manufacturing denim, located at Khatrej, Ahmedabad is the first textile unit in the country to have obtained ISO 14001. Arvind is among the leading players in the global denim market. In order to maintain its competitiveness in the export market, it decided to obtain certification for environmental standards. The establishment of an Environment Management System (EMS) led to the creation of a corporate culture where innovative approaches to the problems of waste management and resource conservation were encouraged. This led to several innovations especially in the field of solid waste reduction, which was brought down, from 6 % in June 1998 to about 2.5% in December 1999. One of the steps taken was to develop a vendor who could recover most of the waste yarn. This was done by identifying such a vendor and suggesting changes in his equipment to facilitate the recovery of the yarn. The total savings through various incremental innovations were worth 60 lakhs of rupees where as the total investment in establishing the EMS was less than 35 lakhs[5].

Around the same time *Kirloskar Oil Engines Ltd*. (KOEL) the famous Pune based manufacturer of diesel and gas engines decided to go green. It established and EMS at a total cost of 40 lakh rupees. As a result of the innovations that took place KOEL has become a zero discharge company. Its Pune plant, which manufactures diesel engines in the 20-270 HP range, is an ISO 14001 certified unit. The annual savings resulting from this investment is about 1.3 crore rupees. KOEL is also moving towards re-designing its products to make them environment-friendly. The R 1040 series of engines, which has industrial applications, conforms to European and US exhaust emission standards. Such norms do not exist in India currently[6].

It is estimated that over a hundred companies in India have already obtained ISO certification for environmental systems. The illustrations provided above suggest that other ISO companies may also have come out with a variety of innovations many of which remain unknown due to lack of documentation.

Ecological entrepreneurship: an assertion of ecological values

Ecological entrepreneurs (ecopreneurs for short) have the knack of identifying green business opportunities and converting them into viable enterprises. Serving the interests of the ecological environment constitutes an important part of the mission of the organisation. The most recent example in the Indian context is the development of Reva the Zero-emission car by the Bangalore based Maini group. This battery-operated car is scheduled to be launched in the small car market by November 2000 (see cover story of *Autocar India*, May 2000).

Another organisation that actively seeks to create green opportunities through creative design is Core Emballage, based in Ahmedabad. Core has revolutionised the packaging industry in

[5] Personal communication with Mr. Haresh Israni, under whose leadership the Khatraj plant established an EMS and obtained ISO 14001.

[6] Based on a press report that appeared in Economic Times, 17th February 2000 entitled "Kirloskar Oil Engines Go Green, save Rs 1 crore".

India by offering customers the total packaging solution. Its design studio is constantly creating new solutions for improved packaging strength with minimal wastage of material[7].

The author's earlier work on entrepreneurship at the grassroots level (Pastakia, 1998) has shown that ecopreneurship is alive and well especially at the micro-level. A recent paper documents six cases of innovative farmers and other change agents who struggled against all odds to scale-up and diffuse eco-friendly pest management innovations amongst farming communities of the states of Gujarat and Maharashtra in western India. Many of the innovators rejected chemical farming on the grounds that this went against traditional systems and beliefs in which man was expected to live in harmony with nature.

Indian culture (drawing values from the dominant Hindu worldview as well as other faiths such as Buddhism and Jainism) has over the ages demonstrated a strong concern for conservation of natural resources and their use (Banwari, 1992). In their bid to steer the Indian society once again towards sustainable pathways, these grassroots agents of change seek to relocated lost values and restore faith in traditional worldviews. This augers well for the country as a whole for as we shall discuss in the following section, sustainable development can only be achieved on the bedrock of such values. It becomes imperative therefore to take a closer look at the underlying assumptions and values of sustainable development.

3.3 Framework for Assessing Change

The above discussion on forces of change can be generalised to yield a framework for assessing the likelihood of change in a given industry and in a given geographical and cultural setting. Whether an industry is likely to go green would depend upon the strength of both internal and external forces (see Figure 1).

Theoretically, the existence of any one or more of the forces indicated can trigger change in the industry. However, whether such change can be sustained over longer periods of time would depend upon the support gained from other forces.

4.0 SUSTAINABLE DEVELOPMENT PARADIGM: KEY VALUES AND ASSUMPTIONS

From the above discussion it would have become apparent that greening is not a matter of just improved housekeeping and good public relations. It presupposes a shift in the mindset of entrepreneurs. In other words, it calls for a paradigm shift in the very model of development pursued by a community or nation. Such a paradigm was popularised as the Sustainable Development paradigm by the World Commission on Environment and Development in 1987 (Caldwell, 1991). In the SD paradigm the interests of environmental conservation and business are seen not to be opposed to each other. Rather they offer tremendous scope for synergy.

[7] Personal communication with Mr. Sunil Handa, MD, Core Emballage, Ahmedabad.

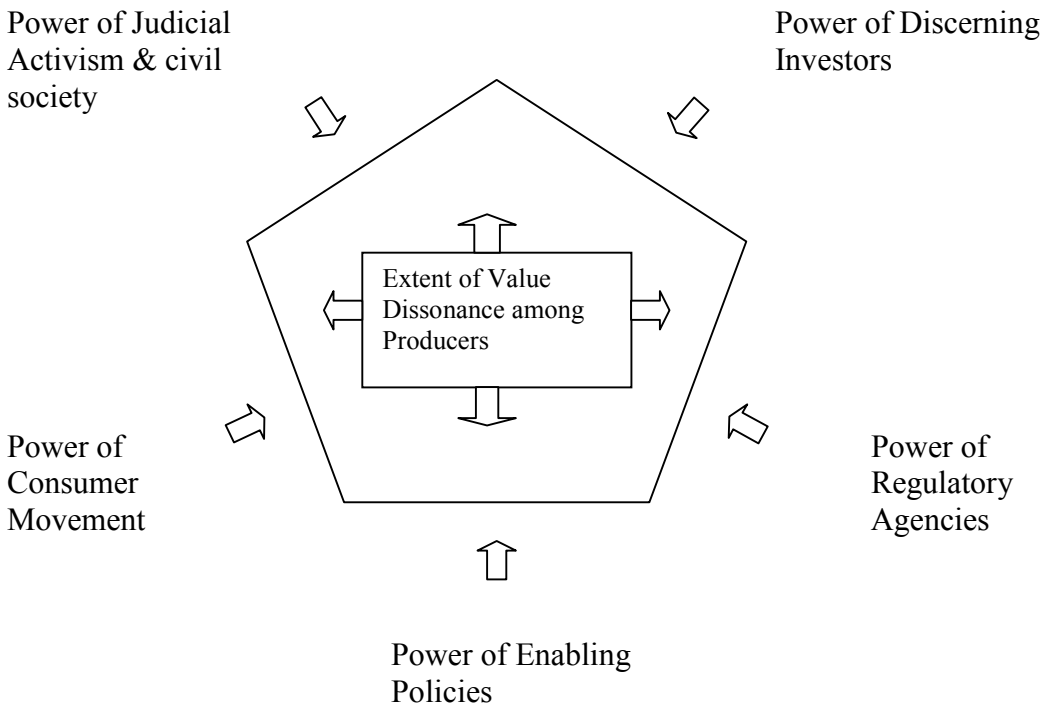

Figure 1. Framework for Assessing of the Forces of Change

SD values

Most discussions on sustainable development (SD) tend to refer back to the definition provided by the (WCED) in 1987, which defines SD as ”development that meets the needs of the present without compromising the ability of future generations to meet their needs”. Despite its ambiguity the definition has gained popularity over the years.

For the purpose of our discussion I would adopt a more comprehensive definition proposed by me in an earlier study (Pastakia, 1995) which seeks to overcome some of the limitations of the WECD and other definitions proposed in the past.

> “ SD is a process in which communities/societies deploy institutional strategies, enabling them to maintain and augment the very natural base on which they subsist, while ensuring that the costs of such development are not externalized irreversibly either over time or on nature or on other societies. Apart from meeting the material needs of the present and future generations the purpose of such development should be to facilitate the moral and ethical evolution of mankind.”

The above definition clearly brings out the ethical underpinnings of the developmental process. The “ethics” of SD imposes three types of accountabilities on mankind. These include accountabilities of:

a) Present generation to the future generations (inter-generational)
b) Humans to sentient life forms (intra-generation and inter-species)
c) Humans to fellow human beings (intra-generation and intra-species)

This accountability however cannot be operationalised unless collective judgment based on the acceptance of the underlying beliefs/philosophy about SD evolves. A review of some of the relevant philosophical stances indicates that SD values would fall somewhere between the two extremes of Ecocentricism and Anthropocentrism.

In the ecocentric stance, nature is valued for its *existence* and *bequest* worth, entailing at least some cases where human interest could be sacrificed for ecological ends. In contrast, the anthropocentric position emphasizes the *use, service* and *options* value of nature[8]. In this view ecological balance is important because of its instrumental value for human use for both present and future generations. Clearly human interests take precedence over ecological interests or ends. Neither of these positions totally satisfy the philosophical basis implied in SD. Norgard (1984) proposed the concept of co-evolutionism that visualizes co-evolution of mankind with nature through an ongoing feedback process between social and ecological systems. However its concern for nature has been more out of pragmatic (such as survival of mankind) rather than ethical considerations.

I have therefore proposed the idea of "eco-ethical co-evolutionism" that comes closest in describing the philosophical underpinnings of SD. For a comparison of this position and attendant behavioural norms with those of the other two extreme positions see Table 2.

The behavioural norms for business organisations that are implied in these values can be listed as follows (see Davis, 1991):

a) The well being of all other stakeholders is as important as that of equity shareholders.
b) Through the technologies that are used, operations should enhance the environment rather than damage it, and contribute to ecological balance
c) All forms of waste should be minimized and renewable energy and materials should be used as much as possible.
d) Managers and employees together are the players in the business game. They should be enabled to participate to the limits of their abilities.
e) Operating units should be kept as small as the maintenance of efficiency allows.
f) Companies should be dynamically innovative striving to achieve higher levels of excellence and quality in all aspects of their business, including environmental performance.
g) Investment should place as much weight on the long-term as on the short-term goals.

[8] See Groot (1992) for a more detailed discussion on valuation of nature.

Table 2. Three different ethical stands: a comparison

Philosophical Stance	Assumptions about man-nature relationship	Behavioural norms
1. Anthropocentric	Man is superior to other life forms; nature exists to satisfy human wants	- Protecting nature and living beings for their *use, service* and *options* value. - Protecting lower life forms as part of enlightened self-interest
2. Ecocentric	Man is a part of ecological system; therefore not superior to other life forms	- Protecting nature and other living beings for their *existence* and *bequest* value. - Ascribing man with equal status vis-à-vis other life-forms
3. Eco-ethical Coevolutionism	Man is a part of the ecological system in which he co-evolves with the rest of nature.	- Protecting nature and other living beings for their *bequest* and *existence* values over and above use, service, *options* values. - Protecting all creatures from cruelty and avoidable suffering and approaching nature with humility, care and compassion - Stewardship: holding natural resources in trust for future generations

5.0 EMERGENCE OF THE ECO-SENSITIVE ORGANISATION

The behavioural norms listed above cannot be adopted without a corresponding change in the mind-set and value system of entrepreneurs. This change would have to come from the top if it is to be taken seriously by the rank and file of an organisation. In the "eco-sensitive organisation" one finds a strong expression of the commitment to environment through the vision and mission statements of the entrepreneurs. This is then reflected in the strategies deployed, the structure adapted, the systems established and the criteria used for selecting and rewarding staff. The vision also seeks to redefine the stakeholders and their potential

roles in shaping the mission of the corporation. Together these changes provide a new meaning and orientation to traditional functional areas. (See Figure 2)

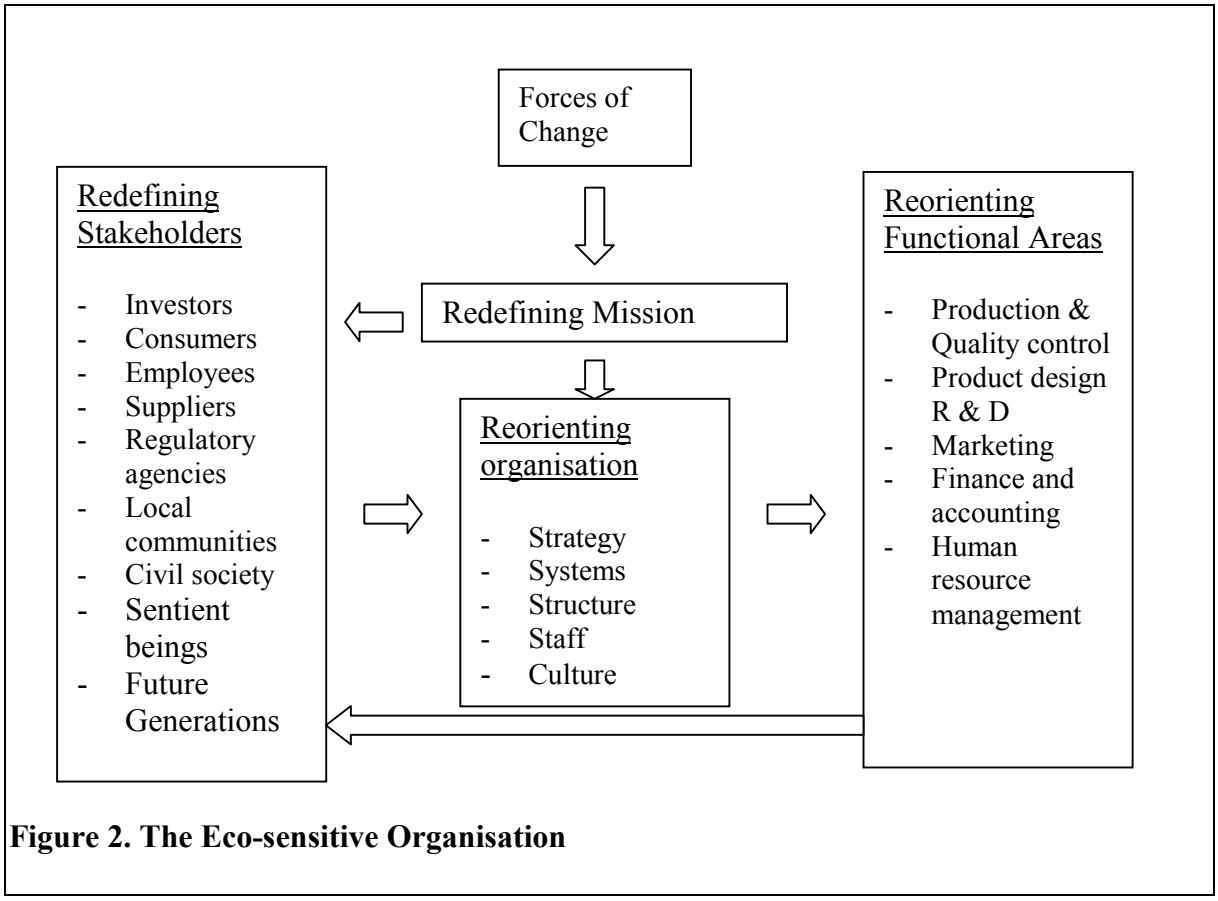

Figure 2. The Eco-sensitive Organisation

In the following section I attempt to characterise the changes that are taking place in the way stakeholders and their roles are defined and the corresponding changes in different functions and processes of the organisation.

5.1 Stakeholders Redefined

Under the SD paradigm the concept of accountability has been considerably expanded to include accountability to all relevant stakeholder groups. Hence the top management is accountable not just to shareholders (owners) but equally to other principle stakeholders such as consumers, government, employees, civil society, sentient beings and future generations. This calls for greater transparency and openness on the part of top management. While the task of carrying along a larger number of stakeholders would seem more challenging the rewards of greater acceptance and cooperation make the effort worthwhile.

The real challenge however, lies in finding creative institutional mechanisms to provide a voice to the voiceless stakeholders. There are, of course civil society groups that espouse the cause of these constituencies but an enlightened management would find ways of factoring in the concerns of voiceless stakeholders regardless of the presence of civil society institutions.

On this issue modern institutions have much to learn from the institutional norms developed by tribal communities. Indeed Gadgil and Guha, (1995), refer to these communities as the 'ecosystem people". The elders of one such tribe in Canada had evolved a norm of keeping one seat vacant for the representative of the seventh generation. After discussing the pros and cons of a given decision the elders would pause for a while to "listen" to what the seventh generation representative had to say. They would then modify their decision if necessary.

5.2 Redefining Mission

Mission statements of eco-sensitive organisations typically make definite commitments to responsible environmental care. Organisations that have established Environmental Management Systems (EMS) inevitably have a clearly stated Environmental Management Policy. For example Japan's Nippon Steel which came out with a series of eco-friendly steel products during the nineties, has the following statement of policy:

> " Nippon Steel shall conduct its business activities to contribute to the realization of "the establishment of an environmental preservation society" and environmental preservation on a global scale" aiming at a low environmental impact society compatible with sustainable development.
> … taking into consideration aspects of environmental preservation on a global scale such as the prevention of global warming, the protection of the ozone layer etc. Nippon Steel will continue to be active in contributing to the "establishment of an environmental preservation society" conducting its business activities in harmony with ecosystems to conserve and improve living environments and promoting the proactive prevention of environmental pollution."[9]

5.3 Reorienting the Organisation

Once the superordinate goal is internalised by all levels of employees the organisation experiences a cultural transformation. This culture transcends organisational boundaries as individuals seek to establish synergistic relationships with potential partners. The establishment of an EMS gives definite shape to environmental objectives and plans which make it possible to assess performance over time and across industries. It is up to the top management to identify the corporate environmental competencies that can give a significant competitive advantage to the organisation and to take these into account during strategy formulation. Corporate environmental strategy could either be an important component of the overall strategy of the organisation or it could well be the overall strategy itself.

[9] Quoted from Nippon Steel's Annual report by Chayan Ray, in an unpublished student report "Environmentally Friendly Steel Sheets", as part of the course on Environmental Management taught by the author at the Nirma Institute of Management, March 2000.

5.4 Reorienting Functional Areas

Organisations that have tried to deal with the environmental challenge in a piecemeal fashion, by setting up a department of environmental engineers have seldom met with success. It is only when environmental concerns are internalised at every level of the oganisation and in every department that the possibility of holistic change begins to emerge. The commitment to a new vision calls for a reorientation in all functional areas. I indicate below some of the important areas in which such a reorientation is taking place.

5.4.1 Cleaner Production

The area that is likely to undergo the maximum change is production. In fact in many organisations the head of production is also entrusted with the responsibility of environmental performance. As organisations move up the ladder of cleaner production the notion of quality gets expanded to include excellence in environmental performance. It is not surprising therefore that ISO 14000 certification has been offered as an extension of ISO 9000.

The concepts of *demanufacturing* and *remanufacturing* are also gaining currency. Xerox Ltd. has demonstrated how old machines can be dismantled completely and remanufactured using the spare-parts that are still usable. This may well trigger the age of completely recyclable products.

5.4.2 Eco-Design

In the area of research and development exciting opportunities are opening up for redesigning goods and services to ensure that these are eco-friendly. Zero-emission cars, biodegradable plastics, recyclable cars, reformulated gasoline, devices to harness new forms of renewable energy, energy saving devices etc. all are products of eco-design. The technique of Life Cycle Analysis has proved to be a significant development in the development of such products and services. The criteria for eco-friendly design could include energy consumption, proportion of renewable resources, recyclability of products, biodegradability etc. The addition of such criteria to conventional criteria such as cost, convenience, user-friendliness, aesthetics, ergonomics etc. will doubtless make the field of product design a more challenging one.

5.4.3 Green Marketing

The conventional approach has been to assess products for their market attractiveness before including them in the product portfolio. Under the new paradigm, marketers seek to maximise both *market* and *environmental attractiveness* as described by Jose (1996). The matrix resulting from these two variables can be applied to determine the desirable product mix as well as the portfolio of Strategic Business Units (SBUs) that a group would like to hold. It can gradually phase out products or SBUs that are low on the matrix and introduce new ones that are better.

Once a product with high environmental attractiveness has been identified, it becomes the job of a marketer to identify an appropriate green marketing strategy. Green marketing is emerging as a new frontier in the field of marketing. It is however, too early to assess whether its principles would be any different from conventional principles of marketing. The objectives of green marketing however are fairly clear:

a) to *meet the needs of the green consumer* by offering him/her eco-friendly goods and services
b) to raise the awareness about environmental hazards of existing goods and services and providing information *about* eco-friendly alternatives, in order *to convert conventional consumers into green consumers.*

Some of the critical assumptions made about consumer behaviour may be stated as follows:

i) Green consumers show preference for eco-friendly products and services. This may translate into willingness to buy eco-friendly products at the same or even higher price than conventional offerings, depending on the extent of greenness.
ii) Consumers perceive a product/service to be green based on the knowledge available about the environmental impacts of the product throughout its life cycle.
iii) They are also influenced by the company image, environmental quality certification and eco-labeling programmes apart from the communication strategies of the company.
iv) Since most societies are yet to make the transition to sustainable development, in any representative sample of consumers one can expect to find a range of commitment from deep green to brown.

A green consumer survey carried out in the US in 1996 revealed that only 10 percent of the population could be considered True-blue Greens while another 5 percent were classified as Greenback Greens.[10] (Roper Starch Worldwide, Green Gauge, 1996, in Ottman 1998). In a developing country like India the figures cannot be expected to exceed 1 percent.

The study identified three specific sub-categories among the True-blue greens which has implications for the marketer:
a) *Planet passionates*: this group of consumers is concerned about conservation of energy and scarce natural resources such as water. They recycle bottles and cans, buy recycled paper and avoid excessive packaging.
b) *Health fanatics*: This consumer buys organic foods and bottled water, uses sunscreens, herbal shampoos and soaps and cosmetics etc.
c) *Animal lovers*: This consumer boycotts ivory, cod lever oil, avoids fur, and insists on buying cruelty free cosmetics etc.

[10] Greenbacks are so named because of their willingness to pay extra for environmentally preferable products. They worry about the environment and support environmentalism, yet feel too busy to change their lifestyles.

Similar studies in the Indian context are needed to understand the profile of the green consumer in a developing country context. My own study of ecopreneurs at the grassroots seems to suggest that there is an initial resistance to green products and services when these appear in the marketplace. The extent of resistance depends on the nature of product/service as shown in Table 3.

Table 3. Resistance to green products

Green offerings	Consumer resistance	Criteria for preference
Substitute product	Low	Economic>Normative
Products/services that require change in system	Medium	Economic=Normative
Products/services that imply change in lifestyle	High	Economic<Normative

Source: Pastakia (1998)

The least resistance is offered to substitute products where the dominant criteria for selection are economic rather than normative. A farmer switching from a chemical pesticide to a herbal pesticide would not be overly concerned about normative issues as long as the herbal pesticide offers a better prospect for preserving his crops. The Degree of resistance rises when the consumer is expected to change not just a product but the entire system associated with the product. The highest level of resistance is faced when products and services imply a change in lifestyle. At this level the consumer would respond to normative appeals more than economic ones.

Under the circumstances, marketing of green products can prove to be a challenging task and will involve creative strategies to overcome consumer resistance. Communication strategies would need to blend economic and pragmatic arguments with normative appeals, depending on the nature of product and the expected amount of consumer resistance

5.4.4 Finance and Accounting

Environmental Impact Assessment (EIA) has become a useful tool in the hands of financial institutions and international funding agencies for assessing projects before these can be cleared. In India EIA is mandatory for certain hazardous industries as listed in the Government Regulation (GR) of 1994 issued by the Ministry of Environment and Forests, Government of India. While the importance of EIA as a regulatory mechanism to weed out projects with high environmental risk cannot be questioned, it is also true that most entrepreneurs tend to look at EIA as one more beaurocratic hurdle in obtaining clearance for a project. However, EIA is meant to be a tool that helps entrepreneurs themselves to anticipate environmental impacts and to develop appropriate mitigation plans. This would help in making the right decision and in avoiding setbacks at a later stage of the project. The methods of carrying out an EIA vary and are contingent on the nature of the project. Never-

the-less EIA has been gaining in importance and has almost become indispensable for developmental planning.

Once a project is cleared, there is still a need to monitor the environmental performance of the project. With the advent of Environmental auditing and Corporate Environmental Reporting (CER) the area of accounting is likely to undergo a sea-change. The purpose of CER is to describe for multiple stakeholders:

a) the corporation's impact on the environment including use of materials, energy and water and releases of chemicals and compounds to air, water and land,
b) the link between environmental and business performance and
c) the management tools, systems, and approaches being used or planned to improve environmental performance and make the corporation's activities environmentally and economically sustainable (Lober 1997).

Although CER is not mandatory, there is a growing trend at least in the more industrialised countries, towards voluntary disclosure. Through these reports corporations strive to demonstrate qualities such as environmental leadership, credibility, responsiveness and improvement. It is estimated that more that 1000 companies in the West voluntarily publish annual environmental reports (*Down to Earth*, July 1999). A study at Duke University in 1994, found that over 110 U.S. companies from the fortune 5400 and S & P 500 were issuing reports. This was a rapid increase from the handful of companies issuing reports in 1990.

Lober (ibid.) reports that while initially CERs focused on positive assessments of a corporation's performance, a recent trend has been to disclose negative information also. This was being done to enhance the credibility of the reports. For instance the duke study indicated the 175 of the reports included legal actions pending and 435 mentioned environmental accidents.

In India the practice of CER has not yet been popularised. However, an interesting system of voluntary disclosure for the purpose of *green rating* was initiated on a experimental basis by the Center for Science and Environment (CSE), New Delhi (*Down to Earth,* July 1999). As a pilot project CSE chose the pulp and paper industry because of its impact on the environment, including natural forests. The center invited over 1250 companies to participate in the exercise. Though only 4 percent agreed to join the project voluntarily, the encouraging fact was that most of these were market leaders. The center has used what it calls the "reputational incentive" to induce voluntary disclosure. It used a 'default option" under which those companies which did not come forward automatically were rated as the worst. A high profile Advisory Panel, chaired by Dr. Manmohan Singh, former finance minister, helped to give credibility to the project. A competent Technical Consultants panel was established to help in the rating exercise. Some of the important criteria used for rating the companies were: environment policy, chemical recovery plants and lime kilns, improvement in bleach plant processing, improvements in process efficiency, soundness at fiber sourcing, compliance with pollution norms, sound pollution control equipment, recycling and reuse of raw materials and profitability. The ratings of 28 companies were published in the July 31

issue of *Down to Earth*. The top two companies received a rating of three leaves, out of a maximum possible rating of five leaves. Such ratings are expected to influence investment decisions of perceptive shareholders and financial institutions, apart from influencing the corporate image of a company. After its initial success with the paper industry, the CSE plans to carry out a similar exercise with the next most polluting industry viz. the automobile industry.

Such voluntary disclosures and rating schemes are likely to exert the desired pressure on companies to improve their environmental performance in future. In the process the procedures of environmental auditing, green rating and corporate environmental reporting will get standardised. The use of Generally Accepted Accounting Principles for annual financial reports helped to put all companies on a level keel in terms of comparing their financial performance. A similar step needs to be taken in the area of environmental reporting.

6.0 CONCLUSION

It has become increasingly clear that the only way to conduct business in the 21st century will be the eco-friendly way. The process of greening of industries has barely begun. The emergence of eco-sensitive organisations is a welcome development. Such organisations can be considered as harbingers of change.

India too is expected to rise to the challenge. The rate and scale of change is hampered by various constraints such as high demographic pressures, low awareness about environmental externalities, weak consumer movement, weak regulatory organisations and existence of a large small scale industries sector. On the positive side is the existence of strong civil society organisations and the emergence of judicial activism as a force to reckon. More importantly, India is blessed with a culture that has always venerated nature for its spiritual as well as material value in enriching human existence. Hence, there is cause for optimism and hope. This optimism is vindicated by evidence of ecopreneurship at different levels in society. Future generations will ever be grateful to the emerging eco-sensitive organisations for shedding green light and showing the way to a sustainable future.

REFERENCES

Anon. "Reva-lution!: Reva Electric Car" *Autocar India* (May 2000) pp. 49-53

Banwari, *Panchwati: Indian Approach to Environment*, New Delhi: Shri Vinayaka Publications, 1992.

Caldwell, L. K. *International Environmental Policy: Emergence and Decisions*. New Delhi: Affiliated East-West Press Pvt. Ltd. 1991.

Carson, Rachel Louise *Silent Spring* Boston: Houghton Mifflin company, 1962.

Center for Science and Environment, "The Green Rating Project", *Down to Earth* (July 31, 1999).

Common Michael *Environmental and Resource Economics: An Introduction.* New York: Addison Wesley Longman Publishing, 1996.

Coase R.H. "The Problem of Social Cost" *The Journal of Law and Economics Vol*. 3; Oct. 1960, pp 1-40.

Daly H. E. and Cobb J. B. *For the Common Good: Redirecting the Economy Towards Community, the Environment and a Sustainable Future*. Boston: Beacon, 1989.

Davis John, *Greening Business: Managing for Sustainable Development* Basil: Blackwell Inc. 1991, pg. 19-39.

Fukuoka, Masanobu *The One-straw Revolution: an Introduction to Natural Farming* : Mapusa, Goa*:* The Other India Press, 1992 (first published 1978 by Rodale press, Inc.).

Gino M. J.; Hollingworth R. M. and Durham W. *Silent Spring Revisited.* Washington D. C.: American chemical Society, 1987.

Groot de, R. S. *Function of Nature* Amsterdam: Wqolters-Noordhoff, 1992.

Gadgil, Madhav and Guha, R. *Ecology and Equity* Penguin, 1995.

Gupta Anil K. and Prakash Aseem "On Internalizing Externalities", Working Paper No. 1126, Ahmedabad: Indian Institute of Management, 1993.

Jose P. D. "Corporate Strategy and the Environment: A Portfolio Approach" *Long Range Planning* Vol 29, No. 4, pp 462-72

Kalundborg Center for Industrial Symbiosis Industrial Symbiosis; Exchange of Resources, Kalundborg: Kalundborg Center for Industrial Symbiosis, Sept. 1996

Kirpal B. N. and Gokhale H. L. "Pravinbhai J. Patel vs. State of Gujarat", Special Civil Application No. 770 of 1995 *Gujarat Law Reporter* Vol XXXVI (2) pp. 1210-1257.

Kleiner, A. "What does it mean to be Green?" *Harward Business Review* (July 1991).

Lober Douglas J. "Current Trends in Corporate Environmental Reporting" C*orporate Environmental Strategy* Winter *1997.*

Mehta M. C. "Judicial Activism: Unexpected Saviour*" The Hindu Survey of the Environment*, 1996.

Ministry of Environment and Forests, *Environmental Impact Assessment notification* New Delhi: Government of India, 1994.

Norgard, Richard B. "Coevolutionary Development potential", L*and Economics* 60, 2, (May 1984)

Ottaman Jacquelyn A. *Green Marketing* Illinois: NTC Business Books, 1998.

Pastakia A.R. *Grassroots Innovations for Sustainable Development: The Case of Agricultural Pest Management* unpublished dissertation submitted to Indian Institute of Management, Ahmedabad, 1996, pg.456.

Pastakia A. R. "Grassroots Ecopreneurs: Change Agents for a Sustainable Society" *Journal of Organisational Change Management,* Vol. 11 (2) May, 1998.

Peck, Steven and Ray Cote, 'Eco-Industrial Network Development: Opportunities for Progress in Canada" Toronto: Peck and Associates (for Industry Canada Environment Canada), January 1998.

Piasecki, Bruce W. *Corporate Environmental Strategy: the Avalanche of Change since Bhopal* New York: John Wiley and Sons, Inc. 1995.

Pigou A. C. *The Economics of Welfare* Fourth edition. London: Macmillan and Company, 1932.