

## **Need for Training the Workforce on Climate Change and Business Sustainability**

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## **Abstract**

As global temperatures rise due to increasing greenhouse gases emissions, climate change is becoming a reality. Arguments over cause of global warming – whether it is man-made or it is part of a natural cycle – are not expected to die down soon, but the unavoidable fact is that the world is witnessing drastic changes in the climatic patterns. Even World Economic Forum put climate change centre stage as ever increasing concern for it is radically altering the business environment. Businesses are arguably perceived by the society to be the worst contributors of greenhouse gases emissions. Society, through various options available to it – stringent regulatory pressures, green consumerism, voluntary initiatives, and various financial incentives or disincentives - is pressurizing businesses to align their business practices with environmental goals. How businesses shape up to meet the challenges posed by attendant physio-socio-economic consequences is going to be crucial. Many studies establish positive correlation between environmentally benign practices and overall performance of a business. In order for a firm to be aware of the challenges it faces in the changed business environment, it is imperative that its workforce at all levels should have sufficient understanding of the dynamics of such challenges. Building on training need assessment and based on interactions with few companies, the paper focuses on the need of training in the field of climate change.

**Keywords:** Climate change, business sustainability, training needs, workforce, agribusiness

# **Need for Training the Workforce on Climate Change and Business Sustainability**

## **Introduction**

The anthropogenic emissions of GHGs<sup>1</sup> in the atmosphere are now increasingly recognized as major cause of global warming and climate change (IPCC, 2007; Houghton et al., 1990). Most of the increase in greenhouse gas (GHG) concentrations is due to carbon dioxide (CO<sub>2</sub>) emissions. Agriculture related activities are one of the major sources of these emissions.

It is now accepted worldwide that due to increased emissions of GHGs the globe is warming to such an extent that livelihoods of large chunk of our population is under threat<sup>2</sup>. People living in developing countries are relatively more vulnerable to any natural calamities due to poor accessibility to resources. Arguments over cause of global warming – whether it is man-made or it is part of a natural cycle – are not expected to die down soon, but the unavoidable fact is that the world is witnessing drastic changes in the climatic patterns.

Businesses are arguably perceived by the society to be the worst contributors of GHGs. Society, through various options available to it – stringent regulatory pressures, green consumerism, voluntary initiatives, and various financial incentives or disincentives - is pressurizing businesses to align their business practices with environmental goals. In such a scenario, a major challenge confronting businesses all over the world, and in developing countries in particular, is being able to reconcile economic imperatives with environmental sustainability.

Many studies establish positive correlation between environmentally benign practices and overall performance of a business. These studies argue that environmentally friendly processes of a company through various tangible and intangible outcomes results in better competitive advantages and thereby in improved sustainability. In order for a firm to be aware of the challenges it faces in the changed business environment, it is imperative that its workforce at all levels should have sufficient understanding of the dynamics of such challenges. It is an established fact that employees in an organization over the year develop certain mental models which may not exactly reflect the realities in the world. Periodic trainings of the workforce help updating the mental models by exposing them to the latest happenings in the business environment.

Climate change has radically altered business environment of almost all industry sector all over the world. “The Government of India’s industrial policy aims not only at a sustained growth but also in being internationally competitive...we believe that a low carbon

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<sup>1</sup> The rising concentrations of greenhouse gases (GHGs) of anthropogenic origin in the atmosphere such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) have increased, since the late 19th century.

<sup>2</sup> According to the Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change<sup>1</sup>, because of the increase in concentration of greenhouse gases in the atmosphere (for e.g., CO<sub>2</sub> by 29 per cent, CH<sub>4</sub> by 150 per cent and N<sub>2</sub>O by 15 per cent) in the last 100 years, the mean surface temperature has risen by 0.4–0.8°C globally.

economy is an absolute must for a better future,” said Mr R Muralidhar, Under Secretary, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India. “To achieve that, an inclusive approach to environmental issues is a must.”

In such an altered environment, the businesses need to come out with innovative strategies of product design, production processes, supply chain management and marketing. Success in such scenario requires new perspective on environment protection. The firms today have also realized that going green can help the firm in gaining the profit margins and beating the competition in the near future. The best way to deal with the situation can be to develop such a system in the firm that each individual of the firm contribute in this area resulting into saving the cost to the firm as well. Therefore, for evaluation of the effects of new market conditions and the role of human resource development in this area taking employees as one of the best contributors to this. (Perrings 2003)

Hence, employees across work divisions need to be exposed to various complexities of business vis-à-vis climate change so that they are in position to devise appropriate strategies. Building on training need assessment and based on interactions with few companies, the paper focuses on the need of training in the field of climate change. The paper examines the impact of industrial activities on ecology and the surroundings in which they carry on these industrial activities. Next section Provides an over view of what is industrial environment and its effects on the society at large? In third section we will look at the needs and importance of knowledge of employees in an organization on environment protection and related issues. In the fourth section we deal with the influence and importance of human resource management section of the firms in effectively implementing and encouraging employees to give their inputs in this area. The last section will present and discuss the results followed by conclusions and recommendations.

## **Anthropogenic Emissions in India**

In last one decade Indian economy has witnessed unprecedented growth in almost all spheres. However, this economic growth has resulted in increased emissions of GHGs too. India ranks seventh in the world in terms of annual GHGs emissions and is responsible for nearly 3.6 percent of world emissions (<http://www.wri.org>). Most of this is due to the industrial processes. Increase in movement of people for trade and commerce also amplifies the energy consumption and emission of harmful gases.

In accordance with the Article 12 of United Nations Framework Convention on Climate Change (UNFCCC), the parties are required to report on continuous basis information on inventory of greenhouse gases by sources and removals by sinks and also the steps taken to address climate change. Towards the fulfillment of the obligations under the convention, India submitted its Initial National Communication to the UNFCCC on 22 June 2004. Table 1 shows trends of GHGs emissions in India from various sources during 1990 to 2000.

In 1990, 988 million tonnes of CO<sub>2</sub> equivalent emissions took place from all anthropogenic activities in India, which rose to 1228 million tonnes in 1994 (accounting for 3 per cent of the total global emissions), 1485 million tonnes in 2000 and 1865 in 2005. In

1994, about 794 million tonnes, i.e. about 63 per cent of the total CO<sub>2</sub> equivalent emissions was emitted as CO<sub>2</sub>, while 33 per cent of the total emissions (18 million tonnes) was CH<sub>4</sub>, and the rest 4 per cent (178 thousand tonnes) was N<sub>2</sub>O (Sharma et al, 2006). During all this period, the CO<sub>2</sub> emissions were dominated by emissions due to fuel combustion in the energy and transformation activities, road transport, cement and steel production. The major contributors to CH<sub>4</sub> emissions included enteric fermentation in ruminant livestock and rice cultivation. Most of N<sub>2</sub>O emissions came from the agricultural soils due to fertilizer applications. The sectoral data reveals that energy sector contributed 61 per cent of the total CO<sub>2</sub> equivalent emissions, agriculture about 28 per cent, and the rest of the emissions were distributed amongst industrial processes, waste generation, and land use, land use change and forestry.

During 1990 to 2000, the total GHG emissions grew at a compound annual growth rate (CAGR) of 4.2%; however, emissions from the industrial processes registered a CAGR of 21.3% during the same period.

**Table 1.** Trends of GHG emission in India

Greenhouse gas sources and sinks (G g)	1990 (CO <sub>2</sub> eq. mt)	1994 (CO <sub>2</sub> eq. mt)	2000 (CO <sub>2</sub> eq. mt)	CAGR in % (1990–2000)
All energy	622,587	743,820	959,527	4.4
Industrial processes	24,510	102,710	168,378	21.3
Agriculture	325,188	344,485	328,080	0.1
Land use, land use change and forestry	1467	14,291	–	–
Waste management	14,133	23,233	28,637	7.3
Total emissions (Gg)	987,885	1,228,539	1,484,622	4.2
Population (million)	853	914	1000	–
Per capita emissions (tonnes/capita)	1.2	1.3	1.5	–

Source: Sharma et al, 2006

Table 2 shows comparative trends of GHG emissions for some countries between 1990 and 2005. It is obvious from this table that India is one of the countries where GHG emissions have shown increase (CAGR 4.3%) during this decade.

**Table 2.** Comparative trends of greenhouse gas emissions for some countries

Country	CO <sub>2</sub> eq. emissions in mmt			CAGR (%)
	1990	2000	2005	1990-2005
Russian Federation	3208	1833	1939	-3.3
Germany	1246	1019	978	-1.6
United Kingdom	738	640	642	-0.9
Japan	1103	1297	1349	1.4
USA	5080	6209	6901	2.1
India	988	1485	1865	4.3
China	3837	4820*	7242	4.3
Brazil	1187	1477**	1010	-1.1

Source: Sharma et al, 2006 and WRI, 2012

\*Data available up to 1994, \*\*Data available up to 1995.

As most GHG emissions are the result of industrial processes (for interaction of industrial processes with environment refer Figure 1), directly or indirectly, the industry has to play a very crucial and proactive role in managing these emissions as well as the negative impacts of these. The measurement of GHG emissions plays an important role in devising mitigating strategies as Manish Bapna, executive vice president of the World Resources Institute (WRI) aptly puts ‘you cannot manage what you do not measure’. David Korten, a former professor at Harvard University Graduate School of Business and Advisor of USAID urges that:

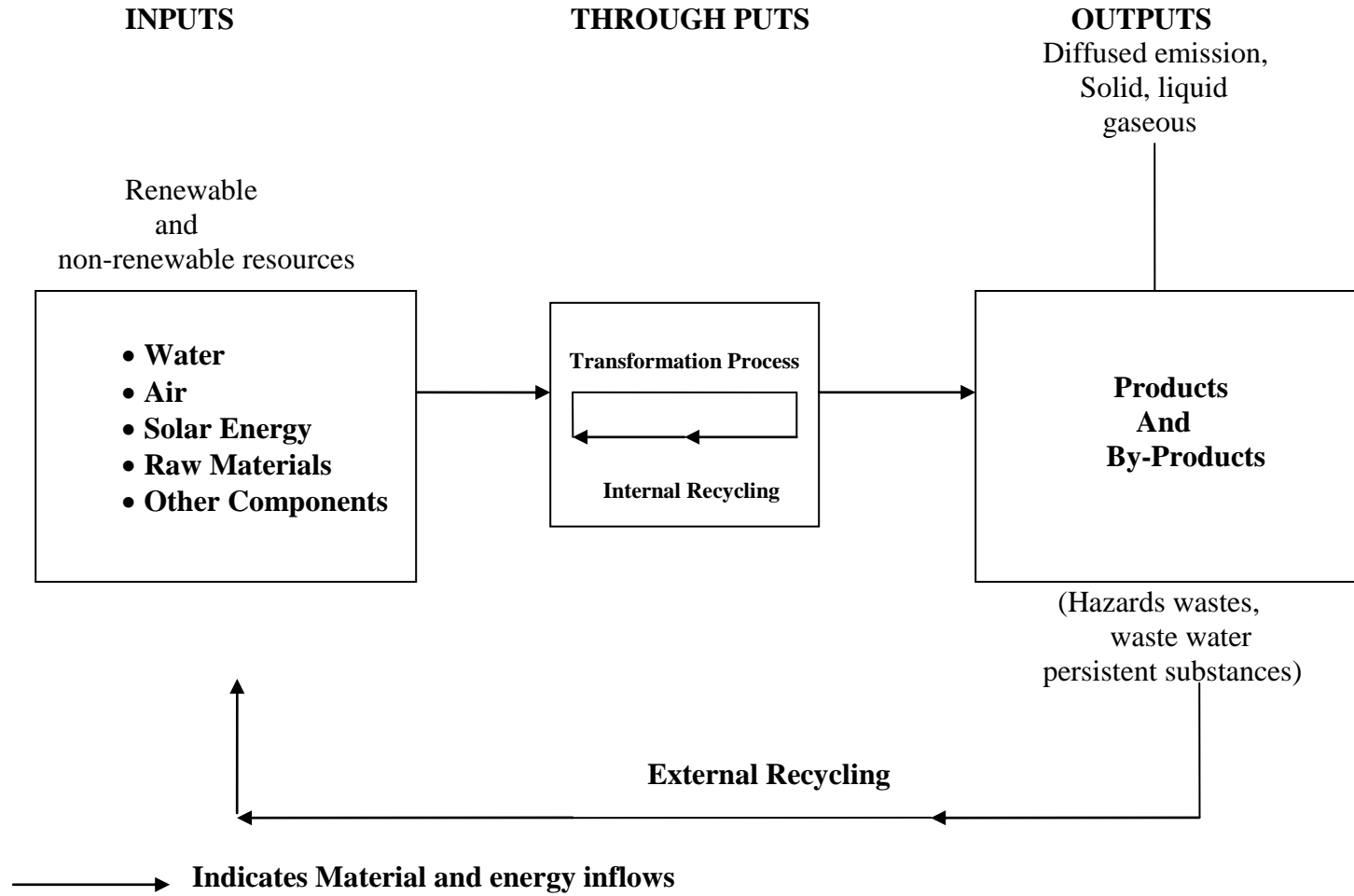
*‘big corporations today are most powerful institutes and are becoming more powerful through mergers, acquisitions and strategic alliances. Their primary accountability is to global financial markets in which each day trillions of foreign exchange changes hands for speculative profits wholly unrelated to real exchange of goods and services. While their powers have increased, nothing has been done to increase the social and environmental responsibilities of big corporations’*

Many companies in India plan to have accounting system<sup>1</sup>, based on international standards and best practices that will help identify opportunities to cut emissions, and reduce waste and costs associated with high emissions levels. By adopting greenhouse gas management strategies that make business sense, India's industry leaders are demonstrating that a healthy environment and a healthy economy can, in fact, go hand-in-hand. According to Mr. A. K. Kaul, Ex-Chairperson, CII Delhi State Council ‘for many businesses, compiling a comprehensive inventory of their GHG emissions is the first key step in developing an effective GHG management and reduction strategy. A GHG inventory will improve the company’s understanding of its GHG emissions profile and thereby its potential GHG liability or exposure in a carbon constrained economy.’

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<sup>1</sup> The forty five member companies registered for the India GHG Inventory Program are: Air Treatment Engg., Apollo Hospitals Enterprises, Ashok Leyland, Bhuhari Holdings, Bosch Limited, Capricon Food Products, Cavinkare, Century Rayon, Control Techniques India, DCW, Elantas Beck India, Elico, ETA Engineering, Godrej & Boyce Mfg Co., Godrej Industries, Grundfos Pumps India, HIRCO, IM GEARS, Infosys Technologies, JBM Group, Khiviraj Tech Park, Kirloskar Oil Engines, Loyal Textile Mills, NICCO Corporation, NICCO Parks & Resorts, NTTF Industries, Praj Industries, Raman Fibrescience, Simpson & Co., T V Sundram Iyengar & Sons, Tata Power, The Tata Iron & Steel Co., The Tinplate Company of India, Thirumalai Chemicals, TTK LIG Ltd, Veena Die Casting & Engineers, Wipro, WS Industries, Birla Corporation, Dalmia Cement (Bharath), Kesoram Cement, Vasavadatta Cement, My Home Industries, Madras Cement, and Century Cement. Funding for the program is provided by the Asia Pacific Partnership on Clean Development and Climate and the U.S. EPA.

**Figure 1: Physical Interaction of Industrial Activities and Environment**



(North K. "Environmental Business Management: An Introduction" Second Revised Edition)

In general, the key benefits to industry of voluntarily adopting environmental management include:

- (i) Competitive advantage in selling their product in national and international markets. (Shrivastava 1995).
- (ii) Increased recognition and stature in their communities as good corporate citizens
- (iii) Reducing the potential for costly shut-downs or mandatory adoption of expensive mitigation measures (i.e., as required by government regulators in response to exceedences of environmental standards) by proactively addressing environmental concerns.
- (iv) “It pays to be green” and the relation strengthen with the growth of the industry. (Russo & Fouts 1997)
- (v) An innovative method for evaluation of performance of management systems on the basis of measuring environmental performance of the organization at large

In order to effectively meet the challenges posed by climate change issues, Indian businesses need to come out with innovative strategies of product design, production processes, supply chain management and marketing management. Such innovative strategies cannot be devised in any company, until and unless employees across work divisions are aware of the complexities of business vis-à-vis climate change.

### **What Do Employees Need to Know about Environmental Issues?**

There is no doubt that enhanced levels of GHG emissions are due largely to anthropogenic causes and most of this has to do with the increased level of Industrial activities in the developing countries including India. Employees in a company form the most important and valuable resource which used in appropriate and suitable method can solve the problem of environmental challenge. It is not enough to be committed to the environment; a company needs to be respond efficiently to the environmental challenge. Tougher environmental standards may require the installation of and running of complex pollution abatement equipments, processes may have to be run with smaller tolerance and emissions will need to be analyzed and monitored. Changes of product and processes should occur more often. All this requires assistance from the part of the workforce of the firm. The green growth company will, therefore, be characterized by well trained staff at all levels. It should be included in the all the functions and should be made a part of job responsibility of the employees to sensitize them to the environment protection. The employees should feel motivated to give suggestions/ schemes to render product and processes less harmful to the environment.

As a first step towards this, it is important that the employees in a firm identify the need for clean and safe environmental conditions in and outside the organization. They should know the followings.

1. What is environment and how at individual level and company level they are affected by this
2. Greenhouse Effect



3. Global Warming, Climate Change and their relationships with businesses
4. Environmental Legislations
5. Voluntary Standards and Norms
6. Emission trading
7. Innovative mitigating strategies being adopted at the global levels

## **Human Resource Management and Environmental Issues**

Running a business requires continuous assessment of opportunities, threats and trends in the global business scenario. Corporate leaders who ignore any of economic, political and environmental change are bound lead their companies toward failure. On the other hand, keeping track with the trends results in increase in wealth of the firm. But somehow in the process when a business starts earning bulky profits the environmental risks take a back seat due to inertial forces (Coelho and Moy).

The business leaders involved in so called sustainable development are now realizing the importance of environmental protection, which means to meet the need of the present without compromising the welfare of future generation. This concept enforces the fact that the economic growth and environmental protection are inextricably linked and our future life depends on the meeting basic human needs without destroying the environment where all life depends.

For this purpose firms can make use of the available work-force in the organization itself by making use of their skills and innovative ideas. A clear vision of sustainable future mobilizes human energy to make the necessary changes, breaking out of familiar and established patterns. This process requires sustainable efforts in education and training to increase awareness and better utilization of the resources available human resource in the organization for this purpose.

Full commitment of everyone in a firm to environmental protection is fundamental to the successful implementation of Environmental Management Systems of the firms. Unless managers are committed to adopting good operating practices and seeking continued improvement in achieving environmental objectives and targets then the long-term benefits of improved environmental quality in a company may not be attained.

Firms have to realize the necessity of developing the human asset and make it their core-competency in the areas of environment protection and related issues. All aspects of HRM – recruitment and selection, training and development process, and performance appraisal system – should have some focus on environmental issues. In such a scenario, responsibilities of the HR team also more. It is the duty of HR managers to predict the future training and developmental needs on the basis of present market research. They have to decide their future course of action in advance to effectively utilize the coming trends and employ it in the organization function in such a way that prospective benefits can be grasped.

Organizational theory literature points out that in the long run, behaviors of organizational actors become embedded (Kelman, 2005), and they construct around themselves an environment that constrains their ability to change further in later years (DiMaggio & Powell, 1983). This results in their frequently misreading the demands made by the environment, largely because of selective perceptions (Pfeffer & Salancik, 1977). In addition, knowledge

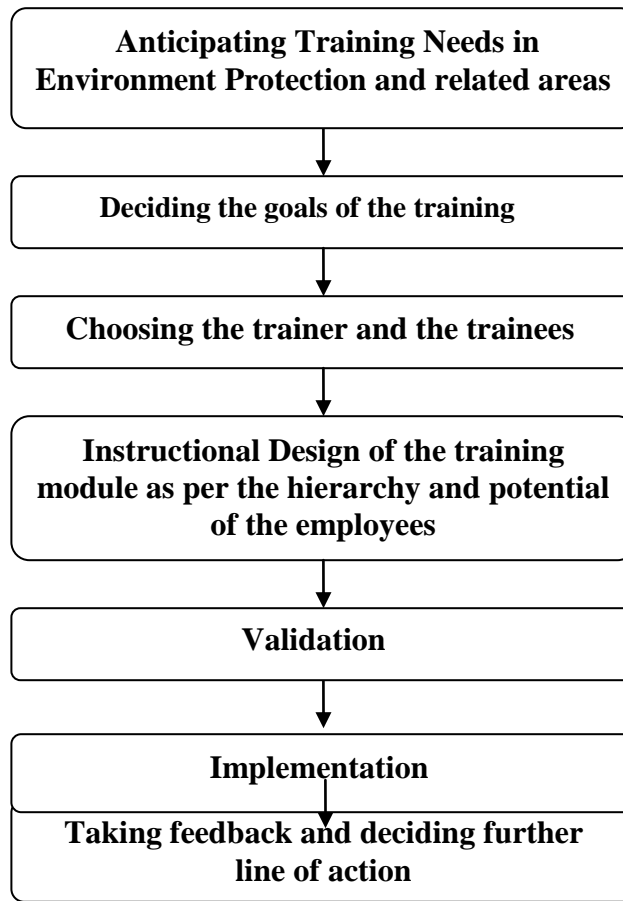
structures created by organizations encourage individuals to focus on what they have been trained to notice and make it hard for individuals to notice signals that change is needed (Kelman, 2005). In-service training is an important strategic tool that helps organizational members to re-enact the environment around them. This implies that the more frequently the members of an organization are imparted training in the area of change, the more receptive they should be to the change process.

So, training is critical to successful implementation of an effective environmental policy in a firm. Comprehensive training of staff in both skills (e.g., good operating practices) and awareness-building is a necessary aspect of an organization. For this everybody in an organization needs to understand the importance of their day-to-day actions in potentially causing environmental impacts and must have the necessary knowledge and skills to avoid or minimize such impacts. Prevention, rather than correction, should be the philosophy of choice with regard to environmental management (Raina 2002).

So, it is important for the officials in the HR department to give weightage to environmental issues in all HRM functions starting from recruitment, retaining, staffing, career development, and performance appraisal.

1. Recruitment: Many firms are now using their 'Green' image while advertising for various positions. In interviews or while evaluating a candidate in assessment centers the manager can include environmental awareness related questions. In the first round of interview the manager on the other side of the table can also state that the firm is committed for environment protection and about the expected behavior from the selected candidate. Importance of safer and cleaner surrounding can be elaborated upon informing the employees about the environmental responsibility and relevant contact person in the organization during the induction classes as well.
2. Retaining: These days of cut throat competition for manpower, image of the organization has become one of the very important factors for retaining good employees. As society becomes more environmental conscious, 'Green' image of a company can contribute towards retaining manpower. Although there are other areas where environmental contribution will help in retaining the employees such as:
  - i. Training: It is undoubtedly a key factor in developing human resource for the environment. There are three aspects to environmental training and development. First of all there should be a need for the knowledge of action taken and the consequences of those actions to the environment. Second, the attitude towards environmental issues which hold a key to appropriate environmental behavior. Third is the acquisition of relevant skills of general environmental management and special skills.

The steps for designing an effective training program for the employees in an organization on environmental related issues include:



ii. **Remuneration:** The incentive scheme of the organization should not be only output related if the firm wants healthy results in environmental prevention measures. The enterprise must develop environmental related incentive scheme which considers material and energy savings. The organization can also satisfy its employees by giving good working conditions rather than paying compensations for negative environmental factors resulting in work place accidents. Rewards and appreciations must be given to the employees for suggesting schemes and other ways of participating in maintaining healthy surroundings (Pfennigstorf 1979).

3. **Career development:** Career development is the third classic function of HR manager. Career development must demonstrate that the ecological behavior pays off in a tangible way. Environmental training and activities of a staff member could be a good argument for promotion. HR manger must ensure that all company members must remember the mission statements or the policies concerning environment.

For creating and maintaining certain level of awareness, the enterprise journal may include a periodical environment section in which the contributions of employees and their families should also be encouraged. (North, 1997)

## Conclusions

The global demand for environmentally benign practices is analyzed and its significance for the firm is discussed keeping in view the past and present trends related climate change and other issues. We argue that a company can use its environmentally friendly image as its core competency in the present competitive world, for attracting customers and also in retaining employees in the organization.

While talking to HR heads of various organizations, it was observed that they realized the importance of imparting training in the field of environmental related issues. Companies like Scooter India Ltd., Hindustan Aeronautics Ltd. etc. demonstrated optimistic response for training their employees on environmental protection and related issues. The GM (HR) Scooter India Ltd. says “our operations are required to be compatible to essential conditions to prevent environmental changes due to pollution and maintain ecological balance. So as a corporate citizen our company fulfills its responsibilities towards environmental protection by appropriate training policies.” Similar feedbacks were received from all the firms we interacted with on this issue, including the service sector.

In the past, many organizations have made tremendous efforts to become ‘Green’ and ‘Safe’. However, there still exists further scope for these organizations to develop and successfully implement other environmental management systems in the organization. This can only be done effectively if the HR department in the organization lends its hand on this issue, since this is the only department which has its reach to all the employees and functions of the organization.

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