AN ASSESSMENT OF INDUSTRIAL EMPLOYEES' AWARENESS AND ATTITUDE TOWARDS ENVIRONMENT: A CASE STUDY OF SMALL AND LARGE INDUSTRIES

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Abstract *Environmental awareness training and workshops have become part of the professional skills in industries. However, there is large disparity in the implementation of environmental awareness programmes depending upon the size of the company. It appears that smaller industries have little or no environmental awareness programmes. The employees of the smaller industries are expected to experience a lower level of awareness regarding internal and external environmental pollution challenges and possibly develop a negative attitude towards the environment. It was expected in the present study that employees' awareness and attitude towards general environmental pollution and related issues would differ depending on either large or small industries. The sample in the study comprised 180 industrial employees working in large and small industries. The environmental awareness was measured using the environmental awareness scale (Jha, 1998) and the environmental pollution attitude was measured using the Environmental Pollution Attitude Scale developed by Taj (1981). The data was analyzed using the't' test and the major findings of the study revealed that the employees of the large industries have better general environmental awareness and favourable attitude towards the environment than the employees of the small industries.*

Keywords *Environmental Awareness, Environmental Attitude, Industrial Employees, Large and Small Industries.*

Industrial employee knowledge is a critical and often overlooked aspect of a broad and effective environmental protection strategy. Environmental issues are frequently viewed as purely technological or scientific matters that stand outside the purview of workers. Yet, worker knowledge is critical for any effective environmental solutions. Even when technological solutions are required to use new hardware, software or process approaches, worker commitment and competence are necessary for their effective implementation. This is true for workers, whether involved directly in environmental industries and occupations or in other related jobs.

Several initiatives were taken world-wide to enhance employee awareness about environmental pollution and related issues to tackle the problem effectively. The European Foundation for the Improvement of Living and Working Conditions (EFILWC) has commissioned a programme to look at shop-floor workers and their environmental awareness needs (Cohen-Rosenthal, 2000). The Cornel Work and Environment Initiative (WEI) are committed to finding ways that workers and the workplace can contribute towards possible solutions for environmental problems. It addresses a wide range of industries from primary extraction to production service enterprises. It provides a means for education and action on environmental matters that seeks to build knowledge at the work place that can lead to cleaner and more productive workplace, an improved connection between internal and external environments.

The Australian Council of Trade Unions (ACTU) has developed new approaches towards workers' education for the environment that provides both broad and social awareness, especially among young workers (Cohen-Rosenthal, 2000). The ACTU has organized an Environment Training Company to teach a set of "Eco-skills" modules to establish basic environmental literacy among workers from an array of industries.

ENVIRONMENTAL AWARENESS AND ATTITUDE

Environmental awareness is a fundamental understanding of the natural world, which is essential for developing future sustainable development. Alternatively, awareness can be viewed as the knowledge of causalities (Pengracz, 1999). Environmental awareness includes a general awareness and an awareness to recognize the costs and benefits associated with environmental issues. Environmental awareness develops when people notice that unfavourable, threatening changes in the surroundings emerge. The realization that environmental damage requires a lengthy time to recover

stimulates the arising environmental awareness further. Hence, enhancing environmental awareness is essential to harmonize patterns of individual behaviour with the requirements of environmental degradation (Gadenne et al., 2009).

Environmental attitudes can include any attitude related to nature or architecture, but the usual focus is on environmental concern for nature or the amount a person cares about the state of the natural environment. Environmental attitudes are broadly defined as an individual's concern for physical environment as something that is worthy of protection, understanding or enhancement (Gifford, 1996).

Environmental attitude is considered as one of the most important influences in determining environmentally responsible behaviour. Often it is assumed that knowledge will influence attitude, which in turn will determine behaviour. Environmental attitudes can inform the individuals how much support exists for the environment in general (Burgess et al., 1998).

FIRM SIZE AND ENVIRONMENTAL MANAGEMENT SYSTEM

A small and large industry is one of the main issues in environmental management practices. Many studies focus on environmental management practices of large industries and neglect the importance of small industries. Between 90 and 99% of companies in less and more developed countries are small to medium sized (Small Medium Enterprises (SMEs)). SMEs are estimated to contribute approximately 70% of global pollution and their local impact can be significant (Tilley, 1999; Hillary, 2000).

Small industries have very different organizational structures, financial security and motivations compared to medium or large industries. SMEs have a poor understanding of their impact, lack information and spend less time and resources addressing environmental issues than larger industries (NetRegs, 2003). SMEs may have a minimal impact such as noise and odor. However, manufacturing and service industries often use hazardous materials and produce hazardous or special waste. Therefore, their local or aggregate impact can be severe (Mir, 2002; NetRegs, 2003).

Williamson et al., (2006) revealed that the great majority of small-medium industries do not have environmental managers. This role appears to be almost solely carried out by the owner or staff members such as the human resource managers. However, industries that not have environmental managers spend less than 3% of their time on green issues such as alternative fuel and energy, recycling, waste management, minimizing water, air and land pollution etc.

Nevertheless, small industries also complain about the cost burden of environmental awareness programmes (Dean et al., 2000; Rigby & Lawlor, 2001; Patton & Worthington, 2003). The owner/managers of the small industries view the environment as a cost burden and a threat to their competitiveness, rather than an opportunity to become more innovative or eco-efficient. Research has shown that many small industrial businesses consider the environment to be a 'peripheral' rather than core business issue and those they do not perceive that they have a significant impact on the environment (Peters & Turner, 2004; Redmond & Walker, 2008).

Researchers have given support for the use of education as a key strategy to engage small industrial business in environmental management practices (Condon, 2004; Hilton, 2001; Katos & Nathan, 2004; Tilley, 1999). It is also known that small industrial businesses owner/managers are usually wary of formal education and training (Billett, 2001; Matlay, 2000), who are less likely to train staff on environmental issues than large businesses (Bryan, 2006).

REVIEW OF LITERATURE

There is large body of literature related to the awareness and attitude of employees towards environmental issues. In the section below the relevant studies related to the present research is cited.

The importance of environmental education and awareness training in industries has been well established in the literature (Wehrmeyer, 1996; Hart, 1996; Beard, 1996; Conklin et al., 1991). Bernstein (1992) writes that "change/managing is impossible without understanding". In the industrial organization, participation that leads to better environmental performance relies on the utilization of knowledge (North & Daig, 1996). Cohen-Rosenthal (2000) and Hale (1995) argue that an effective strategy for improved environmental performance requires all employees in industries need to be aware of the natural systems. This understanding allows the employees to participate in environmental management issues.

General environmental awareness is found to be positively associated with environmental systems practices and conservation practices. This is consistent with the findings from previous studies which have shown a positive relationship between environmental awareness and environmental practices for SME owner/ managers (Peters & Turner, 2002; Williamson & Lynch-Wood, 2001). In addition, some studies have found that a lack of awareness of SMEs impact on the environment and may hinder the implementation of an environmental management system (Gerrans & Hutchinson, 2000; Hillary, 1999). The findings confirm that legislation influences general environmental

awareness which in turn results in not only producing formal systems within industries to prove compliance, but also in changing conservation behaviour within industries.

One key aspect or necessary condition for successful environmental effort is the presence of an effective environmental education and awareness training initiative which provides employees at all levels of industries with the tools necessary to conduct themselves in an environmentally aware manner and make environmentally responsible decisions in the industries (Hale, 1995; Wehrmeyer, 1996; Cohen-Rosenthal, 2000). A study conducted by Perron et al., (2005) suggested that the facilitated training for environmental awareness did not sufficiently increase employee environmental awareness of the company's environmental impact despite a considerable time and financial investment in a one-time environmental awareness training programme.

The only moderating variable that was significantly associated with the lack of environmental awareness was owner/managers' lack of financial resources. This accord with previous research shows that lack of financial resources is a major barrier to the implementation of environmental management systems in SMEs (Biondi et al., 2000; Gerrans & Hutchinson, 2000; Hillary, 1999; Lepourte & Heene, 2006; Netherwood, 1998; Tilley, 1999), and this may therefore contribute to owner/managers not being aware of environmental requirements and environmental issues.

The people working in small industry had no knowledge or awareness of environmental issues and had poor eco-literacy skills. Owner-managers in a small industry will not act on environmental issues unless and until they know action is required, whether it is voluntary or mandatory (Tilley, 1999).

Attitude towards the general and internal environment of an industry of internal stakeholders play a significant role in the environmental management system. However, in many of the industries the education and training on environmental awareness is ineffective and it has resulted in a lesser concern for the environment. Through education and training, employees become more aware of the need for quality and environmental control and change to proactive attitude (Wong, 1998). The study conducted by Chun (2007) showed that employees' values were positively correlated with attitudes towards the environment. The ownership type of industry had a significant influence on employees' values and their attitudes toward the environment. The results highlight the role of the government and policy makers in shaping employees attitudes towards the environment and values.

The literature review shows that studies are related to managers, supervisors and organizational management. Very limited studies have been conducted on the environmental awareness and attitude of employees working in non-executive positions. The present study attempts to study the general environmental awareness and attitude of industrial employees in relation to their industrial size.

METHOD

Objectives

The present study was conducted with the following objectives:

To assess the level of environmental awareness among employees of large and small industries.

To study the extent of environmental attitude by employees of large and small industries.

Hypotheses

Employees of large industries have a higher level of environmental awareness than employees of small industries.

Employees of large industries have a highly favourable environmental attitude than employees of small industries.

Study Sample

The total sample size of the study comprised of 160 industrial employees working in the non-executive positions in the large and the small industries. The sample of the study consisted of two main groups viz:

Employees of Large Industries: A total of 80 employees were selected from the large industries. They were selected from industries namely TATA Marco Polo, Carver, SLN Distilleries and Akshayapatra. The TATA Marco Polo industry manufactures accessories for motor vehicles. The Carver industry produces cotton seeds processing machines. Both of the afore-mentioned industries fall under the engineering category. The SLN Distilleries industry produces alcohol, while the Akshayapatra Industry, governed by the ISKCON trust committee, produces food products mainly for school children.

Employees of Small Industries: This sample group consisted of 80 employees. For this sub group the employees were selected from Walchand Nagar, Skytech and Gifex industries. The Walchand Nagar industry manufactures air and water pressure meters, while Skytech and Gifex industries produce moulds and other engineering equipment.

Table I: The sample size and its characteristics

Total Sample Size of Employees (n=160)	
Employees of Large Industries (n=80)	Employees of Small Industries (n=80)

Sample Selection

Employees of the above mentioned industries were selected from Hubli and Dharwad industrial area of Karnataka State. In order to classify the industries into large-scale and small-scale categories prior information pertaining to the amount of investment and categorization list was sought from the regional office of Karnataka State Pollution Control Board (KSPCB) located in Dharwad. The industries having less than one crore rupees investment were categorized as small-scale industries and the industries having more than rupees five crores investment were categorized as large-scale industries. Whereas the industries having between rupees one to five crores investment were categorized as medium-size. However, for the study, only employees of small and large industries were selected. The sample was restricted only to the male employees due to paucity of female employees. Their age ranged between 22 to 50 years.

Tools and Technique

The following questionnaires were used in the study to measure the general environmental awareness and attitude of the employees towards the environment.

Personal Data Sheet

A personal data sheet was designed by the researcher for the purpose of collecting information regarding demographic details of the employees such as age, domicile, education and information regarding size of the industry and the nature of production.

Environment Awareness Ability Measure

To measure environmental awareness of the employees environmental awareness scale developed by Jha (1998) was administered. The scale consists of 51 items including 43 positive items and 8 negative items. This scale measures the extent and degree of awareness of people regarding environmental pollution and its protection. The present scale is based on the dimensions of the environment which cause pollution, conservation of soil, forest, air, energy, conservation of human health, wild-life and animal husbandry etc. However, the scale does not provide norms for these areas as separate categories.

The scale has two response options, that is, agree or disagree. Each agreed response was scored one and each disagree response was scored a zero mark for positive items. Negative responses were scored inversely. Thus, on the total scale the scores ranged between 0 to 51.

Three indices of reliability were determined by the test author. Split-half reliability was found to be 0.61, which was calculated by K/R method and was found to be 0.84 and thirdly it was determined by test-retest method, the values were found to be 0.74 and 0.71 respectively. Thus the environmental awareness ability measure bears an adequate degree of reliability.

The determination of the validity of the environmental awareness ability measure co-efficient of co-relation between the scores of the present scale and the environmental awareness scale of Tarniji was computed by the test author. The co-efficient of co-relation was found to be 0.83, which is adequate. . The scale also possesses face and content validity since each item was judged by experts.

Taj Environmental Attitude Scale

To assess attitude of the employees towards environmental pollution, the scale constructed by Taj (1981) was administered. The scale measures attitude towards six areas of environment such as population explosion, health and hygiene, pollutants, wild life, forests and environmental concerns.

This scale consisted of 61 statements. There were 31 favourable and 30 unfavourable statements. Under each statement four responses were provided: strongly agree, agree, disagree and strongly disagree. The score on each alternative response was assigned a weightage ranging from 4 (strongly agree) to 1 (strongly disagree). In case of unfavourable statements the scoring was reversed, that is, from 1 (strongly agree) to 4 (strongly disagree). The attitude score of an individual was the sum total of item scored on all the six areas. The range of score was from 61 to 244 on total scale, with the higher score indicating the more favourable attitude towards the environment and vice versa.

Reliability of the scale was estimated by the test author by two methods - split half and test-retest method. The split half reliability with odd-even method was 0.82 and with first half and second half method 0.81. The test-retest reliability was found to be 0.77, which was significant.

The scale also possesses high content validity because the items were selected on the unanimous agreements (80 to 100%) of experts in the field regarding its content adequacy. The TEAS also appeared to have the item validity, the methods of item selection after computing the 't' value for each item based on 27% upper and 27% lower scores support this supposition. Hence, the scale is said to be a valid tool for assessing the environmental attitude.

Statistical Techniques

The raw scores were converted into standard scores and, Mean and SD were calculated for each of the groups.

't' test was carried out for the comparative analyses of the groups.

Results and Discussion

Table II: Means, standard deviations and 't' values of the employees of the large industries and the small industries on environmental awareness.

Variable	Employee Sample Groups (Total n = 160)		't' value
	Large Industries (n = 80)	Small Industries (n = 80)	
Environmental Mean	52.56	47.41	3.35**
Awareness S D	11.05	08.15	

** = Significant at 0.01 level

Table II compared the total environmental awareness of the employees of the large and the small industries. The employees of the large industries had a higher mean score (52.56) than the employees of the small industries (47.41). The 't' value obtained was 3.35, which was significant at 0.01 level. This implied that the employees of the large industries have higher level of awareness and knowledge pertaining to general environmental issues than the employees of the small industries. Their awareness pertaining to causes of pollution by industries and vehicles, need for conserving soil, forest, air, energy, wild life and animal husbandry was significantly higher than the employees of the small industries. These findings revealed that the employees in the large industries were more knowledgeable of environmental pollution and related issues. This awareness is closely related to their timely workshops, training and education related to general and their business related environmental awareness programmes.

Earlier studies consistently revealed that the small industries were less motivated towards environmental management strategies due to reasons such as environmental education being a cost burden and time consuming (Webster et al., 2005). The research indicated that the level of strategic awareness and management within small industries was limited (Gibb & Scott, 1985). It has been documented that the small industries often differ from the large industries in their management style, organizational structure and in the characteristics of the owner-managers (Dandridge, 1979). Small industries in comparison to large industries are often resource-poor, thus presenting problems accessing finance, labour and time to manage environmental issues (Welsh &White, 1981). Hence, a person with environmental awareness

Table III: Means, standard deviations and 't' values of the employees of the large industries and the small industries on environmental attitude.

Sl. No	Areas of Environmental Attitude		Employee Sample Groups (Total n =160)		't' values
			Large Industries (n = 80)	Small Industries (n = 80)	
1	H&H	Mean S D	53.19 08.50	46.81 10.41	4.22**
2	W L	Mean S D	54.59 09.12	45.37 08.71	6.53**
3	F O	Mean S D	53.05 08.36	46.94 10.64	4.04**
4	P O	Mean S D	55.08 08.89	44.90 08.36	7.45**
5	P E	Mean S D	51.83 02.67	48.17 13.70	2.34**
6	E C	Mean S D	54.59 09.15	45.37 08.64	6.54**
Total		Mean S D	56.37 08.27	43.62 07.11	10.44**

** = Significant at 0.01 level

H&H = Health and Hygiene W L = Wild Life

F O = Forests P O = Pollutants

P E = Population Explosion E C = Environmental Concern

would be knowledgeable about the environment and would display consistent and sensitive behaviour in keeping the environment clean. When the environmental awareness of an individual is combined with external stimulating physical and practical conditions, the result can be a desire and will to make environmentally friendly choices.

Table III provided comparative analyses of the employees of the large and the small industries on environmental attitude. The mean scores obtained for the employees of the large industries were higher than the employees of the small industries. The 't' values on the total and areas of environmental attitude were found to be significant at 0.01 level. This implied that the employees of the large industries have highly favourable attitude towards environmental issues such as health and hygiene, wild life, forests, pollutants, population explosion and environmental concern than the employees of the small industries. The results of the present research show that the majority of the small industrial employees do not have favourable attitude towards environmental issues. The above findings clearly imply that the organization structure and educational programmes at the large industries help the employees to develop higher awareness and in turn favourable attitude towards the environment. Hence, it supports the assumption that size of the industry and awareness programmes in the industry contribute for formation of favourable attitude towards general environment and related issues.

Good worker-based environmental education provides both conceptual and technical information to employees that assist them in increasing environmental awareness and in learning concrete ways to change work practices that are damaging to the environment. Workplace environmental education is best done when it is connected to community and global environmental challenges so that employees have a clear idea of how the ways they work are connected to the overall environment and how they can contribute to a cleaner workplace and global ecosystem.

The study of managerial attitudes towards environmental issues has led scholars to understand the influence of managerial attitudes and subjective norms on the strategic initiatives of an industry. The attitudes of individual top managers towards certain issues will determine their intent to promulgate relevant corporate policy (Sparks & Shepherd, 1992).

Education and training provide industrial members with the requisite environmental skills and knowledge and among the critical components of incorporating ecology into the organizational culture (Welford, 1998). Training programmes involving general environmental education can provide employees with the basic tools and information required for the implementation of new programmes of actions. Here, there will be a need for the human resource manager to identify the precise environmental training needs in the industry. Successful implementation of the training is crucial and it needs to be insured that each and every employee is empowered to help protect the environment (Welford, 1998). Beyond their basic work responsibilities, all employees need to be provided with the information they need in order to recognize environmental issues and situations, make the right decisions and take appropriate action (Duck, 1993; Bansal, 1997). Worley (1994) argues that "true environmental success comes only when environmental responsibility is embraced as part of every employee's job". Therefore an environmental training programme should address the environmental impacts and issues of the company as well as convey to the employees their environmental responsibilities.

Hence, it is fair to say that employees' environmental education is underdeveloped field, especially in comparison with managerial and technical training and school-based environmental education. Even the industrial size and its related factors may also contribute for better or worse level of awareness and attitude among the workers. Therefore, the small industries should conduct environmental awareness programmes related to general issues as well as issues related to their business. By that awareness and attitude of the employees of small industries will be enhanced to contribute in the environmental management practices. Hence, the environmental education programmes is the principal means of enhancing such awareness among the focused groups such as internal industrial stakeholders. Such education may be formal or informal or a combination of both.

CONCLUSIONS

The following conclusions were drawn based on the research findings.

The employees of the large industries have better environmental awareness than the employees of the small industries.

The employees of the large industries have highly favourable attitude towards environment than the employees of the small industries.

The environmental awareness programmes such as workshops, trainings and education can increase the environmental awareness and in turn the attitude of the industrial employees.

The small size industries need to focus on enhancing awareness and attitude of their employees to protect the environment.

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