



Survey of Environmental Awareness Among the Industries of Jammu, India

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ABSTRACT

In the present study, a survey was carried out in 2003 on 25 industries of Jammu city regarding their green marketing practices and the awareness among each worker started from primary level to executive level. In this survey a questionnaire was framed and questions were asked to the workers on the basis of which the predictions were made about the implementation of green marketing and their effect at every sphere of life. The industries are categorised on the basis of their product and the results are calculated using standard deviation (SD) and significant value (t). The study reveals that the worker community of industry in Jammu is not much aware of the green marketing practices.

INTRODUCTION

The world's human population is increasing at a pace which is unmatched in the entire period of human existence. Food production has to be increased to feed the billions of people, which would be resulted in manifold increase in industrial output and energy use. This results in the depletion of natural resources particularly non renewable ones and pollution of the environment with the addition of numerous pollutants. Development of more technologies, better medical facilities and short term economic growth may result in much higher number of human beings that may be difficult to feed and support by the resources of this planet.

The enterprise aims at and excels in maximizing financial gains in the short term and uses the marketing skills in expanding consumption base, reducing accounting costs and generating high accounting profits. The effort ignores the intangible hidden costs associated with environmental degradation and adopts narrower and short sighted approach to gain more profit. Business affect the environment in at least two ways by consuming energy and other resources, and creating wastes which must be disposed off. As society becomes more concerned with the natural environment, businesses have begun to modify their behaviour in an attempt to address society's new concern. Some businesses have been quick to accept concepts like environmental management systems and waste minimization and have integrated environmental issues into all organizational activities.

Terms like 'green marketing' and 'environmental marketing' appear frequently in the popular press. Many governments around the world have become so concerned about green marketing activities that they have attempted to regulate them (Polonski 1994a).

The green marketing is a broader concept and not solely refers to the promotion or advertising of product with environmental characteristics. It is a concept that can be applied to consumer goods, industrial goods and even services. Thus, green marketing incorporates a broad range of activities including product modification, changes to the production process, packaging changes, as well as modifying advertising.

Green marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occur with minimal determinant impact on the natural environment.

The firms/companies have increased the use of green marketing because of several possible reasons. As the consumers, both individual and industrial, are becoming more concerned and aware about the natural environment, the firms assume that the marketing of goods with environmental characteristics will have a competitive advantage over companies marketing non-environmentally responsible alternatives. Secondly, there is a pressure from the government through various regulations related to environmental marketing for the protection of consumers and society from the hazardous wastes and goods produced by the firms. Thirdly, competitors' environmental activities pressure firms to change their environmental marketing activities, and lastly the cost factor associated with waste disposal. A reduction in material usage forces the firms to modify their behaviour to reduce the harmful waste which results in substantial cost saving. This may also lead to the development of more effective production processes that not only reduces waste, but also reduces the need for some raw materials.

Though, the industries/firms have started to realize their importance in saving the environment world over and to some extent have also implemented various action plans for the safety and betterment of the environment through the production of eco-friendly processes and products, yet there are several industries/firms which do not understand the concept of green marketing. Even if some firms have introduced this concept in their programme still the concept is only up to higher level of the organization and has not trekked down to the workers and products.

The present survey has been undertaken in light of the above background to ascertain the level of awareness about the environment amongst some of the industrial units existing in Jammu region of the state of Jammu & Kashmir in the period of April to June of 2003.

MATERIALS AND METHODS

Selection of industries: For the present survey for knowing the level of awareness, different industries located in different areas of Jammu have been selected. The data have been collected through a questionnaire comprising of 44 questions from 25 industries of different categories.

The industry/factory has been visited personally to record the data by interviewing its owner/in-charge. Overall 7 parameters have been created based on various questions mentioned in the questionnaire. These are:

1. Environmental concern based on the questions 1 to 7.
2. ISO certification based on questions 9 and 10.
3. Environmental benchmarking based on questions 11 to 16.
4. Concerns for surroundings based on questions 17 and 18.
5. Social concern based on questions 19 to 23.
6. Government's response for implementation of environmental norms based on questions 24 to 32.
7. Awareness about implementation of ISO based on questions 33 to 44.

On the basis of the product type they manufactured, the industries have been placed in the following ten categories:

<i>Serial Number</i>	<i>Category Number</i>	<i>Industry Type</i>
1	Category - 1	Juice Industries
2	Category - 2	Oxygen Industries
3	Category - 3	Distilleries and Breweries Industries
4	Category - 4	Plastic Industries
5	Category - 5	Eatable Industries
6	Category - 6	Wires and Cables Industries
7	Category - 7	Pencil Industries
8	Category - 8	Gun Industries
9	Category - 9	Soap and Detergent Industries
10	Category - 10	Surgical and Drugs Industries

Response to each question has been recorded by interviewing the concerned person of the industry. These were then compiled to calculate the percentage for all the positive (Yes) and negative (No) responses in parameters of the industries of different categories.

Average for the positive responses of all the parameters in each category has also been calculated and *t*-test of significance was applied to know if there is any significant variation amongst the industries of different category.

OBSERVATIONS

Awareness Level About Different Parameters Between Various Categories of the Industries

Observations recorded through questionnaire have been compiled and presented in Table 1.

Environmental policy: Perusal of the Table 1 reveals that industries included in category 1 and category 10 have shown the maximum concepts for the adoption of environmental policy with a value 100% followed by industries of category 7 (57.14%) and category 3 (50%). The percentage of this parameter for the other industries included various categories has been observed to be 48.92% (Industries of category 5), 42.85% (Industries of category 2 and 9), 19.09% (Industries of category 6), and 14.28% (Industries of category 4 and 8).

Maximum number of the industries of the category 3 (28.57%) has not given any choice and remained uncertain for this parameter, followed by the industries of category 4 (23.80%) and category 7 (21.42%). For the industries of other categories percentages of uncertainty ranges between 0 and 14.28.

ISO certification: Only few industries have ISO certification. Industries included in category 2, 8, 9 and 10 have maximum percentage of ISO certification, i.e., 100% followed by industries of category 5 (85.70%), category 7 (75%) category 6 (66.66%) and categories 1 and 3 each with a value of 50%. Industries included in the category 4 have the lowest value of 33.30% for the ISO certification.

Awareness about the implementation of ISO: The value for the awareness about the implementation of ISO in different categories of the industries ranges from 27.20% to 73.60%. Maximum value has been recorded for industries belonging to category 5 (73.60%) followed by category 1 (66.66%), category 7 (66.60%), category 10 (58.30%) and category 9 (50%). For other industries value of the awareness about ISO implementation has been observed to be 45.80% (category 3), 41.60% (category 8), 38.80% (category 6), 33.30% (category 2), and 27.70 % (category 4).

Environmental benchmarking: Compilation of the questions related to environmental benchmarking revealed that the percentage value ranges from a minimum of 0% (category 6) to 50% (category 9). For other industries this value for the parameter has been observed to be 41.60% (category 1), 25% %

(category 2), 16.60% (category 3, 7 and 8), 4.70% and (category 5 and 4). Only a few respondents of the industries included in category 5 remained uncertain about the parameter with a value of 11.91%.

Concern for surroundings: Compilation of the questions related to concern for surrounding revealed that percentage for the parameter ranges from 0% to 50%. Maximum (50%) awareness about the concern for surrounding has been recorded in the industries in the category 2 and 3 followed by the industries in category 4 and 5 with a value of 33.30% and 21.42% respectively. The industries in category 1, 6, 7, 8, 9, and 10 have not given any response for this parameter and, thus, have 0% value.

Social concern: The value of this parameter ranges from 0% to 70%. Maximum awareness about the social concern has been recorded in the industries under the category 2 (70%) followed by the industries under category 7 (50%), category 9 (40%) and category 10 (40%). Other industries have the value of 38.80% (category 4), 20% (category 1 and 3), 8.5% (category 5) and 0% (category 6 and 8).

Government implementation: Compilation of the questions related to seriousness of Government agencies for implementation of environmental norms revealed that the value of this parameter ranged from 44.40% to 77.77%. Maximum value (77.77%) for this parameter has been recorded in the industries of the category 9 and 10 followed by industries in category 3 (72.20%), category 6 (70.30%), category 1 (66.60%), category 4 (62.90%), category 7 (61.11 %), category 2 (50%) and category 5 and 8 (44.40%). However, few industries of category 1, 2, 4, 5, 6, 7, and 8 have not responded to this parameter and their percentage ranges from 3.1% to 16.6%.

Awareness Level About Different Parameters Within the Category of the Industries

Category 1: All the industries included in category 1 have responded positively for the existence of the environment policy in the industry. 50% of these industries have the ISO certification whereas 66.66% of these have the awareness about the implementation of ISO. But none of them responded for the concern about their surroundings and only few (20%) responded for social concern. Only 41.6% of the industries of this category have the awareness about the environmental benchmarking. About the Government seriousness for the implementation of environment related parameter within industries, 66.6% responded positively.

Category 2: In the industries included under this category, 42.85% of the industries responded positively for the existence of environment policy in their industry. However, all the industries of this category have ISO certification, but only 33.33% have the awareness about the implementation of ISO. Only 25% industries have knowledge about the environmental benchmarking. 50% of the industries of this category have shown concern for surrounding, whereas 70% of the industries have responded for their social concern. Also, 1/2 of the industries of this category think that Govt. is serious about the implementation of environmental norms.

Category 3: Half of the industries included under this category responded positively for the existence of environmental policy in their industry and also 1/2 of the industries have awareness about ISO certification. But only 45.80% have the awareness about the implementation of ISO. Only 16.60% of industries have the knowledge of environmental benchmarking. 50% of the industries of this category have shown concern for surrounding but only 20% have shown their interest for social concern. Also 72.20% of industries think that Government is serious about the implementation of environmental norms.

Category 4: Only 14.28% of the industries included under this category responded positively for the existence of environmental policy in their industry. However, only 33.30% of industries of this cat-

category have awareness about ISO certification, but only 27.70% of industries have awareness about the implementation of ISO. Only 4.10% of industries have knowledge of environmental benchmarking. 33.30% of the industries have shown concern for surroundings and 38.80% of industries show social concern. Also 62.90% of the industries think that Govt. is serious about the implementation of environmental norms.

Category 5: Of the industries included under the category 5, 48.97% responded positively for the existence of environmental policy in their industry. However, 85.70% of industries of this category have awareness for ISO certification, but only 73.60% have the awareness about its implementation. Only 4.70% of the industries have knowledge about the environmental benchmarking. 21.42% of industries of this category have shown concern for surrounding and only 8.50% of industries show social concern. Also 44.40% of industries of this category think that Govt. is serious about the implementation of environmental norms.

Category 6: Of the industries under this category, 19.09% responded positively for the existence of environmental policy in their industry. However, 66.66% of the industries of this category have awareness for ISO certification, but only 38.80% of the industries have the awareness about the implementation of ISO. For environmental benchmarking, concern for surrounding and social concern, 1/2 of the industries responded positively. Also 61.11% of industries think that Govt. is serious about the implementation of environmental norms.

Category 7: Under the category 7, 57.14% of the industries responded positively for the existence of environmental policy in their industry. However, 75% have awareness for ISO certification, but only

Table 1: Response percentage on environmental awareness of different categories of the industries.

Parameters	Response	Categories of the Industries									
		1	2	3	4	5	6	7	8	9	10
Environmental policy	Yes	100%	42.85%	50.00%	14.28%	48.97%	19.09%	57.14%	14.28%	42.85%	100%
	No	0.00%	42.85%	21.42%	61.90%	38.77%	71.42%	21.42%	71.42%	57.14%	0.00%
	Uncertain	0.00%	14.28%	28.57%	23.80%	12.24%	09.52%	21.42%	14.28%	0.00%	0.00%
ISO certification	Yes	50.00%	100%	50.00%	33.30%	85.70%	66.66%	75.00%	100%	100%	100%
	No	50.00%	0.00%	50.00%	66.60%	14.20%	33.33%	25.00%	0.00%	0.00%	0.00%
	Uncertain	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Awareness about implementation of ISO	Yes	66.66%	33.33%	45.80%	27.70%	73.60%	38.80%	66.60%	41.60%	50.00%	58.30%
	No	33.33%	66.66%	54.10%	72.20%	40.27%	58.30%	33.30%	58.30%	50.00%	41.60%
	Uncertain	0.00%	0.00%	0.00%	0.00%	0.00%	02.70%	0.00%	0.00%	0.00%	0.00%
Environmental benchmarking	Yes	41.60%	25.00%	16.00%	04.10%	04.70%	0.00%	16.60%	16.60%	50.00%	25.00%
	No	58.30%	75.00%	83.30%	95.80%	83.30%	100%	83.30%	83.30%	50.00%	75.00%
	Uncertain	0.00%	0.00%	0.00%	0.00%	11.90%	0.00%	0.00%	02.70%	0.00%	0.00%
Concern for surroundings	Yes	0.00%	50.00%	50.00%	33.30%	21.42%	0.00%	0.00%	0.00%	0.00%	0.00%
	No	100%	50.00%	50.00%	66.60%	78.52%	100%	100%	100%	100%	100%
	Uncertain	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Social concern	Yes	20.00%	30.00%	20.00%	38.80%	08.50%	0.00%	50.00%	0.00%	40.00%	40.00%
	No	80.00%	70.00%	80.00%	61.11%	91.40%	100%	50.00%	100%	60.00%	60.00%
	Uncertain	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Government implementation	Yes	66.60	50.00%	72.20%	62.90%	44.40%	70.30%	61.11%	44.40%	77.77%	77.77%
	No	27.70	50.00%	22.20%	33.30%	52.30%	25.90%	22.22%	44.40%	22.22%	22.22%
	Uncertain	05.50	0.00%	05.50%	03.70%	03.10%	03.70%	16.66%	11.10%	0.00%	0.00%

Table 2: Statistical analysis of various parameters between the categories.

Category	Average value of all the parameters (\bar{X})	Standard Deviation (SD)	Value of t
1	49.26	33.01	0.48*
2	53.02	25.16	1.03*
3	43.51	19.15	0.04*
4	30.62	18.81	1.76*
5	41.04	31.54	0.18*
6	27.83	31.19	1.30*
7	46.63	27.68	0.32*
8	30.98	36.14	0.89*
9	51.51	31.40	0.69*
10	57.29	38.08	0.97*

* Not significant at 0.05 level of significance.

66.60% have awareness about the implementation of ISO. Only 16.60% of the industries have knowledge about the environmental benchmarking. All the industries have no response for concern for surrounding and 50% responded positively for the social concern. 61.11 % of industries think that Govt. is serious about the implementation of environmental norms.

Category 8: Under the category 8, 14.28% industries responded positively for the existence of environmental policy in their industry. However, all the industries of this category have awareness for ISO certification, but only 41.60% have the awareness about the implementation of ISO. Only 16.60% of the industries have knowledge about the environmental benchmarking. All the industries responded nil for their concern for surrounding and also for social concern. 44.40% of industries think that Govt. is serious about the implementation of environmental norms.

Category 9: Of the industries included under this category, 42.85% responded positively for the existence of environmental policy in their industry. However, all the industries of this category have awareness for ISO certification, but only 50% have the awareness about the implementation of ISO. Only 50% have knowledge about the environmental benchmarking. For concern about the surrounding, all industries in this category have not given any response, whereas 40.00% industries responded for their social concern. Also 77.77% of industries think that Govt. is serious about the implementation of environmental norms.

Category 10: All the industries included under the category 10 responded positively for the existence of environmental policy and ISO certification, but only 58.30% have awareness about the implementation of ISO. Only 25% have knowledge about the environmental benchmarking. All the industries of this category have not responded for their concern for surrounding, but 40.00% industries responded for their social concern. Also 77.77% of industries think that Govt. is serious about the implementation of environmental norms.

RESULTS AND DISCUSSION

The whole of the world is responding to the threat of pollution that is deteriorating the environment. Environment awareness, created by the different agencies about the problem of pollution of air, water and soil has resulted in the expansion of this issue from the domain of environmentalists to the consumers, financiers, managers, corporate entities or so to say, to the common people. Around the

world, almost 2 in 3 people (64%) believe protecting the environment as the most important concern even at the expense of economic growth (Kumar 2003).

Some of the companies are differentiating from other companies by building social and ethical considerations in their marketing practices, which resulted in adding the new concepts to conventional marketing and is called cause related marketing, social marketing, environmental marketing or green marketing.

Though, the people, in general, are becoming more conscious about the environment, the industries has not switched to environmental friendly technology at the pace, at which it is required to be shifted. Overall, level of awareness about the environment has also been observed to be low in the industrial sector of Jammu, which has been recorded just 43%. Even though some of the industries boost for having the environmental policy, they show little concern for its implementation. The statistical test (Table 2) reveals that not even a single industry, included in various categories, has significant deviation from the overall scenario prevailing in Jammu.

Most of the industries of the area have no knowledge about the formation of any environmental policy and benefits of implementation of such policy for the industry and public. Almost all were having the knowledge about the ISO certification and about its implementation.

Majority of the industries have not gone for environmental benchmarking, a concept which only few of the industrialists of this region have understood. Very few have shown concern about the surrounding. Majority of these have not tried to know the effect of their units on the surrounding areas and public. Those, who were aware of this, have not taken any measure to control and correct the cause for this.

Though, majority of the industrial units reveal that Govt. agencies keenly monitor the implementation of environmental related norms, but in reality no effect of such interest was visible in the majority of the units.

The firms/industries in the world have shifted to the concept of green marketing for the betterment of the environment mainly because of the following possible reasons.

1. Organizations perceive environmental marketing to be an opportunity that can be used to achieve its objectives (Keller 1987, Sheater 1990).
2. Organizations believe that they have a moral obligation to be more socially responsible (Davis 1992, Freeman & Liedtka 1991, Keller 1987, McIntosh 1990, Shearer 1990).
3. Governmental bodies are forcing firms to become more and more responsible (NAAG 1990).
4. Competitor's environmental activities pressure firms to change their environmental marketing activities (NAAG 1990).
5. Cost factors associated with waste disposal or reductions in material usage forces firms to modify their behaviour (Azzone & Manzini 1994).

The industries of Jammu, in general, are lagging behind to compete with their counterparts of the other regions. This may be because of

- Lack of awareness among the consumers.
- Lack of adequate and strict laws.
- Lack of strict enforcement of the existing laws.
- Lack of knowledge about the existence of environment friendly technology or nonavailability of the technology.
- Lack of awareness among various representative bodies of the Jammu region.

- Lack of professionalism in the industries of Jammu.

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