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AWARENESS OF THE MANAGERS OF THE INDUSTRIES REGARDING ENVIRONMENTAL RESPONSIBILITIES: A STUDY

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ABSTRACT

The industries are the key elements of any area responsible for the cause and the changes faced in the environment and the cycle of atmosphere. Environmental degradation has assumed alarming dimensions today. This has made environmental management a specialized field which is beyond the scope of government. Environment is a global issue unrelated to national boundaries. It requires a set up that is above the national concerns and the universal nature. Industries have to adopt clean technologies and bring about implementation in management practices. It is the duty of the industries to cover the environmental implications of the industrial operations. Government and industries should take into consideration environmental responsibilities and follow the laws, rules and regulations for the betterment of environment. Effective and essential environmental management strategies can only be achieved if humans will cultivate practices that will sustain the environment from that which deplete and degrade it. The benefits of environmental responsibility include a decrease in the cost of operations due to improved production yields, decrease in costs associated with employees, minimization of material and energy use, decrease in excess packaging and waste that needs safe disposal. An environmentally responsible company has less regulatory risks and need not to be concerned about non-compliance resulting in production, fines, negative publicity, a subsequent costly public relations campaign. Industries are the key elements that influence other systems. Taking all this into consideration a study was conducted to study the practices of the respondents regarding responsibilities for Community and also to find out their awareness regarding General Environmental Conditions and Laws, Rules & Regulations laid by Government for Chemical and Plastic Industries. The findings of the study which is undertaken will be helpful and beneficial to all those individuals who may or may not be aware about the practices which should be carried out for environmental responsibilities and for community and general environmental conditions and laws, rules & regulations laid by Government. This may prove as a “lighthouse” guiding them through unknown waters and the hidden dangers. Descriptive research design was planned for conducting the present study. The study had two sets of variables, independent and dependent variables. The sample of the study consisted of 120 industries, 60 each from Chemical and Plastic industries were selected from Makarpura G.I.D.C, Nandesary, Waghodia G.I.D.C., Pratapnagar, Ranoli, Padra, Chhani ect. areas of Vadodra City. The questionnaire was used as an instrument to gather the information from the respondents. The data were analyzed employing descriptive as well as relational statistics. Descriptive statistics of percentage, frequency and mean were applied. Analysis of Variance (ANOVA), ‘t’ - test, Scheffe’s test and coefficient of correlation were computed to test the relationship between selected variables.

Key words: *environment and social responsibility practices, awareness, environmental responsibilities, industries.*

INTRODUCTION

Environmental degradation has assumed alarming dimensions today. This has made environmental management a specialized field which is beyond the scope of government. Environment is a global issue unrelated to national boundaries. It requires a set up that is above the national concerns and the universal nature. The reasons for the situation of degradation of environment and its conditions are growing world population, depletion of natural resources and pollution which have led to ecological crisis those endangering natural systems of which humans are part. This is directly the result of the pollutants spewed by the human being into environment. Whichever way environmental degradation is categorized, it is glaring that the most environmental damage is the resultant effect of environmental problems. Though the earliest procedure of pollution generated by life forms would have been a natural function of existence, but now- a-days careless handling of pollution and contamination of our resources such as rivers, lakes, streams and underground resources have impaired the quality of environment. Today, people have stopped to consider that they are the polluter, when they do those activities which interfere with the natural activities and, the way they pollute the environment. Thus, there is enough evidence of increasing deterioration of the environment in some forms on a world wide scale. This condition, although primarily caused by relatively small number of nations, affects all the humanity [1]. Environment has its own limit as well as capacities to disperse,

degrade, absorb or otherwise dispose off unwanted waste in the natural sinks of the atmosphere. As the population expanded, urbanization and industrialization increased, resulting in large amount of waste, of all kinds, ever increasing beyond the nature’s capacity, presents a daunting and serious problem. Major problem which occur in environment is of pollution. Pollution is a special case of habitual destruction; it is chemical destruction rather than the more obvious physical destruction [2]. Garbage, apart from gaseous and liquid wastes, is increasing with the human population, industrialization and with the changing life-style which is turning towards “throw-away culture”. Although the problem has been around for years, it seems to be getting worse. Americans discard 3.6 pounds per capita every day, which was 4.5 pounds per capita per day by the year 2000 [3]. The problem is where to put it all. Majority goes into land fill (dumps), which pose health problems apart from being a breeding place for pests and micro organisms. Moreover, much of the garbage is made of materials that do not breakdown easily or quickly, such as plastic. Some waste materials are toxic in nature, such as batteries, as these contain lead.

Poisoned rivers, poisoned seas, poisoned soils and poisoned air. The polluting tide has upset the natural environmental balance. It now threatens to upset the delicate chemistry of our own biochemistry [4].

Thus, there are enough evidences of increasing deterioration of the environment in some forms on a world

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wide scale. It is true that the problems of environment can be solved only through pollution prevention. Pollution prevention can pay through saving resources, recycling materials at a lower cost than using new materials, and reducing clear up costs [5]. The industries are the key elements of any area responsible for the cause and the changes faced in the environment and the cycle of atmosphere [6]. One of the major provisions of Indian State Policy is to maintain environmental standards along with promoting economic growth. However, the same becomes difficult. Industrial Development is imperative; however, proper precautionary measures for pollutions and arrest of associated problems are also essential. Today, many companies have accepted their responsibility to do no harm to the environment [7]. Industries are complying with regulatory standards and norms, by adopting clean technologies and bring about implementation in management practices. For the betterment of environment, commitment and voluntary initiatives of industry for responsible care of environment is important. Indian Corporates in the contemporary times have taken full advantage of this 'not so strict' environmental control by the government and have been successful in maximizing profits for themselves. However, over the last few years the Indian Corporates are realizing that it is in their favour that they adhere to their environmental responsibility and grow in a manner that is more sustainable. Indian Industries have opened up post reforms that took place in the country allowing freedom from strict rules and regulations that had made working of Indian Industries very difficult. In this post reform scenario, Indian industries have widely increased the production capacities and basic infrastructure leading to increasing amount of pollution." With the increasing liberalization and globalization of the Indian Economy it seemed almost axiomatic to assume that the greening of India would only be successful if it was made into a paying proposition in commercial terms". Corporate environmentalism in older industrial countries is being encouraged by economic, political and industrial organizational factors [7]. Corporate Environmental Responsibility (CER) encompasses the voluntary actions and measures of companies to contribute to a cleaner environment (European Commission, 2001). Globally, the concept of Corporate Environmental Responsibility (CER) is moving from a fringe consideration to a core business issue and a permanent part of business management [8].

In today's world, corporate responsibility is an essential part of business. Companies face, in addition to all the time tightening legislation, pressure to act more responsible from other stakeholders groups such as customers and investors [9]. Corporations are beginning to respond to expectations of corporate responsibility by asking what is good for the environment, society and business, as well as how performance can be measured and evaluated. At various National levels government regulations, society pressure groups and green consumer pressure; these developments are reawaking corporate attention to strategic and competitive role of environmental responsibility to corporate survival. However, within the developing nations, the understanding is somewhat different mainly because of weak government regulations and lack of organized pressure groups and consumer awareness to influence corporate behavior [9]. It is also seen that the roles of sectors have been changed, with the private sector becoming an active partner in environmental protection.

Many governments and businesses are now realizing that environmental protection and economic growth are not always conflicts. For planning, promotion, co-ordination and overseeing the implementation of the environmental forest programmes, Central Government of India has Ministry of Environment and Forests (MoEF) as an agency in the administrative structure. It has formed some legislation on Environments, Forests and Wildlife for industries and corporate. Thus, industries have to adopt clean technologies and bring about implementation in management practices. It is the duty of the industries to cover the environmental implications of the industrial operations. Government and industries should take into consideration environmental responsibilities and follow the laws, rules and regulations for the betterment of environment. Effective and essential environmental management strategies can only be achieved if humans will cultivate practices that will sustain the environment from that which deplete and degrade it. The benefits of environmental responsibility include a decrease in the cost of operations due to improved production yields, decrease in costs associated with employees, minimization of material and energy use, decrease in excess packaging and waste that needs safe disposal. An environmentally responsible company has less regulatory risks and need not to be concerned about non-compliance resulting in production, fines, negative publicity, a subsequent costly public relations campaign. Industries are the key elements that influence other systems. The findings of the present study may prove beneficial to various people concerned with this field. It will be helpful and beneficial to all those individuals who may or may not be aware about the practices those are followed by the industries for community and extent of awareness regarding general environmental conditions and laws, rules & regulations laid by Government. This may prove as a "lighthouse" guiding them through unknown waters and the hidden dangers. The findings will prove to be a boon to the industries and those employees who wish for the betterment of environment. The findings will help in a proper and meticulous planning by the individuals as well as by the industries. The findings of the study will enrich the research data base for the libraries, documentation centers and related institutes at National and International level. The findings of the present study will be helpful to the students to get knowledge about Corporate Responsibilities, Practices carried out by the Chemical and Plastic Industries for Community and awareness of Industries regarding general environmental conditions and Laws, Rules & Regulations laid by Government.

Considering all the above factors this research was designed with the following objectives:

- 1) To gather the background information of selected Chemical Industries and Plastic Industries.
- 2) To find out the practices followed by the managers of the industries to carry out their environmental responsibilities towards the community.
- 3) To find out the awareness of respondents of the industries regarding general environmental conditions and laws, rules & regulations laid by the Government.
- 4) To study the relationship between selected variables.

MATERIALS AND METHODS

Descriptive research design was planned for conducting the present study. The study had two sets of variables, independent and dependent variables. Independent variables comprised of personal variables of respondents (age, position in organization and education) and organizational variables of industry (years of establishment, size of industry, annual turnover, geographical market for product, location of industry). Dependent variables comprised of practices followed by the industries to carry out their responsibilities for community and awareness of the respondents regarding general environmental conditions and laws, rules & regulations laid by Government for Chemical Industries and Plastic Industries. The sample of the study consisted of 120 managers of industries, 60 each from Chemical Industries and Plastic Industries were selected from Makarpura G.I.D.C, Nandesary, Waghodia G.I.D.C., Pratapnagar, Ranoli, Padra, Chhani etc. areas of Vadodara City. The questionnaire was used as an instrument to gather the information from the respondents. The scales were divided into three sections. **Section 1** contained questions regarding background information of the respondents such as age, education, position in organization as well as of the organization such as years of establishment, location of industry, size of industry etc. **Section 2** contained positive and negative statements reflecting the practices of the industries regarding responsibilities for Community. The respondents were asked to respond on a 3 point scale in terms of Always, Sometimes or Never. For positive statements scores of 3 through 1 were given and for negative 1 through 3 were given. **Section 3** was an awareness scale of respondents of the industries regarding General Environmental Conditions and Laws, Rules & regulations laid by Government. The respondents were asked to respond on a 3 point scale in terms of Correct, Incorrect or Do Not Know. For positive statements scores of 3 to 1 were given and for negative 1 to 3 were assigned. The reliability coefficient thus computed was 0.67 for practice scale and 0.73 for awareness scale. This showed that the instrument had high reliability value. The data were analyzed employing descriptive as well as relational statistics. Descriptive statistics of percentage, frequency and mean were applied. Analysis of Variance (ANOVA), 't'-test, Scheffe's test and coefficient of correlation were computed to test the relationship between selected variables.

RESULTS AND DISCUSSIN

Major findings of the study are presented below.

Background information

The mean age of the respondents was found to be 43.92 years. It was also found that 45.0% respondents from Chemical Industries and 55.0% respondents from Plastic Industries were graduate and 43.3% respondents from Chemical Industries and 40.0% respondents from Plastic Industries were above graduate. Rest of them were below graduate. Majority of the respondents (60.0%) from Chemical Industries and 55.0% from Plastic Industries were general manger in the organization and rest of them were owner. It was observed that 38.3% Chemical Industries and 41.7% Plastic Industries had 21 to 30 years of establishment. A very few Chemical Industries (6.7%) and Plastic Industries (11.7%) had 1 to 10 years of establishment. It was found that 65.0% of Chemical Industries and 66.7% Plastic Industries belonged to Small industries having 1-100

employees, 1.7% of Chemical Industries and 3.3% Plastic Industries were Large industries (>500 employees). It was found that half of the Chemical Industries and 50.0% Plastic Industries were having 1-5 crore rupees as annual turnover whereas a very few Chemical Industries (5.0%) and Plastic Industries (3.3%) had annual turnover more than 10 crore rupees.

Practices followed by the industries for community

It was found that 56.7% of the respondents from Chemical Industries had some times prepared hoardings for generating awareness about the problems of environment, extended financial support to schools/colleges to take up the activities for environmental protection. The findings revealed that 20.0% of the respondents from Plastic Industries had always prepared hoardings for generating awareness about the problems of environment, 5.0% of them did not extended financial support to schools/colleges to take up the activities for environmental protection, promoted all those activities done for social upliftment in premises. For Chemical Industries it was found that 10.00% of them always put hoardings which give message for environmental protection to the people, 23.3% of them did not extended financial support to schools/colleges to take up the activities for environmental protection, and 21.7% of them promoted all those activities done for social upliftment in premises. Majority of the respondents (91.7%) from Plastic Industries always organized tree plantation program as an annual activity for workers, 70.0% of them had organized seminars on the environmental conditions and problems for public awareness. It was found that most of the respondents from Chemical Industries always preferred to follow practices such as; organized programmes to protect and preserve the environment, activities are promoted for social upliftment in premises.

Table - 1 Frequency and Percentage Distribution of Respondents of Chemical and Plastic Industries according to the Extent of following Practices related to Environmental Responsibilities for Community.

Extent of Practices	Range of Scores	Respondents				Total (n=120)	
		Chemical Industries (n =60)		Plastic Industries (n =60)			
		f	%	F	%	f	%
Poor	14-23	2	3.3	--	--	2	1.7
Moderate	24-33	58	96.7	60	100.0	118	98.3
Good	34-42	--	--	--	--	--	--
Mean		2.08		2.18		2.13	

The overall data revealed that all the respondents from Plastic Industries had moderately followed the environmental responsibilities for community, whereas majority of the respondents (96.7%) from Chemical Industries had moderately followed the practices regarding environmental responsibilities for community (Table - 1).

Awareness of the respondents of Chemical Industries and Plastic Industries regarding the General Environmental Conditions and Laws, Rules & Regulations Laid by Government

This section deals with awareness regarding general environmental conditions and laws, rules & regulations laid by Government. The respondents were asked about the awareness regarding general environmental conditions and laws, rules & regulations laid by Government for environment. The statements asked to respondents about the awareness regarding general environmental conditions and laws; rules & regulations laid by Government for Chemical Industries and Plastic Industries were same. It was found that majority of them from Chemical Industries (93.3%) were aware about water pollution due to house hold waste, 90.0% of the respondents were aware about urbanization is one of the major cause for polluting urban environment, whereas for Plastic Industries, it was found that 93.3% of the respondents were not aware about increasing Green House Effect is resulting in rapid Global warming i.e. rise in temperature of the earth. It was also highlighted that equal number of the respondents (5.0%) from Chemical Industries and Plastic Industries were aware about the high rise buildings have adverse impact on quality of environment, more people living in urban areas are having hearing problems due to noise pollution than people living in rural areas, the temperature of the entire earth is rising. The data revealed that equal percentage of the respondents (3.3%) from Chemical Industries and Plastic Industries were not aware about ozone layer is depleting, recycling of waste is becoming “a must” for the sustainable development of the country. It was observed that respondents from Chemical Industries were highly aware about the general environmental conditions such as, urbanization is one of the major causes of polluting urban environment, ozone layer is depleting, and recycling of waste is becoming “a must” for the sustainable development of the country, whereas for Plastic Industries, respondents were highly aware about the general environmental conditions like, urbanization is one of the major causes of polluting urban environment, increasing deforestation is disturbing ecological balance, water sources near industries are more polluted than those which are away from industries.

From the data, it was found that all the respondents from Chemical Industries (100.0%) had medium extent of awareness regarding general environmental conditions. For Plastic Industries more than half of the respondents (58.3%) had moderate extent of awareness and little less than half of the respondents (41.7%) had high extent of awareness regarding general environmental conditions. None of them had low extent of awareness regarding general environmental conditions. (Table-2)

For the chemical industries it was seen that slightly more than half of the respondents were aware about the laws, rules & regulations laid by Government such as industry gets area or location where all the waste materials are disposed (63.3%), Consent for the use of any fuel needs to be taken from the Government (51.7%) . For Plastic Industries it was found that mostly all the respondents were aware about Checking of all waste effluents are to be done before disposal (95.0%) whereas for Chemical Industries 75% were aware about checking of all waste effluents are to be done before disposal.

Table - 2 Frequency and Percentage Distribution of Respondents of Chemical Industries and Plastic Industries according to the Extent of Awareness regarding General Environmental Conditions

Scores for Awareness	Range of Scores	Respondents				Total (n=120)	
		Chemical Industries (n=60)		Plastic Industries (n=60)			
		f	%	f	%	f	%
Low extent	46-76	--	--	--	--	--	--
Medium extent	77-107	60	100.0	35	58.3	95	79.2
High extent	108-138	--	--	25	41.7	25	20.8
Mean		1.78		2.05		1.92	

It was also observed that the respondents from Chemical Industries were highly aware about general environmental conditions such as, introduction of technical changes in the production process to minimize the quantity of waste, all changes in disposal methods are done as suggested by government, various wastes are given appropriate treatment by the industry before the disposal, responsibility of industry for enforcement of pollution control measures”.

For Plastic Industries, it was seen that the respondents were highly aware about general environmental conditions such as, follow up of particular method given by government is important for waste disposal to prevent the effects of pollution” “industry is responsible for the quality and quantity of waste generated”,” consent for the use of any fuel is to be taken from the government” and “government recommends a person who checks all the tools, equipments and machines in the industry”.

Table - 3 Frequency and Percentage Distribution of respondents of Chemical and Plastic Industries according to the Extent of Awareness regarding Laws, Rules & Regulations laid by Government

Scores for Awareness	Range of Scores	Respondents				Total (n=120)	
		Chemical Industries (n=60)		Plastic Industries (n=60)			
		f	%	f	%	f	%
Low extent	19-31	--	--	2	3.3	2	1.7
Medium extent	32-44	41	68.3	58	96.7	99	79.2
High extent	45-57	19	31.7	--	--	19	15.8
Mean		2.46		2.42		2.44	

From the result it was revealed that a high majority (96.7%) of the respondents from Plastic Industries and 68.3% respondents from Chemical Industries had awareness at medium level. None of the respondents from Chemical Industries had low extent of awareness. (Table - 3) whereas none of the respondents from Plastic Industries had high extent of awareness regarding laws, rules & regulations laid by Government.

Testing of Hypotheses

The hypotheses for the present investigation were tested using appropriate statistics. The hypotheses formulated were changed to null form and subjected for statistical analysis for which analysis of variance (ANOVA), Scheffe's test, 't'-test and Pearson's Product Moment Correlation Co-efficient were computed to find out the variance in practices and awareness due to selected personal and organizational variables.

Practices: The 'F'-test was computed to find out variation for the practices regarding Responsibilities for Community by their education, years of establishment, size of the Industry, annual turnover, geographical market for the product, location of industry and t-test was calculated to find out the difference in the age of the respondents and position of respondents in organization due to their practices. It was revealed that practices regarding Responsibilities for Environment significantly differ by years of establishment at 0.01 level for Plastic Industries. Further Scheffe's test was applied for finding significant difference in various levels. It is proved that years of establishment of Plastic Industries has an effect on the practices regarding responsibilities for community. The results of Scheffe's test revealed that the industries having 1-10 years of establishment differed significantly in their practices regarding Responsibilities for community from those who had 21-30 years of establishment.

Awareness: The 'F'-test was computed to find out variation for the awareness regarding General Environmental Conditions and Laws, Rules & Regulations laid by Government by their education, years of establishment, size of the Industry, annual turnover, geographical market for the product, location of industry and t-test was calculated to find out the difference in the age of the respondents and position of respondents in organization due to their extent of awareness.. However, from findings it was revealed that awareness regarding General Environmental Conditions and Laws, Rules & Regulations laid by Government did not differ by their education, years of establishment, size of the Industry, annual turnover, geographical market for the product and location of industry; further t-test was calculated to find out the difference in the age of the respondents and position of respondents in organization due to the extent of awareness of the respondents.

Correlation: Computation of coefficient of correlation revealed that there is correlation between awareness regarding general environmental conditions and laws, rules & regulations laid by Government for Chemical ($r=0.743$) and Plastic ($r=0.338$) Industries respectively at 0.03 level and at 0.01 level.

CONCLUSION

It was concluded from the present study that the industries did not follow the practices regarding environment protection for the community to a great extent so a booklet was developed for industries to give guidelines regarding Corporate Social Responsibilities for environmental protection and sustainable development. It included certain guidelines which can help the industries to improve their practices for environment and society to generate awareness about their responsibilities towards a healthy environment.

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