# INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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**CONFERENCE PAPERS**
- Garg Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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# ATTITUDE TOWARDS THE ENVIRONMENT AND GREEN PRODUCTS: AN EMPIRICAL STUDY

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## ABSTRACT

*In today's business world environmental issues play vital role in marketing decisions. The environmental degradation and its impact on human life have emerged as one of the burning issues drawing attention of academicians, industrialists and research scholars all across the world. The current rapid growth in the economies and the change in consumers' behavior and consumption patterns worldwide are the main cause of environmental deterioration. As the environment continues to worsen, it has become a persistent public concern in the developed countries and has recently awakened the developing countries to the green movement. All most all the governments around the world are concerned about green marketing activities that they have attempted to influence customers about environmental issues and motivating customers for greater participation in building awareness and increase green product uses. This paper is an attempt to explore the consumer attitude towards the environment and green products and to investigate the relationship between attitude towards the environment and green products. Results from the independent sample shows that there are significant differences between genders in their environmental attitudes and attitudes on green products. Analysis results reveal that, consumers' understanding on the government's role in this regard and their personal norm towards the environment, contribute significantly to their attitude on green product. Further, investigation reveals that personal norms are the most important contributor to the attitude towards green product. Study reveals that almost nine out of ten (88.6%) of the respondents consider individuals to be responsible must take appropriate initiatives to protect the environment. Some important issues related to protection of our environment by decelerating the consumption of non green productions and simultaneously by encouraging the various alternatives like environment friendly products, Bio-Degradable Products, Recycling Products, Energy Efficient Products and Promoting Recycled Products has been has been emerged from the study. Study also indicates that there is a positive inclination towards using green products and green products among the respondents.*

## KEYWORDS

Environment Studies, Green Producat, Recycled Products, Bio-Degradable Producats.

## INTRODUCTION

ver many centuries, the issue of environmental preservation has been on the top of the agenda of global and international concerns as one of the most important issues at both the national and international levels (MSEA, 2005). Man has limited resources on the earth, with which she/he must attempt to provide for the worlds' unlimited wants. There is extensive debate as to whether the earth is a resource at man's disposal. In market societies where there is "freedom of choice", it has generally been accepted that individuals and organizations have the right to attempt to have their wants satisfied. As firms face limited natural resources, they must develop new or alternative ways of satisfying these unlimited wants. Ultimately green marketing looks at how marketing activities utilize these limited resources, while satisfying consumers wants, both of individuals and industry, without sacrificing the business objectives.

The past decades are witness to the rapid economic growth through increasing consumers' consumption worldwide. This is turn causes environmental deterioration through over-consumption and utilization of natural resources. The consequences of environmental degradation are global warming, depletion of stratospheric ozone layer, pollution of sea and rivers, noise and light pollution, acid rain and desertification (Ramlogan, 1997). Grunert (1993) reported that about 40% of environmental degradation has been brought about by the consumption activities of private households. As the environment continues to worsen, it has become a persistent public concern in developed countries. Furthermore it has also awakens developing countries to the green movement for preservation of the environment.

Creating customer satisfaction and building long-term profitable customer relationship are some of the primary objectives firms try to achieve to sustain their businesses in the competitive business world. With an increased in the social and political pressures, many firms embraced green marketing strategies and exploited these environmental issues as a source of competitive advantage. Profit driven firms are usually motivated to adopt the concept of green marketing in their businesses provided that consumers demonstrate a high degree of environmental attitude and hence translate this into environmental friendly purchasing commitment. Hence many companies started to be more socially responsive in addressing pollution and waste disposal by developing environmentally friendly packaging and putting in numerous efforts to keep in-step with the environmental movement. However, some of the greatest challenges faced by these firms are changes in consumer preferences, suspicion of green advertising claim, unfavorable consumer perception of green products and the high cost invested in developing green products. As a result, it is vital to explore how consumers view the environmental issues, and how they behave, especially in their attitudes towards green products or environmental friendly products. It is widely accepted that the development of such awareness and attitude can be possible through environmental education. Education is an important social instrument and means, which act as a catalyst in improvement of different aspects of life. Knowledge, awareness, skills, values and attitudes acquired through education help one to lead a desired quality of life. Present study is an attempt to explore the consumers' attitude towards the environment and green products. Accessibility to the consumers of Uttrakhand has been the key motivation to select them as the sample of the proposed study.

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## LITERATURE REVIEW

As the problems as the consequence of exploitation of the Mother Nature is increasing, all types of consumers, both individual and industrial are becoming more concerned and aware about the natural environment. In a 1992 study of 16 countries, more than 50% of consumers in each country, other than Singapore, indicated they were concerned about the environment. A 1994 study in Australia found that 84.6% of the sample believed all individuals had a responsibility to care for the environment. A further 80% of this sample indicated that they had modified their behavior, including their purchasing behavior, due to environmental reasons. The current rapid growth in the economy and the patterns of consumers' consumption and behavior worldwide are the main cause of environmental deterioration. As the environment continues to worsen, it has become a persistent public concern in the developed countries and has recently awakens developing countries to the green movement. In Indian context central and state govern are trying their best to promote and educated consumers about green environment and green product at different level. It can be assumed that firms marketing goods with environmental characteristics will have a competitive advantage over firms marketing non-environmentally responsible alternatives. Developing country like India faced great challenges in ensuring a balance between development and environmental sustainability. Urban air and river quality, deforestation, household waste and hazardous waste are some of the serious and worrying environmental problems faced by the country. It is anticipated that if the current trend of economic growth and irresponsible consumption pattern continues, the environment degradation would worsen. Therefore, a shift towards more sustainable consumption patterns is required.

### GREEN MARKETING

Over the last few years, the concept of green marketing has emerged as one of the most important issue and has attracted large number of researcher into this field. Green marketing is considered one of the major trends in modem business (Kassaye, 2001; McDaniel and Rylander, 1993; Pujari and Wright, 1996). Soonthonsmai (2007) defined green marketing as the activities taken by firms that are concern about the environment or green problems by delivering the environmentally sound goods or services to create consumers and society's satisfaction. Harrison (1993) proposed green marketing strategy by firms through positioning the environmental benefits of green products to consumers' mindset to influence their purchasing decision. Peatitie (1995) and Welford (2000) defined green marketing as the management process responsible for identifying, anticipating and satisfying the requirements of customers and society in a profitable and sustainable way.In reality, companies that pursue green marketing encounter numerous challenges mainly from the variability of demand, un-favorable consumer perception and high cost (Gurau and Ranchhod, 2005). The key concern lies in an understanding of green consumers and their characteristics to enable firms to develop a new target and segmentation strategies (D'Souza et al., 2007).

### GREEN CONSUMERS AND GREEN PRODUCTS

In general, green product is known as an ecological product or environmental friendly product. Shamdasami et al., (1993) defined green product as the product that will not pollute the earth or deplore natural resources, and can be recycled or conserved. Krause (1993), in his research found that consumers were becoming more concerned about their everyday habits and the impact on the environment. The outcome of this is that some of the consumers translated their environmental concern into actively purchasing green products commitment. Consumers who are aware of and interested in environmental issues are called green consumers. These green consumers usually organized petitions, boycotted manufacturers and retailers and actively promote the preservation of the planet (Fergus, 1991). Ottman (1992) reported that consumers accepted green products when their primary need for performance, quality, convenience, and affordability were met, and when they understood how a green product could help to solve environmental problems. The knowledge gap on the uses and values of green products prevents consumers in committing themselves to any purchase decisions.

### ENVIRONMENTAL ATTITUDES

There is a general belief among the researchers and environmental activists that through purchasing environmentally friendly products or green products, products with recyclable packaging or properly disposing of non-biodegradable garbage, consumers can contribute significantly to improve the quality of the environment. The quality of the environment depends critically on the level of knowledge, attitudes, values and practices of consumers (Mansaray and Abijoye, 1998). Attitudes are the most consistent explanatory factor in predicting consumers' willingness to pay for green products (Chyong et al., 2006). This means that price is not the main factor in preventing consumers from purchasing green products if they are pro-environment. Allport (1935) defined attitude as: "A mental and neural state of readiness, which exerts a directing, influence upon the individual's response to all objects and situations with which it is related". According to Schultz and Zelezny (2000), "attitudes of environmental concern are rooted in a person's concept of self and the degree to which an individual perceives him or herself to be an integral part of the natural environment". In conclusion, attitude represents what consumers like and dislike and consumers' product purchasing decisions are often based on their environmental attitudes.

The governments also play important roles in environmental protection in deed. To educate and foster environmental awareness and concern among the public, the Indian government opted for social advertising. The most significant factor affecting nature was not the official government policy but the public awareness on the environmental problems. Many people have high ecological concern but have the sentiment that the preservation of the environment is the prime responsibility of the government (Chyong et al., 2006). Straughan and Roberts (1999) segmented college students based upon ecologically conscious consumer behavior and stated that the younger individuals were likely to be more sensitive to environmental issues. The result of their study indicates that the demographic variables such as age and sex are significantly correlated with ecologically conscious consumer behavior when considered individually; and that income lacks significance. Green purchase intention correlates positively with every age and income except for education (Soonthonsmai, 2001). Many studies have shown significant differences between men and women in environmental attitudes (Brown and Harris, 1992; Tikka et al., 2000) with men having more negative attitudes towards the environment compared to women (Eagly, 1987; Tikka et al., 2000). Women were more likely to buy green product because they believe the product was better for the environment (Mainieri et al., 1997).

## OBJECTIVES AND METHODOLOGY

This paper is essentially exploratory in nature and is focused on three main objectives. The first objective is to study the relationship between the gender and the attitudes towards the environment and green products. The second objective is to investigate the consumers' attitude towards the environment and green products. The third objective is to know the consumers sensitiveness towards green product and environment and their willingness to pay extra premium for eco friendly product.

Based on the previously cited theoretical and empirical literatures, the following hypotheses referring to the attitudes towards the environment and green products were proposed.

**Hypothesis 1:** There is a significant difference between male and female in their environmental attitudes on green product.

**Hypothesis 2:** The different factors influencing customers towards green product and environment do not differ significantly across their occupation and education levels.

**Hypothesis 3:** Customers' willingness to pay extra for eco-friendly products does not differ significantly across the education level of respondents.

**Hypothesis 4:** The mean of different factors building perception and attitude towards green product and environment does not differ significantly across gender category, level of education and occupational category of respondents.

To assess the consumer perception and attitude towards green environment and their purchase pattern for green product, the study was restricted to four district i.e. Dehradun , Haridwar, Haldwani and Srinagar of Uttrakhand state. A sample of 385 respondents was taken and respondents were interviewed individually. Data was collected with the help of a structured, non-disguised questionnaire. The collected information was systematically arranged, tabulated and appropriate analysis was carried out. To measure the intensity of parameters, open ended and close ended questionnaires were used. In order to test the hypotheses; Factor Analysis, Mean, Standard deviation, ANOVA and $\chi^2$ tests were applied.

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**TABLE 1: DEMOGRAPHIC CHARACTERISTIC OF RESPONDENTS**

| | *Categories* | *Count* | *Percentage* |
|---|---|---|---|
| Age | 20-30 Years | 246 | 63.9 |
| | 30-40 Years | 60 | 15.6 |
| | 40 to 50 Years | 55 | 14.3 |
| | 50-60 Years | 22 | 5.7 |
| | Above 60 Years | 2 | .5 |
| Gender | Male | 318 | 82.6 |
| | Female | 67 | 17.4 |
| Education Level | Intermediate | 20 | 5.2 |
| | Graduate | 160 | 41.6 |
| | Post Graduate | 205 | 53.2 |
| Monthly Income | Up to Rs.10000 PM | 6 | 1.6 |
| | Rs.10000 to Rs.15000PM | 33 | 8.6 |
| | Rs.15000 to Rs.20 000 PM | 66 | 17.1 |
| | Rs.20000 to Rs.25000PM | 92 | 23.9 |
| | Above Rs.25000PM | 188 | 48.8 |
| Profession | Service | 226 | 58.7 |
| | Business | 21 | 5.5 |
| | Professional | 24 | 6.2 |
| | Any other | 114 | 29.6 |

Demographic information presented in the above table reveals that sample is dominated by young aged person ranging from 20 to 30 years belonging to male category. It is evident that majority of respondents are well educated as 92% respondent are either graduated or having post graduation degrees to their credit. Income profile of the respondents reveals that most of the respondents fall in the income group of Rs.20000 and above. Also sample is dominated by service class people as this class contributes approximately 59% in the survey.

**TABLE 2: AWARENESS ABOUT IMPACT OF AGGRESSIVE CONSUMPTION ON ENVIRONMENT**

| Sl. No | Response | No. of respondents | Percentage |
|---|---|---|---|
| A | Yes | 198 | 51.4 |
| B | No | 30 | 7.8 |
| C | Can't Say | 157 | 40.8 |
| D | Total | 385 | 100.0 |

Today's consumption is undermining the environmental resource base by its myopic pattern. It is exacerbating the inequalities. And the dynamics of the consumption-poverty-inequality-environment nexus are accelerating. The impacts of consumerism, positive and negative are very significant to all aspects of our lives, as well as our planet. But equally important to bear in mind in discussing consumption patterns is the underlying system that promotes certain types of consumption and not other types. Taking this into consideration an attempt was made whether the respondents are aware about the aggressive consumption and its impact on environment. The survey has disclosed that, little more than half of the respondents (51.4%) shown their awareness. In comparison to this, 7.8% respondent has shown disagreement on the same. Where as a significant amount of respondents (40.8%) has shown their unawareness about this issue.

**TABLE 3: MANUFACTURING INDUSTRIES AS MAIN SOURCE OF POLLUTION**

| Sl. No | Response | No. of respondents | Percentage |
|---|---|---|---|
| A | Yes | 304 | 79.0 |
| B | No | 27 | 7.0 |
| C | Can't Say | 54 | 14.0 |
| D | Total | 385 | 100.0 |

Industrialization is one of the main sources of livelihood to the large portion of population in the country. However aggressive industrialization has posed many environmental issues. Apart from the industry there are many other sources spreading pollution in the society. The question was posed to the respondent to their opinion whether manufacturing industry are the main source of pollution. It is evident that more than three fourth respondent are in the support of the concept. Seven percent respondents don't seem to support the statement. 14% respondents shown their unawareness and were not ready to comment on it. .

**TABLE 4: DIFFERENT IMPACT OF POLLUTION AS PERCEIVED BY RESPONDENTS**

| Sl. No. | Description | No. of Respondents | Percentage |
|---|---|---|---|
| 1 | Global warming | 340 | 88.3% |
| 2 | Unknown diseases and disorders | 204 | 53.0% |
| 3 | Imbalance in the ecosystem | 307 | 79.7% |
| 4 | Mass destruction of flora and fauna | 279 | 72.5% |
| 5 | Threat to human existence | 180 | 46.8% |
| 6 | Change in weather and rain pattern | 268 | 69.6% |
| 7 | Melting of glaciers and raise in sea level | 341 | 88.6% |
| 8 | Frequent natural calamities | 225 | 58.4% |

It is a fact that the environmental pollution attacks the environment multidirectional. Many scientific researches on the environmental issues has envisaged the devastating impact of pollution level causing mass extinction of various species to a critical imbalance in the ecosystem and the intensity is causing cascading

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destructive effects globally. It is significant to understand from the empirical study on the subject, which depicts that there is a clear-cut uneven understanding about the impact among the respondents. This may lead to the incomplete understanding of the importance of environmental protection by using environmental friendly products depending on their awareness and perception related to the contribution of a particular pollutant causing environmental degradation and harm to individuals. It is worthwhile to know that majority of respondents (88.3%) of the sample find "Global warming" and "Melting of glaciers and raise in sea level" (88.6%) (Which is a derived impact of global warming) are caused by pollution and a similar response (79.7%) is observed in the case of "Imbalance in the Ecosystem" caused by pollution followed by "Mass destruction of flora and fauna" identified by 72.5% respondents. Respondents (about half) seem to be least concerned in seeing pollution as a threat to human existence and various new diseases emerging because of pollution.

**TABLE 5:  RESPONSIBILITY TOWARDS ENVIRONMENTAL PROTECTION**

| Sl. No | Description | No. of Respondents | Percentage |
|--------|-------------|--------------------|------------|
| a) | Central Government | 236 | 61.3% |
| b) | State Government | 196 | 50.9% |
| c) | Manufacturer/ Producer | 258 | 67.0% |
| d) | Intellectuals | 142 | 36.9% |
| e) | Customers | 195 | 50.6% |
| f) | Individual | 341 | 88.6% |

All the components of the society are interdependent not only biologically but are on economic ground too. All sectors enjoy the benefits of natural resources depending on the requirements and demand towards sustenance and growth. Thus every sector should take proportionate responsibility in protecting the environment and restoration of its natural balance which is disturbed by the exploitation of the natural resources in fulfillment of the ever increasing demand.
Thus it is important to note that almost nine out of ten (88.6%) of the respondents consider individuals to be responsible and a significant number of respondents (61.3%) are under the impression that it is the Governments at the central level must take appropriate initiatives to protect the environment. This also indicates that for respondents (only supported by 50.9%) when it comes to environmental protection state govt. is not as responsible as the central govt. On the other hand there are 36.9% respondents showing their belief that the efforts of the intellectuals educating the mass and developing solution techniques alone can help.

**TABLE 6:  AWARENESS OF ENVIRONMENT PROTECTION MEASURES**

| Sl. No | Description | No. of Respondents | Percentage |
|--------|-------------|--------------------|------------|
| 1 | Environment friendly products | 279 | 72.5% |
| 2 | Bio-degradable packaging | 259 | 67.3% |
| 3 | Recycling of wastes | 264 | 68.6% |
| 4 | Energy efficient appliances | 261 | 67.8% |
| 5 | Recycled product | 291 | 75.6% |

The environmental friendly production and uses pattern of green products can be made effective if there is a good deal of awareness about different means available to promote green environment and products available in the market. Protection of our environment by decelerating the consumption of non green productions and simultaneously by encouraging the following alternatives i.e., Environment friendly products, Bio-Degradable Products, Recycling Products, Energy Efficient Products and Promoting Recycled Products. Multiple response data was processed with SPSS-15 software and presented in the table above. This reveals that, 75.6% customer are aware with uses of recycled product and 72.5% respondent ware aware with the environment friendly product. Bio-Degradable Product, Recycling Product, Energy Efficient Product were having awareness in 67.3%, 68.6% and 67.8% respondents respectively. This indicates though there is a good awareness about environment protection but a lot of efforts are required make every consumer aware about green environment and green product in order to achieve a distinctive success in safe guarding our environment.

**TABLE 7:  CUSTOMER AWARENESS ABOUT IMPACT OF DIFFERENT MEASURES ON ENVIRONMENTAL PROTECTION**

| Measure | N | Mean | Std. Deviation |
|---------|---|------|----------------|
| Use of green products | 385 | 4.1766 | 1.31695 |
| Educating people about environmental conservation | 385 | 3.8208 | 1.18435 |
| Less use of non biodegradable products | 385 | 3.2286 | 1.45047 |
| More use of recycled products | 385 | 3.4909 | 1.35806 |
| Generating less waste materials | 385 | 3.4805 | 1.14803 |
| Banning of plastic carry bags | 385 | 3.987 | 1.25097 |
| Using only energy efficient appliances and machines | 385 | 3.5039 | 1.32312 |
| Valid N (list wise) | 385 | | |

Without the environmental protection our environment would look much worse than it looks today, and we certainly must look for more ways to protect our environment. Many countries have different organizations and other bodies devoted to environmental protection. There are even some international environmental protection organizations, for instance the United Nations Environment Programme. This means that something is still being done for our environment, though this something is far from being enough. Here the respondents were asked to rate the following means that help protecting the environment like, Use of green products,  Educating people about environmental conservation,  Less use of non biodegradable products,  More use of recycled products,  Generating less waste materials,  Banning of plastic carry bags,  and Using only energy efficient appliances and machines.  Mean and standard deviation are calculated. The results indicate that respondents have rated "use of green products" as most suitable technique to protect environment. It may be interpreted that there is a positive inclination towards using green products and green products should be promoted consistently to get better results as it scored highest mean (4.1766).  However highest standard deviation of 1.45047 of variable like less use of non biodegradable products indicates that customer view on this issue is heterogeneous.

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**TABLE 8: PROTECTION MEASURES ACROSS THE LEVEL OF EDUCATION OF RESPONDENTS**

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 8.024 | 2 | 4.012 | 7.170 | .001 |
| Within Groups | 213.727 | 382 | .559 |  |  |
| Total | 221.751 | 384 |  |  |  |

Further One way ANOVA was carried out to analyze the customer awareness about different environment protection measures across the level of education of respondents. From the table it is clear that calculated value of F is greater than the tabulated value of F (2.37) at (p< 0.05) level of significance. Thus rejection of null hypothesis indicates that there is significant difference in the awareness mean of different factors across the different level of education of the respondents.

## FACTOR ANALYSIS

Understanding consumer perception and attitude towards environment and green product has been of a major interest for government and society at different levels. The perceptions of customer are affected by exogenous factors such as economy condition and government policies, and market interaction among the major players like consumer, manufacturer and government. The empirical study indicates that consumers perception are based on their own personal attributes such as age and education, as well as product price and positioning strategies opted by the government as well as manufacturers engaged in green product.  Government influences the process by means of increasing or decreasing taxes and creating new polices for promoting green product as well as green environment. Exogenous factors such as product prices may also impact both consumer purchase decisions and manufacturer decisions. These components are viewed together since they are highly interdependent and together represent forces that influence how the consumer will react to the object. Taking these into consideration, an attempt was made to identify the influencing factors in their purchase decisions. For this respondent were asked to rate their views on the following statements such as "I trust that companies producing environmentally friendly products are really providing environmentally safe products", "Environmental issues are very important to me", "I plan to switch to products and services that are advertised as being green", "I would pay more for products or services that were advertised as being green", "I prefer products with eco-labeled packages", "Purchasing green product is a good idea", "The government should enforce environmental rules and regulations", "We should pay a considerable amount of money to preserve our environment", "If all of us, individually make a contribution to environmental protection, it will have a significant effect", "The government should take responsibility for environmental protection", "Preserving and protecting the environment should be one of our priorities", "We should recognize the need to protect the environment today so that future generations will not suffer the  consequences", "The benefits of protecting the environment do not justify the expense involved", "The environment is one of the most important issues facing the Indian society today", "Firms should provide a wide array of green products in the market", "Citizens should recycle their household waste", "The increasing deterioration of the environment is a serious problem", "Most of the green products available today don't provide value for money", "My personal benefits are more important than the environmental issues", "I would like to use green products only if they are economical", "I always look for a green version of a product to buy", "I tend to be more loyal to products from companies that practice green advertising", "Personally, I have economic concerns which I consider more important than preserving the environment", "Recycling should be another option for waste disposal other than the garbage bin", "A wide range of various products available in market are green in nature". The response to these statements was recorded on a scale of 1 to 5 in order of their preference. The exploratory factor analysis is used in order to identify the motivational factors influencing customer in favour of green environment and use of green products. Principal Component analysis was employed for extracting factors and orthogonal rotation with Varimax is applied. As latent root criterion is used for extraction of factors, only the factors having latent roots or Eigen values greater than one are considered significant; all other factors with latent roots less than one are considered insignificant and disregarded. The extracted factors along with their Eigen values are shown in table 6. The factors have been given appropriate names on the basis of the group representation of the variables. The statements that are asked for rating, the labels and factor loading and the names of the factors have have been summarized in Tables 6. The KMO measure of sampling adequacy for the items is 0.510 (that is, > 0.5), indicating sufficient inter-correlations of the Bartlett's Test of Sphericity, which is found to be significant (Chi-square = 15272.4? < 0.005). Thus, the sample size of 385 was adequate and satisfactory in this study. The cronbach alpha for each factor is 0.859. Cronbach alpha for all the factors are greater than 0.6 which means that the scale scores for each of the dimensions are reasonably reliable (Hair et al., 1998). There are seven factors each having Eigen value exceeding one for motivational factors. Eigen values for seven factors are 8.765, 4.365, 2.248, 2.075, 1.541, 1.148, and 1.092, respectively.   The index for the present solution accounts for 84.932% of the total variations for the motivational factors. It is a pretty good extraction because we are able to economize on the number of choice factors (from 25 to 7 underlying factors), we lost 15.068 % of information content for choice of variables. The percentages of variance explained by factors one to seven are 35.059%, 17.459%, 8.990%, 8.299%, 6.164%, 4.593%, and 4.368%, respectively. Large communalities indicate that a large number of variance has been accounted for by the factor solutions. Varimax rotated factor analysis results for motivational factors are shown in table which indicates that, after 7 factors are extracted and retained the communality is 0.923 for variable1, 0.874 for variable 2, 0.898 for variable 3 and so on. It means that approximately 84.932% of the variance of variable1 is being captured by extracted factors together. The proportion of the variance in any one of the original variable which is being captured by the extracted factors is known as communality (Nargundkar, 2002).

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**TABLE 9: PRINCIPAL COMPONENT ANALYSIS WITH ROTATED COMPONENT AND ASSOCIATE VARIABLE**

| | Component | | | | | | | Communality |
|---|---|---|---|---|---|---|---|---|
| | Media | Policy Initiatives and Commit-ment | Sustainab-ility | Value for Money | Loyalty | Economic | Differen-tiation | |
| I trust that companies producing environmentally friendly products are really providing environmentally safe products. | .901 | | | | | | | .923 |
| Environmental issues are very important to me. | .821 | | | | | | | .874 |
| I plan to switch to products and services that are advertised as being green. | .772 | | | | | | | .898 |
| I would pay more for products or services that were advertised as being green. | .755 | | | | | | | .787 |
| I prefer products with eco-labeled packages. | .731 | | | | | | | .848 |
| Purchasing green product is a good idea. | .646 | | | | | | | .734 |
| The government should enforce environmental rules and regulations. | | .906 | | | | | | .898 |
| We should pay a considerable amount of money to preserve our environment. | | .847 | | | | | | .854 |
| If all of us, individually, make a contribution to environmental protection, it will have a significant effect. | | .812 | | | | | | .877 |
| The government should take responsibility for environmental protection. | | .714 | | | | | | .897 |
| Preserving and protecting the environment should be one of our priorities. | | .644 | | | | | | .851 |
| We should recognize the need to protect the environment today so that future generations will not suffer the consequences. | | | .896 | | | | | .901 |
| The benefits of protecting the environment do not justify the expense involved. | | | .821 | | | | | .913 |
| The environment is one of the most important issues facing the Indian society today. | | | .771 | | | | | .797 |
| Firms should provide a wide array of green products in the market. | | | .731 | | | | | .710 |
| Citizens should recycle their household waste. | | | .693 | | | | | .811 |
| The increasing deterioration of the environment is a serious problem. | | | .476 | | | | | .817 |
| Most of the green products available today don't provide value for money. | | | | .855 | | | | .818 |
| My personal benefits are more important than the environmental issues. | | | | .780 | | | | .832 |
| I would like to use green products only if they are economical. | | | | .719 | | | | .852 |
| I always look for a green version of a product to buy. | | | | | .877 | | | .929 |
| I tend to be more loyal to products from companies that practice green advertising. | | | | | .662 | | | .858 |
| Personally, I have economic concerns which I consider more important than preserving the environment. | | | | | | .753 | | .797 |
| Recycling should be another option for waste disposal other than the garbage bin. | | | | | | .730 | | .906 |
| A wide range of various products available in market are green in nature. | | | | | | | .832 | .851 |
| *Eigen Values* | 8.765 | 4.365 | 2.248 | 2.075 | 1.541 | 1.148 | 1.092 | |
| % of Variation | 35.059 | 17.459 | 8.990 | 8.299 | 6.164 | 4.593 | 4.368 | |
| Cumulative % of Variation | 35.059 | 52.518 | 61.509 | 69.807 | 75.971 | 80.564 | 84.932 | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
A Rotation converged in 12 iterations.

Principal components & associated Variables indicate that the first factor "Media" shows the role of media which is the combination of the variables, i.e. "I trust that companies producing environmentally friendly products are really providing environmentally safe products", "Environmental issues are very important to me", "I plan to switch to products and services that are advertised as being green", "I would pay more for products or services that were advertised as being green", "I prefer products with eco-labeled packages", "Purchasing green product is a good idea" and accounts 35.059% variance of the total variances. The

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second factor is "Policy Initiatives and Commitment"; is the combination of variable like, "The government should enforce environmental rules and regulations", "We should pay a considerable amount of money to preserve our environment", "If all of us, individually, make a contribution to environmental protection, it will have a significant effect", "The government should take responsibility for environmental protection", "Preserving and protecting the environment should be one of our priorities" and accounts 17.459% variance of the total variances. The third factor is the Sustainability factor which is the combination of variables; "We should recognize the need to protect the environment today so that future generations will not suffer the consequences", "The benefits of protecting the environment do not justify the expense involved", "The environment is one of the most important issues facing the Indian society today", "Firms should provide a wide array of green products in the market", "Citizens should recycle their household waste", "The increasing deterioration of the environment is a serious problem" and this factor accounts for 8.990% of total variance. Fourth factor is the Value for Money which is the combination of variables; "Most of the green products available today don't provide value for money", "My personal benefits are more important than the environmental issues", "I would like to use green products only if they are economical" and is accounted for 8.299% of total variance. The fifth factor is the Loyalty of customer towards the products and is the association of variables i.e., "I always look for a green version of a product to buy", "I tend to be more loyal to products from companies that practice green advertising", and is accounted for 6.164% of total variances. Sixth factor is the Economic consideration which is the combination of variables like "Personally, I have economic concerns which I consider more important than preserving the environment", "Recycling should be another option for waste disposal other than the garbage bin" and accounts for 4.593% of total variance. The seventh factor is the Differentiation factor which takes into consideration "A wide range of various products available in market are green in nature" as the only variable and accounts to 4.368% of total variance.

**TABLE 10: WILLING TO PAY EXTRA FOR ECO-FRIENDLY PRODUCTS**

| Sl. No. | Description | No. of Respondents | Percentage |
|---|---|---|---|
| a) | NO extra | 141 | 36.6 |
| b) | Upto 5% | 148 | 38.4 |
| c) | UPto10% | 42 | 10.9 |
| d) | Upto 20% | 43 | 11.2 |
| e) | More than 20% | 11 | 2.9 |
| f) | Total | 385 | 100.0 |

In order to understand the magnitude of consumers' contribution motive towards environmental protection, the extent of their willingness to pay extra in purchasing green products and protecting this attempt is made. The analysis signifies that more than one third respondents (36.6%) have not shown any interest in taking economic load for eco friendly products. In contrast 38.4% respondents seem eager to pay a premium up to 5% for eco friendly products as their contribution in this noble deed. 10.9 percent respondent in the sample were ready pay extra premium up to 10%, 11.2% respondent in the sample are ready to pay up to 20% extra price as compared to the similar product yet non eco-friendly in nature. It is significant to note that almost one fourth (24.93%) respondents in the sample are ready to pay extra premium more than 10% for eco friendly products.

The findings of the study of the degree of association of willingness to pay extra premium for green products by the customers and their demographic profiles are depicted as under.

**TABLE 11: DEGREE OF ASSOCIATION OF CUSTOMERS' WILLINGNESS TO PAY EXTRA FOR ECO FRIENDLY PRODUCT ACROSS THE LEVEL OF EDUCATION**

| | Willing to pay extra for Eco friendly product | | | | | Total |
|---|---|---|---|---|---|---|
| Education level | NO extra | Up to 5% | Up to10% | Up to 20% | More than 20% | |
| Intermediate | 0 | 20 | 0 | 0 | 0 | 20 |
| Graduate | 61 | 87 | 2 | 10 | 0 | 160 |
| Post Graduate | 80 | 41 | 40 | 33 | 11 | 205 |
| Total | 141 | 148 | 42 | 43 | 11 | 385 |
| Pearson Chi-Square | 105.755(a) | 8 | | | | |

The null hypothesis formulated earlier i.e. the consumer willingness to pay extra premium does not differs significantly across their level of education; the obtained value of chi square is much higher than the tabulated value (15.5073.) at 5 percent level of significance and 8 degree of freedom hence null hypothesis is rejected. The conclusion may be drawn as it's a clear-cut indication that consumer's willingness to pay extra premium varies significantly across their level of education.

**TABLE 12: DEGREE OF ASSOCIATION OF CUSTOMERS' WILLINGNESS TO PAY EXTRA FOR ECO FRIENDLY PRODUCT ACROSS THE GENDER CATEGORY**

| | | Willing to pay extra for Ecofroiendly product | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | NO extra | Upto 5% | UPto10% | Upto 20% | More than 20% | |
| Sex Category | Male | 141 | 122 | 34 | 16 | 5 | 318 |
| | Female | 0 | 26 | 8 | 27 | 6 | 67 |
| Total | | 141 | 148 | 42 | 43 | 11 | 385 |
| Pearson Chi-Square | | 101.974(a) | 4 | .000 | | | |

Also, null hypothesis formulated earlier i.e. the consumer willingness to pay extra premium does not differs significantly across gender category; the obtained value of chi square is much higher than the tabulated value (9.48773) at 5 percent level of significance and 4 degree of freedom hence null hypothesis is rejected. The conclusion may be drawn as it's a clear-cut indication that consumer's willingness to pay extra premium varies significantly across gender category.

## DISCUSSION

The principle purpose of the study was to investigate the consumer attitude and awareness towards the environment and the green products. Using factor analysis the factors that upholding the customers for the purchase and consumption of green products and influencing them to contribute environmental protection are explored. The important factors emerged as Media, Policy Initiatives and Commitment, Sustainability, Value for Money, Loyalty, Economic and Differentiation. Subsequently One way ANOVA is carried out to assess the variability of means of different factors influencing customers in favour of green product across the professional categories. Analysis indicates that among all the factors identified; policy initiative by government toward green environment and green product are rated highest by the respondents of service category. One way ANOVA across occupational status to verify the hypothesis that there is no

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significance difference in the mean of different factors motivating respondents in favour of green environment and green product among different occupation of respondents reveals that, the calculated value of F is greater than the tabulated value of F (2.37) At (p< 0.05) level of significance. Thus the rejection of the hypothesis indicates, there are significant differences in the mean of different factors across the different occupational categories of respondents. Also, there is significant difference between gender in their environmental attitudes and their attitudes on green products. This result supports the other studies carried out earlier that have shown the significant differences between men and women in environmental attitudes (Brown and Harris, 1992; Tikka et al. 2000) and in overall green purchase attitudes (Mostafa, 2007). However, in a Canadian study, Eagles and Muffiti (1990) found no differences between the genders in environmental attitudes. Samdahl and Robertson (1989) found the relationship not to be significant in the case of ecologically attitudes and genders. Moreover, D'Souza et al. (2007) has indicated no differences with respect to gender in the respondents' attitude towards green labels. A large number of studies found little or no relationship between demographic characteristics and environmental attitudes and behavior as the demographic variables have less explanatory power than the psychographic variables (Schwepker and Cornwell, 1991). Thus results from gender-based investigations are still far from conclusive (Getzner and Krauter, 2003) and seem to warrant more future research. However it is noteworthy that, economic concern has been observed among both the gender categories. Even though it is seen that consumer willingness to pay extra premium differs significantly across their level of education.

## CONCLUSION

The concept of green marketing, its awareness, its acceptability and adaptability has increased substantially over the last few years. Several non government organizations, manufacturers and governments both at centre and state have joined their hands in building consciousness about green products and the ill impact of organic products on human life and on environment as a whole. The study indicates that majority of consumers are aware of the green marketing to some extent or the other. As a result of this, they are willing to purchase eco friendly products and ready to pay extra to make the environment healthy and sustainable. It is evident from the study that as gender, occupation and education level of consumers play substantial role and influence the purchase decisions; a lot to do in the promotion and awareness building movements to obtain sizable amount of result in environmental protection. Also, policy and law makers are expected to take all sorts of initiative to bring uniformity in understanding this global issue and to encourage all round participation of this society in this regard. The lack of information and sense of responsibility should be well taken care of through continuous efforts by not only the manufacturers and governing bodies but also by intellectuals, educationists and by individuals for the betterment of this planet. Above all since, personal benefit and economic orientation of individuals are surfaced in the study as crucial in purchase and consumption behavior, the marketers and manufacturers should develop proper roadmap to make green products economical or to price them at par with the non-green ones in same product categories. The governments must provide sufficient financial support for R&D in developing cheaper eco-friendly products and also may provide subsidy to encourage green consumption.

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