

Green Product: Our Response to Environmental sustainability

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Abstract

In achieving sustainable development Green products and the consumers' preferences for it are important. Present world realises the importance of green environment. So more and more initiatives are coming up in different parts of the world. These initiatives in production and consumption may lead to a better environment around us. The purpose of this study is to assess the awareness and attitude of consumers regarding green products and to identify the factors which act as an obstacle to green life style. To conduct the study MALAPPURAM district of Kerala State is selected. Primary and secondary data was collected from various resources. This data was analysed with suitable statistical. The analysis reveals that the people have special concern towards the environmental protection and that is why majority of the people opt for organic products. Such an attitude by the people helps the movement of sustainable development.

Keywords: Green product; Green marketing, Environment, sustainable development, Kyoto protocol, Clean Development

1. Introduction

Different traditions refers our environment as mother nature because our dependence on nature is so great that we cannot continue to live without protecting the environmental resources. Most traditional societies have learned that respecting nature is vital to protect their own lively hoods. This has led to many cultural practices that have helped traditional societies to protect and preserve natural resources. Activities of men has been imposing heavy burden on the earth's capacity and that has led to increased interest on environmental issues. The consequence of environmental degradation has resulted in climate change, globalwarming, depletion of ozone layer etc. It is emphasized by many that the majority issue arise because of rapid population growth,our consumption habits and other factors polluted the earth. So such environmental problems pose great challenge in the history as the environment continues to worsen. It has become a persistent public concern in developed countries to the green movements for the preservation of environment. But the success of this policy depends on the attitude of people.

2. Significance of the study

Present scenarios of changing consumer preferences and consumer awareness for an environmental issue has given arise to purchase and consumption of green products. Theseawakened consumers are ready to switch their preferences from main stream products to green products which have least impact on environment. As the concern for sustainability is increasing and shaping the consumer behavior, firms are interested to introduce green products in the market and to make their product as green as possible in order to address consumer needs.

This study is to investigate the behavior of consumers towards green products. In light of the given objective, an attempt was made to study consumer's level of awareness, attitude and various intentions behind the use of green products as well as the non usage of same in the district of MALAPPURAM.

3. Literature Review

A lot of literature is available regarding green products. Many researchers argued for rapid growth in the use of green products which represented a shift in consumption behavior and with increased demand for green products.

According to *Carrign* et al, people who buy environmentally friendly products are called green consumers. Green consumption is related not only to consuming goods, but also to buying environmental friendly products and to recycling.

Ottman (1992) argued that green buying must be seen in the context of wide debates surrounding the development of sustainable ways of living that incorporate other environmental actions in a holistic conceptualization of sustainable life styles.

Roberts (1995) attempted to segment US consumers on the basis of their socially responsible consumer behavior and also determined the profile of socially responsible consumers.

Shrum et al (1995) attempted to construct the psychographic profile of green consumers on the basis of their attitude, beliefs and interest in buying green products. Factor analysis identified the five factors of consumers' attitude and beliefs viz, impulse buying, opinion leadership, interest in products, brand locality and care in shopping.

Roberts (1995) in his study attempted to investigate the demographical and attitudinal characteristics of ecology conscious consumers of USA in 1990s. The study tested usefulness of the four demographic variables and the psychological variables in predicting the profile of ecologically conscious consumers.

Another attempt made by *Vlosky et al* (1999) examined the relationship between intrinsic motivation of consumers and their willingness to pay premium price for environmentally certified wood products.

Another study by *Gossling et al* (2005) investigated German students' level of awareness related to the environmental issues, their willingness to change green power products and hindrances in changing to green power by applying the target-specific approach.

4. Objectives of the study

The objectives of the study are;

- To assess the awareness and attitude of consumers regarding green products.
- To identify the factors which act as an obstacle to green life style
- To examine the factors affecting the purchasing behavior of green products

5. Background of the study

Since United Nations 'earth summit' conference in 1992, an international consensus has been generated to integrate environmental issues into manufacturing procedures and consumption pattern to achieve sustainable development. Governments around the world have become so concerned about the environmental facts. Products from paint to paper to electronics are now a day's evaluated by eco-labeling organization worldwide. So the key challenge for mankind is to find more sustainable and equitable ways to produce and consume live. Sustainability was once a vision of the future shared by an environmentally-oriented view.

An important environmental conscious behavior is environmental consumerism, that is, purchasing and consuming products that are favorable towards environment. An example for such an eco-friendly

product is called green product. A green product is the product that will not pollute the earth or deplete natural resources, and can be recycled or conserved. It is a product that has more environmentally sound content or packaging in reducing environment impact. In other words it combines green concepts in the production, usage, disposal of these products, while allowing the products to meet the same manufacturing regulations. As the concept of green product is very recent, the literature is deficient of the commonly accepted definition of green products.

6. Methodology and study design

The study is conducted using both primary as well as secondary data. The primary data has been conducted as a sample survey, which was conducted among the peoples in MALAPPURAM district. The survey uses very small sample size of 200. A detailed interview schedule will be prepared to collect data about the behavior of consumers towards green products.

In addition to the primary data, secondary data too were used for this study that was compiled from various published papers, articles in journals and articles on the internet. The secondary data was used to get more detailed report on the history of consumer behavior towards green product. The secondary data were collected from relevant journals, books and other published data.

7. Green Product

Those product or services whose manufacturing, purchase and use allows for economic development, while still conserving for future generations, are referred to as green products. In general, products which do not pollute the earth or abort natural resources, and can be recycled or conserved, are ecological or eco friendly products. For example organic food, herbal toiletries, jute bags, CFL lamps, hybrid cars etc. some definitions of green products are given below

- Green product is considered as the green concepts in the production, usage and disposal of these products, while allowing the products to meet the same manufacturing regulations.
- Products whose functions or ideas ideal with the process of material retrieval, production, sales,utilization and waste treatment available for recycling,reduced pollution and energy saving.
- Products designed to minimize its environmental impacts during its whole life cycle. In particular non renewable resource use is minimized, toxic materials are avoided and renewable resources use take place in accordance with their rate of replenishment.

7.1 Consumer Behavior and Green Products

Consumer is an individual who buy product or service for personal use and not for manufacture or resale. A consumer is someone who can make decisions whether or not to purchase an item at the store, and someone who can be influenced by marketing and advertisements. Any time someone goes to a store and purchase thing, they are making decisions as a consumer.

The consumer is the one who pays to consume the goods and service produced. As such consumers play a vital role in the economic system of nation. In the absence of effective consumer demand, producer would lack one of the key motivations to produce and sell to consumers.

7.2 Green Consumerism

Green consumerism is based on public awareness of publicizing environmental issues. Green marketers try their best to capitalize this by forming strategies that allow users to integrate green products in to their style. Many such efforts by green marketers have met with considerable success. The organic industries, for example, specialize in the sale of organically based foods, health and nutritional products, and other green life style items.

Green consumer purchasing behavior consumer behavior involves the psychological process that consumers go through in recognizing needs, finding ways to solve the needs, collect and interpret information, make plans, and implementing these plans, forming purchase decisions and purchase behavior. In simple word, consumer behavior can be defined as the “study of how people or organization behave when obtaining, using, and disposing of products and services”.

Behaviour of green consumer involves the use and disposal of products as well as the analysis of how they are purchased. This means understanding the consumers’ behavior as a process in purchasing goods and services. Use of product is of great concern to the marketer, as this it will influence the way a product is best suited or how it encourage increased green consumption.

8. Environmental Protection and Green Initiatives

Human development has generally been parasitic on the environment because there is fundamental interdependence between environment, the physical, biological and social surroundings and their interactions, that sustain all life forms. Environmental deterioration has seriously threatened the human life, health and livelihood. Thus, there has been a thrust on the protection of environment world over and so evolved the environmental law with global concern. International concern for environmental protection has gained momentum with Stockholm Declaration in 1972. It is considered to be *magnacarta* of environmental protection and sustainable development. Then a series of global efforts have been undertaken internationally to protect environment. Here we are discussing some environmental gathering of international importance which has led to inculcate environmental concerns and protection among the countries of the world.

8.1 United Nations Conference on Human Environment(UNHCE)

In first United Nations Conference on the Human Environment (UNCHE) was held in Stockholm, Sweden from June 5 to June 16, 1972, representatives from 113 countries were present, as well as representatives from many international non-governmental organizations, intergovernmental organizations, and many other specialized agencies.

The UNCHE emphasized that defending and improving the environment must become a goal to be pursued by all countries. The Stockholm Declaration and Action Plan defined principles for the preservation and enhancement of the natural environment, and highlighted the need to support people in this process. The Conference indicated that “industrialized” environmental problems, such as habitat degradation, toxicity and acid rain, were not necessarily relevant issues for all countries. In particular, development strategies were not meeting the needs of the poorest countries and communities.

8.2 Kyoto Protocol

The Kyoto protocol is a protocol to the United Nations framework convention on climate change (UNFCCC) aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving stabilization of green house gas concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The protocol was initially adopted in 1997.

Under Protocol, thirty nine developed countries and the European Union commit themselves to a reduction of four greenhouse gases (GHG) (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride) and two groups of gases (hydro fluorocarbons and per fluorocarbons) produced by them, and all member countries give general commitments.

8.3 Clean Development Mechanism

Clean Development Mechanism allows emission-reduction/removal projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tone of CO₂. These certified emission reductions can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

8.4 CDM India

In India, the natural resources are under tremendous pressure and therefore there is an urgent need to pay attention for a right balance between consumption with conservation of natural resources. This paper reviews the existing literature on green marketing and studies the role of different stakeholders in 'green marketing strategy'. Further it examines the various factors hampering the uptake of green products in India and highlighting the need of creating consumer awareness and extensive use of cleantech (environment friendly technology) to address green myopia in India.

9. Examples for Green Products and Services in India

Multinationals today are eyeing India and introducing their products in the Indian markets. Many green products have been launched here and performance of these products is good among Indian consumers. Some of the successful cases of green product manufactures are;

9.1 CNG transport in New Delhi

New Delhi, capital of India was being polluted at a very fast pace until supreme court of India forced a change to alternative fuels in 2002, a directive was issued to completely adopt CNG in all public transport system to curb pollution.

9.2 TATA's "Going Green" initiatives

Tata group of companies in India has taken considerable steps to cut carbon emission across companies. If globalization was the driving factors for Tata group in the last decade, going green is the buzz word for the present one. India's oldest industrial house is stepping up efforts to reduce carbon footprint across the country by producing eco-friendly products. For instance, Tata steel aims to reduce carbon dioxide emission to 1.7 ton of liquid steel made by 2012. The ideal global benchmark though is 1.5.

The hotel chain by the TATA, TAJ, is in the process of creating eco rooms which will have energy efficient mini bars, organic bed linen and napkins made from recycle paper.

9.3 NGOs campaigning against polythene

Self Help groups in Uttarakand and many part of India have launched a campaign to banish polythene bags by replacing them with paper bags and providing them to shop keepers at lucrative prices. Pahal is one such group that has training women to make paper bag from old newspapers. This drive has produced a sustainable livelihood for the poor women in that area.

9.4 ITC Green hotels in India

ITC welcome group, India's premier chain of luxury hotels has become synonymous with Indian hospitality. They have set new standards of excellence in the hotel industry in accommodation, cuisine, environment aid and in guest safety. ITC-welcome group is actively committed to the environment. WelcomEnviorn is their vision for a green world. The guiding principle is 'reduce, reuse and recycle'.

9.5 Green telecom India

Energy consumption is one of the leading drivers of operating expenses for both fixed and mobile network operators. Reliable access to electricity limited in many developing countries that are currently the high growth market for telecommunications. At the same time, many operators have adopted corporate social responsibility initiatives with a goal of reducing their networks carbon footprints, and network infrastructure vendors are striving to gain competitive advantage by reducing the power requirements of their equipment. According to an industry report, all of these factors continue to over next several years, and green network equipment will grow to represent 46% of \$277 billion global telecom infrastructure market by 2014.

9.6 NTPC

Badrapur thermal power station of NTPC in Delhi is devising ways to utilize coal-ash that has been a major source of air and water pollution. Barauni refinery is IOC is taken steps for restricting air and water pollutants.

10. INTERNATIONAL INITIATIVES

10.1 Philips-earthlight: an early experiment

In 1994, Philips launched the 'earth light' a super energy efficient compact fluorescent light (CFL) bulb designed to be an environmental preferable full substitute for the traditional energy-intensive incandescent bulb. The company re launched the product 'marathon' underscoring its new super long life positioning and promise of saving \$26 in energy cost over its five year life time.

10.2 The Hewlett-Packard Company

Electronics sector gives room for using green marketing to attract new customers. One example of this HP's promise to cut its global energy use 20 percent by the year 2012. The Hewlett-Packard Company announced plans to deliver energy-efficient products and services in its facilities worldwide.

10.3 Silicon air battery

In Washington scientist at the Techno-Israel institute of technology have developed a new, environmentally friendly silicon-air battery capable of supplying non-stop power for thousands of hours without needing to be replaced. As it is created from oxygen and silicon batteries would be lightweight and an unlimited shelf life. Potential uses include medical applications, sensors and microelectronics structured from silicon. Silicon-air batteries would be able to provide significant savings in cost and weight because they lack built in cathode used in conventional batteries.

10.4 IBM

Project big green, an IBM service initiative is aimed at building and redesigning datacenters that consume less energy. With the launch of its second phase of the project, the team from IBM global technology services (GTS) is now targeting large corporate customers in India. The initiative for an average 25000 square foot data centre, the potential energy saving should be upwards of 42%, which based on the US energy terms, would equate to a 7439 ton reduction in carbon emission per year.

10.5 Videocon

Videocon has initiated upon massive re-branding exercise in order to position itself as younger, fresher and eco-friendly ahead of its foray into diverse areas such as DTH and telecom. As a first step towards

the revamp, the conglomerate has unveiled a new logo, designed by inter brand Singapore. The new TV is a more fluid version of the erstwhile logo and comprises the two green lava like shapes.

11. Green Ranking of countries

Many countries are going green or adopting renewable energy solutions as a measure of protecting themselves against the ill effects of global warming or climate change. Some of the strategies countries employ to ensure less and less emitted carbon into atmosphere include; recycling, using renewable energy, promoting the use of green products, driving hybrid vehicles.

Countries are ranked using the environmental performance index (EPI), a method which basically measures the performance of over 163 world governments' environmental policies. It is by combating climate change and fostering environmental conservation list through recently availed detailing the strides that countries are making in an effort to green. These details will provide an insight for the countries like India. The greenest countries in the world are Iceland, Switzerland, Costa Rica, Sweden, Norway, Mauritius, France, Austria, Cuba, Columbia.

12. Data Analysis and Interpretation

A detailed analysis was conducted with respect to the given objectives of the study. About 200 respondents from the district of MALAPPURAM was selected for survey and survey was conducted through questionnaire. Among the 200 people responded to our survey only 82 individual are found to be using green products.

Table 1

Awareness about green products

The term green product means	No of respondents	Percentage
Aware about Green products	75	37.5

Using green products	82	41
Not aware	43	21.5

Primary survey

It is clear from the table above that only 41 percentage of the sample is aware about the importance of green products. Among these only 75 are using it.

Table 2
Type of awareness about green products

Green product means	No of respondents	Percentage
Green colored product	3	3.6
Natural/organic product	21	25.6
Recycled/recyclable products	10	12.1
Bio degradable products	18	24.3
Fresh products	6	7.3
Healthy product	16	19.5
Good quality product	8	9.8
Total	82	100

Source: primary survey

It is evident from the above table that majority of the population (25.6%) understand green product when they heard it for first time that they are natural or organic products. And the 18 percent of the population think that they are biodegradable product and only 16 percent of total population believes that they are healthy product.

Table 3
Awareness about the dimensions of green products

	No of respondents	Percentage
Benefit for health	43	52.4
Benefit for environment	63	78.7
Benefit for Society	28	34.1

Source: primary survey

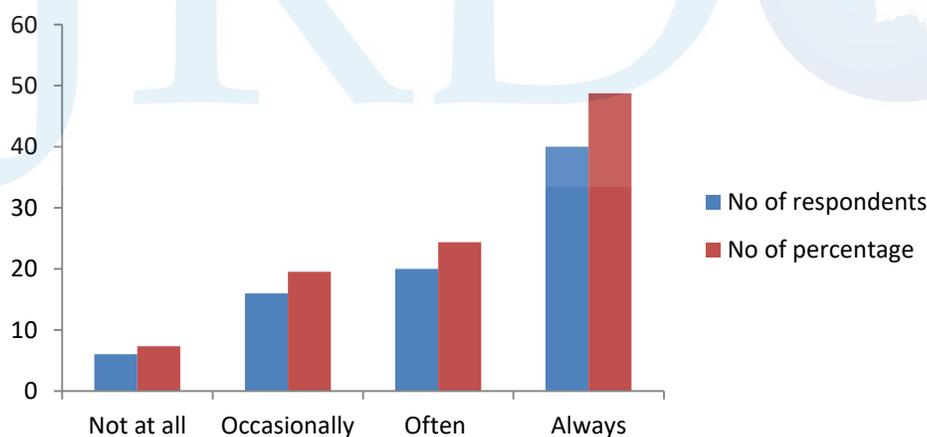
From the table above we see that 52.4 percent of the populations believe that green products are beneficial to the health and 78.7 percentage considers it as beneficial for environment.

Table 4
Reason for choosing the green products

Item	No of respondents	Percentage
Concern for status	14	17
Concern for Quality	18	21.9
Concern for environment	22	26.8
Concern for health	28	34.14
Total	82	100

Primary survey

Figure 1
Reason for choosing the green products



From the above table and figure it is clear that out of the total sample, 34.14percent people are buying green products because of its concern for health Reasons for purchasing green product and 26.8percent of people are consuming because of concern for environment and other two factors are 26 and 17percent respectively.

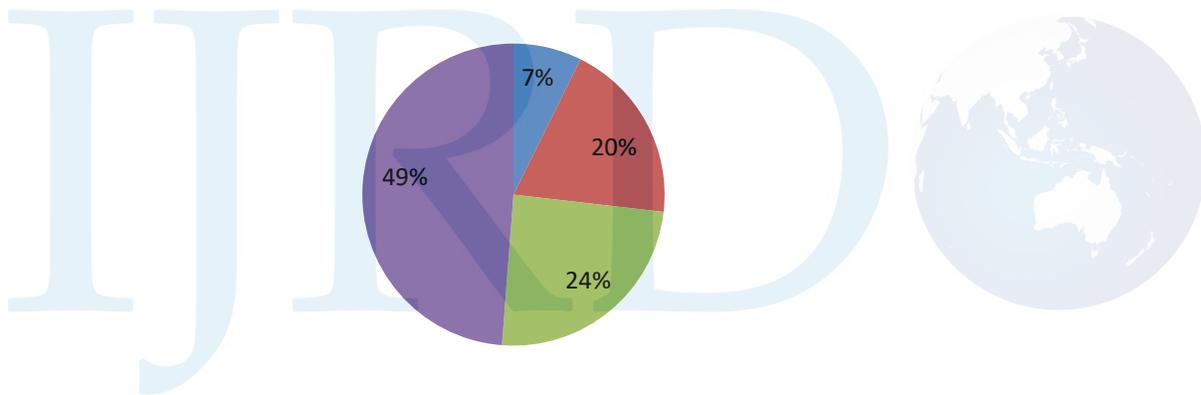
Table 5
Preference for green product

	No of respondents	No of percentage
Not at all	6	7.3
Occasionally	16	19.5
Often	20	24.39
Always	40	48.78

Source: primary survey

Figure 2
Preference for green product

■ Not at all ■ Occasionally ■ Often ■ Always



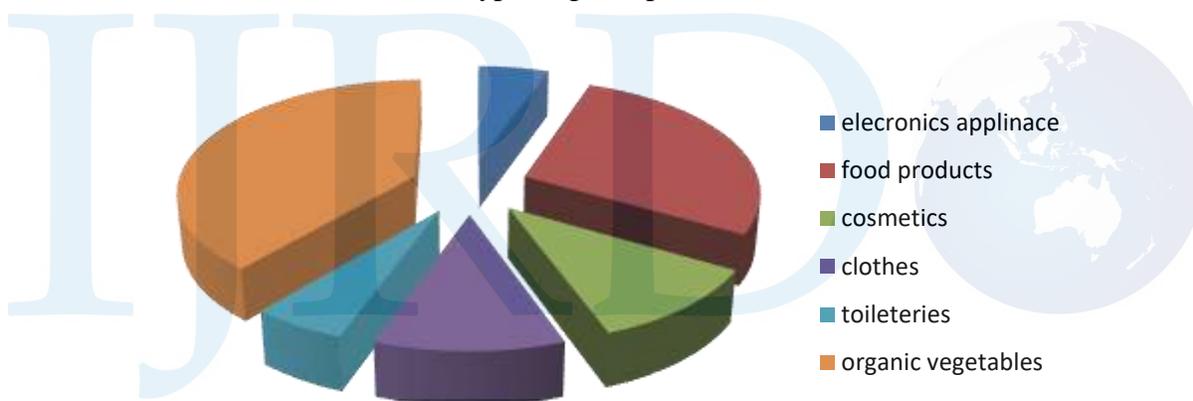
From the above table and pie diagram, majority of the respondents are always purchasing green product and only 5.56 percent of the total respondents are not at all purchased green product. 22.2 percent of respondents sometimes purchase green product and 27.8 percent of people purchasing green products often.

Table 6
Type of green products purchased

Type of green product	No of respondents	Percentage
Electronic appliances	4	5.55
Food products	20	27.8
Cosmetics	10	11.1
Clothes	10	11.1
Toiletries	4	5.55
Organic vegetables	35	38.9

Source: primary survey

Figure 3
Type of green products

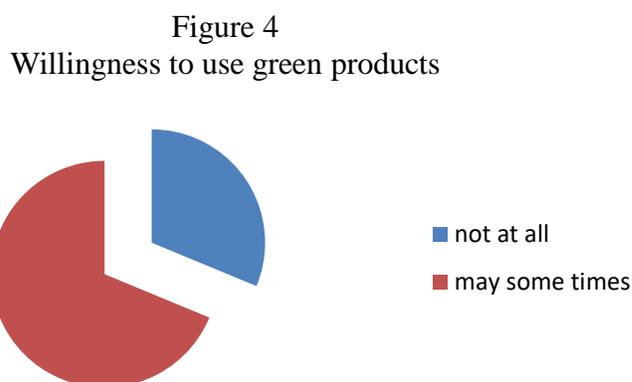


From the above table and graph, it is evident that products 38.9 percent of the people organic vegetables in the category of green products. Only 5.55 percent t are using green products of electronic appliances and Toiletries. Food products, cosmetics, clothes, toiletries are 27.8, 11 .1, 11.1, respectively.

Table 7
Willingness to use green products in future

	No of respondent	Percentage
Occasionally	20	24.39
Surely	62	75.61

Source: primary survey



From the above graph and table it is evident that 68.75 percent respondents are not sure about their willingness to use green products in future. And rests of the respondents are not at all willing to use green products. This shows that environmental concerns for people are not up to the mark.

13. Major findings

- Majority of the sample green customers are males
- Major sources of awareness about green products are through news papers
- Major factor influencing the purchase of green product is the benefit for health
- Major green product purchased by the respondents is organic vegetables.
- Major obstacle in purchasing green product is lack of awareness and this lack of awareness can be attributed to low level of education.

14. Conclusion

Green products combine green concepts in the production, usage and disposal of these products, while allowing the products to meet the same manufacturing regulations. Green is relative, describing products with less impact on the environment than other alternatives. Various studies in the past have successfully

established consumers' attitude towards green products and plays significant role in determining their behavior towards the same. People having higher ecological concerns hold positive attitude for green products and buy them to facilitate environmental preservation as well as to elevate quality of their life. By and large behavior of the consumers towards green products can be determined by their behavioral intention.

This study is an effort to investigate the behavior of consumers towards green products. In the light of objective, an attempt was made to study consumers' level of awareness, usage and various factors behind the usage and the non usage of same in MALAPPURAM district. The scope of the study was narrowed down to a defined geographical region, MALAPPURAM, Kerala State, so that various dimensions of consumer behavior towards green products come into sharp focus.

From the analysis, it can be concluded that majority respondents claim to be less aware of green products and those who claimed to be aware of green products, actually didn't know as to what green products constitute. From the deeper analysis regarding the awareness of green products, it is understood that green product is a new concept for majority of the respondents. Furthermore the respondents did not understand that buying green products also contribute towards environment. By analyzing the awareness about the dimensions of green product, majority respondents respond that green products are good for health and they are not aware about the environmental impacts.

This study shows that the understanding of consumers about green products are different, ie; actually they did not know what exactly green products meant. They are not at all bothered about the environmental impact. This study also reveals that a main reason behind the usage of factors is concern for health than concern for environment. So the main conclusion that can draw from this study is that people's lack of awareness lead to non usage of green products.

The study shows that people in general have no concern regarding environment. This lack of awareness can be attributed to the people's educational level. Lack of education leads to decreased concerns regarding environment and less awareness about eco friendly product. Hence, marketers and governments cannot be individually responsible but environmental protection agencies, media can create awareness about green product. Similarly the study points towards the need for an active role on the part of government and various stakeholders in educating consumers towards being a green consumer.

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