

CONSUMER ADOPTION OF GREEN PRODUCTS AND THEIR ROLE IN RESOURCE MANAGEMENT

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ABSTRACT

The environmental degradation has evolved as one of the major issue for global concern. Problems such as ozone layer depletion, acid rain, air and water pollution are affecting the quality of human life day by day. Sustainable development is one way of overcoming such menace but at the same time continuous technological advancement and innovations are required to support the development in sustainable manner. The current study talks of sustainable economic, environmental and social development. The study aims the role of 'Green Products' in resource management. Various category of green products are available in the market which are eco-friendly and are good for health. The study suggested the factors influencing and hindering the adoption of green products. The paper highlights four measures namely Social, Economical, Political and Technological for adoption of green products by consumers. The study conclude with suggestions that continuous innovations are required that consume the natural resources in more sustainable way and produce eco-friendly goods which are recyclable and compostable.

Keywords: *green products, Biodiversity, economic measures.*

Introduction:

The environmental degradation is on rise around the world and both the consumers and the business marketers are concerned of its consequences. The concern for the environment is regarded as one of the important issue and almost two in three consumers (64% around the world) believes protecting the environment is one of the most important issue, even at the cost of economic growth (Ottman, 1998). It is good to see that environmental awareness is on rise and the people are realising the importance of conserving the environment (Jain and Kaur, 2004). Our unsustainable lifestyle in the past has left the environment highly destabilised. According to the study by (Grunert, 1995), around 30-40% of the environmental degradation has been bought by consumption activities of private households. As a result, public begun to feel considering environmental aspects in their consumption habits, and in turn, business felt strong need of environmentally responsible actions (Trivedi, Patel and Savalia, 2007).

The protection of environment through sustainable consumption is possible through 'Green products'. The products which are non-toxic, made from recycled materials, minimally packaged and that has less of environmental impacts are known as green products (Ottman, 1998). The marketing of green products is at nascent stage in India and making consumer aware of green products is essential (Jain and Kaur, 2004). The responsibility for making consumers aware of the green products is not only confined to government, but the businesses too need to commit to environmental decisions. The motivation to adopt the concept of green movements by marketers rests on consumers for demonstrating a high degree of environmental attitude which translate into high environmentally friendly purchasing commitment (Sharma and Bansal, 2013).

Sustainable green product attempt to create designs that are sustainable in terms of environmental burden and resource use, whilst developing product concepts as parts of sustainable whole systems that provide a service or function to meet essential needs. To

respond effectively and efficiently to the environmental sustainability challenge, an important role can be played by companies, through appropriate strategies and operations, such as green processes and product development. Green products are the wave of the future. There is immense opportunity in developing new bio-based products, but the real challenge is to design sustainable bio-based products. New environmental regulations and societal concern have triggered the adoption of green products and processes that are compatible with the environment. In this study, we see the role of Green Product in the Resource Management for the Sustainable Development.

Literature Review:

Jain and Kaur, 2004 explained that consumers themselves are the major contributor to environmental degradation and pollution. The more the consumers are aware of green products and their effects on environment, less are the chances of degradation of environmental problems and depletion of natural resources that have reached the alarming heights.

Wong, 1996 suggests the three main influence that determine the extent and rate of consumer adoption of green products. First, consumers tastes and their preferences for ecologically friendly products, second supply side decision determines the availability, pricing and promotion of green products and lastly the government policies and regulations that impact on both consumer and supplier behaviour.

Krishna, 2012 bases his study towards awareness of Indian consumers towards green products. Compared to consumers in developed countries, the Indian consumers are less aware of environmental issues. Initiatives from the government and industries are still ice blue. The author suggested wide promotion of green products by the marketers as well as from the government and environmental agencies.

Gogia, 2012 in her study focuses on factors relating adoption of green products for environment sustainability. It covers the level of awareness of the consumers about the environmental concern and availability of green products in the market and also the attitude of consumers to include green products in their purchase behaviour.

Durif, 2012 in his study emphasis on perceived risks factors associated with adoption of green products. Why do people purchase or choose not to purchase green products? Could perceive risk towards green products be one of the explanation for the green gap? The different risks involved are a) Functional risk b) Financial risk c) Temporal risk d) Physical risk and e) Psychological risk.

Trivedi, Patel and Savalia, 2007 in their study analyses the dimensions of pro-environmental behaviour (PEB) of Indian consumers. Various PEB were discussed like household recycling behaviour, water and energy savings, reducing meat

consumption, composting, resource conservation behaviour, reducing use of cars and fly less etc.

Research Methodology:

The research design employed for the present study is exploratory in nature. The green products were divided into various categories i.e. a) Organic food products b) Organic personal care products c) Jewellery products d) Toys e) Pets products f) Electronic products g) Laundry products h) Furniture products i) Clothing products j) Organic agriculture products. The selected green products categories were analysed from the websites of various green products manufacturer. Based on the literature review on green marketing and green products, the study identified the various factors causing hindrances in green products adoption. Also the measures of adoption of green products is also suggested in the study.

Analysis and Findings:

Green Products:

The products which are non-toxic, made from recycled materials, minimally packaged and that has less of environmental impacts are known as green products (Ottman, 1998). In general, green products are known as ecological products or environmentally friendly products that have less impact on environment. Green products or environmental products are business term used commonly to describe products which protects and enhance the environment by conserving energy and/or resources and reducing or eliminating the use of toxic agents, pollution and waste (Pavan, 2010).

Consumer Adoption of Green Products:

The green products in India is a new thing. The companies need to do more green marketing to make consumers aware of green products. The green marketers faces many difficulties when they offer green products to the consumers. Based on the literature review, the study explored the following hindrances in green products adoption.

Table 1: Factors Causing Hindrances in Green Products Adoption

Social	Economic	Political/ Administrative	Technological
Public Awareness	Defective Marketing System	Lack of Efficient laws	Poor Green Products related Research and Development
Lack of People Participation	Lack of finance	Lack of Political Will Power	Low Participation of Media
Lack of NGO's Participation	Regional Disparity	Corruption in Politics	Poor Educational technology
Weak Social Organisation	Educational Facility	Political Instability	Low Dispersion of Green Products Technology
Lack of Self Help Groups Participation	Communication Facilities	Criminalisation of Politics	*****
Under estimation of Green Products	Poor Public distribution system	Pressure Groups	*****

Source: Compiled by Authors

Based on the previous study on barriers on green products adoption, the study identified the negative impacts on Environment, Society and Economy if green products are not adopted in the future. The various impacts is compiled through the table and is explained further.

Table 2: Negative Impacts without Green Products Adoption

On Environment	On Society	On Economy
Threat to food chain/food web	*****	Low National Development and Low Personal Income
Threat to Biodiversity	Health Hazards	Unemployment
Ecological Imbalance	Political/ administrative unrest gives birth to social unrest.	Poverty
Desertification/Land Degradation	*****	Adverse effects to industrialization
*****	*****	Regional Disparity
*****	*****	Increase in Foreign Debts

Source: Compiled by Authors

Threat to food chain/food web:

Due to non-adoption of green products and excess utilisation of natural resources which is meant also for other living creature is ultimately causing the extinction of species and so threat to food chain.

Threat to Biodiversity:

As there is rapid extinction of species which are also causing the threats to biodiversity as the balance of nature is damaged.

Ecological Imbalance:

When there is a damage in biodiversity of the environment, ecological imbalance ultimately occur which creates problems in the sustainability of national development.

Desertification/Land Degradation:

Because of non-adoption of green products technology by many companies, and using the traditional methods of farming, is causing the degradation of land as well as the quality of the food have also gone substandard.

Health Hazards:

Green products help in providing nutritious food to all and lack of these products may causes many health

related problems to those who are using pesticides grown food products.

Political/ administrative unrest gives birth to social Unrest:

Poor agricultural productivity is one of the prime factor for poor management of population in terms of food distribution. So politically it is very important for the government to support and promote the organisation who are manufacturing the green products.

Low National Development and Low Personal Income:

The productivity per yard can be increased with the help of organic farming. At present, the traditional farming is proportionately yielding less as compared to organic farming. This is one of the reason of low gross domestic products and hence low per capita income.

Unemployment:

Organic farming is a new hope for the farmers as the productivity is more and there is more profit. This boost the employment opportunity for the young people to become organic farmers.

Adverse effects to industrialization:

Agricultural problems leads to the poor production of raw materials for industrial development which become cause for the adverse effect to industrialization and national economic profits and services of the people.

Regional Disparity:

Uneven agricultural development leads to uneven distribution of agricultural and industrial profit which becomes one of the causes for regional disparity of society and economy of the nation.

Increase in Foreign Debts:

Low agricultural and industrial productivity is reason for the low export of agricultural and industrial products which are causing foreign debts. Ultimately this hits national development.

Measures of Green Products Adoption:

The study suggested some measures for green products adoption through the thorough analysis of the past study on green marketing and green products of different nations. The suggested measures can be used for decision making for the marketers dealing in green products.

Table 3: Measures for adoption of Green Products

Social	Economic	Political	Technological
Public Awareness	Efficient marketing system for green products	Political Will power	High level of Research and Development for Green Products
Enhancing community participation	Developments of information and Communication system	*****	High Dispersion of Green Products Technology
Participation of NGO'S and Self Help Groups	Improvement in Educational Level	Green product oriented Foreign Policies	High Media Support
Improvement in Administrative Efficiency	Efficient Public Distribution System	*****	Training for Handlings of Green Products Technology

Source: Compiled by Authors

Social Measures:

Public Awareness:

It is important factor which determined the consciousness of people for environment and use of Green Products for the management of environmental resources.

Enhancing community Participation:

People Participation for environmental management is important tool for environmental sustainability but when the need of people convert into greed no one cares for future generation and environmental problems become more complicated. But when public aware about environmental problems than enhancement in their participation for use of Green Products automatically generated.

Participation of NGO'S and Self Help Groups:

Through the Participation of NGO'S and Self Help Groups in promotion of green products occur than more a people aware about green products and at large level community Participation for use and promotion of green products takes place which help in the sustainability of nation and world as whole.

Improvement in Administrative Efficiency:

Efficiency of administration is also one the big loop hole in environmental management which. But improving the administrative capacity and efficiency can promote the use of green products and help in avoiding the damage to the environment.

Economic Measures:

Efficient marketing system for green products:

When efficient marketing system for green products is developed then the adoption and promotion of green products takes place in short span of time. Green marketing adopted by the marketers is one way of promoting the green products.

Developments of information and Communication system:

With efficient information and communication system, the adoption and promotion of green products takes place in short span of time and at large scale. Which also provide sustainability to the Green products and to the world as a whole.

Educational Facility:

Poor educational facilities for common man causes environmentally unaware to the people which became the one of the barrier for the environmental management and sustainable earth.

Efficient Public Distribution System:

Through efficient Public Distribution System we can manage to reach green products in all hands of the present world and by this we can maintain the sustainability of the present and future world.

Political Factors:

Lack of Political Will Power:

In the present world politics primarily depend on vote bank which comes from the society and economy, no strong policy measures taken for environmental problems, and our political system looks unwilling to take concrete steps.

Defective Foreign Policies:

In present world concept of carbon credit arises which is himself the way for pollution to the environment. We have to generate those policies which will provide sustainability. And by adoption and promotion of green products we can manage resource of natural resources and will help in managing the sustainability of the world.

Technological Factors:

High level of Research and Development for Green Products:

Low level of Research and Development for Green Products also cause environmental damage at greater extent. But it is not case of the all nation of the world, some nation are performing well for green product adoption and promotion but when all nation will club hands for sustainability for the earth, than our world became heaven for the coming generations.

High Dispersion of Green Products Technology:

Eco-Friendly Technologies in respect to Green Products develops to certain extent and it is in pocket of small number of countries. It is not possible to manage environmental problems as soon as possible. So world have to club their hand for the larger dispersion of Green Products to sustain the life giving earth and also our future cute generations.

High Media Support:

Media can play the great role for the environmental awareness to the people and sending information to the every individuals of the world. If high support from media will come for adoption and promotion of green product then at larger extent the saving of life supporting earth environment is possible and also we will get sustainability of world for coming generations

Training for Handlings of Green Products Technology:

It is also important aspect to be taken care, if we take electric operated vehicles than we have charge them by own available resources, charging facility is not available everywhere. We have to manage these aspects for the sustainability of the present world and our coming future generations.

Green Product Category:

The study based on the evaluation of different green products that are currently available on sale on portal of various manufacturer of green products are categorised together and is framed on the table. The purpose of categorisation of green products is to understand the various green products that are available in the Indian market.

Table 4: Green Product Categories

Product Category	Green Specification	Green Product
Personal Cares	Organic products that are regulated by APEDA (Agricultural and Processed Food Product Export Development Authority) as per National Standards for organic production. In U.S USDA (United States Development of Agriculture) regulates the organic certifications.	<ul style="list-style-type: none"> • Hair root massager • Shampoo • Face Pack • Cold Cream • Toothpaste • Face wash • Hair gel • Moisturizer • Scrubber • Conditioner • Shaving Creams • Lip balm • Sunscreens
Electronics	<ul style="list-style-type: none"> • Less electric consumption • Product made from recycled materials • Energy star certification 	<ul style="list-style-type: none"> • DVD players • MP3 speaker docks • Television • Computer and Laptop • Printer and Scanner • Modem and Router • UPS • Water heater • Solar

		<ul style="list-style-type: none"> • Battery charger • Trimmer • Fans, Light bulb etc. 						
Jewellery and Accessories	Eco-friendly jewellery is made from materials which are both recycled and reusable. Material can come from old jewellery and nature such as recycled coconut and seashells or recycled materials from any piece of junk.	<table border="1"> <thead> <tr> <th>Jewellery</th> <th>Accessories</th> </tr> </thead> <tbody> <tr> <td>Earrings Necklaces Pendants Cuffs Hair cliffs Bangles</td> <td>Mobile case Belts Wallets Key rings Caps Backpacks</td> </tr> </tbody> </table>	Jewellery	Accessories	Earrings Necklaces Pendants Cuffs Hair cliffs Bangles	Mobile case Belts Wallets Key rings Caps Backpacks		
		Jewellery	Accessories					
Earrings Necklaces Pendants Cuffs Hair cliffs Bangles	Mobile case Belts Wallets Key rings Caps Backpacks							
Organic Food Items	<ul style="list-style-type: none"> • Discourage the use of pesticides and chemicals which contaminate the soil, water supply and air. • Organic farming builds healthy soil. • Help combat erosion. • Fight global warming. • Encourage biodiversity. • Support animal health and welfare. 	<table border="1"> <tbody> <tr> <td>Raw Beans</td> <td>Cereals Pulses and Fruits Oil seeds Spices Vegetables and Atta and Flour Dairy products Honey</td> </tr> <tr> <td>Beverages</td> <td>Nutrition juices Sarbat Tea Soups</td> </tr> <tr> <td>Processed products fresheners</td> <td>Roasted Bakery Snacks Pickles Mouth</td> </tr> </tbody> </table>	Raw Beans	Cereals Pulses and Fruits Oil seeds Spices Vegetables and Atta and Flour Dairy products Honey	Beverages	Nutrition juices Sarbat Tea Soups	Processed products fresheners	Roasted Bakery Snacks Pickles Mouth
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		Beverages	Nutrition juices Sarbat Tea Soups					
Processed products fresheners	Roasted Bakery Snacks Pickles Mouth							
Toys and Games	Made up of recycled plastic materials, non-toxic, fully compostable after use.	Trucks, Chef sets, Jump ropes, Dish sets, Cars, Guns, Aeroplanes, Submarines, Teddies etc.						
Pets	<ul style="list-style-type: none"> • Recyclable • BPA & phthalate free • Non-toxic • Cotton fibres • Compostable 	Dogs eco-bones, Play disc, Beds for pets, Pet cleaners, Sweaters etc.						
Furniture	Use of bamboo which grows incredibly fast, yield more, stronger than hardwood and control soil erosion Bamboo products can be a good alternate to hardwoods for furniture items	Bamboo seating system Multipurpose chairs Beds Tables Handicrafts and Souvenir						
Clothing	<ul style="list-style-type: none"> • Made of organic fibres comprising of bamboo, corn, organic cotton etc. • Recyclable • No pesticides used • Improves soil fertility • Certification from Global Organic Textiles Standards 	Organic clothes for: <ul style="list-style-type: none"> • New born babies • Kids • Men • Women • Old age • Pets 						

Laundry	<ul style="list-style-type: none"> • Bio-degradable formula • Detergent bottle made from post-consumer recycled plastics. • Non-toxic 	<ul style="list-style-type: none"> • Liquid detergent • Powder detergent • Softening liquids • Stain remover • Bleach
Organic Agricultural Products	<ul style="list-style-type: none"> • Safe, healthy food • Land fertility 	<ul style="list-style-type: none"> • Bio pesticides • Fruit/vegetable/Agro waste compost • Bio fertilizers • Organic Manure

Source: Compiled by Author

Role of Green Product in the Resource Management:

The green products are manufactured taking into consideration the environmental effects in mind. The consumers, marketers and the government are conscious of environmental degradation. Green products is helpful in reducing the negative impacts on environment. It helps the environment by maintaining the bio-diversity and ecological balance.

Table 5: Role of Green Product in the Resource Management

On Environment	On Society	On Economy
Management of food chain/food web	Management of food security	Management of Low National Development and Low Personal Income
Management of Biodiversity	Management of health	Generation of Unemployment
Ecological Balance	Management standardisation of goods	Reduction of poverty
Management of Desertification/ Land Degradation	*****	Management of industrialization

Source: Compiled by Authors

Management of food chain/food web:

Due to adaption of green products, natural food resources exploitation managed and management of food chain/food web ultimately occur. This brings sustainability.

Management of Biodiversity:

Because of management of natural food resources biodiversity will be maintained.

Ecological Imbalance:

When management of biodiversity of ecological balance of environment ultimately gained. This generated sustainability of earth system.

Prevention of Desertification/Land Degradation:

Due to adaption of green products, shifting agricultural practices and unscientific practices decline, which prevents Desertification/Land Degradation and enlarging wings unsustainable convert into sustainability. Which generate food for all.

Management of food Security:

When the Management of Ecological Imbalance achieved than threat of food Security will not come. Migration which harm to the regional human resource automatically managed.

Management of Health:

Green products help in providing good health to everyone, sufficiency of these products prevents many health problems to the population.

Management of standardisation of products:

Through the green levels the quality and standard of the product is enhanced. Taking example of organic products, it is said the process of manufacturing of organic products is free from any pesticides. This makes the product toxic free and natural

Political/ administrative unrest gives birth to social unrest:

Poor resource management is one of the prime factor for non-management of population. Primary need which affect the Political/ administrative and ultimately cause social chaos in society. But because of Green products help resource management is possible, which can manage the chaos of society and social stability of the nation.

Management of National Development and Low Personal Income:

low agricultural productivity because of lack of low green product inputs causes low capital formation and low National Development which become the final cause for Personal Income and Purchasing capacity. Which pull the feet of national development. But green product inputs help I national development and ultimately high Personal Income.

Generation of employment:

Agricultural Problems hits the employment of people and force them to become Unemployed crowd of the nation but when adoption of mitigation measures like green products, provides sustainability to agriculture and their employment and they become resource for the nation.

Management of industrialization:

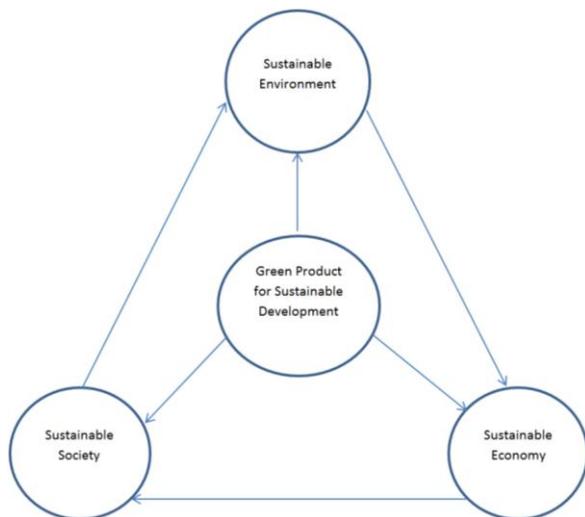
Agricultural Problems leads to the poor production of raw materials for industrial development which become cause for the adverse effect to industrialization and

nation economic profits. But when the adoption of right resource like green products for Agriculture high production yield and the large amount of raw materials from agriculture generate for industrial development, then the industrial development happen automatically.

Organic Agricultural Products/ Organic Farming:

Organic farming in harmony with nature respecting natural cycle, natural land fertility, animal welfare, landscape features and national development. Organic farming is the process of producing food naturally. This method avoids the use of synthetic chemical fertilizers & pesticides and genetically modified organisms to influence the growth of crops. The main idea behind organic farming is to have zero impact on the environment. The aim of the organic farmer is to protect the earth’s resources (land, water and plants) and produce safe, healthy food. Organic farming uses the earth’s natural resources for sustainability. Organic farmers do not use pesticides, herbicides, genetically modified foods, growth promoters or hormones.

Figure 1: Role of Green Product in Sustainable Development



Through above Discussion and Figure study analysed that through the adoption of Green Product the integrated sustainable development of environment, society and economy can be achieved.

Conclusion:

The current study highlighted the green products adoption and their roles in resource management. Green products is at nascent stage in India and lots of work need to be done to make consumers aware of green products and motivate them to adopt it in the purchase behaviour. The study suggested various

barriers and measures of green products adoption which will be helpful for the green marketers for strategic decision making and approach the customers. The study also lay emphasis on role of green products on resource management. How the environment, society and economy are benefited through green products is explained in the study. The government need to be more pro-active to make consumers aware of benefits of using the green products for the environment, society, economy and for personal use as well.

The study have designed a green products category from the websites of different green marketers which is useful to make further an empirical research using the selected green products. The attitude, behaviour, preferences, intentions and adoption behaviour of the consumers can be assessed using survey methods. Another important contribution of this paper is that the marketers will gain insights so as to target their green consumers by acknowledging their preferences.

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