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Green marketing is a sustainable marketing system in the twenty first century

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ABSTRACT: *The purpose of this paper is to study the green marketing which incorporates a broad range of activities such as the product modification, changes to the production process, packaging changes, as well as modifying advertising of the environment friendly commodities. Sustainable forest management is the ways and processes of managing forest resources to meet society's varied needs, today and tomorrow, without compromising the ecological capacity and the renewal potential of the forest resource base. Both the producers and the customers must be conscious about the products whether these are really following eco-labeling schemes. The green economy is not only to produce clean energy but also technologies of cleaner production processes which reduce environmental impact or improve natural resource use. The green chemistry involves designing and using chemical products and processes with the aim of eliminating or reducing their negative impact on human health and the environment which encompasses education, research, and commercial application across the entire supply chain for chemicals. The paper also suggests enhancing the practice of green marketing of products of the company which are presumed to be environmentally safe for the sustainability in the 21st century.*

Key Words: Green marketing, Sustainability, Green timber market, Green chemistry, Green economy.

INTRODUCTION

At present we have observed that an increase of the ecological conscience of consumers which results in the increased demand for green products, a phenomenon which is well exploited by a great number of enterprises and which starts offering green products and services (Vandermerwe and Oliff 1990, Salzman 1991, Ottman 1992, Peattie and Ratnayaka 1992, Chan 1999, Papadopoulos et al. 2009). Manufacturing and providing products to the consumers must be of good quality and not harmful to them in the long run and which will be sustainable developed. At present people are more conscious about the environment and growing market for sustainable and socially responsible products and services.

Lampe and Gazda (1995) in their research work the concept of green product expressed as follows:

“ every aspect of the product: design, production, packaging, use and disposal, provides an opportunity for a company not only to protect the environment but also to benefit from positive consumer attitudes towards the environment.”

The green marketing which incorporates a broad range of activities such as the product modification, changes to the production process, packaging changes, as well as modifying advertising of the environment friendly commodities. The world is facing a severe threat of sustainability due to environment pollution, energy crisis and greenhouse gas (GHG) emissions which cause global warming. Our resources are limited and human needs are unlimited, so that our resources must be utilized economically and in an environment friendly way.

Implementation of green marketing is a very difficult task. Economic crisis, unscrupulous business, lack of social consciousness, political instability, lack of government and non-government organizations' coordination etc. are great hindrances to

implement green marketing in the society. A lot of money has to be spent on research and development (R&D) programmes. The customers must be sure about the producers whether are really following eco-labeling schemes.

Some companies have found benefits for using green marketing technologies, for example the **Xerox** company introduced a high quality recycled photocopier paper in an attempt to satisfy the demands of firms for less environmentally harmful products, the **Tuna** company manufacturers modified their fishing techniques because of the increased concern over driftnet fishing, and the resulting death of dolphins and the **McDonald's** company replaced its clam shell packaging with waxed paper because of increased consumer concern relating to polystyrene production and ozone depletion (Singh 2008, Mohajan 2012a).

We have described sustainable forest management which implies that management with a view to sustaining biodiversity, productivity and vitality and also taking into account social aspects such as worker welfare or the interests of indigenous or forest-dependent people. Timber must be extracted from sustainable forest. The illegal non-sustainable timber must be avoided for green marketing implementation. In 1993, the Council of Forest Management or Council of Care of Forests (Forest Stewardship Council, FSC) was founded in order to collaborate with environmental organizations, wood processing industries and big forest owners, and in 1999 a new institution, the Programme for the Endorsement of Forest Certification (PEFC) schemes was founded by the small forest owners of Central Europe (Hansen 1997, Humphries et al. 2001, Cashore et al. 2003). We have shown that green buildings are special type of buildings which have the minimal possible consumption of energy and use materials that protect the environment. At present green buildings are preparing almost in every country of the world.

We also show that green economic policies will be most successful to the extent that they build on existing strengths in the city, region, or state. Regulations, incentives, technical assistance, and marketing programs can help stimulate the green economy.

We discuss the green energy in brief which must improve environmental quality by reducing GHG emissions and impact sustainability by reducing energy use. Supporters of green power marketing argue that it has the potential to create a new and long-term customer-driven market for renewables which does not pivot on government policy (Nakarado 1996). Mohajan (2012b) discusses the policy relevant information on the assessment of the environmental and social costs, benefits, the critical developments and the options for a more sustainable use of biomass and measures to increase resource productivity of biofuels. He expresses that in the 21st century biofuels are considered as economically efficient, socially equitable, and environmentally safe substitute of gasoline.

We highlight green chemistry which involves designing and using chemical products and processes with the aim of eliminating or reducing their negative impact on human health and the environment. Some of the pioneering research in the area in the 1980s was indeed carried out in developed countries including the UK, France, and Japan, but by the time the United States Environmental Protection Agency (US EPA) coined the term “Green Chemistry” in the 1990s, there were good examples of relevant research and some industrial application in many other countries including India and China (Ali 2004).

MEANING OF GREEN MARKETING

In 2010, a report on environmental claims in the North American market and the researchers expressed that *green* is a difficult word (Defining Green Products 2010). The complicating matters is the widespread use of terms such as natural, organic, planet-friendly, earth-friendly, ecological, non-toxic, biodegradable, plant-based, chlorine-free, and 100% compostable, which consumers erroneously assume are synonymous with *green* (TerraChoice 2009). The term green marketing is frequently used lightly and in the wrong context. Green marketing is the marketing of products which are considered not to be harmful for environment (Mohajan 2012a). It refers to the planning, development and promotion of products or services which satisfy the needs of consumers for quality, output, accessible prices and service, without however a negative affect on the environment, with regard to the use of raw material, the consumption of energy etc. (Davis 1991, Kangis 1992, Meffet and Kirchgeorg 1994, Jain and Kaur 2004, Peattie and Crane 2005, Grant 2008, and Pride and Ferrell 2008). Hence green marketing needs considerable development and analysis, with rules and integrity in economic, scientific, academic and ethical terms.

Sometimes the terms like phosphate free, recyclable, refillable, ozone friendly and environmentally friendly are some of the things consumers most often associate with green marketing. But green marketing incorporates a broad range of activities such as the product modification, changes to the production process, packaging changes, as well as modifying advertising which can be applied to consumer goods, industrial goods and even services (Welling and Chavan 2010).

The green marketing is first introduced in the late 1970s when the American Marketing Association (AMA) organized the first ever workshop on Ecological Marketing in 1975 which resulted in the first book on the subject, entitled 'Ecological Marketing' by Henion and Kinnear in 1976. The first definition of green marketing was according to Henion as follows:

"The implementation of marketing programmes directed at the environmentally conscious market segment" (Banerjee 1999).

Henion's definition of green marketing has evolving and many more definitions of green marketing have arisen throughout the years. Before 1976 very few people think about the green product and green marketing (Mohajan 2012a). According to AMA the definition of green marketing is clearer and expresses as follows:

"Green or Environmental Marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs with minimal detrimental impact on the natural environment."

After 1976 green marketing progressively gains continuously more supporters, specifically in sectors that concern the climatic change and forest protection (Papadopoulos et al. 2009). Polonsky and Mintu-Wimsatt (1995) define green marketing broadly as follows:

"The applications of marketing concepts and tools to facilitate exchanges that satisfy organizational and individual goals in such a way that they preserve, protect, and conserve the physical environment."

In the concept of green marketing is not easy but very complicated to implement in real life. It is still at its infancy stage, so that enormous researches are needed to make it mature. In this paper we have tried to improve the practice of green marketing. To define green marketing, Yaranella et al. (1999) expressed that;

“Green evokes small incremental improvements in social practices, modern technology, and human habitats, while sustainability implies a revolution in organizing our personal and collective lives and inhabiting the planet.”

STEPS TO EXPAND GREEN MARKETING

Full adoption of green marketing may not be easy in the short run, but in the long run it will have a positive impact on the producers. The government must encourage and support the manufacturers who are manufacturing green products by providing subsidies and the customers have pay premium price for green products for the sustainable development. Government and other NGOs provide easy loan facility to equip for manufacturing green products. Awards and recognition should be given to those who successfully practice green marketing to implement it. Social consciousness must be created to the customers about the usefulness of green marketing (Welling and Chavan 2010).

SUSTAINABLE MANAGEMENT IN TIMBER PRODUCTS

Sustainable and legal timber are very complex concepts and difficult to define. It is believe that sustainable forest management implies the management with a view to sustaining biodiversity, productivity and vitality and also taking into account social aspects such as worker welfare or the interests of indigenous or forest-dependent people. The notions of sustainable and legal refer to social, environmental and economic conditions (European Commission 2004).

Forests are important ecosystems, delivering benefits to humankind by supplying the extracted products, such as timber and fiber, fuel wood, woody biomass for energy and the non-wood forest products (NWFPs). NWFPs comprise food, fodder for domestic animals, medicines, perfume and cosmetics, dyes, ornamentals, handicrafts and exudates like gums, resins, and latex. Food alone encompasses a range of products such as vegetables, fruits, nuts, seeds, roots, mushrooms, spices, bush meat, bee products, insects, eggs and nests (Millennium Ecosystem Assessment 2005).

The definitions of sustainable forest management is the ways and processes of managing forest resources to meet society’s varied needs, today and tomorrow, without compromising the ecological capacity and the renewal potential of the forest resource base (Wang 2004).

Sustainable forest management was born from the concept of sustainable development, which has obtained increasing recognition worldwide since the late 1980s (Wang 2004). It monitors timber production and regeneration, financial feasibility of the management unit, efficiency of forest resource utilization and evidence of professional management.

At the 21st century every nation stresses for the protection of the environment and has set the protection of forests and their rational and sustainable management. The negotiations of the first period were of the Kyoto Protocol obligations (2008-2012) and still it remains unchanged in COP/CMP7, UN Climate Change Consensus 2011, Durban,

South Africa, (2011-2015) (Papadopoulos et al. 2009). Forests include the reduction of GHG emissions from the deforestation and the development of forests, as well as the economies of forest management and the harvested forest products (Stevens et al. 1998). To create green market of timber companies must express fundamental thoughts and problems in the growth of the new timber market, the role of consumers, market conditions and the competition as well as the price, the guarantees and the economic benefits that will characterize the product.

In 1993, the Council of Forest Management or Council of Care of Forests (Forest Stewardship Council, FSC) was founded in order to collaborate with environmental organizations, wood processing industries and big forest owners, and in 1999 a new institution, the Programme for the Endorsement of Forest Certification (PEFC) schemes was founded by the small forest owners of Central Europe (Hansen 1997, Humphries et al. 2001, Cashore et al. 2003). The certified forest regions reached the 320 million hectares worldwide in the middle of 2008 (United Nations Economic Commission for Europe (UNECE), and Food and Agriculture Organization (FAO) 2008). The timber sector should create and follow strategies and policies to improve quality, pricing, pioneering on environmental matters. Consumers also become aware of the multiple benefits of timber coming from sustainable managed forests and they should contribute in environmental protection through the purchase of the certified timber.

The environmental importance of raw materials in the timber sector shows a special interest in the application of regulations and safety regulator against the waste of the specific materials (Stevens et al. 1998). The fundamental aims and objectives of forest certification are as follows (Sustainable Green Ecosystem Council 2008):

- the improvement of the management of forests,
- the guarantee of new markets, capable for the absorption of produced certified products, and
- the control of certification of all processes up to the sale of final products, in order to safeguard their sustainable origins.

Furniture producers, timber traders and the entire wood industry play a significant role in sustainable products, since they are directly involve in green products promotion. They must be committed to collect and distribute the relevant information, create attractive advertisements in order to awaken consumers' interest and undertake the risks.

About green marketing of timber products Stamou (2005) expresses the following suggestions:

- The certified products of timber sooner or later will prevail and control the market that will emanate from sustainable and environment friendly managed forests.
- The role of the consumer with environmentally friendly behavior (final purchaser of products of timber) will become continuously more important. Products of timber which will not come from sustainable managed forests will not be able to easily find a place in the market.
- There will be a gradual development of enterprises with certified products of timber.
- The existence and viability or the exclusion of enterprises of timber in the market will be directly influenced by the environmental sensitization of citizens.

What is Illegal Non-sustainable Timber?

The illegal non-sustainable timber is defined as follows (Miller et al. 2006):

American Forest Products Association defined the illegal timber as;

“Theft of timber or logs; cutting in parks, reserves or similar areas; or cutting where government approvals are obtained by corrupt practices.”

European Commission defined the illegal timber as;

“Harvesting timber in violation of national laws is illegal. Illegal harvesting may include not only using harvesting practices that contravene the regulations but also using corrupt means to gain harvesting rights, extraction without permissions or from protected areas, cutting protected species or extracting timber in excess of agreed limits. Beyond harvesting, illegal practices may also extend to transport infringement: illegal processing and export; nonpayment of taxes or charges; or false customs declarations.”

Greenpeace’s definition of illegal timber is as;

“Illegal logging takes place when timber is harvested, processed, transported, bought or sold in violation of national laws. Laws can be violated at many different stages of the supply chain and can include: obtaining concessions illegally (for example, via corruption and bribery); cutting protected tree species or extracting trees from a protected area; taking out more trees and more undersized and oversized trees than is permitted or trees outside an agreed area; illegal processing and export; fraudulent declaration to customs of the amount of timber being exported; nonpayment or underpayment of taxes; and use of fraudulent documents to smuggle timber internationally.”

World Wide Fund for Nature and World Business Council on Sustainable Development defined the illegal timber as;

“Sourcing of illegal wood takes place when unprocessed wood is procured in the absence of the seller’s legal right to sell or harvest. Illegal logging takes place when timber is harvested in violation of relevant forestry and environmental laws and regulations. Illegal forest products trade involves the procurement, processing, distribution and marketing of products made from wood that has been obtained by illegal sourcing or illegal harvesting and/or are not in compliance with relevant national and international trade laws.”

Hence for green marketing of timber products we have to avoid non-sustainable and illegal timbers.

Timber in Green Buildings

Green buildings are special type of buildings which have the minimal possible consumption of energy and use materials that protect the environment. In all green building manufacturing the raw materials are timbers from sustainable managed forests. According to UNECE and FAO (2008) the policy of promotion of green buildings contributes to the continuously stronger support of timber certified products from certified forest regions. Most of the cities are (e.g. San Francisco) adopting green

building regulations, from mandating LEED standards in government buildings to set the standards for all large development.

In order to make a decision on certified timber products for substantial profits can be expressed as follows (Papadopoulos et al. 2009):

- the size of the recorded demand of certified timber products,
- the sufficiency of this size that will be able to guarantee the change from the traditional enterprising policy to the one of certified products,
- the expectation of better prices of certified timber products against the prices of traditional ones,
- the positive probability of an increasing demand in the market of certified timber products,
- the specific entrepreneur's expectations on certain advantages in this market,
- the obligatory implementation of current relative legislation, and
- the competitiveness of enterprises in the creation and development of new products, when they have to produce and offer both traditional and certified products.

Cities might stimulate consumption through green building policies, support for open space amenities, and technical assistance for retailers.

ECONOMICS IN GREEN MARKETING

The green economy is the clean energy economy consists of four sectors as follows (Chapple 2008):

- renewable energy such as solar, wind, geothermal energies,
- green building and energy efficiency technology,
- energy-efficient infrastructure and transportation, and
- recycling and waste-to-energy.

Green economic policies will be most successful to the extent that they build on existing strengths in the city, region, or state. Regulations, incentives, technical assistance, and marketing programs can help stimulate the green economy, but they will not actually create local economic development in the absence of supporting policies.

Much of the economic activities are set off by the marketing process which offers and excites consumption opportunities to satisfy human needs and wants. Most of the cases economic offers are in an unsustainable ways. But the critical role of marketing in development will be appreciated only through sustainable marketing which meets the needs of the present without compromising the ability of future generations to meet their own needs. Life quality represents not only the quantity and quality of consumption goods and services but also the quality of the environment which indicates marketing has to assume a more responsible role for sustainable development. A marketing approach which aims at serving the material wants of consumers through an ever increasing volume of goods without any attempt to maximize quality of life depicts too heavily, and too quickly, on already overdrawn environmental resources and is likely to mortgage the future (Polonsky and Alma 2008). The green economy is not only to produce clean energy but also technologies of cleaner production processes which reduce environmental impact or improve natural resource use. To stimulate the green economy cities are often confused about whether to follow economic growth or development, as well as whether

to seek high-quality jobs or simply job creation of any kind. Many green standards are simply requiring the substitution of energy-efficient for traditional inputs, and are unlikely to result in net increases of jobs or materials. The green economy will emerge in different forms in different regions, depending on local economic strengths and weaknesses (Chapple 2008).

IMPLEMENTATION OF GREEN MARKETING

Implementation of green marketing in the society is not an easy task. The producer has to face many problems when try to follow green marketing. The challenges for implementation of green marketing are as follows (Welling and Chavan 2010): Green marketing always encourages green products, green technology, and green energy. Sometimes a lot of money has to be spent on research and development (R&D) programmes. The customers must be sure about the producers whether are really following eco-labeling schemes. Initially the profits of the green producers will be very low since renewable and recyclable products and green technologies are more expensive but it will be successful in the long run. The firms which are practicing green marketing have to strive hard in convincing the stakeholders.

The 4 P's of Green Marketing

The 4 P's of green marketing are of a conventional marketing as follows (Chaudhary et al. 2011):

Product

The sustainable development products are made from recycled goods, for example, Quick's Tuff housing materials are made from recycled broccoli boxes. Products must be efficient which save water, energy, money and reduce environmental impact. For example, Queensland's only waterless printer, Print point, reduces operating costs by using less water than conventional printers and is able to pass the savings on to customers. Products must be environmentally responsible packaging. For example, McDonalds changed their packaging from polystyrene clamshells to paper. Green products meet or exceed the quality expectations of customers which are strongly tested.

Price

Most customers are prepared to pay a premium price if the product has additional product value. This value may be improved performance, function, design, visual appeal or taste. Environmentally responsible products are often less expensive when product life cycle costs are taken into consideration, for example, fuel-efficient vehicles, water-efficient printing etc.

Place

The conscious customers always want to know where the material is produced. Very few customers go out of their way to buy green products merely for the sake of it. Marketers look to successfully introduce new green products and in most cases position them broadly in the market place so they are not just appealing to a small green function market. The location must also be consistent with the image which a company wants to

project. The location must differentiate a company from its competitors. This can be achieved by in-store promotions and visually appealing displays or using recycled materials to emphasize the environmental and other (Chaudhary et al. 2011).

Promotion

Promotion of products and services for the customers to target markets which include paid advertising, public relations, sales promotions, direct marketing and on-site promotions. Smart green marketers will be able to strengthen environmental credibility by using sustainable marketing and communication tools and practices. For example, many companies in the financial industry are providing electronic statements by email, and e-marketing which quickly circulates company's present views. These types of techniques rapidly replace more traditional costly and slow marketing principles. The printed materials can be produced by using recycled materials and efficient processes, such as waterless printing. Retailers are familiar with the value of coalition with other companies, environmental groups and research organizations when promoting their environmental commitment. To reduce the use of plastic bags and promote their green commitment, some retailers sell shopping bags, under the banner of the Go Green Environment Fund (Chaudhary et al. 2011).

The Three C's in Green Marketing

From practical experience we see that successful green products have avoided green marketing myopia by following three C's (Ottman et al. 2006)

Consumer Value Positioning

We have to design environmental products to perform as well as or better than alternatives, promote and deliver the consumer-desired value of environmental products and target relevant consumer market segments. Fixed pricing for subscribers of renewable energy will help for positioning the value to the consumers.

Calibration of Consumer Knowledge

We have to educate consumers with marketing messages that connect environmental product attributes with desired consumer value such as, pesticide-free produce is healthier, energy-efficiency saves money, or solar power is convenient. Producers need to create environmental product attributes as a solution for consumer needs, for example, rechargeable batteries offer longer performance. They must create engaging and educational Internet sites about environmental products' desired consumer value, for example, Tide Coldwater's interactive website allows visitors to calculate their likely annual money savings based on their laundry habits, utility source.

Credibility of Product Claims

Producers of course employ environmental product and consumer benefit claims that are specific, meaningful, unpretentious, and qualified. Procure product endorsements or eco-certifications from trustworthy third parties, and educate consumers about the meaning behind those endorsements and eco-certifications. They encourage consumer

evangelism via consumers' social and Internet communication networks with compelling, interesting, and/or entertaining information about environmental products.

GREEN MARKETING IN THE ENERGY SECTOR

Producers always want to spend electricity in minimum cost for producing their commodities. Some producers demand energy efficiency, interruptible power, and time-of-use metering. A large number of residential customers (40-70%) are willing to pay a 5-15% premium for green products, including renewable energy (Ottman 1993, Farhar and Houston 1996, and Nakarado 1996). Residential customers are expected to provide the largest green power market, though business customers have also expressed some interest (Holt 1997, and Lamarre 1997). Supporters of green power marketing argue that it has the potential to create a new and long-term customer-driven market for renewables which does not pivot on government policy (Nakarado 1996). The clean energy must improve environmental quality by reducing GHG emissions and impact sustainability by reducing energy use.

The first utility-run green pricing programs were initiated in 1993 by Public Service Company of Colorado, the Sacramento Municipal Utility District, and Gainesville Regional Utilities. Since then, a number of utilities have launched green pricing programs and many others have explored the option (Holt 1996). In 1997, approximately 20 US utilities have announced and are marketing green pricing programs. Utilities have structured the programmes in a number of ways as follows (Wiser and Pickle 1997):

- Renewable energy purchase offers renewable power, often at a premium electricity rate or with fixed monthly premiums to the customers.
- Renewable energy donation offers optional donation programs, the proceeds of which are used to support renewables projects.
- Renewable energy facility on customer premises leasing or ownership options which result in the installation of small renewables projects on customers' premises.

GREEN PRODUCTS CONSCIOUSNESS ORGANIZATIONS

To protect consumers from false green product claims and to assist companies with establishing consistent and uniform ways to promote their products' green attributes, some organizations the USA, Canada, and Australia enacted federal laws and guidelines aimed at regulating the use of green marketing terms (Defining Green Products 2010). The Australian Competition and Consumer Commission (ACCC) advises companies that wish to make environmental claims about their products and services to adhere to the following guidance (Defining Green Products 2010):

- be honest and truthful,
- detail the specific part of the product or process to which the claim(s) refers,
- use language that an average person can understand,
- explain the significance of the benefit(s) of the claim(s), and
- be able to substantiate the claim(s) (ACCC 2008).

The Canadian Standards Association (CSA) in 2008 adopted CAN/CSA-ISO 14021-00, *Environmental labels and declarations, Self-declared environmental claims (Type II environmental labeling)*. It also developed a companion guidance document entitled

CAN/CSA-ISO 14021 *Essentials*, which incorporates the most current, internationally accepted information and the best practices on the use of environmental claims as follows (CSA 2008):

Competition Act: “A federal law governing most business conducts in Canada. It contains both criminal and civil provisions aimed at preventing anti-competitive practices in the marketplace. The act contains provisions addressing false or misleading representations and deceptive marketing practices in promoting the supply or use of a product (or service) or any business interest”.

Consumer Packaging and Labeling Act: “Requires that prepackaged consumer products bear accurate and meaningful labeling information to help consumers make informed purchasing decisions. The act prohibits the making of false or misleading representations and sets out specifications for mandatory label information such as the product’s name, net quantity, and dealer identity”.

Textile Labeling Act: “Requires that consumer textile articles bear accurate and meaningful labeling information to help consumers make informed purchasing decisions. The act prohibits the making of false or misleading representations and sets out specifications for mandatory label information such as the generic name of each fiber present and the dealer’s full name and postal address or a CA identification number” (CSA 2008).

CAN/CSA-ISO 14021 itself sets out 18 requirements for self-declared environmental claims and offers guidance and verification methodologies to ensure that claims adhere to these requirements as follows (CSA 2008):

- accurate and not misleading,
- substantiated and verified,
- relevant to that particular product and used only in an appropriate context or setting,
- presented in a manner that clearly indicates whether the claim applies to the complete product, a product component or packaging, or an element of a service,
- specific as to the environmental aspect or environmental improvement which is claimed,
- not restated using different terminology to imply multiple benefits for a single environmental change,
- clear and comprehensible to avoid misinterpretation,
- true to the final product and its relationship to any and all environmental trade-offs,
- presented in a manner that does not imply that the product is endorsed or certified by an independent third-party organization when it is not,
- not, either directly or by implication, suggests an environmental improvement that does not exist or exaggerate the environmental aspect of the product to which the claim relates,
- not be made if, despite the claims being literally true, they are likely to be misinterpreted by purchasers or are misleading through the omission of relevant facts,
- relate only to an environmental aspect that either exists or is likely to be realized during the life of the product,

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- presented in a manner that clearly indicates that the environmental claim and explanatory statement should be read together,
- specific and, if a comparative assertion of environmental superiority or improvement is made, make clear the basis for the comparison,
- presented in a manner that does not lead purchasers, potential purchasers, and/or users of the product to believe that the claims are based on a recent product or process modifications when, in fact, the claims are based on a pre-existing but previously undisclosed characteristic,
- not be made where they are based on the absence of ingredients or features which have never been associated with the product category,
- reassessed and updated as necessary to reflect changes in technology, competitive products, or other circumstances that could alter the accuracy of the claims, and
- relevant to the area where the corresponding environmental impact occurs (CSA 2008).

In 1992, the US Federal Trade Commission (FTC) issued the *Guides for the Use of Environmental Marketing Claims*, also referred to as the *Green Guides* or *Guides*, to help marketers ensure that the claims they make are true and substantiated. The Green Guides were revised in 1996 and again in 1998 and included the following (FTC 1999):

- general principles that apply to all environmental marketing claims,
- guidance on how consumers are likely to interpret particular claims and how marketers can substantiate those claims, and
- tips on how marketers can qualify their claims to avoid deceiving consumers.

On 6 October 2010, the FTC released a revised version of the Green Guides for a 45-day public comment period ending 10 December 2010. The proposed changes to the Guides are designed to strengthen them and make them easier to use and understand as follows (FTC 2010b, Defining Green Products 2010):

Qualifications and disclosures: To prevent deceptive claims, qualifications and disclosures should be clear, prominent, and understandable.

Distinction between benefits of product, package, and service: Unless it is clear from the context, an environmental marketing claim should specify whether it refers to the product, the product's packaging, a service, or to only a portion of the product, package, or service.

Overstatement of environmental attribute: An environmental marketing claim should not overstate, directly or by implication, an environmental attribute or benefit. Marketers should not state or imply environmental benefits if the benefits are negligible.

Comparative claims: Comparative environmental marketing claims should be clear to avoid consumer confusion about the comparison. Marketers should have substantiation for the comparison (FTC 2010b).

The proposed revisions to the Guides include guidance on claims emphasizing *renewable energy* and *renewable materials*, as well as buzzwords like *carbon offset*, *compostable*, *degradable*, and *free of* a particular substance (FTC 1999, 2010a,b). With respect to eco-labels and product certification programs, the *Green Guides* state the following:

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- “It is deceptive to misrepresent, directly or by implication, that a product, package, or service has been endorsed or certified by an independent third-party” when, in fact, it has not.
- “A marketer’s use of the name, logo, or seal of approval of a third-party certifier is an endorsement, which should meet the criteria for endorsements provided in the FTC’s Endorsement Guides Third-party certification do not eliminate a marketer’s obligation to ensure that it has substantiation for all claims reasonably communicated by the certification.”
- “To avoid deception, language qualifying a certification or seal of approval should be clear and prominent and should clearly convey that the certification or seal of approval refers only to specific and limited benefits. This qualifying language may be part of the certification or seal itself” (FTC 2010b).

The Green Guides also discourage companies and marketers from using unqualified certifications or seals of approval that do not specify the basis of the certification. Any qualifications that apply to certifications or seals should be clear, prominent, and specific (FTC 2010a).

GREEN CHEMICAL PRODUCTS

Green chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances. It involves designing and using chemical products and processes with the aim of eliminating or reducing their negative impact on human health and the environment. It encompasses education, research, and commercial application across the entire supply chain for chemicals. It emphasizes upon the design of chemical processes and products which are compatible with environmental goals, including minimal environmental impact, minimal use of toxic substances, and zero discharge of pollutants. The 12 principles of green chemistry are as follows:

- prevention of waste,
- atom economy,
- less hazardous chemical synthesis,
- designing safer chemicals,
- safer solvents and auxiliaries,
- energy efficient,
- renewable feedstocks,
- reduce derivatives,
- catalysis,
- design for degradation,
- real time analysis for pollution prevention, and
- safety.

Some of the pioneering research in the area in the 1980s was indeed carried out in developed countries including the UK, France, and Japan, but by the time the United States Environmental Protection Agency (US EPA) coined the term “Green Chemistry” in the 1990s, there were good examples of relevant research and some industrial application in many other countries including India and China (Ali 2004). Hundreds of

tones of hazardous waste are released to the air, water, and land by industry every hour of every day and the chemical industry is the biggest source of such waste (Lomborg 2001).

In 1999 the Organization for Economic Co-operation and Development (OECD) adopted the following priority recommendations (Centi and Perathoner 2009):

- supporting and promoting the research and development,
- recognizing sustainable chemistry accomplishments,
- disseminating related technical and event information, for example, on the Internet,
- developing guidance on implementing sustainable chemistry programs for OECD member countries and outreach to non-member international interests, and
- incorporating sustainable chemistry principles into chemical education.

In 2005, the G8 Ministers for Research founded a research and training network on green sustainable chemistry called the International Green Network (IGN).

Due to health risks associated with exposure to chemicals in everyday products, as well as the adverse impacts of the chemicals on ecosystems, a growing number of chemists have begun creating chemicals and chemical processes that have minimal environmental impact. Green chemistry research focuses on polymers, solvents, catalysis, biobased products, renewable products, analytical method development, synthetic methodology development, and the design of safer chemicals (Anastas and Kirchhoff 2002). According to Mark Rossi, research director of the NGO Clean Production Action (CPA);

“The building and construction, cleaning product, health care, pharmaceutical, electronic, and retail industries have made the most progress (thus far) toward implementing green chemistry, although that success is uneven” (Betts 2009).

After extensive study, the California Environmental Protection Agency (Cal/EPA) in 2008 issued its final Green Chemistry Initiative report, which included six policy recommendations as follows (Cal/EPA 2008, Defining Green Products 2010):

- Expand pollution prevention and product stewardship programs to more business sectors to refocus resources on prevention rather than clean up.
- Develop green chemistry workforce education and training, research and development, and technology transfer through new and existing educational programs and partnerships.
- Create an online product ingredient network to disclose chemical ingredients for products sold in California while protecting trade secrets.
- Create an online toxics clearinghouse, which is an online database of chemicals and their toxicity, to help prioritize chemicals of concern and needs for data.
- Accelerate the search for safer products by creating a systematic, science-based process to evaluate chemicals of concern and alternatives. This will help ensure product safety and reduce or eliminate the need for one-off chemical bans.
- Move toward a “cradle-to-cradle” economy and leverage market forces to produce products that are “benign-by-design” by establishing a California Green Products Registry. The Registry will develop green metrics and tools for a range of consumer products and encourage businesses to use them (Cal/EPA 2008).

On 10 September 2010, California’s Department of Toxic Substances Control (DTSC) submitted its Green Chemistry Proposed Regulation for Safer Consumer Products to the

state's Office of Administrative Law, triggering a 45-day public comment period and formal rulemaking process, which flesh out a process for identifying and prioritizing chemicals in consumer products that may be subject to additional restrictions (Defining Green Products 2010).

The products which are already on the market, the process will require examining whether safer alternatives exist and potentially reformulating the product or having it banned entirely. For new products, the regulations require manufacturers to look at potential impacts and address them before the product is brought to market (Hsaio et al. 2010). According to the California Policy Research Center, about 2,000 potentially hazardous chemicals are introduced into commercial use each year. Furthermore, global chemical production is expected to double by 2024 (Wilson and Schwarzman 2009).

The federal government is currently evaluating the feasibility of the Safer Chemicals Act of 2010. This would call for green chemistry and engineering during all phases of a chemical's life cycle, from design to manufacture to use to disposal. It would also rely on principles of chemistry, engineering, environmental science, and toxicology to reduce and eliminate adverse health and environmental impacts (Matus et al. 2010).

Childcare products and toys containing the phthalates Bis-2-diethyl hexyl phthalate, Dibutyl-n-butyl phthalate and Butyl benzene phthalate (DEHP, DBP and BBP) in concentrations higher than 0.1% per phthalate were banned. Additional phthalates, Diisononyl phthalate, Di-n-octyl phthalate, and Di-isodecyl phthalate (DINO, DNOP and DIDP), were banned in any children's product that can be placed in a child's mouth or in any childcare products that contain concentrations higher than 0.1% per phthalate.

The meaning of the terms *green chemistry* and *sustainable chemistry* is different. Sustainable chemistry is the maintenance and continuation of an ecological-sound development, whereas green chemistry focuses on the design, manufacture, and use of chemicals and chemical processes which have little or no pollution potential or environmental risk and are both economically and technologically feasible. In Europe, apart from in the UK, the term sustainable chemistry is now preferred over green chemistry, the use of the term sustainable chemistry is expanding worldwide (Centi and Perathoner 2009).

Some chemicals or colors used by the producers are harmful and dangerous for health. Atlanta Journal-Constitution aware about some products which demand that their products are green! Charleston Gazette (November 15, 2010) expressed that "Be Aware of Risks in Strong Varieties of Teeth Whitener" and Edmonton Journal (May 9, 2011) expressed that "Cosmetics can Produce a Toxic Cocktail". None of these topics are good news for a consumer that is why they make good copy for reporters. Some baby foods are not prepared in green processes which are dangerous for health. Various products in the market sales with attracting advertisement and the producers demand that their products are green but some of them may create cancer.

FUTURE OF GREEN MARKETING

Green marketing myopia has led to ineffective products and consumer unwillingness. Rising energy prices, growing pollution and resource consumption in Asia, and political pressures to address climate change are driving innovation toward healthier, more-efficient, high-performance products. So that all marketing commodities must be

transform of green marketing. The twenty-first century's hottest Product Apple's iPod, iPhone give consumers the convenience to download, store, and play tens of thousands of songs and videos without the environmental impact of manufacturing and distributing CDs, plastic jewel cases, and packaging (Ottman et al. 2006). Recently e-banking becomes a popular and safe banking system in the world. Due to global demand and economic crisis every nation will have to produce green marketing products in future which will be environment friendly and sustainable. All the conversations, business communications and important news are dealing with internet, in stead of using written paper letters which are environment friendly.

CONCLUDING REMARKS

This paper discusses reflections and forecasts on the growth of the new timber market. The awareness of the manufacturers about green products and eco-labeling is given to implement green marketing. It also analyses the difficulties to implement green marketing and indicates that proper care must be taken while framing the marketing plans, strategies and policies to save the world at present and in future. Adoption of green marketing in the society may not be easy in the short run, but in the long run surely it will be profitable. Government and various social organizations may compel all the organizations to practice green marketing for sustainable development. The customers will be conscious to buy green marketing products, although these products are comparatively costly. We have discussed about the green timber products, green chemical products, and future of green marketing. We forecast that in future green products will be popular in the society.

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