Sustainable Packaging in Selected FMCG Companies of India

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Abstract
Under constant pressure from government, the media, customers and consumers, the packaging industry is increasingly being forced to consider how its products can be made more sustainable. Faced with pressing issues of over capacity, low prices and high raw material costs, ‘sustainable packaging’ is becoming the top concern for senior executives. The present research is based on 100 FMCG companies adopting Sustainable packaging. This paper highlights the novelty required from the companies to adopt the concept of sustainable packaging which will contribute to environment friendly products. It argues on the impact, reasons of adoption and various disparities that need to be taken care of while implementing sustainability concept in FMCG Companies. The paper provides empirical results by using tests like Friedman Two Way ANOVA, One Way ANOVA, Coefficient of Preference Analysis, Factor Analysis to demonstrate how companies have to be responsible not only for the social and environmental performance of its own production deeds but also for using those raw material which infuse emission and wastes that degrade our environment.

Keywords: Sustainable Packaging, Friedman Two Way ANOVA, One Way ANOVA, Coefficient of Preference Analysis, Factor Analysis.

Introduction
The Indian FMCGs sector is the fourth largest sector in the economy with a total market size in excess of US$ 13.1 billion. It has a strong MNC presence and is characterised by a well-established distribution network, intense competition between the organised and unorganised segments and low operational cost. Availability of key raw materials, cheaper labour costs and presence across the entire value chain gives India a competitive advantage. The FMCG market is set to treble from US$ 11.6 billion in 2003 to US$ 33.4 billion in 2015. Penetration level as well as per capita consumption in most product categories like jams, toothpaste, skin care, hair wash etc. in India is low indicating the untapped market potential. Burgeoning Indian population, particularly the middle class and the rural segments, presents an opportunity to makers of not only branded products but also the packaging FMCG Companies to convert consumers to branded products and also fulfilling the responsibility towards society through sustainable packaging (IBEF Report, 2006).

Packaging is an important part of our society as it connects production and consumption of a wide variety of products by protecting these and ensuring they are delivered in their original state. The name packaging guides in a different aspect from being simple and functionally focused to more widespread and holistic interpretations. “Packaging is the container for a product encompassing the physical appearance of the container and including the design, color, shape, labeling and materials used” (Arens, 1996). However as Jugger (1999) points out: “Measuring the true impact of packaging is difficult. Packaging changes are never made in isolation: sales promotions and advertising obscure the effect of these changes.” Better packaging results in protection and saved transportation of...
products, reduces loss, damage and wastage of products and produce. It enhances product value and hence expands markets within and outside the country (Jakhar, 2004). Packaging takes on particular importance because of its increased significance in buying decisions in-store, its presence at the critical moment of purchase decision, and its extensive reach to most purchasers of the product (Orth and Malkewitz 2006; Underwood and Klein 2002).

Sustainability has become an important metric in the Protective Packaging Industry over the past several years. Often seen as an extension of the “Environmentally Friendly Packaging” efforts from the ‘80’s and ‘90’s, Sustainability is actually much more broadly based and encompasses far greater concerns than landfill avoidance and controlling litter (Armstrong, nd). The Oxford Concise Dictionary of Ecology definition of sustainability is “Economic development that takes full account of the environmental consequences of economic activity and is based on the use of resources that can be replaced or renewed and therefore are not depleted” How does packaging relate to sustainability? “The guiding principles for designing environmentally responsible packaging developed in the early 1990s are embodied in the four Rs hierarchy and are still valid today” (Soroka, 2009). The four Rs of packaging, reduce, reuse, recycle and recover can be considered as a starting point or building blocks to packaging sustainability (Scheffler, nd).

The Sustainable Packaging Coalition, a leading organization for sustainable packaging, defines sustainable packaging as a target vision for creating “a world where all packaging is sourced responsibly, designed to be effective and safe throughout its life cycle, meets market criteria for performance and cost, is made entirely using renewable energy, and once used is recycled efficiently to provide a valuable resource for subsequent generations”.

The framework of sustainable packaging consists of three interrelated components. The first component is related to time and perpetuality. Sustainable packaging is aimed at not only meeting the needs of the present generation, but also meeting the needs of future generations. The second component is related to striking a healthy balance to meet the needs of the environment, society, and economy, a packaging system is not truly sustainable until all these elements are addressed in an equitable manner. The third component is related to the packaging functions, which are containment, protection, convenience, communication. Unless a package can perform some useful functions, the justification of its existence is questionable. For example, a package may be considered environmentally friendly because it is biodegradable; however, if it fails to protect the product, the product will likely be discarded and not used by the consumer. (Yam, nd)

Sustainable packaging is designed to reduce wastage and conserve important resources. The three main elements to this are:

- **Reduce:** A large percentage of the time packaging is designed to be larger than really necessary. Manufacturers use this technique to make products appear bigger than they actually are and also to make them more eye-catching.
- **Reuse:** Many modern materials can only be used once. This means they have to then go straight to landfill once throw away. By selectively choosing materials that can be reused manufacturers can contribute greatly to reducing wastage.
- **Recycle:** By recycling materials we can make sure they are reintroduced into the industrial chain and reused for another purpose. This helps to reduce the strain on the planet’s fragile resources and save on wastage.

**Review of Literature**

The dynamic era is changing dramatically with each day passing. Sustainable packaging has played a vital role for companies for their profits margins that are increasing day by day but inappropriate standards in manufacturing packaging material is creating environmental issues which are also increasing with the same pace. So to cope with these environmental issues companies have to take into their consideration about sustainable packaging for their products. In a study Vermeir and Verbeke (2004) investigated the presumed gap between favourable attitude towards sustainable behaviour and behavioural intention to purchase sustainable food products. The impact of involvement, perceived availability, certainty,
perceived consumer effectiveness (PCE), values, and social norms on consumers’
attitudes and intentions towards sustainable food products was analysed with a
sample of 456 young consumers. It has been analysed that Involvement with
sustainability, certainty, and PCE had a significant positive impact on attitude
towards buying sustainable dairy products. Lee and Xu (2005) presented a general
overview of product life cycle assessment (LCA) and sustainable product
packaging over the last four to five years. The review of life cycle assessment
includes an overview of LCAs conducted over the last six to seven years for a
wide variety of products. The merits and shortcomings of a streamlined (abridged)
(SLCA) are briefly reviewed. A more wide-ranging integrated approach,
emphasizing economic, social and environmental considerations, in conjunction
with more efficient packaging designs, which economise on material and were
recyclable, is the key to sustainable packaging. Sonneveld, et al. (2005)
considered the three elements of sustainability: the economic or commercial
functions that packaging fulfills, and its social and environmental functions. The
authors also differentiated between different levels of concern, i.e. from the macro
levels of society (prosperity and well-being), the intermediate levels of the
product/packaging system (efficiency and effectiveness including product waste
prevention) to the micro levels of packaging materials (closed cycles or zero
waste) and packaging components (safe or non-toxic). In conjunction with the
definition, the Sustainable Packaging Alliance in close cooperation with
Australian based (including global) companies, is developing a Packaging Impact
Quick Evaluation Tool will be a decision support tool that provides packaging
technologists and managers with hands-on input for defining company packaging
strategies, selecting materials for packaging redesign or packaging innovation,
studied that there are different parameters, which may affect packaging and its
sustainability. Up to date, several methodologies and tools have been developed
not only to quantify but also to assess the environmental impacts from packaging.
Different criteria and indicators have been used depending on the objectives,
scope and nature of the evaluation. Key performance indicators and targets were
considered. Results were not linked to a final decision “pass/not pass” in order to
facilitate decision making. Lewis, et al. (2010) emphasized that Life cycle
assessment (LCA) was used by practitioners and policy-makers to help them
understand the sustainability impacts of packaging. LCA was useful because it
quantifies the impact of a product throughout its life cycle, from raw materials
extraction through to disposal or recovery. The paper provided a critical review of
the role of LCA in evaluating packaging sustainability. Bhamra (2010)
emphasized Sustainable design was a growing area within many industrial sectors
particularly with the rise in Producer Responsibility Legislation placing more
emphasis on the way in which products should be designed. It was widely
recognized that radical changes were needed to products and packaging if we were
going to move towards a more sustainable society, some researchers estimate that
environmental impact will have to be reduced by to 95%. The paper highlighted
the way design needs to change and lessons for current and future packaging
designers to help move the industry towards more sustainable practices. Allione,
et al. (nd) investigated a multidisciplinary research, with the purpose to develop a
sustainability index able to take in account the environmental, social and good
quality aspects of agri-food production chain of the Piedmont Region: chocolate
and sweet products, alcoholic beverage, meats and cold cuts and along their life
cycle. Savita, et al. (2010) described a holistic methodology for sustainable
packaging design. This methodology studied the combined systems of packaging
and the packaged products across the whole distribution chain from manufacturer
to end consumer and the life cycle from raw material extraction to the waste
phase. It contained a number of indicators that are grouped into the following
main categories: environmental sustainability, distribution costs, product
protection, market acceptance and user friendliness. Verghese & Lewis (2010)
explained Community concerns about the environmental impacts of packaging
have prompted government to introduce policies and regulations which impose
eco-taxes or deposit-return systems, require companies to take-back and recover
their packaging, or promote voluntary product stewardship programmes. Until
recently these programmes have focused almost exclusively on consumer (retail)
packaging, but increasingly companies have started to address the environmental
impacts of industrial packaging. This is being driven as much by regulation as it is
by the need to reduce costs and increase efficiency in supply chains. This paper
argued that environmental innovation in industrial packaging systems requires a
cooperative supply chain approach to ensure that environmental and commercial
costs are reduced and efficiencies optimized for the chain as a whole. Savita and
Kumar (2010) emphasized the environment has been exploited by companies in
a number of ways to fulfil their objectives. So, it becomes the responsibility of
companies to compensate for this damage. An attempt has been made in the present study to compare the attitudes of males and females as well as urban and rural consumers towards various dimensions of environment-friendly products. The study revealed that there does not exist any significant difference in attitudes of gender-wise people except after-use features of environment-friendly product.

The perusal of review of literature reveals that the initiatives taken by the FMCG players in India towards sustainable packaging have not been examined empirically. There are a few studies pertaining to attitude of the consumers towards sustainable packaging in India but till now no such effort has been done in studying the FMCG players adopting to sustainable packaging. This study will add to the body of knowledge in management education as most of the extant understanding of management is based on European markets, as documented by European researchers, who do not have a great deal to do with realities of the Indian markets.

Objectives

- To identify the various reasons of adapting to Sustainable packaging by selected FMCG players
- To check the impact of adaption of Sustainable packaging on the environment and the FMCG organisations.
- To know the various barriers faced by the FMCG companies in adaption to Sustainable packaging
- To discover the future plans of the company with regard to sustainable packaging initiatives

Research Hypothesis

H01: The significant barriers faced by a company in developing and implementing Sustainable Packaging practices and Practices does not vary significantly on the bases of Stage of the Business Life Cycle

Data Base and Methodology

Sample

The sample companies for collecting data were 100 companies that were identified on the basis of convenience sampling. The sample unit for the study was FMCG Companies where the element for the research was the head of Packaging department of the sample company.

Survey Instrument

In order to unfold the various initiatives taken by the Indian FMCG players towards sustainable packaging, the information was sought from the persons actually involved in the task of packaging. This entailed conducting an extensive study to address the research questions through primary survey. As the respondent companies were huge in number and were scattered geographically, questionnaire was assumed to be the best means for collecting the data.

The present research analyzes the results of a survey instrument that was distributed to, and collected from, head of the packaging department in the FMCG Companies in India, which were using sustainable packaging. Keeping in view the objectives to be achieved, the survey was carried out through a non-disguised structured questionnaire having close-ended and dichotomous and likert-sacle based questions that were prepared in a multi-stage process. First, prior studies on sustainable packaging were reviewed to identify its various facets. The basic questionnaire used in this study was framed on the basis of the survey instruments developed by Scheffle (nd) who investigated both the current and future packaging sustainability practices and perspectives among a wide variety of companies located in Wisconsin that were engaged in packaging functions. These functions include both packaging suppliers and packaging users. Research was conducted by a questionnaire directed to packaging professionals within companies that was currently active in packaging functions. The questionnaire focused on the definition of packaging sustainability, current state of packaging sustainability, formal strategy, and an identified person to lead. Case studies from each company were requested. The purpose of this research is to provide real world applications through the questionnaire and case studies of packaging sustainability to both
Packaging students and Sustainability Design and Development Minor students at the University of Wisconsin-Stout. Secondly, based on the identified facets of sustainable packaging, some factors were identified, on the basis of which questionnaire was given a final shape. The final survey instrument was developed to portray the salient elements of existing body of knowledge on the sustainable packaging.

To ensure the accuracy and applicability of the scale, in the current study, all genuine efforts have been made by relying on the validity and reliability techniques. For this purpose, the survey instrument was pretested in two stages. In stage one, three professors from the field of marketing management and research studies evaluated the questionnaire. Based on their feedback, some modifications were made in the questionnaire. In stage two, a 'pilot survey' was conducted in case of five respondent companies from FMCG sector. After the pilot survey, certain modifications again were introduced in the questionnaire and finally modified questionnaire was used for the detailed study.

Since the reliability value of the scale should be at least 0.6, the reliability test was undertaken by examining the item to total correlation to get a set of reliable scale items that finally yielded a set of 10 statements with reliability value of .767.

In order to collect the data, a combination of personal and telephonic interviews along with e-mail was used. Due to low response rate, the e-mail method was abandoned and respondents were approached through personal interviews and telephone interviews. The process resulted in 117 questionnaires. During editing stage of the responses, it was found that some of the questions in the questionnaire were incomplete and in some cases, there was no response and thus was not included in the study. Finally only 100 respondent companies from the FMCG sector were retained for the purpose of analysis.

Testing Methodology
Depending upon the nature and availability of data, various statistical and data analysis techniques were applied. To arrive at pertinent analysis, the collected data was put to statistical analysis using SPSS 16. For analyzing the data, the techniques used were Ranking and Scaling Techniques like Friedman ANOVA, One Way ANOVA, Coefficient of Preference Analysis, Kruskal Wallis Test and Factor Analysis.

Results and Discussions
The results have been discussed in this section wherein the demographic profile of the FMCG companies including their stage in product life cycle has been discussed. Further the reasons for the use of sustainable packaging were discussed by using Friedman ANOVA. The CPI was used to add knowledge for the concept gaining importance in India. The various factors regarding the benefits of Sustainable Packaging were extracted by using Factor Analytic Approach. The detailed discussion on each of the objectives is given in the following tables.

Demographic Profile of Companies
Table 1 indicates the age of the company on the basis of years since its inception. The companies on the basis of years have been segregated into Growing, Established and Mature Companies, wherein out of the sample 100 FMCG companies, 75 companies were growing companies, followed by 22 Established companies and 3 Mature companies:
### TABLE 1

Profile of the Survey Respondents

<table>
<thead>
<tr>
<th>Demographic Factors</th>
<th>Number of Respondents</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age of the Company</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 62 years</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>63-124 years</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>125-186 years</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Stage of Company</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growing Companies</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Established Companies</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Matured Companies</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Reasons for use of Sustainable Packaging

To study the ground for use of sustainable packaging in selected 100 FMCG companies the respondents were asked to rate the various reasons in accordance to their significance. Rank 1 depicts most significant and rank 8 depicts least significant reason for use of sustainable packaging. Table 2 suggests that the most important reason for adoption of sustainable packaging is the safety and health aspects for the individuals and communities followed by use of renewable or recycled source materials, effective utilization of available sources, wherein the least rank was given to clean production technologies and best practices.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is beneficial, safe and healthy for individuals and communities throughout its life cycle.</td>
<td>2.9400</td>
<td>1.58159</td>
<td>1</td>
</tr>
<tr>
<td>Is sourced, manufactured, transported, and recycled using renewable energy.</td>
<td>3.4200</td>
<td>1.93417</td>
<td>3</td>
</tr>
<tr>
<td>Maximizes the use of renewable or recycled source materials;</td>
<td>3.0500</td>
<td>2.04186</td>
<td>2</td>
</tr>
<tr>
<td>Products are manufactured using clean production technologies and best practices.</td>
<td>5.6500</td>
<td>1.85524</td>
<td>8</td>
</tr>
</tbody>
</table>
Products are made from materials that have no adverse environmental impacts.  
Product is physically designed to optimize materials and energy;  
Is effectively recovered and utilized in biological and/or industrial cradle-to-cradle cycles.  
Promotes effective utilization of available sources

<table>
<thead>
<tr>
<th>Reason</th>
<th>Mean</th>
<th>SD</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products are made from materials that have no adverse environmental impacts.</td>
<td>5.2800</td>
<td>2.29219</td>
<td>6</td>
</tr>
<tr>
<td>Product is physically designed to optimize materials and energy;</td>
<td>5.0900</td>
<td>1.99036</td>
<td>5</td>
</tr>
<tr>
<td>Is effectively recovered and utilized in biological and/or industrial cradle-to-cradle cycles.</td>
<td>5.4800</td>
<td>2.02250</td>
<td>7</td>
</tr>
<tr>
<td>Promotes effective utilization of available sources</td>
<td>4.5000</td>
<td>2.44743</td>
<td>4</td>
</tr>
</tbody>
</table>

Notes: The mean is the average on a scale of 1 is Most Preferred and 8 is Least Preferred; SD=Standard Deviation; Scores are significantly different on Friedman two-way ANOVA test (p<0.001); N=100

Reasons for Sustainable Packaging Gaining Grounds in India

The reason for the concept of sustainable packaging getting popular in India has been depicted in Table 3. In order to identify the reasons for sustainable packaging gaining grounds in India which directly or indirectly compel the companies to adopt the concept are compared to the observed phenomenon as shown in Table 3. By conducting Coefficient of Preference Analysis intensity of preference regarding the concept of sustainable packaging gaining importance in India has been measured. If CPI (Exclusive Coefficient of Preference) which is equal to (CP3) (Coefficient of Preference) comes out to be less than one, it signifies the preference for a particular alternative. And if CPI (=CP3) comes out to be greater than one, it signifies that non-preference. Further, lower the value, most preferred the factor is and vice-versa in case of high values. A close examination of the table reveals that the two factors representing reason for popularity of concept of sustainable packaging have CPI (CP3) values less than 1 indicating, the concept gaining grounds in India. Of these, “Greener goods are more humane” (0.63) and “Reduction and reuse of waste material” (0.85) are the most preferred reasons while “Minimise hazardous impact on environment and society”, “Increasing awareness through various media” and “Increase in employment” are least preferred.
### TABLE 3

**Use of Concept of Sustainable Packaging Gaining Grounds**

<table>
<thead>
<tr>
<th>Coefficient of Preference</th>
<th>Factors</th>
<th>Rank</th>
<th>Average</th>
<th>CP1</th>
<th>CP1’</th>
<th>CP2</th>
<th>CP2’</th>
<th>CP3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1 1.64</td>
<td>Increasing awareness through various media</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP2 0.77</td>
<td>Greener goods are more humane</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP3 1.34</td>
<td>Minimise hazardous impact on environment and society</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP4 1.55</td>
<td>Increase in employment</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP5 0.84</td>
<td>Reduction and reuse of waste material</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where,
- CP1 = Coefficient of maximum preference
- CP1’ = Coefficient of minimum preference
- CP2 = Coefficient of maximum ability of preference
- CP2’ = Coefficient of minimum ability of preference
- CP3 = Adjusted CP2 and CP2’
- CPI = Exclusive Coefficient of Preference
- CPR = Coefficient of Preference
- Average CPR = Average of Coefficient of Preference
Various Aspects of Sustainable Packaging—A Factor Analytic Approach

In the present study, we have computed Cronbach’s Alpha and its value was found to be .767, ensuring reliability of the used scale. A sample of 100 observations against 10 variables was taken into consideration, thus qualifying the adequate sample size requirement for a stable factor solution. Further, correlation matrix was computed and substantial number of correlations were found greater than 0.40. Then, anti-image correlations were calculated and it was observed that these were very low indicating that true factors existed in the data. In the present study has observed the computed value of KMO statistic was .769 ensuring the suitability and appropriateness of the collected data for the application of factor analysis. In our study, Bartlett test’s chi-square value was 278.852, which was found to be highly significant indicating adequacy of data for application of factor analysis.

By using Principal Component Analysis (PCA) and Latent-root criterion for extraction and retention of factors respectively, only three components emerged with the Eigen values greater than 1. Further, the component matrix (without rotation) was constructed. The factor loadings greater than 0.45 were retained (ignoring signs). The principal factors were orthogonally rotated using Varimax rotation method. Table 4 contains the Total variance:

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigen Values</th>
<th>% of Variance</th>
<th>Cumulative %</th>
<th>Final Eigen Values</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.628</td>
<td>36.281</td>
<td>36.281</td>
<td>2.773</td>
<td>27.727</td>
<td>27.727</td>
</tr>
<tr>
<td>2</td>
<td>1.307</td>
<td>13.075</td>
<td>49.356</td>
<td>1.709</td>
<td>17.088</td>
<td>44.814</td>
</tr>
</tbody>
</table>
Perusal of Table 4 revealed that there are three factors which accounted for 59.754 percent variance. The percentage of variance explained by the factors 1, 2 and 3 was 27.727, 17.088 and 14.939 respectively. All the communalities were above 0.50 and many of them were above or very close to 0.8. It was finally found that the variables $X_1$, $X_4$, $X_5$, $X_6$, $X_9$, $X_{10}$ loaded on factor 1, the variables $X_7$, $X_8$ were loaded on factor 2 and the variables $X_2$, $X_3$ were loaded on factor 3.

**Factor Loadings**

Factors can be labeled symbolically as well as descriptively. Symbolic tags are precise and help avoiding confusion (Rummel, 1970). Present study has also used symbolic tags to factors. The factors along with codes and factor loadings are given in Table 5.

<table>
<thead>
<tr>
<th>Factor (Communalities)</th>
<th>Statements included in the Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficial to the Society</td>
<td>.285</td>
</tr>
<tr>
<td></td>
<td>.513</td>
</tr>
<tr>
<td>and Environment</td>
<td>.786</td>
</tr>
<tr>
<td>-----------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>.727</td>
</tr>
<tr>
<td></td>
<td>.589</td>
</tr>
<tr>
<td></td>
<td>.399</td>
</tr>
<tr>
<td>Eco-friendly Product</td>
<td>.689</td>
</tr>
<tr>
<td></td>
<td>.806</td>
</tr>
<tr>
<td>Effect of Sustainability on organisation’s productivity</td>
<td>.637</td>
</tr>
<tr>
<td></td>
<td>.544</td>
</tr>
</tbody>
</table>

**FACTOR LABELLING:**

**Beneficial to the Society and Environment:** Now a day’s most consumers express willingness to pay more for sustainable produced products, only a minority is currently able or really willing to pay a premium for these products. So although people may have a positive attitude, they are largely passive in their role as consumer when it comes to supporting environmental or animal welfare improvements with their available budget. So, it becomes legal compliance for the companies to adopt sustainable packaging in order to survive in this competitive environment.
Eco-Friendly Products: The eco-friendly products are those which cause minimal harm to people and the environment. The manufacturing and/or consumption of these goods also have a minimal impact on the environment. The elements loaded on this factor include that sustainable packaging is physically designed to optimize materials and energy and is effectively recovered and utilized in biological and/or industrial cradle-to-cradle cycles.

Effect of Sustainability on Organisation’s Productivity: Sustainable packaging is a holistic concept. Nowadays, consumers are becoming more demanding—putting increased commercial pressure on the integrity and role of packaging. Brand owners are responding to these and other (social, demographic) pressures with environmental consideration being pushed into the background which in lieu benefit the organization in terms of sales, building good image and profitability.

Driving Factors behind Sustainable Packaging initiative by FMCG Companies

The driving factors behind sustainable packaging initiative by FMCG players have been depicted in Table 6. By conducting Coefficient of Preference Analysis intensity of preference regarding sustainable packaging initiative has been measured. If CPI (Exclusive Coefficient of Preference) which is equal to (CP3) (Coefficient of Preference) comes out to be less than one, it signifies the preference for a particular alternative. And if CPI (CP3) comes out to be greater than one, it signifies that non-preference. Further, lower the value, most preferred the factor is and vice-versa in case of high values.

A close examination of Table 6 reveals that the two factors representing reason for popularity of concept of sustainable packaging have CPI (CP3) values less than 1 indicating, the concept gaining grounds in India. Of these, “End Consumer and Retailer Environmental Concerns” (0.14) and “Corporate Image” (0.16) are the most preferred drivers while “Regulatory Compliance”, “Cost Reduction” are least preferred and “Community Concern” is not preferred by the companies.

TABLE 6
Factors behind Sustainable Initiatives by FMCG Companies

<table>
<thead>
<tr>
<th>Coefficient of Preference</th>
<th>Rank</th>
<th>Factors</th>
<th>CP1R</th>
<th>CP2R</th>
<th>CP3R</th>
<th>CPIR</th>
<th>Average R</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI1</td>
<td></td>
<td></td>
<td></td>
<td>CPI1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.10</td>
<td>10</td>
<td>0.14</td>
<td>7.14</td>
<td>0.14</td>
<td>1.64</td>
<td></td>
<td>Regulatory Compliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPI1</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPI2</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CPI3</td>
<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>CPIR</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Significant Barriers in Developing and Implementing Sustainable Packaging Strategies and Practices

This question was added to get an insight of the various barriers being faced by the FMCG companies in implementing Sustainable packaging keeping in consideration the concept being in its early phase. Table 7 revealed that Impact on Return on Investment was the main barrier in implementing sustainable Packaging in their organisation followed by Lack of training, lack of skilled staff, Increase in cost and does not drive business significantly.

**TABLE 7**

Significant Barriers Faced by your Organisation in Developing and Implementing Sustainable Packaging Strategies and Practices

<table>
<thead>
<tr>
<th>Significant Barrier</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Consumer and Retailer Environmental Concerns</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Corporate Image</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Community Concern</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Cost Reduction</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Where,
CP1 = Coefficient of maximum preference
CP1' = Coefficient of minimum preference
CP2 = Coefficient of maximum ability of preference
CP2' = Coefficient of minimum ability of preference
CP3 = Adjusted CP2 and CP2
CP1= Exclusive Coefficient of Preference
CPR= Coefficient of Preference
Average CPR= Average of Coefficient of Preference
Analysis Of Variance (ANOVA) of Barriers Faced By a Company in Developing and Implementing Sustainable Packaging Practices and Practices on the Bases of Stage of the Business Life Cycle

In this study, the significance of the difference among the sample means has been tested through an Analysis of Variance (ANOVA). This is done by F-test for testing the significance of barriers faced by a company in developing and implementing Sustainable Packaging practices and Practices on the bases of Stage of the Business Life Cycle. The analysis had been carried out in FMCG Companies on the basis of stage of Business Life Cycle of the company. The results of the analysis through SPSS have been explained below:

The study of table 8 reveals that since the probability 0.623 is greater than 0.05 therefore at 5% level of significance, null hypothesis has been accepted. The results indicated that the significant barriers faced by a company in developing and implementing Sustainable Packaging practices and Practices does not vary significantly on the bases of Stage of the Business Life Cycle.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in Cost</td>
<td>13</td>
<td>13.0</td>
</tr>
<tr>
<td>Impact on ROI</td>
<td>33</td>
<td>33.0</td>
</tr>
<tr>
<td>Lack of adequate sustainability –related education/training</td>
<td>28</td>
<td>28.0</td>
</tr>
<tr>
<td>Lack of available skilled staff</td>
<td>15</td>
<td>15.0</td>
</tr>
<tr>
<td>No significant business driver</td>
<td>11</td>
<td>11.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Further, Scheffe has been used to compare the variance. As per Table 9, Post Hoc Multiple comparison, it has been verified and concluded that the significant barriers faced by a company in developing and implementing Sustainable Packaging practices and Practices does not vary significantly on the bases of Stage of the Business Life Cycle.

### TABLE 9
Multi-Comparison (Post Hoc)

<table>
<thead>
<tr>
<th>(I) Stage of Business</th>
<th>(J) Stage of Business</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growing</td>
<td>Established</td>
<td>-.20788</td>
<td>.28900</td>
<td>.773</td>
<td>-.9263</td>
</tr>
<tr>
<td></td>
<td>Maturity</td>
<td>.41333</td>
<td>.70179</td>
<td>.841</td>
<td>-1.3313</td>
</tr>
<tr>
<td>Established</td>
<td>Growing</td>
<td>.20788</td>
<td>.28900</td>
<td>.773</td>
<td>-.5106</td>
</tr>
<tr>
<td></td>
<td>Maturity</td>
<td>.62121</td>
<td>.73358</td>
<td>.700</td>
<td>-1.2025</td>
</tr>
<tr>
<td>Maturity</td>
<td>Growing</td>
<td>-.41333</td>
<td>.70179</td>
<td>.841</td>
<td>-2.1580</td>
</tr>
</tbody>
</table>
(I) Stage of Business | (J) Stage of Business | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | Upper Bound
---|---|---|---|---|---|---
Growing | Established | -.20788 | .28900 | .773 | -.9263 | .5106
Maturity | | .41333 | .70179 | .841 | -1.3313 | 2.1580
Established | Growing | .20788 | .28900 | .773 | -.5106 | .9263
Maturity | | .62121 | .73358 | .700 | -1.2025 | 2.4449
Maturity | Growing | -.41333 | .70179 | .841 | -2.1580 | 1.3313
Established | | -.62121 | .73358 | .700 | -2.4449 | 1.2025

Current Sustainability Initiatives other than Packaging used in FMCG Company

Companies were also found to be using many other sustainable initiatives other than packaging to adhere to their responsibility towards society. Table 10 reveals that the other initiatives taken by the companies in order of their importance are Product take-back schemes, Collection, composting and recycling facilities for your products, Product redesign to reduce packaging, Product life cycle analysis & reporting, Product redesign to use renewable materials/resources, Transportation using renewable energy and Product manufacturing using renewable energy.

**TABLE 10**

**Other Sustainability Initiatives**

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>No. of Companies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product life cycle analysis &amp; reporting</td>
<td>14</td>
<td>14.0</td>
</tr>
<tr>
<td>Product take-back schemes</td>
<td>24</td>
<td>24.0</td>
</tr>
</tbody>
</table>
Conclusions of the Study

The packaging industry is fragmented over sustainable packaging and has made a poor case for the essential nature of its products. Unless the industry becomes more proactive in the debate about the definition and role of sustainable packaging, it runs the risk of packaging continuing to receive disproportionate attention for its environmental impact. By considering the wider value chain for both packaging and its customers’ products packaging companies can help ensure that discussions around sustainability with stakeholders are based on a shared understanding of clear technical and economic issues. However, whether by regulation or by manufacturer, retailer or consumer pressure, the demand for sustainable packaging solutions is becoming a fact of life. Companies that fail to actively address the issue as part of their commercial strategy will forego opportunities and eventually lose business to their forward-thinking competitors. The growth in demand for sustainable packaging is no more a threat to the packaging industry than volatile raw material costs, industry overcapacity and the hypersensitivity of customers to price. Packagers will need to learn how to deal with demands for sustainable packaging in the same way as they have had to deal with all the other commercial difficulties that have hit this most competitive of industries. However, the wide uncertainty about what sustainable packaging actually is, and how and when different customer groups will adopt it, presents those commercially astute companies with a golden opportunity to steal a march on their competitors and use sustainability as a differentiator and source of added value in their market place.
References


