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INDIAN CONSUMER'S PERCEPTION WITH REGARDS TO SUSTAINABLE PACKAGING FOR PRODUCTS BOUGHT FROM E-COMMERCE PLATFORMS

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Abstract

This research paper is aimed at conducting a quantitative analysis among Indian consumers of e-commerce products by collecting responses of 103 consumers. The main purpose of this research paper is to understand the perception of the Indian consumer with regards to using the option of providing products with sustainable packaging from e-commerce platforms and to also provide suggestions to e-commerce companies based on the responses collected from the survey and by reviewing various research papers, news articles, student papers and open-source data which will be utilized to study the fast growth of the c-commerce sector in the Indian market, study its implications on the environment, and provide proper solutions to the issue created by over-use of single-use plastic. Also, successful instances of the usage of sustainable packaging materials in businesses will be studied and proper inputs from those examples will be considered while giving conclusions to the paper. Besides, the suggestions will not be centered for e-commerce only it will also be able to help out any other organization which aims to utilize sustainable packaging in their product delivery services might also be able to use the results and conclusions collected from this research study.

Key words: E-Commerce, Sustainability, Plastic Pollution, Great Pacific Garbage Patch, Sustainable Packaging

Introduction

The e-commerce sector in India is bound to grow leaps and bounds with the sector supposed to be worth $250 Billion in the year 2026 [1][4] due to an exploding internet user base which is slated to reach 829 million users by the year 2021. Moreover, the Indian e-commerce sector has grown at a rate of 51 % until the year 2020 which is the highest in the world [2][5].

What makes the e-commerce so promising is that even during the COVID-19 pandemic the sector had shown immediate recovery and had registered a growth rate of 17 % [3] which is just another indicator of the huge potential of this sector.

Various initiatives launched by the Government of India since 2014 like Digital India, Make in India, Skill India, Start-up India and Innovation Fund have helped the c-commerce sector significantly, also the government has hiked the FDI limit in e-commerce up to 100 % which has helped giants like Amazon in conducting business in India. The government also allocated Rs 8000 Crores (USD 1.24 Billion to BharatNet project which is supposed to provide internet connectivity to 1,50,000-gram panchayats [2]. However, the environmental impact of this fast-growing sector is already very huge as a lot of the products sold through these platforms are packed in plastics whose use is detrimental to the environment as most of the plastic is dumped in the oceans with statistics showing that by 2025 for every 3 Tons of fish in the oceans there could be 1 ton of plastic waste. These plastic wastes seem to affect nearly 700 species worldwide due to ingestion and entanglement [6].

The issue has exploded into such a state that an entire patch of Pacific Ocean is now called "The Great Pacific Garbage Patch". The great pacific garbage patch which is also known as the pacific trash vortex covers waters from staring the west coast of the United States of America to Japan. This patch is mainly divided into 2 patches the western garbage patch which is located near Japan and the east garbage patch which is located near the US states of Hawai and California [7].

In October of 2019, the Commerce Ministry of the Government of India had asked all the e-commerce firms to cut their usage of single-use plastic for packaging purposes. The firms were also advised by the Department for Promotion of Industrial and Internal Trade to develop sustainable packaging materials to promote the reduction of India's plastic footprint globally [8].

In January 2020 Amazon and Flipkart India's largest e-commerce firms were told by the National Green Tribunal, on the recommendation of Central Pollution Control Board, that they need to establish a system to collect the plastic waste produced by them and recycle it under the Plastic Waste Management Rules 2016 which entails the need for organizations to collect the plastic waste generated under the extended producer responsibility.

Sustainable Packaging

A probable solution to the problem created by plastic packaging is using sustainable packaging materials for delivering e-commerce goods. Using sustainable packaging has benefits such as a reduction in the carbon footprint of the firm reduction in costs with research saying that sustainable packaging practices can lead to an annual saving in logistics costs of up to USD 46 billion [12].

Even many fast-moving consumer goods companies have also started making bold commitments towards improving the sustainability of packaging and also to fundamentally rethink their packaging systems to improve their sustainability. Whilst this could have a damaging impact on the packaging converters. Although with the right push to help these converters they could significantly improve their business portfolio and become a partner in sustainable packaging businesses [10].

Meanwhile, even a lot of countries have woken up to the threat posed by plastic pollution and have imposed resolutions planning to stop the use of single-use packaging materials with developed countries leading the charge. Germany, France and the United Kingdom are already imposing tough recycling regulations and have imposed extended producer responsibilities on major corporations. In Asia, Thailand has announced a ban on single-use plastic across the major stores in the country effective from January 2020. While India has backtracked on its plan to ban single-use plastic it is moving ahead with awareness campaigns and is increasingly setting up collection points to recover the plastic lost to waste sites [10].

C.A.S. Dominic, S. Östlund, J. Buffington and M. M. Masoud had conducted a study on developing a corrugated box using sustainable design practices while keeping the reduction of materials in mind and their research had shown that the weight of a cardboard box could be reduced by 1kg and reduction in CO_2 emissions by 20.4% [13].

Gheorghe Orzan, Anca Francisca Cruceru, Cristina Teodora Balaceanu and Raluca-Giorgiana Chivu [11] had conducted consumer research in Romania over the preference of consumers with regards to sustainable packaging. Their study had found out that managers need to understand what are the advantages and limitations of buying products with green packaging that are seen by the consumers, also to change the attitude of Romanian consumers towards sustainable packaging the managers needed to:

1. Inform the consumers on the effects of green packaging towards the environment with the help of communication campaigns that could help the consumers understand the benefits provided by green packaging;
2. An information process which will inform the customer about the environmental performance of the product with the help of methods such as labelling scheme wherein the customer will know about the environmental performance of a particular product with the help of a label.

Research conducted by Lise Magnier and Dominique Crie [14] indicates that for the promotion of the eco-based packaging brands, should inform the people about the benefits offered by the usage of natural materials. Also, it stated that benefits like ease of discarding empty containers, relatively smaller garbage volume and also the possibility of reuse packaging after the first packaging usage. And by removing over packaging brands would

also reduce the cost of their product thereby making them more competitive in the market and the social benefits made available by eco-packaging maybe utilized in advertising campaigns.

All in all sustainability in packaging is a very abstract and complex concept and open to interpretation and for sustainability in packaging to advance stakeholders are going to need specific guidance so that they can be able to implement it in their daily business practices. The traditional model of achieving sustainability by reducing waste and increasing recyclability is losing popularity and a more holistic approach will be needed to improve sustainability in packaging which will include and not be limited to finding an alternate packaging material to plastic. [15].

Research from Anne Sibbel [16] shows that just changing consumer behaviour towards sustainability has not been successful and a new education system might also be needed to impart the knowledge and benefits of sustainability to the masses. The traditional education method, according to Anne, has not given promising results on informing the masses about the benefits of sustainability. Higher education needs to be restructured in the future, wherein experts from multiple fields are roped in to teach students and share ideas related to their fields of expertise.

A study by Leslie Hermann [17] shows that the most sustainable way of using packaging might also be the way of constantly recollecting the packaging waste and recycling them, this could be made possible by the use of extended producer responsibility which demands from the firms that they try to recover the plastic waste that they released into the system and recycle them so that the plastic waste produced by them could be reduced. And while incineration could be seen as a probable alternative but according to the author incineration too consumes a lot of resources because of which it cannot be seen as a possible solution.

A study from Sophie Christin Meyer [18] which was done by focusing on secondary literature to understand the aspects of packaging, packaging design and the main points of packaging sustainability also they looked at alternative packaging materials available for possible use. Through her study, she recognized that packaging is deeply connected to family management and household activities. Her study also indicated that any new idea for the introduction of sustainable packaging might interfere with the economy, industry and politics of major countries and they will impose major challenges to the implementation of sustainable packaging.

In 2020 two sides conducted a survey in Europe where it was found that nearly 62% of the respondents considered paper and cardboard as a more sustainable packaging material as compared to plastic. Also, 70% of the people surveyed said that they are actively taking steps to reduce their dependence as the primary packaging material. And paper is indeed a more sustainable packaging material as compared to plastic because in terms of degradability and recyclability it is far more potent than plastic. Also, the reason for easier recyclability of paper is that it can be re-pulped, also it does not need chemical reactions and henceforth it does not get contaminated [19].

Even the plastic film suppliers have been taking steps to introduce sustainability in their practices so that the negative public perception of their industry could be changed. Efforts have also been made to use higher recycled content in plastic packaging. While neither paper nor plastic is completely sustainable when it comes to packaging which is more sustainable will depend directly on the application. In the end, it can be said that since whatever materials currently in use aren't fully sustainable, the onus should be on the producers of these packaging materials to reduce new content as much as possible and also increase the content of recycled material to as high as possible [19].

Just this year Coca-Cola became the first major brand in its sector to make plastic bottles with 100% recycled products in the Swedish market. An increasing number of brands have started moving towards sustainable and eco-packaging to improve their eco-credentials. This indicates that sustainable packaging is well on the way towards becoming the norm [20].

Objective:

The main objective of this research paper is to understand the consumer's perception towards the usage of sustainable packaging materials for e-commerce products, their willingness to pay extra costs for sustainable packaging, what materials could be considered sustainable for packaging purposes, the merits and demerits of using sustainable packaging and also how much they agree with some specific statements. From the responses collected from this survey, an analysis will be carried out and the results will be studied to provide a proper conclusion to the paper.

Methodology

The following research was conducted among Indian consumers to test their familiarity to sustainable packaging and also to determine whether they were fine with a minor increase in cost so that they could buy their product with sustainable packaging. The research was mainly aimed at discovering how much the consumers spent on e-commerce products, their knowledge about sustainable packaging materials and the benefits and limitations of sustainable packaging materials according to them. The survey form was floated in early August 2020 through google forms to gather data for research purposes. 103 people responded by answering the survey form and their responses were analyzed using Microsoft Excel in which pie charts and bar charts were drawn from the data available and proper conclusions were drawn from them.

Data Collection

The survey form had a total of 14 questions with 4 questions being there to record personal information of the respondents (Q1 was to record the name of the respondent so it was a short answer type question whereas Q2, Q3, Q4 multiple-choice questions asking gender, age and profession respectively). The fifth and the sixth questions were asked to know whether the respondent purchased products from e-commerce platforms and what was their annual spending on products bought from e-commerce platforms (Q5 & Q6 were both multiple-choice questions). The seventh and the eighth questions were there to record the consumer preference towards paying an extra cost for a product with sustainable packaging and their preference towards the sustainability of the material to be used for sustainable packaging (Q7 was a multiple-choice type question and Q8 was a checkbox type question so that respondent could choose multiple options). Questions 9 through 12 were statements to which the respondents had to respond on how much they agreed or disagreed with the statement provided (Q9, Q10, Q11, Q12 were linear scale questions with a scale of 1 to 5, with 1 being strongly disagree and 5 being strongly agree). Questions 13 and 14 were questions on what the respondent thought were the advantages and disadvantages of using sustainable packaging respectively (Q13 & Q14 were both multiple checkbox type questions where the respondents could choose multiple questions).

Details	**Answer**	**Responders**	**Result in %**
Gender	Male	64	62.1
	Female	38	36.9
	Prefer not to say	1	1
Age	20-25	85	82.5
	25-35	16	15.5
	35-45	2	2
	>45	0	0
Profession	Working Professional	21	20.4
	Business Owner	0	0
	Student	81	78.6
	Homemaker	1	1

Table 1: Personal Information of the respondents

Findings And Analysis

As the important questions begin from Q5 questions 5 and 6 will be the first ones to be analyzed. Question 5 asked whether the respondent purchased products from e-commerce platforms or not to which there were 101 responses and 2 people responded in negative. The answers to this question prove the fact that e-commerce has indeed penetrated heavily among Indian youth as 98% of the responders answered yes.

Question	Answers	Result	Result in %
Purchases products from e-commerce or not	Yes	101	98
	No	2	2
How much do you spend on e-commerce products annually	Rs 0-5000	49	47.6
	Rs 5000-15000	34	33
	Rs 15000-25000	6	5.8
	>Rs 25000	14	13.6

Table 2: Penetration of e-commerce among Indian Consumers and their annual spending on those platforms

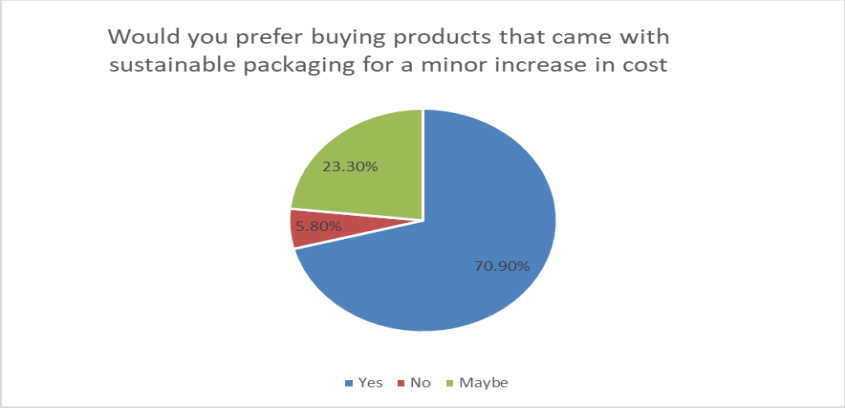

Figure 1: Consumer acceptance of sustainably packed products with a minor increase in cost

The purpose of Q6 was to find out how much the respondents spent on purchasing products from e-commerce platforms annually. To this question, 49 people (47.6%) answered that they spent between Rs0-5000 on e-commerce platforms, 34 people (33%) said that they spent between Rs5000-15000, 6 people (5.8%) responded by saying that they spent Rs15000-25000 while 14 people answered that they spent more than Rs25000 on purchasing products from e-commerce platforms.

Question	Answers	Result	Result in %
Would you prefer buying products that came with sustainable packaging for a minor increase in cost	Yes	73	70.9
	No	6	5.8
	Maybe	24	23.3
Which of the following materials would you prefer as sustainable for packaging purposes	Wood	39	37.9
	Paper	64	62.1
	Glass	19	18.4
	Cardboard	68	66
	Bio-degradable plastic	67	65

Table 3: Preference for sustainable packaging

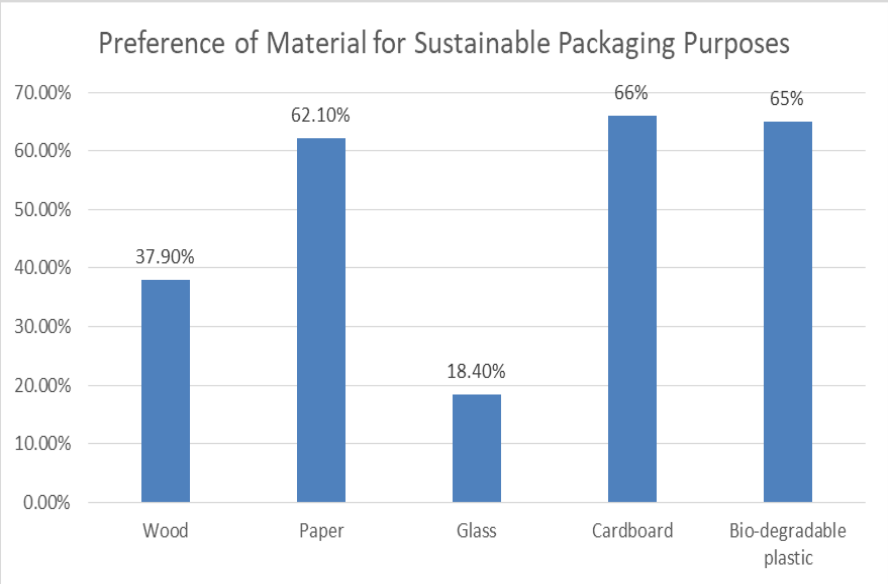

Figure 4: Bar Chart for Preference of Material for Sustainable Packaging Purposes

For question 7 respondents were asked whether they would prefer to purchase products that came with sustainable packaging with a minor increase in cost. To this question, 73 people (70.9%) responded with a yes whereas only 6 people (5.8%) responded negatively and 24 (23.3%) people replied with a maybe indicating that they weren't sure.

Question 8 was a multiple checkboxes question (where a respondent can choose multiple options for answering) focused on understanding what materials the responders preferred to be sustainable for packaging purposes. 39 people (37.9%) considered wood to be a sustainable material for packaging purposes, 64 people (62.1) considered paper as a sustainable packaging material, 19 people (18.4) considered glass as a sustainable packaging material, 68 people responded by saying that they considered cardboard as a sustainable packaging material and 67 people said they consider bio-degradable plastic as a sustainable packaging material.

Questions 9 through 12 were linear scale questions which contained a statement and the respondents had to answer on a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree).

Question 9 stated that "Sustainable Packaging is an environment-friendly" option to which 69 people (67%) responded with a 5 (strongly agree), 25 responded with a 4 (agree), 6 people (5.8%) chose 3 (Neutral), 2 people disagreed and 1 person strongly disagreed

Question	**Answer**	**Response**	**Result (%)**
Sustainable Packaging is an environmentally friendly option	1 (Strongly Disagree)	1	1
	2 (Disagree)	2	1.9
	3 (Neutral)	6	5.8
	4 (Agree)	25	24.3
	5 (strongly Agree)	69	67
Sustainable packaging involves using materials that are easier to recycle	1 (Strongly Disagree)	3	2.9
	2 (Disagree)	0	0
	3 (Neutral)	5	4.9
	4 (Agree)	40	38.8
	5 (Strongly Agree)	55	53.4
If a company offers its	1 (Strongly Disagree)	4	3.9

products with sustainable packaging, it shows that the company feels responsible towards the environment	2 (Disagree)	1	1
	3 (Neutral)	8	7.8
	4 (Agree)	42	40.8
	5 (Strongly Agree)	48	46.6
Sustainable Packaging is trendy	1 (Strongly Disagree)	1	1
	2 (Disagree)	11	10.7
	3 (Neutral)	34	33
	4 (Agree)	40	38.8
	5 (Strongly Agree)	17	16.5

Table 4: Linear scale questions to gauge whether consumers agree with specific statements or not

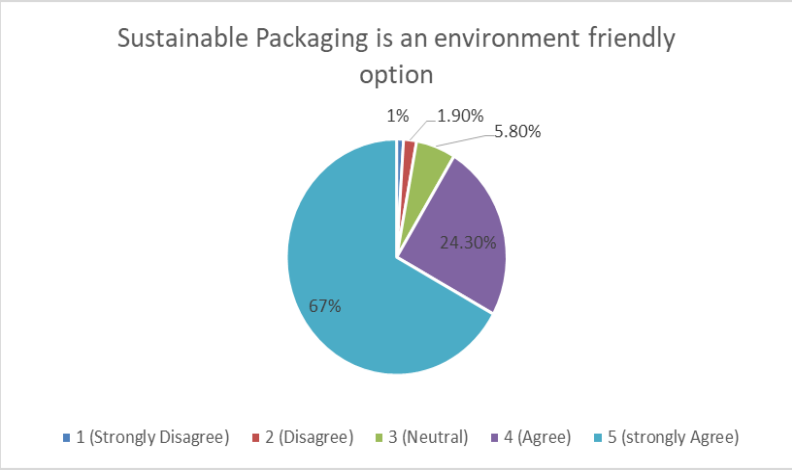

Figure 2: Pie chart for responses on the statement "Sustainable Packaging is an environmentally friendly option"

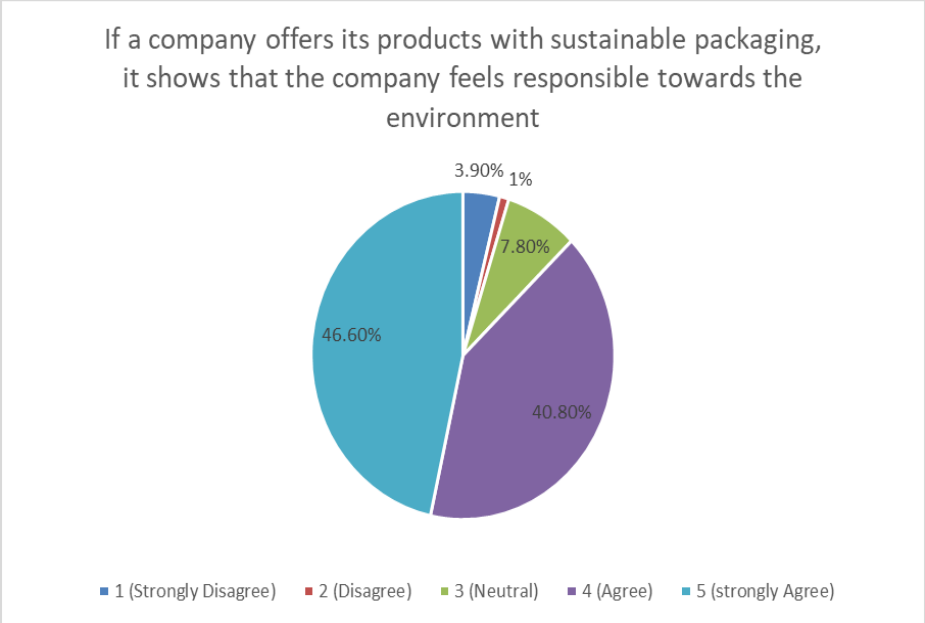

Figure 3: Pie Chart for responses on the statement "If a company offers its products with sustainable packaging, it shows that the company feels responsible towards the environment"

Question 10 stated that "Sustainable packaging involves using materials that are easier to recycle" to which 55 people (53.4%) responded with a 5 (strongly agree), 40 people (38.8) responded with a 4 (Agree), 5 people (4.9%) were neutral with regards to this statement and 3 people strongly disagreed (2.9%).

Question 11 said that "If a company offers its products with sustainable packaging, it shows that the company feels responsible towards the environment" to this statement 48 people (46.6%) agreed strongly, 42 people (40.8%) agreed, 8 people (7.8%) were neutral, 1 person disagreed and 4 (3.9%) people strongly disagreed with the statement.

Question 12 stated that "Sustainable Packaging is trendy" towards this statement 17 people (16.5%) answered 5 (strongly agree), 40 people (38.8%) answered with a 4 (strongly disagree), 34 people (33%) were neutral with regards to this statement whereas 11 people (10.7%) disagreed and 1 person strongly disagreed with this statement.

Question 13 was a multiple checkbox type question which was aimed at knowing which according to the respondent are the advantages of using sustainable packaging was. 27 people (26.2%) said that sustainable packaging materials offer greater product protection, 65 people (63.1%) believed that there is a possibility of reuse, 82 people (79.6%) agreed that there is a possible reduction in wastage of resources by using sustainable packaging materials, 76 people (73.8%) believed that by using sustainable packaging materials the carbon footprint of the company is reduced and 75 people (72.8%) agreed that brand image of the company improves by using sustainable packaging materials.

Question	**Option**	**Responses**	**Result (%)**
What are the advantages of using sustainable packaging by producers and sellers	Great Product Protection	27	26.2
	Possibility of reuse	65	63.1
	Reduction in wastage of resources	82	79.6
	Reduces the carbon footprint of the company	76	73.8
	Improves Brand image	75	72.8
What are the downsides of using sustainable packaging by producers and sellers	It is costly	63	61.2
	Requires more storage space	15	14.6
	Greater recycling effort is needed for recycling sustainable packaging materials	37	35.9
	There are no disadvantages	28	27.2

Table 5: Advantages and Disadvantages according to the consumer

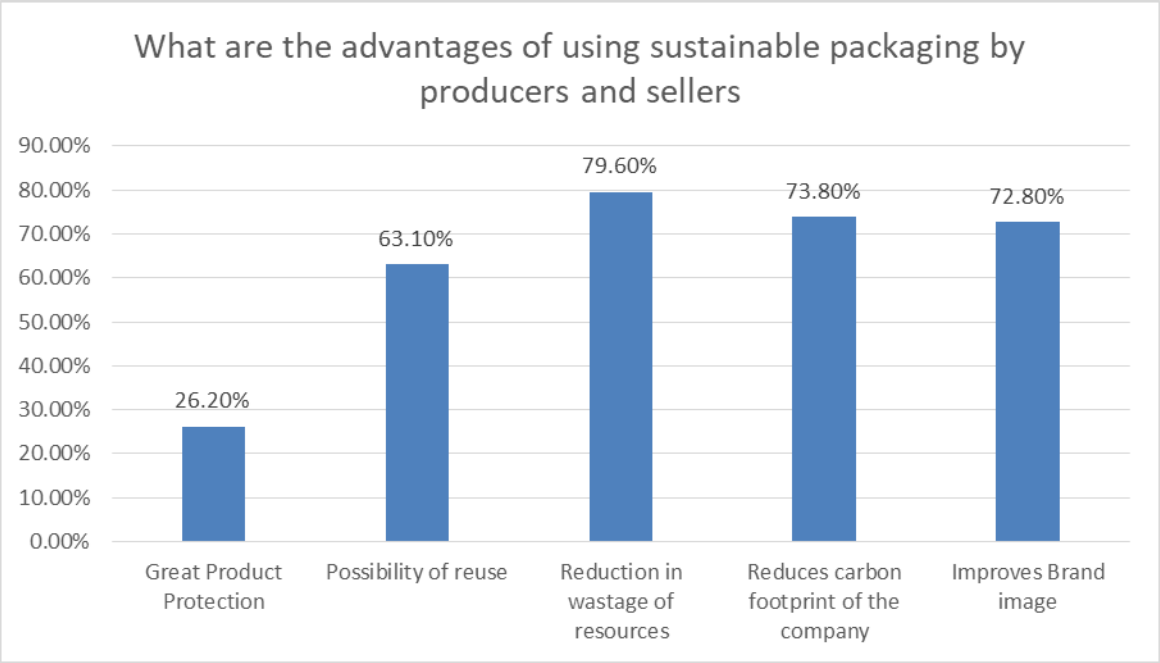

Figure 5: Advantages of using Sustainable Packaging

Question 14 was also a multiple checkbox type question which was asked to know the limitations of using sustainable packaging by producers and sellers. 63 people (61.2%) believed that sustainable packaging is too costly, 15 people (14.6%) said that products with sustainable packaging require more storage space, 37 people (35.9%) said that greater recycling effort is needed to recycle sustainable packaging materials and 28 people said that using sustainable packaging materials has no disadvantages.

Results

As per the pie chart shown in figure 1, 70.9% respondents agreed that they were ready to bear a minor increase in cost if the product they were buying was made available with sustainable packaging, while 23.3% responded with a maybe and only 5.8% responded negatively which indicates that consumer perception towards sustainable packaging is mostly positive.

As seen in the pie chart in figure 2 when asked if sustainable packaging is an environmentally friendly option or not 67% of the respondents strongly agreed and 24.3% agreed with the statement which meant that 91.3% of the respondents agreed with the fact that sustainable packaging is an environmentally friendly option.

As seen from the pie chart presented in figure 3 when stated that when a company offers its products with sustainable packaging it goes on to show that the company feels responsible towards the environment 46.6% respondents strongly agreed and 40.8% agreed with the statement which means that 87.4% of the respondents believed that if a company uses sustainable packaging it is an indicator that the company feels responsible towards the environment.

As shown in the bar chart in figure 4 when it comes to preference of what material to choose for sustainable packaging cardboard, bio-degradable plastic and paper stand out with 66%, 65% and 62.1% of respondents preferring them to be used as sustainable packaging material.

As shown in the bar chart in figure 5 the respondents believed the main advantages of using sustainable packaging material are; reduction in wastage of resources (79.6%), Reduction in the carbon footprint of the company (73.8%), Improvement in the brand image (72.8%) and also the possibility of reuse (63.1%).

Conclusion

From the results that were achieved by analyzing the questionnaire form the following conclusions can be reached:

- Majority of the consumers buying products from e-commerce platforms are ready to pay a minor increase in the cost of the product if the company offers the product with sustainable packaging;
- More than 90% of the respondents believed that sustainable packaging is an environmentally friendly option and also since 82.5% of the respondents are in the age gap of 20-25 it can be said that in the future, products with sustainable packaging will have a better chance of being sold;
- Also, 87.4% of the respondents agreed with the statement that if a company uses sustainable packaging in its products then it can be considered an indicator of the specific company feeling responsible towards the environment. This means that if companies start providing products with sustainable packaging they will gain a lot of brand value and their brand image will also receive a significant boost;
- Also, most respondents believe that paper, cardboard and bio-degradable plastic are the most environment-friendly materials for sustainable packaging;

Lastly, most of the respondents believed that major advantages of using sustainable packaging material are: reduction in wastage of resources, reduction in the carbon footprint of the company, improvement in brand image and the possibility of reuse. Henceforth the e-commerce sector companies should keep in mind the above-stated advantages and also use them for marketing purposes since most of the respondents consider them to be advantageS.

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