

**AN EMPIRICAL STUDY OF ISSUES, CHALLENGES  
AND PROSPECTS OF SUSTAINABLE CONSUMPTION IN  
SELECTED CITIES OF RAJASTHAN & GUJARAT**

**UGC MAJOR RESEARCH PROJECT REPORT**

**BY**

**DR. MEERA MATHUR**

**PROFESSOR**

**PRINCIPAL INVESTIGATOR**



**FACULTY OF MANAGEMENT STUDIES,  
MOHAN LAL SUKHADIA UNIVERSITY, UDAIPUR  
RAJASTHAN**

**2016-2018**

## **ACKNOWLEDGEMENT**

I take this opportunity to acknowledge numerous people who have whole heartedly supported and guided me in completion of my UGC MRP from its initial stage to its final conclusion.

First and foremost, I would like to extend my deepest gratitude to Hon'ble Vice-Chancellor Prof J.P. Sharma Sir and Registrar Shri Himmat Singh Bhati Sir of Mohanlal Sukhadia University, Udaipur for providing me a platform to fulfill my aspiration.

I wish to place my sincere thanks to Prof. Anil Kothari, Director, Faculty of Management Studies, for providing the continuous support during the entire duration of the project.

Words fail me to thank Prof. Karunesh Saxena, my mentor who guided me through ups and downs of this Herculean task. I owe this project to Prof. Hanuman Prasad who encouraged me to apply for it and supported me out of the way at various stages of this research.

I also extend my sincere gratitude to my respondents who were enthusiastic about the project.

I am grateful to the entire admin staff, library staff, research scholars, students of FMS for their timely help and support. A special thanks to the departments of M L S University who contributed to my research.

I would like to thank my project fellow Ms. Dimpy Suhalka who stood by me through thick and thin.

I wish to thank each and everyone who has helped me directly and indirectly in this project.

Last but not the least, my heartfelt thanks goes to my husband Mr. Amit Mathur, my kids Purvy and Arnav for their moral support, love and encouragement throughout my research endeavour.

## **PREFACE**

Chapter 1 starts with the concept of sustainability. It elucidates on the theoretical linkages of basic concepts used in this study. This chapter starts with the explanation of basic terms that are related to the study. The chapter starts with the introduction of the term Sustainability; it then focuses on prevailing alarming situation of the environment and the need of the hour. The chapter provides a link between Sustainable Development and Sustainable Consumption. It throws light on various definitions and further the concept of Sustainable Consumption has been explained in detail. It elucidates the issues and challenges of Sustainable Consumption. The chapter emphasizes on Global, Asian and Indian prospects of Sustainable Consumption. It ends with providing information about Initiatives towards Sustainable Consumption in India.

Chapter 2 is an evaluative report of information found in the literature related to Sustainable Consumption. This chapter is categorized into 3 major classifications of the topic:

- Sustainability
- Environment and Sustainability
- Sustainable Consumption

Chapter 3 deals with Research Methodology undertaken for the project. The methodology section describes actions taken by principal investigator related to the research problem under consideration. The rationale for the application of specific procedures or techniques used to identify, select, process, and analyze information applied to understand the problem has been discussed. The chapter discusses objective of the study, research gaps, importance of the research problem, statement of the research problem, research design, sources of data, data collection methods, development of questionnaire for the data collection, statistical tools to be used for data analysis. Reliability and validity of the questionnaire has been checked. Lastly the limitations of the study has been discussed.

Chapter 4 starts with statistical test, analysis of sample demographics, consumer attitude towards environmental protection, attitude towards green products, consumption towards green products, effect of public relation, eco labeling of green consumption, peer pressure and green consumption, perceived barriers on green consumption. It further deals with determinants of consumer behavior, analysis of green purchase intention. Lastly it studies the impact of demographics on green consumption.

Chapter 5 chapter focuses on conclusions and suggestions to the stakeholders, corporate, Government and NGO's related to sustainable consumption. It also depicts a normative framework for sustainable consumption. It concludes with the scope for further research.

## TABLE OF CONTENTS

	<b>CONTENTS</b>	<b>Page No.</b>
	DECLARATION	i
	ACKNOWLEDGEMENT	ii
	PREFACE	iv-v
	TABLE OF CONTENTS	vi
	LIST OF TABLES	vii
	LIST OF FIGURES	viii
<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b>1-22</b>
	1.1 Sustainability	1
	1.2 Alarming Environment Concerns	2
	1.3 Need of the Hour	4
	1.4 Sustainable Consumption patterns required	5
	1.5 Sustainable Development	6
	1.5.1 <i>Sustainable Development &amp; Consumption</i>	7
	1.6 Sustainable Consumption	8
	1.7 Issues	10
	1.8 Challenges	10
	1.9 Prospects	12
	1.9.1 <i>Global Prospects</i>	12
	1.9.2 <i>Asian Prospect</i>	15
	1.9.3 <i>Indian Prospects</i>	18
	1.9.3.1 <i>Consumer's Attitudes in India for Sustainable Consumption</i>	19
	1.9.3.2 <i>Initiatives towards Sustainable Consumption in India</i>	20
	References	22
<b>CHAPTER 2</b>	<b>REVIEW OF LITERATURE</b>	<b>23-85</b>
	2.1 Sustainability	24
	2.2 Environment and Sustainability	28
	2.3 Sustainable Consumption	34
	2.4 Sustainable Practices in India	73
	References	85

<b>CHAPTER 3</b>	<b>RESEARCH METHODOLOGY</b>	<b>86-110</b>
	3.1 Research Methodology	86
	3.2 Objectives of the Study	88
	3.3 Research Gap	88
	3.4 Importance of the Research	88
	3.5 Research Problem	89
	3.6 Research Design	89
	3.7 Sources of Data	90
	3.8 Data Collection Methods	93
	3.9 Instrument for Data Collection	93
	3.10 Sampling Technique	94
	<i>3.10.1 Sampling Method</i>	94
	<i>3.10.2 Sample Size</i>	94
	<i>3.10.3 Area of Study</i>	94
	<i>3.10.4 Time Duration</i>	108
	<i>3.10.5 Target Population</i>	108
	3.11 Tools And Techniques For Data Analysis	108
	3.12 Limitations of the Study	108
	References	110
<b>CHAPTER 4</b>	<b>DATA ANALYSIS AND INTERPRETATION</b>	<b>111-199</b>
<b>CHAPTER 5</b>	<b>CONCLUSIONS AND SUGGESTIONS</b>	<b>200-208</b>
<b>BIBLIOGRAPHY</b>		<b>209-218</b>
<b>APPENDICES</b>		<b>219-224</b>
APPENDIX A: QUESTIONNAIRE		
APPENDIX B: LIST OF CONFERENCE/SEMINARS ATTENDED		
APPENDIX C: LIST OF PUBLISHED PAPERS		

## LIST OF TABLES

S.NO.	TABLE NO.	TABLE	PAGE NO.
1	2.1	Literature Review of the MRP	23
2	3.1	List of Library visited by Principal Investigator	92
3	4.1	Scale Reliability Statistics	112
4	4.2	Customer Demographics- summary	115
5	4.3	Age distribution	116
6	4.4	Gender distribution	118
7	4.5	Occupation wise distribution	120
8	4.6	Education wise distribution	122
9	4.7	Marital Status distribution	124
10	4.8	Income wise distribution	126
11	4.9	Family Size wise distribution	128
12	4.10	Chi square demographic distribution	130
13	4.11	Consumer awareness	132
14	4.12	Descriptive statistics –consumer awareness	133
15	4.13	Consumer awareness 't' test result	136
16	4.14	Independent sample test-consumer awareness	138
17	4.15	Attitude towards green products	140
18	4.16	Descriptive statistics - Attitude towards green products	141
19	4.17	Attitude towards green products –“t” test results	144
20	4.18	Independent sample test- consumer attitude	145
21	4.19	Consumption of green products	147
22	4.20	Descriptive statistics –green consumption	148
23	4.21	Overall green consumption	151
24	4.22	green consumption–“t” test results	152
25	4.23	Independent sample test green consumption	153
26	4.24	Public relation	155
27	4.25	Public relation –descriptive statistics	156
28	4.26	Public relation –“t” test	158

29	4.27	Independent sample test- Public relation	159
30	4.28	Eco-labeling	161
31	4.29	Descriptive statistics - eco labeling	162
32	4.30	Eco labeling –“t” test	164
33	4.31	Independent sample test- Eco labeling	165
34	4.32	Peer pressure	167
35	4.33	Descriptive statistics- Peer pressure	168
36	4.34	“t” test- Peer pressure	170
37	4.35	Independent sample test -Peer pressure	171
38	4.36	Perceived barrier	173
39	4.37	Descriptive statistics- Perceived barrier	174
40	4.38	“t” test - Perceived barrier	176
41	4.39	Independent sample test - Perceived barrier	177
42	4.40	Determinants of consumer behavior	179
43	4.41	Factors with scale items	179
44	4.42	Regression analysis – overall	180
45	4.43	Regression analysis result – Gujarat	183
46	4.44	Regression analysis result – Rajasthan	185
47	4.45	Purchase intention	187
48	4.46	Descriptive statistics- Purchase intention	188
49	4.47	“t” test- Purchase intention	189
50	4.48	Independent sample test- Purchase intention	191
51	4.49	ANOVA – Age	194
52	4.50	ANOVA – Gender	195
53	4.51	ANOVA –Education	196
54	4.52	ANOVA – Income	197

## LIST OF FIGURES

<b>S. No.</b>	<b>Fig. No.</b>	<b>FIGURE</b>	<b>Page No.</b>
1	2.2	Graphical representation of Literature Review	23
2	3.1	Flowchart of Research Methodology	87
3	3.2	Types of Research Design	90
4	4.3	Types of Data Sources	91
5	3.4	Rajasthan District Map	96
6	3.5	Gujarat District Map	97
7	3.6	Jaipur City Map	98
8	3.7	Udaipur City Map	99
9	3.8	Jodhpur City Map	100
10	3.9	Ajmer City Map	101
11	3.10	Bikaner City Map	102
12	3.11	Ahmedabad City Map	103
13	3.12	Gandhinagar City Map	104
14	3.13	Vadodara City Map	105
15	3.14	Junagadh City Map	106
16	3.15	Rajkot City Map	107
17	4.1	Age wise distribution - overall	117
18	4.2	State wise age distribution	117
19	4.3	Gender distribution - overall	119
20	4.4	State wise Gender distribution	119
21	4.5	Occupation wise distribution - overall	121
22	4.6	State wise Occupation distribution	121
23	4.7	Education wise distribution - overall	123
24	4.8	State wise Education distribution	123
25	4.9	Marital status – overall	125
26	4.10	State wise Marital status	125
27	4.11	Income wise distribution - overall	127
28	4.12	State wise Income distribution	127

29	4.13	Family size distribution- overall	129
30	4.14	State wise Family size distribution	129
31	4.15	Mean values – consumer awareness	135
32	4.16	Mean values – attitude towards green products	143
33	4.17	Descriptive – green consumption	151
34	4.18	Descriptive- public relation	157
35	4.19	Descriptive – eco labeling	163
36	4.20	Descriptive – peer pressure	169
37	4.21	Descriptive – perceived barrier	175
38	4.22	Descriptive – purchase intention	189
39	5.1	Sustainable Consumption Framework	206

# **CHAPTER 1**

## **THEORETICAL FRAMEWORK OF SUSTAINABLE CONSUMPTION**

- 1.1 Introduction**
- 1.2 Sustainability**
- 1.3 Alarming Environment Concerns**
- 1.4 Need of the Hour**
- 1.5 Sustainable Consumption Patterns Required**
- 1.6 Sustainable Development**
  - 1.6.1 Sustainable Development & Consumption
- 1.7 Sustainable Consumption**
- 1.8 Issues**
- 1.9 Challenges**
- 1.10 Prospects**
  - 1.10.1 Global Prospects
  - 1.10.2 Asian Prospects
  - 1.10.3 Indian Prospects
    - 1.10.3.1 Consumer's Attitudes in India for Sustainable Consumption
    - 1.10.3.2 Initiatives towards Sustainable Consumption in India

**References**

# **CHAPTER 1**

## **THEORETICAL FRAMEWORK OF SUSTAINABLE**

## **CONSUMPTION**

### **1.1 Introduction**

This chapter starts with the concept of sustainability. It elucidates on the theoretical linkages of basic concepts used in this study. This chapter starts with the explanation of basic terms that are related to the study. The chapter starts with the introduction of the term Sustainability; it then focuses on prevailing alarming situation of the environment and the need of the hour. The chapter provides a link between Sustainable Development and Sustainable Consumption. It throws light on various definitions and further the concept of Sustainable Consumption has been explained in detail. It elucidates the issues and challenges of Sustainable Consumption. The chapter emphasizes on Global, Asian and Indian prospects of Sustainable Consumption. It ends with providing information about Initiatives towards Sustainable Consumption in India.

### **1.2 Sustainability**

Two-third of the world's resources has already been 'used up'; we can no longer take for granted the ability of Earth to sustain future generations. Human activities are putting such a strain on the natural functions of the Earth that sustainability becomes a key element in general and for organizations in particular.

The unforeseen result of economic, social and environmental growth which uses ecological resources makes consideration of sustainability important.

Sustainability refers to economic, social and environmental base that must be viewed, synchronized and addressed to ensure the long term viability of our community and the planet.

Sustainability or sustainable development is broadly defined as "forms of progress that meet the needs of the present without compromising the ability of future generation to meet their needs".

Knowledge, influence, conclusion, implementation and affirmation are behavioral adoption stage of sustainable development.

### **1.3 Alarming Environment Concerns**

Our Mother Earth is currently facing lot of environmental concerns. The environmental problems like global warming, acid rain, air pollution, urban sprawl, waste disposal, ozone layer depletion, water pollution, climate change and many more affect every human, animal and nation on this planet. Over the last few decades, the exploitation of our planet and degradation of our environment have gone up at an alarming rate. As our actions have been not in favor of protecting this planet, we have seen natural disasters striking us more often in the form of flash floods, tsunamis and cyclones.

Different environmental groups around the world play their role in educating people as to how their small actions when combined together can play a big role in protecting this planet. Some of the important environmental concerns to keep an eye on today are as follows:

1. *Pollution*: Pollution of air, water and soil take a huge number of years to recover. Industry and engine vehicle fumes are the most obvious toxins. Substantial metals, nitrates and plastic are poisons in charge of pollution. While water contamination is brought about by oil slicks, acid rain, and urban sprawl; air contamination is created by different gasses and poisons discharged by businesses and manufacturing plants and burning of fossil fuels; soil contamination is majorly created by mechanical waste that takes supplements out of the soil.
2. *Climate Change*: Climate change is yet another environmental concern that has surfaced in last couple of decades. Environmental change has different destructive impacts that include, but are not limited to, the melting of polar ice, change in seasons, new sicknesses, and change in general climate situation.
3. *Global Warming*: Environmental asset abuse is also an important environmental concern. Fossil fuel utilization brings about discharge of greenhouse gasses,

which causes environmental change. However, individuals are taking endeavors to move to renewable energy sources.

4. *Deforestation:* Our woodlands create new oxygen and additionally help in managing temperature and precipitation. At present, timberlands cover 30% of the area, but wooded areas are being lost on a regular basis because people are looking for homes, food, and materials. Deforestation is a huge problem and will just continue to get worse.
5. *Increased Carbon Footprint:* Temperature increases, like climate change, are the consequence of human practices, including the use of greenhouse gasses. When the atmosphere changes and the heat increases, it can cause a number of problems and start to destroy the world we live in.
6. *Genetic Modification:* Genetic modification utilizing biotechnology is called genetic engineering. Genetic engineering of food brings about expanded poisons and sicknesses as qualities from a hypersensitive plant can exchange to target plant. Some of these crops can even be a threat to the world around us, as animals start to ingest the unnatural chemicals and such.
7. *Effect on Marine Life:* The amount of carbon in the water and the atmosphere is continuing to be a problem in the world around us. The primary effect is on shellfish and microscopic fish, and it has similar effects to osteoporosis in humans.
8. *Public Health Issues:* The current environmental concerns represent a considerable measure of danger to well-being of people, and creatures. Dirty water is the greatest well-being danger of the world and poses a risk to the health and lifespan of people and animals.
9. *Overpopulation:* The number of inhabitants in the planet is arriving at unsustainable levels as it confronts deficiency of assets like water, fuel and food. Over population is one of the most important environmental concerns.
- 10: *Loss of Biodiversity:* Biodiversity is yet another casualty due to the impact of human beings on the environment. It is the result of 3.5 billion years of

evolution. Habitat destruction is a major cause for biodiversity loss. Habitat loss is caused by deforestation, overpopulation, pollution and global warming.

#### **1.4 Need of the Hour**

Over the last decade or so, there has been a wealth of social and natural scientific debate about the environmental consequences of contemporary consumption and there is, by now, something of a consensus.

It is clear that lifestyles will have to change if there is to be any chance of averting the long-term consequences of resource depletion, global warming, the loss of biodiversity, the production of waste or the pollution and destruction of valued 'natural' environments.

To put Brundtland's famous definition another way round, future generations will encounter a much degraded world if present trends continue. Apparent agreement on this point disguises important theoretical divisions regarding the conceptualization of behaviour, lifestyle and consumption. Are 'lifestyles' in some sense 'chosen' or are they better seen as 'ways of life', that is, as part of the social fabric. What is the relation between 'behaviour' - what people do - and what they think? Is consumption an expression of taste, or a moment in a complex system of social, cultural and material reproduction?

The task of sifting through these differences is of more than academic interest. Policies designed to promote sustainable consumption are generally founded upon an extraordinarily narrow understanding of human behaviour. It is not too difficult to explain why this might be so, after all, some theoretical positions are much more amenable to policy-making (as it is presently configured) than others.

The danger, however, is that this understandable confluence of theory and practice obscures, sometimes even denies, important forms of social and environmental change.

Sustainable consumption has become very important at various levels. It has numerous key propositions for the welfare of people in an economy. It affects the consumption behavior of consumers to promote the sustainable stability in the economy. The practices of sustainable consumption also influence the allocation and

utilization of resources and hence it has potential to affect the long term growth rate of a country's economy.

### **1.5 Sustainable Consumption Pattern Required**

The patterns required to achieve Sustainable Consumption are:

*Sustainable energy consumption:* Every household of average size is to be allowed only a certain kw per month of electrical power from the grid, at subsidized rate; it can buy more at the full cost incurred to supply it, but again up to a limit beyond which no-one is allowed. Concomitantly, the government and other agencies commit to vigorously promote energy-saving in all devices so the family quota can go a longer way, as also to support energy self-sufficiency at household and community level using decentralized renewable sources.

*Sustainable water:* Every household of average size is allowed only a certain number of liters of water use in a day. To begin with this could be the direct water use, but eventually the 'embedded' water use (i.e. needed to produce the products and services that a household is using) can also be integrated, or dovetailed with the sustainable materials measure.

*Sustainable transport:* Every household of average size is allowed only one private motorized vehicle, and can use it only occasionally, say once a week; concomitantly there is a commitment by governments and other public agencies to urgently improve public transport, cycle lanes and footpaths, and special facilities for the elderly and disabled, in all settlements. Eventually private motorised vehicles may not be needed at all. Additionally, every individual is entitled to a certain maximum number of trips by air and by train in a year.

*Sustainable shelter:* Every household of average size is allowed a certain maximum built up area for its dwelling; anything in excess of this already owned or used by the household will be made available for housing the homeless or those with less than average built-up area. Unoccupied houses will be eligible for take-over by the homeless, as is the case in some European countries.

*Sustainable waste:* Every household of average size can generate only a certain maximum amount of waste in a month; anything in excess has to be recycled, composted, or otherwise dealt with within its premises or the premises of the community/colony it resides in. For its part, the government commits to eliminating wasteful use of materials in all products (e.g. in packaging), and facilitate household and community-level recycling, composting, and other safe disposal of waste.

## **1.6 Sustainable Development**

**Sustainable development** is a process for meeting human development goals while sustaining the ability of natural systems to continue to provide the natural resources and ecosystem services upon which the economy and society depends. While the modern concept of sustainable development is derived most strongly from the 1987 Brundtland Report, it is rooted in earlier ideas about sustainable forest management and twentieth century environmental concerns. As the concept developed, it has shifted to focus more on economic development, social development and environmental protection for future generations.

Sustainable development is the organizing principle for sustaining finite resources necessary to provide for the needs of future generations of life on the planet. It is a process that envisions a desirable future state for human societies in which living conditions and resource-use continue to meet human needs without undermining the "integrity, stability and beauty" of natural biotic systems. It was suggested that "the term 'sustainability' should be viewed as humanity's target goal of human-ecosystem equilibrium (homeostasis), while 'sustainable development' refers to the holistic approach and temporal processes that lead us to the end point of sustainability."

It contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given;
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Development involves a progressive transformation of economy and society. A development path that is sustainable in a physical sense could theoretically be

pursued even in a rigid social and political setting. But physical sustainability cannot be secured unless development policies pay attention to such considerations as changes in access to resources and in the distribution of costs and benefits. Even the narrow notion of physical sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation.

*(Brundtland, 1987)* defined sustainable development as development that meets needs of present without compromising needs of future generations to meet their own needs.

*(Pearce, Markandya, & Barbier, 1989)* explained that sustainable development involves devising a social and economic system, which ensures that following goals are sustained, real incomes rise, educational standards increase, health of nation improves, and general quality of life is advanced.

*(Pearce, Blueprint for a Green Economy, 1989)* stated that sustainable development is concerned with the development of a society where costs of development are not transferred to future generations, or at least an attempt is made to compensate for such costs.

### **1.6.1 Sustainable Development & Consumption**

Sustainable consumption as part of sustainable development is a prerequisite in the world-wide struggle against sustainability challenges such as climate change, famines or environmental pollution.

Sustainable development as well as sustainable consumption relies on certain premises such as:

- Wise use of resources, and minimization of waste and pollution;
- Use of renewable resources within their capacity for renewal;
- Fuller product life-cycles; and
- Intergenerational and intra generational equity

'Sustainable development' has become quite a buzzword. Virtually every agency of the United Nations, every big multilateral and bilateral agency, and most big civil society organizations are involved in discussions regarding the framework that will, in 2015, replace the current Millennium Development Goals. Sustainability is supposed to be a fulcrum of this framework. One crucial component of this is '**sustainable consumption**', but unfortunately, there is very little talk of the need to drastically cut down existing consumption levels.

Sustainable consumption is an integral element of sustainable development and an issue of paramount importance, increasingly recognized by the international community. The challenges that the world faces such as financial crises, climate change, resource shortages, and poverty, will only be solved with the full participation of educated and motivated citizens.

## **1.7 Sustainable Consumption**

The concept of **Sustainable consumption** is explained below:

**Sustainable consumption** is the use of products and services that have a minimal impact on the environment so future generations can meet their needs. When sustainable consumption is practiced, resources are used wisely and waste products and pollution are minimized. The main way this is achieved is by doing more and better with less. In other words, we can find ways to meet our needs and desires without depleting our planet's finite natural resources.

**Sustainable Consumption** is the consumption of goods and services that have minimal impact upon the environment are socially equitable and economically viable whilst meeting the basic needs of humans, worldwide. Sustainable consumption targets everyone, across all sectors and all nations, from the individual to governments and multinational conglomerates. (Gillapsy, 2003)

**Sustainable Consumption** according to *Oslo Roundtable on Sustainable Production and Consumption* is an umbrella term that brings together a number of key issues, such as meeting needs, enhancing the quality of life, improving resource efficiency, increasing the use of renewable energy sources, minimizing waste, taking a life cycle perspective and taking into account the equity dimension.

**Sustainable Consumption** (SC) shares a number of common features with and is closely linked to the terms sustainable production and sustainable development. Sustainable consumption as part of sustainable development is a prerequisite in the world-wide struggle against sustainability challenges such as climate change, famines or environmental pollution.

The definition proposed by the **1994 Oslo Symposium on Sustainable Consumption** defines it as "the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generation.

According to *ELSEVIER's Official Journal of the European Federation of Chemical Engineering* Sustainable production and consumption can be defined as production and use of products and services in a manner that is socially beneficial, economically viable and environmentally benign over their whole life cycle.

**The Soria Moria Conference** in February 1994 proposed a working definition of sustainable consumption: "the use of goods and services that respond to basic needs and bring a better quality of life while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations".

The idea is that, by providing consumers with a choice of products reflecting their new environmental values, the market will self-regulate its way towards a more sustainable future, one in which supermarket shelves are lined with ecologically friendly products, and workers in developing countries are receiving fair wages for their labor. Eco-labeling, taxes on water and energy consumption, recycling incentives, education and communication campaigns, and advertising are examples of methods to promote sustainable consumption.

In present scenario, people are having high concern for the environmental protection practices and they want to buy and consume the eco-friendly products. Individuals make their buying decisions with concern of the eco friendly practices.

## **1.8 Issues**

Current unsustainable consumption patterns are destroying the environment. The consumption habits are depleting stocks of natural resources. Distributing resources in an inequitable manner, so that a part of population is deprived of it. It is contributing to social problems such as poverty; and hampering sustainable development efforts. Focusing on the demand side, sustainable consumption compliments sustainable production practices and achievements.

Sustainable consumption requires a multidisciplinary and multinational approach. Teams composed from various disciplines are required to create and implement policies. Developed nations need to assist rather than exploit developing nations. The issue to sustainable consumption include: lack of awareness and training; lack of support from the community, government and industry. A key issue is the extent to which necessary improvements in environmental quality can be achieved through the substitution of more efficient and less polluting goods and services (patterns of consumption), rather than through reductions in the volumes of goods and services consumed (levels of consumption).

Political reality in democratic societies is such that it will be much easier to change consumption patterns than consumption volumes, although both issues need to be addressed.

## **1.9 Challenges**

The main challenges faced by consumers in Asia in embracing sustainable consumption practices:

- limited access to green products and services
- lack of transparency and credibility
- low consumer awareness on low impact product use
- lack of appropriate waste infrastructure
- Few take-back mechanisms.
- No after-sales support.

These challenges are broken down into the three points where consumers have to make decisions: what to buy, how to use, and how to discard.

The main barriers to sustainable consumption include:

- Lack of awareness and training.
- Lack of support from the community, government and industry.
- Reluctance to include the true environmental and social costs in the price of goods and services.
- Ingrained unsustainable thinking and behaviour patterns.
- Lack of alternative sustainable products and services.

Making consumption patterns sustainable is one of the greatest current challenges to humanity. It requires timely and concerted action of government, firms, and consumers. Its final goal has to be a world with a higher awareness of environmental and social impacts, in which the population's needs for self-fulfillment is not met with ever higher levels of consumption.

- *Companies* need new business leaders that consider the environmental and social impacts of production. Enforce the use of sustainable production and good working conditions throughout the supply chain. Notable examples are H&M and Timberland.
- Communicate successful management of sustainability. Among others, The Body Shop, Patagonia, and Ben & Jerry's inform customers about the ecological impact of their products and on labor conditions. They also support environmental and development projects.
- Find new ways to fulfill customers' needs with minimal environmental impact. Encourage product-sharing or renting of products. Major car companies did this by launching car sharing initiatives.
- *Governments* need to rethink their regulations and incentives. Abandon subsidies harmful to the environment. Make sure prices reflect environmental impacts. Eating a kilogram of steak causes similar emissions to driving 250 kilometers in a large car. Accordingly, meat should be taxed.

This was already discussed in New Zealand. Discourage consumption that undermines well-being. Australia did this for smoking. Denmark temporarily taxed fat in food. France taxes sugar-rich soft drinks.

- Develop incentives to make business leaders think long-term. Long-term stock options may be an option. Make companies liable for violations of human rights. Use regulation to promote the sharing of products. The ban on short-term renting of flats in New York is a counterexample, reflecting the interests of the hotel lobby.
- Promote education on farming and livestock production, encourage an organic and low-meat diet in public places like schools. Promote alternative ways of self-fulfillment in schools to show alternatives to consumption. Ensure that the use of advertisement respects decent boundaries and that advertisement is truthful. Promote alternative means of transport. The city of Curitiba in Brazil showcased how life satisfaction can be increased by promoting public transport.
- Do not measure the success of policies only in terms of GDP. Incorporate social and environmental issues.
- *NGOs* need to inform consumers about their crucial role. They need to raise consumers' awareness for their social and environmental impact and lay out paths for sustainable lifestyles. Inform people about the impact of their consumption choices. Maintain platforms that compare the environmental impact of products throughout their lifecycle. Make the history of products visible. Virtual water and carbon footprint were a good start.

## **1.10 Prospects**

### **1.10.1 Global Prospects**

**“The people who will succeed fifteen years from now, the countries which will succeed, are those which are most based on a sustainable vision of the world.**

**That is what we should be training people to do.”**

*Rt Hon Charles Clarke MP, Secretary of State for Education and Skills, 25th March 2003. (cited Forum for the Future, 2004)*

Across the globe the concept of sustainable consumption is being touted as the way of the future, a change in lifestyle and values that promises “green growth”—economic growth that doesn’t hurt the environment.

(Global) sustainable consumption governance is highly necessary. Without sustainable consumption there cannot be sustainable development. Unsustainable consumption patterns and levels, in particular in industrialized countries, are a major cause if not the major cause of environmental degradation in the world today (UNDP 1998, Worldwatch 2004). Increasingly, scholars have also highlighted the social unsustainability of these consumption patterns and levels (Daly 1998, Mayer 1998). Furthermore, previous research has identified the limits to national governmental influence on the sustainability of consumption patterns in a globalizing world, highlighting the need for multilateral if not global sustainable consumption governance (Fuchs and Lorek 2002).

In the last 50 years, the global population has consumed more goods and services than the combined total of all previous generations. This growth in consumption has fostered economic growth, environmental degradation and improved the quality of life for many. However, consumption patterns differ significantly between developed and developing nations. The richest one fifth of the world accounts for 86% of consumption while the poorest one fifth account for about 1 percent of consumption.

Rather than approaching the issue of sustainable consumption in its breadth, i.e. taking on issues of eco-efficiency, of fundamental changes in consumption patterns, and of reductions in consumption levels, global sustainable consumption governance so far has almost exclusively focused on questions of efficiency.

Efficiency can be accepted by consumers as a good thing as the classical win-win solution. It certainly can be accepted by business, especially if combined with the raising of hopes for innovations that can sell.

The earliest "global" meetings on sustainable consumption, in particular the Oslo meeting in 1994 still defined a much more ambitious agenda for global sustainable consumption governance. It explicitly noted that a focus on eco-efficiency would not provide a sufficiently comprehensive framework for identifying, understanding and

changing unsustainable consumption patterns. With time, however, focus and ambitions were systematically reduced. Even when the need for sufficiency is mentioned in (semi)official documents there are no ideas, tool or instruments how to reach it.

Getting the world onto a sustainable consumption trajectory will take decades. Current capital stocks of physical infrastructure, for example in housing, energy, transportation and waste management, can lock societies into unsustainable patterns of consumption over which individual consumers have little influence. Furthermore, many unsustainable patterns of consumption are deeply rooted in cultural habits; despite increasing evidence that many citizens are now ready to re-examine their lifestyles. As a result, action to develop infrastructures and cultural norms that enable rather than constrain sustainable consumption choices will have to take place gradually, with the full participation of all stakeholders. This realization should not, however, obscure the wealth of options that already exist for governments, business and individuals to make a decisive shift in consumption patterns towards sustainability.

Changing consumption patterns in the developed world also needs to be managed in ways that increases the opportunities for sustainable development in the developing world. There are numerous products with environmental advantages, which are produced by developing countries and which can improve the added value of production. They can be substituted for environmentally less desirable products, either as inputs to the production process, or as consumption goods. Increased utilization of these products could help to reduce environmental stress without impairing consumer satisfaction, while at the same time increasing the foreign exchange resources of developing countries.

Currently new sustainable initiatives are being taken up by different countries. For example, San Francisco on March 4, 2014 became the first major city in the U.S. to ban the sale of plastic water bottles on public property. Australia was the first country to announce that incandescent light bulbs would be completely phased out by 2010 and replaced by florescent models which use about 20% of the electricity to produce the same amount of light. Canada has developed new standards with the intent of eliminating incandescent lighting by 2012. In 2002, India banned the

production of plastic bags below 20 µm in thickness to prevent plastic bags from clogging of the municipal drainage systems and to prevent the sacred cows of India ingesting plastic bags as they confuse it for food. Although after making such initiative by government and public policy there is a lack of sustainable attitude and sustainable behavior.

### **1.10.2 Asian Prospects**

Already in 2010, the Asia-Pacific region's urban inhabitants amounted to more than 750 million people, about 40% of the region's population. Today, seven of the world's ten most populous cities are located in the Asia-Pacific region: Beijing, Delhi, Dhaka, Kolkata, Mumbai, Shanghai and Tokyo. These mega-cities are generators of wealth and hubs for innovation and cultural activities. On the downside, these cities continue to harbor poverty and environmental disasters. Nevertheless, urbanization enhances productivity, increases gross domestic product per head and has turned into a major source of economic strength.

Asian cities contribute about 80% of the region's gross domestic product. Small and medium-sized enterprises (SMEs) account for about 99% of all businesses in Asia and these companies are often concentrated in and around cities. Lacking awareness, finance and often operating with out-dated equipment, they are responsible for a significant share of urban pollution, which poses hazards to the health of citizens. This current concentration of economic activities in Asian cities can only be sustained if industry stakeholders implement essential cleaner production principles.

The SWITCH-Asia programme, the European Union's largest cooperation programme with Asia promoting sustainable consumption and production, supports more than 80 projects to develop innovations that help SMEs reduce their waste, improve their energy intensity or become more resource efficient. One example is the circular economy approach developed by an industrial symbiosis project implemented in the industrial development zone of Binhai New Area in Tianjin, China.

#### **Middle class consumers**

In addition to factory-level "end-of-pipe" solutions for SMEs, SWITCH-Asia projects also look downstream the value chain – to retailers and consumers. Asian

cities resemble consumption hubs, linked to global supply chains and consumption in these cities is responsible for a significant share of the environmental footprint created elsewhere. They are home to new Asian middle class consumers, who follow global consumption patterns, with ever larger shopping malls and supermarkets. In this respect, and considering their frequently deficient infrastructure, Asian cities are facing severe challenges. The potential solutions are hence similar to those needed in industrialized countries. One such solution lies with retailers. Reducing the millions of plastic bags dispensed at the cash counters of retail stores every day would be a relevant first step. Beyond this, retailers play a key role as intermediaries between suppliers and consumers. Retailers can influence both upstream and downstream value chains. For instance, through choice editing they can promote greener products or even remove high-impact products from their shelves. They can provide consumers with information about the environmental and health impacts of products in their shops through awareness-raising campaigns. Product labels are important information tools for these initiatives. Close cooperation with suppliers is crucial to make such labels work.

### **Greening retail and supply**

One initiative implemented under the SWITCH-Asia programme in India is the Green Retail India project. Working with retailers in major cities, such as Bangalore, Chennai, Delhi and Mumbai, the project has used ambitious sustainability criteria to establish 30 pilot stores from four major Indian retail chains. A first baseline study estimates a 40% reduction in energy consumption in these pilot retail stores is possible through energy efficiency measures, which can often be as simple as putting doors on fridges and freezers and improving air conditioning systems. An estimated reduction in solid waste by 30% in pilot retail stores by the end of the project is considered possible. The project not only looks at retail stores as such, but also works upstream with suppliers to initiate green supply chain measures. Based on the experiences from pilot stores, a roadmap for sustainability for the Indian retail sector is currently being developed.

Another example from China is a project aiming to increase consumer awareness about sustainable lifestyles and green products in the cities of Beijing and Tianjin, which is being implemented in close cooperation with the consumer associations of

both cities. Consumer surveys indicate that the main obstacles to greening consumption are that many consumers do not understand what green products are and that available information about green products is considered unreliable. In addition, the price of green products is perceived to be too high. Less than 10% of consumers would be willing to pay 10% more for energy-efficient appliances.

For organic vegetables, the case is different, as more than three quarters of consumers are willing to pay up to one third more, reflecting concerns about contaminated food in China. Some of the challenges include Chinese consumers' lack of understanding and lack of trust in product labels. Third-party certification practices and independent product testing, which in other countries have proven successful in providing reliable product information, are still in the early stages.

### **Consumption habits**

In Indonesia, the SWITCH-Asia programme cooperated with the Surabaya and Yogyakarta city governments to develop sustainable lifestyle initiative pilot programmes. The specific approach used to change actual behaviour and habits was to motivate rather than educate the people involved through a co-design process, based on the belief that a self-enhancing movement would gain its own momentum. The goal is that by 2020 sustainable consumption habits will be well established.

In Surabaya, schools compete with each other as part of a campaign on energy and water-saving and other sustainable consumption patterns. Through the schools, these activities reach out to hundreds of households and families. The programme also includes training journalists on sustainable consumption and production, working with bloggers and photographers with competitions, and convening editor roundtables to discuss media policy and strategy on environmental issues. These pilot campaigns provide information and experiences that can be used for further replication and scaling-up. These examples show that sustainable urbanization requires a comprehensive and integrated approach, looking at whole value chains. Improvements in urban infrastructure, such as transport and waste management systems, renewable energy installations, energy efficient buildings and cleaner production by SMEs, need to be complemented by sustainable consumption and lifestyle initiatives.

### **1.10.3 Indian Prospects**

Consumption in India has been growing rapidly for three decades, putting enormous pressure on local environments as well as becoming one of the major contributors to global greenhouse emissions. India's growing middle class increasingly consumes a broad range of commodities that range from cosmetic products to cars and household appliances. While lots of attention has been given to the rapid growth in India's economy after its opening to global capitalism and trade in the 1990s, a full understanding of changing consumption is only accessible from a perspective that is grounded in everyday lives.

Sustainable consumption is a growing awareness that reforms in national economic policies are required to ensure that goods and services reflect environmental costs and so stimulate more sustainable production and consumption patterns. At the same time, country is continuing to increase its income and gross national product. It is possible to increase incomes while reducing resource use.

However, the risk remains that an increasing volume of consumption will more than outweigh improvements in energy and resource efficiencies. There will be occasions when opportunities for economic growth conflict with moves towards sustainable consumption. All actors need to be aware of such possible conflicts. If sustainable consumption is to be achieved, then it will become increasingly necessary in such situations to put sustainability first. This will not necessarily require economic sacrifices: indeed welfare and employment may be increased.

In India, over 100,000 hectares of forest land have been diverted for mining in the last 30 years, and countless rivers and lakes have been polluted beyond repair by mining run-off. There is no limit on how much vehicular fuel the rich can use, for we are collectively blind to the impact this has on areas from where fuel is extracted or the pollution and climate change being caused by vehicular emissions.

#### **1.10.3.1 Consumer's Attitudes in India for Sustainable Consumption**

In 2008, future leader's team of World Business Council for Sustainable Development (WBCSD) had a talk with the young business experts on the subject of sustainable consumption in India. These experts represented present Indian

consumers belonging to middle and upper social economic class groups. The study gave some following insights about the sustainable consumption and its future projections in India.

- **Consumption Patters:** There is a rapid increase in income status of Indian households. It is estimated that it will be triple over the next in two decades.
- **Consumer Awareness:** Indian consumers are much aware but they do not understand the sustainable consumption concept. A large segment of Indian consumers like to purchase small, unpackaged products at low cost from the family owned and small shops.
- **Brand's Role:** Indian consumers of middle and high income class groups are very much brand conscious ,therefore, brand vendors may play a significant role in both educating the consumers and in changing the consumption practices.
- **Role of Business:** Young business experts believe that there should be coordination between sustainable consumption practices and CSR and these should be deeply implanted into the strategies of corporate sectors. A sense of social entrepreneurship should be promoted to achieve the significant prospects exist in the expansion of emerging sustainable markets like for the renewable energy based goods, eco friendly products and the use of public transport facilities.
- **Government' Role:** There is a immense need to get the support from the government because some business always try to put the profit before the incurred cost, even if majority of business behaves responsibly. There should be a framework of laws, rules and regulations and taxes to promote the sustainable consumption practices.

#### **1.10.3.2 Initiatives towards Sustainable Consumption in India**

The following initiatives have been taken by the Indian Government to promote the public awareness for the sustainable development and consumption.

- There is full participation of all ministerial departments of Indian Government in decision making process for the sustainable development and

consumption. Coordination between all these functionally different entities is achieved through frequent time to time meetings and valuable discussions. Various inter-ministerial and inter departmental committees and core groups have been formulated to design sustainable policies and laws for the valuable issues to achieve support and global assistance for sustainable development and consumption.

- There is some legislation which has been formulated to enforce sustainable practices at sub-regional, regional and international level. These are : the Environment (Protection) Act, 1986, The Water (Prevention and Control of Pollution) Act 1977, Re-cycled Plastics Manufacture and Usage Rules 1999 and Bio-Medical Waste (Management and Handling) Rules 1998, etc.
- Indian Government has decided to mandate the public hearings of the various development projects wherein those people who are being affected are given chance of hearing before a verdict. Public participation is achieved for the major decisions of social, economic and sustainable development by providing transparency in decision making process from the major groups such as NGOs, Indigenous Groups, Industrial Associates, and Researchers etc.
- Various programs for sustainable development are functioning in India which has been financed by multilateral agencies across the world like Global Environment Facility through the World Bank, Capacity 21 Initiative Project, LIFE and Sustainable Development Network Programme (SDNP) of United Nations Development Programme, New York etc.
- Realizing the importance of sustainable development and consumption, Indian Government has formulated an Environmental Information System (ENVIS) as a plan programme in 1982. This program provides the information to the policy and decision makers and researchers across the country to design the system for sustainable development by the formulation of sustained development strategies.
- Government of India has taken many capacity building initiatives in the various diversified sectors for the environmental and sustainable growth.

Various NGOs are involved for organizing orientation training courses for the teachers to promote sustainable consumption.

- Centre for Sustainable Production and Consumption (C-SPAC) has been established at Calcutta, India, which has a mission to achieve the citizens rights by protecting them from unsafe products, services and environment and this centre works to promote practices of sustainable production and consumption.

The consumption of all in-home appliances has increased rapidly in India over the past 20 years. The motives for acquiring them are quite different from those associated with the car. Their main attraction is the capacity for electric appliances to relieve pressures on time-stressed married women (Wilhite 2014). Husbands in India do not participate in housework. The accessibility of domestic help is declining as is the practice of members of the extended family sharing a house, so that chores that were previously shared by the women of the joint household now fall on the shoulders of individual women. Increasing educational opportunities and a more openness to women working outside the home are behind a steady increase in the numbers of women with full time jobs, yet women continue to have full responsibility for housework. Working wives must compress all household chores into early mornings and late evenings. Appliances such as food mixers, washing machines, refrigerators and microwave ovens reduce time used for shopping, food preparation and washing clothes by hand. The importance of these time saving appliances is underlined by the fact that they are becoming regular aspects of dowry. In most of India and across all social classes, the families of brides use dowry to secure husbands for their daughters.

### **Conclusion :**

This chapter concludes by giving an overview of issues, challenges and prospects of sustainable consumption.

## ***References:***

Brundtland, G. H. (1987). *Brundtland Commission: Our Common Future*. Oxford, U.K.: Oxford University Press.

Gillapsy, R. (2003). *Sustainable Consumption: Definition and Complexities*. Retrieved October 2016, from www.study.com: <http://study.com/academy/topic/environmental-sustainability.html>

Pearce, D. W., Markandya, A., & Barbier, E. (1989). *Blueprint for a Green Economy*. London: Earthscan Publications Ltd.

Pearce, D. W., (1989). *Blueprint for a Green Economy*. London: Earthscan Publications Ltd.

Roundtable, O. (1994), *The Imperative Of Sustainable Production And Consumption*

Symposium, O. (1994) , *Sustainable Consumption*

# **CHAPTER 2**

## **REVIEW OF LITERATURE**

**Introduction**

**2.1 Sustainability**

**2.2 Environment and Sustainability**

**2.3 Sustainable Consumption**

**Conclusion**

**References**

## CHAPTER 2

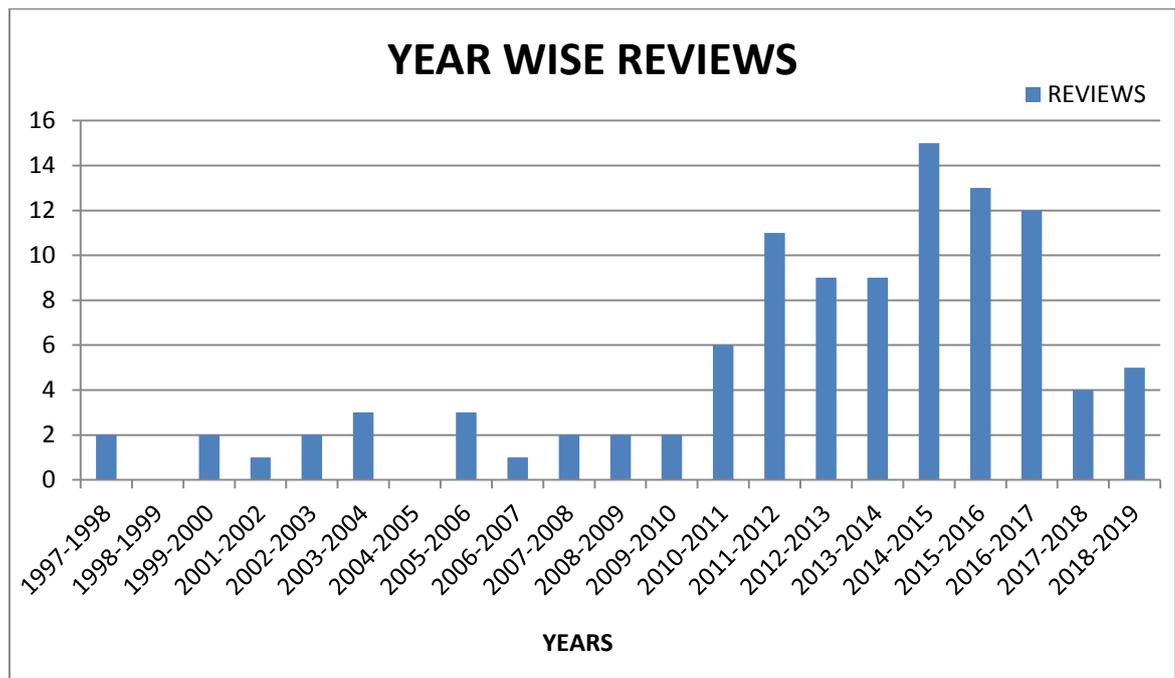
### REVIEW OF LITERATURE

A literature review is a search and evaluation of the available literature in a given subject or chosen topic area. It documents the state of the art with respect to the subject or topic. A literature review is both a summary and explanation of the complete and current state of knowledge on a limited topic as found in academic books and journal articles.

The present chapter is an evaluative report of information found in the literature related to Sustainable Consumption. This chapter is categorized into 3 major classifications of the topic:

- 2.1) Sustainability
- 2.2) Environment and Sustainability
- 2.3) Sustainable Consumption

**TABLE 2.1: YEAR WISE LITERATURE REVIEW OF THE MRP**



**Figure 2.1: Graphical representation of Literature Review**

## 2.1 Sustainability

In context to Sustainable Development, (**Łazorko, 2015**) said that, The idea of sustainable development requires some efforts from its followers but it is necessary when our planet functioning in present form is to be preserved for the next generations. The idea of sustainable consumption is recognized by Polish customers but its holistic character is not known so well. People often follow some parts of it by using environment friendly products for example, but they do not see the wider context of the idea of sustainability. This is also the way how most of virtual communities perform - they focus on one aspect of sustainability and do not present those areas in the wider approach.

In a study, (**Jones, Hillier, & Comfort, 2014**) stated that, A number of the stores have messages seemingly designed to stress the sustainability of specific products. The observational survey within stores revealed two contrasting themes. First, there was only limited evidence that the top ten UK retailers are looking to communicate any information about sustainable consumption to customers. In some of the selected stores, large posters are used which provide messages with a sustainable consumption theme. On the wall by the escalator between the first and second floors in the Marks & Spencer's store, for example, a large poster entitled "Sustainable Raw Materials" are the messages "Our goal is to make sure our key raw materials come from the most sustainable sources available to us" and "there's nothing uniform about our staff uniforms, they're made from recycled bottles". A hanging poster in the fruit and vegetable section of the Waitrose store under the "LEAF", namely, "Linking Environment and Farming" banner announces the company is "Helping you choose food grown in harmony with the environment" and that this is part of its commitment to "Treading lightly the Waitrose way", while a large wall poster facing the checkouts in the J. Sainsbury asks "Can a shopping bag make a difference to the world" and exhorts students to "Shop with our reusable bags" because "Every time you use one the planet says thanks". In a similar vein, a sign on the wall behind the checkouts in the Wm. Morrisons store, read "Today - We'd like you to do something for tomorrow and re-use your bags".

**(Shadymanova, Wahlen, & Horst, 2014)** Within Western societies, the detrimental consequences of mass consumption on the environment have long been identified. Consumers have developed sustainability consciousness in accordance with research and policies. In non-Western societies, however, experiences with mass consumption have not been so long standing. Furthermore, the extent of mass consumerism is not as wide ranging as in many of the richer countries in the world. In central Asian countries, a soviet history adds to this the concept of resource depletion and sustainability impacting industrialization as an ideological taboo.

**(Voget-Kleschin, 2014)** examined how employing the capabilities approach in conceptualizing sustainable development allows reasoning and specifying claims for more sustainable lifestyles. In doing so, the author focuses on the example of food consumption because it constitutes an '(un)sustainability hotspot' as well as a paradigmatic example or the tensions between individual lifestyles on the one hand and societal consequences of such lifestyles on the other. The first argument he developed was, that more sustainable food consumption constitutes a societal issue so that asking individuals to behave more sustainably is unnecessary. The second objection argues that such claims infringe on the individuals' freedom of choice and morally overburden individuals.

**(Hoque, 2013)** To achieve major positive response from the consumers for sustainable products 'cool' status needs to be established, realization about sustainable products' cost-effectiveness and acquiring task-specific knowledge on being sustainable should be given significance. Empowering rather than forcing consumers' towards sustainability approach should be taken and making them realize about the disastrous effect of environmental degradation caused by unsustainable daily-life practices can help solve cognitive dissonance towards sustainability.

**(Farley, 2013)** The concept of sustainability, which is frequently utilized and defined through sustainable development initiatives, is now widely adopted at multiple levels of government in both developed and developing nations as a guiding principle for ensuring the future viability of environmental, social, and economic systems.

In his book, (Clegg, 2011) said that, Probably the hardest part of getting sustainability right is in taking actions that really deliver valuable results, rather than taking actions that are just for show and that can easily be labeled as greenwash. This can be a problem in all possible applications of sustainability. We are going to examine one small area – carbon neutrality – but the same consideration should be applied to test any proposed action to enhance sustainability. Within the environmental arm of sustainable business, prevention of global warming is a significant factor. Although there are usually upfront costs involved, taking action in this area brings both good publicity and customer relations and a longer-term reduction in costs, plus a reduction in the risk associated with sea level rise, water shortage, wildfires and weather-related issues.

(Swaminathan, 2011) explained the concept of sustainability in ethical sense in his book saying that, Ethical considerations will have to guide human behaviour in relation to natural resources exploitation. Bioethics and environmental ethics are now developing into well-defined scientific areas. The ethical responsibility of safeguarding the environment rests on professionals, political leaders and the public. In the past, by investing conservation with spiritual significance, every individual was made to integrate ethics in day-to-day life. Advances in molecular genetics and biotechnology, which permit us to “play god”, have increased the urgency of bioethics courses in our universities.

According to (Cummins, 2011) in his book, The narrow conception of sustainability is focused solely on the human realm, whereas the broad conception is focused on the totality of life on Earth. Is acting in a sustainable way sufficient for being green? According to the broad conception of sustainability it is, but when we come to the narrow conception of sustainability things are more complex. One might think that – on the ‘narrow conception’ – if the impacts of the human species were ‘neutral’/sustainable then the human species would be acting in a ‘green’ way. He suggested that a human can only be considered to be ‘green’ if they have a particular attitude – an attitude of respect towards other life-forms. So, if all human lacked this attitude then the human species wouldn’t be acting in a ‘green’ way, even if its impacts were ‘neutral’/sustainable.

**Saxena, R. & Khandelwal, P. K. (2010)**, argued that Sustainable development is the form of development which aims at sustainable consumption and sustainable economic growth and tries to protect the environment. The findings of the study demonstrate that these days' people are having high concern about environmental protection and are willing to consume those products which are environmentally friendly i.e. green in nature and the companies who offer green products will definitely enjoy a competitive advantage over their competitors as people have a positive attitude for green products. Green marketing can definitely be used as a tool for sustainable growth. The major objectives of the study was to examine issues of sustainability in relation to consumption, the concept of green marketing and its interface with consumers, and whether socio-demographics have a role to play in profiling green consumers, who have more positive attitude towards green brands. The study revealed that people in emerging economies like India too have high concern for greener environment and have an overall positive attitude towards green marketing, genders have positive attitude towards green marketing but comparatively females are little more concerned. Married people seem to be more receptive to green brands. Consumers age and education level also influence their attitude towards green marketing.

**(Manjunath, 2007)** in his book said that, The survival and well being of a nation depend on its sustainable development. Sustainable Development is the process of betterment of life in all sectors- economic, social, educational, health care, food and energy independence, national security, and so on. Development in these sectors needs to be provided without adversely distributing the environment in which we live. Another aspect is that our present deeds should not foreclose options for future generations. Therefore it is necessary that we protect our environment from which we derive our sustenance, without causing disturbance that exceeds its carrying capacity.

**(Shove, 2003)** in her study quoted, that "According to the authors of a UK government report entitled *Sustainable Development: Opportunities for Change* 'consumers can have a huge impact on sustainable development through their influence as purchasers.

## 2.2 Environment & Sustainability

(Grimmer, 2016) Many of us know that we should be better consumers. Buy less. Buy ethical. And of course, buy environmentally -friendly products. The trouble is, most of us aren't doing this, even though it could benefit us financially as well as being the right thing to do by the planet. There are a lot of people who intend to purchase environmentally-friendly products but don't do it. As soon as the product becomes expensive, it reaches what we call an ethical tipping point. People will go to a cheaper product, even if it's less environmentally-friendly."

"Often the reasons people don't act in an environmentally -friendly way with purchasing products are often very ordinary; to do with convenience, access, and the amount of time they have. Or they may not actually know what an environmentally -friendly product is. "Changing the messages has an impact too. If you emphasize the personal benefit as well as the broader environmental benefit, that also tends to make a difference in people's attitudes and habits.

In his book, (Narain, 2016) said that, There is no question that India and other parts of the still-under-construction world must build green. The building sector is a major contributor to climate change and local environmental destruction because of construction materials used; energy expended for lighting, heating and cooling; and water consumption and waste discharge. This is the threat. There is an opportunity as well. Most of India is still unbuilt-over 70 percent of the building stock is yet to be constructed-so unlike the rest of the already developed world, India can build a new in an efficient and sustainable manner.

(Channa & Porter, 2015) in their book, explained that, The interrelationship between environment and development must be situated within the most basic context of humankind/nature interaction. An interest in humankind/nature interaction provides us with a valuable opportunity to rethink, from a multi-axial or intersectional perspective, the broader ecological context within which collective human life is currently being restructured worldwide. This process unfolds according to the complex constraints and possibilities that exist in the early twenty-first century world, that is the constraints and possibilities being presented by the

restructuring of market, state and civil society. The interrelated concepts of ecology and ecosystem denote the interactions among all living organisms between them and their nonliving environment.

According to **(Güney, 2015)** relatively developed countries should effort more than relatively less developed countries in order to raise the level of environmental sustainability and they should focus on policies in this direction without bowing to pressure groups. Thus while the level of welfare of today's society is raised, the level of welfare of future generations will also be taken into account.

**(Wakasa & Konomi, 2015)** "*Green networking*" is an approach to support the production of combined effects of the functions of green resources by creating the networks of connected green locations and areas. Green networking can facilitate sustainable community development as a countermeasure for heat-island phenomena, and a generator of quality townscapes and experiences.

**(Mehta, 2014)** in the book claimed that, Sustainability has become a common denominator both among the environmentalists and development thinkers. The term was popularized in the first instance in the context of resource goods that is in terms of the highest level of exploitation of resources from a forest or fishery while consistently maintaining a steady flow of them. Currently, it is being employed to indicate the levels of pollution and degradation of natural systems, while consistently maintaining a balance between the current levels of use and enjoyment of these systems. Broadly when we speak of sustainability, we tend to exclude the moralistic dimensions suggested by extreme positions taken by ecologists. Their argument is that the natural world resources should not be considered for human use at all. On the other hand, there is another position taken by those who advocate unlimited economic growth and are in favour of not constraining the ability of the free market to generate goods and services in response to consumer demands. Between the two extreme positions, a vast majority of environmentalists believe that though the use of environment is morally acceptable, we should be under obligation not to misuse the environment in unsustainable ways.

**(Akenji, 2014)** An axiom that has shaped policy approaches to sustainable consumption has been that if more consumers understand the environmental

consequences of their consumption patterns, through their market choices they would inevitably put pressure on retailers and manufacturers to move towards sustainable production. The result is the proliferation of consumption of “green” products, eco-labels, consumer awareness campaigns, etc.

**(Khandelwal & Yadav, 2014)** India is developing significantly with a good pace in industrialization but this development is leaving behind a curse to the nature. People are now conscious about the environmental depletion, which the industrialists have been serving along with the bundle of utilities. Social movements, media, NGOs are also nowadays enhancing consumers attention towards the environmental effects a product may have. To cope with these changes in the society, marketers have adopted green marketing concept in order to sustain in the market. In order to achieve sustainable success, marketers have to reassess their strategies and make them environment-friendly. The companies who are using these green practices in their functioning will achieve the sustainable success as people these days have a positive attitude for green-products.

**Lies Bouten & Sophie Hoozee (2013)**, views that environmental reporting (ER) and environment-related management accounting (EMA) practices may interact in the process of responding to disturbances of the natural environment (e.g., changes in environmental regulation, green consumerism, societal pressures for environmentally-responsible conduct). They found that emergence of interplay between ER and EMA practices is related to the change pathways followed by these disturbances. Moreover, the strength of the environmental disturbances, top management commitment and the presence of an environmental champion are important contingent factors in understanding the development of a recursive relationship.

Defining the concept **(Jayamani & Vasanthgopal, 2012)** said that, Environment sustainability is defined as the ability of the environment to continue to function properly indefinitely. This involves meeting the present need of humans without endangering the welfare of future generations. The goal of environmental sustainability is to minimize environmental degradation and to halt and reverse the process they lead to. They also said that, Human interaction with a variety of

resources and their excessive exploitation has resulted in many irreversible damages to our environment. It has become one of the prominent issues of the current Century.

**(Koos, 2011)** said that, the purchase of environmental-labelled goods is an important dimension of sustainable consumption. Existing research on environmental labels and sustainable consumption has a rather individualistic bias. Organizational and structural determinants have only recently sparked attention. Focusing on labels for organic food and ecological durables, the plurality of existing labels as well as state involvement into labelling are used as the central dimensions constituting the organizational varieties. Market structures refer to the supply of labelled goods and the dominant retailing channels that make up the infrastructure for this dimension of sustainable consumption.

**(Spaargaren, 2011)** Within environmental social sciences, the authors believe that the analysis of sustainable production should be complemented by bringing in issues of sustainable consumption and lifestyles. It is possible to place a stronger emphasis on consumption issues without lapsing into the socio-psychological models that were used for so long in the analyses of environmental (un)friendly behaviors of citizen-consumers.

**(Petry, et al., 2011)** Many of the challenges of sustainable development (SD) can be traced back to the ways in which modern societies produce and consume. The production, distribution, and delivery of goods and services require the consumption of materials and energy, impacting the natural resource base. These also contribute to the generation of waste and pollution, impacting natural ecosystems. There are a number of social and economic dimensions of well-being impacted along the supply chain of goods and services both at the individual and the community level.

**Peter Dauvergne and Jane Lister (2010)**, were of the view that Voluntary programs such as eco-certification and eco-labeling are core instruments for managing forests. They analyze its value for improving forest management globally. It reveals that eco-consumerism is improving some aspects. Eco-certification as an effective mechanism to advance global sustainable consumption. Eco-consumerism can be an effective voluntary policy instrument to spur environmental

improvements.

According to **(Dauvergne & Lister, 2010)**, Eco-consumerism is about leveraging the purchasing power of individual consumers to bring about a transformation toward sustainable consumption and a green economy. The basic idea is for citizens to induce market changes by “voting” for eco-friendly products with their shopping dollars.

In conclusive words he said, eco-labeling and green shopping *do* have value. Eco-consumerism can be an effective voluntary policy instrument to spur environmental improvements. Yet overestimating its potential on its own to produce *global* change can leave consumers overconfident in the power of their eco-purchases, thereby releasing pressure on governments and corporations for more fundamental changes in the industrial use, marketing, and valuation of the world’s natural resources.

**Nina Mazar and Chen-Bo Zhong (2010)**, expressed the view that consumer choices reflect not only price and quality preferences but also social and moral values, as witnessed in the remarkable growth of the global market for organic and environmentally friendly products. Green consumerism, results showed that people act more altruistically after mere exposure to green products than after mere exposure to conventional products. However, people act less altruistically and are more likely to cheat and steal after purchasing green products than after purchasing conventional products. Green products can have a positive societal effect by inducing prosocial and ethical acts, purchasing green products may license indulgence in self interested and unethical behaviors.

**(Faria, Bessa, & Tonet, 2009)** In their Study, said that, from an ecological definition of sustainability, urbanization, in the traditional view, destroys natural phenomena and processes, demanding inputs (food, timber, clean air and water, energy) drawn from somewhere else to replace and augment local resources. In fact, one of the aspects of urban society nowadays, is the extreme separation of everyday life from the natural world which human life depends on. The symptoms of environmental damage appear far and wide – in the paddocks and fields, the mountains and deserts, the oceans and forests. It is easy to assume that the environmental problem is ‘out there’.

(Curnock, 2008) in his book wrote about various green tips, saying that, Green living should not be confined to the lifestyle of the so-called 'eco-warriors': it must be the aim of each and every one of us to reduce our own impact on the environment. A few simple changes, when applied to our everyday activities both in the home and elsewhere, could have a relatively small impact on us as individuals but, cumulatively, will have an overall beneficial effect on the environment. We must all take responsibility for our own actions, while encouraging others to do likewise, and reduce the carbon footprint left behind as we go about our daily business.

**Kai Kaiser and Gunther G. Schulze(2003)**, they argued that, greener production is incidental to cost-gains of more efficient production processes, and it is this incentive that is mainly used to promote the improved environmental performance of establishments in Indonesia. Industrialization in developing countries is associated with increasing levels of environmental degradation. Exporting firms are significantly more likely to incur environmental expenses. Firms exposed to international competition will be less likely to engage in environmental abatement expenditures relatively to domestically oriented firms. Improved regulations and enforcement can bring about improved environmental quality and green consumerism.

**Nicole Darnall and et. al.** were of the view that consumers are becoming more knowledgeable about the environment and reflecting this knowledge in their decisions to buy green products. Individuals' actual green consumption as it relates to their trust of various sources to provide them with environmental information, environmental knowledge, and personal affect towards the environment. Individual's total green consumption is related to their trust of various sources to provide them with environmental information, environmental knowledge, and personal affect towards the environment. Consumers had less trust on private business to provide environmental information were no more likely to increase their total green consumption. There exists a strong relationship between consumers who trust government and environmental NGOs to provide environmental information and their green consumption. These results suggest the importance of providing

information to the public about environmental matters and educating them about eco-labels.

### **2.3 Sustainable Consumption**

According to **(Zanni, et al., 2018)** the major goal of sustainable development is reuse and recycling of water by unconventional sources. Rain water harvesting and greywater recycling are the alternative methods for the traditional ones. There are two models which were developed :

1. Life Cycle Assessment (LCA) model : developed by means of Simapro software and based on Recipe 2008 method.
2. Hydrological model : realized with the EPA SWMM software.

These models are used for :

- (i) Business-As-Usual;
- (ii) rainwater harvesting system;
- (iii) greywater recycling system.

In the view of **(Annunziata, Mariani, & Vecchio, 2018)**, because of the increasing demand of sustainable foods, manufacturers are adopting many sustainability claims, certifications, messages and other information tools to differentiate their goods. They have conducted an online survey in southern Italy on a sample of 305 individuals aged between 18 and 26 years.

The findings show that the level of visibility of sustainability labels is low. Rainforest Alliance certification and Libera Terra have never been noted by large shares of respondents (respectively 75% and 68%).

The degree of understanding of these labels is generally low. The correct definition is stated only by 15% of interviewees for Fair Trade; 25% for Libera Terra and 16% for Rainforest Alliance. There is a significant relationship ( $\chi < 0.05$ ) between visibility and understanding for all the labels; suggesting that label visibility strongly impacts the probability of having a higher understanding.

The finding of this study suggests that policy makers should be cautious of sustainability labels to increase the understanding and familiarity for special market segments.

**(Azzurra, Massimiliano, & Angela, 2018)** have studied how to measure sustainable food consumption: A case study on organic food. They have analysed organic food buying practices in two steps:

1. Construction of composite index : there are three indices that summarize a set of variables for measuring organic consumption intensity (OCI), the degree of both food sustainability concerns (FSCI) and sustainability in consumers' lifestyle (SLI).
2. Regression analysis : Then a regression has been implemented to analyse if organic consumption intensity is affected by the other two indices (FSCI and SLI), and by other selected co variates.

For this study a sample of consumers resident in Campania (a region in south of Italy) have been used. The result shows that that consumers with a high OCI has a higher level of sustainability and have a more sustainable lifestyle. Food scares and concerns over food safety are strong predictors of organic consumption. women and young people show a higher intensity of organic food consumption.

These findings suggest that policy makers should increase production of organic food and should increase participation of women & young people as key stakeholders.

**(Kielczewski, Byłok, Dąbrowska, Janoś-Kresło, & Ozimek, 2017)** opined the issue of sustainable consumption whose stimulator may be consumer competences. Their research included a research sample of 1,000 Poles meeting specific criteria. They have established following variables :

1. Knowledge of the consumer's rights and ways of use thereof (Knowledge),
2. Planning measured with the following variables (Planning),
3. Making rational consumption choices measured with the following variables (Rationality),

4. Autonomy of choices measured with the following variables (Sovereignty).

Three groups of consumers were singled out and characterised in the study, namely: highly competent consumers, consumers with a medium level of competences, and consumers with low competences.

From their study it was shown that people with high competences have the skills to plan expenses as well as the fact that they are able to acquire the information on consumption and to use it as well as their rights. The highly competent consumers, in the course of making decisions on shopping for goods, important aspects are its functionality, quality and price, appearance, beliefs, fashion trends, status or the impression, and the convincing advertising.

Competent consumers display, openness to innovative products, but they are cautious about them. Highly competent consumers still are a non-dominating part of consumers in Poland. Therefore, it is important to carry out the information and education activities especially for those segments of the market, which display a particularly low level of consumer competences.

According to **(Luchs, Phipps, & Hill, 2015)** consumer responsibility sustainable consumption (CRSC) is an emerging concept of sustainable consumption. Their empirical study shows how CRSC relates to the established sustainable consumption attitude–behaviour gap.

**(Hale, 2018)** suggested that contrast with the default of conscious adoption of the default design may be the initial step to long-term changes in patterns of consumer behavior. According to researcher awareness creates demand for sustainable consumption while direct appeals have disappointing results. Their study shows that, under “green default rules”, behavior is guided by a default, such as utilities automatically sending customers renewables-sourced instead of fossil-fuel-based energy.

**(Brouch, Wilkie, MA, Isaac, & Gal, 2016)** argued that men are less likely than women to embrace environmentally friendly products and behaviors. A series of seven studies provides evidence that the concepts of greenness and femininity are

cognitively linked and shows that, accordingly, consumers who engage in green behaviors are stereotyped by others as more feminine and even perceive themselves as more feminine.

(**Vringer, Heijden, Soest, Vollebergh, & Dietz, 2017**) have explained sustainable consumption dilemma through their study. They tested whether people tend to view sustainable consumption as a social dilemma or as a moral dilemma. They have conducted a large scale field experiment with more than 600 participating households. In their study they selected a consumption problem that shares some of the key characteristics of the sustainability challenge society faces: meat consumption and animal welfare. Their study shows that moral considerations are more leading in sustainable consumption issues than social dilemma considerations.

(**Sui, Langåker, & Yu, Investigation of thermophysical properties of Nanofluids for application in geothermal energy , 2017**) have performed to demonstrate the importance of fluid viscosity and heat capacity in geothermal energy production, and nanofluids have superior performance in heat transfer.

According to (**Bari, Our Oceans and the Blue Economy: Opportunities and Challenges , 2017**) Blue Economy is decoupling of socio-economic activities and development from environmental degradation and optimizing the benefits which may be derived from marine resources. This concept is new in South Asia. Blue economy is use of sea and its resources for sustainable development. This concept requires strong political willingness and commitments and so much research.

In the view of (**Cohen & Munoz, 2015**) Sustainable Consumption and Production (SCP) is providing a new way of understanding how analyst may play out in cities. This study provides a comprehensive view of SCP system in cities in context of two continuums : SCP and private/public orientation.

The aim of (**Panzone, Hilton, Sale, & Cohen, 2016**) research is to examine whether socio-demographics, implicit and explicit attitudes towards the environment predict sustainable consumer behaviour, measured using supermarket loyalty card data. Result of this study indicate that level of education is a key predictor of an aggregate

measure of sustainable consumption, with a small part of this influence mediated by level of explicit environmental concern for climate change.

According to **(Prasad, 2013)** Green HRM encompasses all activities aimed at helping an organisation carry out its agenda for environment management to reduce its carbon footprint in areas concerning onboarding and acquisition of human resources, their induction, performance management, learning and development and compensation and reward management. Green HR will play an important role in making the employees aware of and concerned for preservation of natural resources and contribute in pollution control, waste management and manufacture of eco-friendly products.

**(T.L. & E., 2016)** have examined the predictors of sustainable consumption behaviors either at the individual-level or the group or contextual-level. Multilevel modeling approaches to analyzing hierarchical datasets can greatly expand our understanding of the core factors driving sustainable consumption behavior. Multilevel research designs can facilitate the identification of socio-psychological, institutional, structural and cultural contexts that influence sustainable consumption.

According to **(Laurin & Fantazy, 2017)** sustainable plans, are the ones that improve not only supply chain economic performance, but also their environmental and social performances. Their pilot study explores the extent to which IKEA has successfully integrated sustainability practices into the management of the supply chain. This study reveals that sustainability practices can be successfully implemented across an organisation's entire supply chain, including second and third tier suppliers to gain positive environmental and social impacts while still promoting a strong economic bottom line.

In the view of **(Lundblad & Davies, 2016)** most studies in sustainable consumption focus on the production end of the emerging market, with little exploration of the consumers. The purpose of their study is to explore the values and motivations underpinning actual sustainable fashion consumption.

**(Grabs & Langen, 2015)** have explained lowering individual footprints might be more acceptable once we include social relations, adopting responsibilities for other

human and nonhuman life as well as civic engagement as complementary sources of wellbeing. Grassroots initiatives can thus facilitate sustainable consumption and become role models for societal change. In their study they investigate why grassroots organizations are created and developed successfully by focusing on the processes of founding, engaging in, developing and maintaining grassroots initiatives.

The study of **(Wang, Xiang, Yang, & Ma, 2018)** develops one conceptual model to explore how customer sustainable consumption behaviors are mobilised in the sharing economy context, drawing on the social exchange theory.

The increased customer sustainable consumption behaviors result in improved objective sales performance. They concluded that a service provider's strategies (i.e. reputation and response rate) could positively enhance the effect of social influence on customer sustainable consumption behaviors while the value of these strategies are limited and insignificant in the effect of price.

According to **(Verain, Sijtesma, & Antonides, 2016)** aim of the study was to identify consumer segments based on importance consumers attach to a range of food category attributes, with a special focus on sustainability attributes.

According to **(Hartmann & Siegrist, 2017)** Consumer awareness of the environmental impact of meat production is surprisingly low. This is true for consumers in various European countries. Likewise, willingness to change meat consumption behaviour in terms of reducing or substituting meat (e.g., by eating insects or meat substitutes) is low as well.

In the opinion of **(Watkins, Aitken, & Mather, 2015)** there is no literature to date investigating the link between moral foundations and sustainable consumption. Increasingly, marketplace choice has emerged as a form of political participation, through which consumers can exercise their moral and ideological beliefs about sustainability and other issues. Their research identified gap in the literature and argued that moral foundations underpin individual's political orientation and desire for change and that this is enacted through their individual consumption choices and collective political action in sustainability issues. Their research presents data from a

New Zealand study using structural equation modelling to demonstrate the relationship between moral foundations, political orientation, individual sustainable consumption behaviours and wider political involvement in sustainability issues. Their results show that people with individualising moral foundations, who tend to the political left, are more likely to engage in sustainable consumption behaviour and to demonstrate their commitment to change through political action on sustainability issues than people who hold binding moral foundations. The study extends our understanding of value-behaviour linkages and gaps with regards to sustainable consumption by focussing on the importance of moral values. These insights provide the basis on which more effective communication strategies could be developed that more closely align with and appeal to those with the different moral foundations and political orientations investigated in this study.

**(Grabs, Langen, Maschkowski, & Sch€apke, 2016)** in their study said, In order to achieve sustainable societies, we need models of behavior that go beyond individuals equating wellbeing and material consumption levels. Lowering individual footprints might be more acceptable once we include social relations, adopting responsibilities for other human and non-human life as well as civic engagement as complementary sources of wellbeing. Grassroots initiatives that stimulate collective action and social learning contribute to these diverse sources of wellbeing when striving to facilitate sustainable consumption. Thus, they can become role models for societal change.

**(Srinivas, 2016)** Current unsustainable consumption patterns are destroying the environment; depleting stocks of natural resources; distributing resources in an inequitable manner; contributing to social problems such as poverty; and hampering sustainable development efforts. Focusing on the demand side, sustainable consumption compliments sustainable production practices and achievements. Sustainable consumption requires a multidisciplinary and multinational approach. Teams composed from various disciplines are required to create and implement policies. Developed nations need to assist rather than exploit developing nations. The main barriers to sustainable consumption include: lack of awareness and training; lack of support from the community, government and industry; reluctance to include the true environmental and social costs in the price of goods and services;

ingrained unsustainable thinking and behaviours patterns; and lack of alternative sustainable products and services.

**(Rakitovac & Tadic, 2016)** The world at the beginning of the 21st century is faced with many challenges related with negative social, environmental and even economic externalities of the dominant economic model. Unsustainable production and consumption have resulted in increasing social inequalities, the pollution of the ecosystem and unsustainable exploitation of natural resources, which ultimately endangers human existence. Namely, consumer behaviour directly influences the methods of production and the level of environmental awareness in the business community, and therefore unsustainable consumption patterns are no longer acceptable. The time has come for a different, more sustainable approach in the production of goods and services, as well as in their consumption, in order to foster sustainable economic development.

**(Gadepalli, 2015)** Advances in technology have led to mass production and an ever-increasing apprehension over the disposal of industrial waste. Misgivings in this respect have attracted the attention of technologists and economists leading to debates on pollution prevention and end-of-pipe solutions. There have also been numerous programs incentivizing “reduce, reuse, recycle,” especially in the developed economies, but the effectiveness of these incentives is yet to be truly felt as evidenced by the ever-increasing volume of waste.

**(Nagypál, Görög, Harazin, & Baranyi, 2015)** Sustainable consumption is existing in theory; however it should exist in practice, too. The promotion of practical aspects, feasibility of SC should be emphasized. Communication, education should concentrate on informing future generations about practical solutions, which also contain information about the interpretation of eco labels. This communication could be the task of educational institutions - from kindergarten to higher education -, producers and also commercial institutions as part of their Corporate Social Responsibility; however agencies, associations and environmental NGOs also could make more efforts in this field. Achieving sustainable consumption, achieving the overarching goal of sustainability is a step-by-step process, where education and communication has an emphasized, initial role.

**(Gadepalli, 2015)** Advances in technology have led to mass production and an ever-increasing apprehension over the disposal of industrial waste. Misgivings in this respect have attracted the attention of technologists and economists leading to debates on pollution prevention and end-of-pipe solutions. There have also been numerous programs incentivizing "reduce, reuse, recycle," especially in the developed economies, but the effectiveness of these incentives is yet to be truly felt as evidenced by the ever-increasing volume of waste. Scholarly attention on debates related to meanings of waste and the socio-cultural practices associated with waste, especially as an outcome of consumption, has been meager. The lack of understanding of the every day practices and familiarity with routines that constrict rational choices could provide some explanation of some of the failures of incentives in addressing overarching questions of waste, its management, and ultimately the effect on climate change.

**(Lee, Levy, & Yap, 2015)** The importance of consumers' role in sustainable consumption is reflected in the vision of the Sustainable Development Education Panel: To educate consumers to make informed consumption decisions, to take responsibility for their actions and to realize the impact of consumption decisions on future generations. However, educating and informing consumers alone is unlikely to change deeply entrenched unsustainable consumption behaviour. A multi-faceted approach is required – enforcing sustainable development initiatives through legislation, promoting corporate social responsibility programs on the part of business, and (most importantly), supporting communities that engage in sustainable consumption.

**(Widyaningsih, Tjiptoherijanto, Widanarko, & Seda, 2015)** The change of household consumption pattern will change the waste volume and the waste characteristics or composition. It is caused by the packaging materials that they use. Many factors influence the volume of the household waste; for example, the application of the 3R principle (Reduce, Reuse, and Recycle), the infrastructure, the law on waste management system, the packaging materials, population number, household income and household consumption pattern. The characteristic of the household waste can be divided into two major categories: organic and inorganic waste. Organic waste comes from plants and animals, food scraps, and yard

trimmings. Inorganic waste is from man-made items such as plastic, paper, glass, and metals. Organic waste is easier to decompose than inorganic waste.

**(Fischer & Barth, 2014)** Sustainable consumption is a field characterized by complex system relations that do not allow prescribing easy solutions for changing consumer behavior. They introduced an educational key competencies approach comprising of seven generic competencies, and argue that the promotion of key competencies is a transversal contribution to this debate, as it does not favor any particular normative position, but is relevant across all. They advocated for a more comprehensive and effective conception of an educational contribution to promoting sustainable consumption that goes beyond the narrow focus of training skills, providing information, and testing for results.

**(Moloney & Strengers, 2014)** Warned that, changing understandings of normal practice can counteract the consumption reductions achieved through the uptake of a small range of 'green actions' advocated by environmental behaviour change programmes. They concluded by reiterating that the answer to the world's environmental problems does not necessarily lie in making 'the environment' part of our individual decision-making processes, but potentially rests in addressing the elements mutually binding practices together, and the ways they are enacted and reproduced in everyday life. Understanding these interactions is a necessary step to more effectively move beyond the 'behavioural space' reserved for those attempting to achieve far-reaching social change.

**(Leary, Vann, Mittelstaedt, Murphy, & Sherry Jr., 2014)** defined sustainable consumption as behavior intended to meet the needs of the current generation and benefit the environment without jeopardizing the ability of future generations to satisfy their needs.

According to **(Kothari & Dawar, 2014)**, It is desirable to use eco friendly products, to implement environmental friendly packaging practices and actual implementation of 3R's concept in consumption pattern which includes reduction, recycling and re-use of products. In India, there are so many factors which impact sustainable consumption directly or indirectly such as issues related to design of products, products manufacturing, life extension of products and process related to recovery

issues etc. Some recent reports state that Indian consumer's spending power has considerably increased. Now a days, India is considered one of the fastest emerging consumer market and this diversified market is influenced by many factors like rapid growth in GDP, rapid changes in demographic factors, change in Indian consumer's consumption habits, enhancing urbanization as well as rising buying power in both urban and rural areas due to developments. But there is a great need to aware the Indian consumers about the practices of sustainable development and consumption.

**(Jaeger-Erben & Offenberger, 2014)** in a study said, Sustainable consumption is often reduced to consumer choices or forms of product appropriation. Such a narrow focus on individual acts neglects their role in reproducing social order and only shows the top of the iceberg of consumption. In contrast, reconstructing consumption as a part of social practices sheds light on the fundament of the iceberg and shows how everyday consumption patterns are embedded in socio-cultural and socio-technical settings. The market-based interaction between supply and demand are central drivers of sustainable consumption and the main focus of intervention should be to encourage demand and make the supply of goods more transparent and accessible.

**(Maniates, 2014)** Gave three Paradox of Sustainable Consumption in a study, Sustainable consumption is a field in transition, with limited agreement around organizing questions, key definitions, overarching frameworks and fundamental disciplinary traditions. The resulting dissonance complicates the collaboration and cumulative generation of knowledge typical of effective research communities. This dissonance emerges from the papers in this special issue of GAIA, which together illustrate three paradoxes that characterize the field: the primacy of the individual consumer, the counterproductive search for definitions, and limited theorizing about social change and a consequent retreat from power.

**(Vergragt, Dendler, De Jong, Matus, & Zhang, 2014)** Environmental deterioration, climate change, biodiversity losses, increasing resource scarcity, as well as inequality and persistent poverty, are all inter-linked to, and driven by, globally unsustainable production and consumption patterns and systems.

Traditional rules of the economic and financial system are increasingly criticized, and so too are the impacts of an expanding international consumer class.

**(J.M.M., Pienaar, & Erasmus, 2014)** Consumers do not consciously consider society and/or the natural environment when purchasing, consuming and disposing of fresh produce. Although consumers do not seem status conscious, certain aspects of their fresh produce purchasing and consumption practices are typical of status consciousness, which are conducive to unsustainable behaviour.

Willingness to commit to sustainable purchasing and consumption practices therefore require a major mind shift. Unfortunately desperate times call for desperate measures and despite the complexity of the matter, efforts should continue to involve consumers in a plea to save.

**(Spangenberg, 2014)** Sustainable development is still a convincing concept, if the original definition is taken, avoiding the confusion caused by partisan interests reinterpreting the concept. Focusing on human needs fulfillment and respecting environmental limits, it can still guide strong sustainable consumption. Green economy/green growth, on the other hand, is a new terminology for what is known since 40 years as ecological modernization. It is indeed overdue, but with its focus on efficiency and innovation it cannot guarantee to fulfill the Brundtland sustainability criteria.

**(Singer, 2013)** said that sustainable consumption fails to address the root problem: that unfettered economic growth—no matter how ecologically-minded—is still unsustainable. He further quoted; In *State of the World 2013*, Annie Leonard points out that the focus on sustainable consumption “distracts us from identifying and demanding change from the real drivers of environmental decline. Describing today’s environmental problems and solutions as individual issues also has a disempowering effect, leaving people to feel that their greatest power lies in perfecting their daily choices.”

**(Vázquez-Rowe, Pedro, M<sup>a</sup> Teresa, & Gumersindo, 2013)** Sustainable consumption in the food sector is a desirable goal which is often difficult to achieve depending as it does on the interaction of a broad set of factors, such as market

prices or consumer preferences. In the current study, a distinction has been made between pre-purchase consumer decision-making, on the one hand, and purchase and post-purchase consumer decision-making, on the other. Consumers, if given the correct environmental guidelines through awareness campaigns, can play an active and relevant role in the reduction of the environmental profile of seafood products through behavioral modifications when purchasing and consuming them.

**(Tseng, Chiu, Tan, & Siriban-Manalang, 2013)** Current consumption patterns and production systems based on traditional practices and commercial technologies are generally not sustainable. The industrial sector, through its role in society, has contributed significantly to pollution and exploitation of the environment. The rapid industrialization of many nations in Asia and the consequent rapidly rising levels of water, air and land pollution have raised concerns about the unsustainability of current growth patterns. Therefore, numerous changes must be made in policies, education and in industrial policies, processes, products and services including intensified efforts at greening the supply chains and increasing awareness of environmental responsibilities in Asia.

**(Hobson, 2013)** said, although reducing levels and impacts of contemporary consumption and production has been a pivotal socio-environmental goal for decades, global resource use continues to grow rapidly, particularly across the Asia-Pacific region. He examined both the weak and strong approaches to sustainable consumption, and said that, such a weak and strong dichotomy presents a starkly polarized view of approaches to sustainability that in reality often intersect and overlap depending upon the aims, methods, and desired outcomes being suggested. However, conceiving them as definite and distinct approaches runs throughout extant sustainable consumption research, policy, and advocacy, and thus is echoed here as a heuristic device to think through some of the future challenges and opportunities in this field.

**(Korpysa, 2013)** Sustainable development is often analyzed in the context of sustainable consumption. It involves conforming to norms and adopting ethical attitudes by consumers. The norms are to make consumers recognize the limited character of natural resources and respect other people's need. In this sense,

sustainable consumption is a model of life that enables people to minimize socio-economic costs of consumption through their behaviour and actions.

It is beyond any doubt that a 21st century consumer should take account of a number of issues while buying and subsequently using goods and services. These issues include wastage reduction, lower emission of pollution and limited production of waste, as well as selection of products whose development conforms to the code of ethics and socio-environmental norms. This awareness is observed in most countries all over the world, nevertheless certain differences can be noticed between the developed and developing states. Although the concept of sustainable consumption is being actively promoted among consumers in the developing countries (e.g. in Poland), they are still less aware of the necessity to conform to socio-ecological norms in the process of consumption.

**Savita Hanspal and et al. (2013)** views that Sustainable development includes issues concerning production as well as consumption. Low demand for “sustainable” products makes them expensive and, therefore, out of reach for many customers. Institutions, being bulk purchasers, can play a significant role in encouraging and increasing this demand by influencing their employees, suppliers, consumers and other stakeholders. The study examined the extent to which institutional consumers can help induce a shift to sustainable consumption in the specific context of two related products - tea and coffee. The study focused on procurement and consumption patterns, behaviors and attitudes of tea and coffee in India. Primary data was collected through a survey amongst institutional consumers. Data was collected from twenty seven institutions; six belonged to the hospitality sector, eight to BPO’s and software, two to media, six to education, one to aviation and four to the banking and insurance sector. The survey included both a questionnaire and personal interviews. The questionnaire was aimed at determining the institutional arrangements currently in place for supply of tea and coffee within the selected organizations, their procurement policies, factors considered in selecting a brand for tea and coffee, awareness regarding sustainable tea and coffee, willingness to purchase such tea and coffee and the problems in adopting it. The study identified challenges that institutions are likely to face in switching to sustainable consumption practices and whether they saw any potential benefits in promoting such a change.

The lack of awareness regarding sustainable products as well as facts related to production and of tea and coffee produced and sold to institutions. Their impact on employee health is also not well processing of tea and coffee produced and sold to institutions. Their impact on employee health processing is also not well known. It is imperative to provide such information to the decision makers and users. The main hurdles in the purchase of sustainable products are availability of supply, genuineness of claims regarding products being actually sustainable and lack of certification information about these products. Suppliers of these versions should avoid making exaggerated and misleading claims and adopt honest marketing practices to gain consumer confidence. Individual consumer awareness and sensitization will be important to increase use of sustainable products. Use of sustainable products needs to be promoted amongst masses to encourage cost efficient production of such products and to make them more affordable. Accessibility and continuous supply, proper labeling and certification are very important if consumption of sustainable products needs to be promoted in future.

**Markkula, A., & Moisander, J. K. (2012)**, deals with the importance of information context in a broader sense. In their article, “Consumers and discursive confusion over sustainable development,” they discuss the heterogeneous and sometimes contradictory information consumers get with regard to consumption and sustainability issues. Based on qualitative interviews on fashion consumption, they uncover the discursive polyphony consumers often have to face. They show that, in practice, individual consumer responsibility for negative social and ecological process and product characteristics of the clothing they buy is drowned in discourses on financial responsibility, political responsibility, and aesthetical norms. This situation creates discursive confusion for many consumers and inactivity with regard to sustainable consumption. Thus, the authors argue that one reason for the “knowledge-to-action gap” is that uncontested knowledge often does not exist, which leads to a lack of clear action alternatives. Consumer policy should take this more into account when promoting sustainable consumption and become better at dealing with the discursive polyphony in this area.

**Larceneux and et. al. (2012)**, investigates the influence of brand equity on labelling outcomes. Their experimental study revealed a positive effect of eco-labels on

consumers' product quality assessment, but the positive effect is significantly stronger for low-equity than for high-equity brands. Thus, they recommend that consumer policy should promote especially the use of eco-labelling on lower-equity brands to foster more sustainable consumer action.

**Schafer and et. al. (2012)**, finds that also the timing of information is important for its effects. Life events like the birth of a first child or moving into a new town necessarily bring about new consumption patterns and a change of old habits. Thus, the authors experimentally stimulated a change towards more sustainable consumption habits soon after such live events. However, unexpectedly, they found that participants some weeks after they had gone through the studied live events were less likely to react to informational interventions (more or less individualized consumer information and consultancy) than participants in stable life situations.

Qualitative interviews revealed that the lack of intervention effects might be due to important changes having happened before the intervention. For example, the change of nutrition habits in connection with childbirth already starts during pregnancy, which may limit the willingness to change more or differently a few weeks after birth, when the intervention was implemented. Thus, it is crucial (but difficult) to time the intervention correctly in connection with a life event.

**(Holt, 2012)** Unsustainable consumption is caused in part by our choices as consumers. These choices have a significant environmental impact that is separate from those aspects that consumers cannot directly influence (i.e., effects created by economic and technological structures). Sustainable consumption focuses on influencing consumer choices, not these locked-in techno-economic structures.

**(Muster, 2012)** said that, Working life can have negative influences on sustainable consumption. In order to promote environmentally and socially friendly consumption patterns and a sustainable society, these negative influences need to be identified and prevented. Research on sustainable consumption has considered different positive and negative influences of working life on sustainable consumption. However, with regard to work-life research and its gained insights into the work-life relationship, it can be assumed that significant work interferences that restrain sustainable consumption have been ignored so far.

**Saju Eapen Thomas & P R Wilson (2012)**, were of the view that Economic liberalization and rapid spread of globalization have led to the spread of such high consumerist cultures among Indian consumers. So this leads to increase number of Indian consumers who are taking high-cost personal loans to fund their acquisition of status items specially student's buying habits of mobile phones, laptops and two-wheelers. The purchase of such products is more out of non-utilitarian needs triggered by the social pressure factors such as social comparisons and peer pressure.

**Peter Doran (2012)**, suggests that if we underestimate the way in which our immersion in the 'social logic' of capitalist consumption constrains our attempts to understand and respond to the ecological crises at both a personal and political level – and that both dimensions of our response are bound together.

**John Thoegersen & Caroline Noblet (2012)**, suggest that action-based learning approach is necessary for promoting pro-environmental actions, such as support for or acceptance of environmental policy. Such an approach involves promoting simple and easy behaviours as entry points for more radical steps towards sustainability, referred to as "catalytic" or "wedge" behaviours. They found that both everyday "green" behaviour and the acceptance of an expansion of wind power are rooted in environmental concern and that everyday "green" behaviour gives a significant contribution to predicting acceptance of wind power when controlling for environmental concern.

**Peter Doran (2011)**, 'views that contemporary mindfulness practices and associated teachings in advancing understanding towards consumerism leads in promoting sustainable consumption, for lifestyle change.

**Divesh Kumar and et. al. (2011)**, argued that exponential growth of industries and globalization has lead to the growth of multinationals those are main reason of environmental damage in different ways. Consumption of resources in ethical manner is becoming important for consumers as well as corporate across the world. Therefore a responsible behavior is required from all stakeholders to protect the environment. This paper aims to study the challenges of sustainable consumption in India. An integrated approach with participation of various stakeholders is essential to adopt the sustainable consumption practices. Consumer lifestyles appear to be the

most powerful factor that has shaped unsustainable consumption in the current periods. Consumer lifestyle can be improved by reduction in overall consumption and waste generation; and secondly consumption of goods which have lower environmental impact i.e. green goods.

**(Bilharz & Schmitt, 2011)** Sustainable consumption becomes increasingly important for solving sustainability problems: it can empower people to a conscious lifestyle and can pave the way for a sustainability-orientated policy making. But it is not sufficient to consume ecologically friendly products while neglecting those measures with a high environmental impact. To concentrate on so-called key points could therefore be a promising strategy for sustainability communication - but it cannot replace fundamental changes in our political frameworks.

**(Petry, et al., 2011)** Sustainable consumption does not mean to consume less, though for many countries this is the case, but consuming differently. Reaching a sustainable level of consumption globally would mean to reduce the consumption of industrialized countries and increase the consumption of the developing world. Education for sustainable development (ESD) is relevant for all actors in society that are parts of different stages of production and consumption, as well as associated regulatory, financial, knowledge, and support services. Educational approaches will vary depending on the context and the position of the SCP stakeholder.

**Lorek, S., Fuchs, D. (2011)**, argues that research and governance: sustainable consumption and degrowth is due to a predominance of perspectives in sustainable consumption governance that focus almost exclusively on questions of efficiency gains. This “weak sustainable consumption” governance, however, is not able to address the challenges to sustainable development arising from overconsumption in general or the rebound effect and distributive issues in particular. In contrast, a “strong sustainable consumption” perspective provides a basis for a promising inquiry into the linkages between consumption and sustainable development as well as a fruitful exchange with de growth. Specifically, it allows the delineation of relevant insights on the role of values in governance, obstacles to political reform, and promising political strategies for the degrowth debate and literature.

**Dean’s (2010)**, views that conceptualization of a regime of practices with its four

dimensions (rationalities, technologies, visibilities, and identities), they apply qualitative research methods to analyse policy makers', catering professionals', and consumers' views on the introduction of sustainable public catering in Finland. The authors emphasize that, in order to realize a supply structure that promotes sustainable consumption, more attention need to be paid to the role of practitioners and their interpretation of sustainable practices.

**Necati Aydin (2010)**, attempts to show that sustainable consumption depends on individual's pursuit of subjective wellbeing or happiness. Under the influence of global consumer culture, people believe of subjective wellbeing or happiness. Under the influence of global consumer culture, people believe expected pleasure. Paradoxically, with more and more consumption, people are achieving same or less happiness. This paper is an attempt to examine the relationship between current conspicuous consumption and the hedonic happiness model promoted by the global consumer culture.

**Michael Thompson and et. al. (2010)**, were of the view that increase in health care costs and the backlash to managed care was the lack of consumer awareness of the cost of health care service, the effect of health care costs on profits and wages, and the need to engage consumers more actively in health care decisions. Which led to birth of Health Care Consumerism Movement. consumers who have limited knowledge and cost are major barriers in health care consumerism.

**(Peattie & Collins, 2009)** Sustainable consumption is a problematic issue and field of scholarship in several ways. It is viewed by some as an oxymoron, because the dictionaries tell us that to '*consume*' something is to use it up or to destroy it, which is the complete opposite to '*sustaining*' something. It also requires a different perspective on '*consumption*' to that taken in most conventional academic thinking, particularly in disciplines such as marketing or economics. Conventionally, when consumption is discussed, it is usually in the context of purchasing (although within research it is often from the perspective of purchase intention, which is not the same thing).

Lucy Yates of the National Consumer Council (NCC) **(Yates, 2008)** states, Consumers are often 'locked-in to unsustainable consumption patterns. This 'lock-in

occurs, in part, through perverse incentive structures - economic constraints, institutional barriers or inequalities in access to services that actively encourage unsustainable behaviours. For example, people say that poor facilities often make sustainable consumption an unattractive option. In many areas, if recycling isn't collected regularly people find their glass bottles smashed up at the end of the street. Because they don't feel confident in the collection service, they are put off from putting out their recycling. In addition, having to travel to the recycling facilities makes it more likely for a household to take the easy option and use the bin instead. It is not surprising therefore that people don't make the most sustainable choices. It also flows from social expectations and cultural norms.

While the recent awareness of the extent of the environmental degradation caused by humans was ushered in by rhetoric championing radical lifestyle changes to address the problem, over time the discourse on sustainable consumption has slowly shifted to promote merely the consumption of "eco-friendly" consumer products, a practice firmly embedded within the status quo of market-based capitalism.

**William Young and et. al. (2008)**, investigates the purchasing process for green products by consumers in relation to consumer technology products in the UK. Data was collected from 81 self declared green consumers through in depth interviews. The paper concludes that incentives and single issue labels (like the current energy rating label) would help consumers concentrate their limited efforts. The results shows that the most common green criteria for deciding consumer electronics products are-

- Product environmental performance (energy efficiency, durability, water consumption, LPG conversion, fuel type, fuel consumption and energy ratings);
- Product manufacturing (recycled material content, chemical content, and repairability); and,
- Second hand availability.

**(Mont & Bleischwitz, 2007)** Said that, Approaches to address unsustainable ways of societal development constantly proliferate, but total consumption of resources and aggregate environmental impacts continue rising. Sustainable consumption in households can be divided into supply-oriented strategies for engaging individual consumers in consuming more environmentally sound products and services and demand oriented collective actions of people or entire communities devising their own ways of using and consuming products and services that reduce rebound effects haunt many supply-oriented strategies.

**Leena Haanpaa (2007)**, The constant presence of environmental issues related to consumption and the changes consumer society has faced during the 20th century are presumed to reflect on present consumer behaviour. There exists connection between lifestyle and green commitment. Lifestyle is measured by consumption styles and green commitment by certain environment-related consumption choices.

**(Vermeir & Verbeke, 2006)** investigated the presumed gap between favorable attitude towards sustainable behavior and behavioral 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 is analyzed. This study shows that more sustainable and ethical food consumption can be stimulated through raising involvement, PCE, certainty, social norms, and perceived availability.

**(Cohen, 2005)** Sustainable consumption has emerged as an issue of growing international prominence. Policy initiatives to facilitate more environmentally and socially preferable household provisioning have typically emphasized materials and energy efficiency. While this approach holds the prospect for some notable short-term gains, experience suggests that longer-term improvements are likely to fall short of expectations and trigger unanticipated rebound effects. Effective policy programs need to acknowledge the social and financial dimensions of consumer decision making and become more attentive to the role of households as catalysts of production.

**(Fuchs & Lorek, 2005)** In terms of improvements in the efficiency of consumption, the settings have induced efforts to this effect and show potential for further progress. In terms of necessary changes in consumption levels and patterns, however, little progress has been made since the Rio Summit nor is there likely to be any in the near future. These two dimensions of sustainable consumption need to be differentiated, as there is a substantial amount of controversy regarding our ability to achieve sustainable consumption on the basis of improvements in efficiency alone.

**(Schaefer & Crane, 2005)** have contrasted the prevailing view of consumption as rational information processing and choice, which has dominated most conceptualizations of green consumption and green marketing, with social and cultural views of consumption, which are prevalent in sociology and anthropology but have so far made little impact on sustainability thinking.

**(Burgess, 2003)** The huge increase in the consumption of natural resources threatens irreparable damage to the world's ecosystems. Governments recognize the need to tackle unsustainable consumption, but effective policies remain scarce. High-profile media campaigns and technological innovation are necessary, but insufficient to alter behaviour substantially. Instead, more involved processes that engage different social groups to improve consumption patterns should be encouraged, properly resourced and legislatively supported.

It is now almost universally acknowledged that inappropriate domestic consumption patterns impact directly on the environment. However, identifying and changing inappropriate consumption is no simple task. Though governments have internationally recognized the imperative to make consumption sustainable, effective policies have yet to materialize.

Indeed, over the past ten years, the government has put millions of pounds into initiatives designed to raise environmental awareness, such as Are you doing your bit?, Going for Green, and Homes Behaving Badly. The sentiment is welcome, but from the evidence that Global Action Plan has seen, this high-profile, top-down media campaigns have achieved minimal changes in actual consumption behaviour. In order to achieve long-lasting and significant change, a more involved and small-

scale process is required. The four key factors detailed above must all play a pivotal role in any programme designed to bring about behavioural change.

Such initiatives will not hit the media headlines or generate high-profile advertisements, but they will sow the seeds of a shift in values and culture that will lead to a path of more sustainable consumption in the future.

Global Action Plan will continue to work to change individuals' consumption patterns. Sustainable consumption is achievable; it is now time to translate the political will into meaningful change.

**(Overby, 2002)** states that the world is now in the midst of the phenomenon known generally as globalization. The article explores the challenges to current American contract law, particularly its approaches to consumer fairness issues, from a facet of globalization that might be called "The Age of Sustainable Consumption." The increasing internationalization and interdependence of countries and regions of the world associated with globalization have resulted in numerous initiatives at the international level that address consumer protection, commercial issues, sustainable development, and sustainable consumption.

**Dolan, P. (2002),** examines the limitations of the concept of sustainable consumption in terms of the inadequate attention given to the social, cultural and historical contextualization of consumption. Acts of consumption are not in opposition to, and prior to, macro structures and processes, they are macro processes at work. Consumer practices are cultural and social practices that have historically developed, and are manifestations of both local and global linkages of social interdependencies. The cause of the ecological problem effectively decontextualizes consumption from such interdependencies.

Focusing on the problem, **(Cohen & Murphy, 2001)** said that, "Exploring Sustainable Consumption" is particularly valuable—in identifying many aspects of social and individual behavior that we must consider in planning sustainable consumption approaches. We ignore these aspects to our peril.

**(Myers, 2000)** said that, A first step toward sustainable consumption is to recognize that consumption patterns will inevitably change in the future, if only by force of environmental circumstance - notably global warming, among a host of environmental problems. As that future arrives, we must ensure that there is an increase in consumption by the three billion people with incomes of less than \$3 per day. At the same time, the 800 million people in developing and transition countries who earn enough to move into the high-consuming classes should be able to enjoy the fruits of their newfound affluence.

**Kara Chan (2000)**, study examines Hong Kong consumers' intention to buy environmentally friendly products. A quota sample, in which 704 shoppers across several different districts were interviewed, was conducted. Regression analyses showed that both self-identity and past behavior had significant and independent effect on prediction of green purchase intention. Intention to buy green products become based relatively more on a consumer's self-identity as a green person and relatively less on attitude toward green products and the social pressure related to green buying. Marketers should establish a clear image of environmentally conscious consumers and encourage product trials as a major promotional strategy.

**(Wilhite & Lutzenhiser, 1999)** There is a growing recognition in international policy organizations (e. g., OECD, UN, Commission for Sustainable Development), and in some national research programs (e.g., U. S., Norway, Denmark, Netherlands) that the patterns and levels of Western style consumption are not environmentally sustainable. There are also a number of nascent efforts to encourage sustainable consumption as well as to understand how changes towards sustainability might be undertaken.

**(Myers, 1997)** Present consumption or rather, excessive and wasteful consumption by rich communities cannot be sustained, if only for environmental reasons. This is exemplified by carbon emissions, and hence global warming, which stem from the fossil-fuel energy underpinning our economies. The artificially cheap price of fossil fuels encourages profligate use.

**(Vince & Panayotou, 1997)** In economics, "consumption" spans the full range of goods and services that contribute to human well-being. It includes not only items

produced by households or purchased in markets, but also amenities and a variety of nonuse values, many pertaining to the environment. "Private consumption" as conventionally defined in national income accounts is a narrower measure, which encompasses only marketed (priced) goods and services. It measures material standard of living. If increases in material standard of living are indeed associated with increased environmental degradation, then observed increases in private consumption overstate increases in true, economic consumption.

**Majda Tafra-Vlahovic**, was of the view that growth of sustainable business and corporate responsibility, sustainable consumerism has doubled or tripled in some developed European countries and in United States. The role of public relations function, particularly in consumer goods companies, in the development of sustainable consumerism. There is a direct relationship between corporate communication or public relations management function and sustainable practices.

**Parul Gupta & G.S. Popli**, confirms that younger car consumers are not only aware of the environmental burden on a passenger car but also show consistency in the attitude – behavior relationship related to Green cars and driving practices. Since maximum environmental burden on a passenger car is during the usage stage of its life cycle, manufacturers alone cannot reduce this burden. The contribution of passenger car consumers is more important. Car manufacturers must notice the positive shift in the consumer attitude towards Green cars and vehicular pollution. Thus passenger car manufacturers and consumers together can eliminate environmental stress.

#### **Examples of Sustainable Consumption Practices Globally :**

- There is a terrace farm in the mall of Sao Paulo (Brazil) where organic vegetables are grown so that customers can get pesticides free pure food. The fertilizers for this organic farm is generated by remaining food of food courts and hotels. According to a government report some farmers are using 30 % more pesticides than standard. This is the reason behind organic farming.
- The BBC documentary “Blue Planet- second” by David Attenborough (London) is generating awareness about hazardous effect of plastic in

environment. After watching this documentary so many people are now buying milk in glass bottles instead of plastic bottles. This impact was so drastic that a company “Milk & More” (which sells milk in glass bottles) is now adding 25% more customers to the list.

- There is a supermarket in Birmingham (Europe) that is declared completely plastic free. They use jute and paper bags instead of plastic. Glass bottles are used for selling vegetables and milk. Once inside the minimalist wooden interior of the store, much of it dusted off and re-purposed, they unfurled ‘bring your own’ bags or picked up The Clean Kilo’s own re-useables and nosed around organic haricot beans, yacon sweetened cacao nibs, eco-leaf soap liquid and coffee bean varieties. The first-day shoppers abandoned the usual lingering scrutiny of the supermarket aisles as we poured out generous amounts of the products without a whale-killing plastic bag in sight. The store has a bit of indie coffee-shop feel, with a few seats for good measure.
- There is an eco friendly humidifier heater and essential oil diffuser which runs by candles. Egloo utilizes the heat retaining properties of terracotta and high quality, smoke free candles to provide clean burning, energy saving heat sources that elevate the atmosphere of any space, smell and humidifier the home.
- Netherlands is far ahead in the direction of environment protection. There is a very less pollution and people are also very much aware of it. The “Recycled Island Foundation” (Rotterdam, Netherlands) is recycling plastic of Maas River. They have created a floating park with 28 blocks by these plastic and other unuseful stuff.“ This is a little effort. Although it took one and half year but there is a satisfaction that the river is clean now. People must be aware of environment protection and ponds, rivers ocean should be free from plastic pollutants. Because the whole ecosystem is dependent on it” said the foundation.
- World’s first driver less taxi has been started in Tokyo. The robot maker ZMP & taxi operating company of Japan has started this driverless mini vans. Online registration has also been started for rides. A smart phone app must be used for its ride and payment. The ride from this autonomous taxis

will be started by 2020. ZMP, a developer of autonomous driving technology, and the taxi company Hinomaru Kotsu, claim that the road tests, which have begun, are the first in the world to involve driverless taxis and fare-paying passengers. The trial took place as Toyota and the transport giant Uber said they were intensifying efforts to develop a self-driving vehicle, pitting themselves against rival initiatives in Japan, the US and Europe. Toyota will invest \$500m in the venture, which will develop vehicles based on the carmakers' Sienna minivans, with a view to start testing in 2021,

- The “magic stadium” which is constructed by a Chinese company for Qatar world cup, is a green, detachable, recyclable stadium. This is the first green stadium in the history of FIFA world cup. The name of this stadium is “Ras Abu Aboud”. This stadium is going to be completed by 2019. It can be used for refugee camps also afterwards.

#### **Examples of Sustainable Consumption Practices in India:**

The researcher has collected examples of sustainable consumption practices.

They are given below in detail:

- **NTPC** has put in place well-defined activities for Environment protection, measures for Green Power Generation, initiatives to generate Renewable Energy such as Solar and Wind Energy. The idea is to preserve the flora and fauna for the well-being of society.
  - Installed capacity of more than 47,000 MW
  - 128000 MW plus company by year 2032
  - Operating 44 Power Stations
  - 18 Coal-based, 1 Hydro-based & 9 joint-Ventures/Subsidiaries
  - 7 Combined Cycle Gas/Liquid Fuel-based Stations
  - 9 Solar Power Ventures
- **Max India Foundation** is working towards a Sustainable and Eco Friendly environment, creating health awareness, providing quality healthcare for the economically weaker section of society. It has adopted a Village in

Uttarakhand on health, sanitation and waste management. It claims of touching 25,76,986 lives, through 408 NGO partners covering 699 locations across India.

- Training practices are regularly conducted for hazardous waste management: that is a need for recovery, recycle, and reuse. Hazardous waste has the intrinsic ability of causing irreversible harm to human health and the environment. Anil Agrawal Environment Training Institute (**AAETI**), Nimli, Rajasthan recognizes this requirement and offers a four day extensive training program on hazardous waste management.
- **Indian Oil**, India's flagship national oil company is straddling the hydrocarbon value chain to ensure energy security, access and countrywide delivery. With a green conscience, Indian Oil is championing the cause of nature too, by diversifying its business portfolio with forays into renewable energy, to alleviate energy poverty and improve energy access to people at the 'bottom of the pyramid'. While striving to optimize use of key resources like energy and water in its operations, Indian Oil has imbibed the '3R' (Reduce, Recycle and Reuse) philosophy for waste management, with a green conscience is championing the cause of nature too. Bio-Fuels, Wind-power projects, Green Belts, Waste management System, Off-grid solar PV projects are its steps towards becoming green Champion.
- **Mahindra Rise** committed to sustainability has become the first Indian Partner o EP100- a new global campaign to promote energy productivity. It claims that, Under EP100, it has made a significant commitment to doubling the energy productivity by 2030 on a baseline of 2005, and hope to make a strong contribution towards achieving the climate goals agreed upon at COP21- Paris Climate Agreement.
- **Himalaya** has planted more than 7 Lakh trees in the Western Ghats of Maharashtra.
- **Himalaya** engages employees in CSR Activities, like volunteering at NGO's, partnering with NGO's to sell sustainable products in campus, and encouraging employees to purchase them, celebrating global days for the

environment like, World Earth Day, World Environment Day, Nature Conservation day, encouraging employees to take pledges to be socially and environmentally conscious.

- **Himalaya** is supporting The Akshaya Patra Foundation to address issues related to malnutrition. Through the mid-day meal scheme, school children are provided a healthy, well-balanced, and nutritious lunch. It has sponsored two vehicles for distribution of food currently catering to 5000 students in 30 schools in Bangalore.
- **Airport Authority of India's (AAI) Green Drive Energy Conservation initiatives include:**
  - Ground mounted solarisation to maximize non-conservational energy at all airports.
  - LED lighting installation of variable frequency drives for air-conditioning equipment, provision of energy efficient pump, motors, air-conditioners and other similar measures.
  - Commissioned rooftop solar power plants at 16 airports, with similar work underway at 11 other airports.
  - Water conservation methods include treating waste water for horticulture, fire fighting and air-conditioning practices.

AAI has been conferred with the National Excellence Awards 2016 by Ministry of New & renewable energy, Government of India.

- In an article (**Henam & Sambyal, 2017**) threw light on The Kerala Government's model that minimizes the creation of waste. The said that, it was first practiced at an international workshop on zero waste in Kovalam in 2000. Called the Green Protocol, the new age waste management system has today been replicated and implemented all across Kerala and has now become a movement. Many institutions have adopted this initiative, including the state legislative assembly complex in Thiruvananthapuram. In an era of disposable culture dictating our waste management paradigm, the Green Protocol has not

only proved that it is an environmentally sustainable model, but it is also an economical prudent one.

- **Rajasthan State Towards Sustainable Environment**

Rajasthan State pollution Control Board is stepping towards Sustainable Environment, it has installed real time ambient air quality monitoring stations at various cities. A mobile application “Rajvayu” enables all citizens to view real time quality. The state is also heading towards Zero Liquid Discharges status by installing RO plants and recycling treated waste water in all major textile clusters. A skill development centre “Centre for Excellence” has been established for developing skill force in effluent treatment and operation of pollution control equipments.

- **Junk Masters**

Start-ups tap into novel techniques to not just collect garbage and process it in an environment-friendly manner, but also convert it into something of value. Young Entrepreneurs in the country are now tapping into this void through a range of innovative solutions, and are converting waste into valuable resources, that too in eco-friendly ways. Green Nerds Solutions Pvt Ltd is one such bootstrap start-up, which evolved from an idea of decentralized waste management, it developed an automatic garbage machine that segregates waste collected from the civic body and residential apartments into organic and recyclable constituents. While the bio-degradable waste is converted into compost, the non-bio-degradable waste is compressed and supplied to recycle industries.

- Vermigold Ecotech Pvt Ltd. Is another such Karnataka-based company, which not only collects and process waste but also converts it into a valuable resource. It collects waste from housing colonies, hotels and industrial canteens, uses earthworms to decompose the biodegradable waste and convert it into organic fertilizer.
- In Mumbai Upcycle Co is a start-up with same aim of processing waste, but with a different product in mind. It uses discarded CDs and vinyl records to create wall stickers and key chains.

Junkart a young Delhi based start-up attempts to address the problem by strengthening the traditional method of scrap collection. It has developed a mobile phone application, using which people can directly get in touch with scrap collectors. It has also successfully connected over 300 scrap vendors in Delhi to scrap producers.

- **Ambuja** offers specialized cement for making roofs, the cement provides superior strength, it has invented unique curing system which utilized special sheets to replace conventional curing with water. This simple innovation saved 10000 litres of water with each roof. By integrating a rainwater harvesting system at the time of construction, home owners gained a self-sufficient system that provided clean drinking water for an entire year. With over four lakh tons of roof cement being sold so far this year, saving over 35 million litres of water, Ambuja cement Ltd go beyond the norm with “I Can” spirit.
- **Toyota Motor Corporation (TMC)** is gearing up to take Global Environment Challenge 2050 for a sustainable tomorrow. TMC has announced ‘Global Challenge 2050’ in 2015. The Global Challenge 2050 embodies Toyota’s vision of a greener tomorrow with six challenges in-line with UN-2015 Sustainable Development Goals (SDGs), which made Toyota the only company to challenge a ‘Net Positive Impact’ on Society & Environment, apart from ‘Zero Co2 Emissions’ challenge. The six challenges taken up by TMC are:
  1. New Vehicle Zero Co2 Emissions
  2. Life Cycle Zero Co2 emissions
  3. Plant Zero Co2 Emissions
  4. Minimizing & Optimizing Water usage
  5. Establishing a Recycling-based Society & systems.
  6. Establishing a future Society in Harmony with Nature
- **Tata Motors** are running Sustainability Programme, striving for sustainable change. Tata Motors is working to support livelihood generation and environment protection, to create education and health infrastructure. From providing Classroom facilities with infrastructure support, to training teachers, from Gram Vikas Kendra Society of Tata Motors to its Grihini Social welfare Society, from tree plantation drive to finding job opportunities

for people, Tata Motors is continuously approaching its goal to be a committed corporate citizen.

- **Aditya Birla Group** is big in making difference, working beyond Business. It has setup 4500 Women Empowerment Groups, over a million patients have been treated at 5000 medical camps and 20 hospitals. It has taken an initiative to provide vaccination to over 90 million children immunized against polio over the last 6 years. Working towards sustainable livelihood, it has installed 1000 biogas plants, helped farmers plant more than a million saplings, including fruit-bearing trees, in their villages. With a step towards education, it has educated over 45,000 children in its 48 schools.
- **(Singh, 2017)** threw light on dumped plastic waste in marine bodies, which is an alarming threat to water species, she said that, New Research reveals animals and marine species consume plastic debris because it smells and looks like a delicious meal. Plastic Debris has been always acknowledged as a serious threat to seabird populations. The problem of plastic ingestion isn't limited to seabirds. Animals such as turtles and porpoises are also known to be deceived similarly by the visual appearance of the debris.

Six young friends from Faridabad have started a new mission. These people collect plastic bottles from tourist places and after recycling they are making t-shirts of it and gifting to other people. So they are creating an awareness for environment pollution. This mission was started before 3 months and about 6 lac bottles have been recycled till now.

This idea was first came into the mind of Bhavya Chawala (Faridabad) and his team (Anil Sharma, Shreyasi Madan, Dr. Vaani Dutta). These people have tied up with some companies for recycling of plastic bottles.

- **The first hydrogen fuel** based bus, was tested in R&D centre of Indian Oil Corporation. The water is released by this technique. (Faridabad). TATA Motors in association with Indian Oil Corporation has flagged off the trials of India's first ever Hydrogen Fuel Cell powered Bus. Indian Oil R&D is celebrating its 47th foundation day, marked by the beginning of the hydrogen fuel cell bus' testing in real world. The said project has partial financial

support from Department of Science & Industrial Research, Ministry for Science & Technology and the Ministry for New and Renewable Energy. Another landmark for the hydrogen fuel cell tech is the fact that the bus was fuelled at the country's first hydrogen dispensing facility at R&D Centre of Indian Oil. The two companies, Tata Motors and IndianOil will be carrying out prolonged testing of the hydrogen fuel cell bus to understand the efficiency and durability of the new and clean mobility solution in the long run in a better way.

There is a scheme of government which is emphasizing green energy vehicles. Under this scheme green number plate is given to the cars and bikes which run by batteries and green energy. These types of vehicles will be free from toll charges and road taxes and it will be facilitated by special parking services. The vehicles which use bio fuel is also included in it.

This information was given by Sohindar Singh (Director) Society of Manufacturers of Electric Vehicles. Prime Minister Narendra Modi's government wants all new cars on India's roads to be electric by 2030 to combat smog that routinely eclipses dangerous levels in the nation of 1.25 billion.

Some auto giants at the motor show in New Delhi have expressed reservations about the aggressive roll out when so little of India is equipped to charge electric cars and most drivers cannot afford the hefty price tags.

But few are willing to risk a golden opportunity in the world's fifth-largest car market, where owning a four-wheeler is a status symbol.

"We are a strong believer in electric, and with a leap of faith, we started investing even before the government announcement," said Mahesh Babu, CEO of Mahindra Electric, currently the only company producing electric vehicles in India.

- The municipality of Udaipur has started a “mobile library” under the scheme of “Happiness Index” project at Fateh Sagar. There are almost 500 books of motivation, Sociology, History, Hindi, Literature, stories, magazines etc. There will be no charge for reading of books.

The other project has been also started under the Happiness project e.g. “cloth bank”.

- Sikkim has been declared an “organic state”.

Because of organic farming the tourism of Sikkim is increased double from the last 4 years., Mr. Khorlo Bhutia the secretary of farming, gardening & cash crop development department has said that this miracle has happened due to the organic farming. The representatives of Nepal, Bhutan and states of India also have visited this types of farms in Sikkim. Chemical fertilizers and pesticides are strictly prohibited. There is a farmer’s market in the capital Gangtok where farmers are coming directly among customers with organic vegetables.

Sikkim was awarded the cleanest state in India by the National Sample Survey Office (NSSO) in September. The result was announced by Union Rural Development Minister Narendra Singh Tomar based on a survey for the year 2015.

All four districts of the state figured among top 10 ranked districts of hill states of the country. Simultaneously, in October, Sikkim was also adjudged the cleanest tourist destination in the country by the Ministry of Tourism.

- From 1<sup>st</sup> April 2020 only BS - 6 (Bharat standard) vehicles will be available in India. Due to rapid increase in pollution this step has been taken. According to Petroleum and Natural Gas department BS -6 fuel will diminish the pollution.

### **What is Bharat Stage VI**

Bharat Stage VI (BS VI) is an emission standard that will bring much-needed changes in the Indian automobile industry in terms of pollutant emissions. With this emission norm coming into effect, India will come at par with the US, European countries and other advanced automotive markets across the globe.

India is currently following BS IV norms that were adopted this year across the country.

Bharat Stage VI norms includes a wide list of technology modifications under the hood, the most significant being making OBD (On-board diagnostics) mandatory for all vehicles.

### Why India Felt the Need to Leapfrog from BS IV to BS VI

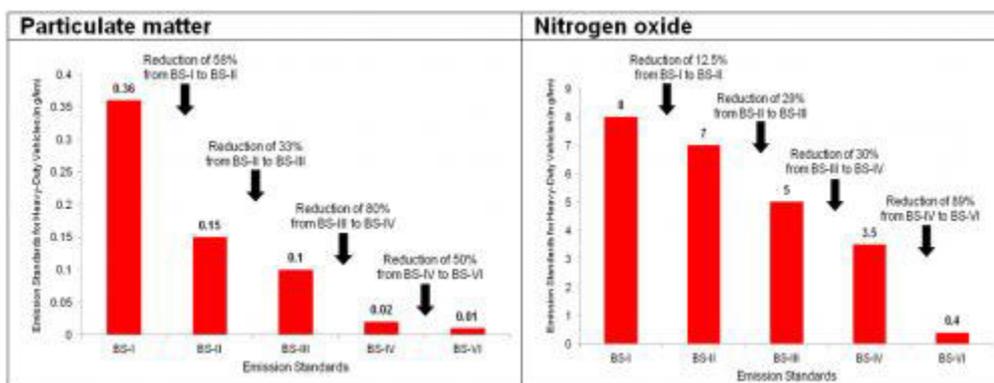
India is a country with 10 most populated cities of the world and this is one distinction we should not be proud of.

Vehicular emission is a major contributor to the worsening air quality of Indian cities. Emission of NOx, SO<sub>2</sub>, CO<sub>2</sub> and particulate matter is taking a toll on people’s health. In cities like Delhi, the PM<sub>2.5</sub> level is more than 6 times the prescribed levels by WHO.

In October 2016, India signed the Conference of Protocol also known as the Paris Climate Agreement. Being a signatory to the agreement, India is obligated to bring down the carbon footprint by 33-55% from the levels recorded in 2005 in the **next 12 years**.

This warranted the need for a stricter norm that could reduce the emissions considerably and put India on track to meet the Paris agreement goals.

Ideally, BS V would have been rolled out by 2021 and BS VI in 2024 but leapfrog to Bharat Stage VI norms by 2020 had to be planned because of the carbon footprint obligations.



**Source:** CSE computation based on data provided by transportpolicy.net)

## **Advantages of BS VI over BS IV**

BS VI is in lines with Euro VI norm already adopted in European countries. In fact, this new emission norm will also address one major drawback in the Euro VI norm that allows emission of higher PM (particulate matter) in diesel engines.

### **Enlisted here are some major benefits of Bharat Stage VI norms**

- NOx emission will come down by approximately 25% for the petrol engine and 68% for the diesel engines.
- The PM emission will see a substantial decrease of 80% in diesel engines.
- OBD will become mandatory for every vehicle and it will help monitor the pollution caused by the vehicle in real time.
- RDE (Real Driving Emission) will be introduced for the first time that will measure the emission in real-world conditions and not just under test conditions.
- Bharat Stage VI norms will also change the way particulate matter is measured. It will now be measured by number standard instead of mass standard thereby, regulating the fine particulate matter as well.

The reason behind making OBD mandatory is to make sure that the emission control component work at its optimum efficiency at all times. OBD port will help to detect the malfunction with the help of the error codes sent by the malfunctioning component.

- Kejriwal government has ordered to all the schools of Delhi, that students should stop covering their books and copies from plastic. After banning plastic bags by the order of supreme court, Kejriwal government has taken this step.

In a move to curtail the use of plastic in the national capital, the Arvind Kejriwal government on Wednesday asked all the schools in the city to restrict students from using it. The AAP government directed the schools to put a limit on the students from using plastic covers on their books and notebooks.

In its order to the Principals of the schools, the Directorate of Education said, “All principals are directed to ensure that students in their respective schools do not use any kind of plastic cover or film for their books or notebooks. This is of immediate importance in view of the upcoming new academic session when students purchase new books and notebooks for their new class.”

The move comes after environment department of the Delhi government asked the Directorate of Education to issue a directive to schools.

- The “Mahanagar Palika” of Surat has started a hi - tech underground dustbin made by stainless steel. Because these dustbins are made up of stain less steel it can not be destroyed easily and smell is also not dispersed in the air.

As part of the Smart City Mission, the Surat Municipal Corporation (SMC) had proposed installation of 75 underground garbage bins across the city last year of which 43 have been installed in public areas. A total of Rs 456 crore were spent by the SMC to install the bins. All the bins are equipped with two compartments – one for the general public to discard their litter and the other one for municipal workers who collect waste from that area. To ensure efficient waste segregation, the bins are further divided into dry and wet waste. The size of the underground dustbin is 3 cubic meters and each bin can hold up to 1.5 tonnes of garbage.

- New India Movement (2017-2022) Sankalp Se siddhi “ My vision for India’s energy future has 4 pillars – energy access, energy efficiency, energy sustainability and energy security” –Narendra Modi
- Waste management to skill development for employment of people : in Delhi 7.2 Ton hazardous industrial waste, 4 lac ton electronic waste, 48 ton municipality waste is generated every day and there is no proper solution for this waste management. Recycling of waste is a global challenge but Thailand, Netherlands has successfully recycled 22% and 64% waste, respectively. In India, government has started a skill development program for waste management so that the unemployment of young generation can be reduced.
  - Amit Kumar Pathak
  - Dr. Ram Manohar Lohiya Awadh University (Faizabad)

- “ Soap for Hope”

Some of the hotels which are listed in Fortune 500, have taken a new step e.g. recycling of soaps. These new soaps are given to poor people. By the process of “sealed air corporation” food packaging & food safety, they have collected 4260 ton of soaps. Taj group, Radisson, IT, IHG group, lalit’s are contributing in recycling of soaps.

Soap is recovered from Diversey hotel customers which are Soap for Hope program partners, and then transported to a local site where residents reprocess it using an innovative but simple cold-press method. The cold-press method includes the use of a 120 gram Diversey soap press, or a 500 gram soap press made by The Full Belly project, to form the new soap. The new soap is then transported to communities in need and distributed, thereby eliminating waste, improving hygiene and creating new jobs.

One of the key aspects of their program is community involvement. All projects are run directly by local nonprofits and employ underprivileged community members to do the work, giving livelihood opportunities to those who wouldn’t otherwise have the chance.

- The people who are health aware are now attracted to organic clothes. These natural fibers are more comfortable than synthetic fibers.

Why you should choose organic clothes:

- a) Organic fibers create less pollution and more healthier for human skin. Along with that there is no use of chemicals or dyes.
- b) Organic clothes create no irritation or allergy. For the sensitive skin of kids, organic clothes are better option.
- c) These fibers are cheaper than synthetic fibers.
- d) These clothes are stylish, trendy and different. Organic fashion designers work differently from normal designers.
- e) Selection of organic clothes is safe for earth and environment.
- f) The land gets nutritional elements from organic farming along with that it does not create any pollution in ground water.

- g) Though leather made things look beautiful but it take lives of so any animals. Animals are important part of our ecosystem so we should keep in mind while doing shopping.
- Asmita Agrawal
    - Hyundai started “water saving” campaign on 5<sup>th</sup> June 2017. It was of 45 days. The company saved 120 liters water per car by using technique of dry wash. The company promised to donate the equivalent amount of water to dry areas.

**Conclusion :**

This chapter gives the research finding related to sustainable consumption practices carried out globally and nationally.

## ***References:***

- Aditya Birla Group Advertisement, (2017,1-15 June),Down to Earth
- Airport Authority of India Advertisement, (2016,1-15 December),Down to Earth
- Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production*, 13-23.
- Ambuja Cement Advertisement, (2017,16-31 March), Down to Earth
- Anil Agarwal Environment Training Institute (AAETI) Advertisement, (2018,16-30 November), Down to Earth
- Annunziata, A., Mariani, A., & Vecchio, R. (2018). Effectiveness of sustainability labels in guiding food choices: Analysis of visibility and understanding among young adults. *Sustainable Production and Consumption*, 108-115.
- Azzurra, A., Massimiliano, A., & Angela, M. (2018). Measuring sustainable food consumption: A case study on organic food. *Sustainable Production and Consumption*, 95-107.
- Bari, A. (2017). Our Oceans and the Blue Economy: Opportunities and Challenges. *Procedia Engineering*, 5-11.
- Bilharz, M., & Schmitt, K. (2011). Going Big with Big Matters: The Key Points Approach to Sustainable Consumption/Going Big with Big. *Gaia*, 232-235.
- Brough, A. R., Wilkie, J. E., MA, J., Isaac, M. S., & Gal, D. (2016). Is Eco-Friendly Unmanly? The Green-Feminine Stereotype and Its Effect on Sustainable Consumption. *Journal of Consumer Research*, 43, 567-582.
- Burgess, J. (2003). Sustainable consumption: Is it really achievable? *Consumer Policy Review*, 78-84.
- Channa, S. M., & Porter, M. (2015). *Gender, Livelihood and Environment*. New Delhi: Orient BlackSwan Private Limited.

- Clegg, B. (2011). *Financial Times Briefing on Sustainable Business*. Great Britain: Pearson Education Ltd.
- Cohen, B., & Munoz, P. (2015). Sharing Cities and Sustainable Consumption and Production : Towards an Integrated Framework. *Journal of Cleaner Production*, 1-11.
- Cohen, M. J. (2005). Consumer credit, household financial management, and sustainable consumption. *International Journal of Consumer Studies*, 57-65.
- Cohen, M., & Murphy, J. (2001). *Exploring Sustainable Consumption: Environmental Policy and the Social Sciences*. Amsterdam: Elsevier Science.
- Cummins, N. P. (2011). *What Does it Mean to be 'Green'?* England: Vitae Publications.
- Curnock, D. (2008). *The little book of Green Tips, A practical guide to a Green lifestyle*. UK: Green Umbrella Publishing.
- Dauvergne, P., & Lister, J. (2010). The Prospects and Limits of Eco-Consumerism: Shopping Our Way to Less Deforestation? *Organization & Environment*, 132–154.
- Dean, M. (2010), *Governmentality—Power and rule in modern society* (2nd ed.). London: Sage.
- Divesh Kumar, Praveen Goyal, Zillur Rahman, Ishwar Kumar (2011), Sustainable Consumption in India: Challenges and Opportunities, *IJMBs*, Vol. 1, Issue 3, September 2011, ISSN N : 23 30 -9 51 9 (Online) | IS SN : 223 1-2463 (Print).
- Dolan, P.( 2002), The Sustainability of “Sustainable Consumption”, *Journal of Macromarketing*, 22(2): pp.170-81.
- Faria, S. C., Bessa, L. F., & Tonet, H. C. (2009). A theoretical approach to urban environmental governance in times of change. *Emerald Insight*, 638-648.

- Farley, H. M. (2013). *Interpreting Sustainability: An Analysis of Sustainable Development Narratives among Developed Nations*. Northern Arizona: ProQuest LLC.
- Fischer, D., & Barth, M. (2014). Key Competencies for and beyond Sustainable Consumption: An Educational Contribution to the. *Gaia*, 193-200.
- Fuchs, A. D., & Lorek, S. (2005). Sustainable Consumption Governance: A History of Promises and Failures. *Journal of Consumer Policy*, 261-288.
- Gadepalli, S. D. (2015). Waste Management and Sustainable Consumption - Reflections on consumer waste. *Decision*, 247-249.
- Gadepalli, S. D. (2015). *Waste Management and Sustainable Consumption - Reflections on consumer waste*. Calcutta: Indian Institute of Management.
- Grabs, J., & Langen, N. (2015). Understanding role models for change: A multilevel analysis of success factors of grassroots movements for sustainable consumption. *Journal of Cleaner Production*.
- Grabs, J., Langen, N., Maschkowski, G., & Sch€apke, N. (2016). Understanding role models for change: a multilevel analysis of success factors of grassroots initiatives for sustainable consumption. *Journal of Cleaner Production*, 98-111.
- Grimmer, M. (2016, April 22). Environmentally friendly consumption. Retrieved April 25, 2018, from Research to Reality: <<http://www.utas.edu.au/profiles/staff/business-and-economics/martin-grimmer>>
- Güney, T. (2015). Environmental sustainability and pressure groups. *Qual Quant*, 2331–2344.
- Hale, L. A. (2018). *At Home with Sustainability: From Green Default Rules to Sustainable Consumption*. Sustainability.
- Hartmann, C., & Siegrist, M. (2017). Consumer perception and behaviour regarding sustainable protein consumption: A systematic review. *Trends in Food Science & Technology*.

- Himalaya Advertisement, (2017,1-15 February), Down to Earth
- Hobson, K. (2013). 'Weak' or 'strong' sustainable consumption? Efficiency, degrowth, and the 10 Year Framework of Programmes. *Environment and Planning C: Government and Policy*, 1082 – 1098.
- Holt, D. B. (2012). Constructing Sustainable Consumption from ethical values to cultural transformation in unsustainable markets. *ANNALS*, 236-255.
- Hoque, N. (2013). Analysing Sustainable Consumption Patterns: A literature review. *Development*, 370-377.
- J.M.M., N., Pienaar, M., & Erasmus, A. C. (2014). Status consciousness and knowledge as potential impediments of households' sustainable consumption practices of fresh produce amidst times of climate change. *International Journal of Consumer Studies*, 419–426.
- Jaeger-Erben, M., & Offenberger, U. (2014). A Practice Theory Approach to Sustainable Consumption. *RESEARCH VIEWPOINTS*, 166 –174.
- Jayamani, D. C., & Vasanthgopal, D. R. (2012). *Environmental Management: From ancient to Modern Times*. New Delhi: New Century Publications.
- John Thoegersen & Caroline Noblet (2012), Does Green Consumerism Increase the Acceptance of Wind Power?, *Energy Policy*, Vol. 51, pp. 854–862.
- Jones, P., Hillier, D., & Comfort, D. (2014). Sustainable consumption and the UK's leading retailers. *Social Responsibility Journal*, 715-702.
- Junk masters Advertisement, (2018,16-28 February),Down to Earth
- Kai Kaiser and Gunther G. Schulze (2003), *International Competition and Environmental Expenditures: Empirical Evidence from Indonesian Manufacturing Plants*, Hamburg Institute of International Economics, Discussion Paper 222, pg-1-22, ISSN 1616-4814
- Kara Chan (2000), Environmental Consideration in Purchase Decisions of Hong Kong Consumers, *Environmental Practice*, Vol. 2, Issue 1, pp. 15-22, March 2000

- Khandelwal, U., & Yadav, S. K. (2014). Green Marketing and Sustainable Development: Marketing Professionals Attitude towards Green Marketing. *International Journal of Marketing & Business Communication*, 1-7.
- Kielczewski, D., Bylok, F., Dąbrowska, A., Janoś-Kresło, M., & Ozimek, I. (2017, october). Consumers' Competences as a Stimulant of Sustainable Consumption. *Folia Oeconomica Stetinensia*, 98-114.
- Koos, S. (2011). Varieties of Environmental Labelling, Market Structures, and Sustainable Consumption Across Europe: A Comparative Analysis of Organizational and Market Supply Determinants of Environmental-Labelled Goods. Springer Science, 127–151.
- Korpysa, J. (2013). Buyer Behaviour In The Context Of Sustainable Consumption Policy Pursued. *Amfiteatru Economic*, 702-713.
- Kothari, D. A., & Dawar, S. (2014). Sustainable Consumption: An Imperative for India. *Asian Research Consortium*, 53-61.
- Larceneux, F., Benoit-Moreau, F., & Renaudin, V. (2012), Why might organic labels fail to promote sustainable consumption? Marginal labelling and brand equity effects, *Journal of Consumer Policy*, doi:10.1007/s10603-011-9186-1
- Laurin, F., & Fantazy, K. (2017). Sustainable supply chain management: a case study at IKEA. *Transnational Corporations Review*, 309-318.
- Łazorko, K. (2015). Promotion of Sustainable Consumption of Food by Virtual Communities. *ACTA*, 95-105.
- Leary, R. B., Vann, R. J., Mittelstaedt, J. D., Murphy, P. E., & Sherry Jr., J. F. (2014). Changing the marketplace one behavior at a time: Perceived marketplace influence and sustainable consumption. *Journal of Business Research*, 1953-1958.
- Lee, C. K., Levy, D. S., & Yap, C. S. (2015). How does the theory of consumption values contribute to place identity and sustainable consumption? *International Journal of Consumer Studies*, 597-607.

- Leena Haanpaa (2007), Consumers' Green Commitment: Indication of a Postmodern Lifestyle?, *International Journal of Consumer Studies*, Vol. 31, Issue 5, pp. 478-486, September 2007
- Lies Bouten & Sophie Hoozée (2013), On the Interplay between Environmental Reporting and Management Accounting Change, *Management Accounting Research*, April 4, 2013
- Lorek, S., Fuchs, D. (2011), Strong sustainable consumption governance a precondition for a degrowth path?, *Journal of Cleaner Production*, doi:10.1016/j.jclepro.2011.08.008
- Luchs, M. G., Phipps, M., & Hill, T. (2015). Exploring consumer responsibility for sustainable consumption. *Journal of Marketing Management*, Vol. 31, 1449–1471.
- Lundblad, L., & Davies, I. A. (2016). The values and motivations behind sustainable fashion consumption. *Journal of Consumer Behaviour*, 149–162.
- Mahindra Rise Advertisement, (2016, 16-30 September), Down to Earth
- Majda Tafra-Vlahovic, The role of public relations in the growth of sustainable consumerism, *International Journal of Management Cases*, Vol. 14.1.
- Maniates, M. (2014). Sustainable Consumption - Three Paradoxes. *Gaia*, 201-208.
- Manjunath, D. L. (2007). *Environmental Studies*. Karnataka: Pearson.
- Markkula, A., & Moisander, J. (2012). Discursive Confusion over Sustainable Consumption: A Discursive Perspective on the Perplexity of. *Journal of Consumer Policy*, 105-125.
- McDonald, S., Oates, C., Thyne, M., Alevizou, P., & McMorland, L.-A. (2009). Comparing sustainable consumption patterns across product sectors. *International Journal of Consumer Studies*, 137-145.
- Mehta, R. (2014). *Sociology and Environmental Sustainability*. Jaipur: Rawat Publications. Michael Thompson and Charles M. Cutler, M.D. (2010), *Health*

Care Consumerism Movement Takes a Step Forward, *BENEFITS QUARTERLY*, First Quarter 2010

- Moloney, S. & Strengers, Y. (2014). 'Going Green?': The Limitations of Behaviour Change Programmes as a Policy Response to Escalating Resource Consumption. *Environmental Policy and Governance*, 94–107.
- Mont, O., & Bleischwitz, R. (2007). Sustainable Consumption and Resource Management in the Light of Life Cycle Thinking. *European Environment*, 59–76.
- Mont, O., & Bleischwitz, R. (2007). Sustainable Consumption and Resource Management in the Light of Life Cycle Thinking. *European Environment*, 59-76.
- Muster, V. (2012). Negative influences of working life on sustainable consumption. *International Journal of Consumer Studies*, 166–172.
- Myers, N. (1997). Consumption: Challenge to Sustainable Development.. *Science*, 53-55.
- Myers, N. (2000). Sustainable Consumption. *Science*, 2419-2419.
- Myers, N., & Kent, J. (2004). The New Consumers. The Influence of Affluence on the Environment. *Journal of Industrial Ecology*, 295-296.
- Nagypál, C. N., Görög, G., Harazin, P., & Baranyi, R. P. (2015). "Future Generations and Sustainable Consumption". *Economics & Sociology*, 207-224.
- Narain, S. (2016). *Why I should be tolerant*. New Delhi: Centre for Science and Environment.
- Necati Aydin(2010), Subjective Well-being and Sustainable Consumption, *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, Volume 6, Number 5, 2010,pg.-133-147, ISSN 1832-2077.
- Nicole Darnall, Cerys Ponting & Diego A. Vazquez-Brust, *Why Consumers Buy Green*, <http://ssrn.com/abstract=2118265>

- Nina Mazar and Chen-Bo Zhong(2010), Do Green Products Make Us Better People?, *Psychological Science*, 21(4) 494–498
- Overby, B. (2002). Contract, in the age of sustainable consumption. *Journal of Corporation Law*, 603-630.
- Panzone, L., Hilton, D., Sale, L., & Cohen, D. (2016). Socio-demographics, implicit attitudes, explicit attitudes, and sustainable consumption in supermarket shopping. *Journal of Economic Psychology*.
- Parul Gupta & G.S. Popli, Environmentally conscious younger consumers : A study of changing shift in green attitude and behaviour of Indian car consumers.
- Peattie, K., & Collins, A. (2009). Guest editorial: perspectives on sustainable consumption. *International Journal of Consumer Studies*, 107–112.
- Peter Dauvergne and Jane Lister (2010), The Prospects and Limits of Eco-Consumerism: Shopping Our Way to Less Deforestation?, *Organization & Environment*, 23(2) 132–154, 2010 SAGE Publications
- Peter Doran (2011), Is there a role for contemporary practices of *askNsis* in supporting a transition to sustainable consumption?, *Int. J. Green Economics*, Vol. 5, No. 1, 2011
- Peter Doran (2012), Care of the Self, Care of the Earth: A New Conversation for Rio+20?, *RECIEL*, 21 (1) 2012. ISSN 0962 8797
- Petry, R. A., Fadeeva, Z., Fadeeva, O., Hasslof, H., Hellstrom, A., Hermans, J., et al. (2011). Educating for sustainable production and consumption and sustainable livelihoods: learning from multi-stakeholder networks. *Sustain Sci*, 83–96.
- Prasad, R. S. (2013, October). Green HRM - Partner in Sustainable Competitive. *Apeejay - Journal of Management Sciences And Technology*, 15-18.
- Rajasthan State Pollution Board Advertisement, (2017,16-30 June), Down to Earth

- Rakitovac, K. A., & Tadic, M. (2016). Promoting Sustainable Consumption through Higher Education. *International Scientific Conference on Economic and Social Development*, (pp. 172-182). Barcelona.
- Saju Eapen Thomas & P R Wilson (2012), Youth Consumerism and Consumption of Status Products: A Study on the Prevalence of Social Pressure Among Students of Professional Courses, *The IUP Journal of Business Strategy*, Vol. IX, No. 2, 2012
- Savita Hanspal and et al. (2013), An Exploratory Study of Institutional Attitudes for Promoting Sustainable Consumption in India, *Journal of Sustainable Development*; Vol. 6, No. 9; 2013 ISSN 1913-9063 E-ISSN 1913-9071.
- Saxena, R. & Khandelwal, P. K. (2010), 'Can Green Marketing be used as a tool for Sustainable Growth?: A Study Performed on Consumers in India- An Emerging Economy', *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, vol. 6, no. 2, pp. 277-291, 2010
- Schaefer, A., & Crane, A. (2005). Addressing Sustainability and Consumption. *Journal of Macro-marketing*, 76-92.
- Schafer, M. B., Jaeger-Erben, M., & Bamberg, S. (2012), Life events as windows of opportunity for changing towards sustainable consumption patterns? Results from an intervention study, *Journal of Consumer Policy*, doi:10.1007/s10603-011-9181-6.
- Shadymanova, J., Wahlen, S., & Horst, H. v. (2014). 'Nobody cares about the environment' : Kyrgyz' perspectives on enhancing environmental sustainable consumption practices when facing limited sustainability awareness. *International Journal of Consumer Studies*, 678–683.
- Shove, E. (2003, August). Changing human behaviour and lifestyle: a challenge for sustainable consumption? Retrieved from <http://www.psi.org.uk: http://www.psi.org.uk/ehb/docs/shove-changinghumanbehaviourandlifestyle-200308.pdf>

- Singer, A. (2013, 02 21). The Myths of Sustainable Consumption : Is Sustainability still possible? Retrieved from <http://blogs.worldwatch.org/>: <http://blogs.worldwatch.org/sustainabilitypossible/sustainable-consumption-myths/>
- Spaargaren, G. (2011). Sustainable Consumption: A Theoretical and Environmental Policy Perspective. 687-701.
- Spangenberg, S. L. (2014). Sustainable Consumption within a sustainable economy- beyond green growth and green economies. *Journal of Cleaner Production*, 33-44.
- Srinivas, H. (2016, October 15). Sustainable Consumption. Retrieved April 25, 2018, from Sustainability Concepts: <http://www.gdrc.org/sustdev/concepts/22-s-consume.html>.
- Sui, D., Langåker, V. H., & Yu, Z. (2017). Investigation of thermophysical properties of Nanofluids for application in geothermal energy. *Energy Procedia*, 5055 – 5060.
- Swaminathan, M. S. (2011). *In search of Biohappiness*. Singapore: World Scientific Publishing Co. Pt. Ltd.
- T.L., M., & E., M. (2016). Sustainable consumer behavior: A multilevel perspective,. *COPSYC*.
- TMC,TATA Advertisement, (2017,1-15 June ),Down to Earth
- Tseng, M.-L., Chiu, (. S., Tan, R. R., & Siriban-Manalang, A. B. (2013). Sustainable consumption and production for Asia: sustainability through green design and practice. *Journal of Cleaner Production*, 1-5.
- Vázquez-Rowe, I., Pedro, V.-R., M<sup>a</sup> Teresa, M., & Gumersindo, F. (2013). The role of consumer purchase and post-purchase decision-making in sustainable seafood consumption. A Spanish case study using carbon footprinting. *Elsevier*, 94-102.
- Verain, M. C., Sijtesma, S. J., & Antonides, G. (2016). Consumer Segmentation Based on Food Category Attribute Importance : The Relation With

- Healthiness and Sustainability Perceptions. *Food Quality and Preference*, 99-106.
- Vergragt, P. J., Dendler, L., De Jong, M., Matus, K., & Zhang, X. (2014). Call for papers for a special volume on “Transitions to sustainable consumption and production within cities”. *Journal of Cleaner Production*, 1-7.
- Vermeir, I., & Verbeke, W. (2006). Sustainable Food Consumption: Exploring the Consumer "Attitude - Behavioral Intention" Gap. *Journal of Agricultural and Environmental Ethics*, 169-194.
- Vince, J. R., & Panayotou, T. (1997). Consumption: Challenge to Sustainable Development.. *Science*, 53-55.
- Voegt-Kleschin, L. (2014). Reasoning Claims for More Sustainable Food Consumption: A Capabilities Perspective. *Springer Science*, 455-477.
- Vringer, K., Heijden, E. v., Soest, D. v., Vollebergh, H., & Dietz, F. (2017, June 3). Sustainable Consumption Dilemmas. (G. Antonides, Ed.) *Sustainability*.
- Wakasa, K., & Konomi, S. (2015). Green Weaver: Participatory Green Mapping and Networking for Fostering Sustainable Communities. *ADJUNCT*, 157-160.
- Wang, Y., Xiang, D., Yang, Z., & Ma, S. (2018). Unraveling customer sustainable consumption behaviors in sharing economy: A socio-economic approach based on social exchange theory. *Journal of Cleaner Production*.
- Watkins, L., Aitken, R., & Mather, D. (2015). Conscientious Consumers: A Relationship between Moral Foundations, Political Orientation and Sustainable Consumption. *Journal of Cleaner Production*.
- Widyaningsih, N., Tjiptoherijanto, P., Widanarko, S., & Seda, F. S. (2015). Linkage model between sustainable consumption and household waste management. *Procedia Environmental Sciences*, 195 – 203.
- Wilhite, H., & Lutzenhiser, L. (1999). Social Loading and Sustainable Consumption. *Advances in Consumer Research*, 281-287.

William Young, Kumju Hwang, Seonaidh McDonald and Caroline J. Oates(2008),  
Accepted for publication in Sustainable Development journal July 2008.

Yates, L. (2008). Sustainable consumption: the consumer perspective. Consumer  
Policy Review, 96-101.

Zanni, S., Cipolla, S. S., Fusco, E. d., Lenci, A., Altobelli, M., Currado, A., et al.  
(2018). Modeling for sustainability:Lifecycle assessment application to  
evaluate environmental performance of water recycling solutions at the  
dwelling level. Sustainable Production and Consumption, 47-61.

<https://www.diverse.com/sustainability/soap-for-hope>

<https://eglooinfo.it>

[https://swachhindia.ndtv.com/waste-management-in-surat-underground-garbage-  
bins-keep-roads-litter-free-22313/](https://swachhindia.ndtv.com/waste-management-in-surat-underground-garbage-bins-keep-roads-litter-free-22313/)

[https://www.elephantjournal.com/2015/08/a-successful-organic-farming-movement-  
in-brazil/](https://www.elephantjournal.com/2015/08/a-successful-organic-farming-movement-in-brazil/)

[https://www.financialexpress.com/education-2/plastic-ban-aap-government-asks-  
schools-to-restrict-students-from-using-plastic-products/1145165/](https://www.financialexpress.com/education-2/plastic-ban-aap-government-asks-schools-to-restrict-students-from-using-plastic-products/1145165/)

[https://www.financialexpress.com/auto/car-news/tata-motors-indianoil-corporation-  
flag-off-countrys-first-hydrogen-fuel-cell-powered-bus/1096895/](https://www.financialexpress.com/auto/car-news/tata-motors-indianoil-corporation-flag-off-countrys-first-hydrogen-fuel-cell-powered-bus/1096895/)

[https://www.birminghammail.co.uk/whats-on/shopping/birminghams-first-plastic-  
free-supermarket-14794437](https://www.birminghammail.co.uk/whats-on/shopping/birminghams-first-plastic-free-supermarket-14794437)

[https://www.theguardian.com/technology/2018/aug/28/driverless-taxi-debuts-in-  
tokyo-in-world-first-trial-ahead-of-olympics](https://www.theguardian.com/technology/2018/aug/28/driverless-taxi-debuts-in-tokyo-in-world-first-trial-ahead-of-olympics)

<https://udaipurtimes.com/mobile-library-come-fateh-sagar-lake/>

[https://www.embitel.com/blog/embedded-blog/what-is-bharat-stage-6-and-bs-vi-  
norms-in-automotive-electronics](https://www.embitel.com/blog/embedded-blog/what-is-bharat-stage-6-and-bs-vi-norms-in-automotive-electronics)

<https://www.indiatoday.in/auto/auto-news/story/green-cars-in-spotlight-as-india-eyes-electric-revolution-1166030-2018-02-09>

<https://economictimes.indiatimes.com/news/politics-and-nation/sikkim-became-indias-first-fully-organic-state-in-2016/articleshow/56270491.cms>

# **CHAPTER 3**

## **RESEARCH METHODOLOGY**

### **Introduction**

### **3.1 Research Methodology**

### **3.2 Objectives of the Study**

### **3.3 Research Gap**

### **3.4 Importance of the Research**

### **3.5 Research Problem**

### **3.6 Research Design**

### **3.7 Sources of Data**

### **3.8 Data Collection Methods**

### **3.9 Instrument for Data Collection**

### **3.10 Sampling Technique**

#### *3.10.1 Sampling Method*

#### *3.10.2 Sample Size*

#### *3.10.3 Area of Study*

#### *3.10.4 Time Duration*

#### *3.10.5 Target Population*

### **3.11 Statistical Tools for Data Analysis**

### **3.12 Limitations of the Study**

### **Conclusion**

### **References**

## **CHAPTER-3**

### **RESEARCH METHODOLOGY**

#### **Introduction**

**Methodology** is the systematic, theoretical analysis of the methods applied to a field of study. It is the framework in which a research is structured. It forms a pathway to proceed in a study. Research Methodology defines the whole work in a classified format. It may be understood as a science of studying how research is done scientifically. The methodology section describes actions to be taken to investigate a research problem and the rationale for the application of specific procedures or techniques used to identify, select, process, and analyze information applied to understanding the problem, thereby, allowing to critically evaluate a study's overall validity and reliability.

The Chapter presents a summary of the research methodology used in the conduct of this study. Every aspect of research methodology has been dealt with details in this chapter.

The present Chapter comprises of:



**Figure 3.1 Flowchart of Research Methodology**

### **3.2 Objectives of the study**

The detailed objectives of the study are as under:

1. To study the awareness of negative impacts of consumption among the consumers.
2. To identify the determinants of consumer behavior with respect to sustainable consumption.
3. To assess the influence of gender, age, education level and annual household income on consumer attitude towards green consumption.
4. To measure the effect of public relation function, eco-labeling and certification of green products on demand of product.
5. To develop a suggestive framework for sustainable consumption.

### **3.3 Research gap**

Environment Conservation is an issue which is being dealt from many years and yet due to unsustainable consumption pattern it is the most important concern. The literature study has revealed that enough work has been done in the area of Sustainability and Sustainable Consumption at International and National Platforms. The issue still remains unsolved when it comes to effective use of resources. Studies in the field of Sustainable Consumption have not been done in the Indian State of Rajasthan and Gujarat.

### **3.4 Importance of the research**

Two-third of the world's resources has already been 'used up'; we can no longer take for granted the ability of Earth to sustain future generations. Sustainable Consumption arises from the initiatives and complementarity of different social actors. By providing consumers with a choice of products reflecting their new environmental values, the market will self-regulate its way towards a more sustainable future. There is a need to know the consumption pattern of consumers to analyze the fact that how resources are being used and what impact is the consumption lying on our Mother Earth. This study will serve as a platform to

analyze the impact of consumption in Rajasthan and Gujarat. This research is initiated for the global problem of Environment Conservation.

### **3.5 Research problem**

In order to understand the impact of consumption pattern on the Environment, it is necessary to study the Issues, Challenges and Prospects of Sustainable Consumption in the Major Cities of Rajasthan and Gujarat. Hence the statement of the problem is:

*“An Empirical study of Issues, Challenges and Prospects of Sustainable Consumption in the Major Cities of Rajasthan and Gujarat”*

### **3.6 Research design**

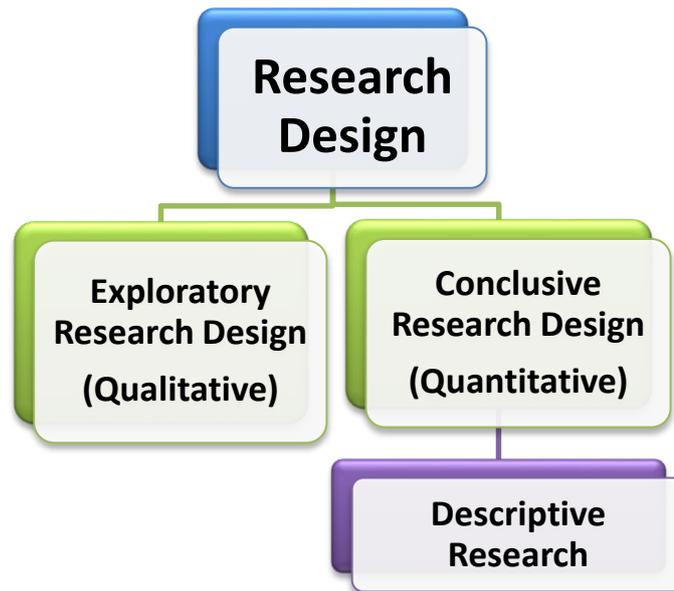
In context of Research Design, (Thakur, 2012) said that, The design of a sociological research project can be the plan of action, the strategy and the structure of the overall procedure by which we intend to gain more knowledge of a specific problem or a specific aspect of the society.

The Project started with understanding the conceptual framework of the topic. Exploration is the foundation for any research no research can be conducted successfully without exploring all available facts about the topic. Research is, as the name suggests, search again. Searching again is a kind of effort to explore more about something.

**Exploratory research** was employed to develop initial ideas and insights and to provide direction for further research. Exploratory research was carried out for an extensive review of literature available on the topic and related topics.

Having obtained some primary knowledge of the subject matter by an exploratory study, **Descriptive research** was conducted next.

Descriptive research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. Descriptive research is “aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method.”



**Figure 3.2: Types of Research Design**

Descriptive Research is categorized into 3 methods:

- Observational Method
- Case Study Method
- Survey Method

For this study, the data was to be collected from primary source for the conduct of empirical research; the actual data could only be collected through the interface with consumers. **Survey Method** was adopted for carrying out the research. Each respondent was requested to complete the questionnaire. Follow-up telephone calls and e-mails were conducted to ensure a higher return rate.

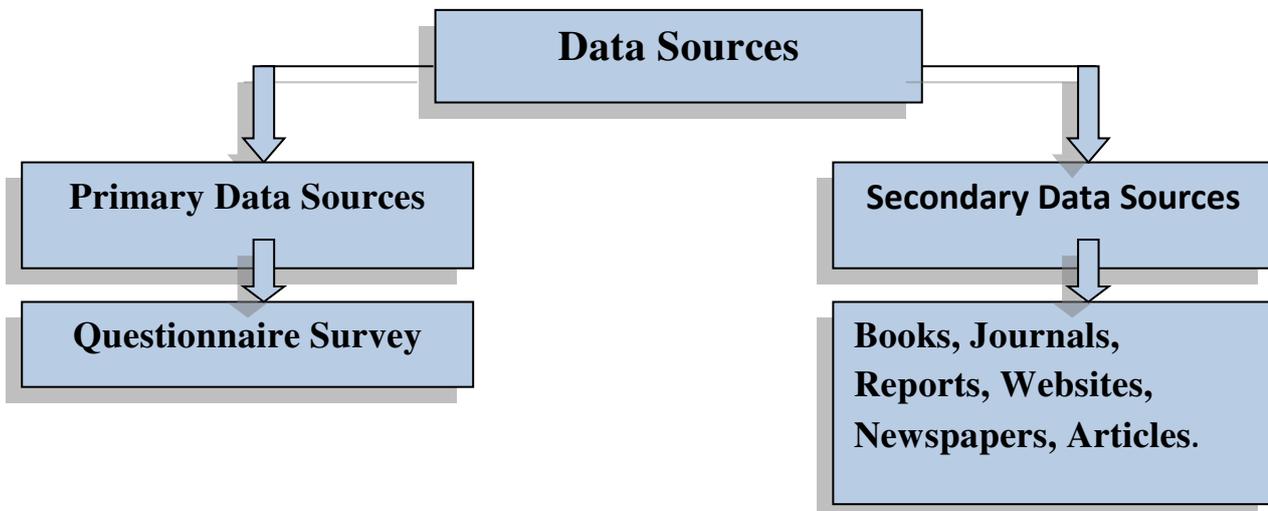
### **3.7 Sources of Data**

For this study both Primary and Secondary Data are used. The primary and secondary data have been collected to cover every aspect of the study. These data are used in combination as per need of the study. Having different merits and demerits these have served purpose of the research study.

- **Primary Data:** Primary data are information collected by a researcher specifically for a research assignment. A primary source provides direct or firsthand evidence about an event, object, person, or work of art. A primary source is an original

source that documents an event in time, a person or an idea. Primary data can be collected in a number of ways. However, the most common technique is self-administered surveys. In order to know the consumption pattern of people primary data was collected through an appropriate Questionnaire which was administered on customers.

- **Secondary Data:** Secondary data is the data that have been already collected by and readily available from other sources. It helps to make primary data collection more specific since with the help of secondary data, we are able to make out what are the gaps and deficiencies and what additional information needs to be collected. It helps to improve the understanding of the problem. It provides a basis for comparison for the data.



**Figure 3.3: Types of Data Sources**

For the purpose of developing theoretical and conceptual framework of the topic and for review of available Literature secondary data was collected. The data was collected from various secondary sources like Books, Journals, Research Papers, Newspaper articles, Websites etc.

For collecting the Secondary data various libraries were visited wherein the literature was explored. The list of the libraries visited is as under:

**Table 3.1: List of Library Visited by Principal Investigator**

<b>Library</b>	<b>University</b>	<b>City</b>	<b>Date</b>
Central Library, New Campus	JNV University	Jodhpur	10/02/2016
Library, Dept. of Management Studies	JNV University	Jodhpur	11/02/2016
Smt. Hansa Mehta Library	MS University	Vadodara	21/03/2016
Dr. Raheja Library	CAZRI	Jodhpur	03/06/2016
IIT	IIT (J)	Jodhpur	07/06/2016
IIM Library	IIM (A)	Ahmedabad	09/06/2016
Central Library, Faculty of Commerce	JNV University	Jodhpur	20-21/10/2016
Central Library	Lachoo Memorial College of Science & Technology	Jodhpur	28/12/2016
Library	Maulana Azad University	Jodhpur	29/12/2016
MBM Engineering College, Central Library	JNV University	Jodhpur	30/12/2016
Central Library	Graphic Era University	Dehradun	30/12/2016
IIM Library	IIM (U)	Udaipur	30/05/2016
BIMTECH Library	BIMTECH	Greater Noida	23-24/07/2016
Environmental Science Library	Dept. of Environmental Science, Mohan Lal Sukhadia University	Udaipur	30/03/2017
CTAE Library	CTAE, Maharana Pratap University of Agriculture and	Udaipur	03/04/2017

	Technology		
Arya Book Library	Arya Book Publishers	Udaipur	06/04/2017
Vikram Sarabhai Library	IIM (A)	Ahmedabad	18-20/04/2017
MICA Library	MICA	Ahmedabad	19/04/2017
Nassdoc Library	ICSSR	New Delhi	11/09/2017
NICM Library	NICM	New Delhi	12/09/2017
Library of CTAE	MPUAT	Udaipur	09/10/2017
University Central Library	MLSU	Udaipur	
Library of UCCI	UCCI	Udaipur	16/04/2018
FMS Library	Faculty of Management Studies, MLSU	Udaipur	21/04/2018

### 3.8 Data Collection Methods

#### *Method of contact:*

In their book, (Moser & Kalton, 1971) expressed the importance of Survey method saying that, Surveys have their usefulness both in leading to the formulation of hypothesis and at a more advanced stage in putting them to the test. Their function in a given research depends on how much is already known about the subject and on the purpose for which the information is required.

For this study Survey method was used to collect the data. The respondents were personally interviewed by the researcher or they were asked to fill questionnaire depending on their education level through both online and one-to-one survey. Appropriate Questionnaire was circulated via e-mail and social media.

### 3.9 Instruments of Data Collection

#### *Research Instrument: Questionnaire*

A well structured questionnaire was developed on the basis of review of literature on sustainable consumption. The structured questionnaire included both open ended & close-ended questions. Appropriate rating scales were used to measure the views of the respondents.

The questionnaire was divided into 3 parts and the responses from the respondents were sought under these headings namely:

- a) PART A: **PERSONAL DETAILS**
- b) PART B: **CONSUMER AWARENESS**
- c) PART C: **CONSUMER BEHAVIOR**

### **3.10 Sampling Technique**

#### ***3.10.1 Sampling Method:***

The sample was selected on the basis of convenience sampling. Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher.

#### ***3.10.2 Sample Size:***

A sample of 1500 individual was selected, who were residing at major cities of Rajasthan and Gujarat. Respondents from different sociological background were included in the sample.

#### ***3.10.3 Area of Study:***

The area of study comprises of the major cities of the Indian state of Rajasthan and Gujarat.

**Rajasthan** is the largest state of India in terms of area i.e. 3,42,269 Sq Km. Rajasthan state having total 33 districts is populated with 68,548,437 people (Census 2011).

**Gujarat** state is spread in the area of 1,96,024 Sq. Km. with 33 districts. Gujarat has a population of 60,383,628 (Census 2011).

The Major Cities of Rajasthan which are included in the Research are:

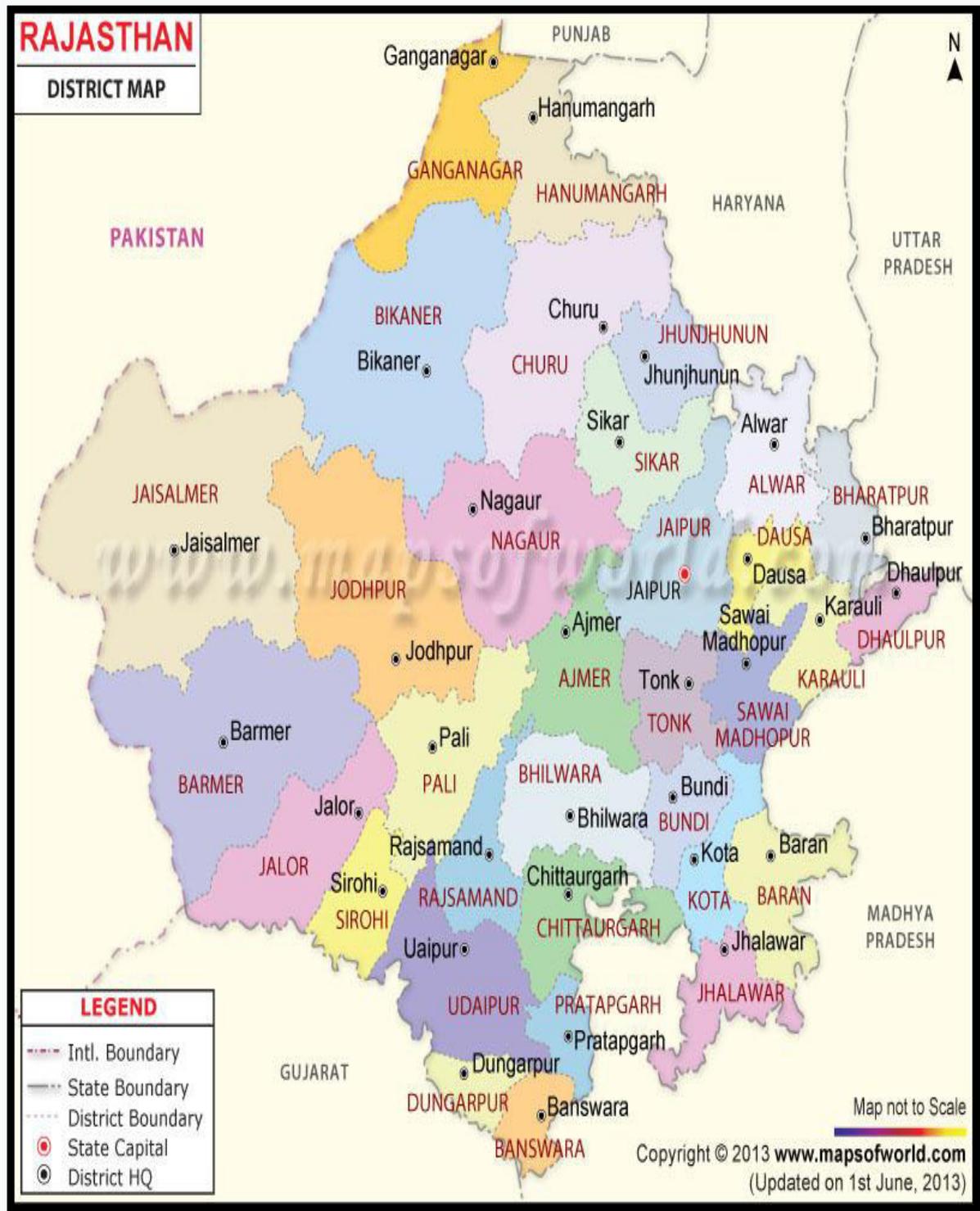
- Ajmer
- Bikaner
- Jaipur
- Jodhpur
- Kota

- Udaipur

The Major Cities of Gujarat which are included in the Research are:

- Ahmedabad
- Bharuch
- Gandhinagar
- Jamnagar
- Junagadh
- Porbandar
- Rajkot
- Surat
- Vadodara

The selection of major cities has been done by referring the Gujarat Government official state portal, <http://www.gujaratindia.com/about-gujarat/fact-file.htm>



**Figure 3.4: Rajasthan District Map**

Source: <http://www.mapsofindia.com/maps/rajasthan/rajasthan.htm>





Figure 3.6: Jaipur city Map

<https://www.mapsofindia.com/maps/rajasthan/jaipurcity.htm>

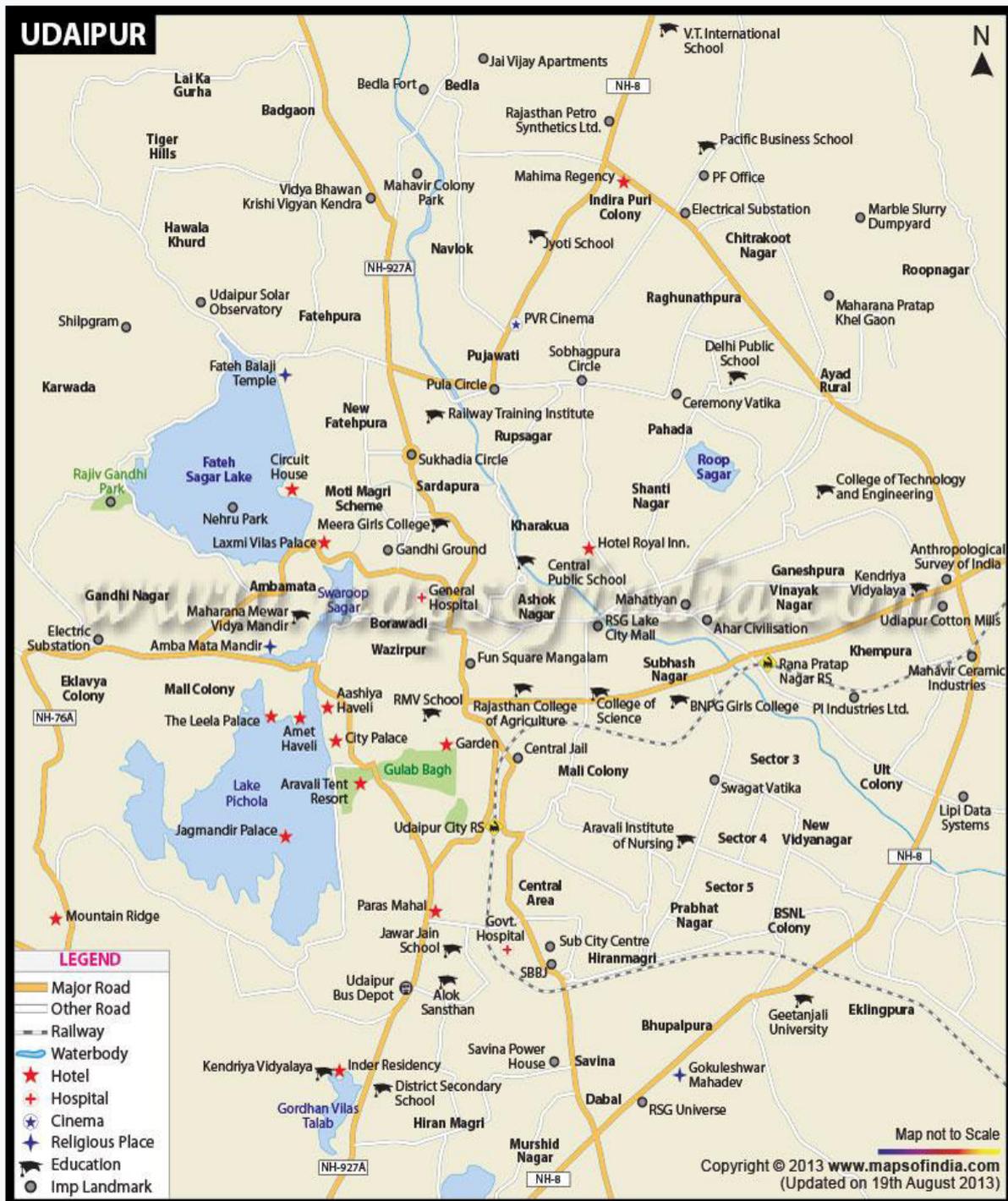
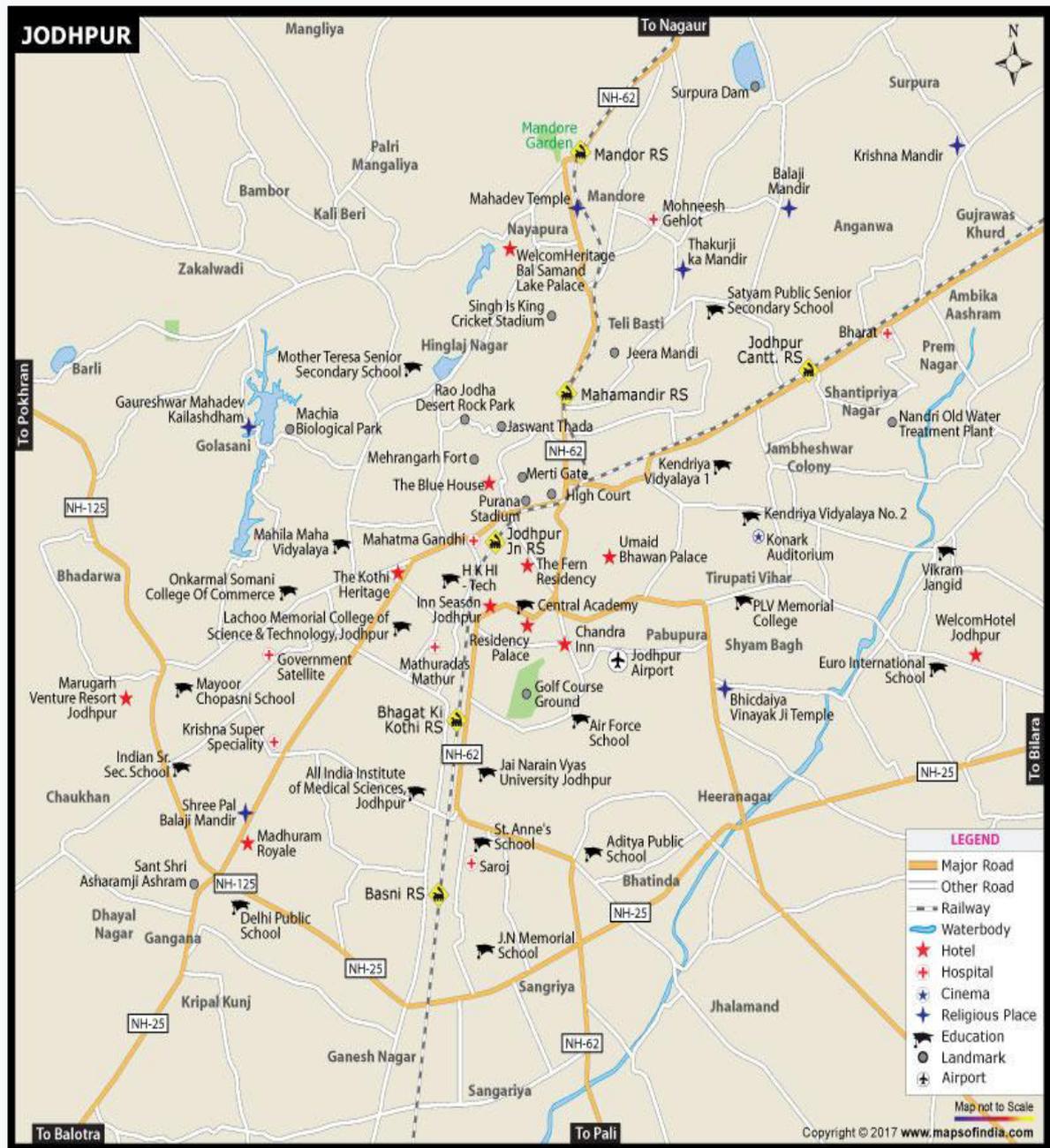


Figure 3.7: Udaipur city Map

Source: <https://www.mapsofindia.com/maps/rajasthan/udaipur.htm>



**Figure 3.8: Jodhpur city Map**

**Source:** <https://www.mapsofindia.com/maps/rajasthan/jodhpur-city.html>

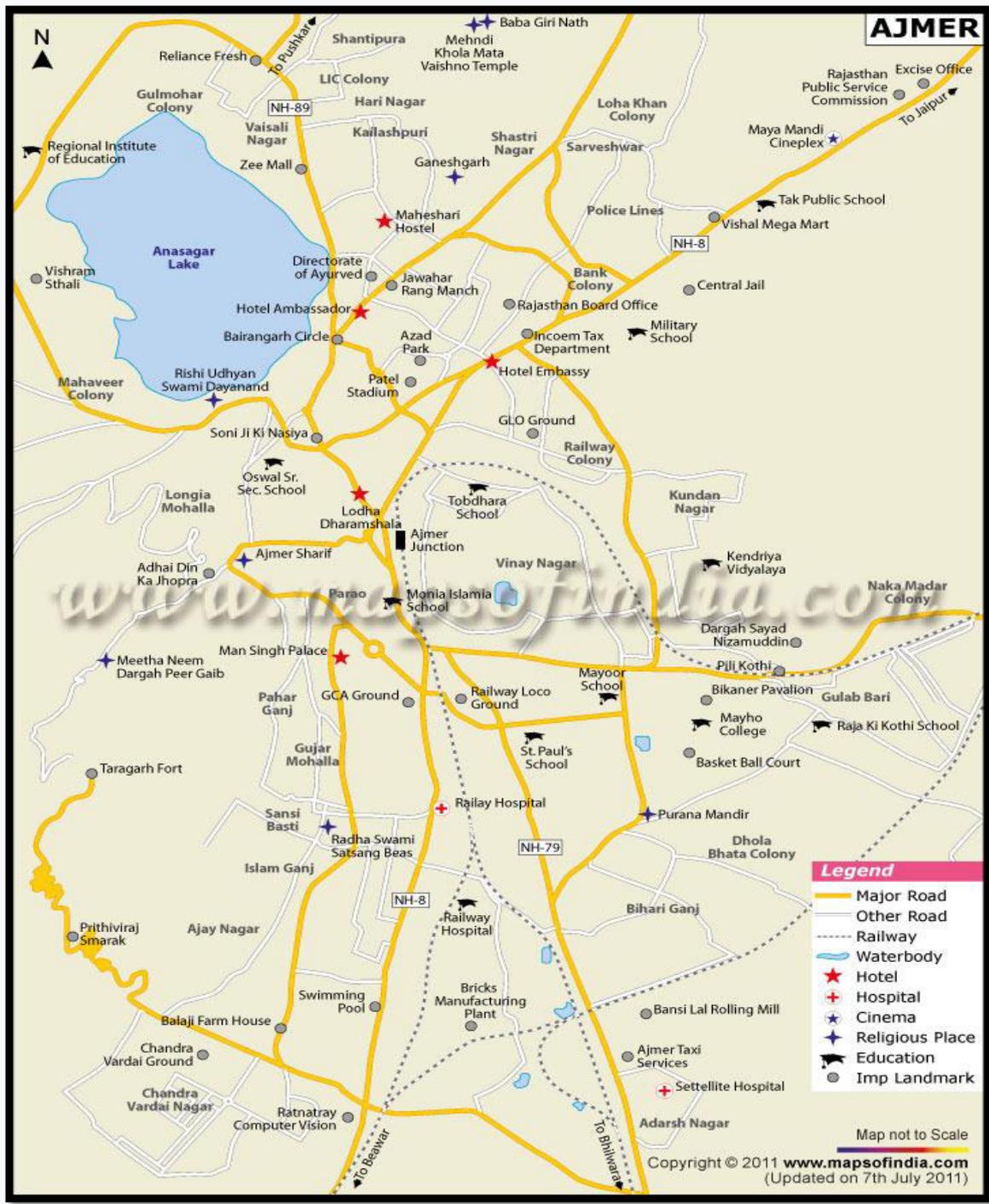


Figure 3.9: Ajmer city Map

Source: <https://www.mapsofindia.com/maps/rajasthan/ajmer.htm>

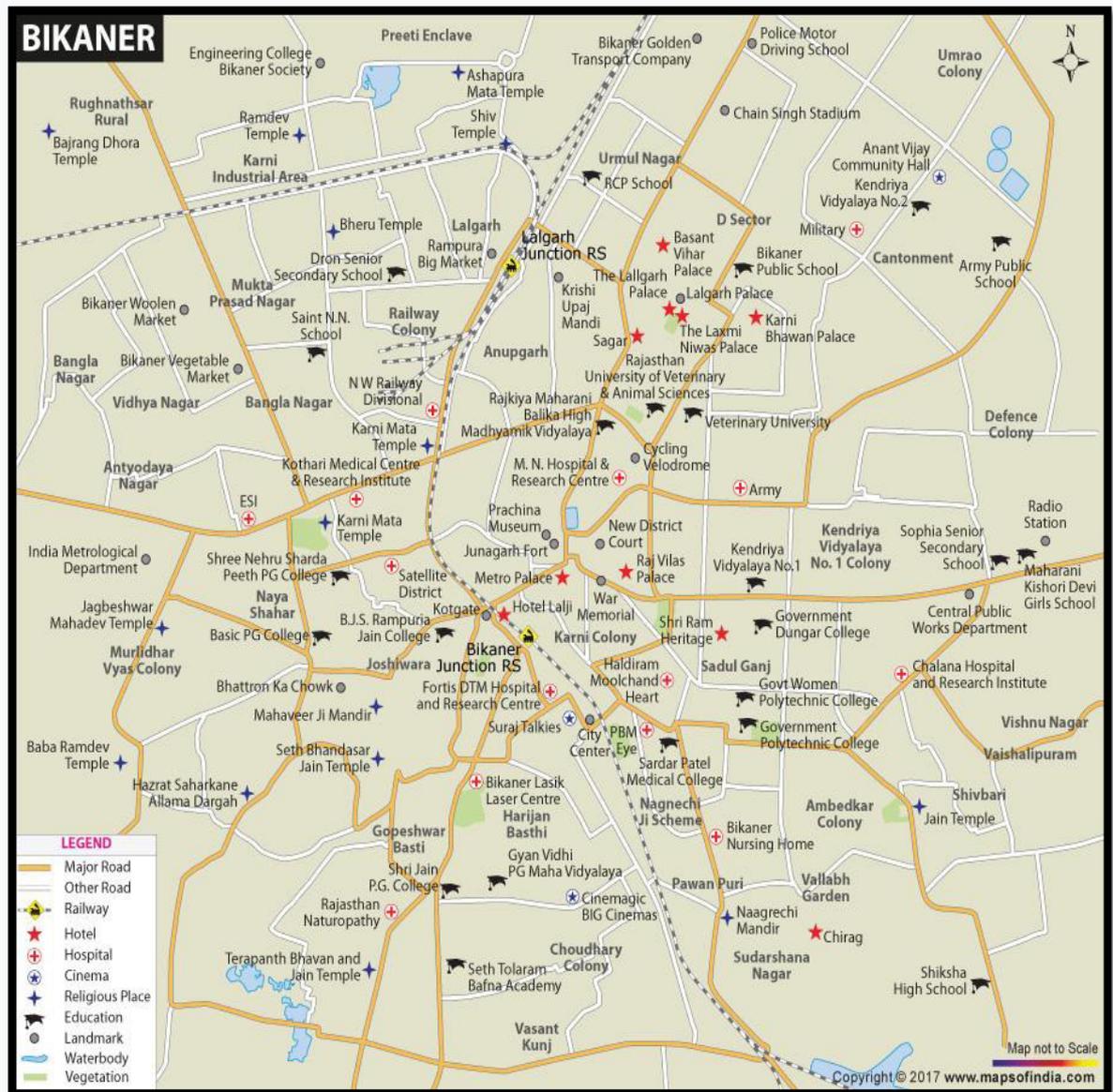


Figure 3.10: Bikaner city Map

Source: <https://www.mapsofindia.com/maps/rajasthan/bikaner.htm>

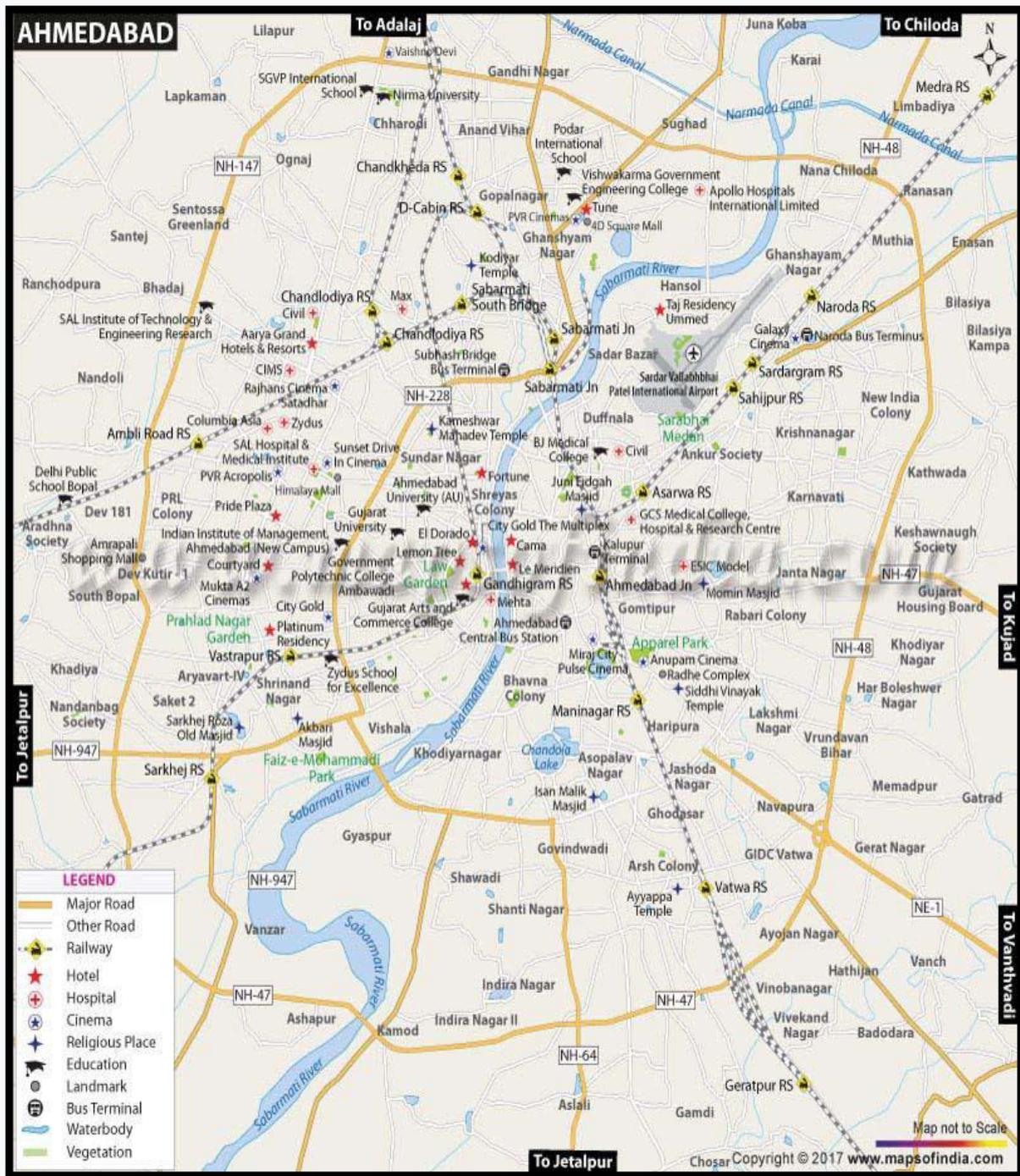


Figure 3.11: Ahmedabad city Map

Source: <https://www.mapsofindia.com/maps/gujarat/ahmedabadcity.htm>

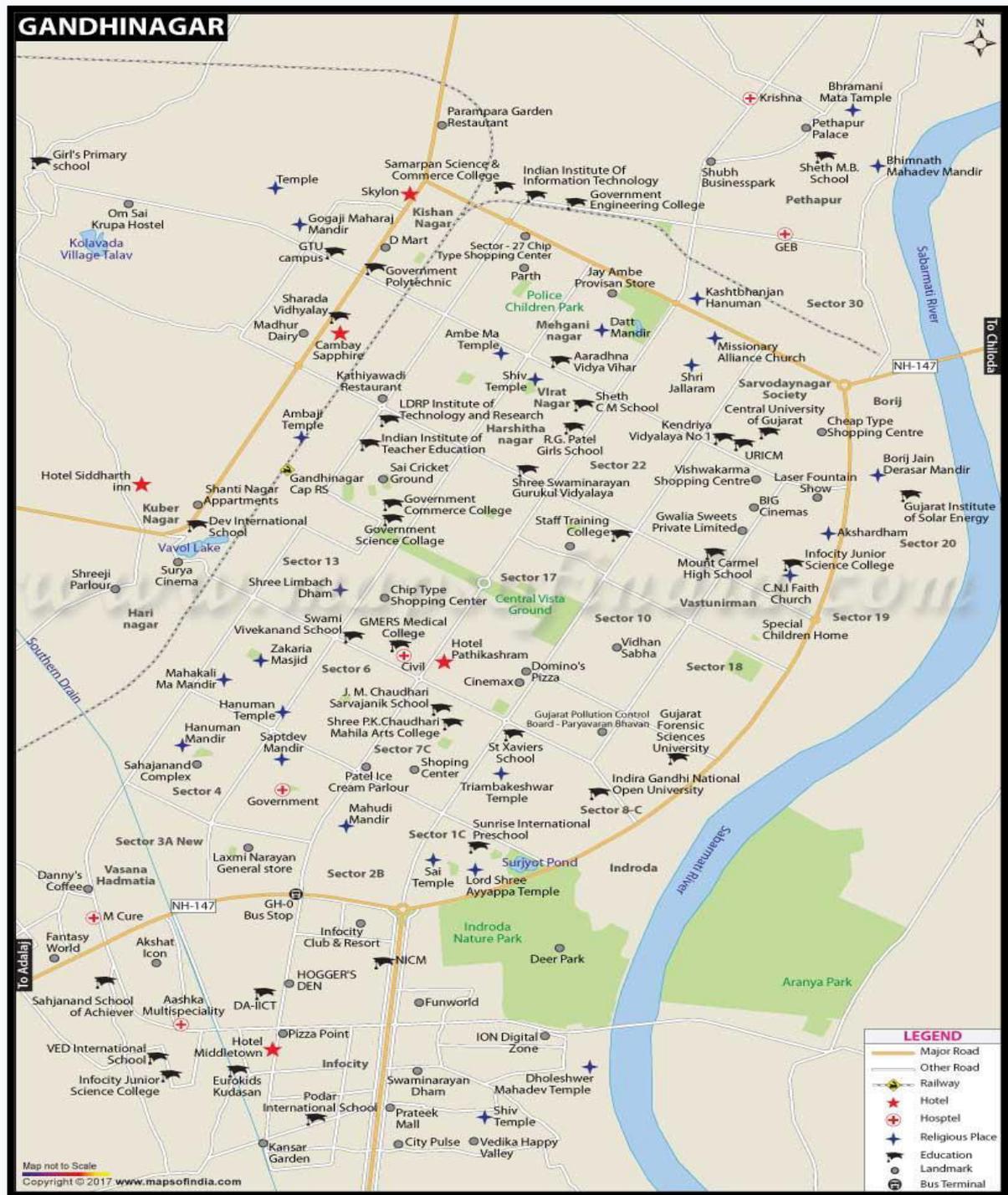


Figure 3.12: Gandhinagar city Map

Source: <https://www.mapsofindia.com/maps/gujarat/gandhinagar.htm>

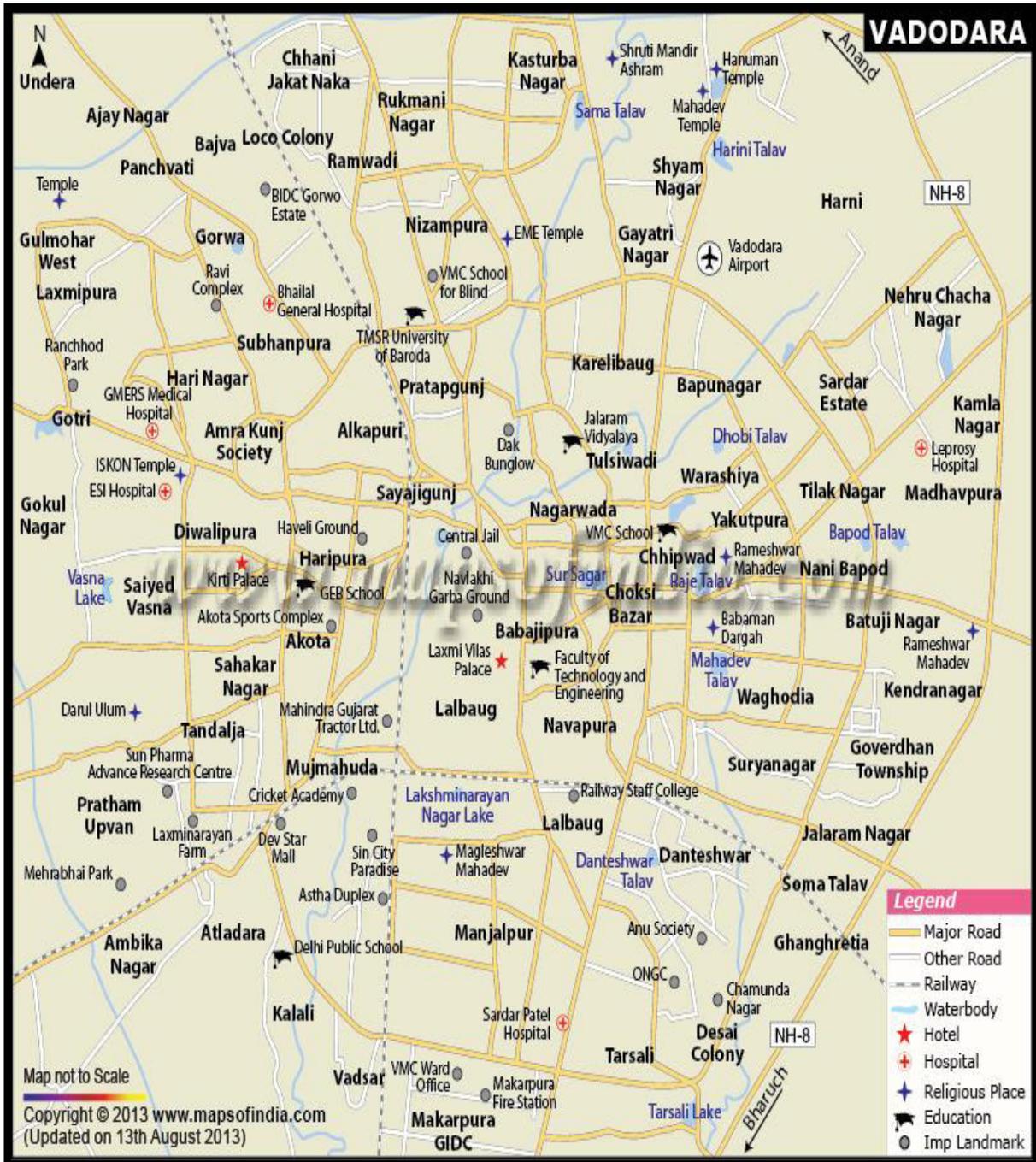


Figure 3.13: Vadodra city Map

Source: <https://www.mapsofindia.com/maps/gujarat/vadodara.htm>

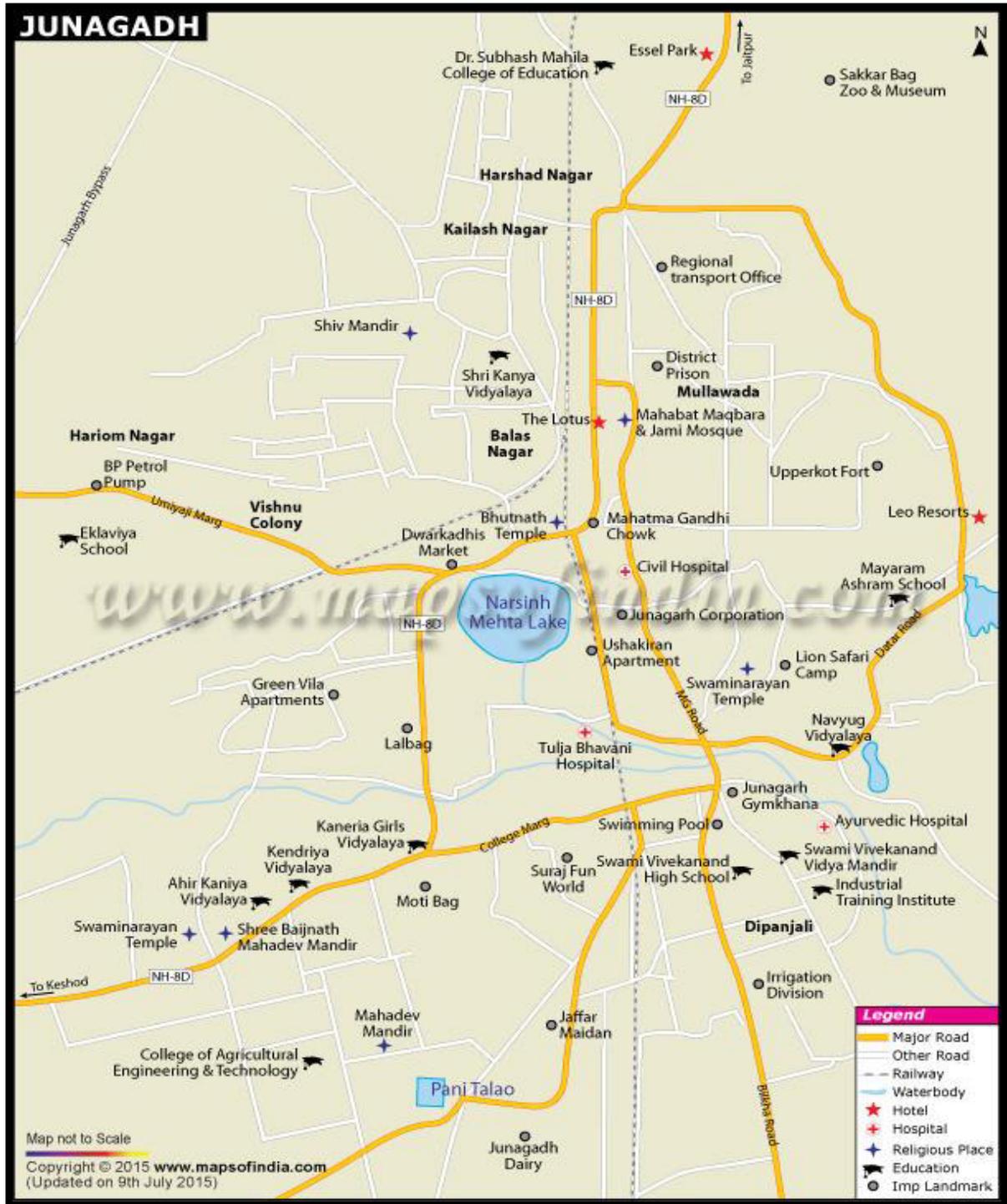
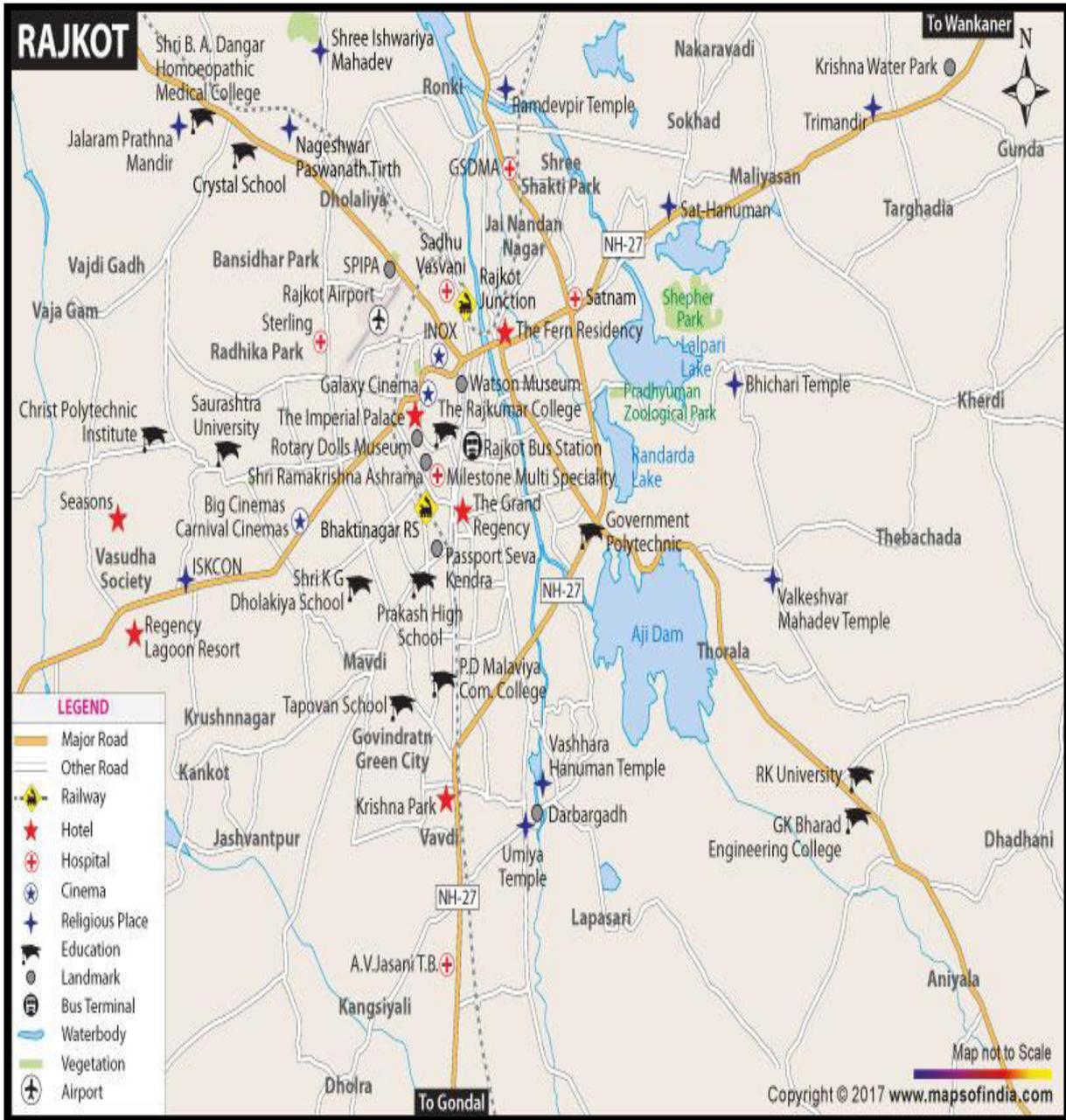


Figure 3.14: Junagadh City Map

<https://www.mapsofindia.com/maps/gujarat/junagadh.htm>



**Figure 3.15: Rajkot City Map**

**Source:** <https://www.mapsofindia.com/maps/gujarat/rajkot.htm>

#### ***3.10.4 Time Duration:***

The Major Research Project was undertaken for three years, from the year 2015 to 2018, as per the time allotted by UGC for completion of the Project. Appropriate time was taken to complete each aspect of the project.

#### ***3.10.5 Target Population:***

The *target population* is the total group of individuals from which the sample might be drawn. The target population for the study was a broad cross-section of consumers. The people residing in the major cities of Rajasthan and Gujarat were targeted and approached for their valuable responses.

### **3.11 Tools & Techniques for Data Analysis**

SPSS Package 19 was used to analyze the data collected from the respondents. Frequency distributions were studied for different variables under study. Various statistical test such as t-test, ANOVA, Independent sample test, regression analysis, Chi-square and p-value was calculated using SPSS software to understand the significance.

#### ***Descriptive Statistics Analysis***

To understand the characteristics of each variable, the means and standard deviations of Age, Gender, Marital status, Education, Occupation, Family income and Family size. This would give an overview of the descriptive statistics of the sample before further analysis.

#### ***Measurement Reliability and Validity***

The scale reliability and validity were tested initially before analyzing the data further. The accuracy of measurement in context of sample representativeness is the validity of the instrument. The content validity of the instrument was verified after discussion with experts from the academia as well as the industry.

### **3.12 Limitations of The Study**

1. The researcher was handicapped by the time constraint.

2. The respondents may have been biased in their response towards sustainable consumption behavior.
3. Some respondents were reluctant to fill the questionnaire.
4. The geographical distance to be covered was a major hindrance.

**Conclusion :**

This chapter presents a blue print of the research carried out during the project.

***References:***

Moser, C., & Kalton, G. (1971). *Survey Methods in Social Investigation*. New York: Ashgate Publishing.

Thakur, D. (2012). *Research Methodology in Social Sciences*. New Delhi: Deep & Deep Publications pvt. Ltd.

# **CHAPTER 4**

## **DATA ANALYSIS & INTERPRETATION**

### **Introduction**

#### **4.1 Statistical Test Used**

#### **4.2 Sample Demographics**

#### **4.3 Consumer Awareness Towards Environment Protection**

#### **4.4 Attitude Towards Green Products**

#### **4.5 Consumption of Green Products**

#### **4.6 Effect of Public Relation, Eco-Labeling of Green Consumption**

#### **4.7 Peer Pressure and Green Consumption**

#### **4.8 Perceived Barriers on Green Consumption**

#### **4.9 Determinants of Consumer Behavior**

#### **4.10 Analysis of Green Purchase Intention**

#### **4.11 Impact of Demographics**

### **Conclusion**

## **CHAPTER 4**

### **DATA ANALYSIS & INTERPRETATION**

#### **Introduction**

This chapter starts with statistical test, analysis of sample demographics, consumer attitude towards environmental protection, attitude towards green products, consumption towards green products, effect of public relation, eco labeling of green consumption, peer pressure and green consumption, perceived barriers on green consumption. It further deals with determinants of consumer behavior, analysis of green purchase intention. Lastly it studies the impact of demographics on green consumption.

#### **4.1 STATISTICAL TEST USED**

##### **4.1.1 Descriptive Statistics**

Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way such that, for example, patterns might emerge from the data. Descriptive statistics do not, however, allow us to make conclusions beyond the data we have analysed or reach conclusions regarding any hypotheses we might have made. They are simply a way to describe our data.

Descriptive statistics are very important because if we simply presented our raw data it would be hard to visualize what the data was showing, especially if there was a lot of it. Descriptive statistics therefore enables us to present the data in a more meaningful way, which allows simpler interpretation of the data.

##### **4.1.2. Inferential Statistics**

Inferential statistics are techniques that allow us to use these samples to make generalizations about the populations from which the samples were drawn. It is, therefore, important that the sample accurately represents the population. The process of achieving this is called sampling. Inferential statistics arise out of the fact that sampling naturally incurs sampling error and thus a sample is not expected to perfectly represent the population. Inferential statistics use a random sample of data taken from a

population to describe and make inferences about the population. In present research, both descriptive and inferential statistics are used for better interpretation of data collected.

#### 4.1.2 SCALE RELIABILITY

To test the reliability, the prepared questionnaire was demonstrated to 50 respondents consisting of students pursuing higher education and working professionals. The reliability of the developed questionnaire was tested by deploying the statistical test ‘Cronbach’s alpha’ to the responses received from 25 respondents selected randomly. The Cronbach’s alpha covering the overall responses should exceeded the reliability estimates ( $\geq 0.70$ ) recommended by Nunnally (1967), which is considered a good sign of reliability of the questionnaire.

**Table : 4.1 Scale Reliability Statistics**

<b>Case Processing Summary</b>				
		N	%	
Cases	Valid	1500	100.0	
	Excluded <sup>a</sup>	0	.0	
	Total	1500	100.0	
a. Listwise deletion based on all variables in the procedure.				
<b>Reliability Statistics</b>				
Cronbach's Alpha		N of Items		
.732		47		
<b>Item-Total Statistics</b>				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Concerned	168.9689	157.783	.116	.732
env_hazard	168.7569	159.188	.053	.734
Non_GrnPrd	169.3009	154.445	.191	.729

Prd_usage	168.9235	157.061	.157	.730
Funct_supr	169.8982	156.924	.050	.739
Gd_health	169.3562	159.064	.012	.739
Not_harm_env	168.9475	155.860	.266	.727
EnvImp_Prch	169.1675	155.887	.251	.727
Choose_org	169.4235	157.896	.093	.733
Satfd_ecoFrnd	169.3429	159.079	.054	.734
No_preservative	169.2175	153.479	.297	.724
Organic_food	169.6229	150.679	.329	.722
Health_Care	169.5675	149.323	.358	.720
Detergents	169.7309	150.136	.301	.723
Apparels	170.4789	145.307	.392	.716
Electronics	170.0149	146.879	.346	.719
Hom_Appl	169.7375	146.683	.369	.718
Furniture	170.7862	145.659	.387	.717
Vehicle	170.9155	145.014	.382	.717
Green_Prch_Int	169.0278	155.748	.341	.725
Barrier	169.5314	157.890	.125	.731
Peer_Prsr	169.9480	152.139	.367	.721
ECO	169.8619	156.357	.212	.728
PR	169.3299	154.402	.366	.724
Intnd_toBuy	169.1155	156.047	.203	.728
Consider_buying	169.0309	159.230	.078	.732
Plan_toBuy	169.0342	158.774	.100	.732
Attitude	169.2198	154.318	.430	.723
Green_Int	169.0278	155.748	.341	.725
Expensive	169.6009	154.898	.206	.728
Diff_toFind	169.5562	153.742	.244	.726

Few_company	169.4369	155.008	.235	.727
Learn_frmFrnd	169.9962	155.939	.137	.732
Buy_wthFrnd	170.0595	160.604	-.036	.741
Share_wthFrnd	169.7742	154.242	.196	.729
Claim_ntbelve	169.7209	155.727	.165	.730
Inf_ntAuthentic	170.0222	152.868	.270	.725
Doubtful_brand	169.6342	157.445	.125	.731
Prd_reliable	169.9875	153.558	.237	.726
Read_Article	169.4369	154.491	.242	.726
Fmly_opnion	169.3055	155.391	.238	.727
EcoFrnd_Camp	169.3742	153.624	.308	.724
Sustain_commty	169.2002	159.868	.021	.735
Age	170.7522	160.134	-.009	.738
Gender	171.8222	160.376	.024	.733
Education	171.2195	161.392	-.054	.737
Income	171.1515	160.867	-.028	.737

## 4.2 SAMPLE DEMOGRAPHICS

As the first segment of analysis, researchers find out demographic information of the respondent, which included personal, family and career information of the respondent. There were two main reasons for analyzing the demographic characteristics of the respondents of the research. First, a clear profile of the respondents based on demographic characteristics is presented.

**Population:** The target population for the study was a broad cross-section of customers. It was intended to recruit a heterogeneous sample of respondents while maintaining the gender balance in the sample.

**Sampling method:** The data collection was conducted by convenience and judgmental sampling method

### *Customer Demographics*

**Table: 4.2 Customer Demographics- summary**

	<b>Frequency</b>	<b>Percentage (%)</b>
<b>State</b>		
Rajasthan	750	50%
Gujarat	750	50%
<b>Age</b>		
< 20 yr	340	23%
20-30 yr	791	53%
31-40 yr	243	16%
> 40 yr	126	8%
<b>Gender</b>		
Male	832	55%
Female	668	45%
<b>Education</b>		
Under Graduate	540	36%
Post Graduate	656	44%
Higher than PG	304	20%
<b>Occupation</b>		
Business	233	16%
Service	843	56%
Student	352	23%
Home Maker	72	5%
<b>Marital status</b>		
Married	450	30%
Single	1050	70%
<b>Family size</b>		
2-4 members	952	63%
5-7 members	466	31%
> 8 members	82	5%
<b>Family Income</b>		

	<b>Frequency</b>	<b>Percentage (%)</b>
< 2 LPA	324	22%
2-5 LPA	516	34%
> 5 LPA	660	44%

**(a) Age**

To identify the age wise classification of the respondents, data were tabulated in table and diagram as under.

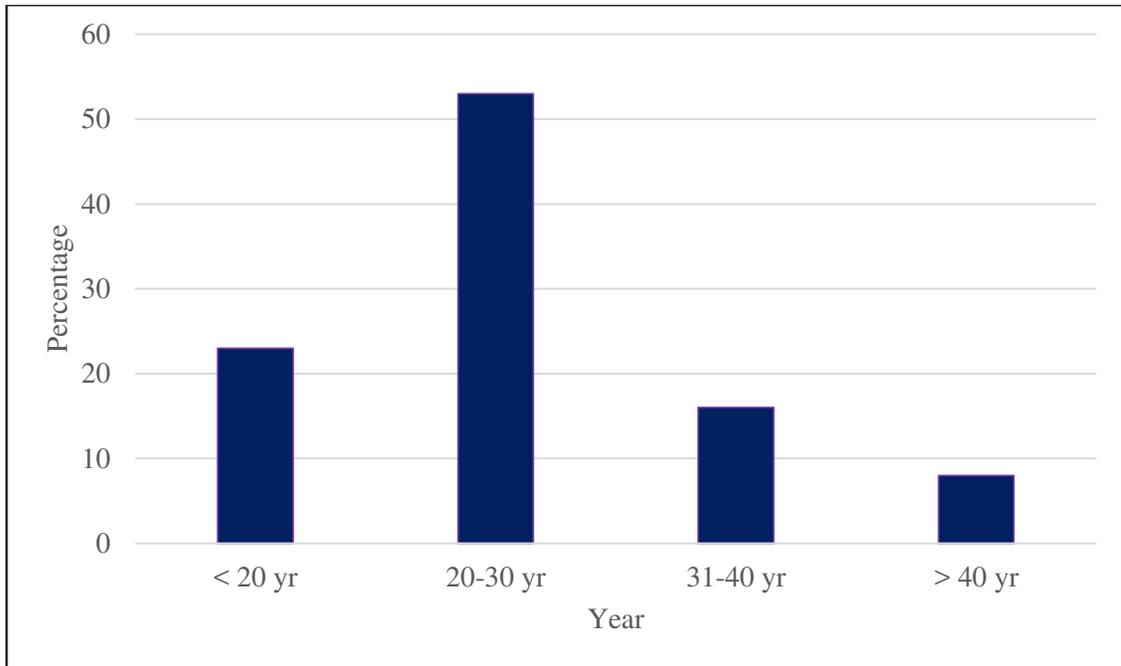
**Table: 4.3 Age distribution**

**(a) Overall**

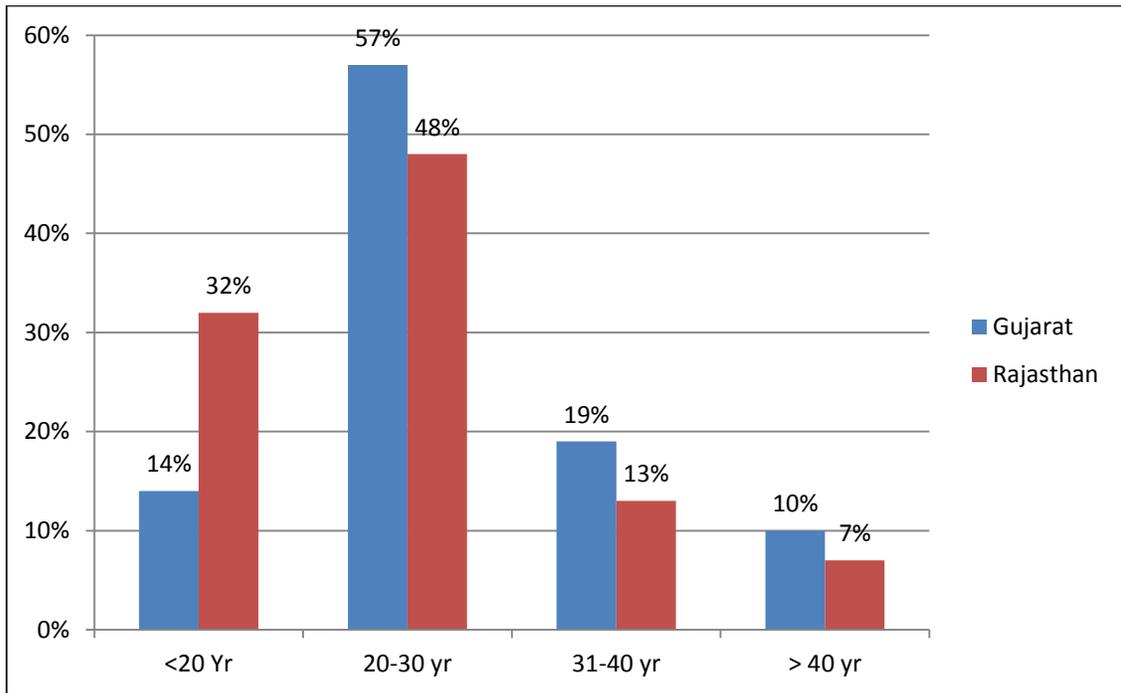
<b>Age</b>	<b>Count</b>	<b>Percentage</b>
< 20 yr	340	23%
20-30 yr	791	53%
31-40 yr	243	16%
> 40 yr	126	8%

**(b) State wise**

<b>Age</b>	<b>Count</b>	<b>Percentage</b>
<b>Gujarat</b>		
<20 Yr	105	14%
20-30 yr	429	57%
31-40 yr	142	19%
> 40 yr	74	10%
<b>Rajasthan</b>		
<20 Yr	235	32%
20-30 yr	362	48%
31-40 yr	101	13%
> 40 yr	52	7%



**Figure: 4.1 Age wise distribution-overall**



**Figure: 4.2 State wise age distribution**

From the above table and graph it can be concluded that majority of respondent are from 20-30 years of age (53 percent). 23 percent are below 20 years of age and 16 percent of consumers are between ages of 31-40 years. Only 8 percent of consumers belong to age bracket of >40 years. A small proportion belongs to higher age group of greater than 50 years. The age wise distribution of respondents is almost similar across select states of Rajasthan and Gujarat. Hence from the above table depiction, it is clear that our sample constitute of a wider variety and range of diverse demographic profile of respondents.

**(b) Gender**

To identify the gender wise classification of the respondents, data were tabulated in table and diagram as under.

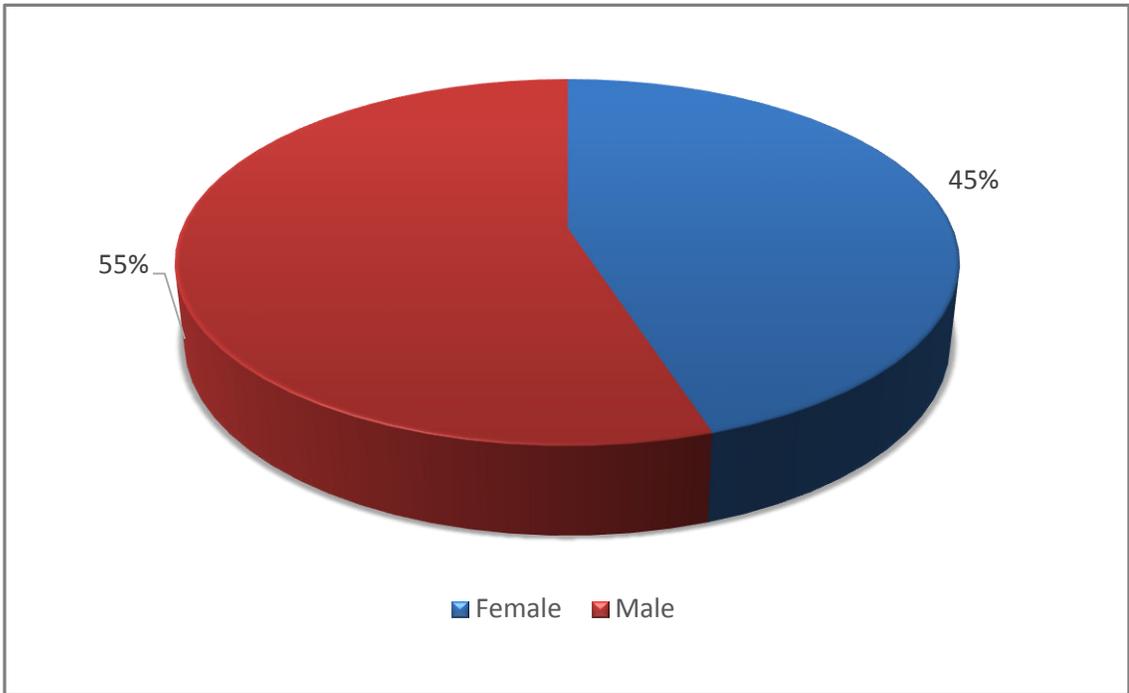
**Table: 4.4 Gender distribution**

**(a) Overall**

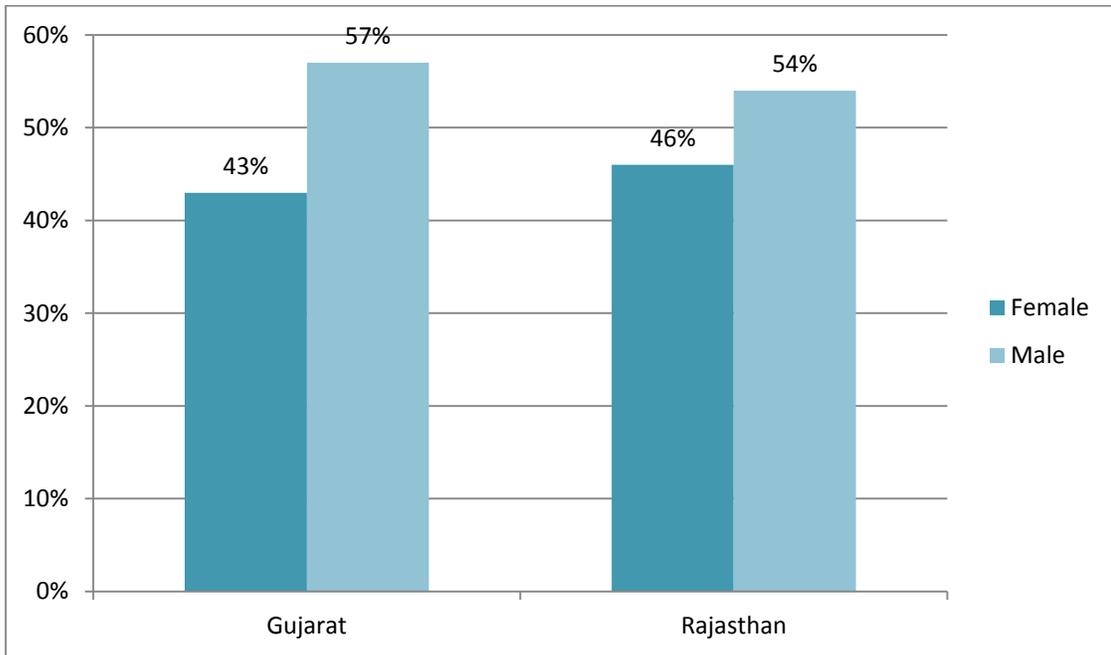
Gender	Count	Percentage
Female	668	45%
Male	832	55%

**(b) State wise**

Gender	Count	Percentage
<b>Gujarat</b>		
Female	323	43%
Male	427	57%
<b>Rajasthan</b>		
Female	345	46%
Male	405	54%



**Figure: 4.3 Gender distribution-overall**



**Figure: 4.4 State wise Gender distribution**

The gender wise analysis revealed that the survey included 1500 respondents. Out of the total respondents, about 55 percent of respondents are Male and 45 percent were female. Since the survey was conducted, this distribution shows a balance in distribution of males and female. The gender wise distribution is also similar across select states of Rajasthan and Gujarat. This classification was important since the gender-wise difference regarding the opinion of were analyzed later.

**(c) Occupation**

To identify the occupation wise classification of the respondents, data were tabulated in table and diagram as under.

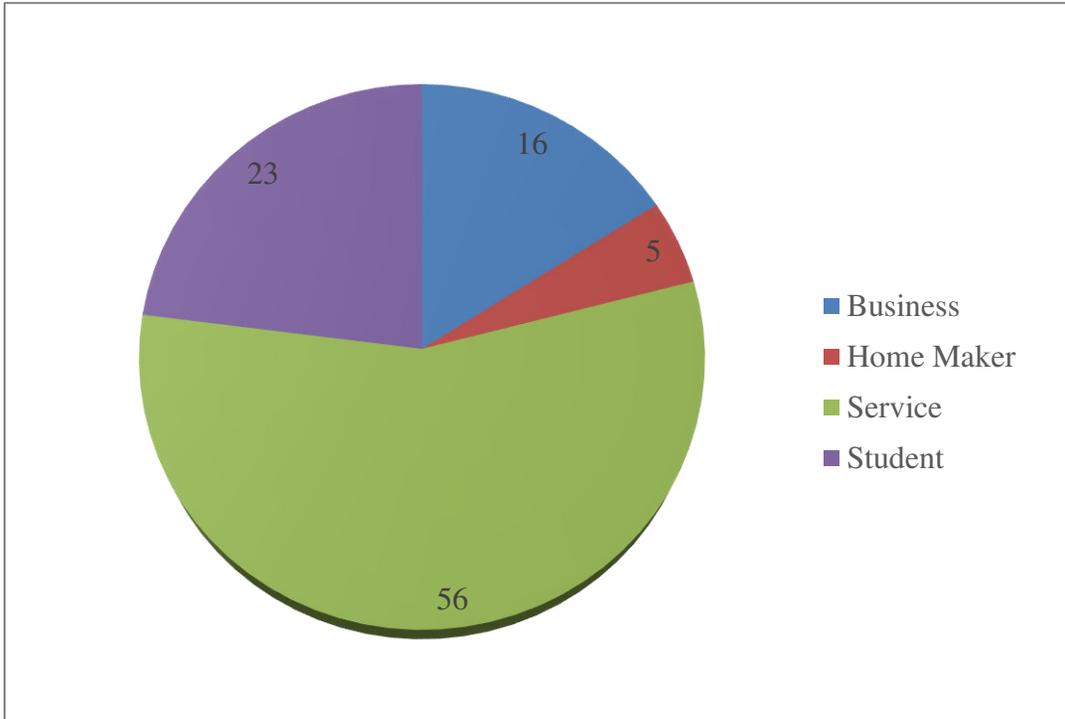
**Table: 4.5 Occupation wise distribution**

**(a) Overall**

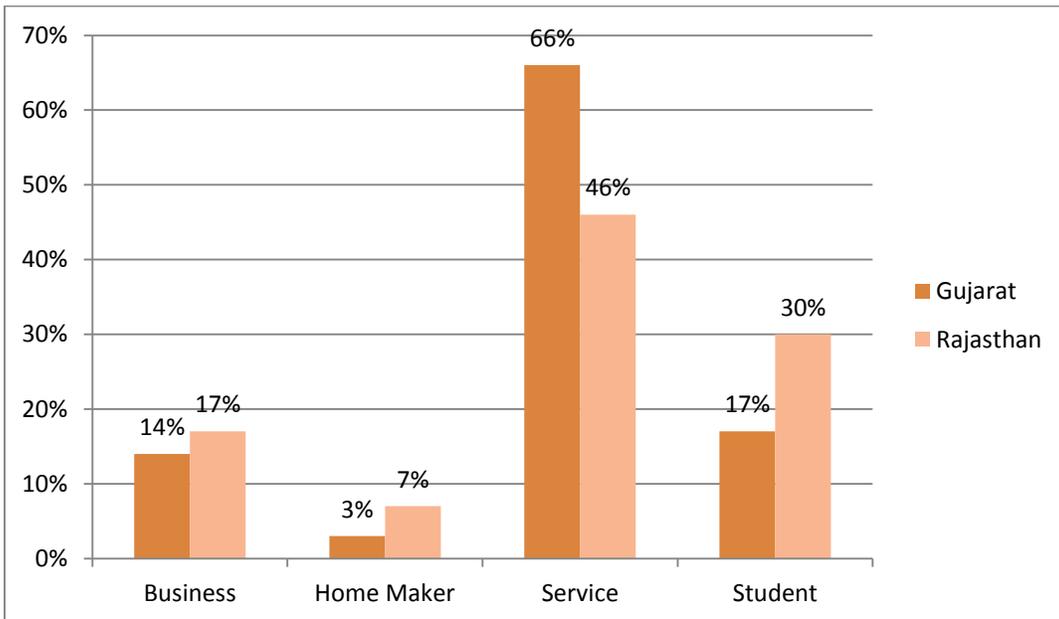
Occupation	Count	Percentage
Business	233	16%
Home Maker	72	5%
Service	843	56%
Student	352	23%

**(b) State wise**

Occupation	Count	Percentage
<b>Gujarat</b>		
Business	103	14%
Home Maker	20	3%
Service	496	66%
Student	131	17%
<b>Rajasthan</b>		
Business	130	17%
Home Maker	52	7%
Service	347	46%
Student	221	30%



**Figure: 4.5 Occupation wise distribution-overall**



**Figure: 4.6 State wise Occupation distribution**

The occupational level wise analysis were shown in table revealed that out of total respondents, about 56 percent belong to service class; 16% is related to business class. As youth is the major drivers for green marketing, our study include 23 percent student in the survey. It showed that there is a balance in sample distribution with respect to occupation. This occupational distribution is almost similar across select states of Rajasthan and Gujarat, except that the numbers of students surveyed are more in Rajasthan as compared to Gujarat. Moreover, Gujarat has more service class respondents as compared to Rajasthan. This classification was important since the occupational wise difference regarding the consumer's opinion were also analysed.

**(d) Education**

To identify the education wise classification of the respondents, data were tabulated in table and diagram as under.

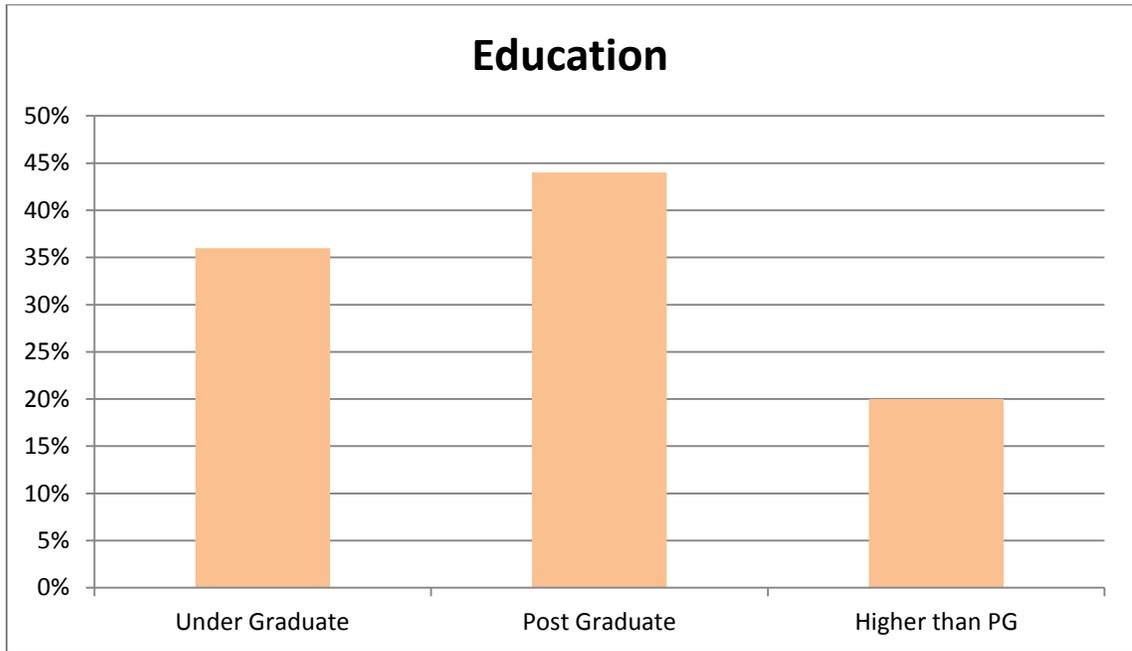
**Table: 4.6 Education wise distribution**

**(a) overall**

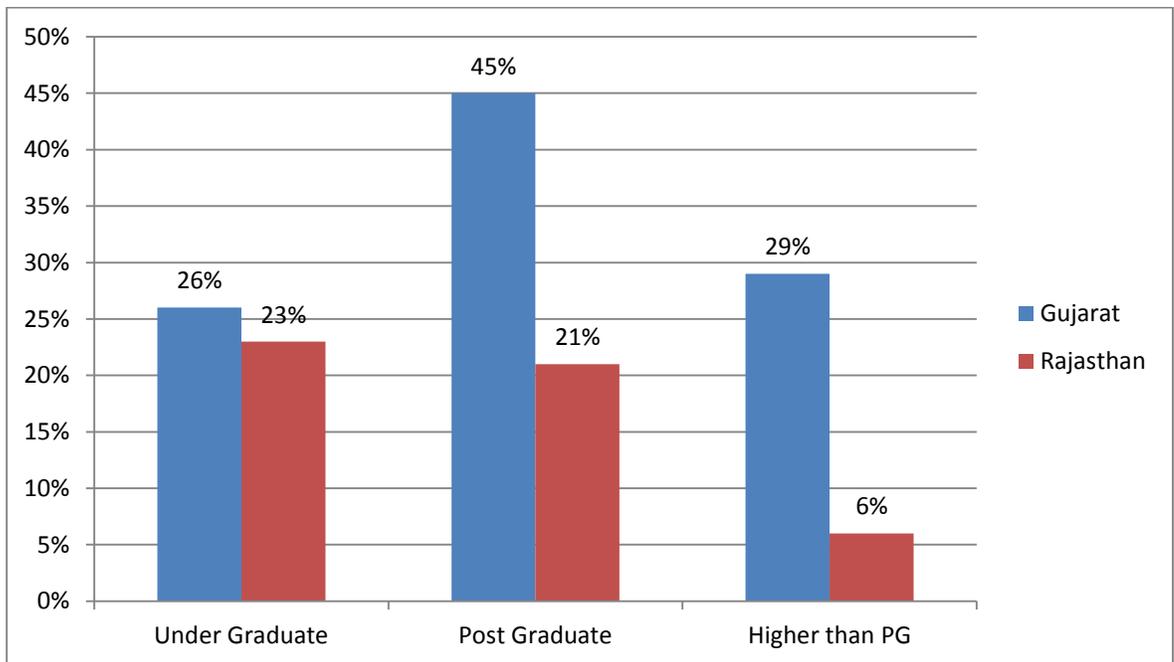
Education	Count	Percentage
Under Graduate	540	36%
Post Graduate	656	44%
Higher than PG	304	20%

**(b) State wise**

Education	Count	Percentage
<b>Gujarat</b>		
Under Graduate	198	26%
Post Graduate	337	45%
Higher than PG	215	29%
<b>Rajasthan</b>		
Under Graduate	342	23%
Post Graduate	319	21%
Higher than PG	89	6%



**Figure: 4.7 Education wise distribution-overall**



**Figure: 4.8 State wise education distribution**

The occupational level wise analysis shown in tables and figures revealed that a wide range of respondents from different educational background is selected for the survey. Out of the total consumers (1500), about 36 percent are under graduate, 44 percent are graduates and 20% is related to post graduate category. This distribution is not also similar across select states of Rajasthan and Gujarat. Survey from Rajasthan includes more under graduate as compared to Gujarat. Moreover, Survey from Gujarat includes more respondents having degree higher than PG as compared to Rajasthan.

**(e) Marital Status**

To identify the marital status wise classification of the respondents, data were tabulated in table and diagram as under.

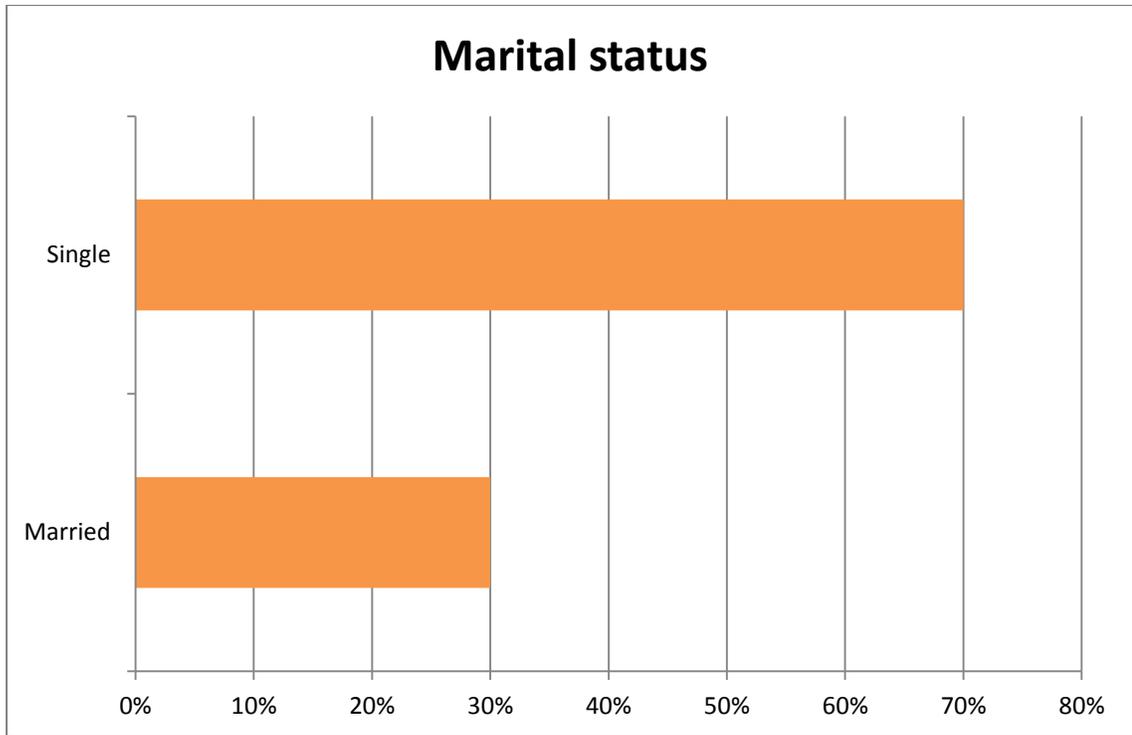
**Table: 4.7 Marital Status distribution**

**(a) Overall**

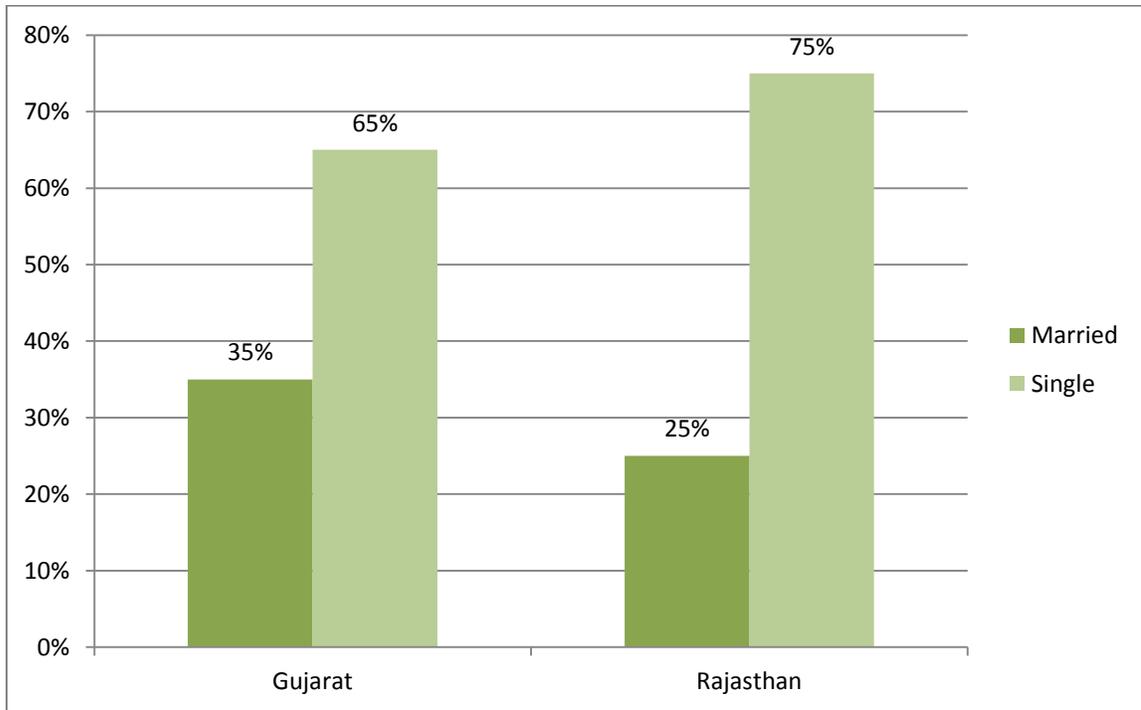
Marital Status	Count	Percentage
Married	450	30%
Single	1050	70%

**(b) State wise**

Marital Status	Count	Percentage
<b>Gujarat</b>		
Married	263	35%
Single	487	65%
<b>Rajasthan</b>		
Married	187	25%
Single	563	75%



**Figure: 4.9 Marital Status-overall**



**Figure: 4.10 State wise marital Status**

From the above graph and table it can be concluded that majority of respondents participated in the survey are single (70% percent) and about 30 percent of respondents are single. This distribution is also similar across select states of Rajasthan and Gujarat.

**(f) Income**

To identify the income level wise classification of the respondents, data were tabulated in table and diagram as under.

**Table: 4.8 Income wise distribution**

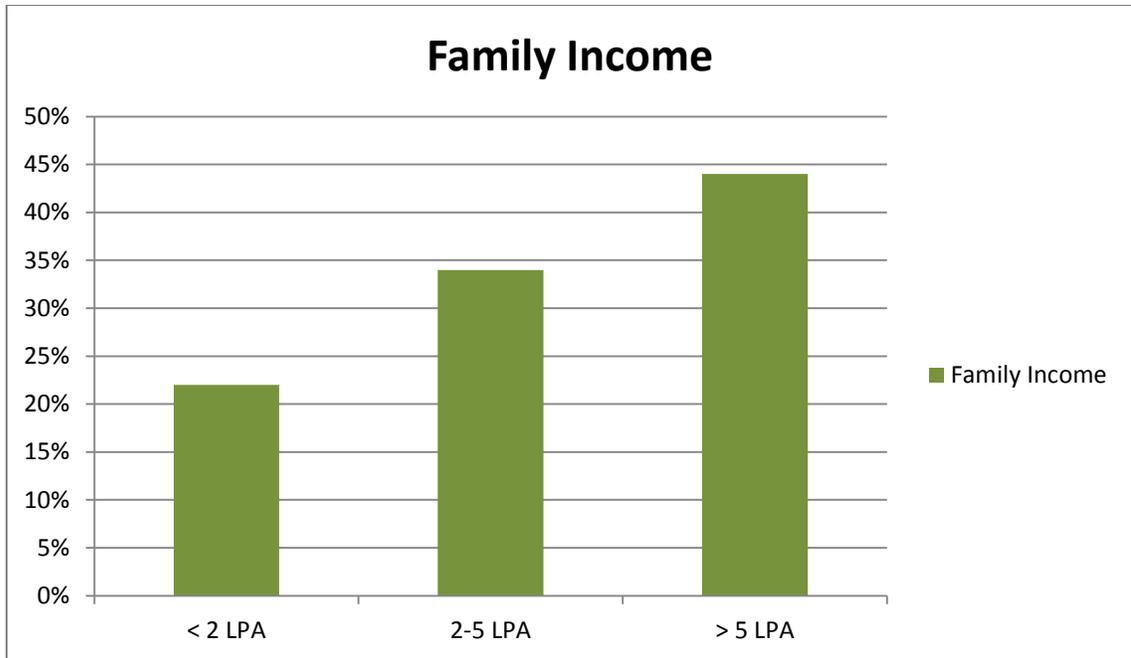
**(a) Overall**

Income	Count	Percentage
< 2 LPA	324	22%
2-5 LPA	516	34%
> 5 LPA	660	44%

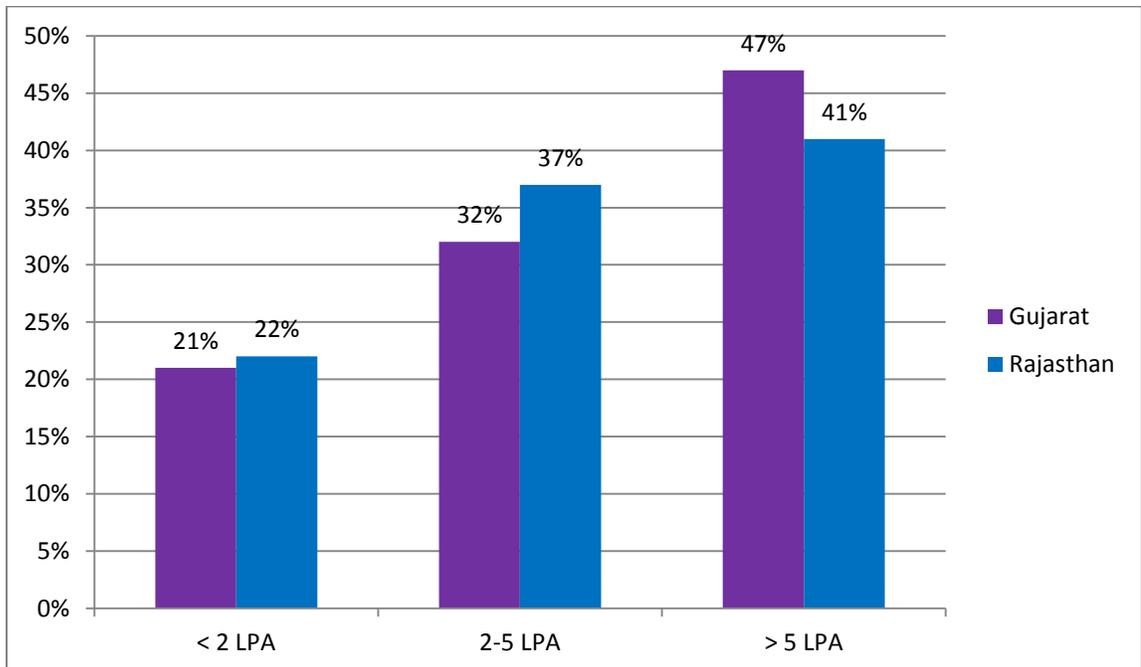
**(b) State wise**

Income	Count	Percentage
<b>Gujarat</b>		
< 2 LPA	156	21%
2-5 LPA	241	32%
> 5 LPA	353	47%
<b>Rajasthan</b>		
< 2 LPA	168	22%
2-5 LPA	275	37%
> 5 LPA	307	41%

From the above graph and table it can be concluded that there is unequal distribution of respondents across all income categories. About 22 percent of respondents belong to less than 2 LPA group and only 34 percent are having income in between 2-5 LPA and 44 percent of respondents are having income higher than 5 LPA.



**Figure: 4.11 Income wise distribution-overall**



**Figure: 4.12 State wise income distribution**

**(g) Family Size**

To identify the family-size wise classification of the respondents, data were tabulated in table and diagram as under.

**Table: 4.9 Family Size wise distribution**

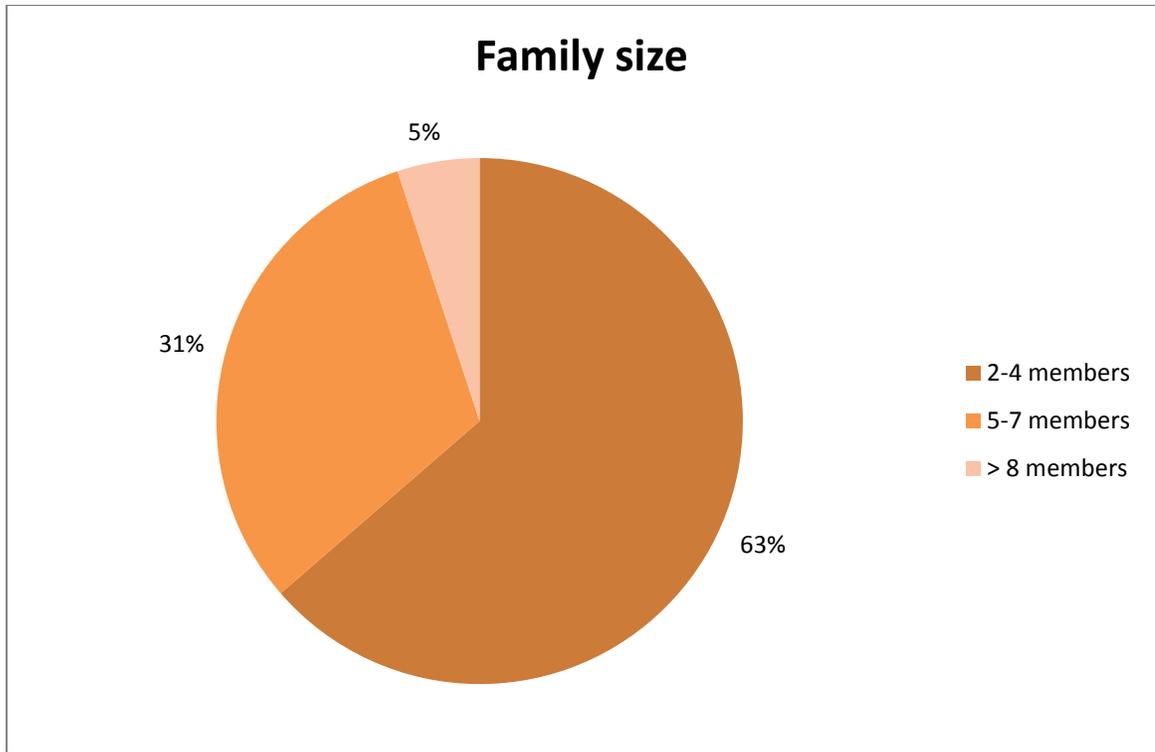
**(a) Overall**

Family Size	Count	Percentage
2-4 members	952	63%
5-7 members	466	31%
> 8 members	82	5%

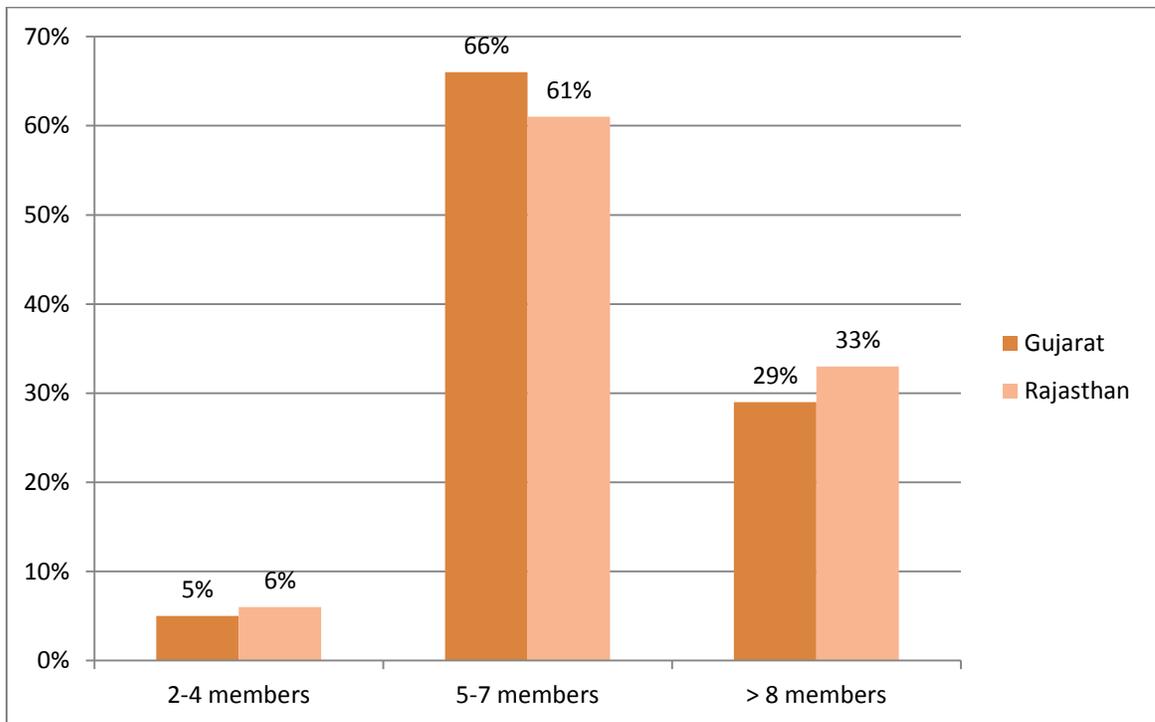
**(b) State wise**

Family Size	Count	Percentage
<b>Gujarat</b>		
2-4 members	37	5%
5-7 members	493	66%
> 8 members	220	29%
<b>Rajasthan</b>		
2-4 members	45	6%
5-7 members	459	61%
> 8 members	246	33%

From the above graph and table it can be concluded that there is unequal distribution of family members (family size) all categories. About 63 percent of respondents have 2-4 members and only 31 percent of respondents are having family members in between 5 to 7 and only 5 percent of respondents are having family size more than 8 members.



**Figure: 4.13 Family size distribution-overall**



**Figure: 4.14 State wise family size distribution**

### Chi-Square for Goodness of Fit of demographic distribution

The chi-square goodness-of-fit test is a single-sample nonparametric test. It is used to determine whether the distribution of cases (e.g., participants) in a single categorical variable (e.g., "gender", consisting of two groups: "males" and "females") follows a known or hypothesised distribution.

**Table: 4.10 Chi-Square for demographic distribution**

	Observed N	Expected N	Chi Square	P-Value
<b>Age</b>				
< 20 yr	340	375	676.549 <sup>a</sup>	0.000
20-30 yr	126	375		
31-40 yr	791	375		
> 40 yr	243	375		
<b>Gender</b>				
Male	832	750.0	17.931 <sup>b</sup>	0.000
Female	668	750.0		
<b>Education</b>				
Under Graduate	540	500.0	128.704 <sup>c</sup>	0.000
Post Graduate	656	500.0		
Higher than PG	304	500.0		
<b>Occupation</b>				
Business	233	375.0	884.069 <sup>a</sup>	0.000
Service	843	375.0		
Student	352	375.0		
Home Maker	72	375.0		
<b>Marital status</b>				
Married	450	750.0	240.000 <sup>b</sup>	0.000
Single	1050	750.0		

	Observed N	Expected N	Chi Square	P-Value
<b>Family size</b>				
2-4 members	952	500.0	760.368 <sup>c</sup>	0.000
5-7 members	466	500.0		
> 8 members	82	500.0		
<b>Family Income</b>				
< 2 LPA	324	500.0	113.664 <sup>c</sup>	0.000
2-5 LPA	516	500.0		
> 5 LPA	660	500.0		
<p>a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 375.0.</p> <p>b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 750.0.</p> <p>c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 500.0.</p>				

The output that is generated for the chi-square goodness-of-fit test will depend on whether you have hypothesised that the proportion of cases expected in each group of the categorical variable is equal or unequal. From the table result below, it can be concluded that the distribution of responses are not equal among given categories as the p-value for age, gender, education, occupation, marital status, family income are below 0.0. Hence we can reject the hypothesis that is an equal distribution of responses among the given categories.

### 4.3 CONSUMER AWARENESS TOWARDS ENVIRONMENT PROTECTION AND GREEN PRODUCTS

Following section attempts to attain the following objective of the Study

**Objective: To study the awareness of negative impacts of consumption among the consumers.**

Consumer perceptions towards environment pollution and green products are studied. Scale items are used to measure perception towards environment pollution and green products is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is also formulated

**Hypothesis1 (null): Consumers are not aware towards Environment protection and Green products.**

**Hypothesis1 (alternate): Consumers are aware towards Environment protection and Green products.**

**Table: 4.11 Consumer Awareness**

Factor	Scale Item	Variable Name
Concern towards environmental pollution problem	I am very much concerned about the environmental pollution problem	Concerned
Awareness about Green products	Product packaging (Plastic bags) also create environmental hazards	env_hazard
	Non-Green products adversely affect environment	Non_GrnPrd

	Green product usage save environment and society	Prd_usage
	Green labeled products are functionally superior	Funct_supr
	I believe that green leveled products are good for health	Gd_health

**Table: 4.12 Descriptive Statistics- Consumer Awareness**

**1. Frequency Distribution**

<b>Concerned</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	50	3.3	3.3	3.3
	Disagree	15	1.0	1.0	4.3
	Agree	642	42.8	42.8	47.1
	Strongly Agree	793	52.9	52.9	100.0
	Total	1500	100.0	100.0	

<b>env_hazard</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	48	3.2	3.2	3.2
	Disagree	6	.4	.4	3.6
	Agree	357	23.8	23.8	27.4
	Strongly Agree	1089	72.6	72.6	100.0
	Total	1500	100.0	100.0	

<b>Non_GrnPrd</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	122	8.1	8.1	8.1
	Disagree	45	3.0	3.0	11.1
	Agree	763	50.9	50.9	62.0
	Strongly Agree	570	38.0	38.0	100.0
	Total	1500	100.0	100.0	

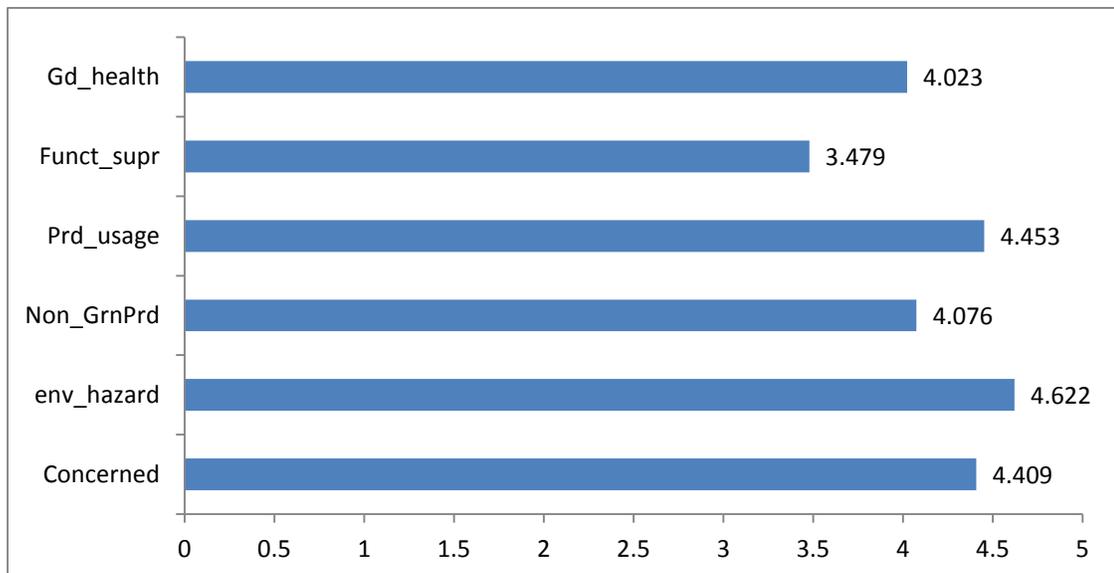
<b>Prd_usage</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	44	2.9	2.9	2.9
	Disagree	16	1.1	1.1	4.0
	Agree	596	39.7	39.7	43.7
	Strongly Agree	844	56.3	56.3	100.0
	Total	1500	100.0	100.0	

<b>Funct_supr</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	322	21.5	21.5	21.5
	Disagree	92	6.1	6.1	27.6
	Agree	718	47.9	47.9	75.5
	Strongly Agree	368	24.5	24.5	100.0
	Total	1500	100.0	100.0	

Gd_health					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	165	11.0	11.0	11.0
	Disagree	33	2.2	2.2	13.2
	Agree	706	47.1	47.1	60.3
	Strongly Agree	596	39.7	39.7	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Concerned	4.409	0.838
env_hazard	4.622	0.802
Non_GrnPrd	4.076	1.108
Prd_usage	4.453	0.815
Funct_supr	3.479	1.467
Gd_health	4.023	1.215



**Figure: 4.15 Mean values- Consumer Awareness**

From the descriptive analysis, it can be concluded that consumers are aware about the negative impact of non green marketing and consumption.

They are very much concerned about the environmental pollution problem, Product packaging (Plastic bags) and its adverse environmental hazards. Respondents believe that green product usage save environment and society and agreed that these products are functionally superior. They also agreed that green leveled products are good for health. To further test result from descriptive analysis, one sample ‘t’ test is applied.

The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. This population mean is not always known, but is sometimes hypothesized. For the present analysis, we test the data with hypotheses mean of ‘3’ (Middle value of Likert Scale). By default, SPSS uses 95% confidence intervals (labelled as the Confidence Interval Percentage in SPSS). This equates to declaring statistical significance at the  $p < 0.05$  level. For this research, the default 95% confidence interval is selected

**Table: 4.13 Consumer Awareness- ‘t’ test result**

<b>One-Sample Statistics</b>				
	N	Mean	Std. Deviation	Std. Error Mean
Concerned	1500	4.4087	.83793	.02164
env_hazard	1500	4.6220	.80221	.02071
Non_GrnPrd	1500	4.0760	1.10772	.02860
Prd_usage	1500	4.4533	.81502	.02104
Funct_supr	1500	3.4787	1.46708	.03788
Gd_health	1500	4.0233	1.21481	.03137

One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Concerned	65.110	1499	.000	1.40867	1.3662	1.4511
env_hazard	78.308	1499	.000	1.62200	1.5814	1.6626
Non_GrnPrd	37.621	1499	.000	1.07600	1.0199	1.1321
Prd_usage	69.062	1499	.000	1.45333	1.4121	1.4946
Funct_supr	12.636	1499	.000	.47867	.4044	.5530
Gd_health	32.625	1499	.000	1.02333	.9618	1.0849

Table presented with the observed  $t$ -value ("t" column), the degrees of freedom ("df"), and the statistical significance (p-value) ("Sig. (2-tailed)") of the one-sample t-test. The  $p$  value for all the dimensions are  $< .05$ , therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that customers showed a positive or higher perception towards positive impact of green products and green marketing efforts.

*From the results, we can accept alternate hypothesis1, that Consumers are aware towards Environment protection and Green products.*

### **State-Wise Analysis- Consumer Awareness**

The independent two-sample t-test is used to test whether population means are significantly different from each other, using the means from randomly drawn samples. Any statistical test that uses two samples drawn independently of each other and using t-distribution, can be called a 'two-sample t-test'. This test involves testing the null hypothesis  $H_0: \mu(x) = \mu(y)$  against the alternative research hypothesis,  $H_1: \mu(x) \neq \mu(y)$  where  $\mu(x)$  and  $\mu(y)$  are respectively the population mean of the two populations from which the two samples have been drawn.

In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for customer perception regarding Green. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level. It provides result for two tests- Levene's test for equality of variances and T-test for equality of mean. Levene's test check for null hypothesis that the two groups have equal variance. If this null hypothesis is rejected at 5% significance level, then test statistics for 'no equal variance' is considered for the t-test for equality of means.

**Table: 4.14 Independent Samples Test- Consumer Awareness**

Group Statistics					
	State	N	Mean	Std. Deviation	Std. Error Mean
Concerned	Gujarat	750	4.3387	.90833	.03317
	Rajasthan	750	4.4773	.75515	.02757
env_hazard	Gujarat	750	4.6653	.73715	.02692
	Rajasthan	750	4.5747	.87031	.03178
Non_GrnPrd	Gujarat	750	4.0987	1.05566	.03855
	Rajasthan	750	4.0533	1.15770	.04227
Prd_usage	Gujarat	750	4.4467	.85330	.03116
	Rajasthan	750	4.4600	.77537	.02831
Funct_supr	Gujarat	750	3.6547	1.38924	.05073
	Rajasthan	750	3.3027	1.52167	.05556
Gd_health	Gujarat	750	4.0760	1.15932	.04233
	Rajasthan	750	3.9653	1.27054	.04639

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Concerned	Equal variances assumed	7.169	.007	-3.215	1498	.001	-.13867	.04313	-.22327	-.05406
	Equal variances not assumed			-3.215	1449.650	.001	-.13867	.04313	-.22328	-.05406
env_hazard	Equal variances assumed	11.371	.001	2.177	1498	.030	.09067	.04165	.00897	.17236
	Equal variances not assumed			2.177	1458.510	.030	.09067	.04165	.00897	.17236
Non_GrnPrd	Equal variances assumed	1.502	.221	.792	1498	.428	.04533	.05721	-.06689	.15755
	Equal variances not assumed			.792	1485.424	.428	.04533	.05721	-.06689	.15755
Prd_usage	Equal variances assumed	1.932	.165	-.317	1498	.752	-.01333	.04210	-.09592	.06925
	Equal variances not assumed			-.317	1484.467	.752	-.01333	.04210	-.09592	.06925
Funct_supr	Equal variances assumed	48.634	.000	4.679	1498	.000	.35200	.07524	.20442	.49958
	Equal variances not assumed			4.679	1485.750	.000	.35200	.07524	.20442	.49958
Gd_health	Equal variances assumed	4.081	.044	1.762	1498	.078	.11067	.06280	-.01253	.23386
	Equal variances not assumed			1.762	1485.600	.078	.11067	.06280	-.01253	.23386

It was found that there is a significant perception gap between respondents of Rajasthan and Gujarat towards awareness towards negative impacts of non green consumption among the consumers. The result connotes that respondents of Rajasthan are more concerned about the environmental pollution problem as compared to Gujarat. Moreover, respondents from Gujarat are more aware about product packaging (Plastic bags) and its environmental hazards. They also have higher perception towards superior functionality of green products and believe that green labeled products are good for health as compared to Rajasthan.

#### **4.4 ATTITUDE TOWARDS GREEN PRODUCTS**

Consumer attitude towards green products is studied in following section. Scale items are used to measure attitude towards environment friendly products is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is also formulated

**Hypothesis 2(null): Consumer does not have positive attitude towards green products**

**Hypothesis 2(alternate): Consumer have positive attitude towards green products**

**Table: 4.15 Attitude towards green products**

<b>Factor</b>	<b>Scale Item</b>	<b>Variable Name</b>
<b>Attitude</b>	It is important for me that products I use should do not harm environment	Not_harm_env
	Environmental protection is important to me when making purchases	EnvImp_Prch
	I choose organic in comparison to conventional products.	Choose_org

	I was satisfied with most of eco- friendly products	Satfd_ecoFrnd
	It is important to me that food products contain no preservatives.	No_preservative

**Table: 4.16 Descriptive Statistics-Attitude towards green products**

**1. Frequency Distribution**

<b>Not_harm_env</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	.3	.3	.3
	Disagree	27	1.8	1.8	2.1
	No Idea	63	4.2	4.2	6.3
	Agree	629	41.9	41.9	48.3
	Strongly Agree	776	51.7	51.7	100.0
	Total	1500	100.0	100.0	

<b>EnvImp_Prch</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	55	3.7	3.7	3.7
	No Idea	100	6.7	6.7	10.3
	Agree	821	54.7	54.7	65.1
	Strongly Agree	524	34.9	34.9	100.0
	Total	1500	100.0	100.0	

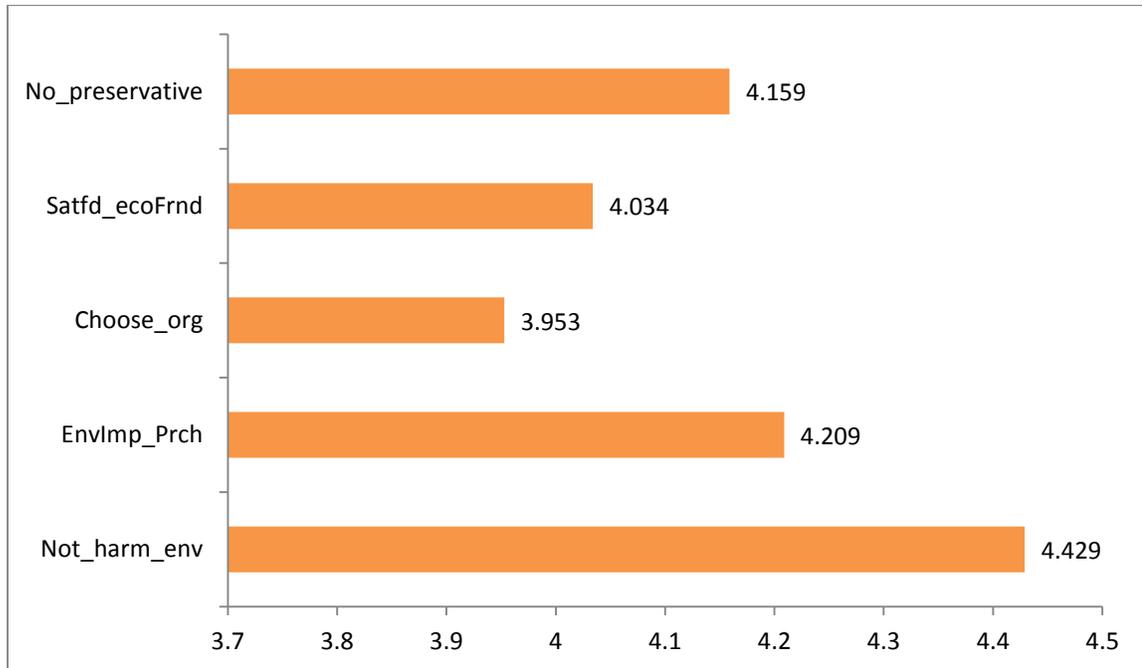
<b>Choose_org</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	.5	.5	.5
	Disagree	155	10.3	10.3	10.9
	No Idea	170	11.3	11.3	22.2
	Agree	733	48.9	48.9	71.1
	Strongly Agree	434	28.9	28.9	100.0
	Total	1500	100.0	100.0	

Satfd_ecoFrnd					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	.7	.7	.7
	Disagree	79	5.3	5.3	5.9
	No Idea	204	13.6	13.6	19.5
	Agree	764	50.9	50.9	70.5
	Strongly Agree	443	29.5	29.5	100.0
	Total	1500	100.0	100.0	

No_preservative					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	19	1.3	1.3	1.3
	Disagree	81	5.4	5.4	6.7
	No Idea	150	10.0	10.0	16.7
	Agree	642	42.8	42.8	59.5
	Strongly Agree	608	40.5	40.5	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Not_harm_env	4.429	0.691
EnvImp_Prch	4.209	0.721
Choose_org	3.953	0.929
Satfd_ecoFrnd	4.034	0.837
No_preservative	4.159	0.900



**Figure: 4.16 Mean Values- Attitude towards green products**

From the descriptive analysis, it can be concluded that overall respondents in the survey present a positive attitude towards green products. They believe that it is important that products should not harm environment and contain no preservatives. Customers perceive that environmental protection is important when making purchase decision. Overall, they prefer to choose organic in comparison to conventional products and was satisfied with most of eco- friendly products. To further test result from descriptive analysis, one sample ‘t’ test is applied. For the present analysis, we test the data with hypotheses mean of ‘3’ (Middle value of Likert Scale). By default, SPSS uses 95% confidence intervals (labeled as the Confidence Interval Percentage in SPSS). This equates to declaring statistical significance at the  $p < .05$  level. For this research, the default 95% confidence interval is selected.

**Table: 4.17 Attitude towards green products - 't' test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Not_harm_env	1500	4.4293	.69089	.01784
EnvImp_Prch	1500	4.2093	.72055	.01860
Choose_org	1500	3.9533	.92865	.02398
Satfd_ecoFrnd	1500	4.0340	.83744	.02162
No_preservative	1500	4.1593	.90027	.02324

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Not_harm_env	80.126	1499	.000	1.42933	1.3943	1.4643
EnvImp_Prch	65.002	1499	.000	1.20933	1.1728	1.2458
Choose_org	39.759	1499	.000	.95333	.9063	1.0004
Satfd_ecoFrnd	47.820	1499	.000	1.03400	.9916	1.0764
No_preservative	49.875	1499	.000	1.15933	1.1137	1.2049

Table presented with the observed *t*-value ("t" column), the degrees of freedom ("df"), and the statistical significance (p-value) ("Sig. (2-tailed)") of the one-sample t-test. The *p* value for majority of service dimension are < .05, therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that customers showed a positive or higher perception towards green products.

*From the result we can accept alternate hypothesis 2, that Consumer have positive attitude towards green products*

### State-Wise Analysis- Consumer Attitude

The independent two-sample t-test is used to test whether population means are significantly different for each state. In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for customer attitude towards green product.

**Table: 4.18 Independent Samples Test- Consumer Attitude**

Group Statistics					
	State	N	Mean	Std. Deviation	Std. Error Mean
Not_harm_env	Gujarat	750	4.3760	.73622	.02688
	Rajasthan	750	4.4827	.63842	.02331
EnvImp_Prch	Gujarat	750	4.1747	.73997	.02702
	Rajasthan	750	4.2440	.69937	.02554
Choose_org	Gujarat	750	3.9947	.89202	.03257
	Rajasthan	750	3.9120	.96272	.03515
Satfd_ecoFrnd	Gujarat	750	4.0920	.82731	.03021
	Rajasthan	750	3.9760	.84402	.03082
No_preservative	Gujarat	750	4.1507	.91856	.03354
	Rajasthan	750	4.1680	.88213	.03221

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Not_harm_env	Equal variances assumed	6.288	.012	-2.998	1498	.003	-.10667	.03558	-.17646	-.03687
	Equal variances not assumed			-2.998	1468.565	.003	-.10667	.03558	-.17646	-.03687
EnvImp_Prch	Equal variances assumed	.197	.658	-1.865	1498	.062	-.06933	.03718	-.14226	.00359
	Equal variances not assumed			-1.865	1493.255	.062	-.06933	.03718	-.14226	.00359
Choose_org	Equal variances assumed	6.162	.013	1.725	1498	.085	.08267	.04792	-.01134	.17667
	Equal variances not assumed			1.725	1489.369	.085	.08267	.04792	-.01134	.17667
Satfd_ecoFrnd	Equal variances assumed	.166	.684	2.688	1498	.007	.11600	.04316	.03135	.20065
	Equal variances not assumed			2.688	1497.402	.007	.11600	.04316	.03135	.20065
No_preservative	Equal variances assumed	.076	.783	-.373	1498	.709	-.01733	.04650	-.10855	.07388
	Equal variances not assumed			-.373	1495.553	.709	-.01733	.04650	-.10855	.07388

It was found that there is a significant perception gap between respondents of Rajasthan and Gujarat towards attitude for green products. The result connote that respondents of Rajasthan give more importance to activities that should not harm environment. Moreover, respondents from Gujarat are more satisfied with eco-friendly products as compared to Rajasthan.

#### 4.5 CONSUMPTION OF GREEN PRODUCTS

##### 1. Frequency of consumption

Consumer's perceptions towards consumption of following energy efficient elements are studied. Scale items are used to measure perception towards frequency of consumption products is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items on the basis of frequency of purchase where 5 indicated Most Purchased while 1 represented Rarely Purchased.

Following hypothesis has been formulated

**Hypothesis 3(null): Green products are not frequently purchased by consumers of Rajasthan and Gujarat**

**Hypothesis 3(alternate): Green products are frequently purchased by consumers of Rajasthan and Gujarat**

**Table: 4.19 Consumption of green products**

Eco- friendly products	Variable Name
Food Products ( <i>eg. organic food</i> )	Organic_food
Health Care Products ( <i>eg. herbal</i> )	Health_Care
Soap/Detergents ( <i>eg. herbal</i> )	Detergents
Apparels ( <i>eg. natural dyes</i> )	Apparels
Electronics ( <i>eg. LEDs</i> )	Electronics
Energy Efficient Appliances ( <i>eg. 5 star rating</i> )	Hom_Appl
Furniture ( <i>eg. non wood</i> )	Furniture
Vehicle ( <i>eg. Electronic</i> )	Vehicle

**Table: 4.20 Descriptive Statistics- Green Consumption**

**1. Frequency Distribution**

<b>Organic_food</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	80	5.3	5.3	5.3
	Occasionally Purchased	178	11.9	11.9	17.2
	No Idea	147	9.8	9.8	27.0
	Regularly Purchased	721	48.1	48.1	75.1
	Most frequently Purchased	374	24.9	24.9	100.0
	Total	1500	100.0	100.0	

<b>Health_Care</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	125	8.3	8.3	8.3
	Occasionally Purchased	115	7.7	7.7	16.0
	No Idea	99	6.6	6.6	22.6
	Regularly Purchased	743	49.5	49.5	72.1
	Most frequently Purchased	418	27.9	27.9	100.0
	Total	1500	100.0	100.0	

<b>Detergents</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	162	10.8	10.8	10.8
	Occasionally Purchased	142	9.5	9.5	20.3
	No Idea	134	8.9	8.9	29.2
	Regularly Purchased	689	45.9	45.9	75.1
	Most frequently Purchased	373	24.9	24.9	100.0
	Total	1500	100.0	100.0	

<b>Apparels</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	407	27.1	27.1	27.1
	Occasionally Purchased	181	12.1	12.1	39.2
	No Idea	297	19.8	19.8	59.0
	Regularly Purchased	388	25.9	25.9	84.9
	Most frequently Purchased	227	15.1	15.1	100.0
	Total	1500	100.0	100.0	

<b>Electronics</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	257	17.1	17.1	17.1
	Occasionally Purchased	211	14.1	14.1	31.2
	No Idea	140	9.3	9.3	40.5
	Regularly Purchased	516	34.4	34.4	74.9
	Most frequently Purchased	376	25.1	25.1	100.0
	Total	1500	100.0	100.0	

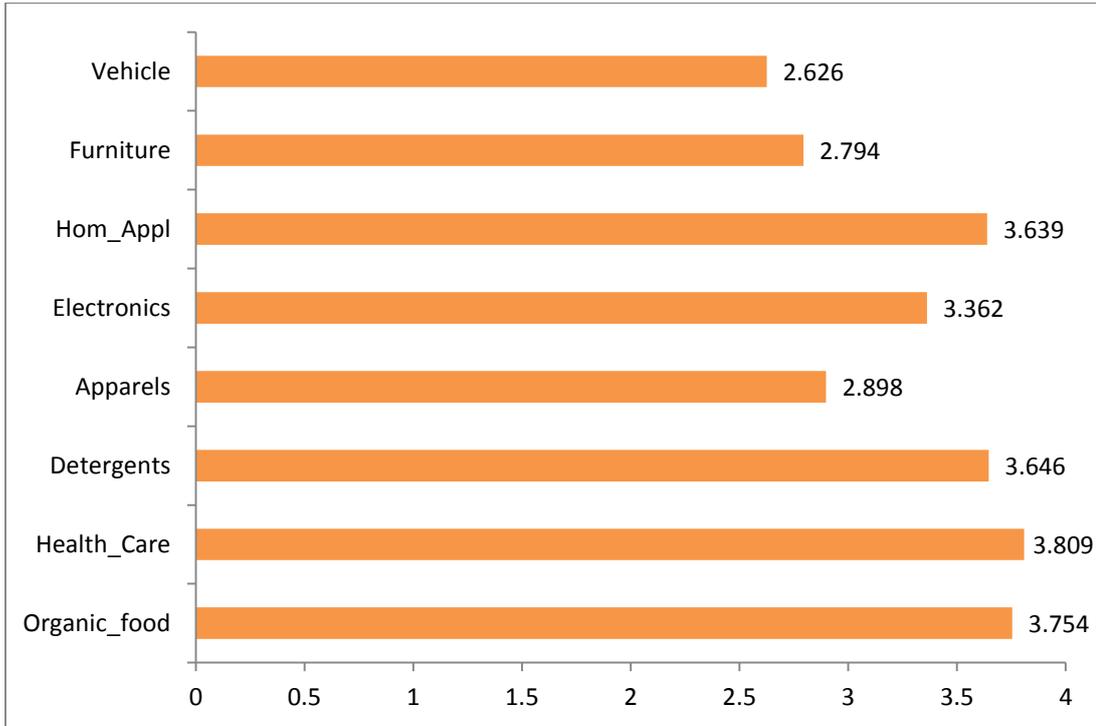
<b>Hom_Appl</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	217	14.5	14.5	14.5
	Occasionally Purchased	124	8.3	8.3	22.7
	No Idea	121	8.1	8.1	30.8
	Regularly Purchased	559	37.3	37.3	68.1
	Most frequently Purchased	479	31.9	31.9	100.0
	Total	1500	100.0	100.0	

<b>Furniture</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	498	33.2	33.2	33.2
	Occasionally Purchased	288	19.2	19.2	52.4
	No Idea	203	13.5	13.5	65.9
	Regularly Purchased	352	23.5	23.5	89.4
	Most frequently Purchased	159	10.6	10.6	100.0
	Total	1500	100.0	100.0	

<b>Vehicle</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rarely Purchased	637	42.5	42.5	42.5
	Occasionally Purchased	201	13.4	13.4	55.9
	No Idea	168	11.2	11.2	67.1
	Regularly Purchased	321	21.4	21.4	88.5
	Most frequently Purchased	173	11.5	11.5	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Organic_food	3.754	1.115
Health_Care	3.809	1.169
Detergents	3.646	1.251
Apparels	2.898	1.436
Electronics	3.362	1.429
Hom_Appl	3.639	1.380
Furniture	2.794	1.430
Vehicle	2.626	1.485



**Figure: 4.17 Descriptive- Green Consumption**

**Table: 4.21 Overall Green Consumption**

Eco- friendly products	Overall Result
Food Products ( <i>eg. organic food</i> )	Regular purchased
Health Care Products ( <i>eg. herbal</i> )	Regular purchased
Soap/Detergents ( <i>eg. herbal</i> )	Regular purchased
Apparels ( <i>eg. natural dyes</i> )	Rarely purchased
Electronics ( <i>eg. LEDs</i> )	Regular purchased
Energy Efficient Appliances ( <i>eg. 5 star rating</i> )	Regular purchased
Furniture ( <i>eg. non wood</i> )	Rarely purchased
Vehicle ( <i>eg. Electronic</i> )	Rarely purchased

From the descriptive analysis, it can be concluded that respondents of the survey conducted agreed to purchase/consume green products. Regularly purchased product includes Food Products (eg. organic food), Health Care Products (eg. herbal), Soap/Detergents (eg. herbal) and Energy Efficient Appliances (eg. 5 star rating) like LEDs. Less frequent purchased items include Apparels, furniture and eco-friendly

vehicles. To further test result from descriptive analysis, one sample 't' test is applied.

For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). By default, SPSS uses 95% confidence intervals. This equates to declaring statistical significance at the  $p < .05$  level.

**Table: 4.22 Green Consumption-'t' test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Organic_food	1500	3.7540	1.11459	.02878
Health_Care	1500	3.8093	1.16871	.03018
Detergents	1500	3.6460	1.25076	.03229
Apparels	1500	2.8980	1.43561	.03707
Electronics	1500	3.3620	1.42933	.03691
Hom_Appl	1500	3.6393	1.37980	.03563
Furniture	1500	2.5907	1.41861	.03663
Vehicle	1500	2.4613	1.48974	.03846

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Organic_food	26.200	1499	.000	.75400	.6975	.8105
Health_Care	26.820	1499	.000	.80933	.7501	.8685
Detergents	20.003	1499	.000	.64600	.5827	.7093
Apparels	-2.752	1499	.006	-.10200	-.1747	-.0293
Electronics	9.809	1499	.000	.36200	.2896	.4344
Hom_Appl	17.946	1499	.000	.63933	.5695	.7092
Furniture	-11.175	1499	.000	-.40933	-.4812	-.3375
Vehicle	-14.004	1499	.000	-.53867	-.6141	-.4632

The  $p$  value for majority of service dimensions are  $p < .05$ , therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that there are certain items that are regularly purchased and there are specific items like furniture and vehicles that still not able to attract customers for eco-friendly versions.

*We can accept the alternate hypothesis 3 and conclude that Green products are frequently purchased by consumers of Rajasthan and Gujarat*

### **State-Wise Analysis- Green Consumption**

The independent two-sample t-test is used to test whether population means are significantly different for each state. In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for green consumption.

**Table: 4.23 Independent Samples Test- Green Consumption**

<b>Group Statistics</b>					
	State	N	Mean	Std. Deviation	Std. Error Mean
Organic_food	Gujarat	750	3.6693	1.14619	.04185
	Rajasthan	750	3.8387	1.07619	.03930
Health_Care	Gujarat	750	3.7267	1.20356	.04395
	Rajasthan	750	3.8920	1.12755	.04117
Detergents	Gujarat	750	3.6053	1.26532	.04620
	Rajasthan	750	3.6867	1.23553	.04512
Apparels	Gujarat	750	2.8280	1.41648	.05172
	Rajasthan	750	2.9680	1.45205	.05302
Electronics	Gujarat	750	3.2560	1.40324	.05124
	Rajasthan	750	3.4680	1.44814	.05288
Hom_Appl	Gujarat	750	3.5120	1.43920	.05255
	Rajasthan	750	3.7667	1.30633	.04770
Furniture	Gujarat	750	2.6480	1.38612	.05061
	Rajasthan	750	2.5333	1.44903	.05291
Vehicle	Gujarat	750	2.4733	1.44640	.05282
	Rajasthan	750	2.4493	1.53272	.05597

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Organic_food	Equal variances assumed	12.275	.000	-2.950	1498	.003	-.16933	.05741	-.28195	-.05672
	Equal variances not assumed			-2.950	1492.091	.003	-.16933	.05741	-.28195	-.05672
Health_Care	Equal variances assumed	6.195	.013	-2.745	1498	.006	-.16533	.06022	-.28346	-.04721
	Equal variances not assumed			-2.745	1491.670	.006	-.16533	.06022	-.28346	-.04721
Detergents	Equal variances assumed	1.958	.162	-1.259	1498	.208	-.08133	.06458	-.20800	.04534
	Equal variances not assumed			-1.259	1497.150	.208	-.08133	.06458	-.20800	.04534
Apparels	Equal variances assumed	.244	.621	-1.890	1498	.059	-.14000	.07407	-.28529	.00529
	Equal variances not assumed			-1.890	1497.080	.059	-.14000	.07407	-.28529	.00529
Electronics	Equal variances assumed	.430	.512	-2.879	1498	.004	-.21200	.07363	-.35643	-.06757
	Equal variances not assumed			-2.879	1496.517	.004	-.21200	.07363	-.35643	-.06757
Hom_Appl	Equal variances assumed	20.839	.000	-3.588	1498	.000	-.25467	.07097	-.39388	-.11545
	Equal variances not assumed			-3.588	1484.162	.000	-.25467	.07097	-.39388	-.11545
Furniture	Equal variances assumed	2.924	.087	1.566	1498	.118	.11467	.07322	-.02896	.25829
	Equal variances not assumed			1.566	1495.058	.118	.11467	.07322	-.02896	.25829
Vehicle	Equal variances assumed	7.041	.008	.312	1498	.755	.02400	.07695	-.12695	.17495
	Equal variances not assumed			.312	1492.995	.755	.02400	.07695	-.12695	.17495

It was found that there is a significant perception gap between respondents of Rajasthan and Gujarat towards green consumption. Consumers of Gujarat consume for organic food products as compared to Rajasthan. Moreover, Rajasthan consumers consume more herbal Health Care Products and Energy Efficient electronic Appliances as compared to Gujarat.

#### **4.6 EFFECT OF PUBLIC RELATION AND ECO-LABELLING ON GREEN CONSUMPTION**

Following section attempts to attain the following objective of the Study

**Objective: To measure the effect of public relation function, eco-labelling of green products on demand of product.**

##### **4.6.1 PUBLIC RELATION AND GREEN CONSUMPTION**

Consumer perception towards impact on public relation and green consumption is studied in following section. Scale items are used to measure attitude is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is formulated

**Hypothesis 4(null): Consumer has negative perception towards impact on public relation and green consumption**

**Hypothesis 4(alternate): Consumer has positive perception towards impact on public relation and green consumption**

**Table: 4.24 Public Relation**

<b>Factor</b>	<b>Scale Item</b>	<b>Variable Name</b>
<b>Public Relation</b>	I am interested in reading articles on environmentally-friendly products.	Read_Article
	I hear and I pay attention to my friends/family opinion concerning eco- friendly product	Fmly_opnion

	I pay attention to eco-friendly campaigns	EcoFrnd_Camp
	It is good that local companies and authorities are working together to create a sustainable community	Sustain_commty

**Table: 4.25 Descriptive Statistics- Public Relation**

**1. Frequency Distribution**

<b>Read_Article</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	31	2.1	2.1	2.1
	Disagree	119	7.9	7.9	10.0
	No Idea	149	9.9	9.9	19.9
	Agree	811	54.1	54.1	74.0
	Strongly Agree	390	26.0	26.0	100.0
	Total	1500	100.0	100.0	

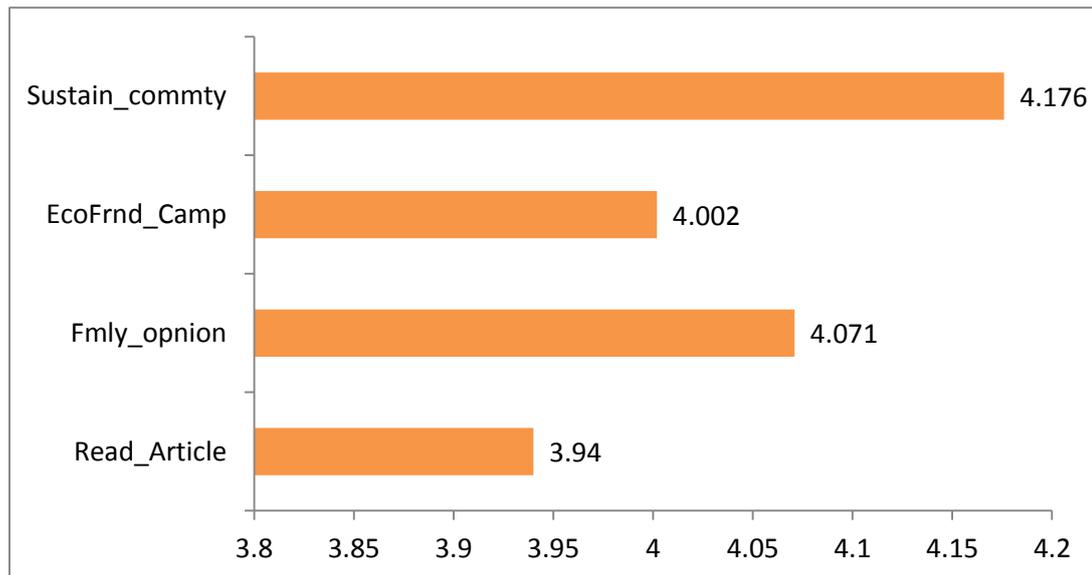
<b>Fmly_opnion</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	18	1.2	1.2	1.2
	Disagree	82	5.5	5.5	6.7
	No Idea	101	6.7	6.7	13.4
	Agree	873	58.2	58.2	71.6
	Strongly Agree	426	28.4	28.4	100.0
	Total	1500	100.0	100.0	

<b>EcoFrnd_Camp</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	26	1.7	1.7	1.7
	Disagree	85	5.7	5.7	7.4
	No Idea	142	9.5	9.5	16.9
	Agree	853	56.9	56.9	73.7
	Strongly Agree	394	26.3	26.3	100.0
	Total	1500	100.0	100.0	

Sustain_commtly					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	18	1.2	1.2	1.2
	Disagree	42	2.8	2.8	4.0
	No Idea	131	8.7	8.7	12.7
	Agree	775	51.7	51.7	64.4
	Strongly Agree	534	35.6	35.6	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Read_Article	3.940	0.927
Fmly_opnion	4.071	0.820
EcoFrnd_Camp	4.002	0.860
Sustain_commtly	4.176	0.795



**Figure: 4.18 Descriptive- Public Relation**

From the descriptive analysis, it can be concluded that respondents are interested in reading articles on environmentally-friendly products, they pay attention to friends/family opinion concerning eco- friendly product and for eco-friendly

campaigns. Overall, customers are feel that local companies and authorities should work together to create a sustainable community. The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). For this analysis, confidence interval is selected as 95 percent.

**Table: 4.26 Public Relation-‘t’ test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Read_Article	1500	3.9400	.92717	.02394
Fmly_opnion	1500	4.0713	.82059	.02119
EcoFrnd_Camp	1500	4.0027	.86052	.02222
Sustain_commty	1500	4.1767	.79533	.02054

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Read_Article	39.266	1499	.000	.94000	.8930	.9870
Fmly_opnion	50.565	1499	.000	1.07133	1.0298	1.1129
EcoFrnd_Camp	45.128	1499	.000	1.00267	.9591	1.0462
Sustain_commty	57.300	1499	.000	1.17667	1.1364	1.2169

Table presented with the observed *t*-value ("t" column), the degrees of freedom ("df"), and the statistical significance (p-value) ("Sig. (2-tailed)") of the one-sample t-test. The *p* value for majority of dimension are < .05, therefore, it can be concluded that the respondents are affected by public relation activities for consumption of environmentally-friendly products.

*From the results, we can accept alternate hypothesis 4, that consumer has positive perception towards impact on public relation and green consumption*

### State-Wise Analysis- Public Relation

The independent two-sample t-test is used to test whether population means are significantly different from each states. This test involves testing the null hypothesis  $H_0: \mu(x) = \mu(y)$  against the alternative research hypothesis,  $H_1: \mu(x) \neq \mu(y)$  where  $\mu(x)$  and  $\mu(y)$  are respectively the population mean of the two populations from which the two samples have been drawn.

In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for customer perceived barriers about the green purchase. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level.

**Table: 4.27 Independent Samples Test- Public Relation**

Group Statistics					
	State	N	Mean	Std. Deviation	Std. Error Mean
Read_Article	Gujarat	750	3.9053	.88774	.03242
	Rajasthan	750	3.9747	.96433	.03521
Fmly_opnion	Gujarat	750	4.0107	.79376	.02898
	Rajasthan	750	4.1320	.84273	.03077
EcoFrnd_Camp	Gujarat	750	3.9960	.84039	.03069
	Rajasthan	750	4.0093	.88069	.03216
Sustain_commty	Gujarat	750	4.2173	.79348	.02897
	Rajasthan	750	4.1360	.79562	.02905

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Read_Article	Equal variances assumed	2.353	.125	-1.449	1498	.148	-.06933	.04786	-.16322	.02455
	Equal variances not assumed			-1.449	1487.858	.148	-.06933	.04786	-.16322	.02455
Fmly_opnion	Equal variances assumed	15.882	.000	-2.870	1498	.004	-.12133	.04227	-.20425	-.03841
	Equal variances not assumed			-2.870	1492.664	.004	-.12133	.04227	-.20425	-.03841
EcoFrnd_Camp	Equal variances assumed	3.746	.053	-.300	1498	.764	-.01333	.04445	-.10052	.07386
	Equal variances not assumed			-.300	1494.726	.764	-.01333	.04445	-.10052	.07386
Sustain_commty	Equal variances assumed	3.482	.062	1.982	1498	.048	.08133	.04103	.00085	.16182
	Equal variances not assumed			1.982	1497.989	.048	.08133	.04103	.00085	.16182

It was found that there is significant perception gap between respondents of Rajasthan and Gujarat towards perceived barriers towards green consumption. The result connote that respondents of Rajasthan pay more attention to friends/family opinion for consumption of eco- friendly product as compared to Gujarat. Moreover, consumers of Gujarat have higher perception towards role of local companies and authorities to create a sustainable community as compared to Rajasthan.

#### **4.6.2 ECO-LABELING AND GREEN CONSUMPTION**

Consumer attitude towards eco-labeling and its impact on green consumption is studied in following section. Scale items are used to measure attitude towards eco-labeling and certification is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is formulated

**Hypothesis 5(null): Consumer has negative perception towards impact on eco-labeling and green consumption**

**Hypothesis 5(alternate): Consumer has positive perception towards impact on eco-labeling and green consumption**

**Table: 4.28 Eco-labeling**

<b>Factor</b>	<b>Scale Item</b>	<b>Variable Name</b>
<b>Eco-labeling</b>	Companies claim about green product/ingredients are not believable	Claim_ntbelve
	Product content / Label information is not authentic	Inf_ntAuthentic
	I am doubtful of the eco-brand	Doubtful_brand
	Eco-brand is symbol of product reliability	Prd_reliable

**Table: 4 .29 Descriptive Statistics- Eco-labeling**

**1. Frequency Distribution**

<b>Claim_ntbelve</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	40	2.7	2.7	2.7
	Disagree	193	12.9	12.9	15.5
	No Idea	298	19.9	19.9	35.4
	Agree	681	45.4	45.4	80.8
	Strongly Agree	288	19.2	19.2	100.0
	Total	1500	100.0	100.0	

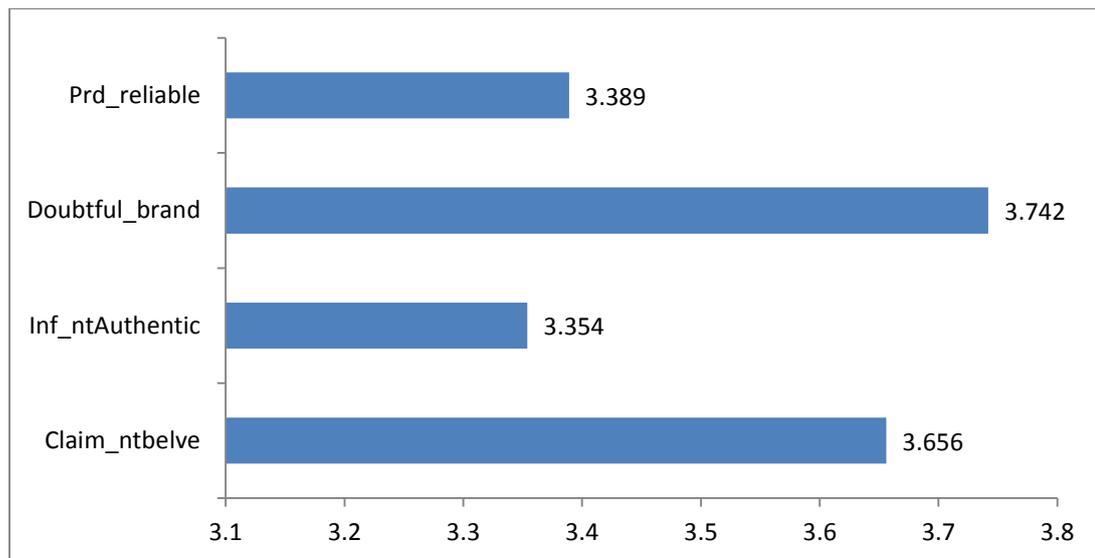
<b>Inf_ntAuthentic</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	32	2.1	2.1	2.1
	Disagree	357	23.8	23.8	25.9
	No Idea	351	23.4	23.4	49.3
	Agree	567	37.8	37.8	87.1
	Strongly Agree	193	12.9	12.9	100.0
	Total	1500	100.0	100.0	

<b>Doubtful_brand</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	1.5	1.5	1.5
	Disagree	129	8.6	8.6	10.1
	No Idea	291	19.4	19.4	29.5
	Agree	829	55.3	55.3	84.7
	Strongly Agree	229	15.3	15.3	100.0
	Total	1500	100.0	100.0	

Prd_reliable					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	45	3.0	3.0	3.0
	Disagree	336	22.4	22.4	25.4
	No Idea	303	20.2	20.2	45.6
	Agree	622	41.5	41.5	87.1
	Strongly Agree	194	12.9	12.9	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Claim_ntbelve	3.656	1.013
Inf_ntAuthentic	3.354	1.044
Doubtful_brand	3.742	0.870
Prd_reliable	3.389	1.060



**Figure: 19 Descriptive- Eco-labeling**

From the descriptive analysis, it can be concluded that respondents agreed that companies claim about green product/ingredients are not believable; Product content

/ Label information is not authentic. Consumers are also doubtful about the contents of eco-brand and product reliability. To further test result from descriptive analysis, one sample 't' test is applied. For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). By default, SPSS uses 95% confidence intervals. For this analysis, the default 95% confidence interval is selected.

**Table: 4.30 Eco-labeling - 't' test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Claim_ntbelve	1500	3.6560	1.01375	.02617
Inf_ntAuthentic	1500	3.3547	1.04448	.02697
Doubtful_brand	1500	3.7427	.87003	.02246
Prd_reliable	1500	3.3893	1.06074	.02739

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Claim_ntbelve	25.062	1499	.000	.65600	.6047	.7073
Inf_ntAuthentic	13.151	1499	.000	.35467	.3018	.4076
Doubtful_brand	33.060	1499	.000	.74267	.6986	.7867
Prd_reliable	14.215	1499	.000	.38933	.3356	.4431

The  $p$  value for all dimensions are  $< .05$ , therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that customers showed a negative perception towards the eco-friendly content, labels and companies claims.

*From the results, we can accept alternate hypothesis 5 that consumer has positive perception towards impact on eco-labeling and green consumption*

### State-Wise Analysis- Eco-labeling

The independent two-sample t-test is used to test whether population means are significantly different from each state. In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for customer perception towards eco-labeling and certification on green consumption behavior. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level.

**Table: 4.32 Independent Samples Test- Eco-labeling**

Group Statistics					
	State	N	Mean	Std. Deviation	Std. Error Mean
Claim_ntbelve	Gujarat	750	3.5813	.99969	.03650
	Rajasthan	750	3.7307	1.02283	.03735
Inf_ntAuthentic	Gujarat	750	3.3800	1.02746	.03752
	Rajasthan	750	3.3293	1.06131	.03875
Doubtful_brand	Gujarat	750	3.6653	.84673	.03092
	Rajasthan	750	3.8200	.88656	.03237
Prd_reliable	Gujarat	750	3.4040	1.04670	.03822
	Rajasthan	750	3.3747	1.07510	.03926

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Claim_ntbelve	Equal variances assumed	.228	.633	-2.859	1498	.004	-.14933	.05222	-.25177	-.04689
	Equal variances not assumed			-2.859	1497.216	.004	-.14933	.05222	-.25177	-.04689
Inf_ntAuthentic	Equal variances assumed	.648	.421	.939	1498	.348	.05067	.05394	-.05514	.15647
	Equal variances not assumed			.939	1496.429	.348	.05067	.05394	-.05514	.15647
Doubtful_brand	Equal variances assumed	.042	.838	-3.455	1498	.001	-.15467	.04477	-.24248	-.06686
	Equal variances not assumed			-3.455	1494.847	.001	-.15467	.04477	-.24248	-.06686
Prd_reliable	Equal variances assumed	1.298	.255	.535	1498	.592	.02933	.05479	-.07814	.13681
	Equal variances not assumed			.535	1496.928	.592	.02933	.05479	-.07814	.13681

It was found that there is significant perception gap between respondents of Rajasthan and Gujarat towards perceived barriers towards eco-labeling. The result connotes that respondents of Rajasthan give less importance to companies' claim about green product/ingredients as compared to Gujarat. Moreover, Consumers of Rajasthan are more doubtful for the eco-brand as compared to Gujarat.

#### 4.7 PEER PRESSURE AND GREEN CONSUMPTION

Consumer perceptions towards peer pressure and impact of green purchase decision are studied. Following scale items are used to measure peer pressure and green consumption. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point Likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is formulated

**Hypothesis 6(null): Consumer has negative perception towards impact of peer pressure and green consumption**

**Hypothesis 6(alternate): Consumer has positive perception towards impact of peer pressure and green consumption**

**Table: 4.32 Peer Pressure**

Factor	Scale Item	Variable Name
Peer Pressure	I learn so much about environmental products from my friends.	Learn_frmFrnd
	I often buy environmental products with my friends	Buy_wthFrnd
	I often share information regarding environmental products with my friends	Share_wthFrnd

**Table: 4.33 Descriptive Statistics- Peer Pressure**

**1. Frequency Distribution**

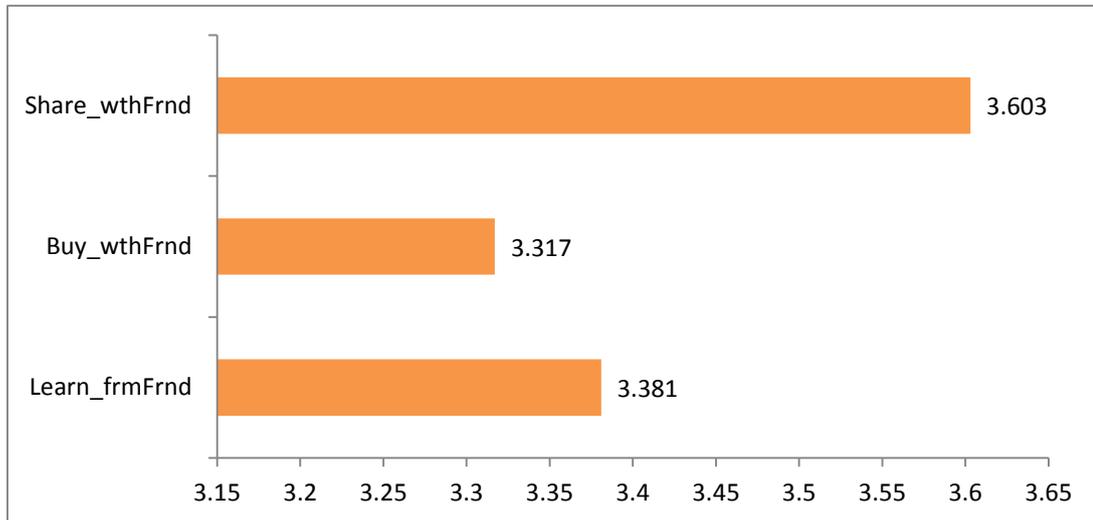
<b>Learn_frmFrnd</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	51	3.4	3.4	3.4
	Disagree	374	24.9	24.9	28.3
	No Idea	238	15.9	15.9	44.2
	Agree	627	41.8	41.8	86.0
	Strongly Agree	210	14.0	14.0	100.0
	Total	1500	100.0	100.0	

<b>Buy_wthFrnd</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	85	5.7	5.7	5.7
	Disagree	387	25.8	25.8	31.5
	No Idea	236	15.7	15.7	47.2
	Agree	551	36.7	36.7	83.9
	Strongly Agree	241	16.1	16.1	100.0
	Total	1500	100.0	100.0	

<b>Share_wthFrnd</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	106	7.1	7.1	7.1
	Disagree	164	10.9	10.9	18.0
	No Idea	220	14.7	14.7	32.7
	Agree	740	49.3	49.3	82.0
	Strongly Agree	270	18.0	18.0	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Learn_frmFrnd	3.381	1.104
Buy_wthFrnd	3.317	1.181
Share_wthFrnd	3.603	1.115



**Figure: 4.20 Descriptive- Peer Pressure**

From the descriptive analysis, it can be concluded that customers agreed that they learn so much about environmental products from their friends, often buy environmental products with friends and also share information regarding environmental products. To further test result from descriptive analysis, one sample 't' test is applied.

The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). For this research, the default 95% confidence interval is selected

**Table: 4.34 Peer Pressure - 't' test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Learn_frmFrnd	1500	3.3807	1.10419	.02851
Buy_wthFrnd	1500	3.3173	1.18106	.03049
Share_wthFrnd	1500	3.6027	1.11488	.02879

One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Learn_frmFrnd	13.352	1499	.000	.38067	.3247	.4366
Buy_wthFrnd	10.406	1499	.000	.31733	.2575	.3772
Share_wthFrnd	20.936	1499	.000	.60267	.5462	.6591

Table presented with the observed *t*-value ("t" column), the degrees of freedom ("df"), and the statistical significance (p-value) ("Sig. (2-tailed)") of the one-sample t-test. The *p* value for all dimension are < .05, therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that customers showed a positive perception towards impact of peer pressure on green consumption.

*From the result, we can also accept the alternate hypothesis 6 that consumer has positive perception towards impact of peer pressure and green consumption.*

**State-Wise Analysis- Peer Pressure**

The independent two-sample t-test is used to test whether population means are significantly different from each state. In present research, two samples (Rajasthan and Gujarat) is used for testing the equality of mean for customer perception towards

peer pressure on green consumption behavior. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level.

**Table: 4.35 Independent Samples Test- Peer Pressure**

<b>Group Statistics</b>					
	State	N	Mean	Std. Deviation	Std. Error Mean
Learn_frmFrnd	Gujarat	750	3.3413	1.06066	.03873
	Rajasthan	750	3.4200	1.14543	.04183
Buy_wthFrnd	Gujarat	750	3.4880	1.21593	.04440
	Rajasthan	750	3.1467	1.12019	.04090
Share_wthFrnd	Gujarat	750	3.7000	.96639	.03529
	Rajasthan	750	3.5053	1.23882	.04524

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Learn_frmFrnd	Equal variances assumed	4.463	.035	-1.380	1498	.168	-.07867	.05700	-.19048	.03315	
	Equal variances not assumed			-1.380	1489.229	.168	-.07867	.05700	-.19048	.03315	
Buy_wthFrnd	Equal variances assumed	9.218	.002	5.654	1498	.000	.34133	.06037	.22292	.45975	
	Equal variances not assumed			5.654	1488.036	.000	.34133	.06037	.22292	.45975	
Share_wthFrnd	Equal variances assumed	64.222	.000	3.393	1498	.001	.19467	.05737	.08213	.30720	
	Equal variances not assumed			3.393	1414.239	.001	.19467	.05737	.08212	.30721	

It was found that there is significant perception gap between respondents of Rajasthan and Gujarat towards perceived barriers towards impact of peer pressure. The result connotes that respondents of Gujarat give more importance to influence of peers and friends opinion on eco-friendly products as compared to Rajasthan. Moreover, Consumers of Gujarat often buy environmental products with friends and share information regarding environmental products with friends as compared to Rajasthan.

#### **4.8 PERCEIVED BARRIERS ON GREEN CONSUMPTION**

Consumer attitude towards Perceived Barrier in green consumption is studied in following section. Scale items are used to measure perception towards Perceived Barrier in green consumption is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis is formulated

**Hypothesis 7(null): Consumer has negative attitude towards Perceived Barrier towards green consumption**

**Hypothesis 7(alternate): Consumer has positive attitude towards Perceived Barrier towards green consumption**

**Table: 4.36 Perceived Barrier**

<b>Factor</b>	<b>Scale Item</b>	<b>Variable Name</b>
<b>Perceived Barrier</b>	Green products are too expensive	Expensive
	Green products are difficult to find in nearby stores	Diff_toFind
	There are very few companies that offer green products	Few_company

**Table: 4.37 Descriptive Statistics- Perceived Barrier**

**1. Frequency Distribution**

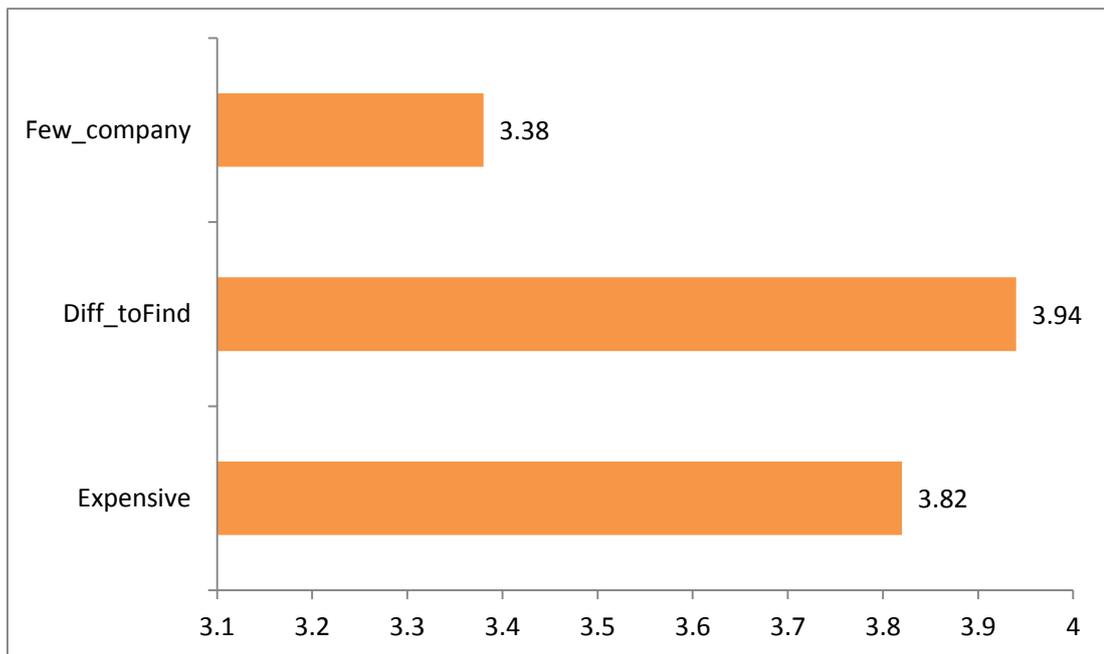
<b>Expensive</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	.7	.7	.7
	Disagree	222	14.8	14.8	15.5
	No Idea	201	13.4	13.4	28.9
	Agree	724	48.3	48.3	77.2
	Strongly Agree	342	22.8	22.8	100.0
	Total	1500	100.0	100.0	

<b>Diff_toFind</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	27	1.8	1.8	1.8
	Disagree	223	14.9	14.9	16.7
	No Idea	104	6.9	6.9	23.6
	Agree	784	52.3	52.3	75.9
	Strongly Agree	362	24.1	24.1	100.0
	Total	1500	100.0	100.0	

<b>Few_company</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	1.1	1.1	1.1
	Disagree	113	7.5	7.5	8.7
	No Idea	186	12.4	12.4	21.1
	Agree	811	54.1	54.1	75.1
	Strongly Agree	373	24.9	24.9	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Expensive	3.820	1.017
Diff_toFind	3.940	0.879
Few_company	3.380	1.104



**Figure: 4.21 Descriptive- Perceived Barrier**

From the descriptive analysis, it can be concluded that customers find Green products expensive, products are difficult to find in nearby stores and there are very few companies that offer green products. The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. This population mean is not always known, but is sometimes hypothesized. For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). By default, SPSS uses 95% confidence intervals (labelled as the Confidence Interval Percentage in SPSS). For this research, the default 95% confidence interval is selected

**Table: 4.38 Perceived Barrier - 't' test result**

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
Expensive	1500	3.7760	.98512	.02544		
Diff_toFind	1500	3.8207	1.01777	.02628		
Few_company	1500	3.9400	.87916	.02270		
One-Sample Test						
	Test Value = 3					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Expensive	30.508	1499	.000	.77600	.7261	.8259
Diff_toFind	31.229	1499	.000	.82067	.7691	.8722
Few_company	41.410	1499	.000	.94000	.8955	.9845

Table presented revealed that the  $p$  value for majority of service dimension are  $< .05$ , therefore, it can be concluded from the mean analysis that the population means and sample means are significantly different. From the mean value analysis reveals that customers agreed with the given barriers for the purchase of eco-friendly products.

*From the results above, we can reject the hypothesis 7 and conclude that consumer has positive attitude towards Perceived Barrier towards green consumption.*

### **State-Wise Analysis- Perceived Barrier**

The independent two-sample t-test is used to test whether population means are significantly different from each states. This test involves testing the null hypothesis  $H_0: \mu(x) = \mu(y)$  against the alternative research hypothesis,  $H_1: \mu(x) \neq \mu(y)$  where  $\mu(x)$  and  $\mu(y)$  are respectively the population mean of the two populations from which the two samples have been drawn.

In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for customer perceived barriers about the green purchase. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level.

**Table: 4.39 Independent Samples Test- Perceived Barrier**

<b>Group Statistics</b>					
	State	N	Mean	Std. Deviation	Std. Error Mean
Expensive	Gujarat	750	3.7453	.95727	.03495
	Rajasthan	750	3.8067	1.01192	.03695
Diff_toFind	Gujarat	750	3.8173	.97634	.03565
	Rajasthan	750	3.8240	1.05823	.03864
Few_company	Gujarat	750	3.9347	.83626	.03054
	Rajasthan	750	3.9453	.92058	.03361

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Expensive	Equal variances assumed	2.948	.086	-1.206	1498	.228	-.06133	.05086	-.16111	.03844
	Equal variances not assumed			-1.206	1493.406	.228	-.06133	.05086	-.16111	.03844
Diff_toFind	Equal variances assumed	10.911	.001	-.127	1498	.899	-.00667	.05257	-.10979	.09646
	Equal variances not assumed			-.127	1488.386	.899	-.00667	.05257	-.10980	.09646
Few_company	Equal variances assumed	4.590	.032	-.235	1498	.814	-.01067	.04541	-.09975	.07841
	Equal variances not assumed			-.235	1484.384	.814	-.01067	.04541	-.09975	.07842

It was found that there is no significant perception gap between respondents of Rajasthan and Gujarat towards perceived barriers towards green consumption. The result connotes that respondents of Rajasthan and Gujarat agreed that lack of availability, high price and few producers are the main perceived barriers for eco-friendly consumption.

#### 4.9 DETERMINANTS OF CONSUMER BEHAVIOR

Following section attempts to attain the following objective of the Study

**Objective: To identify the determinants of consumer behavior with respect to sustainable consumption.**

Further to measure and identify the variables that can determine the consumer behavior towards green product, multiple regression is used with following table demonstrate the list of independent variables and dependent variable.

**Table: 4.40 Determinants of Consumer Behavior**

Independent Variable	Dependent Variable
Public Relation	Green Purchase Intention
Eco-Labeling and certification	
Peer/Social Pressure	
Perceived Barriers	

**Table: 4.41 Factors with Scale Items**

Factors with Scale Item	Variable Name
<i>Perceived Barriers</i>	
Green products are too expensive	Expensive
Green products are difficult to find in nearby stores	Diff_toFind
There are very few companies that offer green products	Few_company
<i>Peer/Social Pressure</i>	
I learn so much about environmental products from my friends.	Learn_frmFrnd

I often buy environmental products with my friends	Buy_wthFrnd
I often share information regarding environmental products with my friends	Share_wthFrnd
<i>Eco-Labeling and certification</i>	
Companies claim about green product/ingredients are not believable	Claim_ntbelve
Product content / Label information is not authentic	Inf_ntAuthentic
I am doubtful of the eco-brand	Doubtful_brand
Eco-brand is symbol of product reliability	Prd_reliable
<i>Public Relation</i>	
I am interested in reading articles on environmentally-friendly products.	Read_Article
I hear and I pay attention to my friends/family opinion concerning eco- friendly product	Fmly_opnion
I pay attention to eco-friendly campaigns	EcoFrnd_Camp
It is good that local companies and authorities are working together to create a sustainable community.	Sustain_commty

To identify various factors predicting consumer behavior towards green products, multiple regression analysis is performed assuming public relation, eco-labeling/certification, social pressure and perceived barrier as independent variables and green purchase intention as dependent variable.

**Table: 4.42 Regression analysis-Overall**

<b>Variables Entered/Removed<sup>b</sup></b>			
Model	Variables Entered	Variables Removed	Method
1	Sustain_commty, Expensive, Buy_wthFrnd, Claim_ntbelve, Prd_reliable, Few_company, Read_Article, Share_wthFrnd, EcoFrnd_Camp, Diff_toFind, Learn_frmFrnd, Doubtful_brand, Fmly_opnion, Inf_ntAuthentic	.	Enter
a. All requested variables entered.			
b. Dependent Variable: Green_Intention			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.495 <sup>a</sup>	.245	.238	.51486
a. Predictors: (Constant), Sustain_commty, Expensive, Buy_wthFrnd, Claim_ntbelve, Prd_reliable, Few_company, Read_Article, Share_wthFrnd, EcoFrnd_Camp, Diff_toFind, Learn_frmFrnd, Doubtful_brand, Fmly_opnion, Inf_ntAuthentic				

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	127.590	14	9.114	34.380	.000 <sup>a</sup>
	Residual	393.647	1485	.265		
	Total	521.237	1499			
a. Predictors: (Constant), Sustain_commty, Expensive, Buy_wthFrnd, Claim_ntbelve, Prd_reliable, Few_company, Read_Article, Share_wthFrnd, EcoFrnd_Camp, Diff_toFind, Learn_frmFrnd, Doubtful_brand, Fmly_opnion, Inf_ntAuthentic						
b. Dependent Variable: Green_Intention						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.440	.110		22.195	.000
	Expensive	.028	.016	.047	1.724	.085
	Diff_toFind	.038	.017	.066	2.216	.027
	Few_company	.028	.019	.041	1.473	.141
	Learn_frmFrnd	-.007	.016	-.014	-.451	.652
	Buy_wthFrnd	-.035	.017	-.069	-2.101	.036
	Share_wthFrnd	.076	.017	.124	4.430	.000
	Claim_ntbelve	-.056	.020	-.096	-2.860	.004

	Inf_ntAuthentic	.048	.021	.085	2.335	.020
	Doubtful_brand	-.020	.019	-.036	-1.055	.291
	Prd_reliable	-.016	.017	-.024	-.955	.340
	Read_Article	.035	.019	.055	1.856	.064
	Fmly_opnion	.155	.024	.216	6.602	.000
	EcoFrnd_Camp	.022	.022	.031	.970	.332
	Sustain_commty	.169	.019	.228	8.711	.000
a. Dependent Variable: Green_Intention						

The final Regression model with 7 independent variables explains almost 23% of the variance of causes of the overall purchase intention. The 7 regression coefficients, plus the constraints are significant at 0.05 levels. The ANOVA analysis provides the statistical test for overall model fit in terms of F Ratio. The total sum of squares (521.237) is the squared error that would accrue if the mean of causes of satisfaction has been used to predict the dependent variable. With the above analysis it can be conclude that all identified factors have significant impact of purchase intention. Moreover, significant variables like difficultly to find green products in nearby stores influence purchase behavior. Customers often buy environmental products with friend and regularly share information regarding environmental with peers. However, customers find it difficult to believe in the companies claim about green product/ingredients and believe that Product content / Label information is not authentic. Additionally, respondents give pay attention to friends/family opinion concerning eco- friendly product, and perceive that it is good that local companies and authorities should work together towards sustainability.

### **State-Wise Analysis- Consumer Attitude**

Further to identify the significant factor governing consumer behavior in Rajasthan and Gujarat. Two independent multiple regression is applied on the survey data for each state. The analysis include public relation, eco-labeling/certification, social pressure and perceived barrier as independent variables and green purchase intention as dependent variable.

**Table: 4.43 Regression analysis Result- Gujarat**

Variables Entered/Removed <sup>b,c</sup>			
Model	Variables Entered	Variables Removed	Method
1	Sustain_commty, Buy_wthFrnd, Expensive, Doubtful_brand, Prd_reliable, Few_company, Read_Article, Share_wthFrnd, Diff_toFind, Claim_ntbelve, Learn_frmFrnd, Fmly_opnion, EcoFrnd_Camp, Inf_ntAuthentic	.	Enter

a. All requested variables entered.  
 b. State = Gujarat  
 c. Dependent Variable: Green\_Intention

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614 <sup>a</sup>	.377	.365	.46999

a. Predictors: (Constant), Sustain\_commty, Buy\_wthFrnd, Expensive, Doubtful\_brand, Prd\_reliable, Few\_company, Read\_Article, Share\_wthFrnd, Diff\_toFind, Claim\_ntbelve, Learn\_frmFrnd, Fmly\_opnion, EcoFrnd\_Camp, Inf\_ntAuthentic  
 b. State = Gujarat

ANOVA <sup>b,c</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	98.280	14	7.020	31.780	.000 <sup>a</sup>
	Residual	162.355	735	.221		
	Total	260.635	749			

a. Predictors: (Constant), Sustain\_commty, Buy\_wthFrnd, Expensive, Doubtful\_brand, Prd\_reliable, Few\_company, Read\_Article, Share\_wthFrnd, Diff\_toFind, Claim\_ntbelve, Learn\_frmFrnd, Fmly\_opnion, EcoFrnd\_Camp, Inf\_ntAuthentic  
 b. State = Gujarat  
 c. Dependent Variable: Green\_Intention

Coefficients <sup>a,b</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.259	.154		14.680	.000
	Expensive	.069	.021	.113	3.254	.001
	Diff_toFind	.066	.023	.110	2.939	.003
	Few_company	.044	.026	.063	1.681	.093
	Learn_frmFrnd	-.044	.023	-.080	-1.942	.053
	Buy_wthFrnd	-.055	.024	-.102	-2.271	.023
	Share_wthFrnd	.067	.022	.110	3.042	.002
	Claim_ntbelve	-.118	.028	-.199	-4.189	.000
	Inf_ntAuthentic	.119	.030	.207	3.954	.000
	Doubtful_brand	-.049	.027	-.087	-1.832	.067
	Prd_reliable	-.059	.023	-.084	-2.614	.009
	Read_Article	.005	.026	.008	.197	.843
	Fmly_opnion	.243	.035	.327	6.884	.000
	EcoFrnd_Camp	.003	.034	.005	.098	.922
	Sustain_commty	.196	.026	.264	7.431	.000
a. State = Gujarat						
b. Dependent Variable: Green_Intention						

The final Regression model with 9 independent variables explains almost 36% of the variance of causes of the overall green purchase intention in Gujarat. The 9 regression coefficients, plus the constraints are significant at 0.05 levels. The ANOVA analysis provides the statistical test for overall model fit in terms of F Ratio. The total sum of squares (260.635) is the squared error that would accrue if the mean of causes of satisfaction has been used to predict the dependent variable. With the above analysis it can be conclude that all identified factors have significant impact of purchase intention. Moreover, significant variables like premium prices of product and difficultly to find green products in nearby stores influence purchase behavior. Customers of Gujarat often buy environmental products with friend and also share information regarding environmental with peers. However, customers

doubt about the companies claim about green product or eco-branding and find it difficult to believe that Product label information is authentic. Additionally, respondents give pay attention to friends/family opinion before purchasing green product, and perceive that it is good that local companies and authorities should work together to create a sustainable community.

**Table: 4.44 Regression analysis Result- Rajasthan**

**State = Rajasthan**

<b>Variables Entered/Removed<sup>b,c</sup></b>			
Model	Variables Entered	Variables Removed	Method
1	Sustain_commty, Expensive, Learn_frmFrnd, Doubtful_brand, Read_Article, Prd_reliable, Few_company, Share_wthFrnd, EcoFrnd_Camp, Claim_ntbelve, Fmly_opnion, Diff_toFind, Buy_wthFrnd, Inf_ntAuthentic	.	Enter
a. All requested variables entered. b. State = Rajasthan c. Dependent Variable: Green_Intention			

<b>Model Summary<sup>b</sup></b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.430 <sup>a</sup>	.185	.170	.53347
a. Predictors: (Constant), Sustain_commty, Expensive, Learn_frmFrnd, Doubtful_brand, Read_Article, Prd_reliable, Few_company, Share_wthFrnd, EcoFrnd_Camp, Claim_ntbelve, Fmly_opnion, Diff_toFind, Buy_wthFrnd, Inf_ntAuthentic b. State = Rajasthan				

ANOVA <sup>b,c</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.581	14	3.399	11.942	.000 <sup>a</sup>
	Residual	209.171	735	.285		
	Total	256.752	749			

a. Predictors: (Constant), Sustain\_commty, Expensive, Learn\_frmFrnd, Doubtful\_brand, Read\_Article, Prd\_reliable, Few\_company, Share\_wthFrnd, EcoFrnd\_Camp, Claim\_ntbelve, Fmly\_opnion, Diff\_toFind, Buy\_wthFrnd, Inf\_ntAuthentic

b. State = Rajasthan

c. Dependent Variable: Green\_Intention

Coefficients <sup>a,b</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.736	.153		17.841	.000
	Expensive	-.015	.024	-.026	-.618	.537
	Diff_toFind	.013	.026	.023	.483	.630
	Few_company	.033	.027	.053	1.241	.215
	Learn_frmFrnd	.010	.023	.019	.416	.677
	Buy_wthFrnd	.004	.024	.008	.161	.872
	Share_wthFrnd	.059	.026	.098	2.273	.023
	Claim_ntbelve	.010	.027	.017	.368	.713
	Inf_ntAuthentic	.001	.028	.001	.027	.978
	Doubtful_brand	-.014	.026	-.026	-.544	.586
	Prd_reliable	.006	.025	.010	.258	.796
	Read_Article	.098	.027	.162	3.676	.000
	Fmly_opnion	.052	.032	.074	1.602	.110
	EcoFrnd_Camp	.028	.030	.041	.922	.357
Sustain_commty	.127	.028	.172	4.494	.000	

a. State = Rajasthan

b. Dependent Variable: Green\_Intention

The final Regression model with only 3 independent variables explains almost 17% of the variance of causes of the overall green purchase intention in Rajasthan. The 3 regression coefficients, plus the constraints are significant at 0.05 levels. The ANOVA analysis provides the statistical test for overall model fit in terms of F Ratio. The total sum of squares (256.752) is the squared error that would accrue if the mean of causes of intention has been used to predict the dependent variable. Customers of Rajasthan often share information regarding environmental products with friends and interested in reading articles on environmentally-friendly products. They also perceive that it is good that local companies and authorities should work together to create a sustainable community.

#### **4.10 ANALYSIS OF GREEN PURCHASE INTENTION**

Consumer attitude towards purchase intention for green products is studied in following section. Scale items are used to measure perception towards purchase intention for green products is presented in table below. Responses are measured in Likert Scale. The respondents were asked to rate different items capturing their perception using a 5-point likert type scale where 5 indicated Strongly Agree while 1 represented Strongly Disagree.

Following hypothesis has been formulated

**Hypothesis 8(null): Consumer have negative attitude towards purchase intention for green products**

**Hypothesis 8(alternate): Consumer have positive attitude towards purchase intention for green products**

**Table: 4.45 Purchase Intention**

<b>Factor</b>	<b>Scale Item</b>	<b>Variable Name</b>
<b>Purchase Intention</b>	I would definitely intend to buy those products that are environmental friendly.	Intnd_toBuy
	I would absolutely consider buying those products that are environmental friendly.	Consider_buying
	I would absolutely plan to buy those products that are environmental friendly.	Plan_toBuy

**Table: 4.46 Descriptive Statistics- Purchase Intention**

**1. Frequency Distribution**

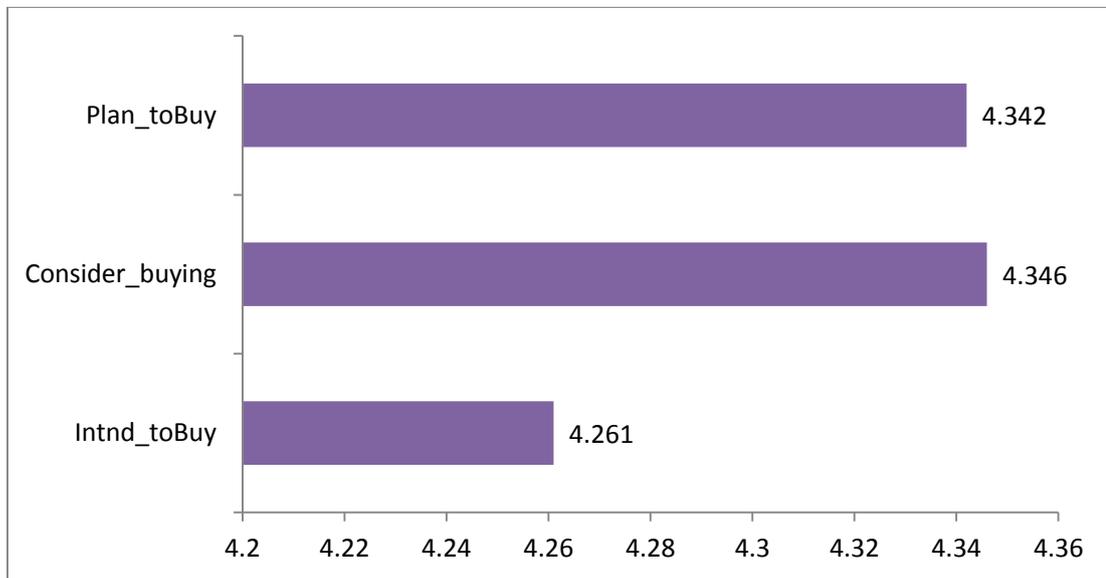
<b>Expensive</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	.7	.7	.7
	Disagree	222	14.8	14.8	15.5
	No Idea	201	13.4	13.4	28.9
	Agree	724	48.3	48.3	77.2
	Strongly Agree	342	22.8	22.8	100.0
	Total	1500	100.0	100.0	

<b>Diff_to Find</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	27	1.8	1.8	1.8
	Disagree	223	14.9	14.9	16.7
	No Idea	104	6.9	6.9	23.6
	Agree	784	52.3	52.3	75.9
	Strongly Agree	362	24.1	24.1	100.0
	Total	1500	100.0	100.0	

<b>Few_company</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	1.1	1.1	1.1
	Disagree	113	7.5	7.5	8.7
	No Idea	186	12.4	12.4	21.1
	Agree	811	54.1	54.1	75.1
	Strongly Agree	373	24.9	24.9	100.0
	Total	1500	100.0	100.0	

## 2. Mean distribution

Variable Name	Mean	Std. Deviation
Intnd_toBuy	4.261	0.826
Consider_buying	4.346	0.649
Plan_toBuy	4.342	0.674



**Figure: 4.22 Descriptive- Purchase Intention**

From the descriptive analysis, it can be concluded that customers definitely intend to buy those products that are environmental friendly; they consider buying those products that are environmental friendly and absolutely plan to buy those products that are environmental friendly. The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. For the present analysis, we test the data with hypotheses mean of '3' (Middle value of Likert Scale). This equates to declaring statistical significance at the  $p < .05$  level. For this research, the default 95% confidence interval is selected

**Table: 4.47 Purchase Intention - 't' test result**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Intnd_toBuy	1500	4.2613	.82633	.02134
Consider_buying	1500	4.3460	.64902	.01676
Plan_toBuy	1500	4.3427	.67445	.01741

One-Sample Test						
	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Intnd_toBuy	59.118	1499	.000	1.26133	1.2195	1.3032
Consider_buying	80.321	1499	.000	1.34600	1.3131	1.3789
Plan_toBuy	77.102	1499	.000	1.34267	1.3085	1.3768

Table presented with the observed *t*-value ("t" column), the degrees of freedom ("df"), and the statistical significance (p-value) ("Sig. (2-tailed)") of the one-sample t-test. The *p* value for majority of service dimension are < .05, therefore, it can be concluded that the population means and sample means are significantly different. From the mean value analysis reveals that customers showed a positive or higher perception towards purchase intention for green products

*From the result, we can accept alternate hypothesis 8, that Consumer have positive attitude towards purchase intention for green products*

### **State-Wise Analysis- Purchase Intention**

The independent two-sample t-test is used to test whether population means are significantly different from each states. This test involves testing the null hypothesis  $H_0: \mu(x) = \mu(y)$  against the alternative research hypothesis,  $H_1: \mu(x) \neq \mu(y)$  where  $\mu(x)$  and  $\mu(y)$  are respectively the population mean of the two populations from which the two samples have been drawn.

In present research, two sample (Rajasthan and Gujarat) is used for testing the equality of mean for purchase intention about the green purchase. The statistical significance of the data has been tested using Student's Independent sample "t" test at 95% confidence level.

**Table: 4.48 Independent Samples Test- Purchase Intention**

<b>Group Statistics</b>					
	State	N	Mean	Std. Deviation	Std. Error Mean
Intnd_toBuy	Gujarat	750	4.2640	.76447	.02791
	Rajasthan	750	4.2587	.88438	.03229
Consider_buying	Gujarat	750	4.3960	.66114	.02414
	Rajasthan	750	4.2960	.63318	.02312
Plan_toBuy	Gujarat	750	4.3987	.65953	.02408
	Rajasthan	750	4.2867	.68492	.02501

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Intnd_toBuy	Equal variances assumed	10.222	.001	.125	1498	.901	.00533	.04269	-.07840	.08906
	Equal variances not assumed			.125	1467.285	.901	.00533	.04269	-.07840	.08906
Consider_buying	Equal variances assumed	4.951	.026	2.992	1498	.003	.10000	.03343	.03443	.16557
	Equal variances not assumed			2.992	1495.213	.003	.10000	.03343	.03443	.16557
Plan_toBuy	Equal variances assumed	1.840	.175	3.226	1498	.001	.11200	.03472	.04390	.18010
	Equal variances not assumed			3.226	1495.867	.001	.11200	.03472	.04390	.18010

It was found that there is a significant perception gap between respondents of Rajasthan and Gujarat towards purchase intention towards green consumption. The result connotes that respondents of Gujarat have higher perception and intention as compared to Rajasthan. Gujarat consumers consider buying those products that are environmental friendly and plan to buy those products that are environmental friendly as compared to Rajasthan.

#### **4.11 IMPACT OF DEMOGRAPHICS**

Following section attempts to attain the following objective of the Study

**Objective:** To assess the influence of gender, age, education level and annual household income on consumer attitude towards green consumption.

Following hypothesis is formulated

**Hypothesis 9(null): There is no influence of consumer demographics on consumer attitude towards green consumption.**

**Hypothesis 9(alternate): There is an influence of consumer demographics on consumer attitude towards green consumption.**

#### **Impact on Attitude towards Green consumption**

To identify the variation in respondent's attitude towards green consumption across demographics, ANOVA analysis was used with SPSS-19 software. The ANOVA provides a statistical test of whether or not the means of several groups are all equal.

ANOVA is a statistical test which analyzes variance. It is helpful in making comparison of two or more means which enables a researcher to draw various results and predictions about two or more sets of data. One-way ANOVA has the following test statistics:

$$F = \frac{\textit{between group variability}}{\textit{within - group variability}}$$

The P value tests the null hypothesis that data from all groups are drawn from populations with identical means. If the overall P value is large, the data do not give

you any reason to conclude that the means differ. Even if the population means were equal, you would not be surprised to find sample means this far apart just by chance. If the overall P value is small, then it is unlikely that the differences you observed are due to random sampling. You can reject the idea that all the populations have identical means. This doesn't mean that every mean differs from every other. The P value is computed from the F ratio which is computed from the ANOVA table.

**a. Age**

The ANOVA provides a statistical test of whether or not the means of several age groups are all equal. The results on ANOVA for age were provided in table as under.

**Table: 4.49 ANOVA-Age**

Descriptives								
Green_Int								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
<20 Yr	340	4.2559	1.22744	.06657	4.1249	4.3868	1.00	5.00
20-30 yr	791	4.1884	1.26037	.04481	4.1004	4.2763	1.00	5.00
31-40 yr	243	4.0453	1.37646	.08830	3.8713	4.2192	1.00	5.00
> 40 yr	126	3.0397	1.28000	.11403	2.8140	3.2654	1.00	5.00
Total	1500	4.0840	1.31330	.03391	4.0175	4.1505	1.00	5.00

ANOVA					
Green_Int					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	156.441	3	52.147	32.117	.000
Within Groups	2428.975	1496	1.624		
Total	2585.416	1499			

The result of ANOVA test provided as F Ratio 32.117 with p value of 0.000, which revealed statistically significant difference across different age groups, as determined by one-way ANOVA ( $p < 0.05$ ). From the mean analysis, we can conclude that there is a difference among different categories of age. Young consumers have higher perception towards green consumption than older age groups.

#### b. Gender

The ANOVA provides a statistical test of whether or not the means of gender groups are all equal. The results on ANOVA for gender is provided in table as under.

**Table: 4.50 ANOVA-Gender**

Descriptives								
Green_Int								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	668	3.8503	1.21893	.04716	3.7577	3.9429	1.00	5.00
Female	832	4.2716	1.35628	.04702	4.1793	4.3639	1.00	5.00
Total	1500	4.0840	1.31330	.03391	4.0175	4.1505	1.00	5.00

ANOVA					
Green_Int					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65.775	1	65.775	39.105	.000
Within Groups	2519.641	1498	1.682		
Total	2585.416	1499			

The result of ANOVA test provided as F Ratio 39.105 with p value of 0.000, which revealed statistically significant difference across different gender groups, as

determined by one-way ANOVA ( $p < 0.05$ ). From the mean analysis, we can conclude that there is a difference among different gender. Results revealed that female respondents have higher attitude towards green and eco-friendly products as compared to male respondents.

### c. Education

The ANOVA provides a statistical test of whether or not the means of several qualification groups are all equal. The results on ANOVA were provided in table as under.

**Table: 4.51 ANOVA-Education**

Descriptives								
Green_Int								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Higher than PG	304	4.2111	1.35997	.07800	3.7741	4.0811	1.00	5.00
Post Graduate	656	4.0518	1.34802	.05263	3.9485	4.1552	1.00	5.00
Under Graduate	540	3.9276	1.23187	.05301	4.1070	4.3152	1.00	5.00
Total	1500	4.0840	1.31330	.03391	4.0175	4.1505	1.00	5.00
ANOVA								
Green_Int								
		Sum of Squares	df	Mean Square	F	Sig.		
Between Groups		16.837	2	8.418	4.906	.008		
Within Groups		2568.579	1497	1.716				
Total		2585.416	1499					

The result of ANOVA test provided as F Ratio 4.906 with p value of 0.000, which revealed statistically significant difference across different education groups, as determined by one-way ANOVA ( $p < 0.05$ ). From the mean analysis, we can conclude that there is a difference among different categories. Result revealed that respondents with higher education have higher perception towards green products as compared to graduate respondents.

#### d. Income

The ANOVA provides a statistical test of whether or not the means of several income groups are all equal. The results on ANOVA for income are provided in table as under.

**Table: 4.52 ANOVA-Income**

Descriptives								
Green_Int								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
< 2 LPA	323	3.9380	1.23822	.06890	4.0750	4.3461	1.00	5.00
2-5 LPA	516	4.1919	1.25567	.05528	4.0833	4.3005	1.00	5.00
> 5 LPA	661	4.2105	1.37866	.05362	3.8327	4.0433	1.00	5.00
Total	1500	4.0840	1.31330	.03391	4.0175	4.1505	1.00	5.00

ANOVA					
Green_Int					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.269	2	12.635	7.388	.001
Within Groups	2560.147	1497	1.710		
Total	2585.416	1499			

The result of ANOVA test provided as F Ratio 7.388 with p value of 0.000, which revealed statistically significant difference across different income groups, as determined by one-way ANOVA ( $p < 0.05$ ). From the mean analysis, we can conclude that respondents with higher income group have higher positive perception towards eco-friendly products.

**Conclusion :**

Results showed that we can accept the alternate hypothesis 9, that there is an influence of consumer demographics on consumer attitude towards green consumption.

HYPOTHESES	STATEMENT	RESULT
<b>Hypothesis1 (null)</b>	Consumers are not aware towards Environment protection and Green products.	Reject
<b>Hypothesis1 (alternate)</b>	Consumers are aware towards Environment protection and Green products.	Accept
<b>Hypothesis 2(null)</b>	Consumer does not have positive attitude towards green products	Reject
<b>Hypothesis 2(alternate)</b>	Consumer have positive attitude towards green products	Accept
<b>Hypothesis 3(null)</b>	Green products are not frequently purchased by consumers of Rajasthan and Gujarat	Reject
<b>Hypothesis 3(alternate)</b>	Green products are frequently purchased by consumers of Rajasthan and Gujarat	Accept
<b>Hypothesis 4(null)</b>	Consumer has negative perception towards impact on public relation and green consumption	Reject
<b>Hypothesis 4(alternate)</b>	Consumer has positive perception towards impact on public relation and green consumption	Accept
<b>Hypothesis 5(null)</b>	Consumer has negative perception towards impact on eco-labeling and green consumption	Reject

HYPOTHESES	STATEMENT	RESULT
<b>Hypothesis 5(alternate)</b>	Consumer has positive perception towards impact on eco-labeling and green consumption	Accept
<b>Hypothesis 6(null)</b>	Consumer has negative perception towards impact of peer pressure and green consumption	Reject
<b>Hypothesis 6(alternate)</b>	Consumer has positive perception towards impact of peer pressure and green consumption	Accept
<b>Hypothesis 7(null)</b>	Consumer has negative attitude towards Perceived Barrier towards green consumption	Reject
<b>Hypothesis 7(alternate)</b>	Consumer has positive attitude towards Perceived Barrier towards green consumption	Accept
<b>Hypothesis 8(null)</b>	Consumer have negative attitude towards purchase intention for green products	Reject
<b>Hypothesis 8(alternate)</b>	Consumer have positive attitude towards purchase intention for green products	Accept
<b>Hypothesis 9(null)</b>	There is no influence of consumer demographics on consumer attitude towards green consumption.	Reject
<b>Hypothesis 9(alternate)</b>	There is an influence of consumer demographics on consumer attitude towards green consumption.	Accept

# **BIBLIOGRAPHY**

## BIBLIOGRAPHY

### Journals

- Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production* , 13-23.
- Bilharz, M., & Schmitt, K. (2011). Going Big with Big Matters: The Key Points Approach to Sustainable Consumption/Going Big with Big. *Gaia* , 232-235.
- Billinger, A., Densberger, K., Dorius, C., Fledderjohan, J., & Hall, M. (2009). The New Economics of Sustainable Consumption: Seeds of Change. *Contemporary Sociology* .
- Burgess, J. (2003). Sustainable consumption: Is it really achievable? *Consumer Policy Review* , 78-84.
- Cohen, M. J. (2005). Consumer credit, household financial management, and sustainable consumption. *International Journal of Consumer Studies* , 57-65.
- Cooper, T. (2005). Slower Consumption :Reflections on Product Life Spans and the “Throwaway Society”. *Journal of Industrial Ecology* , 51-67.
- Dauvergne, P. & Lister, J. (2010). The Prospects and Limits of Eco-Consumerism: Shopping Our Way to Less Deforestation? *Organization & Environment* , 132–154.
- Farber, A. D. (2012). Sustainable Consumption, Energy Policy, and Individual Well-Being. *Vanderbilt Law Review* , 1479-1525.
- Faria, S. C., Bessa, L. F., & Tonet, H. C. (2009). A theoretical approach to urban environmental governance in times of change. *Emerald Insight* , 638-648.
- Fischer, D., & Barth, M. (2014). Key Competencies for and beyond Sustainable Consumption: An Educational Contribution to the. *Gaia* , 193-200.
- Fuchs, A. D., & Lorek, S. (2005). Sustainable Consumption Governance: A History of Promises and Failures. *Journal of Consumer Policy* , 261-288.
- Gadepalli, S. D. (2015). Waste Management and Sustainable Consumption - Reflections on consumer waste. *Decision* , 247-249.

- Grabs, J., Langen, N., Maschkowski, G., & Sch€apke, N. (2016). Understanding role models for change: a multilevel analysis of success factors of grassroots initiatives for sustainable consumption. *Journal of Cleaner Production* , 98-111.
- Grabs, J., Langen, N., Maschkowski, G., & Sch€apke, N. (2016). Understanding role models for change: a multilevel analysis of success factors of grassroots initiatives for sustainable consumption. *Journal of Cleaner Production* , 98-111.
- Güney, T. (2015). Environmental sustainability and pressure groups. *Qual Quant* , 2331–2344.
- Henam, S., & Sambyal, S. S. (2017). Pick the no waste option. *Down to earth* , 56-57.
- Hobson, K. (2013). ‘Weak’ or ‘strong’ sustainable consumption? Efficiency, degrowth, and the 10 Year Framework of Programmes. *Environment and Planning C: Government and Policy* , 1082 – 1098.
- Holt, D. B. (2012). Constructing Sustainable Consumption from ethical values to cultural transformation in unsustainable markets. *ANNALS* , 236-255.
- Hoque, N. (2013). Analysing Sustainable Consumption Patterns: A literature review. *Development* , 370-377.
- Horne, R. E. (2009). Limits to labels: The role of eco-labels in the assessment of product sustainability and routes to sustainable consumption. *International Journal of Consumer Studies* , 175–182.
- J.M.M., N., Pienaar, M., & Erasmus, A. C. (2014). Status consciousness and knowledge as potential impediments of households’ sustainable consumption practices of fresh produce amidst times of climate change. *International Journal of Consumer Studies* , 419–426.
- Jackson, T. (2005). Live Better by Consuming Less?: Is There a “Double Dividend” in Sustainable Consumption? *The Journal of Industrial Ecology* , 19-36.
- Jaeger-Erben, M., & Offenberger, U. (2014). A Practice Theory Approach to Sustainable Consumption. *Research Viewpoints* , 166 –174.

- Jones, P., Hillier, D., & Comfort, D. (2014). Sustainable consumption and the UK's leading retailers. *Social Responsibility Journal* , 715-702.
- Khandelwal, U., & Yadav, S. K. (2014). Green Marketing and Sustainable Development: Marketing Professionals Attitude towards Green Marketing. *International Journal of Marketing & Business Communication* , 1-7.
- Kolandai-Matchett, K. (2009). Mediated communication of 'sustainable consumption' in the alternative media: a case study exploring a message framing strategy. *International Journal of Consumer Studies* , 113–125.
- Koos, S. (2011). Varieties of Environmental Labelling, Market Structures, and Sustainable Consumption Across Europe:A Comparative Analysis of Organizational and Market Supply Determinants of Environmental-Labelled Goods. *Springer Science* , 127–151.
- Korpysa, J. (2013). Buyer Behavior in The Context of Sustainable Consumption Policy Pursued. *Amfiteatru Economic* , 702-713.
- Kothari, D. A., & Dawar, S. (2014). Sustainable Consumption: An Imperative for India. *Asian Research Consortium* , 53-61.
- Krause, R. M. (2009). Developing conditions for environmentally sustainable consumption: drawing insight from anti-smoking policy. *International Journal of Consumer Studies* , 285–292.
- Łazorko, K. (2015). Promotion of Sustainable Consumption of Food By Virtual Communities. *Acta* , 95-105.
- Leary, R. B., Vann, R. J., Mittelstaedt, J. D., Murphy, P. E., & Sherry Jr., J. F. (2014). Changing the marketplace one behavior at a time: Perceived marketplace influence and sustainable consumption. *Journal of Business Research* , 1953-1958.
- Lee, C. K., Levy, D. S., & Yap, C. S. (2015). How does the theory of consumption values contribute to place identity and sustainable consumption? *International Journal of Consumer Studies* , 597-607.
- Maniates, M. (2014). Sustainable Consumption - Three Paradoxes. *Gaia* , 201-208.

- Markkula, A., & Moisander, J. (2012). Discursive Confusion over Sustainable Consumption: A Discursive Perspective on the Perplexity of. *Journal of Consumer Policy* , 105-125.
- McDonald, S., Oates, C., Thyne, M., Alevizou, P., & McMorland, L.-A. (2009). Comparing sustainable consumption patterns across product sectors. *International Journal of Consumer Studies* , 137-145.
- Moloney, S., & Strengers, Y. (2014). 'Going Green'?: The Limitations of Behaviour Change Programmes as a Policy Response to Escalating Resource Consumption. *Environmental Policy and Governance* , 94–107.
- Mont, O., & Bleischwitz, R. (2007). Sustainable Consumption and Resource Management in the Light of Life Cycle Thinking. *European Environment* , 59–76.
- Muster, V. (2012). Negative influences of working life on sustainable consumption. *International Journal of Consumer Studies* , 166–172.
- Muster, V. (2012). Negative influences of working life on sustainable consumption. *International Journal of Consumer Studies* , 166–172.
- Muster, V. (2012). Negative influences of working life on sustainable consumption. *International Journal of Consumer Studies* , 166–172.
- Myers, N. (1997). Consumption: Challenge to Sustainable Development . . *Science* , 53-55.
- Myers, N. (2000). Sustainable Consumption. *Science* , 2419-2419.
- Myers, N., & Kent, J. (2004). TheNew Consumers. The Influence of Affluence on the Environment. *Journal of Industrial Ecology* , 295-296.
- Nagypál, C. N., Görög, G., Harazin, P., & Baranyi, R. P. (2015). "Futyre Generations" And Sustainable Consumption. *Economics & Sociology* , 207-224.
- Overby, B. (2002). Contract, in the age of sustainable consumption. *Journal of Corporation Law* , 603-630.
- Peattie, K., & Collins, A. (2009). Guest editorial: perspectives on sustainable consumption. *International Journal of Consumer Studies* , 107–112.

- Petry, R. A., Fadeeva, Z., Fadeeva, O., Hasslof, H., Hellstrom, A., Hermans, J., et al. (2011). Educating for sustainable production and consumption and sustainable livelihoods: learning from multi-stakeholder networks. *Sustain Sci* , 83–96.
- Petry, R. A., Fadeeva, Z., Fadeeva, O., Hasslof, H., Hellstrom, A., Hermans, J., et al. (2011). Educating for sustainable production and consumption and sustainable livelihoods: learning from multi-stakeholder networks. *Sustain Sci* , 83–96.
- Plepys, O. M. (2008). Sustainable Consumption progress: Should we be proud or alarmed. *Journal of Cleaner Production* , 531-537.
- Rakitovac, K. A., & Tadic, M. (2016). Promoting Sustainable Consumption Through Higher Education. *International Scientific Conference on Economic and Social Development*, (pp. 172-182). Barcelona.
- Schaefer, A., & Crane, A. (2005). Addressing Sustainability and Consumption. *Journal of Macromarketing* , 76-92.
- Scholl, G., Rubik, f., Kalimo, H., Biedenkopf, K., & OlofSoebach. (2010). Policies to promote sustainable consumption: Innovative approaches in Europe. *The United Nations Sustainable Development Journal* , 39-50.
- Shadymanova, J., Wahlen, S., & Horst, H. v. (2014). ‘Nobody cares about the environment’ : Kyrgyz’ perspectives on enhancing environmental sustainable consumption practices when facing limited sustainability awareness. *International Journal of Consumer Studies* , 678–683.
- Singh, A. (2017, February 1-15). Why eat plastic? *Down to Earth* , pp. 46-47.
- Spaargaren, G. (2011). Sustainable Consumption: A Theoretical and Environmental Policy Perspective . 687-701.
- Spangenberg, S. L. (2014). Sustainable Consumption within a sustainable economy- beyond green growth and green economies. *Journal of Cleaner Production* , 33-44.
- Stevens, C. (2010). Linking sustainable consumption and production: The government role. *A United Nations Sustainable Development journal* , 16-30.

- Tseng, M.-L., Chiu, (. S., Tan, R. R., & Siriban-Manalang, A. B. (2013). Sustainable consumption and production for Asia: sustainability through green design and practice. *Journal of Cleaner Production* , 1-5.
- Vázquez-Rowe, I., Pedro, V.-R., M<sup>a</sup> Teresa, M., & Gumersindo, F. (2013). The role of consumer purchase and post-purchase decision-making in sustainable seafood consumption. A Spanish case study using carbon footprinting. *Elsevier* , 94-102.
- Vergragt, P. J., Dendler, L., De Jong, M., Matus, K., & Zhang, X. (2014). Call for papers for a special volume on “Transitions to sustainable consumption and production within cities”. *Journal of Cleaner Production* , 1-7.
- Vermeir, I., & Verbeke, W. (2006). Sustainable Food Consumption: Exploring the Consumer "Attitude - Behavioral Intention" Gap. *Journal of Agricultural and Environmental Ethics* , 169-194.
- Vince, J. R., & Panayotou, T. (1997). Consumption: Challenge to Sustainable Development . . *Science* , 53-55.
- Voegt-Kleschin, L. (2014). Reasoning Claims for More Sustainable Food Consumption: A Capabilities Perspective. *Springer Science* , 455-477.
- Wakasa, K., & Konomi, S. (2015). Green Weaver: Participatory Green Mapping and Networking for Fostering Sustainable Communities. *ADJUNCT* , 157-160.
- Widyaningsih, N., Tjiptoherijanto, P., Widanarko, S., & Seda, F. S. (2015). Linkage model between sustainable consumption and household waste management. *Procedia Environmental Sciences* , 195 – 203.
- Wilhite, H., & Lutzenhiser, L. (1999). Social Loading and Sustainable Consumption. *Advances in Consumer Research* , 281-287.
- Yates, L. (2008). Sustainable consumption: the consumer perspective. *Consumer Policy Review* , 96-101.

## WEB RESOURCES

Gillapsy, R. (2003). *Sustainable Consumption: Definition and Complexities*. Retrieved October 2016, from [www.study.com](http://www.study.com): <http://study.com/academy/topic/environmental-sustainability.html>

Grimmer, M. (2016, April 22). *Environmentally friendly consumption*. Retrieved April 25, 2018, from Research to Reality: <<http://www.utas.edu.au/profiles/staff/business-and-economics/martin-grimmer>>

India's first ever hydrogen fuel cell powered bus by Tata Motors is here! Made in india bus emits only water,<http://www.financialexpress.com/auto/car-news/tata-motors-indianoil-corporation-flag-off-countrys-first-hydrogen-fuel-cell-powered-bus/1096895>

Nitin Gadkari Tells Carmakers : Move to Electric Cars or to be Bulldozed ,<http://auto.ndtv.com/news/nitin-gadkari-tells-carmakers-move-to-electric-cars-or-to-be-bulldozed-1747395>

Srinivas, H. (2016, October 15). *Sustainable Consumption*. Retrieved April 25, 2018, from Sustainability Concepts: <http://www.gdrc.org/sustdev/concepts/22-s-consume.html>.

Singer, A. (2013, 02 21). *The Myths of Sustainable Consumption : Is Sustainability still possible?* Retrieved from <http://blogs.worldwatch.org/>: <http://blogs.worldwatch.org/sustainabilitypossible/sustainable-consumption-myths/>

Shove, E. (2003, august). *Changing human behaviour and lifestyle: a challenge for sustainable consumption?* Retrieved from <http://www.psi.org.uk>: <http://www.psi.org.uk/ehb/docs/shove-changinghumanbehaviourandlifestyle-200308.pdf>

Pen grow into tree) [https://www.youtube.com/watch?v=8I\\_T0DCLOyg](https://www.youtube.com/watch?v=8I_T0DCLOyg)

Roads paved with plastic <https://vimeo.com/188098899>

Air pollution, Mexico <https://www.reuters.com/video/2016/08/15/mexico-city-raises-green-awaeness-with?videoId=369577981>

Airpollution,Mexico<https://www.youtube.com/watch?v=pzwUDz5Bifc>

## BOOKS

- Brundtland, G. H. (1987). *Brundtland Commission: Our Common Future*. Oxford, U.K.: Oxford University Press.
- Channa, S. M., & Porter, M. (2015). *Gender, Livelihood and Environment*. New Delhi: Orient BlackSwan Private Limited.
- Clegg, B. (2011). *Financial Times Briefing on Sustainable Business*. Great Britain: Pearson Education Ltd.
- Cohen, M., & Murphy, J. (2001). *Exploring Sustainable Consumption: Environmental Policy and the Social Sciences*. Amsterdam: Elsevier Science.
- Cummins, N. P. (2011). *What Does it Mean to be 'Green'?* England: Vitae Publications.
- Curnock, D. (2008). *The little book of Green Tips, A practical guide to a Green lifestyle*. UK: Green Umbrella Publishing.
- Farley, H. M. (2013). *Interpreting Sustainability: An Analysis of Sustainable Development Narratives Developed Nations*. Northern Arizona: ProQuest LLC.
- Gadepalli, S. D. (2015). *Waste Management and Sustainable Consumption - Reflections on consumer waste*. Calcutta: Indian Institute of Management.
- Jayamani, D. C., & Vasanthgopal, D. R. (2012). *Environmental Management: From ancient to Modern Times*. New Delhi: New Century Publications.
- Manjunath, D. L. (2007). *Environmental Studies*. Karnataka: Pearson.
- Mehta, R. (2014). *Sociology and Environmental Sustainability*. Jaipur: Rawat Publications.
- Moser, C., & Kalton, G. (1971). *Survey Methods in Social Investigation*. New York: Ashgate Publishing.
- Narain, S. (2016). *Why I should be tolerant*. New Delhi: Centre for Science and Environment.
- Pearce, D. W. (1989). *Blueprint for a Green Economy*. London: Earthscan publications ltd.

- Pearce, D. W., Markandya, A., & Barbier, E. (1989). *Blueprint for a Green Economy*. London: Earthscan Publications Ltd.
- Swaminathan, M. S. (2011). *In search of Biohappiness*. Singapore: World Scientific Publishing Co. Pt. Ltd.
- Thakur, D. (2012). *Research Methodology in Social Sciences*. New Delhi: Deep & Deep Publications pvt. Ltd.
- Billinger, A., Densberger, K., Dorius, C., Fledderjohan, J., & Hall, M. (2009). The New Economics of Sustainable Consumption: Seeds of Change. *Contemporary Sociology* .
- Cooper, T. (2005). Slower Consumption :Reflections on Product Life Spans and the “Throwaway Society”. *Journal of Industrial Ecology* , 51-67.
- Farber, A. D. (2012). Sustainable Consumption, Energy Policy, and Individual Well-Being. *Vanderbilt Law Review* , 1479-1525.
- Horne, R. E. (2009). Limits to labels: The role of eco-labels in the assessment of product sustainability and routes to sustainable consumption. *International Journal of Consumer Studies* , 175–182.
- Kolandai-Matchett, K. (2009). Mediated communication of ‘sustainable consumption’ in the alternative media: a case study exploring a message framing strategy. *International Journal of Consumer Studies* , 113–125.
- Krause, R. M. (2009). Developing conditions for environmentally sustainable consumption: drawing insight from anti-smoking policy. *International Journal of Consumer Studies* , 285–292.
- Plepys, O. M. (2008). Sustainable Consumption progress: Should we be proud or alarmed. *Journal of Cleaner Production* , 531-537.
- Scholl, G., Rubik, f., Kalimo, H., Biedenkopf, K., & OlofSoebach. (2010). Policies to promote sustainable consumption: Innovative approaches in Europe. *The United Nations Sustainable Development Journal* , 39-50.
- Stevens, C. (2010). Linking sustainable consumption and production: The government role. *A United Nations Sustainable Development journal* , 16-30.

## **VIDEO LINKS**

1. [https://www.youtube.com/watch?v=8I\\_T0DCLOyg](https://www.youtube.com/watch?v=8I_T0DCLOyg) ( Pen grow into tree)
2. <https://vimeo.com/188098899> (Roads paved with plastic)
3. <https://www.reuters.com/video/2016/08/15/mexico-city-raises-green-awareness-with?videoId=369577981> (Air pollution, Mexico)
4. <https://www.youtube.com/watch?v=pzwUDz5Bifc> (Air pollution, Mexico)

**LIST OF PUBLICATIONS  
AND  
PAPERS PRESENTED**

## APPENDICES

### Questionnaire

The study is consumer perception towards sustainable consumption practices

*\*All information will be held confidential.*



### PART A: PERSONAL DETAILS

Kindly tick (✓) in the appropriate column

<b>Age</b>	< 20 yr	<b>Gender</b>	Male
	20-30 yr		Female
	31-40 yr	<b>Marital status</b>	Married
	> 40 yr		Single
<b>Education</b>	Under Graduate	<b>Occupation</b>	Business
	Post Graduate		Service
	Higher than PG		Home Maker
<b>Family Income</b>	< 2 LPA	<b>Family size</b>	2-4 members
	2-5 LPA		5-7 members
	> 5 LPA		> 8 members

### PART B: CONSUMER AWARENESS

Kindly tick (✓) in the appropriate column

Kindly mark agreement and disagreement on following statements.	Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree
	5	4	3	2	1
I am very much concerned about the environmental pollution problem					
Non-Green products adversely affect environment					
Green product usage save environment and society					
Green leveled products are functionally superior					
I believe that green leveled products are good for health					
Product packaging (Plastic bags) also create environmental hazards					

## PART C: CONSUMER BEHAVIOR

What type of eco- friendly products did you purchase in the last 1 year .[Use (√) to select]

	Rarely Purchased				Most Purchased
	1	2	3	4	5
Food Products( <i>eg. organic food</i> )					
Health Care Products( <i>eg. herbal</i> )					
Soap/Detergents( <i>eg. herbal</i> )					
Apparels( <i>eg.natural dyes</i> )					
Electronics( <i>eg. LEDs</i> )					
Energy Efficient Appliances ( <i>eg. 5 star rating</i> )					
Furniture( <i>eg. non wood</i> )					
Vehicle ( <i>eg. Electronic</i> )					

Kindly mark(√)for your agreement and disagreement on following statements.	Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree
	5	4	3	2	1
<b>Attitude</b>					
It is important for me that products I use should do not harm environment					
Environmental protection is important to me when making purchases					
I choose organic in comparison to conventional products.					
I was satisfied with most of eco-friendly products					
It is important to me that food products contain no preservatives.					
<b>Perceived Barriers</b>					
Green products are too expensive					
Green products are difficult to find in nearby stores					
There are very few companies that offer green products					
<b>Peer/Social Pressure</b>					
I learn so much about environmental products from my friends.					
I often buy environmental products with my friends					
I often share information regarding					

Kindly mark(√)for your agreement and disagreement on following statements.	Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree
	5	4	3	2	1
environmental products with my friends					
<b>Eco-Labeling and certification</b>					
Companies claim about green product/ingredients are not believable					
Product content / Label information is not authentic					
I am doubtful of the eco-brand					
Eco-brand is symbol of product reliability					
<b>Public Relation</b>					
I am interested in reading articles on environmentally-friendly products.					
I hear and I pay attention to my friends/family opinion concerning eco-friendly product					
I pay attention to eco-friendly campaigns					
It is good that local companies and authorities are working together to create a sustainable community.					
<b>Green Purchase Intention</b>					
I would definitely intend to buy those products that are environmental friendly.					
I would absolutely consider buying those products that are environmental friendly.					
I would absolutely plan to buy those products that are environmental friendly.					

Any additional information/suggestion which will add value to this exercise.

\_\_\_\_\_



## LIST OF PUBLICATIONS

### List of Research Papers Published (National/International Journals/Periodicals/Conference Proceedings)

1. Paper titled **“Sustainable Development: New Paradigm and a new Responsibility”** published in Aishwarya Research Communication ,ISSN NO 09752613,Vol 9 ,2017
2. Paper titled **“Analyzing business perspective towards Sustainable Marketing Practices in South Rajasthan”** published in JIMQUEST: Journal of Management and Technology, ISSN 0975-6280 Vol.13, No 1, Jan-June 2017, pp. 68-73.
3. Paper titled **“A Study on Green Human Resource Management Practices in Selected Manufacturing Industrial Units of Udaipur Region”** published in Global Journal of Business Management, ISSN 0973-8533, Vol. 10, No. 2, December 2016, pp.41-54.
4. Paper titled **“Sustainable Management Practices: An overview of Literature in India”** published in Aishwarya Research Review, ISSN NO: 2249-2097 Vol.6 Aug 16, pp.64-71.
5. Paper titled **“A Study on Sustainable Consumption Practices Among Management Students in Udaipur”** published in the proceedings of *4<sup>th</sup> International Conference on CSR & Sustainable Development*, ISBN No. 978-1-944820-49-7, organized by SERD, Malaysia, 2016, pp. 120-131.

## **List of Research Publications - Books, Articles/Chapters published in Books**

1. Paper titled “**Sustainable Consumption In India: Role of Major Stake holders**” published in the proceeding of 8<sup>th</sup> National Conference on People, Planet & Profit in Sustainable Development & contribution of IT, Media and Management” ISBN (Print):978-93-86789-40-2 Kaav Publications, New Delhi 2018 ,pp 6-10.
2. Chapter titled “Greening the Business: Opportunities and Challenges” published in the book *Conference Proceedings: National Conference on Emerging Practices in Management* ISBN 978-93-5254-248-2, Department of Management Studies, Jodhpur Institute of Engineering and Technology, JGI, Jodhpur, 2016, pp 471-475.
3. Chapter titled “Analyzing perception of Millennial towards Sustainable Consumption” published in the seminar proceedings *Environmental Conservation And Sustainable Development* ISBN: 978-93-85-160-71-4, Indira Gandhi Center for HEEPS, University of Rajasthan, Jaipur published by Lenin Media Publication, New Delhi, 2016, pp 47-54

### **List of International Seminars, Conferences, and Workshops Attended**

1. Paper titled **“Sustainable Consumption: New Paradigm towards Sustainable Development”** at IPSA International Conference on Globalization & Sustainable Development: Quest for New Paradigm”, organized by University of Rajasthan, Jaipur, held on 14-16 April, 2017.
2. Paper titled **“Sustainable Tourism among Millennials: An Empirical Study of Trends in Udaipur”** at International Conference on Hospitality and Tourism organized by School of Hotel Management and Hospitality, Graphic Era University, Dehradun, Uttarakhand, 20-21 January, 2017.
3. Invited lecture on **‘A New Sustainable Practice: Sustainable Consumption’** in International Conference on Eco-friendly and Socially Responsive Economy & Equity: Issues & Challenges of 21<sup>st</sup> century for Emergent Sustainable Development amongst SAARC countries , 9-11 January 2017 organized by Dept. of Zoology, MLS University Udaipur & Deccan Education Society, Kirti M Doongursee College, University of Mumbai, Mumbai.
4. Attended World Sustainable Development Summit organized by TERI at India Habitat Centre, New Delhi on October 5-8, 2016.
5. Paper entitled **'A Study on Sustainable Consumption Practices among Management Students in Udaipur'** presented in *4<sup>th</sup> International Conference on CSR & Sustainable Development*, organized by SERD, Malaysia held on May 30-31 2016. **(II Best Paper Award)**

## **List of National Seminars, Conferences, and Workshops Attended**

1. Paper titled **“Green Marketing: The Competitive Advantage for Companies”** presented in 1<sup>st</sup> National Conference on “Innovation & Challenges in Business Management: Socio Economic Perspective” organized by Aryabhata College of Management, 8 September 2018.
2. Paper titled **“Sustainable Consumption In India: Role of Major Stake holders”** presented in TIPSCON-2018 organized by Trinity Institute of Professional Studies, Delhi on 7<sup>th</sup> April 2018.
3. Paper titled **“Introduction of Eco-friendly Utensils to Dining Tables”** presented in National Conference on recent advances in Environmental Quality Improvement & Conservation of Bio-Diversity, organized by Aishwarya Group of Institutions, Udaipur and DST, Rajasthan, on 22-23 December, 2017.
4. Paper titled **“Sustainable Consumption in India: Selected Initiatives”** presented in National Conference on recent advances in Environmental Quality Improvement & Conservation of Bio-Diversity, organized by Aishwarya Group of Institutions, Udaipur and DST, Rajasthan, on 22-23 December, 2017. **(Best Paper Presentation)**
5. Paper titled **“Sustainable Development: A new Paradigm and a new Responsibility”** presented in National Conference on recent advances in Environmental Quality Improvement & Conservation of Bio-Diversity, organized by Aishwarya Group of Institutions, Udaipur and DST, Rajasthan, on 22-23 December, 2017.
6. Presented Paper on **“Sustainable Management Practices: An overview of Literature in India”** in VIII National Conference on “Dimensions for Sustainable Growth among Working Women in India” organized by Aishwarya Group of Institutions, Udaipur, November, 18-19, 2016. **(Best Paper Award)**
7. Presented paper on ‘ **Greening the Business: Opportunities & Challenges**’ at National Conference on Emerging Practices in Management organized by Department of Management Studies, JIET group of Institutions, Jodhpur. February 19-20, 2016.

## **Declaration**

I hereby by declare that the project report on "**AN EMPIRICAL STUDY OF ISSUES, CHALLENGES AND PROSPECTS OF SUSTAINABLE CONSUMPTION IN SELECTED CITIES OF RAJASTHAN & GUJARAT**" is my original work and has not been submitted anywhere.

Date : .....

**Prof. Meera Mathur**