

## **Impact on Consumer Cognitive Buying Decision Towards Domestic Solar Power Technology with Reference To Tamilnadu**

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### **ABSTRACT**

Consumer consumption pattern has changed due to rapid economic growth resulting in environmental degradation through over consumption and utilization of natural resources. Hence, shift towards more sustainable consumption patterns is required. Consumers can reduce impact on environment by their purchasing decisions. This concern has induced the marketers to develop solar marketing strategies with Solar Products that would cause less damage to the environment. It is ultimately the consumers who have to co-operate for the sustainability of solar marketing practices. Thus, in the present study, an attempt has been made to study cognitive decision making of consumers towards Solar Products in Tamilnadu. The study is based on both primary data and secondary data. Primary data have been collected from 120 consumers using questionnaire. Judgment sampling was used. Secondary data sources include information from journals and websites. Percentages and factor analysis have been applied for analyses.

**.Keywords:** Consumer, Cognitive decision making, Solar Products,.

### **1. INTRODUCTION**

Consumer cognitive decision making is highly dynamic in nature. Consumer consumption pattern has changed due to rapid economic growth which has resulted in environmental degradation through over consumption and utilization of natural resources. Hence, shift towards more sustainable consumption patterns is required and it is also important to increase the environment awareness and consciousness among the people. Consumers can reduce impact on environment by their purchasing decisions.

The growing concern about preserving the natural environment has induced the marketers to develop a new marketing concept called solar marketing. Solar marketing incorporates not only marketing of eco-friendly products but also various activities such as production, packaging, promotion, and place of distribution are designed to preserve natural environment. Government has implemented environmental laws for environment protection and also providing subsidies on green environment friendly products. Consequently new types of products were created called 'solar' products that would cause less damage to the environment. Solar Products do not harm the environment whether in the production use or disposal.

## REVIEW OF LITERATURE

**Ginsberg and Bloom (2004)**, found out that the first step is to gain rich understanding on consumer preferences towards solar marketing. There is need for appropriate individual consumer tendencies towards solar marketing. D' Souza et al (2006) found out that marketing mix elements like green product, product labels, packaging, and product ingredients does not influence the Consumer cognitive decision making but past experience with Solar Products positively influences the green purchase intention.

**Abdul Rahim (2009)** also indicated that the consumers are more likely to have a positive attitude towards green food when they are more concern about the environmental issues and health consciousness. Jansson et al. (2010) found that willingness to curtail and eco-innovation adoption are determined by values, norms of consumers. The personal norms of consumers have more positive influence on green Consumer cognitive decision making. **Jacob Cheriyan and Jolly Jacob (2012)** concluded that, majority of the consumers still lack "green" knowledge due to low awareness towards Solar Products. Solar marketing is a continuous process that requires constant inputs from the suppliers, government legislations and policies and the people.

**Parameswara Gupta E.A and Girish (2012)** revealed that the concepts of environmental awareness, attitudes and behaviour of consumers towards green culture, green movement and green purchasing of semi urban, village people need to be popularised in the interest of protecting this "Mother Earth". Raji Parameswaran Pillai (2013) suggested that the government should actively frame policies that encourage companies to wvork towards conserving the ecology should introduce incentives for the corporate doing so and should monitor them regularly.

## STATEMENT OF THE PROBLEM

The negative effects of environmental degradation have been realized in the form of global warming, natural disasters, and deterioration in soil fertility and so on. Though, business firms have also started responding to environmental challenges by adopting and practicing solar marketing strategies. It is ultimately the consumer who has to co-operate for the sustainability of solar marketing practices. Thus, in the present study, an attempt has been made to study cognitive decision making of consumers towards Solar Products in Tamilnadu.

## 2. OBJECTIVES OF THE STUDY

The present study has been carried on with the following objectives

- To study the profile of the solar products consumers in Tamil Nadu.
- To analyze the factors influencing purchase of Solar Products by the respondents in the area of study.

## SIGNIFICANCE OF THE STUDY

In India, Government has enacted a number of legislations to combat pollution and preserve natural resources. Yet, the industrial and individual consumers' combined effect is needed in order to spread and practice eco-friendly behaviour. Hence, buyer behaviour plays a dominant role in solar marketing. This study deals with the in-depth analysis of the consumer buying behaviour towards Solar Products.

**SOURCES OF DATA**

The study is based on both primary data and secondary data. Primary data have been collected from 120 consumers with the help of a well designed questionnaire by following Judgment sampling method. The primary data required for the study have been collected from June 2016 to December 2016. Secondary data sources include information from journals and websites.

**TOOLS FOR ANALYSIS**

Descriptive statistics like percentage analysis was used to describe the socio-economic and demographic variables of the sample respondents and were suitably used for various other responses also. In the present study, factor analysis has been applied to identify the factors influencing the purchase of Solar Products.

**LIMITATIONS OF THE STUDY**

The present study is subjected to the following limitations

- Due to lack of time and money, cognitive decision making of only 120 consumers could be studied.
- The primary data are subject to memory bias as no records were maintained by the consumers.

**SOCIO-ECONOMIC AND DEMOGRAPHIC PROFILE OF THE RESPONDENTS**

The parameters such as gender, age, education, , type of family, marital status, occupation and monthly family income are considered in the present study to understand the socio-economic and demographic profile of the respondents and is exhibited in Table 1.

**Profile of the Respondents**

<b>Profile Variables</b>	<b>Particulars</b>	<b>No. of Respondents</b>	<b>Percentage</b>
<b>Gender</b>	Male	44	36.7
	Female	76	63.3
	<b>Total</b>	<b>120</b>	<b>100.0</b>
<b>Age (in years)</b>	Up to 25	05	04.2
	26 to 45	69	57.5
	Above 45	46	38.3
	<b>Total</b>	<b>120</b>	<b>100.0</b>
	School level	08	06.7
	College Level	71	59.1

<b>Educational Status</b>	Professional	41	34.2
	<b>Total</b>	<b>120</b>	<b>100.0</b>
<b>Marital Status</b>	Married	109	90.8
	Un-married	11	09.2
	<b>Total</b>	<b>120</b>	<b>100.0</b>
<b>Type of the Family</b>	Joint	23	19.2
	Nuclear	97	80.8
	<b>Total</b>	<b>120</b>	<b>100.0</b>
<b>Occupation</b>	Employed	81	67.5
	Business/Profession	33	27.5
	Others	06	05.0
	<b>Total</b>	<b>120</b>	<b>100.0</b>
<b>Monthly Family Income</b>	Below Rs. 20000	44	16.7
	Rs. 20001 to 40000	34	58.3
	Above Rs. 40000	42	35.0
	<b>Total</b>	<b>120</b>	<b>100.</b>

**TABLE NO 1**

**PROFILE OF THE RESPONDENTS**

It is found out from Table 1 that 63.3 per cent of the respondents were females, 57.5 per cent of the respondents belonged to the age group of 26 to 45 years, 59.1 per cent of the respondents have undergone college education. 90.8 per cent of the respondents were married. The type of the family of the respondents revealed that 80.8 per cent of the respondents lived in a nuclear family. 67.5 per cent of the respondents were employed. 58.3 per cent of the respondents had a monthly income between Rs.20001 to Rs.40000. Thus, it is inferred that employed respondents with reasonably good income afford for solar products.

**CONSUMER PURCHASE BEHAVIOUR TOWARDS SOLAR PRODUCTS**

Understanding purchase behaviour of consumers has become imperative for the survival and success of the marketers, as buyers dominate the market. Buyers decide the success or failure of a product. Thus, in the present study, aspects such as type of solar consumer, type of solar products purchased by the respondents, factors influencing the purchase of green product, satisfaction towards solar products and efforts taken by the respondents to protect environment have been studied.

**CONSUMERS CAN BE CLASSIFIED BASED ON THEIR PURCHASE BEHAVIOUR.**

There are four types of green consumer, such as 'Behavioural Solar Consumer' (uses only solar products), 'Think Solar products consumers' (do not always use solar products), 'Potential solar products consumers' (rarely use solar products) and 'True Brown consumers' (ignore environmental issues).

**Shows the category of solar products consumers to which the respondents belong.**

Sl. No.	Type of Solar Consumer	No. of Respondents	Percentage
1	Behavioural Solar products consumers	0	2

2	Think Solar products consumers	6	5
3	Potential Solar products consumers	5	4
4	True Brown Consumers	-	-
	<b>Total</b>	<b>1</b>	<b>10</b>

**TABLE NO 2**

**FACTOR INFLUENCING THE PURCHASE OF SOLAR PRODUCTS - FACTOR ANALYSIS**

Eco-friendly products are influenced by various attributes and these attributes influence the purchase decision. Choosing a eco friendly products by the consumers require the consideration of attributes such as global warming, social benefit, environment and physical safety standard, quality, brand labels, marketing activities, environmental awareness, environmental impact and other attributes. 15 variables were taken into consideration for the study. Bartlett's Test of sphericity value 985.514 and the significance level ( $p < .01$ ) indicates that the correlation matrix is not an identity matrix and there exists correlation between the variables. Higher value of Kaiser-Meyer-Olkin (KMO) test of sampling adequacy at 0.559 indicates that factor analysis, for the selected variables was found to be appropriate to the data.

Factor analysis was applied to find out the dominant factors influencing the purchase of a eco-friendly products by the respondents. The inter-correlations between the 15 variables were analyzed using Principal Component Analysis (PCA) and the Varimax Rotation of factor analysis. The PCA has extracted four factors out of the total 15 components. The results of Rotated Component Matrix of 15 attributes of products along with the communalities are exhibited in Table 3. The factors with which the attributes are identified are given in bold.

**Rotated Component Matrix**

Variables	Components				Communality
	1	2	3	4	
Awareness	<b>.748</b>	.280	-.022	.041	.640
Availability	<b>.703</b>	-.256	.337	.164	.700
Health	<b>.677</b>	-.074	.399	.159	.648
Quality	<b>.649</b>	.208	-.433	-.023	.653
Price	<b>.551</b>	.503	.026	.179	.589
Product promotion	.015	<b>.717</b>	.047	.177	.547
Brand image	.157	<b>.661</b>	.371	.125	.615
Media	-.012	<b>.577</b>	-.098	-.163	.369
Packaging and Labeling	.491	<b>.502</b>	-.011	-.339	.608
Conserve Natural	.043	-.049	<b>.767</b>	-.046	.595
Protect environment	.104	.280	<b>.654</b>	.187	.552
Recycling and reduction of	-.370	.295	<b>.611</b>	.315	.696
Self Esteem	.181	.140	.038	<b>.745</b>	.609
Reference Group	-.097	-.028	.017	<b>.727</b>	.538
Concern for Future generation	.468	-.071	.148	<b>.639</b>	.655

Extraction method: Principal  
Component Analysis

**TABLE NO 3**

Table 3 exhibits the rotated factor loading for 15 variables and their respective communality. It is observed that all the 15 variables have been extracted and were considered to be influential in the purchase decision of eco- friendly products. The 15 variables were reduced to four factors. The consumer in the study area evinced the factor such as personal factor, marketing factor, environment factor and social factor as influential factor for making purchase decision of eco-friendly products.

**INFLUENTIAL FACTORS IN THE PURCHASE OF ECO-FRIENDLY PRODUCTS**

Factor analysis of 15 attributes relating to a eco-friendly products identified four influential factors. The four influential factors in the purchase of eco- friendly products by the respondents along with the Eigen value, Percentage of variance and Cumulative percentage of variance are presented in Table 4.

**Influential Factors in the Choice of A Eco-Friendly Products**

Sl. No.	Influential Factors	Eigen Value	Percentage of Variance	Cumulative Percentage Of Variance
1.	Personal	2.914	1	1
2.	Marketing	2.174	1	3
3.	Environment	2.025	1	4
4.	Social	1.902	1	6

**TABLE NO 4**

It has been observed from Table 4 that the four factors such as personal factor, marketing factor, environment factor and social factor were extracted. These factors accounted for about 60.100 per cent of variance in the data.

Eigen value for the first factor, 'Personal factor,' was 2.914 and percentage of variance was 19.428. This factor provides the maximum influence to the respondents for the purchase of solar products in the study area. Significant items under this factor were awareness, availability, health aspects, quality and price. Eigen value for the second factor, 'Marketing Factor' was 2.174 and percentage of variance was 14.491. The solar products consumers have shown great concern towards factors such as product promotion, brand image, media packaging and labeling. Eigen value for the third factor, 'Environment Factor' was 2.025 and percentage of variance was 13.498. The buyers have shown the influence of environment factor towards the purchase of solar products . The concern towards conservation of natural resources, protect environment and recycling and reduction of waste. Eigen value for the fourth factor, 'Social Factor' was 1.902 and percentage of variance was 12.682.The impact of society in the purchase decision of green product was found to be in the form of self esteem, reference group and concern for future generation. Thus, it is inferred from factor analysis that the personal factor, pre dominantly influences the purchase of solar products.

**SATISFACTION TOWARDS SOLAR PRODUCTS**

Quality and usage of the products is considered to be one of the important factors in deciding the satisfaction level of the respondents. Table 5 shows the satisfaction of the respondents towards solar products

**Satisfaction towards Solar products**

Sl. No.	Satisfaction Level	No. of Respondents	Percentage
1.	Highly Satisfied	73	60.8
2.	Satisfied	16	13.4
3.	Moderate	31	25.8
4.	Dissatisfied	-	-
5.	Highly Dissatisfied	-	-
	Total	120	100.0

**TABLE NO 5**

Table 5 reveals that 60.8 per cent of the respondents were highly satisfied. 13.4 per cent of the respondents were satisfied and 25.8 per cent were moderately satisfied. None of the respondents had shown dissatisfaction.

**3. CONCLUSION**

Consumer behaviour plays a vital role in the survival and success of products. The consumers decide the success or failure of products in the modern marketers of solar products or services need to be more innovative and creative to compete with the dynamic nature of consumers. The study brought out the fact that through consumers are considerably well aware of solar products but they are less concerned and committed to buy eco-friendly products. Business organization should start adopting solar marketing strategies as it offers incentives and growth opportunities in the long term. To educate consumers towards solar products, the marketers must create promotional measures which are both realistic and have moral values and focus the product availability in terms of volume and variety. When majority of the manufacturers realize the social responsibility of protecting the environment and produce accordingly, the consumers will automatically shift towards usage of solar products. Thus, the manufacturers, consumers, society, Government and media are collectively responsible for the sustainability of natural energy resources in the environment and promotion of solar products.

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