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A Study on Green Product: Causes for Customer Dissatisfaction towards Biomass Briquettes

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Abstract:

Large amount of agricultural wastes is destroyed in every year. These wastes can be recycled and can provide a renewable eco-friendly source of energy by converting biomass waste into high density - fuel briquettes. This recycled fuel is helpful for the environment as it safeguards natural resources. The biomass briquette is becoming a main alternative green product for fuel energy. There is a huge current and growing demand to find alternative clean energy sources that meet new legislation requirements to reduce emissions from fossil fuels. Agro-waste as a source of energy in India shows great potential. It is generating additional income to the farmer and helpful for rural development. Biomass briquetting is a small and village based industry, facing various problems especially in the area of marketing. In this paper studied about the various causes for customer dissatisfaction towards the biomass briquette. Study focused on ten major causes that are respectively Smoke/Dust, Sound/Noise, Cooking Stove, Heat Control, Electricity Power, Storage, Transportation, Assistance, Availability and Affordability. Their significance is analyzed and prioritized them as per their significance towards satisfaction and performance of biomass briquette.

Keywords: Green product, biomass -briquettes, consumer dissatisfaction

1. Introduction

“Green” is a word that most of us come across at least once in a day. Nowadays this concept is getting popularized among different categories of people irrespective of their demographic factors. Common man is more concerned about the earth. The studies in past two decades have proved that there is an increase in the concern towards the environment. This has resulted in the emergence of the concept of “Green Product and Marketing”. The concept of Green Marketing was initially started as a concept of ecological marketing in the first workshop organized by the American Marketing Association (AMA) focused towards the environment in 1975. Green marketing is the marketing of products that are presumed to be environmentally safe (AMA). The basic idea is that customers are provided with information of the environmental effect of the products and they can use this information while deciding which product to purchase (Yogita Sharma, 2011). Thus Green Marketing can be termed as a process of safeguarding the nature or environment by making the customer to use or consume those products which do not harm the environment. It can also be defined as the process by which every human is doing his bit to have a sustainable environment.

The briquettes can be used for domestic purposes (cooking, heating, barbequing) and industrial purposes (agro-industries, food processing) in both rural and urban areas. Thus Biomass briquetting is the densification of loose biomass material to produce compact solid composites of different sizes with the application of pressure. Briquetting of residues takes place with the application of pressure, heat and binding agent on the loose materials to produce the briquettes. Briquettes produced from briquetting of biomass are fairly good substitute for coal, lignite, Firewood and offer numerous advantages • this is one of the alternative methods to save the consumption and dependency on fuel wood. • Densities fuels are easy to handle, transport and store. • They are uniform in size and quality. • The process helps to solve the residual disposal problem. • The process assists the reduction of fuel wood and deforestation. • It provides additional income to farmers and creates jobs. • Briquettes are cheaper than coal, oil or lignite once used cannot be replaced. • There is no sulphur in briquettes. • There is no fly ash when burning briquettes. • Briquettes have a consistent quality, have high burning efficiency, and are ideally sized for complete combustion.

The main problem associated with marketing is the seasonal requirements of briquettes by the end users like brick kiln and tea industries. The local market for biomass briquettes includes industrial users most of which are processing plants that have boilers. Briquettes sold in supermarkets are usually used for household purposes like barbecuing and roasting. It is reported that the volume of supply of biomass briquettes nationwide is still very small. Apparently, there is a low demand for the product due to: (a) low level of awareness about the product and (b) lower price and abundant supply of fuel wood and charcoal. The industry faces problems due to non-availability of sufficient working capital necessary to store the briquettes and sell it in periods of fuel shortage. Also, the briquettes have to meet users’ requirements based on which the market for briquettes have to be developed. Unexplored or partially explored markets for briquettes; Boilers for Steam Generation Food processing industries: Distilleries, bakeries, canteens, restaurants

and drying etc., Agro-products: Tobacco curing, tea drying, oil milling etc. Textile process houses dyeing, bleaching etc. Clay product: Brick kilns, tile making, pot firing etc., Domestic/Hospitals: Cooking and water heating, Gasification Fuel for gasifies.

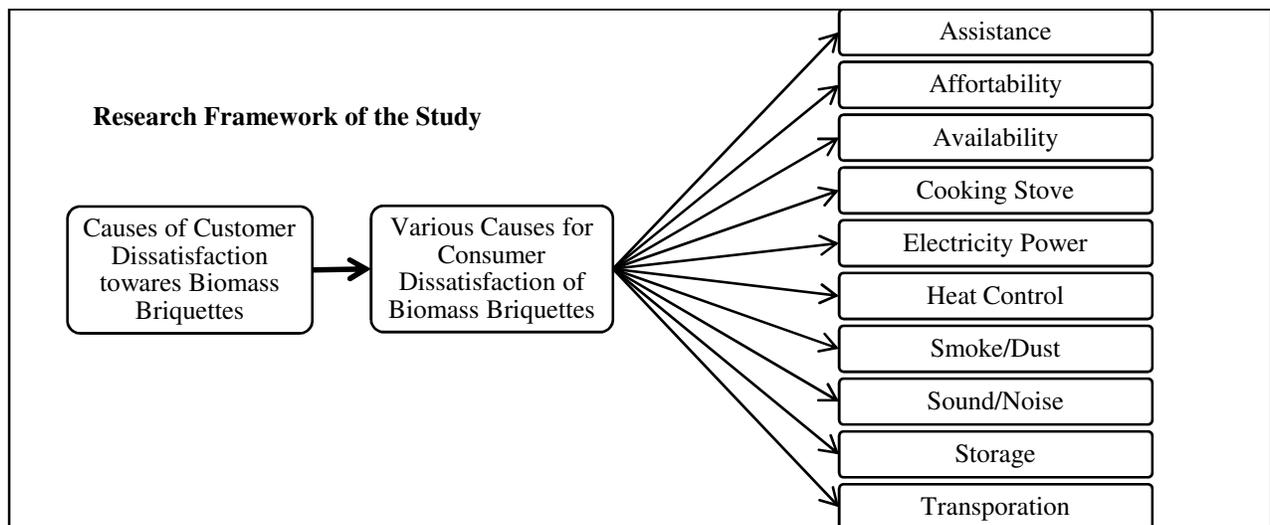


Figure 1

2. Review of Literature

- Anu Varghese et al (2015) “Environmental sustainability has become essential ingredient to doing business responsibly and successfully. So, Constant efforts should be taken to awareness among the consumers to promote eco-friendly buying behavior.”
- Golkanda et al (2013). Lot of marketers may choose to enhance the consumers’ consciousness of environmental problems by using marketing ploys to get them involved in social charities which motivate the consumers’ to move from conventional products to eco-friendly products.
- Bozpatc A. (2012): “Environmental awareness, green promotional activities, green product features and green pricing effect were found to be statistically significant for consumer buying behavior”
- Han & Hsu, (2011). “Recognizing the seriousness of environmental problems possibly caused by excessive use of energy and non-renewable natural resources, copious supplies of foods and products, environmentally unfriendly production processes, and environmental disasters, increasing numbers of individuals are aware of environmental issues and feel our natural resources are limited and the environment is more fragile than we once believed. Such environmental awareness instills in the public a positive attitude toward eco-friendly activities, and encourages people to more frequently engage in ecological behaviours in their everyday lives”
- Nandini Shekhar (2010): “The main problem associated with marketing is the seasonal requirements of briquettes by the end users like brick kiln and tea industries. The local market for biomass briquettes includes industrial users most of which are processing plants that have boilers. Briquettes sold in supermarkets are usually used for household purposes like barbecuing and roasting. It is reported that the volume of supply of biomass briquettes nationwide is still very small. Apparently, there is a low demand for the product due to: (a) low level of awareness about the product and (b) lower price and abundant supply of fuel wood and charcoal. The industry faces problems due to non-availability of sufficient working capital necessary to store the briquettes and sell it in periods of fuel shortage. Marketing prospects - both local and exports- Domestic markets only - used in furnace viz. paper mills and the company is at present looking out for selling carbon credits.”
- Saxsena R. et al (2010): “The study analyzes people’s concern for a healthy environment to live and preference of environmental friendly products and service to consume significantly present among the respondents of the study”

3. Research Objectives

- To study various factors affecting customer satisfaction towards biomass briquettes.
- To determine the major causes for customer dissatisfaction of biomass briquettes.

4. Research Methodology

The research design for the study is descriptive in nature. The methodology is based on primary and secondary data a structured questionnaire was used for the study, of which pre-testing of the questionnaire was administered on 25 people. 70 questionnaires were administered out of which 60 usable questionnaires were considered for the study. The questionnaire comprised of a series of closed and open ended questions, a likert scale [Strongly Satisfied (1) to Strongly Dissatisfied (7)] was also used to elicit information from the customer. To analyze the data collected for the study statistical package for social sciences (SPSS 17v) has been used extensively. Tools like descriptive statistics. T-test, Paired Sample Test, Wilcoxon Signed Ranked (Z) test have been used in the study.

5. Hypothesis

- H_0 : There are no significance causes for customer dissatisfaction towards the performance of biomass briquettes.
- H_1 : There are significance causes for customer dissatisfaction towards the performance of biomass briquettes.

6. Results and Discussion

Descriptive Statistics & One Sample T- Test							
Ranks	Causes for Dissatisfaction	N	Sum	Mean	Std. Deviation	1- Sample T-Test	Sig. (2-tailed)
1	Smoke/Dust	60	384	6.40	.694	71.453	.002
2	Sound/Noise	60	363	6.05	.622	75.303	.006
3	Cooking Stove	60	343	5.72	1.010	43.844	.008
4	Heat Control	60	314	5.23	.998	40.629	.012
5	Electricity Power	60	300	5.00	1.089	35.557	.016
6	Storage	60	233	3.88	1.106	27.195	.034
7	Transportation	60	178	2.97	.920	24.979	.026
8	Availability	60	148	2.47	.676	28.279	.038
9	Assistance	60	139	2.32	.676	26.535	.034
10	Affordability	60	109	1.82	.624	22.546	.028

Table 1

There are ten causes are identified from the opinions of dissatisfied customers. These ten variables are taken for the study to determine significance and also prioritizing these variables based on their significance for customer dissatisfaction. Table-1 reveals that the ten variables have significance to determine customer satisfaction. Greater significance causes are Smoke/Dust, Sound/Noise, Cooking Stove, Heat Control and Electricity Power basing on mean and T-test value mentioned in table-1 and ranked in the above as per their significance. All variables are tested and shown the test vale T, which tested at a significant level of 0.05, is greater than the calculated value. Hence, it is proved that the ten variables are significance causes for customer dissatisfaction.

Wilcoxon Singed Ranks (Z) & Paired Samples(t) Tests Statistics								
Causes for Dissatisfaction	Mean	N	Std. Deviation	Std. Error Mean	Z	T	Sig. (2-tailed)	
Pair 1	Cooking Stove	5.72	60	1.010	.130	-4.761 ^a	-5.662	.002
	Dissatisfaction	6.58	60	.497	.064			
Pair 2	Smoke/Dust	6.40	60	.694	.090	-1.732 ^a	-1.794	.001
	Dissatisfaction	6.58	60	.497	.064			
Pair 3	Sound/Noise	6.05	60	.622	.080	-4.695 ^a	-5.899	.004
	Dissatisfaction	6.58	60	.497	.064			
Pair 4	Assistance	2.32	60	.676	.087	-6.838 ^a	-40.273	.014
	Dissatisfaction	6.58	60	.497	.064			
Pair 5	Storage	3.88	60	1.106	.143	-6.610 ^a	-16.877	.012
	Dissatisfaction	6.58	60	.497	.064			
Pair 6	Transportation	2.97	60	.920	.119	-6.820 ^a	-28.211	.022
	Dissatisfaction	6.58	60	.497	.064			
Pair 7	Affordability	1.82	60	.624	.081	-6.850 ^a	-43.384	.024
	Dissatisfaction	6.58	60	.497	.064			
Pair 8	Availability	2.47	60	.676	.087	-6.834 ^a	-39.638	.034
	Dissatisfaction	6.58	60	.497	.064			
Pair 9	Electricity Power	5.00	60	1.089	.141	-6.150 ^a	-10.243	.006
	Dissatisfaction	6.58	60	.497	.064			
Pair 10	Heat Control	5.23	60	.998	.129	-6.151 ^a	-9.913	.002
	Dissatisfaction	6.58	60	.497	.064			

Table 2

a. Based on negative ranks, the highlighted are greater significance variables among all

The above Wilcoxon signed ranks and paired sample test table-2 reveals that Z values, T test values of each variable and its p-values, in all cases, which is less than the 0.05 level of significance. Hence, there is a strong evidence to reject null hypothesis and accept alternative hypothesis i.e. there are significance causes for customer dissatisfaction towards the performance of biomass briquettes. The variable is taken for the study have significance impact over customer satisfaction, among all the greater significance causes are Smoke/Dust, Sound/Noise, Cooking Stove, Heat Control and Electricity Power.

7. Conclusion

World is looking for environment protection and safety. In this regard some emerging practices are coming into existence for protecting environment and public health. Green Product and Marketing is one of it, which is focusing on customer safety and health, environment protection. It is a duty of government and society to accept and encourage green product related industries like biomass briquettes. This study focused on various causes for customer dissatisfaction, which is an important thing for customer retention and business success. Study has revealed that there are various significance causes for customer dissatisfaction towards the performance of biomass briquettes that causes are Smoke/Dust, Sound/Noise, Cooking Stove, Heat Control, Electricity Power, Storage, Transportation, Assistance, Availability and Affordability. It also revealed that Smoke/Dust, Sound/Noise, Cooking Stove, Heat Control, Electricity Power are having greater significance over all causes for customer dissatisfaction. Therefore, the study suggests that the companies of biomass briquettes should be taken almost care on greater significance causes in order to convert dissatisfied customer into satisfied customer.

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