

Sustainable Factors for Promoting Organic Products

***Dr. Gowri Shankar Muppavaram**

**Assistant Professor, Lala Lajpatrai Institute of Management, Mumbai – 400034*

Abstract: *The persevering impact of the global warming has resulted in the climate change. The needs and expectations of the customers stimulated the attitude of the organisations to design products/services in facing the environmental influences due to climate change. The people in the society are more concerned to safeguard the environment. The organisations producing and marketing their products/services have to make necessary changes in their product design process. The environmental influences on the organisation induced to develop the products/services which are having unique features. The positive outlook of the people towards protecting the environment brought transformation in the organisations policy for developing sustainable products/services. Sustainability is a distinctive approach for an expansion and diversification in catering the needs of the present as well as the future to safeguard the environment. Sustainability acts like a shield to strike the balance between the ecology and the environment. Sustainability has created a significant difference in the awareness level of the people and persuaded them to use products/services which are highly environmental conscious. The products which are grown through the organic ways necessitate using less fossil fuel than the normally grown crops through the industrially grown crops. Organic foods are grown through the organic crops which are cultivated by using compost or animal manure with higher nutrients. The mind-set of the people to use organic products indicates the concern for economy, environment and the society. The purpose of the study is to identify the sustainable factors in promoting the organic products. Based on the opinions and information collected from the working professionals and farmers who are involved in producing and delivering the organic products, this paper intends to classify the sustainable factors in promoting the organic products.*

Keywords: *Climate change, Environment, Organic Products, Sustainable, Sustainability*

I. Introduction

Sustainability is defined as a development to meet the needs of the present as well as the protection from the impact of the environmental influences in the future. Supply Chain is a categorisation of suppliers, warehouses, operations and retail outlets, i.e., network of organisations involved in producing and delivering a product value. A basic purpose of supply chain is to control inventory by managing the flow of materials throughout the supply chain. A Supply Chain will be sustainable only when all the entities right from the supplier to the customer strike the balance between the ecology and the value. A new product will be sustainable only when it is developed with an advanced technology having an ecological potential. Organic products are the products which are grown without the use of synthetic pesticides. The organic products contain higher nutritional value, less pesticide contamination and higher microbiological safety. The products which are sustainable can be termed as organic products. The organic products can be rice, vegetables, fruits, food items etc which are cultivated and produced without the use of chemical residues or any toxic substances.

II. Literature Review

An attempt is made in the literature review to examine the significance of the three major areas like Supply chain management & its strategies, Organic food and Sustainable development

The study by **Dan Gilmore(2013)** summarises that supply chain approach involves adding a new helm, with a captain and squad to identify and reach its destination in facing the challenges & built-in strategies for encountering the probable storms for the ship along the way.

The tactical ways to reduce the cost of managing the supply chain costs can be classified as Customer service Operational and sales planning, network design, Outsourcing, Asset utilisation and Performance measures for improving the abilities of various entities(**Rob O Byrne(2011)**).

Richard B. Chase et al (2010) : The fundamental initiative of supply chain management is to create a persistent system approach right from the acquisition of raw materials to the end customers by balancing all its components in an integrated way.

The study by **Vikalp Sharma(2010)** determined the three successive vital elements of Supply Chain developed by Patanjali Products. The three elements of Patanjali Products have been categorized as product

flow, cash flow and information flow. The availability of products without any shortage, fund acquisition and flow of information among all the entities of supply chain facilitated the customer satisfaction.

According to **V.S.Ramaswamy & S.Namakumari(2010)** : The firm's ability to improve the customer value enhance the firm in developing the supply chain effectively. The competitiveness of the firm will be improved through its supply chain. The strong brand loyalty of the firm depends on its supply chain not through their products they offer. The superior quality of the products offered to the customers is an indication of its integrated supply chain.

The customer value will be the outcome of its well-administered supply chain. The organizations' strategy for managing the supply chain depends on the business strategy. The three phases of the business strategy are based on the type of the products to be offered, timing of the launch of the products and the target customers. The supply chain of the organizations will be intended to enhance the customers value in terms of type of the products, timing of the products and the place of the products(**UPS Solutions(2005)**)

The study by **Marty Lariviere(2015)** observed that the retail sales of organic products is a fragmented industry. The managing of supply chain for the organic products will be difficult for the multiple brands. It has been revealed from the study that the organic farming is difficult than conventional farming due to higher operating costs with reduced output.

Cognizant insights(2014) : The prices of the organic products are higher than the inorganic products. The high prices of the organic products reveal the quality consciousness. The standards prescribed for the organic products normally focus on environmental issues not minimising the adverse impact of the environment.

The study by **Arnold Coombs(2013)** found that organic foods promotes a mechanism of sustainable agriculture. It is very effective in minimising the impact of climate change, improving the fertility of the soil, nurtured species diversity, preservation of water resources and helps farmers in minimum exposure to chemicals.

The organic foods were mostly purchased in traditional supermarkets than in any other location. It has been observed that Organic crops have higher levels of Vitamin C, Iron, Magnesium, Phosphorous and lower levels of nitrates(**Chen Michael(2005)**).

Jonathan M. Harris(2016) : The conservation of ecosystems and natural resources are essential for sustainable economic production to meet the needs of the present as well as the future. The dimensions of sustainable development helps to meet the needs of the present as well as the future. The sustainable development will help in the conservation of ecosystems and natural resources.

Jennifer Chait(2015) : Sustainable development describes the protective actions of the planet with the focus on environment, ecology and the society. A sustainable farmer grow variety of crops to improve the fertility of the soil and the conservation of the resources. The sustainable farming promotes the entire system of agriculture by protecting the diversified species and allow animals to feed from their farming area.

Grace Communications Foundation(2014) : Sustainable food taste grown with less toxicants and less waste supports local farming to grow diverse crops with minimum resources. The animals are likely to live healthier with sustainable food.

III. Gap Analysis

There are certain gaps existed relevant to the literature review. The sustainable aspects that will make the organic products more accessible to famers have not been specifically focussed. The literature study has not revealed the differentiated approach for the firms delivering and managing the multiple categories of organic products. The sustainable factors for promoting the organic products like rice, vegetables, fruit, milk, food items etc and for the services like banking, airlines, tourism, health care etc have not been specially examined in the literature review. Through the study, an attempt has been made to study the sustainable factors for promoting the organic products.

IV. Classification Of Research Variables

Based on the literature review, some gaps have been identified in the study. The research variables selected for the study have been classified as follows :

Dependent Variable: Sustainability

Independent Variables: Supply Chain, Stakeholders and Segmentation

V. Statement Of The Problem

The persevering impact of the global warming has resulted in the climate change. The needs and expectations of the customers towards the company's products/services are also rapidly changing due to climate change. The customers are more concerned to safeguard the environment. The organisations producing and marketing their products/services have to make the necessary changes in their product design process to attract the customers who are environmental conscious. There is a significant difference in their awareness level of the

customers regarding the concern for both the environment and society. The information flow from the company to customer can be established through the supply chain. There is a considerable change in the supply chain for traditional products and the supply chain for sustainable products. The sustainable products are termed as organic products grown without the use of synthetic pesticides. The sustainable supply chain requires the concentration and coordination among the various entities to have ecological potential. The organic products require the sustainable supply chain to produce and deliver the eco-friendly products with high nutritional value. The replacement of traditional supply chain with the sustainable supply chain poses enormous challenge as all the entities right from supplier to customer should have progressive approach in dealing both the environment and society. The supply chain will be highly sustainable only when there is a societal acceptance for the eco-friendly products/services. The three issues like transforming from conventional to organic products and its limited level of awareness among the customers, traditional supply chain to sustainable chain and the association among the various entities have to be explored.

VI. Objectives Of The Study

1. To study the significance of sustainable factors in promoting organic products
2. To classify the major factors in the sustainability of organic products
3. To analyse the issues that affect the sustainability of promoting organic products

VII. Formulation Of Hypothesis

Null Hypothesis

H0 : Supply Chain, Stakeholders and Segmentation do not influence the sustainability in promoting the organic products

Alternative Hypothesis

H1 : Supply Chain, Stakeholders and Segmentation highly influence the sustainability in promoting the organic products

VIII. Methodology Of The Study

a. Sources of Data

Primary data

Survey & Schedule using structured questionnaire to collect the opinions of the respondents who are familiar in the organic farming. The structured questionnaire has been designed by using Likert-Rating scale

Secondary Data

Literature from Journals & Online Newspapers pertaining to Organic farming, Supply Chain & Sustainable Development

b. Research Design

Descriptive Longitudinal design:

The research aims to study the attitudes and perceptions of the working professionals and farmers to classify the sustainable factors for promoting the organic products. The study is referred to be longitudinal as the information from sampling elements have been collected at regular intervals of time depending on their accessibility to respond. The 150 farmers from Guntur district of Andhra Pradesh have been contacted once in four months to know the seasonal pattern for cultivating rice, fruits and vegetables through organic ways. The information has been repeatedly collected from this same farmers belonging to Guntur district of Andhra Pradesh in order to find out the productivity of these crops through organic ways. The farmers are highly familiar and well versed about the methods of organic cultivation in this region. The longitudinal design helps in assessing the benefits of the organic cultivation from the same place for diverse crops and the volume of growth compared with traditional farming methods.

c. Sampling Process

Sample Size: The sample of respondents for this study consists of 200 respondents. 150 respondents are the farmers who are cultivating and managing their organic farms growing rice, vegetables and other food products from Guntur district of Andhra Pradesh. The other 50 respondents are the working professionals who are associated with managing their own business in selling and distributing the agricultural products.

Sampling Method(s)

The sample of 200 respondents have been collected by using Quota and Convenience Sampling Methods

Quota Sampling

The sample of 200 respondents The information has been collected from the farmers who are cultivating through organic farming having between 2 to 5 acres of land. The information has been collected from the professionals who are working and managing their own business related to agricultural produce.

Convenience Sampling

The reason for selecting this sampling method is due to the respondents' willingness and knowledge in promoting the organic products through sustainable ways. The information obtained by the respondents will help in classifying the sustainable factors for promoting the organic products.

Statistical tools used in hypothesis testing

The hypothesis has been tested by using Structural Equation Modelling (SEM)

IX. Results Of The Study

The following hypothesis is tested to study the influence of the Supply Chain, Stakeholders and Segmentation on the sustainability in promoting the organic products

Structural Equation Modeling (SEM) is an expansion of the general linear model (GLM) that helps the researcher to test a set of regression equations simultaneously. In SEM, independent variables are called as exogenous variables which are assumed to be measured without error and dependent or mediating variables called as endogenous variables or downstream variables. SEM users represent relationships among observed and unobserved variables using the path diagrams.

SEM users represent relationships among observed and unobserved variables using path diagrams. Ovals or circles represent latent variables, while rectangles or squares represent measured variables.

In the diagram shown below, correlations and covariances are represented by bidirectional arrows, which represent the relationships without a clearly defined causal direction. The model used in this SEM is recursive

The variable SUST is called as Observed endogenous variable

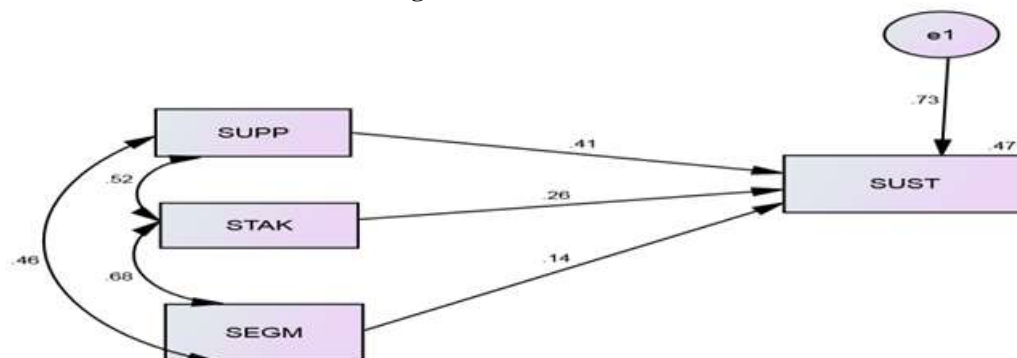
SUST is referred as Sustainability. Endogenous Variable is also called as Dependent Variable

The variables SUPP, STAK and SEGM are called as Observed or exogenous variables or Independent Variables

SUPP is referred as Supply Chain, STAK is referred as Stakeholders and SEGM is called as Segmentation

The single arrow in the diagram indicates path and the double arrow indicates covariances among the variables. Through Structural Equation Modelling[SEM], the influence of SUPP, STAK and SEGM on SUST is analysed.

Fig 1: Standardized Estimates



Interpretation

The value 0.52 is the correlation between Supply Chain(SUPP) and Stakeholders(STAK), the value 0.68 is the correlation between Stakeholders(STAK) and Segmentation(SEGM) and the value 0.46 is the correlation between Supply Chain(SUPP) and Segmentation(SEGM). It has been observed that the value of the correlation is (0.68) between Stakeholders(STAK) and Segmentation(SEGM). It indicates that stakeholders (Government, Financial Institutions, NGO's, firms marketing organic products etc) influences in the segmentation of organic products.

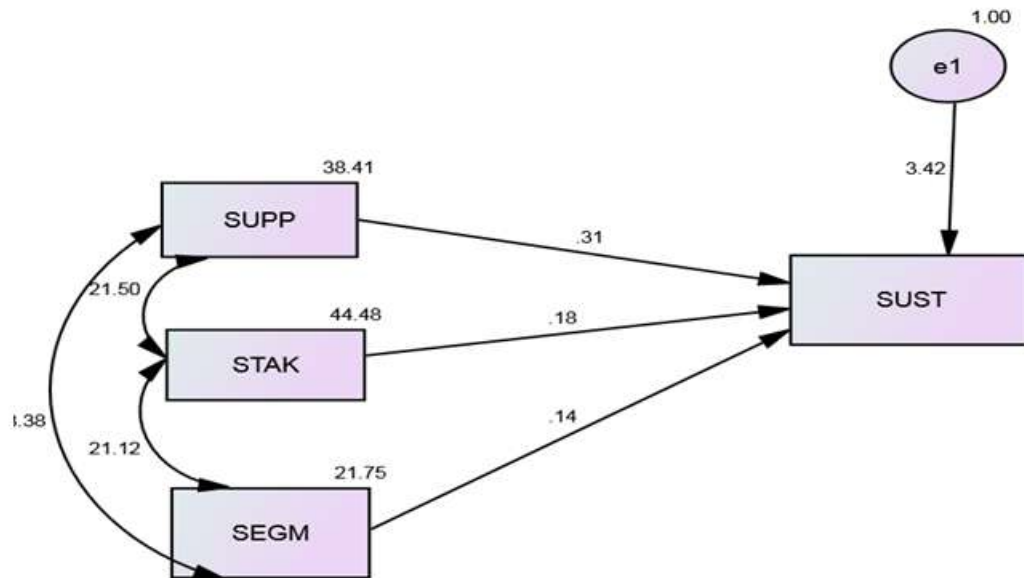
The values 0.41, 0.26 and 0.14 are called as standardized beta regression coefficients. The highest value of standardized regression estimate(0.41) has been obtained for Supply Chain(SUPP). It can be inferred that

Supply Chain(SUPP) has strong influence on the sustainability of the organic products followed by Stakeholders(STAK) and Segmentation(SEGM).

The value 0.47 is called as R Square in the regression equation which denotes the percentage of the variance that has been explained by all the independent variables SUPP, STAK and SEGM.

The variable e1 represent latent variable or error variable which have to be represented as the part of the SEM called as error variance.

Fig 2: Unstandardized Estimates



Interpretation

The value e1 represent error variance. The double headed arrows represent covariances and the single arrow represent the path. The values 0.31, 0.18 and 0.14 represent Unstandardized Beta coefficients of the Regression equation for the variables Supply Chain(SUPP), Stakeholders(STAK) and Segmentation(SEGM) respectively. The highest value 0.31 represents that Supply Chain(SUPP) influences the sustainability in promoting the organic products. It can be inferred that Supply Chain(SUPP) is one of the most sustainable factor for promoting the organic products followed by Stakeholders(STAK) having 0.18 and Segmentation(SEGM) having 0.14.

The SEM model has tested the hypothesis to study the influence of Supply Chain, Stakeholders and Segmentation on the sustainability in promoting the organic products.

Model Fit Summary

The significance level of the Chi Square less than 5% indicates that the null hypothesis is rejected. It can be concluded that Supply Chain, Stakeholders and Segmentation highly influence on the sustainability in promoting the organic products.

Goodness-Of-Fit Index (GFI)

The recommended value of GFI should be ≥ 0.95 . The achieved value through SEM model is 0.934 which is close to one indicates the perfect fit of the model.

Adjusted Goodness-Of-Fit Index (AGFI)

The recommended value of AGFI should be ≥ 0.80 . The achieved value through SEM model is 0.910 which is close to one indicates the perfect fit of the model.

Hence from all the estimates of SEM model like Chi Square, GFI and AGFI, It shows that SUPP, STAK and SEGM influence SUST. The variables SUPP, STAK and SEGM are highly influential in developing sustainability for promoting the organic products.

X. Finding(S) From The Study

The hypothetical analysis using Structural Equation Modeling(SEM) reveals that the value 0.52 is the correlation between Supply Chain(SUPP) and Stakeholders(STAK), the value 0.68 is the correlation between Stakeholders(STAK) and Segmentation(SEGM), the value 0.46 is the correlation between Supply Chain(SUPP) and Segmentation(SEGM). It has been observed that the highest value of the correlation is (0.68) between

Stakeholders(STAK) and Segmentation(SEGM). The study depicts that stakeholders (Government, Financial Institutions, NGO's, organisations supplying seeds, fertilizers, wholesalers, retailers, suppliers, firms manufacturing and supplying farm equipment, regulatory agencies, agricultural research agencies, information centres about weather, water resources, soil fertility, firms marketing organic products etc) influences in the segmentation of organic products. The information flow from the stakeholders will be beneficial for the all farmers to segment the organic products in terms of the specialisation like rice, wheat, fruits, vegetables, spices, nutritional food items and snacks.

The values 0.41, 0.26 and 0.14 are called as standardized beta regression coefficients. The highest value of standardized regression estimate(0.41) has been obtained for Supply Chain(SUPP). From the study, it was found that Supply Chain(SUPP) has strong impact on the sustainability of the organic products followed by Supply Chain(SUPP) and Segmentation(SEGM). Supply chain will act as a stimulus in the sustainability of the organic products. A strong supply chain will create a value for both the farmers and firms which will be beneficial for the entire livelihood of the society.

The values 0.31, 0.18 and 0.14 from Structural Equation Modeling(SEM) of Unstandardized Beta coefficients have been observed for the variables Supply Chain(SUPP), Stakeholders(STAK) and Segmentation(SEGM) respectively. The highest value 0.31 from Structural Equation Modeling(SEM) of Unstandardized Beta coefficients in the regression equation derives that Supply Chain(SUPP) is an influential factor in creating the sustainability and promoting the organic products. The other factors generated through this study like Stakeholders(STAK) having 0.18 and Segmentation(SEGM) having 0.14 are also significant in promoting the sustainability of the organic products.

There are some issues that affect the sustainability of the organic products. A strong network should exist between supply chain, stakeholders and segmentation. From the opinions of the farmers and the professionals, it was found that they lack necessary infrastructure like farming equipment, roads, transportation facilities, storage houses, availability of fertile land, water resources and information on weather which will affect the sustainability in promoting the organic products. Most of the farmers in the rural areas are not aware that organic products are environmental friendly. The awareness level of the farmers should be created through training programs on farming mechanisms in cultivating the organic products. The farmers should be encouraged to grow and deliver organic products directly without the involvement of the middlemen. The mind-set of the farmers should be changed in cultivating the agricultural activities through organic ways to become more sustainable.

XI. Managerial Implications

An extensive research has to be conducted in analysing the issues and concerns for developing the sustainable factors for promoting the organic products. The progressive approach must be integrated into the manufacturing process to develop the strategies for creating an effective supply chain. Every stakeholder of the supply chain should recognise the significance of the ecosystems. Ecosystems refers to the stakeholders operating in an integrated environment. To operate the supply chain in an integrated environment, three important issues to be focussed. Firstly, the products/services produced and delivered should be environment friendly with unique design. The necessary infrastructure like technology assistance, transportation, warehouses and storage houses should be made available to the farmers. Secondly, there should be an effective information flow between the supply chain and the stakeholders to build the trust and accountability. Thirdly, there should be a proper financial flow in the allocation and utilisation of financial resources for innovations in promoting the sustainable organic products. The Government and other financial institutions should play an essential role in strengthening the value chain to make the process of supply chain more mass productive. The government's initiative to minimise the role of middlemen will become a major revolution in the entire of system agriculture to make sustainable. To make the organic products highly sustainable, it requires the cohesive approach of various entities in the supply chain.

The 3S model developed through this study comprising [Supply Chain, Stakeholders and Segmentation] has to be further explored to design a comprehensive model for producing and promoting sustainable organic products. The research will give further scope for understanding the psychological determinants and consumer buying process for promoting the organic products. The study will provide a roadmap for developing and designing the strategies with the help of stakeholders in promoting the organic products.

XII. Limitations Of The Study

The data collected for the study might reveal differences in the findings as the issues related to agriculture in promoting the organic products vary from region to region. The multiple dimensions of the

entities in supply chain, stakeholders and segmentation has limited the scope to make credible suggestions through the study.

References

- [1]. Gilmore, Dan. (2013, October 4). The nine step plan for building a supply chain strategy. Retrieved from <http://www.scdigest.com/ASSETS/FIRSTTHOUGHTS/13-10-04.php?cid=7463>
- [2]. O'Byrne, Rob. (2011). 7 ways to cut Supply chain costs. Retrieved from <http://www.supplychainquarterly.com/topics/Strategy/scq201102seven/>
- [3]. Chase, Richard B., Shankar, Ravi., Jacobs, Robert F., Aquilano, Nicholas J.(2010), "Operations & Supply Chain Management", 12th Edition, Tata McGraw Hill Education Private Limited, New Delhi, pp. 18-19
- [4]. Sharma, Vikalp. (2010). Estimation of Demand supply gap in Patanjali for agro processed products. Retrieved from <http://www.hillagric.ac.in/edu/coa/AgriEcoExtEduRSocio/CreditSeminar/vikalp%20sharma.pdf>
- [5]. Ramaswamy V.S., Namakumari S.(2010), "Marketing Management", 4th Edition, Macmillan Education Private Limited, New Delhi, pp. 491-493 .
- [6]. UPS supply chain solutions. (2015). Supply chain strategy. Retrieved from
- [7]. https://www.ups-scs.com/solutions/white_papers/wp_supply_chain.pdf
- [8]. Lariviere, Marty. (2015, April 8). Issues in Managing Organic supply chain. Retrieved from
- [9]. <https://operationsroom.wordpress.com/2015/04/08/managing-growth-in-organic-food-supply-chains/>
- [10]. Cognizant 20-20 insights(2014). Supply chain management of locally grown organic food. Retrieved from <https://www.cognizant.com/InsightsWhitepapers/Supply-Chain-Management-of-Locally-Grown-Organic-Food-A-Leap-Toward-Sustainable-Development-codex928.pdf>
- [11]. Coombs, Arnold. (2013). Organic it's worth it. Retrieved from <http://www.organicitsworthit.org/make/organic-nutrition>
- [12]. Chen, Michael C. (2005). Organic fruits and vegetables : Potential health and benefits. Retrieved from <http://escholarship.org/uc/item/0c6386bt>
- [13]. Harris, Jonathan M. (2015, May 27). Sustainability and Sustainable Development. Retrieved from https://www.researchgate.net/publication/237398200_Sustainability_and_Sustainable_Development
- [14]. Chait, Jennifer. (2016, September 23). Sustainable Businesses. Retrieved from <https://www.thebalance.com/difference-organic-sustainable-food-2538316>
- [15]. Grace Foundation. (2014). Why should make a change? Retrieved from <http://www.sustainabletable.org/568/do-you-have-to-eat-100-local-sustainable-and-organic>