

Determinants of Ethical Supply Chain Management in Fertilizers Sector of Pakistan

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Abstract

This study explores the factors and determinants that compel or hamper organizations to implement ethical supply chain management initiatives especially by fertilizers companies within Pakistan. Impact of PSR (Purchasing social responsibility), customer oriented organizational culture and environmental/ legal concerns onto the ethical supply chain management effectiveness is discussed in this paper. A literature review identifies the main categories of above mentioned variables which are considered as important indicators of supply chain management affecting business processes to a large context. Data was gathered through questionnaire distributed to main players in fertilizers sector of Pakistan. Results obtained through statistical process were interesting in a way that legal and environmental obligations affected more and has shown positive significant impact on Ethical SCM rather than customer orientation in Pakistan business arena. However this paper unfolds many traditionally believed positive indicators holding good for other businesses, an eye opener that Pakistan fertilizers companies need to stress more on purchasing social responsibility and customer centred business activities to prosper more while being ethically and socially responsible to society they belong.

Keywords: Ethical supply chain Management, Fertilizers sector, purchasing social responsibility, customer oriented culture, environmental and legal concerns

1. INTRODUCTION

Exposure to industrial ethics and increased sense of social responsibility on part of environmental concerns has necessitated fertilizers industries around the globe to recognise and eulogise environment friendly business practices along with fairness in procurement. Improving procurement practices, organizational culture and ethical supply chain has been seen as advantageous to over all society as it can trim down costs, profit society and improve organizational show.(Niaz et al,2009)

Today, ethical supply chain sustainability tends to be an essence of industrial goodness and business excellence for long term growth. Natural environments that fall prey to the human insatiability, have given rise to those business and supply chain practices / industrial operations that fully respect the natural surroundings, and modify rest of the supply chain activities in accordance with social and environmental obligations (Clodia et al,2009) .The alarming environmental impacts of fertilizer production with the likelihood of emissions and fertilizer use, with the hazard of nutrient losses to the environment during all stages of manufacturing are quite obvious. Ethical supply chain management practices include trustworthiness and candour in purchasing, reducing packaging and waste, assessing vendors on their environmental performance, developing more eco-friendly products and reducing carbon emissions associated with transport and production of fertilizers (Walker, Sisto and McBain,2008).

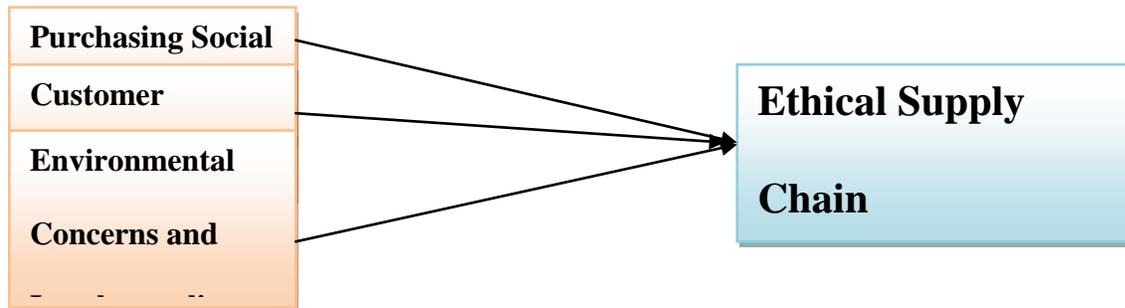
In developing countries like Pakistan, enforcement of environmental laws and ethical practices in purchasing and production is seldom adequate, due to lack of institutional capacity and political will. The result is ineffective, wasteful and environmentally harmful practices combined in supply chain related to fertilizers industry. Today supply chains are determined to improve upon customer sensitivity element by taking advantages of outsourcing and leveraging their partners' capabilities Conventional supply chain does not focus on ethical pressures in purchasing and elimination of waste. Ethical supply chain management practices include reducing packaging and waste, assessing vendors / supplier on their environmental performance, People oriented organizational culture , developing more environment friendly products and dropping carbon emissions associated with transfer of goods.

Objective of this study is to determine and measure the impact of purchasing social responsibility (PSR), Organizational culture and environment friendly practices on ethical supply chain management practices for fertilizers industry of Pakistan.

Ethical supply chain management, being the advent field in Pakistan, signifies fertilizers industry to incorporate human friendly organizational culture and procurement responsibility for sustenance and long term growth. Engro Polymer & Chemical, , Fatima Fertilizer Company, Fauji Fertilizer Company, , Fauji Fertilizer Bin Qasim, are few to receive National Forum for Environment and Health (NFEH) award 2013 for environmental friendly practices in manufacturing but yet to adopt ethical supply chain practices for long term sustenance and good reputation globally. Highly regarded international firms give more attention to vendor's ethical aspects for selections and are in touch with the potential supplier even at tactical level (Nadir et al, 2013).

This study would determine best practices for ethical supply chain management and open avenues for future research in other sectors with different variables including customer pressures, standardization of procedures, thorough monitoring, employee individual initiatives and top management initiatives for ethical supply chain. Additionally, a broader stream of research could help explore the reach of industry's supply chain CSR standards (Nazir, 2010). Additional empirical research is needed to broader spectrum of purchasing and environmental social responsibility including people oriented organizational culture (Salam,2009). Present study focuses on gap found in above studies with pertinent fertilizer sector of Pakistan.

Theoretical Framework



2. RESEARCH METHODOLOGY

A survey instrument was formulated to construct the research model described above. Questionnaire was designed using 5 point Likert scale based on “strongly disagree” as 1 and “Strongly Agree: as 5. The first section encompasses general information on Perception regarding SCM and competitiveness. Subsequent sections were based on each independent variable. The final section included personal information of respondents subject to willingness of the respondents. The survey was self administered and mailed to employees at managerial appointments and having close interaction with supply chain processes within the fertilizers organizations. The study under consideration appraises and evaluates the effect of purchasing social responsibility, organizational culture, environmental concerns and Legal compliance on ethical supply chain management within fertilizer industries of Pakistan. In this context secondary data was obtained from previous research work and journals whereas the primary data was collected through combination of self administered and mailed questionnaires. Data was then analyzed and hypotheses were tested using correlation and regression analysis.

Research Variables:

The research variables evaluated are described in detail in the theoretical framework and literature review. Ethical supply chain management being dependent variable was tested for its relationship with independent variables: Purchasing social responsibility, organizational culture, and environmental concerns.

Research design:

- A. Purpose of study is hypothesis testing
- B. Type of investigation includes correlational study
- C. Researchers interference will be kept to Minimal.
- D. Supply chain departments of fertilizer industry are the unit of analysis

Measuring Instruments

Paper involves an empirical study of relationship and significance of diverse variables in the wake of data which was collected through non probability sampling from around 300 people forming the approximate sample size. Wherein a co-relational analysis was performed to examine linkages between the variables. For this purpose Statistical Package for Social Sciences (SPSS) 17 was used being a comprehensive computer program for computing a hefty amount of data with

precise results. The results obtained from SPSS analysis were presented in tabulated form in the succeeding components of the study under appropriate captions.

3. LITERATURE REVIEW

Supply chain management is defined as "... an integrative philosophy to manage the total flow of a distribution channel from supplier to the ultimate user." Another definition on supply chain management spells as managing the chain of events in this process is what is known as supply chain management. (Stephen, 1996). The basis of SCM engulfs all factors of these functions to create an overall supply chain strategy that finally increases firm performance in the longer run.

Ethical supply chain management practices include reliability and honesty in purchasing, reducing packaging and waste, assessing vendors on their environmental performance and developing more eco-friendly products (Walker, Sisto and McBain,2008). Underpinning social responsibility in supply chain management, incorporated a variety of streams regarding CSR research to characterize a model that extended corporate performance beyond conventional economic and legal considerations to include ethical and discretionary responsibilities (chin-fu et al, 2005). (Fredrik and Britta ,2012)) indicated that PSR is not only synonymous with business ethics but also includes dimensions including philanthropy, community, workplace, Selection of reliable vendor and pricing mechanism having supreme significance.

Some supply chain researchers have examined individual elements of PSR in the chain, including environment (Walker, Sisto and McBain,2008), labor practices (Rivoli, 2003; Roberts, 2003), procurement (Stephen, 1996), and affirmative action purchasing. Wrongdoing and indecency in the procurement process can encompass a company's supply chain socially responsible mission.(Fredrik and Britta ,2012) offered a review of many ethical issues in the procurement process such as preferential treatment, bribery, gifts, obscure contract terms, and rebidding past cut-off dates without consent of competent authority.

Culture is the homogeneity of characteristics that distinguish one human group from another and provides organizational profile with respect to norms and values that affords understanding of how organizations manage relations (Griffith and Myers, 2005). Researchers have established that a market-oriented culture and the market-oriented responsibility of employees, have significant impact on market-oriented organizational behaviours. Organizational culture is known as a set of values, convictions, assumptions, and ways of thinking shared by members of the organization. Organizational culture affects work activities, and studies have revealed that organizational culture is linked with employee behaviour Salam, (2008) found ethical issues relating to the procurement process to include showing partiality to suppliers, allowing personalities to influence buying decisions, and failure to provide prompt responses to customers (Maloni and Brown, 2006). Successful management of supply chain relationship depends on the ability of managers to appropriately fit, or align, organizational elements with environmental opportunities and threats (Griffith and Myers, 2005).

4. RESULTS

Analysis of Data

Correlation and Regression Analysis of Research Results:

Correlation Analysis

Variable Retention	Ethical SCM (ESCM)	Purchasing Social Responsibility (PSR)	Customer Oriented Organizational culture (COOC)	Environmental concerns and Legal Compliance(ECLC)
Ethical SCM (ESCM)	1			
Purchasing Social Responsibility (PSR)	.340*	1		
Customer Oriented Organizational culture (COOC)	.098	.170	1	
Environmental concerns and Legal Compliance(ECLC)	.795**	.533**	-.003	1

Regression Analysis

Variables	β	t	Significance
Purchasing Social Responsibility (PSR)	-.147	-1.467	.149
Customer Oriented Organizational culture (COOC)	.125	1.480	.145
Environmental concerns and Legal Compliance(ECLC)	.874	8.860	.000

R² = .657

N = 150

Dependent Variable = Ethical Supply Chain Management

Variables	Cronbach's alpha	Mean	Standard Deviation
Ethical SCM	.874	19.048	1.81480
Purchasing Social Responsibility(PSR)	.817	24.185	1.86933
Customer oriented organizational culture	.887	18.011	2.15631
Environmental concerns and Legal compliance	.850	19.088	1.82547

5. ANALYSIS AND FINDINGS

This study of 150 usable samples represents the analysis of the data whereby study results are discussed in succeeding paragraphs. Hypotheses were tested against correlation regression analysis and results obtained have been analyzed in the viewpoint of Fertilizers industry of Pakistan.

The correlation table exhibits the variables, mean values, standard deviations and significance values. Additionally, it reflects the significance of each correlation coefficient over and above presentation of the relationship between the dependent and three independent variables. Results show that Ethical SCM in Fertilizers sector is more dependent on the independent variables named are purchasing social responsibility (PSR) and environmental concerns supported by Legal compliances. The degree of effectiveness in ethical SCM would thus increase in Fertilizers sector of Pakistan by giving due cognizance to independent variables in more realistic and pragmatic approach. Customer oriented organizational culture has shown comparatively less correlation and is not significantly related with ethical SCM and other variables, whereas environmental concerns and PSR have shown high level of correlation with ethical SCM.

The measurement scale also demonstrates reliability due to higher than its cut off limit of 0.70, therefore all the constructs met minimum reliability requirement.

Findings

Findings for Hypothesis 1

The hypothesis H1 proposed a significantly positive relationship between PSR and Ethical Supply chain Management. This presumption was supported in study as shown by the results ($r=.340^*$) which shows a high level of association and positive significant correlation that is 0.149. Based on the regression model, the 'B' value of PSR is -.147 which shows that PSR is a very weak predictor of Ethical supply chain despite its association and correlation with dependent variable. On the same side 't' value also showed result of -1.467 which showed an insignificant impact on Ethical Supply chain Management in fertilizers sector of Pakistan due to less incorporation of strategies incorporating ethics in purchasing. Significance value $p>.005$ (.149) suggests rejection of above hypothesis and accepting alternate hypothesis indicating no significant relationship of PSR with Ethical supply chain management in fertilizers sector of Pakistan.

Findings for Hypothesis 2

The hypothesis H2 proposed that Customer oriented organizational culture correlates positively with ethical supply chain Management; which means higher the level of customer orientation as part of organizational culture, higher will be ethical supply chain practice in vogue. This inference stands unsupported by the results under correlation ($r = 0 .098$) which confirms that there is an insignificant level of co-relation amongst independent and dependent variable.

The 'B' value of Information Technology is 0.125 meaning by an impact of 12.5% on ethical supply chain management. On the same side 't' value also showed result of 1.480 which specifies low significant impact on Supply chain Management is evident that customer oriented organizational culture does have impact but is significant enough and only 10% correlation has been found in Pakistan specific fertilizers industry.

$P>.05$ (.145) indicates

Rejection of our null hypothesis indicating positive significant relationship amongst customer orientated organizational culture and ethical supply chain management in fertilizers sector of Pakistan.

Findings for Hypothesis 3

The hypothesis H3 proposed that environmental concerns and legal compliance correlates positively with ethical supply chain management; which means higher the level of favorable environmental concerns and legal compliance, higher will be ethical supply chain management in fertilizers sector. This inference stands strongly supported by the results($r = .795^{**}$) which bear out that there is a very highly significant level of co-relation among dependent and independent variables.

The 'B' value of environmental concerns and legal compliance is 0 .874 meaning by an impact of 87.4% on ethical supply chain management. On the same side 't' value also showed result of 8.860 which indicates highly significant impact on ethical supply chain management. $P < .05$ (.000) is highly suggestive of adoption of hypothesis stating significant positive impact of environmental concerns and legal compliance on the ethical supply chain management in fertilizers sector of Pakistan.

Based on the encouraging results our H3 is also accepted. The study suggests strongly that in Pakistan specific culture its only the legal compliance and effect of NGO's which plays a deterrent role to comply with environmental aspects of the society and customer stands nowhere in business environments.

6. DISCUSSION AND CONCLUSION

Owing to its ultimate business enhancement results, the supply chain has emerged as one of the principal study aspects in management sciences of contemporary era. The major input of study at hand is the significant evaluation of determinants of ethical supply chain management in fertilizers sector of Pakistan. Our study results illustrate that how important is the impact of environmental concerns and legal compliance due to its forceful implementation through NGO's creating awareness of environmental concerns and highlighting the flaws of such industries in our chosen sector.

When analyzing in Pakistani perspective, these factors have explicit context. In such competitive field, fertilizers industry cannot overlook this significant area to remain competitive in the business. PSR and customer oriented organizational culture emphasizes corporate social responsible attitude to be demonstrated through initiatives based on long term social well being and enhanced customers base.

Research Implications.

The study results have some relevant implications for Pakistan fertilizers sector like:

- The fertilizers industry should devise comprehensive customer oriented organizational culture for competitiveness in the longer run to help steer and guide usual working relations. A people oriented organization espouses values such as fairness and the aspiration to be a good corporate citizen, thus this desire leads to considerably superior levels of PSR.

Significant and highly positive relationship exists between ethical SCM and environmental concerns coupled with legal compliances to the existing rules and regulations in era of awareness. It suggests that environmental concerns play a pivotal role as government initiatives and strict control over environmental safety aspects is owing to deterrence of implementation and not discretionary or willing act by the fertilizer industry. This positive and significant relationship is the minimum possible need of the day as generations to come will be more exposed to hazards of industrial waste and pollution.

Limitations and Recommendations for Future Research

It is pertinent to consider that findings of this study reveal this study as undertaken in Pakistani settings of fertilizers industry where customer oriented organizational culture and PSR

may not have desired importance, and legal aspects are given more weight age by the industrialists as minimum possible compliance to rules in vogue. Hence it must not be taken as representative but needs extended research in other sectors as well.

Secondly, the sampling frame was limited to fertilizers industry supply chain departments including procurement and finance divisions, thus affecting the generalizability of results hence requiring further empirical study and analysis across purchasing and supply chain departments of other industrial sectors of Pakistan.

Additional empirical study is required to extend the results of the current study to broader spectrum of firms and functional areas incorporating management of supply chain for stronger causal inferences with more related variables like corporate social responsibility and suppliers performance with regards to ethical supply chain management.

Consequently, depending upon the extent and scale of study, the results are liable to fluctuate regardless of showing no major adjustment in our theoretical presumptions in current scenario.

REFERENCES

- [1]. Aleš Groznik and Jure Erjavec (2012). Environmental Impact of Supply Chains, Pathways to Supply Chain Excellence, Dr. Ales Groznik (Ed.), ISBN: 978-953-51-0367-7,
- [2]. Chin-Fu Ho, Yen-Ping Chi and Yi-Ming Tai,(2005), " A Structural Approach to Measuring Uncertainty in Supply Chains" International Journal of Electronic Commerce, Vol. 9, No. 3 (Spring, 2005), pp. 91-114
- [3]. Clodia Vurro, Angelo antonio Russo and Francesco Perrini, (2009), "THE IMPACT OF NETWORK ETHICSON BUSINESS PRACTICES,"Journal of Business Ethics, Vol. 90, Supplement 4: (2009), pp. 607-621
- [4]. Griffith David A. and Matthew B. Myers, (2005), " The Performance Implications of Strategic Fit of Relational Norm Governance Strategies in Global Supply Chain Relationships" , Journal of International Business Studies, Vol. 36, No. 3 (May, 2005), pp. 254-269
- [5]. Fredrik Nilsson, Britta Gammelgaard, (2012),"Moving beyond the systems approach in SCM and logistics research", International Journal of Physical Distribution & Logistics Management, Vol. 42 Iss: 8 pp. 764 - 783
- [6]. Hertz Susanne, (2006) , " Supply chain myopia and overlapping supply chains Journal of Business & Industrial Marketing 21/4 (2006),pp 208-217
- [7]. Injazz J. Chen, Antony Paulraj, (2004), "Towards a theory of supply chain management: the constructs and measurements" Journal of Operations Management 22 (2004) 119-150
- [8]. Marisa P. de Brito 1,2,* and Erwin A. van der Laan, (2010), "Supply Chain Management and Sustainability: Procrastinating Integration in Mainstream Research" sustainability ISSN 2071-1050 ,pp 860-870
- [9]. Mian Sajid Nazir, (2010), "Corporate Social Disclosure in Pakistan: A Case Study of Fertilizers Industry" The Journal of Commerce, Vol. 2, No. 1 ISSN: 2218-8118,pp1-11
- [10]. Michael J. Maloni and Michael E. Brown, (2006), " Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry" Journal of Business Ethics, Vol. 68, No. 1 (Sep., 2006), pp. 35-52
- [11]. Mohammad Asif Salam,(2009), " Corporate Social Responsibility in Purchasing and Supply Chain" , Journal of Business Ethics, Vol. 85, Supplement 2: Corporate Social Responsibility Implementation (2009), pp. 355-370
- [12]. Mohd Nishat Faisal, D.K. Banwet and Ravi Shankar, (2006)"Mapping supply chains on risk and customer sensitivity dimensions" Industrial Management & Data Systems Vol. 106 No. 6, 2006 pp. 878-895
- [13]. Nadir Hussain Shah, Saqib Mahmood, Muhammad Rashid* and Samina Naz, (2013), "Determinants of supplier selection and evaluation, their impact on business key performance indicator of buying companies: in the context of telecom companies in Pakistan" Global Advanced Research Journal of Management and Business Studies (ISSN: 2315-5086) Vol. 2(7) pp. 367-373
- [14]. Niaz Ahmad, Muhammad Usman Awan and Abdul Raouf, (2009), "Development of a service quality scale for pharmaceutical supply chains", International Journal of Pharmaceutical and Healthcare Marketing Vol. 3 No. 1, 2009 pp. 26-45
- [15]. Stephen J. New, (1996),"A framework for analysing supply chain improvement", International Journal of Operations & Production Management, Vol. 16 Iss: 4 pp. 19 - 34
- [16]. Walker, Lucio Di Sisto, Darian McBain, (2008), "Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors" Journal of Purchasing & Supply Management 14 (2008) 69-85