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TO INVESTIGATE GREEN SUPPLY CHAIN ACTIVITIES AND PRACTICES USED BY INDIAN LEATHER MANUFACTURING AND EXPORTING FIRMS

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ABSTRACT

The scenario in India's leather industry is not all that different from that of its competitors in China, Pakistan, Thailand, and Indonesia, according to a comparative analysis. Although the legal foundation is in place in every nation, each one's execution efficiency differs. It differs from province to province in nations the size of China. However, it is undeniable that environmental consciousness has increased significantly in all four countries, in part because of domestic laws and in full because of international demands and restrictions. Numerous certifications and standards regulate an organization's business processes and span a range of levels, roles, and elements. Additionally, in order to meet the demands of external stakeholders as well as their internal organizational goals, an increasing number of firms are seeking for newer certification standards. According to this chapter, merely certifying the standards might not accomplish the goal and might instead lead to the growth of parallel manuals and documentation, which would be a waste of time and effort. A closer examination of the substance of all four certifications shows that, despite their many similarities, their approaches vary. As a result, the companies had to have a thorough management system that includes the four certifications of Ecolabel, OHSAS, EMS, and QMS. This was taken into account by the researcher when proposing a methodology to streamline implementation in companies that manufacture and export leather.

KEYWORD: China, Pakistan, Thailand, Goals, Ecolabel, OHSAS, EMS

1. INTRODUCTION

The Indian government gave the leather industry particular attention due to its strong and promising foreign exchange earnings without sacrificing the creation of jobs. Rich craftsmanship, cost-effective

labor, and a wide range of raw materials are the sources of this competitive advantage. As a result, at the turn of the 20th century, the leather industry had grown from exporting raw materials to producing high-value final goods. It is said to have maintained its comparatively strong position in the global markets by compromising under several policy regimes at both the national and international levels.

The leather industry has been able to stabilize its export performance thanks to government assistance in the form of infrastructural restructuring. The trade-off relationship between exports and the environment is called into question by this circumstance. According to Copeland and Taylor, free trade between developed and developing nations leads to an increase in dirty industrial exports from the former due to increased output and the ensuing environmental impact.

According to the aforementioned studies, implementing stricter environmental regulations appears to reduce a company's technical efficiency, which in turn reduces its ability to compete internationally. This research has been given priority because of the backdrop of promising export opportunities on the one hand, and the environmental sustainability measures implemented by the highly polluted leather industry on the other. Additionally, "Greening and environmental sustainability" has become a requirement for all industries, regardless of size or nature, in the modern era.

Additionally, there has been more competitive pressure on companies worldwide in recent years to implement green practices. Because the supply chain spans from the product's conception to its delivery to the customer, supply chain management will play a bigger role in influencing organizations' environmental practices as pressure on businesses to implement environmental measures increases. However, there are certain difficulties that must be taken into account if the company is to transition to green sustainability. These issues are outside the scope of core supply chain activities, such as process design, procurement, production, logistics, disposal, recovery, reuse, employee health and safety, and the like. Therefore, a more comprehensive strategy is needed to ensure social and economic sustainability for all supply chain participants in addition to making the supply chain sustainable.

2. REVIEW OF LITERATURE

The notion of GSCM has its roots in supply chain management, which is where its definition comes from, according to Hervani & Helms (2005). The environmental realization and its effects on supply chain management are the main drivers of GSCM, which is also viewed as a way to increase a company's competitiveness.

Based on an analytical hierarchy process (AHP) methodology, the GSCM philosophy is intended to assist the supply chain manager in assessing the environmental performance of suppliers, companies, and logistics (Lu et al., 2008). Like SCM, GSCM is described in a wide range of literature in various fields, including marketing, operations, purchasing, and logistics, among others. The definition of GSCM is found to differ depending on the areas of application. Below are some examples of these definitions:

"Green supply chain management refers to the way that innovations in supply chain management and industrial purchasing may be considered in the context of the environment," according to Green et al. (1996).

"...from reactive monitoring of general environmental management programs to more proactive practices like the 4R's (e.g. recycling, reclamation, remanufacturing, and reverse logistics) of environmental management and incorporating 'innovation,'" describe the GSCM, according to Zhu and Sarkis (2004).

Using product design, process design, manufacturing techniques, purchasing (see Handfield et al., 2002), and a variety of these difficulties (see Bowen et al., 2001a), Hervani and Helms (2005) reviewed a number of literature sources on the idea of GSCM.Ecological sustainability is relevant in both strategic and operational contexts, according to King and Lenox (2001).

3. OBJECTIVES OF THE STUDY

1. To determine and investigate the widespread green supply chain activities and practices used by Indian leather manufacturing and exporting firms, and to conduct an international comparison between India and its rivals.
2. To undertake a study of India's export-focused leather manufacturing companies in order to evaluate the success of the green supply chain management in light of the challenges, obstacles, and drivers.

4. RESEARCH METHODOLOGY

This study's goal was to gather empirical data on the different forces, motivators, and obstacles affecting India's leather industry's green supply chain. For this section of the investigation, a Delphi study was selected. The Delphi technique asks professionals to share their thoughts. Additionally, it makes it possible to compile these answers and identify the fundamentally important elements in an organized way for setting priorities and, ultimately, carrying out a legitimate study or research. Three phases of the

study have seen the collection of primary data. Before committing to a full-fledged study or experiment, researchers might perform a preliminary analysis using a pilot study, a conventional scientific instrument for "soft" research. During the pilot study, the researcher used the draft questionnaire to visit 15 organizations. For this study, all of the information gathered from the organizations was utilized. The primary questionnaire was then revised in light of the interviews, viewpoints, and conversations with subject-matter experts, business owners, managers, and consultants. 100 leather manufacturers and exporters participated in the questionnaire survey. The questionnaire was sent to the respondents by the researcher by email (Google Doc) and physical hand delivery.

Secondary Data

Journals, books, reports, government publications, working papers, research papers, conference proceedings, print and online articles, publicity materials, etc. are the sources of the secondary data gathered for the comprehensive literature survey and content analysis.

Sampling Technique

Since not every organization has an equal probability of being chosen, the survey is non-probabilistic in character. Convenience sampling is another method employed under non-probabilistic sampling, in which samples are chosen based on their easy accessibility and closeness to the researcher.

5. RESUTS AND DATA ANALYSIS

TABLE 5.1: MEAN AND SD OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM) AND ITS DOMAINS SCORES BY CATEGORY OF ORGANIZATION

Variables	Category	Small scale	Medium scale	Large scale	Total
	N	62	30	8	100
Green supply chain management (GSCM)	Mean	272.02	290.65	299.40	280.43
	SD	10.00	5.25	4.30	13.23
Green process design practice (GPDP)	Mean	21.51	22.14	23.70	22.01
	SD	4.68	3.62	2.60	4.23
Green procurement practices (GPP)	Mean	47.03	50.62	50.20	48.46
	SD	5.21	3.51	6.05	5.06

Green manufacturing practices (GMP)	Mean	61.70	68.42	71.50	64.72
	SD	7.63	4.46	3.13	7.42
Green marketing practices (GM)	Mean	20.23	22.40	23.40	21.21
	SD	4.23	1.61	3.33	3.70
Green logistic and distribution practices (GLDP)	Mean	49.74	50.37	55.00	50.41
	SD	5.20	4.07	3.10	4.88
Occupational safety and health hazards (OSHHP)	Mean	37.42	39.02	40.00	38.16
	SD	4.07	3.34	2.81	3.83
Internal environmental management system practices (IEMP)	Mean	33.70	37.07	35.10	34.85
	SD	5.35	5.07	6.50	5.52

Comparison of Means and Standard Deviation (SD) Pressures & its domains scores by category of organization

The mean and standard deviation of pressure and its domain ratings per organization category are shown in table 5.2. The overall Pressures score average is 48.52±5.57. Larger organizations have a lower mean Pressures score (41.60±2.72) than medium-sized firms (44.12±3.70) and tiny organizations (52.06±4.00).

TABLE 5.2: MEAN AND SD OF PRESSURE AND ITS DOMAINS SCORES BY CATEGORY OF ORGANIZATION

Variables	Category	Small scale	Medium scale	Large scale	Total
	N	62	30	8	100
Pressure	Mean	52.06	44.12	41.60	48.52
	SD	4.00	3.70	2.72	5.57
Group & External organizational pressure	Mean	21.70	18.10	17.30	20.13
	SD	2.50	3.12	2.01	3.23
Motivations	Mean	11.70	10.11	10.40	11.07

	SD	1.55	2.01	1.07	1.81
Stake holders groups and their pressures on green decisions	Mean	18.34	15.70	13.70	17.27
	SD	3.23	2.82	3.83	3.51

Comparison of Means and Standard Deviation (SD) Barrier & its domains scores by Category of organization

The Mean and SD of Barrier scores by Organization Category are shown in table 5.3. The mean score for Barriers is 34.40±3.64. The average Barriers score is lower for large businesses (29.60±3.78), medium-sized firms (31.57±2.34), and small organizations (36.63±2.26).

TABLE 5.3: MEANS AND SD OF BARRIERS SCORES BY CATEGORY OF ORGANIZATION

Category	Small scale	Medium scale	Large scale	Total
N	62	30	8	100
Mean	36.63	31.57	29.60	34.40
SD	2.26	2.34	3.78	3.64

Comparison of Means and Standard Deviation (SD) Driver & its domains scores by Category of organization

The mean and standard deviation of drivers' ratings by organization category are shown in table 5.4 above. The average score for all drivers is 25.10±4.68. Larger firms had a higher mean Drivers score (30.10±1.30), followed by medium-sized businesses (28.31±1.30) and small-scale organizations (22.60±4.58).

TABLE 5.4: MEAN AND SD OF DRIVERS SCORE BY CATEGORY OF ORGANIZATION

Category	Small scale	Medium scale	Large scale	Total
N	62	30	8	100
Mean	22.60	28.31	30.10	25.10
SD	4.58	1.30	1.30	4.68

Comparison of Means and Standard Deviation (SD) Organizational GSCM performance & its

domains scores by Category of organization

The mean and standard deviation of organizational GSCM performance and domain scores per organization category are shown in table 5.5. The Organizational GSCM performance score as a whole is 105.50±7.30. Larger organizations had a higher mean Organizational GSCM performance score (118.20±4.51) than medium-sized businesses (110.60±2.71) and small organizations (100.80±4.83).

TABLE 5.5: MEAN AND SD OF ORGANIZATIONAL GSCM PERFORMANCE AND ITS DOMAINS SCORES BY CATEGORY OF ORGANIZATION

Variables	Category	Small scale	Medium scale	Large scale	Total
	N	62	30	8	100
Organizational GSCM performance	Mean	100.80	110.60	118.20	105.50
	SD	4.83	2.71	4.51	7.30
Customer coordination	Mean	13.83	14.17	16.70	14.20
	SD	1.50	2.06	3.05	2.08
Eco accounting	Mean	10.76	11.57	11.40	11.07
	SD	1.74	1.83	2.01	1.81
Economic and financial performance	Mean	37.02	39.40	42.00	38.15
	SD	3.85	3.44	1.65	4.00
Operational performance	Mean	20.47	23.77	26.30	22.04
	SD	4.20	2.48	1.85	4.06
Environmental performance	Mean	18.34	21.22	21.50	19.54
	SD	2.86	1.74	1.47	2.82

Comparison of Means and Standard Deviation (SD) of GSCM & its domains scores by Type of ownership

The mean and standard deviation of green supply chain management (GSCM) and its domain scores by ownership type are shown in table 4.6. The average score for GSCM (green supply chain management) is 280.43±13.23. The partnership type of ownership has the highest mean green supply chain management (GSCM) score (281.00±14.74), followed by proprietorship (280.76±12.58) and private limited company type of ownership (277.13±6.41).

TABLE 5.6: MEAN AND SD OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM) AND ITS DOMAINS SCORES BY TYPE OF OWNERSHIP

Variables	Ownership	Proprietorship	Partnership	Private limited	Total
	N	40	50	10	100
Green supply chain management (GSCM)	Mean	280.76	281.00	277.13	280.43
	SD	12.58	14.74	6.41	13.23
Green process design practice (GPDP)	Mean	22.12	22.10	20.31	22.02
	SD	4.02	4.15	5.26	4.23
Green procurement practices (GPP)	Mean	49.73	48.00	46.80	48.46
	SD	5.20	5.02	4.03	5.06
Green manufacturing practices (GMP)	Mean	64.60	65.00	64.00	64.72
	SD	8.38	7.30	4.26	7.42
Green marketing practices (GM)	Mean	21.54	20.78	22.13	21.21
	SD	3.53	4.06	1.85	3.70
Green logistic and distribution practices (GLDP)	Mean	50.12	50.51	51.00	50.41
	SD	5.13	4.60	5.66	4.88
Occupational safety and health hazards (OSHHP)	Mean	38.00	38.767	36.30	38.16
	SD	2.83	4.14	5.06	3.83
Internal environmental management system practices (IEMP)	Mean	34.04	35.25	36.14	34.85
	SD	6.06	5.50	3.14	5.52

Comparison of Means and Standard Deviation (SD) of Pressure & its domains scores by Type of ownership

The mean and standard deviation of pressure and its domain scores by ownership type are shown in table 5.7. The overall pressure score average is 48.52±5.57. The proprietorship ownership type has the lowest mean Pressures score (48.10±5.06), followed by the partnership ownership type (48.04±5.11) and the private limited company ownership type (52.21±8.08).

6. CONCLUSION

• The Indian leather sector was subject to environmental laws in 1989, even before the World Trade Organization was established (1994). A significant German importer banned Indian leather exporters twice in a row between 1989 and 1995. According to Dutta (2004), the main cause cited was the existence of two important chemicals used in the production of leather: pentachlorophenol (PCP) and a class of 22 azo-dyes. The German Ministry of Health's examination revealed excessive amounts of these substances, leading them to declare it carcinogenic to users. Around this same period, the Indian Supreme Court issued a decision prohibiting the discharge of untreated wastewater into water bodies (Pillai, 2000). 37% of India's tanneries were closed as a result (Kennedy, 1999), and the prohibitions also posed a danger to the country's leather industry's ability to export. The Indian leather industry and its export operations were severely disrupted by these events.

Since then, the Indian government has been looking for innovative ways to revitalize the industry because it generates a significant portion of the country's GDP in terms of revenue and directly or indirectly employs millions of people. However, as the literature review clearly showed, the government's and allied organizations' actions and plans have not been effective or up to par. Even though the bylaws are in the rulebook, the ground reality must be considered and addressed. The goal of the research was to find a methodology that goes beyond conventional depictions, protocols, and compliance, minimizes potential trade-offs between export and the environment, and aids in the successful operation of leather manufacturers and exporters.

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