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Analysis of Green Supply Chain Management Practices, Institutional Pressures, and Environmental Performance: Evidence from Pakistani Pesticide Firms

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ABSTRACT

A huge number of pesticide chemicals are used to improve agriculture production.Pakistan is an agricultural country using massive pesticide chemicals and facing environmental issues. Firms need to realize the integration of green supply chain management (GSCM) practices in their supply chain. The current study intends to analyzethe relationship between GSCM practices, institutional pressures (IP), and environmental performance (ENP). Therefore, the GSCM-IP-ENP model was developed with the help of a literature review. The model was proved with the help of data collected from Pakistani pesticide chemical firms. Data were collected through a questionnaire from 500 senior-level managers of pesticide firms in Pakistan. However, 468 responses were retained for analysis keeping in view the limitations of the current study. SmartPLS 3.0 was used for data analysis. Results showed strong relationships between all variables of the study. The study concluded that GSCM practices and IP have a positive and statistically significant relationship with a firm's ENP. The study is distinctive and has significant contributions, because, it developed and proved the GSCM-IP-ENP model. The model helped to prove the relationship between GSCM practices, IP, and ENP in the pesticide sector of Pakistan. This study will be beneficial for the managers of pesticide firms as well as for the government to understand the importance of GSCM practices for improving the ENP of pesticide firmsin Pakistan. This study will also be useful worldwide, especially in developing countries. This study recommends that it is essential for the management of firms to implement GSCMpractices for the protection of the environment. Pressure groups like the government, media, and consumers should exert pressures and the government should provide subsidies, if

necessary, to the firms for successful implementation of GSCM practices. Furthermore, it is recommended to conduct further studies including the effect on a firm's financial performance within the Pakistani context and in other countries by using the mixed methodology in the pesticide sectors as well as in other sectors of the economy to increase the generalizability of the current study.

***Keywords*:** Green Supply Chain Management (GSCM), Institutional Pressures (IP), Environmental Performance (ENP), RBV Theory, Institutional Theory, Pesticide Firms

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INTRODUCTION

Over the last decade, firms and governments, throughout the world, have been worried about environmental challenges (Zelazna, Bojar, and Bojar 2020). The rising trend of applying green supply chain management (GSCM) practices is heavily influenced by institutional pressures to meet the goal of greening industrial processes (Tseng et al. 2019). GSCM practices through the supplier to the customer include the whole value chain as firms aim to decrease the negative environmental consequences of their activities (Ahmed et al. 2020).The worldwide industry is under pressure to adopt GSCM practices to compete in the global market, which also presents an export potential for manufacturers (Al-Ghwayeen and Abdallah 2018). The institutional pressures that come with globalization have driven businesses to enhance their environmental performance (Helm 2020). Globalization also puts pressure on firms to improve their environmental performance (Tang et al. 2020). Growing environmental awareness has also affected the pesticide industry. Internal greensupply chain management (IGSCM) practices and external green supply chainmanagement (EGSCM) practices have a good and substantial impact on the firm's environmental performance (Liao and Zhang 2020).

Firms that apply GSCM practices under institutional pressure might be evaluated based on their environmental performance. Global warming and environmental changes are major concerns all around the world (Ali *et al.*, 2021; Rehman *et al.*, 2021). Recent studies indicate that more research is needed to determine the relationship between GSCM practices and environmental performance, which may include less use of toxic materials and less waste of water, materials, and electricity particularly in the developing countries (Vanalle et al. 2017). As most studies have been conducted in advanced economies, there is a research gap in underdeveloped countries (Geng, Mansouri, and Aktas 2017). This study enhances the existing literature by proving the implication ofGSCM practices, institutional pressures, and environmental performance in Pakistan's pesticide sector, which will help pesticide firm managers and the government to recognize the significance of GSCM practices in improving the environmental performance of pesticide firms in Pakistan and around the world.

The resource-based view (RBV) theory and the institutional theory are used in this study. According to the RBV theory, resources and skills are always vital in gaining a competitive advantage (Bu et al. 2020). Adoption of GSCM practices may also be one of the competitive advantages. RBV theory focuses on a firm's IGSCM and EGSCM practices to

improve the firm's environmental performance (Kamasak 2017). Institutional pressers play an important role in the adoption of GSCM practices to improve environmental performance (Chu et al. 2017), which is linked with institutional theory. Aspects of institutional theory define the limits of optimum GSCM practices (Dedoulis 2016). The institutional theory theoretically supports explaining the GSCM practices (IGSCM and EGSCM practices). The link between institutional pressures and environmental performance is also supported by the institutional theory (Yang 2018).

Pakistan's agriculture sector contributes significantly to the country's GDP. Pakistani farmers utilize massive amounts of pesticide chemicals to improve agricultural yields, while pesticide manufacturers apply effective GSCM strategies to enhance their environmental performance (Akhtar and Soratana 2021). Pesticides are used by the majority of farmers in Pakistan to boost agricultural productivity. Pesticides have several harmful environmental effects (Mahmood et al. 2016). More pesticides and fertilizers are harming the environment and posing a significant barrier to improving environmental performance (Dagar *et al.*, 2020; Mahmood *et al.*, 2016). Further policies (institutional pressures) are needed to enhance Pakistani enterprises' environmental performance (Kouser, Subhan, and Abedullah 2020). Thus, the current study aims to analyze the GSCM (IGSCM and EGSCM) practices, institutional pressures, and environmental performance in the pesticide sector of Pakistan through the lens of RBV theory and institutional theory.

Literature Review

A thorough review of the literature was done, with special emphasis on GSCM practices, institutional pressures, and the environmental performance. Following an in-depth literature review, a model GSCM-IP-ENP (figure-1) was designed. Following are the results of the literature review:

Relevant Theories of the Study

Resource-Based View (RBV)Theory

RBV theory focuses on the capabilities and resources of essential, rare, valuable, and non-sustainable enterprises to achieve a sustainable and competitive advantage through the process of environmental improvement (green and higher quality goods) as compared to existing competitors (Barney 1991). It is difficult to imitate the GSCM practices of competitors since they benefit from the experience. Competitors, for example, will find it difficult to reproduce a firm's excellent reputation gained via the effective application of GSCM practices (Yildiz Çankaya and Sezen 2019). Therefore, RBV is one of the most appropriate theories for the investigation of the relationship between GSCM practices and environmental performance.

Institutional Theory

Institutional theory is used to understand the numerous external elements that push a company to establish or execute a new practice. Institutional pressures are the pressures that companies exert on one another in the supply chain to adopt more sustainable green practices (Saeed et al. 2018). Institutional pressures are external forces that might impact the performance of an organization (DiMaggio and Powell 1983). This theory may be used to investigate and explain the reasons for and the extent to which the firm's green practices have been implemented (Touboulic and Walker 2015).

GSCM Practices and Environmental Performance

Environmental performance is improved by implementing GSCM (IGSCM and EGSCM) practices (Zhu, Sarkis, and Lai 2012). Adopting new environmental-related technology, such as GSCM practices, can help to create a more sustainable environment (M. K. Khan et al. 2022). Implementing GSCM (internal and external) practices reduces environmental accidents, which promotes company performance as well as societal well-being (Das 2018). The firm's environmental performance displays its capacity to minimize hazardous materials, environmental disasters, pollution, and solid waste (Esfahbodi, Zhang, and Watson 2016). GSCM practices cover IGSCM practices and EGSCM practices (Ming Heng, Zakiyuddin Ahmad Rashid, and Riazi Mehdi Riazi 2018). IGSCM practices comprise focused performance-related actions, implying that these practices make a significant contribution to a firm's performance (Vanalle et al. 2017). GSCM (IGSCM and EGSCM) practices have a significant relationship with environmental performance (Al-Sheyadi, Muyldermans and Kauppi, 2019; Marhamati and Azizi, 2017). Therefore, the following hypotheses are proposed:

H_1: IGSCM practices are related with the firm's environmental performance.

H_2: EGSCM practices are related with the firm's environmental performance.

Institutional Pressures and Environmental

The government, consumers, the media, and other pressure groups have focused on GSCM implementation and environmental performance (Ullah, Ali, et al. 2022). Institutional pressures from governments, competitive businesses, consumers, and other pressure groups have a substantial impact on industries' ability to successfully apply GSCMpractices (Zhang et al. 2020). Institutional pressures can impact GSCM practices, including pressure from domestic regulatory agencies, government legislation, stakeholders, consumers, rivals, non-governmental groups, and workers (Zhang et al. 2020). Organizations are encouraged to use GSCM practices as it helps them to compete by offering environment friendly goods and being innovative with advances in environmental commitments (Choi, Min, and Joo 2018). Government and other pressure groups' institutional pressures have a positive and significant impact on a firm's environmental performance (Phan and Baird 2015). Environmental regulations play a significant role in improving environmental performance (Murshed et al. 2021). Environmental performance may be improved through effective governance (Nadeem et al. 2022). The link between institutional pressures and environmental performance is substantial and notable (Mitra and Datta 2014). Therefore, following hypothesis is proposed:

H3: Institutional pressures are related with the firm's environmental performance.

Research Model

Eq.1, the GSCM-IP-ENP Model, was built after a thorough review of the literature. The model needs to test the relationship between GSCM (IGSCM and EGSCM), institutional pressures (IP), and the firm's environmental performance (ENP). Recent studies uncover the GSCM-IP-ENP model's wisdom (Saeed *et al.*, 2018; Ahmed, Najmi and Khan, 2019; Marri, Sarwat and Aqdas, 2021).

$$ENP = \alpha + \beta_1 IGSCM + \beta_2 EGSCM + \beta_3 IP + e \text{ .....Eq.1}$$

Figure 1 shows that GSCM (IGSCM and EGSCM) practices and institutional pressures have a considerable, notable, and direct influence on environmental performance.

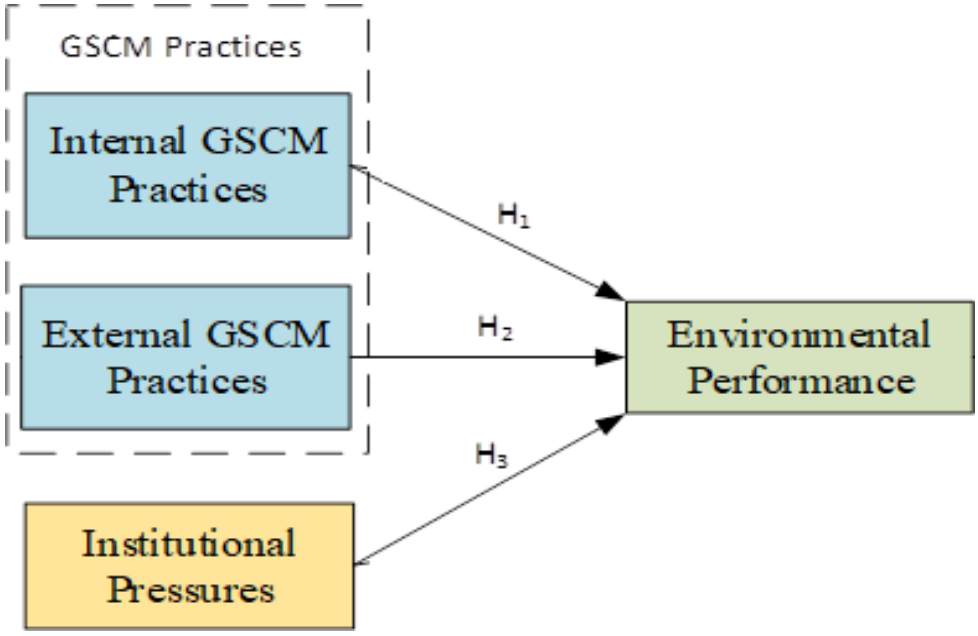

Figure 1. GSCM-IP-ENP Model

Methodology

Multi-stagesampling was done. In the 1st stage, purposive sampling was applied for the selection of firms and at 2nd stage, convenient sampling was used to get responses from senior employees of the selected firms. A cross-sectional design was followed for data collection due to time and cost constraints. There are 52 corporate-level pesticide chemical firms registered with Pakistan Crop Protection Association (PCPA). Out of those 52 firms, 22 firms are located in district Multan, Punjab, which accounts for 44% of the total corporate-level firms. Therefore, Multan is considered a hub for the pesticide chemical firmsoperating in Pakistan. That's why 22 corporate-level pesticide chemical firms, located in district Multan, were selected for the collection of data by using the purposive sampling method.

Google Forms was used to collect data. Respondents were sent an online link via WhatsApp, Facebook, email, and personal visits. The link was provided to the firm's senior executives, who shared it with their upper-level colleagues. From the 10th of July 2021 to the10th of November 2021, responses were collected. Using the 10 times rule for data collection, the minimum needed sample size was 320, which is a suitable technique for using SmartPLS (Kock and Hadaya 2018). However, to ensure quality, a total of 500

responses were collected. 468 responses were retained for further analyses, whereas 32 responses were eliminated due to study limitations (responses from firms having less than 100 employees or the firm's age was not more than 10 years). Descriptive analysis was conducted using SPSS version 22. Partial Least Square Structural Equation Modelling through SmartPLS 3 was used to test reliability and validity, discriminant validity, multicollinearity, correlation, and study hypotheses.

Analysis and Discussions

Demographic Analysis

Using SPSS version 22, demographic analysis was performed to generalize and assess the study limitations. The study was confined to corporate-level pesticide chemical firms with more than ten years in business and more than 100 workers. For the current study, 500 responses were collected, of which 32 were omitted because they belonged to firms with fewer than 100 employees or whose firm age was less than ten years. Participants were 445 men (95.1%) and 23 women (4.9%). 161 (34.4%) respondents were between the ages of 35, and 402 (85.9%) possessed graduate or higher-level educational credentials. 143 (30.6%) respondents had more than 10 years of experience in pesticide businesses, whereas 128 (27.4%) had working experience at their present employment. 287 (61.3%) respondents worked for companies that were ISO 14000 certified. 459 (98.1%) respondents worked for companies with ISO 14000 certification and/or other environmental certifications.

Validity and Reliability Analysis

This section is divided into two segments. Figure 2 illustrates the measurement/outer model, whereas Figure 3 depicts the structural model (inner model). The measurement/outer model indicates the relationship between variables (Xiang et al. 2022). The outer model must be estimated in the first step to determine the constructs' reliability and validity (Ringle, C. M., Wende, S., and Becker 2015). An analysis of the outer model was undertaken to validate that the survey questionnaire items were measuring what they were designed to measure to investigate the validity and reliability of components.

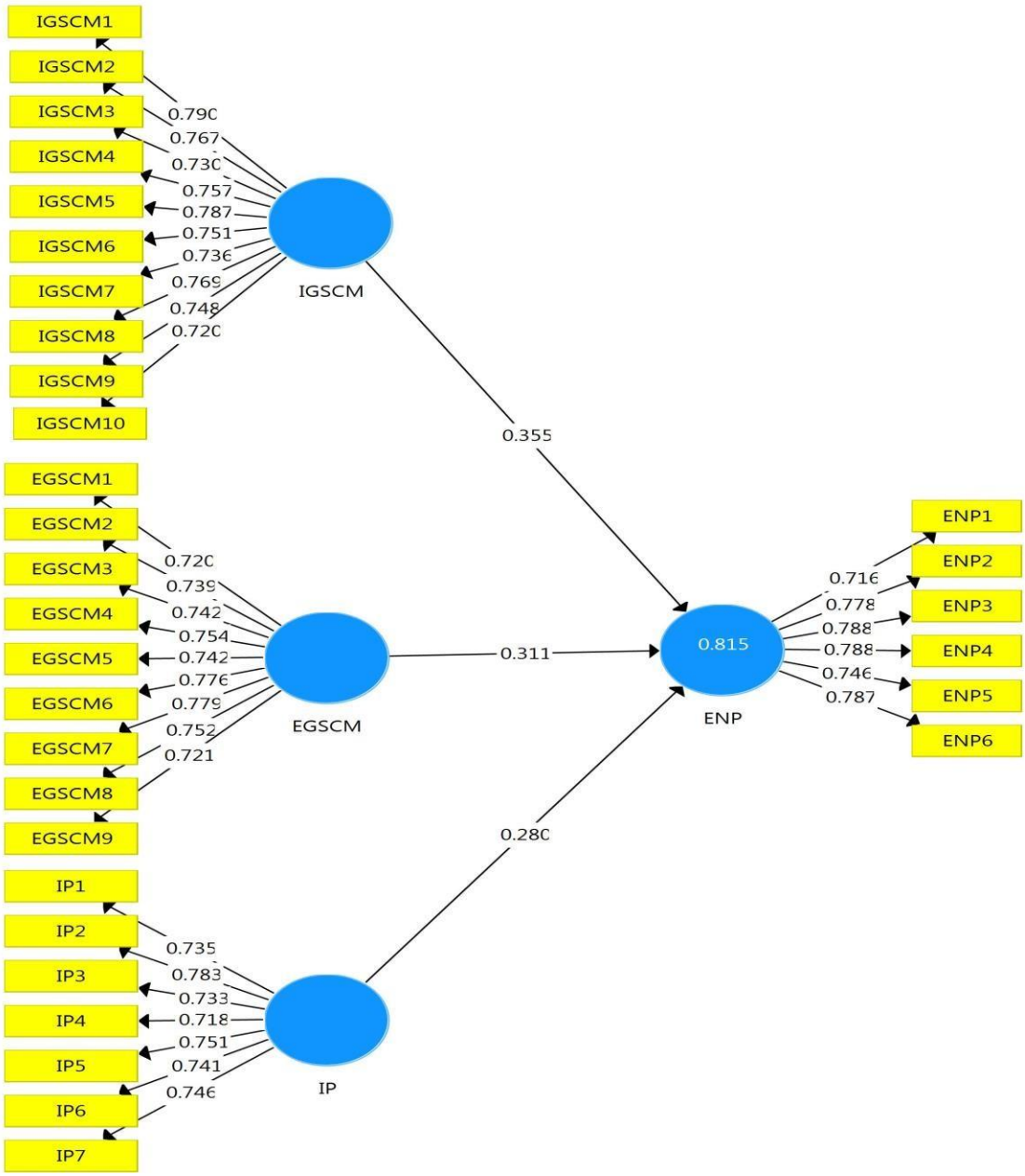

Figure 2. Measurement Model (GSCM-IP-ENP)

Quality Criteria for Measuring Instrument

As the "Quality Criteria for Measuring Instrument," outer model analysis is used to determine the validity and reliability of conceptions and items (Henseler, Hubona, and Ray 2016). Cronbach's Alpha, rho_A, and Composite Reliability values were >0.70, which confirmed the reliability of the outer model (Table 1). In the current study convergent validity was ensured by using average variance extracted (AVE) measuring > 0.50 as the rule of thumb (Henseler et al. 2016). As the outer loadings of all

items were > 0.70 (Table 1), therefore, further analyses were conducted to test the study hypotheses.

Table 1. Reliability and Validity of the Instrument

Variables	Measures	Measure's Outer Loading	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
IGSCM	IGSCM1	0.790	0.916	0.917	0.930	0.571
	IGSCM2	0.720				
	IGSCM3	0.767				
	IGSCM4	0.730				
	IGSCM5	0.757				
	IGSCM6	0.787				
	IGSCM7	0.751				
	IGSCM8	0.736				
	IGSCM9	0.769				
	IGSCM10	0.748				
EGSCM	EGSCM1	0.720	0.901	0.902	0.919	0.559
	EGSCM2	0.739				
	EGSCM3	0.742				
	EGSCM4	0.754				
	EGSCM5	0.742				
	EGSCM6	0.776				
	EGSCM7	0.779				
	EGSCM8	0.752				
	EGSCM9	0.721				
IP	IP1	0.735	0.866	0.867	0.897	0.554
	IP2	0.783				
	IP3	0.733				
	IP4	0.718				
	IP5	0.751				
	IP6	0.741				
	IP7	0.746				
ENP	ENP1	0.716	0.860	0.861	0.896	0.589
	ENP2	0.778				
	ENP3	0.788				
	ENP4	0.788				
	ENP5	0.746				
	ENP6	0.787				

Discriminant validity

The cross-loading analysis is an essential tool for evaluating discriminant validity (M. T. Khan et al. 2022). This ensures that the variables being measured are measuring what they are supposed to measure (Hair, Risher and Ringle, 2019; Hair *et al.*, 2014; Vanalle *et al.*, 2017).

Table 2 shows that thecross-loading analysis produced enough data for discriminant validity in the current study.

Table 2. Cross Loadings

Items Code	Items	EGSCM	ENP	IGSCM	IP
EGSCM1	Awareness seminars for suppliers/contractors	**0.720**	0.636	0.651	0.701
EGSCM2	Provide design specifications to suppliers	**0.739**	0.601	0.687	0.611
EGSCM3	Choose suppliers by environmental criteria	**0.742**	0.679	0.636	0.633
EGSCM4	Resolve green practices related problems with customers	**0.754**	0.650	0.690	0.651
EGSCM5	Provide information to customers on environment-friendly products and/or production method	**0.742**	0.603	0.688	0.655
EGSCM6	Try to change for more environment-friendly transportation	**0.776**	0.628	0.664	0.705
EGSCM7	Eco-labeling	**0.779**	0.713	0.638	0.664
EGSCM8	Green packaging	**0.752**	0.663	0.682	0.658
EGSCM9	Take back packaging for recycling and reuse	**0.721**	0.667	0.620	0.610
ENP1	Air emission is reduced	0.659	**0.716**	0.601	0.653
ENP2	Waste water is reduced	0.693	**0.778**	0.700	0.616
ENP3	Solid wastes are reduced	0.666	**0.788**	0.660	0.652
ENP4	Energy consumption is reduced	0.667	**0.788**	0.667	0.713
ENP5	Environmental accidents are reduced	0.678	**0.746**	0.623	0.606
ENP6	Environmental compliance is improved	0.646	**0.787**	0.717	0.659
IGSCM1	Environment-friendly raw materials	0.725	0.671	**0.790**	0.649
IGSCM2	Substitute environmentally questionable materials	0.631	0.700	**0.767**	0.661
IGSCM3	Take environmental criteria into consideration	0.676	0.598	**0.730**	0.602
IGSCM4	Recycle materials internal to the company	0.707	0.659	**0.757**	0.666
IGSCM5	Optimize process to reduce solid waste	0.771	0.671	**0.787**	0.667
IGSCM6	Optimize process to reduce air emissions	0.667	0.695	**0.751**	0.677
IGSCM7	Optimize process to reduce noise	0.630	0.639	**0.736**	0.540
IGSCM8	Use cleaner technology processes	0.618	0.617	**0.769**	0.594
IGSCM9	Committed to performing green practices	0.674	0.593	**0.748**	0.605
IGSCM10	Green manufacturing training	0.580	0.661	**0.720**	0.602
IP1	Central government environmental regulations	0.659	0.587	0.615	**0.735**

IP2	Regional government environmental regulations	0.668	0.708	0.618	**0.783**
IP3	Conflicts between products and environmental regulations	0.642	0.658	0.583	**0.733**
IP4	Buyers have a strong influence	0.651	0.605	0.688	**0.718**
IP5	Establishing enterprise green image	0.617	0.635	0.591	**0.751**
IP6	Competitor's a green environmental strategy	0.677	0.610	0.641	**0.741**
IP7	Professional environmental groups	0.648	0.599	0.598	**0.746**

Multicollinearity Analysis

Before analyzing the structural model of the research, the data should be examined for multicollinearity (Hair *et al.*, 2017; Hair et al. 2019). Table 3 shows the maximum multicollinearity value of 2.510, which is within the normal range. That's why multicollinearity is not the problem of the current study (Henseler et al. 2016).

Table 3. Collinearity Statistics (VIF)

Outer VIF Values				
Indicators (Measures)	**VIF**		**Indicators (Measures)**	**VIF**
IGSCM1	2.510		EGSCM7	2.121
IGSCM2	2.069		EGSCM8	1.938
IGSCM3	1.971		EGSCM9	1.760
IGSCM4	2.011		IP1	1.819
IGSCM5	2.319		IP2	1.874
IGSCM6	2.021		IP3	1.664
IGSCM7	1.848		IP4	1.720
IGSCM8	2.169		IP5	1.859
IGSCM9	2.101		IP6	1.707
IGSCM10	1.869		IP7	1.853
EGSCM1	1.819		ENP1	1.551
EGSCM2	2.018		ENP2	1.942
EGSCM3	1.939		ENP3	2.017
EGSCM4	2.111		ENP4	1.994
EGSCM5	2.060		ENP5	1.781
EGSCM6	2.271		ENP6	1.933

Structural Model

Because of recommended bootstrap samples of 5000 (Hair *et al.*, 2014; Vanalle et al. 2017), the current study conducted bootstrap analysis at 5000 samples. The link between independent variables (IGSCM, EGSCM, IP) and dependent variables (ENP) was investigated. SmartPLS 3 was used to calculate the path coefficients, significance, t-value, and standarderror using the bootstrapping approach. Figure 3 describes the outcomes of bootstrapping.

Results in Figure 3 show that all measures had a t-value > 1.96 therefore, all the measures were statistically significant (Marri et al. 2021).

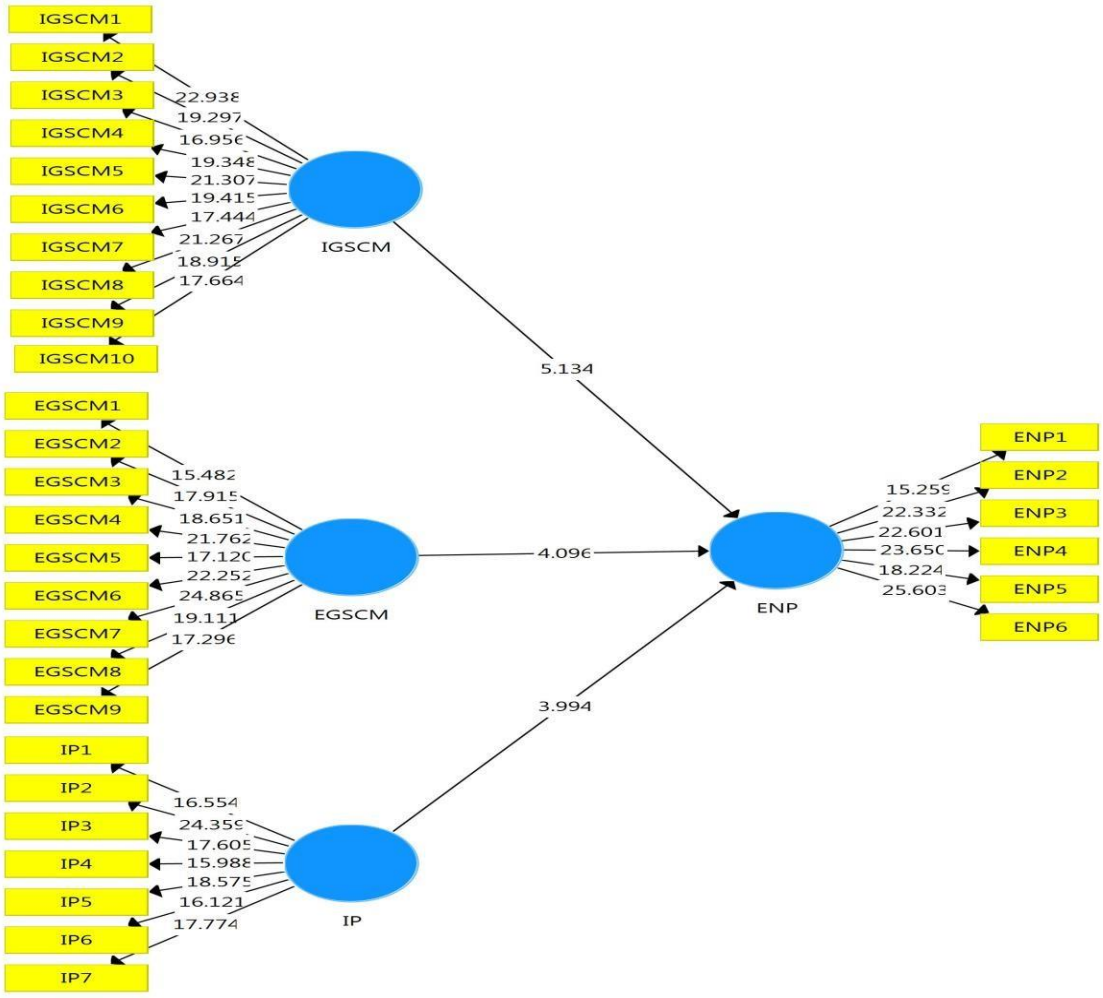

Figure 3. Structural Model (GSCM-IP-ENP)

All items of environmental performance were highly correlated with GSCM practices (internal as well as external practices) and institutional pressures, which means that GSCM practices (internal and external), and institutional pressures have a strong relationship with a firm's environmental performance as shown in Table 4.

Table 4. Latent Variable Correlations

Variables	EGSCM	ENP	IGSCM	IP
EGSCM	**1.000**	0.870	0.884	0.875
ENP	0.870	**1.000**	0.863	0.848
IGSCM	0.884	0.863	**1.000**	0.831
IP	0.875	0.848	0.831	**1.000**

The "coefficient of determination (R^2)" must be calculated to determine the model's adequacy (Marri et al. 2021). The coefficient of determination (R^2) was usedto evaluate and measure the structural model. R^2 values of 0.75 indicate strong, 0.50 indicates moderate and 0.25 indicates the weak effect of the independent variable(s) on thedependent variable (Hair et al. 2019). The variance in the dependent variable due to the independent variable is measuredwith R^2. Results of R^2 for environmental performance are shownin Table 5. Results showed that environmental performance had R^2 = 0.815, which showedthat there was a strong effect on environmental performance due to GSCM (IGSCM and EGSCM) Practices and institutional pressures.

Table 5. R Square

Variables	R Square	R Square Adjusted
ENP	0.815	0.814

Hypothesis Testing

This study tested the hypotheses using SmartPLS 3. Hypotheses testing and final decision for IGSCM practices, EGSCM practices, IP, and ENP are shown in Table 6.

Table 6. Hypotheses Testing Results and Decision

Hypotheses	Path / Relationship	Original Sample	Sample Mean	Standard Deviation	T Stat.	P Value	Decision
H_1	**IGSCM -> ENP**	0.355	0.355	0.069	5.134	0.000	Supported
H_2	**EGSCM -> ENP**	0.311	0.314	0.076	4.096	0.000	Supported
H_3	**IP -> ENP**	0.280	0.278	0.070	3.994	0.000	Supported

H_1 results (Internal GSCM Practices -> Environmental Performance) indicated a "Relationship coefficient" (β)=0.355, "T-statistics" = 5.134 with "P-value" = 0.000. So, our H_1 is supported with "T-statistics > 1.96 and P-value < 0.05" (Akter, Fosso Wamba and Dewan, 2017; Hair *et al.*, 2014; Hair et al. 2019). Hence, there was a "positive and significant relationship proved between internal GSCM practices and environmental performance".

H_2 results (External GSCM Practices -> Environmental Performance) indicated a "Relationship coefficient" (β)=0.311, "T-statistics" = 4.096 with "P-value" = 0.000. So, our H_2 is accepted with "T-statistics > 1.96 and P-value < 0.05" (Akter, Fosso Wamba and Dewan, 2017; Hair *et al.*, 2014; Hair et al. 2019). Hence, there was a "positive and significant relationship proved between external GSCM practices and environmental performance".

H_3 results (Institutional Pressure -> Environmental Performance) indicated a "Relationship coefficient" (β)=0.280, "T-statistics" =3.994 with "P-value" = 0.000. So, our H_3 is supported with "T-statistics > 1.96 and P-value < 0.05" (Akter, Fosso Wamba and Dewan, 2017; Hair *et al.*, 2014; Hair et al. 2019). Hence, there was a "positive and significant relationship proved between institutional Pressure and environmental performance".

Conclusion, Limitations, and Recommendations

The study found a substantial, positive, and statistically significant relationship between GSCM (IGSCM and EGSCM) practices, institutional pressures, and a firm's environmental performance. GSCM (IGSCM and EGSCM) practices and institutional pressures have a considerable impact on the environment. There is a significant decrease in natural resource usage as GSCM practices are implemented. Natural resources and energy use have a substantial impact on environmental performance. All the hypotheses were accepted and the research model of the study was validated.

The current study adds significantly to theory and practice. The GSCM-IP-ENP model was built using a comprehensive literature analysis and then validated using collected data from pesticide chemical firms in Pakistan. These findings will assist pesticide company management and will help the government to realize the value of GSCM practices in improving the environmental performance of various firms in Pakistan and throughout the world, particularly in developing nations. For environmental improvement, more detailed norms and government standards are required (Choi et al. 2018). In terms of applicability, this study assists pesticide chemical business leaders to better understand the importance of GSCM practices and institutional pressures for boosting the environmental performance of their firms. The study's findings are critical for the government and other stakeholders to maintain pressures on pesticide companies and other businesses to improve the GSCM practices.

This research has several limitations as well. The pesticide chemical corporations were included in the research since Pakistan is an agricultural country and the usage of pesticide chemicals is required for agricultural productivity and development (Akhtar and Soratana 2021). The study included only corporate-level firms having 10 years of firm age and a minimum of 100 employees because small firms do not have enough resources to adopt GSCM practices in their business operations (Geng et al. 2017). The studyis limited to GSCM practices, institutional pressures, and environmental performance. The quantitative research approach is followed because the quantitative method is suitable for theory testing by examining the relationship among variables of the study (Ming Heng et al. 2018). A quantitative technique is adopted since itallows for the collection of more data in less time. To get further insights, future studies might employ a mixed research technique that includes surveys as well as in-depth interviews.

The current study suggests that GSCM (internal and external) practices be focused on and applied by business managers to safeguard the environment and to enhance the environmental performance. GSCM-related activities like energy efficiency and reducing fossil fuel usage can enhance environmental performance (Ullah, Nadeem, et al. 2022). Policymakers are recommended to increase public pressure on pesticide firms to reduce unsustainable activities and to enhance the environmental quality. Government, consumers, the media, and other institutions should put pressure on pesticide chemical companies and other businesses to implement GSCM (internal and external) practices to enhance environmental performance. The government should also focus on assisting and, if required, subsidizing enterprises in successfully implementing GSCM methods for environmental protection.

The findings may be generalized to pesticide companies and other companies operating in other countries with comparable characteristics. The outcomes of this study may be

applicable in both developing and developed countries. Data collection was also restricted to Pakistan. It is suggested that future scholars undertake further studies in various nations focused on firm's financial performance. It is strongly advised that future research employ a mixed methodology. The study concludes that GSCM (internal and external) practices, as well as institutional pressures, have a statistically significant effect on a firm's environmental performance.

Conflict of Interest

"The authors declare no conflict of interest."

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