Green Supply Chain Management Practices as a Determinant of Organisational Competitiveness: An Empirical Study Among Hotels in India

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ABSTRACT

Manuscript type: Research paper

Research aims: The main aim of this study is to identify the indicators of green supply chain management (GSCM) practices for hotels that have an impact on environmental sustainability and organisational competitiveness.

Design/Methodology/Approach: This study employs a survey methodology with data collected from hotels in India. A structural equation modelling using warp partial least squares method (SEM) is used for data analysis and to test the hypotheses of the research model.

Research findings: The results of the study indicate that the three antecedents have a positive impact on environment sustainability, which in turn positively influence the competitiveness of the hotels.

Theoretical contribution/Originality: The study identifies the three GSCM antecedents that will impact environmental sustainability and organisational competitiveness, i.e., eco-friendly products, green internal environment and green management policy.

Practitioner/Policy implications: The hotel industry has begun to recognise that going green can result in higher initial costs, but can lower overall operating costs. The findings of the study indicate that the three green factors identified in the upstream, midstream and downstream of the hotel supply chain are necessary for hotels to survive in the long run.

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Research limitation: The study can be expanded to restaurants and fast food chains in other parts of the country to measure the adoption of green practices. As more hotels and restaurants spring up in developing countries, more research in green practices along the entire supply chain is essential to for environmental preservation.

Keywords: Green supply chain management, Hotels, Environment sustainability, Organisational competitiveness, Eco-friendly, India
JEL Classification: M110

1. Introduction

In the last few decades, the rapid deterioration of the environment has increased consumer consciousness about its preservation. The recent trend indicates that many companies have implemented green strategies to reduce the impact of climate change, global warming and toxic gas emissions on the environment. Companies are opting for eco-friendly practices to cope with rising energy prices and growing competition in the foreign market. Supply chain management (SCM), a technique introduced in 1970s, allows companies to effectively and efficiently transfer, store, transform and distribute goods. Typical SCM requires organisations to optimise different metrics ranging from inventory, cost, delivery and service. An integrated approach for environmental management is necessary for tackling the task of implementing green practices in the supply chain. Subsequently, environmental/green supply chain management (GSCM) emerged in the 1990s. GSCM advances environmental sustainability and offers a holistic approach to organisations, whereby procurement, production, distribution, product usage and the discharge of waste and by-products are carried out in a way which is less harmful to the environment. GSCM consists of the participation of purchasing activities that include eco-friendly design of products, end-of-life recycling, reuse and eventually replacement (Narasimhan & Carter, 1998).

Testa and Iraldo (2010) suggest that GSCM can improve brand reputation, foster first-rate relationships with stakeholders and stimulate employee motivation. As a result, firms and purchasers have agreed to make eco-friendly goods since they are worried about climate conditions, customers' well-being, and preservation of resources in order to protect the environment. Organisations are adopting eco-friendly practices as an inherent aspect of ethical practices in their processes, and are seriously targeting customers with their green practices and policies (Nagaraju & Thejaswini, 2014).

As GSCM practices are gaining momentum, many researchers have presented tangible evidence about how its implementation could enhance environmental sustainability. The hotel industry is among the industries which is promoting pollution-free cooking practices and food products, thereby mitigating environmental effects. This study reviews the existing literature to identify the various dimensions of green hotel management standards, and creates constructs based on those dimensions. The main aim of this study is to identify the indicators of GSCM practices that have an impact on environmental sustainability and organisational competitiveness.

2. Literature Review

Research on green practices in organisations has gained more attention over the last two decades. Researchers have focused on creating a basic foundation for the implementation of GSCM leading to environmental sustainability. Davidson and Worrell (2001) find that the decision of a company to implement GSCM practices is frequently correlated with regulatory pressures. These strains stem from threats of sanctions and fines for non-compliance. Andrews et al. (2003) find that regulatory pressures could motivate organisations to embrace sustainable environmental practices, develop collaborative partnerships, and seek more non-regulatory ways to improve the environment. As policymakers are expanding their initiatives to promote the implementation of environment management system and GSCM practices, the less intrusive types of regulatory pressures are becoming increasingly important. Hervani et al. (2005) address GSCM activities, including green production design, procurement, manufacturing, marketing, distribution of the finished product, recycling and source of content. Adeyoyin (2005) describes green marketing as the activities planned to generate any exchange intended to meet or want to meet human needs with less harm caused to the environment. It includes designing products, finalising prices, promoting and selling goods in a way that will not yield any adverse environmental effects. Duber-Smith (2005) lists the factors as to why green practices should be embraced by organisations, i.e., target marketing, resource sustainability, lower cost/ increased performance, competitive advantage in the market and differentiation of product, competitive and supply chain pressures, regulatory adaptation and risk mitigation and brand credibility.

Bonilla and Aviles (2008) identify the 10 important social and environmental sustainability concerns which are vital for the success of the organisation, which includes usage of renewable energy, water

management, waste disposal management, usage of non-hazardous chemicals, purchasing behaviour of customers, biodiversity and nature conservation commitment, community development and purchasing behaviours. Walker et al. (2008) split GSCM practice drivers into two parts, internal and external. The internal drivers involve organisational variables, while legislation, consumers, rivals, culture, and suppliers are the external drivers. Compared to internal drivers, they find that external drivers have a great impact. Routroy (2009) illuminates green production as producing goods that are environmentally sustainable while reducing energy and waste. The role of green manufacturing includes carrying out activities that consume less energy and raw materials and also mitigate pollution. Zhu et al. (2010) evaluated manufacturers' experience on environmental pressures to implement GSCM practices. They find that market and regulatory pressures from the government drive organisations to have set practices, e.g., designing eco-friendly products and following green purchasing choices, to improve environmental performance.

Diabat and Govindan (2011) developed an interpretive model using 11 factors that drive GSCM implementation. The factors were ranked based on their effective influence. They conclude that government regulation, legislation and reverse logistics are significant drivers to achieve association between product design and the suppliers that can subsequently eliminate environmental impacts. Khidir and Zailani (2011) show that firms respond to regulations and pressing needs from the customers that mandates them to adopt green supply chain initiatives. This decision is based on the assessment of the benefits attained by the firm by embracing these practices. Kung et al. (2012) show that green packaging practices include the abridging of packaging, the use of paper wrapping, the removal of hazardous packaging materials and the use of easily disposable packaging. DiPietro et al. (2013) reveal the various activities caused by the food industry, which will damage the environment through undue utilisation of natural resources such as water, electricity and gas, using damaging harmful chemicals in production, ineffective recycling procedures particularly contributing to carbon emissions through the regular transfer of produce. Wang et al. (2013) study the broad definition of the management of the sustainable food supply chain as an inter-organisational coordination, consisting of various components such as green marketing, green buying, green design, and green development.

Luthra et al. (2015) study how the essential success variables for implementation of green supply chain interact with each other. Abdel-Baset et al. (2019) find that a proactive approach, like GSCM, is essential to attain competitive advantage and promote environmental performance. Khan (2017) measures green supply chain practices using five determinants, i.e., green purchasing, green manufacturing, green information systems, eco-friendly design and cooperation with customers. Al-Sheyadi (2019) examines the combined effect of internal and external GSCM practices on two facets of performance measures of environment, i.e., environmental impact and cost savings. Bag et al. (2020) find that green supply chain technological dimensions, green supply chain strategy, green supply chain process, product complexity, and purchasing structure have an impact on firm performance. Do et al. (2020) emphasise that internal environmental management has a significant impact on the external environment. Habib et al. (2021) reveal that entrepreneurial orientation and market orientation towards environmental conservation significantly influences GSCM practices, thereby impacting sustainable firm performance. The above highlights the progression of research in GSCM practices for the last two decades. It also presents the drivers of GSCM practices and how it is linked to organisational performance.

2.1 Need for the Study

Based on the literature review above, it is evident that for marketplace entry, growth and sustainability, a business has no choice but to adopt environmentally-friendly practices. Going green has become the latest mandate for any customer who wants to demonstrate environmental consciousness. Different companies are putting in their best efforts to portray themselves as environmentally friendly in order to gain a loyal following among newly-informed customers. The hotel business is no exception. To attract these customers, most hotels encourage green practices in their daily operations and obtain certifications from independent auditing firms. An Ecotel certification indicates that the hotel is environmentally conscious in all facets of its operations. To be listed as an Ecotel, the hotel must meet all of the standards, in terms of energy efficiency, water conservation, environmental commitment, solid waste management, employee education and increasing community awareness. As a result, there is a growing need for environmentally-friendly practices in hotels. The hotel industry has begun to recognise that going green can result in higher initial costs, but can lower

overall operating costs while making guests happy. However, the industry also needs a lot of research focus to identify and encourage environmentally-sustainable practices. This study is a step towards that direction to highlight the GSCM practices required for hotel industry.

2.2 Hypothesis Development and Theoretical Framework

Organisations monitor their suppliers' environmental emphasis and efficiency, insist suppliers take necessary efforts to assure eco-friendly quality of their goods, and calculate the cost of waste in their operations as part of GSCM. The concept of GSCM has varied dimensions, ranging from green purchasing to an interconnected supply chain that flows from supplier to manufacturer and then to consumer, as well as reverse logistics. Green procurement services can encourage the organisations along the entire supply chain to design and package goods that use less resources in the manufacturing process, produce minimal waste, and make products that are easily recycled. According to Hayami et al. (2015), encouraging suppliers to minimise waste can lead to eco-friendly product designs and innovations in the production process, which contribute to increased competitive advantage. Kemp and Never (2017) suggest that a green transition approach to a cleaner and more energy-efficient production process through green management policy benefits organisations. In hotels, green packaging is essential to minimise the waste of food. But the packaging materials can be very hazardous to nature (Saad, 2016). Green practices also include design and materials used in green products, green packaging costs and marketing strategies (Wandosell et al., 2021). Hence, green eco-friendly products comprising of green procurement, green production and packaging are essential components of GSCM practices that can drive the firm towards sustainability. Based on the above literature, the following hypothesis is derived:

H_1: Green eco-friendly products have an impact on environment sustainability

Wang et al. (2013) indicate that green environment and equipment is an essential factor for establishing green management standards in hotels. Weinstein et al. (2005) consider the design and construction of dining environments, including exterior and interior architecture, as well as management processes and facilities—e.g., minimising resource consumption, using recycled materials, composting, and waste auditing—as part of creating an

environmentally-sustainable foodservice operation. Focusing on green menus, green cooking practices, and green service to customers, as well as providing them with an organic, clean, and eco-friendly environment helps in implementing green practices in hotels. Zhang et al. (2021) find that green dining intentions in restaurants influence green marketing strategies to improve firm performance. According to Schubert et al. (2010), customers are willing to pay more to dine in 'green' restaurants. Ahn and Pearce (2013) indicate that green construction practices that create a natural and luxurious environment enhance a hotel's reputation and financial position. They further suggest that sourcing green cleaning materials can reduce the exposure of guests and staff to harsh chemicals. Jovanović (2019) suggest that orientation towards green construction and using environmentally-friendly cleaning products provides a friendly attitude towards a sustainable environment. Hence, a green internal environment, comprising of a green kitchen, dining ecosystem, green washing and cleaning, contributes towards an organisation's GSCM practices. Therefore, the following hypothesis is derived:

H_2: Green internal environment has an impact on environment sustainability

To enhance environmental performance and minimise waste disposal, businesses should adopt GSCM that results in increased productivity and foster good relationships between business partners. Chen et al. (2021) argue that an organisation should adopt environment protection policies not only to abide by a country's legislation, but also to improve its green image. Mustapha et al. (2017) indicate that a systematic and integrated management of information and resources via the green management system will lead to organisational sustainability. Schubert et al. (2010) emphasise that green restaurants should focus on communicating the positive results of green action practices to the customers to make them aware about the benefits. Chen and Chen (2012) indicate that hotels can achieve green standards through five parameters, i.e., green purchasing, environmental policy, management system, employee education, and consumer education. Educating customers about eco-friendly practices is essential to make them understand management policies (Kemp & Never, 2017). Babiak and Trendafilova (2011), meanwhile, place great emphasis on strategic motives for engaging in environmentally-focused corporate social responsibility (CSR) initiatives. Shahzad et al. (2020) indicate that CSR activities should be deeply rooted in an organisation's strategies for green innovation

and advantage. Green management policies, such as organisational strategies, consumer awareness about green practices and societal responsibility, are essential to drive the organisation towards green practices. Therefore, the following hypothesis is derived:

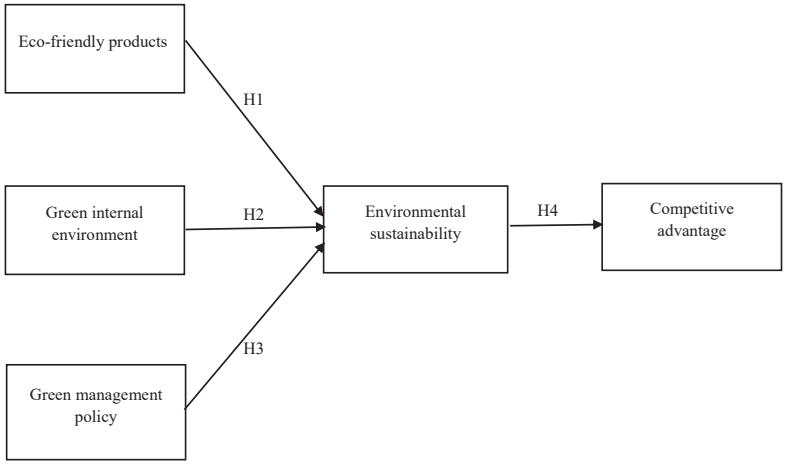
H_3: Green management policy has an impact on environment sustainability

Cosimato and Troisi (2015) indicate that GSCM practices are process-oriented to make it a sustainable and environmentally-friendly approach. Green practices do not necessitate a large financial commitment, but can result in immediate financial gains. Hayami et al. (2015) suggest that GSCM practices can lead to green products, processes, and managerial innovations, as well as an increased competitive advantage. Fraj et al. (2015) indicate that proactive environmental strategy and innovation favour organisational competitiveness. Based on the literature cited above, when a company adopts green practices, it will boost its reputation, attract new customers who are environmentally conscious, and better serve existing customers, ensuring a higher overall market position. Therefore, the following hypothesis is derived:

H_4: Environmental sustainability has an impact on organisational competitiveness

The theoretical framework of the present study is derived from a thorough examination of the literature and the formulation of hypotheses. The three constructs under GSCM practices, such as eco-friendly products, green internal environment and green management policy, are the antecedents, while environmental sustainability and organisational competitiveness are the consequents. The hypotheses that will be investigated are depicted in Figure 1.

Figure 1: Conceptual model



3. Methodology

3.1 Questionnaire

The research instrument consists of a comprehensive list of questionnaire items required to measure the constructs. The constructs and the questionnaire items are generated from the extensive review of literature. After deriving the variables required for the study, it was ensured that the questionnaire items would be easily understandable by respondents. The questionnaire was constructed using five-point Likert scale. In the questionnaire, 5 represents 'strongly agree' and 1 represents 'strongly disagree'. The questionnaire is divided into three sections. The first section captures the demographic details of the respondents. The second measures the independent variables, i.e., eco-friendly products, green internal environment and green management policy. The last section captures the dependent variables, i.e., environmental sustainability and competitive advantage. A pilot study of 45 respondents was undertaken to see if the study was feasible and to check if the items contained in the questionnaire were appropriate. This ensured that the questionnaire items captured the necessary data. Based on the inputs from the pilot study, minor changes were made to some of the questionnaire items. This modified questionnaire was used for further data collection. Table 1 describes the constructs and the number of questionnaire items in each construct.

Table 1: Explanation of constructs

Constructs	Explanation	Questionnaire
Eco-friendly products	The extent to which hotels have practices such as green purchasing, green cooking and green food packaging practices which are essential for GSCM	Fourteen questionnaire items to capture eco-friendly products, five each for green purchasing and green cooking, and four for green packaging
Green internal environment	The extent to which businesses have established structured processes for managing green kitchen equipment, eco-friendly dining environment, and green washing and cleaning practices that contributes to GSCM practices	Fifteen questionnaire items to capture green internal environment with five for each sub-construct
Green management policy	The extent to which hotels practice green organisation strategies, green consumer education and green societal responsibility that contributes to the adoption of GSCM practices	Twelve questionnaire items to capture green management policy, with six questions for green organisational strategies, and three each for the green consumer education and green societal responsibility sub-constructs
Environmental sustainability	The extent to which hotels are environmentally sustainable in terms of resource efficiency and waste management	Eight questionnaire items with four questions for each sub-construct
Organisational competitiveness	A comparison of hotel's position with respect to profitability in the current year, profitability for the past five years, gross profit and the ability to achieve organisation's objectives	Five questionnaire items for the construct

3.2 Data

India is a developing country with numerous large and small-scale industries contributing to its economy. The tourism industry is one among these, which attracts both domestic and international tourists. Kerala is a tourist hub with nature spread across the entire state. Hotels and restaurants are abundant, and play an important role in promoting travel and the tourism industry. This sector is diversifying into different allied segments, such as medical tourism and heritage tourism, with thousands of tourists travelling to the state to enjoy the natural and scenic environment of its backwaters. As per a 2019 survey conducted by the Research and Statistics Division of Kerala's Department of Tourism, there are 505 hotels that are approved by the Ministry of Tourism. The hotels that have adopted green management standards and with three-star and above ratings were selected to be included in the sample. The respondents were the managers who managed the daily operations of the hotel. The questionnaire was distributed to the managers online. Of the 166 responses recorded online, 142 were fully completed. Hence, the total sample size of the study is 142. Of the responses received, 81 hotels were three-star, 46 were four-star and 15 were five-star rated firms.

3.3 Analytical Criteria

WarpPLS, a software with a graphical user interface, was used to develop the structural equation model (SEM). WarpPLS can be used for modelling direct effect and moderating effects among the latent constructs. The path analysis technique in SEM allows the use of a set of indicators to measure the relationships (Tenenhaus et. al., 2005) between the latent constructs used in the study. The hypothesis is tested and accepted or rejected by comparing the p-values with a 5% level of significance.

4. Analysis

4.1 Reliability and Validity

The instrument was presented to a group of professionals in the field of supply chain management to guarantee that the questions included within were easily understandable and answerable by respondents, and as well as to ensure that it had the required content validity. These professionals were requested to examine the instrument and provide suggestions. The suggestions were given due consideration, and questionnaire items were either added, deleted or

suitably modified to make the questionnaire more understandable and purposeful. Thus, the content validity of the questionnaire was confirmed.

Reliability is a measure used to understand whether the research instrument is providing accurate and consistent results. It evaluates the measuring instrument's relative lack of errors; the lower the error, the more reliable and accurate the results. Internal consistency is one of the approaches for determining scale reliability by evaluating the similarity of a set of questionnaire items that measure a specific construct. Cronbach's alpha was used to test the internal consistency of the measurement scale. If Cronbach's alpha is more than 0.7, the scale is reliable (Nunally, 1978). Table 2 shows that the Cronbach's alpha values for the constructs in this study are higher than 0.7, and the composite reliability values are greater than 0.7 (Hair et al., 2012) which shows a good internal consistency among the items in the scale. The average variance extracted (AVE) values of the constructs that are more than 0.5 are said to possess convergent validity (Barclay et al., 1995). AVE values greater than 0.45 are recommended for newly-developed scales, and values greater than 0.5 are required for others (Fornell & Larcker, 1981). In this study, the AVE values are above 0.5, representing the convergent validity of the questionnaire items. Confirmatory factor analysis (CFA) was done to verify the factor structure of the set of predictor variables. CFA tests whether the relationship exists between the observed variables and their latent constructs. The factor loadings for all the items are greater than 0.6 (Awang et al., 2014). So, it is concluded that all the constructs are reliable and fit for further analysis.

Table 2: Assessment of measurement quality of model constructs

Construct	Items	Factor loadings	Cronbach's alpha	CR	AVE
Eco-friendly products	EFP1	0.889	0.972	0.975	0.735
	EFP2	0.919			
	EFP3	0.826			
	EFP4	0.854			
	EFP5	0.759			
	EFP6	0.889			
	EFP7	0.919			
	EFP8	0.826			
	EFP9	0.854			
	EFP10	0.759			
	EFP11	0.889			
	EFP12	0.919			

Construct	Items	Factor loadings	Cronbach's alpha	CR	AVE
	EFP13	0.826			
	EFP14	0.854			
Green internal environment	GE1	0.687	0.939	0.946	0.541
	GE2	0.656			
	GE3	0.687			
	GE4	0.708			
	GE5	0.691			
	GE6	0.717			
	GE7	0.729			
	GE8	0.673			
	GE9	0.702			
	GE10	0.821			
	GE11	0.802			
	GE12	0.804			
	GE13	0.801			
	GE14	0.759			
	GE15	0.773			
Green management policy	GMP1	0.872	0.952	0.958	0.657
	GMP2	0.861			
	GMP3	0.738			
	GMP4	0.762			
	GMP5	0.750			
	GMP6	0.872			
	GMP7	0.861			
	GMP8	0.738			
	GMP9	0.762			
	GMP10	0.750			
	GMP11	0.872			
	GMP12	0.861			
Environmental sustainability	ES1	0.897	0.959	0.965	0.776
	ES2	0.886			
	ES3	0.849			
	ES4	0.897			
	ES5	0.886			
	ES6	0.849			
	ES7	0.897			
	ES8	0.886			
Organisational competitiveness	OE1	0.811	0.897	0.924	0.709
	OE2	0.871			
	OE3	0.812			
	OE4	0.868			
	OE5	0.846			

Squares of correlations among the constructs were calculated and compared with AVE values. The values given in the diagonal in Table 3 represent the square root of AVE. The other values represent the correlation values of the construct with other constructs. The squares of the correlations among the constructs were less than the AVE values, showing that the questionnaire items possessed good discriminant validity (Fornell & Larcker, 1981; Hair et al., 2012). Thus, the questionnaire was not refined further, and the instrument was used for collecting data from the respondents. The correlations among the independent variables and the square roots of AVEs are shown in Table 3.

Table 3: Square roots of AVE values and correlations of constructs

Constructs	Eco-friendly products	Green internal environment	Green management policy	Environmental sustainability	Organisational competitiveness
Eco-friendly products	(0.857)*				
Green internal environment	0.486	(0.736)*			
Green management policy	0.413	0.470	(0.811)*		
Environmental sustainability	0.428	0.349	0.678	(0.881)*	
Organisational competitiveness	0.579	0.506	0.501	0.534	(0.842)*

*Square roots of AVEs shown diagonally.

The full collinearity variation inflation factor (VIF) values of the constructs are shown in Table 4. For a well-fitting model, the VIF values should be less than 4.0 (Barclay et al., 1995). But some studies also use a more lenient criterion of 5.0. In this study, the VIF values of all the constructs are less than 3.5, indicating that there is no collinearity with the constructs.

Table 4: Variation inflation factor

Constructs	VIF
Eco-friendly products	2.351
Green internal environment	2.048
Green management policy	3.057
Environmental sustainability	2.723
Organisational competitiveness	2.495

4.2 Descriptive Statistics

To determine the extent of green practices among hotels, the mean value of the sub-constructs for each construct was calculated. The mean value of sub-constructs of eco-friendly products is shown in Table 5. The results show that the average values of the questions in the instrument are more than 3.0. This indicates that green food practices are resilient among the hotels. The most important indicator in green food practices is green cooking practices and menu planning, which has the highest mean value of 4.21. The second most important indicator is green procurement, with a mean value of 3.97, and the third is green food packaging, with a mean value of 3.86. The results indicate that the respondents strongly agree with green food practices in the hotel business. Hence, it is concluded that the main indicators to measure green food standards are healthy cooking habits, using certified safe ingredients, and adopting food safety regulations in hotels.

Table 5: Descriptive statistics of sub-constructs of eco-friendly products

Sub-constructs of eco-friendly products	Mean score
Green purchasing	3.97
Green cooking practices	4.21
Green food packaging	3.86

The mean values of sub-constructs of the construct green internal environment are given in Table 6. The results show that all the mean values are more than 3.0, indicating that the hotels agree with having an eco-friendly internal environment. The results indicate that the most important indicator which attracts more customers to hotels is a green dining environment, with the highest mean value of 4.26. The second important indicator is green kitchen equipment, with a mean value of 4.03, and the third is green cleaning and post-treatment, with a mean value of 3.7. Hence, it is concluded that the important requirements for green internal environment are good air quality without any pollutants, and no smoke smell and other unpleasant odours in the restaurants. Also, regular cleaning and maintenance of the kitchen equipment, recycling of hazardous waste materials, and appropriate use of natural lighting are the main factors for maintaining green practices at the hotels.

Table 6: Descriptive statistics of sub-constructs of green internal environment

Sub-constructs of green internal environment	Mean score
Green kitchen equipment	4.03
Green dining eco-system	4.26
Green washing and cleaning	3.7

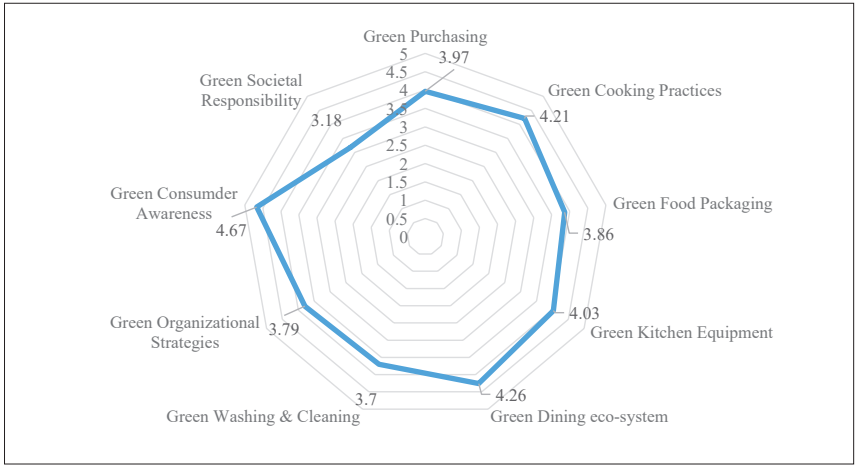
The mean value of sub-constructs of green management policy is given in Table 7. The results show that the mean values are more than 3.0, indicating a strong presence of green management standards. It is found that the most important indicator in green management and social responsibility standard is green consumer education, with a high mean value of 4.67, followed by green management policy, with a mean value of 3.79, and green CSR, with a mean value of 3.18. Hence, it is concluded that by encouraging customers to pack excess food to avoid wastage, increasing customer awareness with a green menu, posting slogans and posters in the dining area about reducing energy and water consumption, and encouraging customers to be responsible citizens help to maintain green practices.

Table 7: Descriptive statistics of sub-constructs of green management policy

Sub-constructs of green management policy	Mean score
Green organisational strategies	3.79
Green consumer awareness	4.67
Green CSR	3.18

To summarise, a radar graph with all GSCM practices is drawn (Figure 2). The graph shows that green consumer education is very important, with the highest mean value of 4.67, because they are the main stakeholders and participate in the daily operations of the hotels. The green dining and environment is the second most important indicator with a mean value of 4.26, followed by green menu planning and cooking, with a mean value of 4.21.

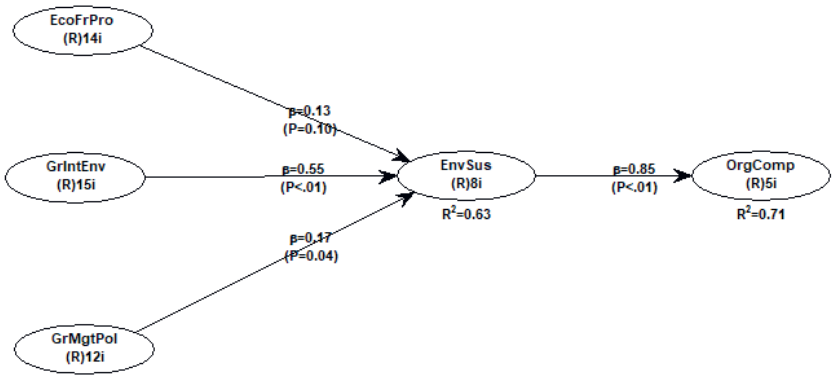
Figure 2: Radar graph of dimension of GSCM practices



4.3 Structural Equation Modelling

A structural equation model (SEM) using warp partial least squares was developed to validate the theoretical framework of the study (Figure 3). The p-values of all the path coefficients of the model were less than 0.05 level of significance. This indicates that the path coefficients were statistically significant. The relationship between eco-friendly products and environmental sustainability is found to be significant ($\beta = 0.13$ and $p = 0.010 < 0.05$), therefore H1 is accepted. This indicates that there is a positive relationship between the two constructs, and shows that green purchasing and cooking practices influence a hotel's environmental sustainability. The relationship between green internal environment and environmental sustainability is found to be significant ($\beta = 0.55$ and $p < 0.01$), therefore H2 is supported. Furthermore, the relationship between green management policy and environmental sustainability is significant ($\beta = 0.17$ and $p = 0.04 < 0.05$), therefore H3 is also supported. This indicates that a hotel's green organisational strategies, enhanced consumer awareness about eco-friendly practices, and CSR are positively impacting its environmental sustainability. Finally, the relationship between environmental sustainability and organisational competitiveness is also found to be significant ($\beta = 0.85$ and $p < 0.01$), supporting H4. This indicates that hotels that are able to practice GSCM standards have a competitive advantage and are able to sustain in the market in the long run.

Figure 3: Validated research model



5. Discussions

The results confirm that green practices are implemented in the supply chain management of the Indian hotel industry. The validated structural equation model given in Figure 3 provides evidence that GSCM practices, such as eco-friendly products, green internal environment, and green management policy provide environment sustainability, thereby giving organisations an advantage over their competitors. This outcome is in line with past results (Alananzeh et al., 2017; Chen et al., 2021; Kerdpitak, 2019). H1 is supported, indicating that hotels should take up green procurement at the ground level and create awareness as a basic necessity. This has two advantages—it will not only help the hotels in further implementing green practices, but will also be useful in increasing the market for green products. There will be an increase in the employment opportunities in green ventures, thus creating new job opportunities and helping the economy. Hotels' operational practices need to move from conservative to contemporary practices, by developing and providing effective eco-friendly practices with continuous upwards gradation of the products, and making necessary changes in the production process as per the competition in the market. Green procurement services can help contribute to the hotels' desired outcomes by encouraging the entire supply chain to procure ingredients that are grown locally and reducing food miles; design healthy foods that consume less energy in preparation; and use packaging that consume less resources, produce minimal waste, and are easily recycled.

H2 is supported, indicating that a green internal environment has a significant impact on environment sustainability. To minimise the carbon footprint and pollution, hotels should renovate and maintain their cooking amenities and equipment. They should replace old equipment periodically with newer energy-conserving appliances that require less cleaning and maintenance. The dining space should have natural lighting with complete aeration so that energy consumption is reduced. The most important benefits in the adoption of GSCM standards in hotels is reduced resource consumption, less carbon dioxide emissions and defect elimination in the manufacturing process, as well as the recycling of reusable materials. The dining environment should have recycling spots to classify waste that is biodegradable. These factors lead to quality improvement and efficiency in hotel operations, and contributes to total quality environmental management and customer satisfaction.

Subsequent to green internal environment practices, H3 is also significant, indicating that green management policies influence the sustainability of hotels. This means that educating customers to reduce food and water wastage should be a mandate for hotels. This will go a long way in reducing the scarcity of essential resources. Moreover, hotels should offer incentives to guests who participate in green practices, which will encourage them to behave in a more environmentally friendly manner. The guests will feel motivated to participate if they get personal benefits, like discounts on their next bill, or a complimentary facility during the current stay. As a result, more guests will participate in the implementation of eco-friendly practices in hotels. Also, hotel associations should get involved in increasing awareness about green practices, as well as advise existing and upcoming hotels on how to incorporate these practices.

H4 is also supported by the study, indicating that environmental sustainability will provide a competitive advantage. This shows that green practices do not necessitate a large financial commitment but will result in immediate financial gains. For instance, by optimising the usage of water and energy, as well as adopting waste recycling practises, overall operating costs can be reduced. This improves environmental performance and increases productivity, thereby providing a competitive advantage to hotels. It is suggested that the state government should take up the challenge of promoting green hotels aggressively, and offer incentives in the form of investment aid or subsidies to the hotels that incorporate green practices in their day-to-day operations.

6. Practical Implications

This research study aims to contribute to the current body of literature by presenting new evidence and methodological insights about the effect of GSCM practices on environmental sustainability. The green hotel management standards identified in this study provide operational strategies for hotel managers to establish and manage a green hotel. According to the GSCM practices identified in this study, it is feasible to decrease detrimental environment imprints by performing green production, green food services, energy conserving processes, and green management standards. This research also has implications to the academic community, where the results can be used to design innovative curricula for green hotel management courses. This can help to expand the hotel industry's green management knowledge pool. This study provides insights to all hotel industry stakeholders about the construction of a green supply chain that will bring them long-term benefits. The results also imply that consumer participation is evident in balancing the green supply chain. This research also provides input to government and regulatory bodies to frame policies regarding the development of a green hotel supply chain, and inform suppliers and customers about green practices. Hence, it is concluded that green management standards have a significant positive relationship with environmental sustainability, which in turn impacts the competitiveness of the firms to excel in the market.

7. Conclusion and Scope for Further Research

CSR, hygiene and safety are the most discussed topics in hotel industry. This industry has impacted the environment directly by generating too much waste and improper treatment of that waste. Hotels are considered to be one of the world's least sustainable economic sectors owing to its dynamic nature (Wang et al., 2013). This study is the need of the hour to enforce green practices for a sustainable advantage. Green management refers to managing organisations in a pollution-free manner, mainly preserving resources, climate and culture. This study identifies three dimensions of GSCM standards for the hotel business, which has an impact on the utilisation of raw materials, environment and consumers. The first factor is producing eco-friendly products, which is concerned with upstream (suppliers) and midstream (hotels) of the supply chain. The first factor includes sub-factors, such as green or organic raw material procurement, green menu planning and cooking and green packaging

for takeaways. The second factor is green internal environment, which is concerned with the midstream of the supply chain. This includes green kitchen equipment, a green dining environment, and the washing and cleaning process. The third factor is green management policy and social responsibility, which is concerned with the downstream (consumers) of the supply chain. The third factor includes societal responsibility, green consumer education and policies regarding green management. This study further emphasises that green practices will lead to environmental sustainability and has a significant effect on revenue, which will provide a competitive advantage for these hotels to succeed in the long run.

This study emphasises the necessity of green practices at hotels. The study can be expanded to restaurants and fast-food chains in other parts of the country to measure the adoption of green practices. As more and more hotels and restaurants spring up in developing countries, more research in green practices in the entire supply chain is essential to save the environment in future.

References

Abdel-Baset, M., Chang, V., and Gamal, A. (2019). Evaluation of the green supply chain management practices: A novel neutrosophic approach. *Computers in Industry*, *108*, 210-220. https://doi.org/10.1016/j.compind.2019.02.013

Adeyoyin, S. O. (2005). Strategic planning for marketing library services. *Library Management*, *26*(8/9), 494-507. https://doi.org/10.1108/01435120510631783

Ahn, Y. H., and Pearce, A. R. (2013). Green luxury: A case study of two green hotels. *Journal of Green Building*, *8*(1), 90-119. http://dx.doi.org/10.3992/jgb.8.1.90

Alananzeh, O., Algiatheen, N., Ryati, R., Albayyari, R., and Tarhini, A. (2017). The impact of employee's perception of implementing green supply chain management on hotel's economic and operational performance. *Journal of Hospitality and Tourism Technology*, *8*(3), 395-416. https://doi.org/10.1108/JHTT-02-2017-0011

Al-Sheyadi, A., Muyldermans, L., and Kauppi, K. (2019). The complementarity of green supply chain management practices and the impact on environmental performance. *Journal of Environmental Management*, *242*, 186-198. https://doi.org/10.1016/j.jenvman.2019.04.078

Andrews, R. N., Amaral, D., Darnall, N., Gallagher, D. R., Edwards Jr, D., and D'Amore, C. (2003). Do EMSs improve performance? *National Database on Environmental Management Systems Project Final Report*. https://p2infohouse.org/ref/32/31028/ems/volumeii.pdf

Awang, Z., Afthanorhan, A., Mohamad, M., and Asri, M. A. M. (2015). An evaluation of measurement model for medical tourism research: the confirmatory factor analysis approach. *International Journal of Tourism Policy*, *6*(1), 29-45. https://doi.org/10.1504/IJTP.2015.075141

Babiak, K., and Trendafilova, S. (2011). CSR and environmental responsibility: motives and pressures to adopt green management practices. *Corporate Social Responsibility and Environmental Management*, *18*(1), 11-24. https://doi.org/10.1002/csr.229

Bag, S., Gupta, S., Kumar, S., and Sivarajah, U. (2020). Role of technological dimensions of green supply chain management practices on firm performance. *Journal of Enterprise Information Management*. https://doi.org/10.1108/JEIM-10-2019-0324

Barclay, D. W., Higgins, C., and Thompson, R. (1995). The partial least squares (PLS) approach to causal modeling: Personal computer adaptation and use as an illustration. *Technology Studies*, *2*(2), 285-309.

Bonilla Priego, M. J., and Aviles Palacios, C. (2008). Analysis of environmental statements issued by EMAS-certified Spanish hotels. *Cornell Hospitality Quarterly*, *49*(4), 381-394. http://dx.doi.org/10.1177/0010880407307766

Chen, M. H., Wei, H., Wei, M., Huang, H., and Su, C. H. J. (2021). Modeling a green supply chain in the hotel industry: An evolutionary game theory approach. *International Journal of Hospitality Management*, *92*, 102716. https://doi.org/10.1016/j.ijhm.2020.102716

Chen, Y. C., and Chen, Y. T. (2012). The advantage of green management for hotel competitiveness in Taiwan: In the viewpoint of senior hotel managers. *Journal of Management and Sustainability*, *2*(2), 211-218. https://doi.org/10.5539/jms.v2n2p211

Cosimato, S., and Troisi, O. (2015). Green supply chain management: Practices and tools for logistics competitiveness and sustainability. The DHL case study. *The TQM Journal*, *27*(2), 256-276. https://doi.

org/10.1108/TQM-01-2015-0007

Davidson, W. N. III, and Worrell, D. L. (2001). Regulatory pressure and environmental management infrastructure and practices. *Business and Society*, *40*(3), 315-342. https://doi.org/10.1177/000765030104000305

Department of Tourism, Government of Kerala. *Kerala Tourism Statistics 2019*. https://www.keralatourism.org/tourismstatistics/tourist_statistics_2019_book20210306071249.pdf

Diabat, A., and Govindan, K. (2011). An analysis of the drivers affecting the implementation of green supply chain management. *Resources, Conservation and Recycling*, *55*(6), 659-667. https://doi.org/10.1016/j.resconrec.2010.12.002

DiPietro, R. B., Cao, Y., and Partlow, C. (2013). Green practices in upscale foodservice operations: Customer perceptions and purchase intentions. *International Journal of Contemporary Hospitality Management*, *25*(5), 779-796. https://doi.org/10.1108/IJCHM-May-2012-0082

Do, A., Nguyen, Q., Nguyen, D., Le, Q., and Trinh, D. (2020). Green supply chain management practices and destination image: Evidence from Vietnam tourism industry. *Uncertain Supply Chain Management*, *8*(2), 371-378. http://dx.doi.org/%2010.5267/j.uscm.2019.11.003

Duber-Smith, D. C. (2005). The green imperative. *SPC: Soap, Perfumery and Cosmetics*, *78*(8), 24-26.

Fraj, E., Matute, J., and Melero, I. (2015). Environmental strategies and organisational competitiveness in the hotel industry: The role of learning and innovation as determinants of environmental success. *Tourism Management*, *46*, 30-42. https://doi.org/10.1016/j.tourman.2014.05.009

Habib, M., Bao, Y., Nabi, N., Dulal, M., Asha, A. A., and Islam, M. (2021). Impact of strategic orientations on the implementation of green supply chain management practices and sustainable firm performance. *Sustainability*, *13*(1), 340. https://doi.org/10.3390/su13010340

Hair, J. F., Ringle, C. M., and Sarstedt, M. (2012). Partial least squares: The better approach to structural equation modeling? *Long Range Planning*, *45*(5-6), 312-319. http://dx.doi.org/10.1016/j.lrp.2012.09.011

Hayami, H., Nakamura, M., and Nakamura, A. O. (2015). Economic performance and supply chains: The impact of upstream firms' waste output on downstream firms' performance in Japan. *International Journal of Production Economics*, *160*, 47-65. https://doi.org/10.1016/j.ijpe.2014.09.012

Hervani, A. A., Helms, M. M., and Sarkis, J. (2005). Performance measurement for green supply chain management. *Benchmarking: An International Journal*, *12*(4), 330-353. https://doi.org/10.1108/14635770510609015

Jovanović, S. (2019). Green hotels as a new trend in the function of sustainable development and competitiveness improvement. *Economics of Sustainable Development*, *3*(1), 1-7. http://dx.doi.org/10.5937/ESD1901001J

Kemp, R., and Never, B. (2017). Green transition, industrial policy, and economic development. *Oxford Review of Economic Policy*, *33*(1), 66-84. https://doi.org/10.1093/oxrep/grw037

Kerdpitak, C. (2019). Effect of drivers pressures on green supply chain management performance within the hotel industry. *Polish Journal of Management Studies*, *20*. https://doi.org/10.17512/pjms.2019.20.2.24

Khan, S. A. R., and Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research*, *24*(20), 16829-16844. https://doi.org/10.1007/s11356-017-9172-5

Khidir, T. A., and Zailani, S. H. M. (2011). Greening of the supply chain through supply chain initiatives towards environmental sustainability. *Business Review*, *21*, 12-21.

Kung, F. H., Huang, C. L., and Cheng, C. L. (2012). Assessing the green value chain to improve environmental performance: Evidence from Taiwan's manufacturing industry. *International Journal of Development Issues*, *11*(2), 111-128. https://doi.org/10.1108/14468951211241119

Luthra, S., Kumar, S., Garg, D., and Haleem, A. (2015). Barriers to renewable/sustainable energy technologies adoption: Indian perspective. *Renewable and Sustainable Energy Reviews*, *41*, 762-776. https://doi.org/10.1016/j.rser.2014.08.077

Mustapha, M. A., Manan, Z. A., and Alwi, S. R. W. (2017). Sustainable green management system (SGMS): An integrated approach towards organisational sustainability. *Journal of Cleaner Production*, *146*, 158-172. https://doi.org/10.1016/j.jclepro.2016.06.033

Nagaraju, B., and Thejaswini, H. D. (2014). Consumers' perception analysis-market awareness towards eco-friendly FMCG products: A case study of Mysore district. *IOSR Journal of Business and Management*, *16*(4), 64-71. http://dx.doi.org/10.9790/487X-16456471

Narasimhan, R., and Carter, J. R. (1998). Linking business unit and material sourcing strategies. *Journal of Business Logistics*, *19*(2), 155-171.

Nunally, J., and Bernstein, I. (1978). *Psychometric theory*. New York: McGraw-Hill.

Routroy, S. (2009). Evaluation of supply chain strategies: A case study. *International Journal of Business Performance and Supply Chain Modelling*, *1*(4), 290-306. http://dx.doi.org/10.1504/IJBPSCM.2009.033746

Saad, M. M. (2016). The risk of using plastic packaging's in food industry referring to phthalate hazards. *Nutrition Food Technology*, *2*(2), 1-2. http://doi. org/10.16966/2470-6086.119

Schubert, F., Kandampully, J., Solnet, D., and Kralj, A. (2010). Exploring consumer perceptions of green restaurants in the US. *Tourism and Hospitality Research*, *10*(4), 286-300. http://dx.doi.org/10.1057/thr.2010.17

Shahzad, M., Qu, Y., Javed, S. A., Zafar, A. U., and Rehman, S. U. (2020). Relation of environmental sustainability to CSR and green innovation: A case of Pakistani manufacturing industry. *Journal of Cleaner Production*, *253*, 119938. https://doi.org/10.1016/j.jclepro.2019.119938

Testa, F., and Iraldo, F. (2010). Shadows and lights of GSCM: Determinants and effects of these practices based on a multi-national study. *Journal of Cleaner Production*, *18*(10-11), 953-962. https://doi.org/10.1016/j.jclepro.2010.03.005

Walker, H., Di Sisto, L., and McBain, D. (2008). Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of Purchasing and Supply Management*, *14*(1), 69-85. http://dx.doi.org/10.1016/j.pursup.2008.01.007

Wandosell, G., Parra-Meroño, M. C., Alcayde, A., and Baños, R. (2021). Green packaging from consumer and business perspectives. *Sustainability*, *13*(3), 1356. https://doi.org/10.3390/su13031356

Wang, Y. F., Chen, S. P., Lee, Y. C., and Tsai, C. T. S. (2013). Developing green management standards for restaurants: An application of green supply chain management. *International Journal of Hospitality Management*, *34*, 263-273. https://doi.org/10.1016/j.ijhm.2013.04.001

Weinstein, M., Gambatese, J., and Hecker, S. (2005). Can design improve construction safety? Assessing the impact of a collaborative safety-in-design process. *Journal of Construction Engineering and Management*, *131*(10), 1125-1134. http://dx.doi.org/10.1061/(ASCE)0733-9364(2005)131:10(1125)

Zhang, X., Shao, X., Jeong, E. L., and Jang, S. S. (2021). The effects of restaurant green demarketing on green skepticism and dining intentions: Investigating the roles of benefit associations and green reputation. *International Journal of Hospitality Management*, *97*, 103007. http://doi.org/10.1016/j.ijhm.2021.103007

Zhu, Q., Geng, Y., and Lai, K. H. (2010). Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications. *Journal of Environmental Management*, *91*(6), 1324-1331. https://doi.org/10.1016/j.jenvman.2010.02.013