

Environmental Performance: Role of Green Purchasing, Green Supply Chain Integration, and Management Commitment with Strategic Planning as Mediator

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Abstract- The main prime objective of this paper is to examine the impact of management commitment, green supply chain, and green purchasing on strategic planning and environmental performance. Moreover, mediating role of strategic planning between management commitment and environmental performance is explored in the current study as well. This study employed survey as a data gathering method and designed a structured questionnaire keeping in view the research objectives. At the data analysis stage, a second-generation technique is adopted, i.e. Structural Equation Modelling (SEM), with the purpose of avoiding limitations associated with first-generation techniques. Applying SEM technique allows the researcher to simultaneously determine a series of inter-dependent linkages. All relationships proposed in the study proved to be significant. The findings of the study are helpful for the policy makers of the Textile sector.

Keywords: Environmental performance, strategic planning, green purchasing, green supply chain, management commitment

1. Introduction

Currently, the environmental conditions of the earth are declining massively. Every year one day is denoted by the human for the awareness of earth related issues, but the damage done to the earth has crossed the limit [1]. This means that humans in current era are damaging the environment massively. The problems of the globe like depletion of ozone, scarcity of the resources, change in the climate, different types of pollutions, and destructions of the habitat are expanding on alarming stage and have exceeded at the worst level in last few years [2].

More recently, laws are made by the policy makers in order to control the depletion of resources, change in the climate, air pollution, sustainable development so the damages to the environment can be restricted. Organizations have started giving focus on environmental

performance to improve their image. It is very important for the organization to maintain balance among environmental as well as economic performance [3]. Organizations are getting under pressure because customers are also getting aware of environmental concerns. They do not want to use the products that can damage the climate and increase environmental problems. A number of different kinds of pressures are being faced by the organizations, which are asserted by the shareholders as well as stakeholders of the organization [4]. The environmental performance of the organization shows the commitment of the organization towards the natural environment. This shows the commitment to protect the natural environment. The set of activities is opted by the organization to mitigate the recycling activity, waste minimization, prevention of pollution and environmental release to be kept low. Moreover, environmental management system can also impact the performance of the organization [5].

If the organizations can maintain a friendly environment, they can maintain the environment safe and take the steps by which the eco-system of the planet is not damaged. Moreover, they can also get prevented from the heavy fine by the Gov.t to damage the environment. Moreover, organizations can also use the energy that can be renewable energy, or by using the recycling of the waste, organizations can minimize the cost of the business. In this way, the equity of the brand is increased and the image of the business is enhanced as well [5].

In the second half of the last century, the concept of planning has been evolved. The concept was started with city planning, which later expanded to program, planning, policy planning, advocacy planning, regional planning, and metropolitan planning. This planning is transitioned into the 21st century in the form of strategic planning to enhance performance. Later, planning of the firm is

established is well established concept in current literature [6].

The skilled and committed employees are an integral part of the organization because image of the firms is reflected by the commitment of the employees. Committed employees enhance the performance of the organization because the perception of the customers is positively impacted. Organizations are having the issue of the competition and priorities. Therefore, the commitments may increase the trade-off to some functions of the business in which others are neglected. A number of areas are impacted due to commitment made by the management. The areas include the attitude of the employee. Therefore, it's been suggested that actions of the organization must reflect the commitment of the employee and cause satisfaction among the employees [6]. The concept of supply chain management is the base of green supply chain management. This concept is evolved in the previous twenty years. The concept of supply chain is not more than 100 years old. Industry control and planning are covered in the concept of supply chain management. These activities are related to new customers, agents, suppliers, logistic management, exchange, and trade. As the awareness among the customers is increased, the organizations have begun to include the factors related to environment in all functions and sectors of the organization. Green technology is started to be integrated by the organization in the process of process of product distribution, production and design. This is the trend of gradual shifting the trends towards the supply chain that is environment friendly [7]

The researchers and organizations are giving more attention and paying attention to the aspect of green purchasing in the concept of supply chain management. Researchers revealed that the purchasing facility, which is environmentally friendly, effects the performance of the firm. It is done via reduction, recycling and reusing of the concept. The performance of the business is increased because of green purchasing concepts. Researchers claimed that green supply and purchasing is the important function of the activities related to supply chain. They are important to improve environmental performance by reducing waste and recycling [7].

This study contributes to the literature by mentioning interaction among the control elements. These elements play important role in the management of the environment which has impact on the environmental performance of the organization. all these, as a result, has impact on the financial outcomes of the organization. in order to deal with the pressure to optimize the performance of the organization related to environment, the findings of the study will contribute a lot [6,7].

The textile industry of Indonesia plays important role in the GDP of the country. The exports of this sector are annually more than 13 billion USD. The annual increase

in the textile industry of Indonesia is around five percent every year. This increases the importance of the firms of the textile industry to focus on the activities that can improve their environmental performance. Therefore, the objective of the present study is to examine the impact of management commitment, green supply chain, and green purchasing on environmental performance. Thus, the mediating role of strategic planning among management commitment and environmental performance is examined in the present study as well [5, 7].

2. Literature Review

2.1 Environmental performance

In the sphere of the business, different definitions have been offered for environmental performance. The commitment of organizations to protect and preserve the natural environment of the organization with the characteristics of multi-dimension is considered by researchers in the perspective of environmental performance these characteristics are such as the maintenance of the soil, air, water, etc. Effect on the natural environment such as waste generation, consumption of the resources and emissions by the business products and activities refers to another definition of environmental performance. Multiple components of environmental performance are listed by researcher as his part, which includes the conservation of the energy, reduction of the waste material, resources conservation, pollutant minimization, marketing of the safer products, and potential risks reporting, among others [8].

2.2 Strategic planning

It should be clarified that what's the strategy is, the major part while turning towards the research of strategic planning and strategy. 'Strategos' is the Greek word from which the word 'strategy' is originated, and meaning of this Greek word is 'the general art.' For the establishment of the connection which is viable among the environmental conditions of an organization, prolonged organizational objectives, and resources, strategic planning is the key by using different activities and methods [9].

For formulating the strategy, strategic planning is concerned. Bryson presents the strategic planning as the tool, process, and concepts in his seminal book on strategic planning on the non-profit sector and public for shaping that "what an organization does, what it is, and why an organization does it". The purpose of Bryson in long terms is to promote the ongoing thinking of strategic planning, learning, and acting. Objective analysis, thinking of the future, values, priorities, and goals subjective evaluation is blended by the 'big picture' approach of the strategic planning to chart the courses and direction of the future for ensuring the ability,

effectiveness, and vitality of an organization to add public value [9]

2.3 Management commitment

In occupational psychology, organizational commitment is the most frequent research form of commitment. Psychological identification or psychological attachment with an organization can be referred as the thought of organizational commitment. The level and nature of the commitment can be considered as specific project based due to the less extensively researched, such as safety intervention. The commitment of any individual for a specific project of organization can be related to his or her level of organizational commitment. This relationship of an individual depends upon the perception of the person for intervention to the organization as is not certain. In spite of overall organizational commitment low level of a person, it is possible that for a specific project a person could be committed low organizational commitment. It does not matter respectively in terms of genuine continuance, affective and enthusiasm of the manager by these entire bases for the success of an intervention. As long as necessary positive approach, time, and resources are contributed by the management on a specific project and role of the management in influencing the project's success is fulfilled. A desire to get the career organization or a general belief that a person should be committed to all activities of the work with all the sources of commitment for observers and management is the genuine belief in the project value. [10]

2.4 Green supply chain management (GSCM)

Extension of the green supply chain management is across the processes involved in manufacturing, management of the material, purchasing of the material, trading partners, distribution and reverse logistics of an organization. To ensure the minimal adverse impact on the environment the GSCM ensures that there is sharing of environmental responsibility. To evaluate the green performance of the quality of green product and direct overall management of the supplier's industries strive through GSCM system [11]

2.5 Green purchasing

Sustainable purchasing is the green purchasing called by [12] in their study. In supporting sustainability, they defined that green purchasing and relationship between the natural environment and product focus is significantly related to sustainability. Any service or product purchase which has minimal environmental impact is defined as green purchasing and comparable prices used to demonstrate the ethics and social responsibility is the part of green purchasing. To strike a balance between the ethical aspect, social impact, environmental effect, function, quality and cost the purchasing department

needs to focus while purchasing a product or service in accordance with qualified green purchasing activity. To increase sustainability of the environment organizations, adopt green purchasing strategies [12]. This is because for the organizational green eco-friendly products green purchasing function involves the procurement and selection of the green material to meet the green product requirement. Therefore, through environmental standards for reducing the non-green materials and waste green purchasing is referred as a strategic function.

Green purchasing involves the waste elimination and source reduction as the secondary benefits of implementing the green purchasing according to [12]. To control environmental problems an effective way for an organization or a firm is to focus on controlling and preventing the waste material by controlling the source through green purchasing. That company which progressively reduces packaging wastes such as non-biodegradable packages could increase the role of green purchasing the findings suggests

2.6 Management commitment and Environmental performance

In past a number of different studies are conducted in order to analyze the impact of management commitment of environmental performance. The research concluded that management commitment has significant impact of the environmental performance [13]

Without the support of the management it is not possible for the organizations to achieve its goals and achieve organizational objective. In order to achieve growth in the production of the organization, commitment of the management towards the improvement in the ecology is very important. Organizations have to go through a number of different trade-offs among cost increments and benefits related to monetary. In these conditions there is need of commitment by the management so the financial performance can be improved. Moreover, it will also result in boosting the environmental performance as well. Therefore, the top management should pay more attention and remain committed. Its been revealed by the researchers that environmental performance will be significantly impacted by the commitment of top management [14]. So, it is hypothesized that:

H1: Management commitment and Environmental performance are significantly related to each other.

2.7 Management commitment and Strategic planning

The highest decision-making body of any organization is the top management. The achievement of the goals and objectives is the responsibility of the top management as they are the executives or the highest officials in the organization [15]. Overall prosperity of the organization is

the responsibility of the organization as well because of multidimensional nature of the tasks associated with top management. Among the tasks of the top management, designing of the business process, strategies, goals and missions are mentioned. So, the executives or the top management must possess the skills through which they can manage the process of strategic effectively [15]. Researchers mentioned that they have the decision-making power because they have the position to decide regarding the failure or success of the organization [16]. Hence, hypothesis can be proposed as:

H2: Management commitment and Strategic planning are significantly related to each other.

2.8 Strategic planning and Environmental performance

Researchers in their study mentioned that for the better improvement in the environmental performance of the organization, there should be strategic alliance among procedures, plans and systems of the organization (Simons, 1994). The systems that are based on the measurements of the performance, monitoring, rules and limits are known as systems that are well strategized. Through these systems organizations can communicate strategic planning, commitment, management attention and core values. Through the management control there exist control of top management over the culture of the organization. this is the message sent to the remaining organization that all of the stakeholders of the organizations are involved in the decision-making process of the organization. all of the decisions are made to achieve the strategic objectives of the organization. Strategies that are properly set help in setting the important tasks and the ways to achieve these tasks. The natural business environment is under scrutiny in recent past. A number of different stakeholders are pushing the organizations to focus on the environmental performance [17]. Thus, it is hypothesized that:

H3: Strategic planning and Environmental performance are significantly related to each other.

Researchers mention that commitment of the management plays important role in the strategic planning and the alignment with the priorities of the environmental performance.

As discussed above that management commitment is in relationship with strategic planning and strategic planning is in relationship with environmental performance, therefore, strategic planning is acting as a mediator. Hence it is hypothesized that:

H4: Strategic planning mediates between management commitment and environmental performance.

2.9 Green Supply chain and Environmental performance

Keeping in view that the habits related to sustainable consumption are increasing, it will be the responsibility of the organizations to be responsible to the environment. From different perspectives, practices related to green supply chain are important to develop competitive advantage and to improve environmental performance of the organization. Strategies related to green supply chain are important to manage the flow of material with the value chain along various stages such as distribution, production, acquisition with the aim to protect the environment. They have to safeguard the natural resources and minimize the emission of the carbon and global warming as well [18].

Past Research empirically stated that there exist clear relationship among green supply chain management strategies and environmental performance. Moreover, green supply chain strategies are important for the improving the performance of the organization related to environment (Zhu, Sarkis, and Lai (2012). The results related to the impact of green supply chain and environmental performance are inconclusive as well in few studies. The results of the few studies mentioned the relationship among these variables to strong whereas other mentioned it to be weak as well [19]. Due to scarcity of studies between green supply chain and environmental performance, current study proposes the affirmation of our hypothesis as:

H5: Green Supply chain and Environmental performance are significantly related to each other.

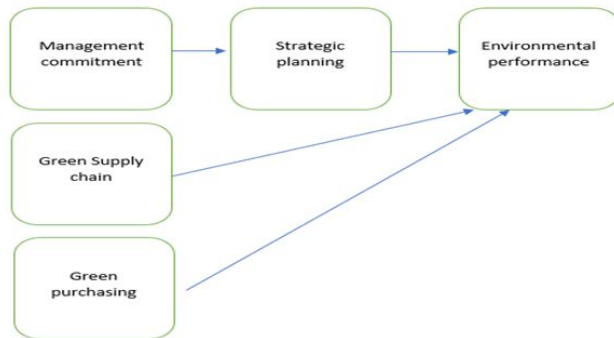
2.10 Green purchasing and Environmental performance

The relationship among the performance of the organization and Practices of the green supply chain is the famous topic the supply chain studies conducted recently. Most of the past studies that tried to examine the relationship among green performance and green purchasing to be positive and significant [20].

Researchers have realized that it is very important for them to include purchasers and suppliers in the development of environmental performance. Moreover, it is also the key to solve the issues in the purchase that impact the environment. By including green principles in the process of purchasing, organizations can provide specifications related to design to the vendors which includes the requirements of the environment for the items purchased [20]. Therefore, hypothesis is made as:

H6: Green Supply chain and Environmental performance are significantly related to each other.

2.11 Framework



3. Methodology

This study employed survey as a data gathering method and designed a structured questionnaire keeping in view the research objectives. The items for the questionnaire were extracted from prior researches. The variables of this research are measured in terms of ratio, interval and nominal scales, which can further be used to test the research hypotheses.

At the data analysis stage, a second-generation technique is adopted, i.e. Structural Equation Modelling (SEM) with a purpose of avoiding limitations associated to first-generation techniques. Applying SEM technique allows the researcher to simultaneously determine a series of inter-dependent linkages [21]. SEM also helps in overcoming the other two limitations associated with first-generation technique. Such as, it allows to establish latent variables using indicators as well as their measurement errors [22]. Thus, the Structural Equation Modelling technique is capable of dealing with the limitations of first-generation techniques [23]. The second-generation SEM is a statistical technique that is developed for testing the theoretical or a conceptual model. It helps in determining the previously existing unknown relationships among the latent variables and also offers meaningful insights about these relationships. In addition, this method has been regarded as a multivariate technique, which simultaneously assess the interdependent relationships between the variables by integrating the aspects of factor analysis and multiple regression analysis [24, 25]. Holmes-Smith (2001) argued that SEM also integrates other techniques, such as, non-recursive econometric modelling, recursive path analysis, analysis of variance (ANOVA), classical test theory and principal component analysis (PCA). In addition, SEM is considered to be a path-analysis involving a set of latent variables to reflect the interdependent associations in the multivariate data [26]. The response rate of the current study is 57.7 percent.

4.0. Results

According to [27], SEM can effectively estimate each individual construct's and measuring items' validity, reliability and unidimensional which can further be used

to evaluate the measurement model. Thus, in order to assess the validity of outer model, four different standards must be observed [28, 29]), by assessing two validity measurements, namely discriminant and convergent validity.

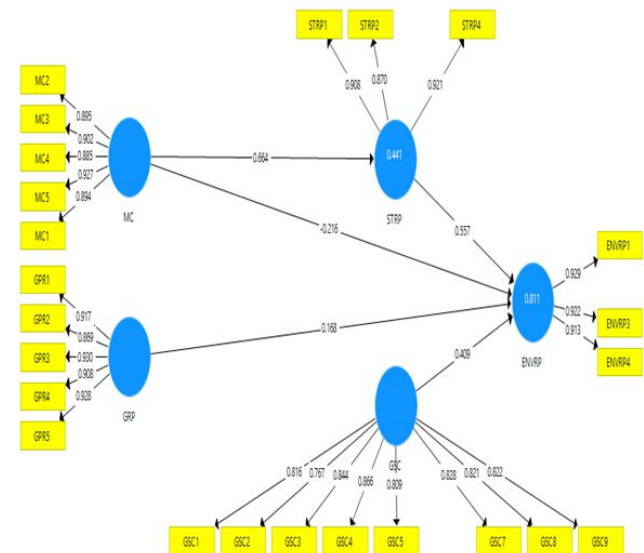


Figure 1. Measurement Model

Table 1. Outer Loading

	ENVRP	GRP	GSC	MC	STRP
ENVRP1	0.929				
ENVRP3	0.922				
ENVRP4	0.913				
GRP1		0.917			
GRP2		0.869			
GRP3		0.93			
GRP4		0.908			
GRP5		0.928			
GSC1			0.816		
GSC2			0.767		
GSC3			0.844		
GSC4			0.866		
GSC5			0.809		
GSC7			0.828		
GSC8			0.821		
GSC9			0.822		
MC2				0.895	
MC3				0.902	
MC4				0.885	
MC5				0.927	
STRP1					0.908
STRP2					0.87
STRP4					0.921
MC1				0.894	

The convergent validity refers to the extent to which one scale's scores are correlated with the other scale's scores, which are designed for estimation of the factor loadings of the same construct [30]. Moreover, convergent validity is the degree to which multiple measuring items of the same construct must allocate or converge a large part of the variance in common [28]. Therefore, for establishing convergent validity, the criteria such as, composite reliability (CR), indicator reliability and Average Variance

Extracted (AVE) must be observed. Afterwards, estimating the CR is the next criterion to determine the internal consistency reliability of the items of the measurement model. Composite reliability is the extent to which observed variables can describe the latent variables [31] and is also referred as the Cronbach alpha.

Table 2. Reliability

	Cronbach's Alpha	rho_A	CR	(AVE)
ENVRP	0.911	0.915	0.944	0.849
GRP	0.948	0.951	0.960	0.829
GSC	0.932	0.936	0.943	0.676
MC	0.942	0.945	0.955	0.811
STRP	0.883	0.889	0.927	0.810

[32] suggest that AVE shows the extent to which several research items agree towards measuring the same concept. In addition, AVE is the indicators' grand average value of square loadings that is associated with the construct. For AVE, the cut-off value is not less than 0.5, thus representing a level of satisfactory convergent validity, whereas, AVE equal or higher than 0.5 indicates the ability of a latent variable to explain half or more than half of the indicators variance on average, thus indicating sufficient convergent validity [28]. Hence, the recommended range for factor loadings is 0.708 [28] since it has a square root value of 0.50.

In PLS, discriminant validity is the second most important criterion for ascertaining the validity of outer or the measurement model. The discriminant validity is generally determined, for analysing the

Table 3. Discriminant validity

	ENVRP	GRP	GSC	MC	STRP
ENVRP	0.892				
GRP	0.829	0.901			
GSC	0.847	0.863	0.892		
MC	0.662	0.883	0.877	0.901	
STRP	0.879	0.66	0.864	0.664	0.9

differences among two concepts that are conceptually different from each other [31].

Discriminant validity refers to a situation, where two or more conceptually different concepts are found to be uncorrelated (Sekaran & Bougie, 2010). Therefore, according to [31] and [33], cross loadings and Fornell-Larcker criteria are used to determine the discriminant validity. The Fornell-Larcker criterion suggests that correlations among the constructs and the AVE's square roots for that construct must be compared and the diagonal

values of the constructs should exhibit greater values as compared to the other off-diagonal constructs. On the other hand, in cross loading criterion, discriminant validity is achieved when each indicator exhibits higher loadings than the other cross-loadings [33, 34].

After ascertaining the measures' consistency, it is essential to present supporting evidences for the theoretical model, as shown by the model's structural portion. [35] stated that structural model specifies the linkage among hypothesized latent variables involved in the research model. For structural model estimation, the

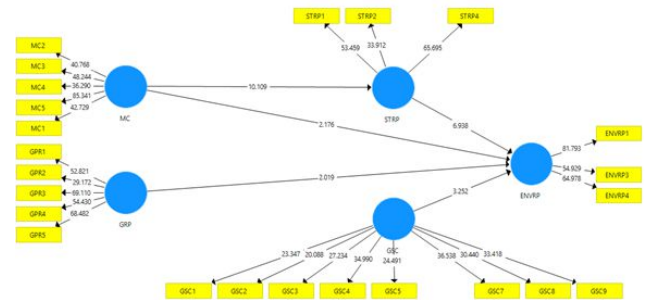


Figure 2. Structural Model

Table 4. Direct relationship

	(O)	(M)	(STDEV)	(O/STDEV)	P Values
GRP -> ENVRP	0.168	0.169	0.083	2.019	0.022
GSC -> ENVRP	0.409	0.414	0.126	3.252	0.001
MC -> ENVRP	-	-	0.099	2.176	0.015
MC -> STRP	0.664	0.664	0.066	10.109	0.000
STRP -> ENVRP	0.557	0.549	0.080	6.938	0.000

The mediation is shown in table 5 below.

Table 5. Mediation

	(O)	(M)	(STDEV)	(O/STDEV)	P Values
MC -> STRP -> ENVRP	0.370	0.363	0.056	6.566	0.000

researcher is required to follow and observe various criteria, as done in case of measurement model. Therefore, the main evaluation measures for estimating structural model includes, significance of path coefficients, coefficient of determination (R2), t-values, p-values, and standard error [31].

Like the goodness-of-fit measure in covariance-based SEM, R^2 or coefficient of determination is another instrument to assess the quality of structural model in variance-based SEM [37]. R^2 value plays a key role in research and different scholars suggested different acceptable range for the R-squared value. For instance, [38] suggested that $R^2 > 1.5\%$ is considered to be a satisfactory range. A different range for R^2 was developed by and suggested that if R^2 lies within 0.02-0.12 then it is indicated as weak predictive power, if it lies within 0.13-0.25 then it is indicated to have moderate predictive power, and if R^2 exhibits greater than 0.26 value then it is indicated as substantial predictive power. Obtaining higher value for R^2 depends on the type of research or on the research context [24], such as [36] reported $R^2=31.5\%$ and reported $R^2=19.7\%$ in SMEs business performance related studies.

Table 6. R-square

	R Square
ENVRP	0.811
STRP	0.441

5. Conclusion

Textile is an important sector in Indonesia. It is the backbone of the manufacturing sector in Indonesia as it contributes a lot to its GDP. It is very important for the organizations operating in this sector keep the environment intact and do not damage it unnecessarily. Such activity is important because customers are getting aware of the issues related to environment. For this reason, the objective of this study was to examine the impact of management commitment, green supply chain and green purchasing on strategic planning and environmental performance. Moreover, mediating role of strategic planning between management commitment and environmental performance is explored in the current study as well. The data is gathered by using survey method from the textile industry based in Indonesia. On the other hand, PLS SEM technique was adopted for the analysis of the data. All of the proposed relationships proved to be significant. It means that if the top management shows commitment to environmental performance, they will be able to improve it. The same is the importance of green supply chain integration and green purchasing. The findings of the study are helpful for the policy makers of the Textile sector.

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