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**"Impact of Sustainable Practices on supply chain  
Sustainable Performance: The mediating role of Lean  
Practices and Process Innovation in small and medium  
enterprises"**



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## **Abstract**

The role of SMEs in the development of the economy is undeniable. If the SMEs perform better, the whole economy of the country will flourish. This study deals with sustainable performance in the restaurant industry in Islamabad, Pakistan. The main objective of the study is to analyze the main reasons and importance of Sustainable practices, Process innovation and lean practices towards the Sustainable performance of the companies located in Islamabad, Pakistan. Analyzing 200 respondents revealed that practicing SP<sub>r</sub>, LP and PI, and SP<sub>r</sub> with the mediating role of LP and PI would lead to higher sustainable performance. As highly positive and significant relationship has been witnessed among the variables which further indicates that all these indicators are necessary for increasing the performance of the industry.

**Key Words:** Sustainable practices, Lean practices, Process innovation, Sustainable performance.

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I have the pearl of my eyes to admire blessing of the Compassionate and Omnipotent because, the words are bound, knowledge is limited and time is short to express His dignity. I avail this opportunity to bow my head before ALLAH almighty in humility, Who has given me the wisdom and perseverance for completing this piece of report. I invoke peace for Last and Final Messenger, the Holy Prophet Muhammad (P.B.U.H), Who is forever torch.

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## **DEDICATION**

Heartedly and humbly dedicated to my lovely and  
beloved **MOTHER** who is my true and real source  
of aspiration throughout my life and whom I always  
find beside me and her shadow above my  
head to protect me from every  
evil and abhorrent eye.

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## **LIST OF ABBREVIATIONS**

- SMEs.....Small and Medium enterprises
- SPPr.....Sustainable Practices
- SP.....Sustainable Performance
- LP.....Lean Practices
- PI.....Process Innovation
- ANOVA.....Analysis of Variance
- SEM.....Strategic Environmental Management
- GSCM.....Green Supply Chain Management
- ICT.....Information and Communication Technology
- SCM.....Supply Chain Management

# CHAPTER 01

## INTRODUCTION

### 1.1 Background

Today humanity is facing many challenges, in the ecological perspective climate change is one of the severe one. Its causes and consequences, along with the probable keys to this challenge, cross every state and segment of the economy, eventually disturbing the entire mankind in one way or the other. Most of the studies focus is on the large global organizations' activities, though less is known regarding the small and medium enterprises' (SMEs) activities that are situated in various countries, particularly in the developing economies (e.g., Pakistan, Bangladesh & India etc.,) and the things swaying such activities (Simpson, Taylor, & Barker, 2004).

One of the major contributors to the universal market could be commonly known as SMEs that bring about numerous social benefits. Due to the significant role of SMEs in the socio-economy, local governments are promoting SMEs at a great pace. For the aim of economic growth, many policies and supportive measurements have been set in this regard. Offices and departments have been set to assist SMEs in most of the countries so as to make a policy, strategic plan and its implementation and to become the managing authority for the cooperation with the other enterprises (White, 2012).

Though it is broadly known that in the development of economy, SMEs play an exclusive role but they also put significant burden on the environment, collectively not individually. A considerable amount of leftover by-products are generated as a result of huge consumption of sources and energy. In spite of that, measures taken by the SMEs regarding the environment so far have not bring forth imposing results, particularly in comparison to the larger companies (Jansson, Nilsson, Modig, & Hed Vall, 2017; Brammer, Hoejmoose, & Marchant, 2012). As per the obtainable research data, in the Asia-Pacific region, the responsibility of industrial pollution in excess to 50 percent is on the shoulder of SMEs. Plenty of examples are there which shows the significant contribution of SMEs in conservatory gas emissions and damaging the environment (Williamson, Lynch-Wood, & Ramsay, 2006; Hallinan & Jenks, 2003).

It is considered that innovative strategies need to be formulated in order to control the environmental harm produced by the SMEs. On the other hand, there are some obstacles in the way of SMEs from attaining the innovative strategies. These include lack of internal capabilities (e.g., monetary resources, research and development [R&D] activities, business processes, human resources, and technologies), lack of information regarding the perks of cost-effectiveness by enhancing environmental performance, inadequate external incentive/pressures and in most of the cases, policy makers have political indulgence in this regard (Dey & Cheffi, 2013; Zhu & Sarkis, 2004).

Sustainability is an evolving business concept that is instigating a vital shift in the competitive arena (Lubin & Esty, 2010) and swiftly becoming a main driver of innovation (Nidumolu et al., 2009). For this reason, in order to attain competitive edge or uphold competitive parity at minimum, businesses in every part of the supply chain are contemplating the implementation of various sustainability initiatives. Persson (1991) proposed practices of environmental sustainability in the supply chain as green supply chain management. Managers must be concerned with sustainability and understand the everyday level that what operations are disturbing their company's brand. Therefore, organizations tend to concentrate their focus more on specified activities related to public well-being, economic sustainability and environment protect.

Numerous manufacturing and service corporations have been opted Lean Practices (LP) for waste diminution without foregoing throughput. Linkage between environment sustainability and LP have a growing interest (Martínez-Jurado & Moyano-Fuentes, 2014). Throughout the organizational value chain, LP are friendly to the environment and economy driven philosophically through optimization of resources, lean management focuses on reduction of waste. Though few of the social and environmental practices are possibly cost intensive therefore social and environmental sustainability might not be completely attained (Inman & Green, 2018). Previous literature linked sustainability and LP successfully (Martinez-Jurado & Moyono-Fuentes, 2014). Numerous manufacturing companies enhance their environmental performance as LP assist in adopting the principle of green manufacturing (Piercy and Rich, 2015). Even though LP have contributions in the sustainability of the environment (Vinodh, Arvind, & Somanaathan, 2011; Moreira, Alves, & Sousa, 2010), still the findings are not decisive, as negative (Rothenberg, Pil, & Maxwell, 2001) and positive (King & Lenox, 2001) relationship both have been discovered to subsist. Furthermore, nonconclusive nature of relationship exist among LP and social management.

LP promotes elimination of waste, quality enhancement, cost reduction, and enhance flexibility throughout the supply chain (Dey et al., 2018). Through implementation of LP, financial sustainability could be achieved via business progress, reduction of supply chain cost, increasing supply chain surplus and reducing business risk by way of combined investment in technology and R&D, enhanced service and product quality, reduced inventory and overall waste reduction throughout the supply chain (Arkader, 2001). Likewise, environmental sustainability could be achieved with the help of LP through involving suppliers at initial product development stage, initiating seller managed inventory, building collaborative relationship among the stakeholders, and keeping in mind also the environmental criteria while supplier selection. Though Information and Communication Technology (ICT) assists in achieving LP throughout the supply chain, results could be better if LP is adopted earlier than investing in ICT. Furthermore, in cooperating with all the stakeholders ICT appear as a facilitator for design and operation of supply chain (Tuomivaara et al., 2017). These abet many organizations in achieving economic sustainability over a longer span of time. By diminishing the emissions throughout the supply chain, ecological sustainability of supply chain could be achieved. So conclusion could be made that by observing the probable conflicts among the economic sustainability and LP, and originating solutions for mitigating the negative impacts could support the lean supply chain to be more sustainable and responsive.

Innovation can be attained with the help of organizational, process and product innovation and interrelation exist among them (Klewitz & Hansen, 2014). The execution of a fresh or considerably developed production or delivery method (as well as significant alterations in software, equipment and technique) is known as process innovation (PI) (Klewitz & Hansen, 2014). One of the example of process innovation is cleaner production aimed at sustainability of the environment. Execution of environmental management system (EMS) together with ISO 14000, is an average example for environmental sustainability of organizational innovation. An overarching concept is eco-design, when it comes to the improvement of sustainable performance (SP) of commodities.

Any organization that has social, economic and environmental sustainability practices to a certain extent in their system, has an impact on concerned SMEs' overall SP. LP and PI affect SP both in separate and combination. As LP is more focused on the economy hence attaining total sustainability with the help of LP only, allows the organization to give emphasis in attaining better economic sustainability. On another side, PI is more focused on responsiveness, which permits the organization in achieving higher social and environmental performance.

Though, the most suitable trade-off between the social, economic and environmental factors leads to the realization of an organizations' overall sustainability. However, there are studies which are conducted on separate impacts of PI and LP on SP (Inman & Green, 2018; Adams, Jeanrenaud, Bessant, Denyer & Overy, 2016; Piercy & Rich, 2015; Bos-Brouwers, 2010), as per the knowledge of authors, those studies which relate the combined impact of PI and LP with supply chain SP of SMEs are rare. Additionally, though previous literatures have founded both the PI and LP as enablers of attaining sustainability but their mutual impact on Small and medium enterprises' SPs along with sustainable practices (SPr) are still not explored.

The aim of the research is to fulfill this knowledge gap by disclosing the impact of PI, LP and SPr on SP, and to examine the separate role as a mediator between sustainable practices and performance. In other words, the purpose is to examine two relationships simultaneously, one is the direct impact of PI, LP and SPr on SP and other is between SPr and SP under the mediating role of PI and LP.

## **1.2 Rationale of Study**

In current business environment scenario, corporations are under immense pressure to facilitate customers with products and services that are friendly to environment in order to achieve quality improvements along with quantitative expansion. Dey et al. (2019) stated that by greening activities through SPr, LP and PI, sustainable performance of the firm can be enhanced. And by looking at the future research of the study depicts that there is a dire and dreadful need to investigate whether SPr, LP and PI improve sustainability and also that LP and PI as mediators between SPr and SP can enhanced sustainability in the perspective of developing nations of SMEs. Hence, Islamabad the capital of Pakistan is selected in this regard. Due to this, organizations are seriously considering and examining all the basic components that are required for sustainable performance (De Giovanni, 2012) . For this, organizations are heartedly trying to adopt practices that can reduce the impact of company operations on environment as well as beneficial to economy and society as a whole (Corbett & Klassen, 2006). Sharma (2000) explored that this above mentioned objective of the organizations can only be accomplished if organizations introduce and implement sustainable solution as a strategy by reshaping their operations system like inhabitant protection, waste reduction restoration of environment, gauging levels of pollutions and improvement in packaging designs.

Additionally, we all know that in the past few decades due to globalization, advancement in technology international trade opportunities the world has grasped remarkable economic development. However, this economic growth results give birth to environmental problems. Yoon and Tello (2009) argued that when corporations are responsible to the environment it helps organizations to minimize their disclosure to social criticism and attract customers looking for sustainable products and services. Success of business is dependent upon the ability to be sensitive to both internal and external changes and adopt them in an effective way. With respect to the environmental changes organizations must consider changes demanded by government, customers and all other stakeholders. In order to achieve set goals and objectives, an organization must take into account growing demand for sustainable products by customers, strictly conform to environmental guidelines and finally as a good corporate citizen execute environmentally responsible plans.

### **1.3 Research Question**

The primary research question of this study is as follows;

What is the impact of sustainable practices on the supply chain sustainable performance, with the mediating role of lean practices and process innovation in the SMEs of Islamabad?

### **1.4 Objectives**

- To investigate the relationship of the Sustainable practices, Lean practices, and Process innovation with sustainable performance.
- To examine the relationship of Sustainable practices and sustainable performance, with the mediating role of Lean practices and Process innovation.
- To explore that Sustainable practices, Lean practices, Process innovation enhances supply chain sustainable performance.

### **1.5 Problem Statement**

Organization nowadays demonstrating highest concern towards factors that seriously effect environment, society, economy and other numerous stakeholders associated with firm. In the recent time many of the organization have now realized the significance and a potential benefit

can be obtained by engaging SP, LP and PI in the system (Inman & Green, 2018; Martinez-Jurado & Moyono-Fuentes, 2014; Piercy & Rich, 2015).

Many researchers work regarding the relationship between the firms' sustainability strategies and their deep impact on sustainable performance by using LP and PI. It has been claimed in numerous studies that LP and PI have a positive impact on firms' sustainability. According to (Rao & Holt, 2005; Porter & van der Linde, 1995) operations and logistics literature, the environment concerns and sustainability are now growing attention and resultantly as more organizations involve in the endeavour to improve the competitive position and minimize risk to the greater extent. According to Bacallan (2000) economic performance is improved through sustainability efforts. Martinez-Jurado and Moyano-Fuentes, (2014) also stated that better economic performance can be achieved by utilization of more efficient resources through lean practices.

Though previous literatures have founded both the PI and LP as enablers of attaining sustainability but their mutual impact on Small and medium enterprises' SP along with sustainable practices (SP) needs to be explored. The aim of the research is to fulfill this knowledge gap by examining two relationships simultaneously, one is the direct impact of PI, LP and SP on SP and other is between SP and SP under the mediating role of PI and LP in SMEs located in Islamabad, Pakistan a developing country. Most of the earlier researches were typically conducted on their direct impact on each other. Moreover, as far as sustainability is concerned it has still been neglected in research conduct studies in contexts of SMEs in Pakistani organizations.

## **1.6 Significance of study**

The main aim of this study is to analyse the relationship between sustainable practices on the supply chain sustainable performance, with the mediating role of lean practices and process innovation in the SMEs in the context of Islamabad, Pakistan. The result from this study will help the organizations to become prominent and stronger in the current ongoing paradigm that is the need of the hour (Dey et al., 2019). It is an undeniable reality that companies which work is compliant with sustainable practices, can perform much better all around the world (Arkader, 2001). Furthermore, this study will help to contribute in existing body of knowledge on the basis of sustainability practices through the mediating role of lean practices and process

innovation on SP in the SMEs positioned in Islamabad, Pakistan. This study will also provide assistance in developing new competencies by incorporating all the stakeholders as it imparts valuable information that will help them to make better decisions. In the highly competitive and sensitive environment, organizations are now a days re-positioning their core competencies and hence incorporating the concept of “sustainable development” in their core values (Björklund & Forslund, 2013; Wu & Dunn, 1995). This research will provide guideline in understanding the need of reducing environmental, societal and negative economic impacts among the numerous stakeholders that are linked with the activities of SMEs.

In a developing country like Pakistan where there is not as much environment protection awareness and campaign prevail, requires a dire and dreadful necessity to address the problems that influence and affect the environment negatively. Therefore, this study will help the companies to better recognize the practices that improves brand reputation and goodwill. Moreover, integrating the idea of process innovation, sustainable and lean practices will also lead to the cost reduction, production efficiency and better reputation and consequently will add a huge benefit to the organization (Inman & Green, 2018; Martínez-Jurado & Moyano-Fuentes, 2014; Gunday et al., 2011). It will undoubtedly help the organizations to recognize a reality that investment in sustainable practices, LP and PI will not only augment the repute of the corporation but also helps in creating economic and environment benefits and as a result relationship with numerous stakeholders be improved.

This study will be worthwhile for the SMEs management as well as the various stakeholders. This study will also assist the policy makers dealing with sustainable development. The finding of the study can be incorporated for the policy formulation for using SP, LP and PI. The outcome of this research will be significant for firms because study will analyse the sustainable concepts. An efficient and effective mechanism can be derived for minimizing the negative impact on environment and utilization of assets. Consequently, by implementation of the study organization can achieve competitive advantage over their competitors (Arkader, 2001). This is a professional piece of work; as a result, this can be regarded good contribution in existing literature.



## **CHAPTER 02**

### **LITERATURE REVIEW**

This chapter throws a light to our study taking existing theories in account regarding the variables i.e. sustainable performance. The literature review will give a more profound comprehension of the subjects and theories applicable to the area.

An immense significance in the emerging concept of sustainability has been observed over the past few decades (Bai et al., 2012). The growing demand has established the innovative prospects of the research based studies on PI, LP and SP and its valuable impact on organizations' sustainable performance. In current years, the powerful motivation of globalization, resource exhaustion and drastic changes in climate conditions have augmented importance of sustainability to business. Corbett and Klassen (2006) and Björklund et al., (2012) traced in their study that customer's concerns are now deeply attached with the organization activities and their impact on environment so in order to achieve the competitive advantage, firms' started thinking for making decisions keeping in view the need of customers regarding environmental sustainability.

#### **2.1 Sustainable Performance**

After the distribution of Brundtland Commission's (World Commission on Environment and Development) report in 1987 (Sustainable Development 1987-2005 a paradoxical expression case) the concept of sustainable development and sustainability gained an extensive fame and became broadly recognized as policy orientation. Here, sustainable development or sustainability could also be referred as sustainable performance. Sustainability focus on the development that fulfill the present needs without focusing the requirements of future generations. Shrivastava (1995) viewed the involvement of maintainability as the likelihood for decreasing long haul dangers related with asset diminishment, item liabilities, contamination and waste administration and varieties in vitality costs. Some researchers such as (Shrivastava, 1995; McKinnon, 2010; Kuhlman & Farrington, 2010 and Brundtland et al. 1987) have a unanimous consensus that modern society must take responsibility to generate

the circumstances for the future generations. They further added and emphasized that considering sustainability is much important to not only protect environment but also make positive utilization of natural resources. The entire industry sector particularly SMEs should take sustainability as a major for the reason that natural resources of the world are gradually depleting. The implementation of sustainability can present by numerous crucial activities inside the circulation framework system. The main activities have an intense contribution to the overall costs so they are critical for the organizations (Dey et al., 2011).

McKinnon (2010) observed that sustainable performance is the integration of three elements including economic, social and environmental. An organization that all together offer social, economic and environmental advantage is often considered as sustainable organization.

An organization can be regarded as socially aware that keeps a close eye on labor conditions and making sure that they are up to the mark. Savitz and Weber (2006) stated in his study that factors including community impacts, product responsibility, labor practices and human rights contribute to company social strategy. With the increasing trend of “conscious consumer”, adopting sustainability as organization strategy referred to meet stakeholders’ expectations and take the long-term operations impact that business has on the community (Prokesch, 2010).

De Giovanni (2012) observed that consumers preferably go for their purchase decisions to the company that is socially conscious and conforms to green environmental policy and this gives a company competitive edge over the competitors. According to Savitz and Weber (2006) the conventional financial measurement techniques for instance return on investment, sales, tax paid, profit and cash flow assess the economical elements. Tisdell (2001) believe that this force is positively associated to environmental improvements and regarded as a crucial factor for enhancing sustainable development whereas others think its impact is negative.

Savitz and Weber (2006) explains that impact of environment can be measured by waste produced, energy usage and water and air quality. Peattie (2001) describes that during the most recent two decades the rapidly flourishing ecological movements has been termed by means of “green movement”, consumers that are naturally conscious named the “green consumers”, items that are intended to secure atmosphere known as “green products” finally promotion associated with ecological concerns and assertions turned as the “green marketing”. De Giovanni (2012) describes that organizations have become more attentive and are establishing green programs within their system that leads the corporation for performance improvements.

Consequently, due to these initiatives, impact on environment is reducing but De Giovanni discusses that unlike economic measurements its impact is difficult to measure.

## **2.2 Lean Practices**

In the current century, the four trends regarding supply chain viz. progressing towards the globalization, green initiatives, assimilating process innovation and lean practices are coming together to create progressively complex environment of the business. Lean strategies emphasis is on the waste reduction by creating ease for the firms to eliminate all those activities that don't create any value i.e. excessive space, equipment and inventories throughout the supply chain (Corbett & Klassen, 2006). Such strategies of waste reduction helps the firms in improving the service and quality to the customers as well as in cost reduction (Larson & Greenwood, 2004).

An increasing number of firms applied lean practices in promoting the continuous improvements regarding the operations of the supply chain i.e. waiting time, stock, transport, production of goods that haven't ordered yet, excess processing and mistakes' rectification (Jones, Hines, & Rich, 1997). The literature regarding incorporation of lean processes in the supply chains shows emphasis on particular functional areas including lean logistics in the supply chain (Disney, Naim, & Towill, 1997), provide supply chain management the just-in-time approach (Das & Handfield, 1997), and integration of the practices of lean and agility (Mason-Jones, Naylor, & Towill, 2000; Goldsby, Griffis, & Roath, 2006).

Currently, in their lean supply chain practices, firms have taken initiatives to encourage and integrate practices that are environmental friendly. LP through waste reduction throughout the supply chain assists in attaining sustainability (Fliedner & Majeske, 2010) and upgrading of social sustainability as well (Govindan, Azevedo, Carvalho, & Cruz, 2014). Through focusing the environment management practices, LP influence and promote environmental sustainability (Florida, 1996). The lean implementation' success depends on the application of scientific principles and approaches in daily activities of the organization in a more systematic way (Spear & Bowen, 1999). Liker (2004) reported that the current literature is predominantly enrich in the analysis of driving principles of LP.

## **2.3 Process Innovation**

Though there are many definitions of PI, but in general, it could be defined as implementing, institutionalizing, and commercializing the ideas that are new and creative (Smeds, 1994; Van de Ven, 1986). PI could also be referred as commercializing the freshly designed and implemented services, product or processes. Smeds (1994) stated that in an organization, it is taking calculated risks with new ideas by experimenting them, preserving uncertainty, and creativity encouragement among the individual of the organizations. In an interview conducted by tech review with chief technology officer of U.S., in boosting the economy, the essential factor was considered to be PI (Talbot, 2009). PI was impelled by economic pressure and innovation of such kinds can lead to social sustainability as it promote value creation (Saunila, Ukko, & Rantala, 2018). It has also been revealed that it may improve firms' performance in a positive way (Lau, Tang, & Yam, 2010). PI also promotes firm' competitiveness and a positive relationship of environmental, social and economic performances of a firm (Zailani, Govindan, Iranmanesh, & Shaharudin, 2015). Most of the organizations have integrated organizational , product and process innovation in achieving the sustainable performance to a great extent (Adams et al., 2016). Lastly, we can say that PI is regulators' and customer driven. Innovation can be attained with the help of organizational, process and product innovation and interrelation exist among them (Klewitz & Hansen, 2014). The execution of a fresh or considerably developed production or delivery method (as well as significant alterations in software, equipment and technique) is known as process innovation (PI) (Klewitz & Hansen, 2014). One of the example of process innovation is cleaner production aimed at sustainability of the environment. Execution of environmental management system (EMS) together with ISO 14000, is an average example for environmental sustainability of organizational innovation.

## **2.4 Sustainable Practices**

In order to be socially responsible and environmentally friendly, firms need to achieve sustainability (Kleindorfer et al., 2005). Furthermore, in implementing the sustainability, reliance could be made on external and internal practices by the firms. If implemented in function of a business could be named as internal practices (Carter & Carter, 1998) for example: purchasing and the aim behind is to attain some special internal target of the firm (Rao, 2002). Moreover, in the supply chain, sustainable practices could be protracted to the other factors as well. Such as firms with their suppliers could build on sustainable programmes for the sake of

“green” products and processes (Vachon & Klassen, 2008). The objective of the environmental internal practices is to lessen the adverse impact on the environment of the activities of the companies (Rao, 2002; Bowen et al., 2001). In the past studies several practices being examined are: the usage of environmental friendly processes (Rao & Holt 2005) and materials (Carter & Carter 1998), the consumption of water and energy (Klassen & Whybark, 1999), and programs regarding contaminated emanation decrease (Sarkis, 1998). The aim behind the internal social practices is the development of the economy whilst bettering the personnel, their families’ quality of life along with society and community all together (WBCSD, 1999). Past literature talks about some of the examples regarding internal social practices, that includes: fair compensation, job satisfaction, and employment status of personnel (Pullman et al., 2009), policies of work and life balance (Longo et al., 2005) and health and safety of the employees (Pagell & Gobeli, 2009).

Those practices which aims at extending the sustainability in the upstream of the supply chain could be regarded as external sustainable practices. In order to obtain a more socially responsible and greener supply chain, the suppliers could be assessed by the acquiring firms concerning issues of sustainability, assistance in training the personnel of suppliers or/and cooperating one another in improving the performance (Keating et al., 2008; Klassen & Vachon, 2003; Andersen & Skjoett-Larsen, 2009). The aims of the firms is to be socially oriented and greener by implementing all such internal and external practices. More the level of social and environmental performance more will be the chances of leading towards such objectives and success. Environmental performance relates to the reduction of footprints that enterprises or companies on account of operations left behind (Kleindorfer et al., 2005) or lessening the pollution and waste , using the products and processes in a more efficient way (Zhu & Sarkis, 2004; Rao, 2002). Social performance encompass bettering the personnel, their families’ quality of life and includes the aspects such as health and safety of the employees and their motivation as well (Gimenez et al., 2012 ;Pagell & Gobeli, 2009). Many papers examined the effects of internal and external sustainability practices on the sustainable performance (Theyel, 2001; Rao, 2002; Zhu & Sarkis, 2004, 2007; Rao & Holt, 2005; Zhu et al., 2005, 2007; Pullman et al. 2009; Vachon & Klassen, 2008; Large & Gimenez,2011; Gimenez et al. 2012; Green et al., 2012a,b; Gualandris et al. 2014; Golini et al., 2014). Most of the papers have discovered a positive relationship in this regard.

## **2.5 Link between Lean Practices and Process Innovation**

Though research that has focused global, lean and green issues are quite considerable, to our knowledge, the intersection of PI and LP initiatives comprehensively are missing in the existing works. Particularly, in connection with supply chain' SPr (environmental, social and economic), and their impact on SP. In case of incompatibilities among strategic initiatives on the subject of LP and PI, this critical oversight will assist the firms to deal with important tradeoffs and to create a synergy.

Despite the fact that currently PI and LP are two driving forces in the success of a business, basically both are two different concepts and several facets of the innovation could affect the firms' chances to gain success in a negative way by implementing some types of innovation. For example, there is an innovation/idea that lacks value addition with an immediate effect, but it will result in value addition in the future. Should that get eliminated due to lean principles from the current agenda? It is worthy to investigate that how PI could be promoted along with upholding a good level of LP. So there is need to investigate the impact of various practices of supply chain on performance measures. Brown and Duguid (2002) states that PI and business practices both need to be ascertained at the same time. Dearth of creativity and practices will lead to less innovative ideas. There is also a suggestion by the author to create a balance between innovative processes and lean practices as it will assist the firm to achieve sustainability.

Because of high competition in the market, there is a need for SMEs to be focused on the economy along with some reasonable agility. Most of the SMEs formally and informally adopt LP with the aim to attain efficiency that will help them to some extent to become friendly to the environment. They also take on numerous innovations (at the organizational, process and product level), to achieve efficiency or the main driver for which is achieving efficiency. There is a lack of PI among the SMEs as attaining the social and environmental performance is observed to be cost intensive. Furthermore, through cooperation with suppliers and customers at various levels, supply chain integration is mostly absent across the world in SMEs. They only inspired to accept or implement superior innovation in response to pressure by policymakers and/or customers (Dey et al., 2018).

## **2.6 Link between Lean Practices and Sustainable Performance**

Previous literature shows that the emphasis of LP is on the efficiency of resources and reduction of waste, which as a matter of fact results in the improvement of economic performance via reduction of cost (Martínez-Jurado & Moyano-Fuentes, 2014). Though, there may be some cases of low social and environmental performance of SMEs because of LP as social and environmental practices might be cost demanding (Rothenberg et al., 2001; Revell & Blackburn, 2007). Efficiency in the energy in the sphere of operating systems assists in achieving lean along the desired social and environmental targets, thus may possibly be the top contender in achieving the sustainability in general in any kind of the corporation (Viesi, Pozzarb, Federicic, Cremaa, & Mahbub, 2017). Nonetheless, in attaining the energy efficiency, capital cost might be a point of concern for most of the organizations and act as a hindrance in its way. Consequently, to examine whether in SMEs LP assists in achieving SP, it became one of the higher interest.

## **2.7 Link between Process Innovation and Sustainable Performance**

The main emphasis of PI is the satisfaction of needs of the customers at a lowest cost possible (Aguado, Alvarez, & Domingo, 2013) which policymakers drove and done all that (Adams et al., 2016). Idealistically, the contribution of PI must accomplish the synergy among the strategies of the supply chain and the competitive strategies, which on one side will help in the achievement of customer satisfaction with in the optimum cost while on the other side fulfill the social and ecological targets (Aguado et al., 2013). With the help of this, SMEs will be able to achieve the economic performance and the required output within the boundaries of sustainability (Abdallah, Diabat, & Simchi-Levi, 2011). Though, few evidences are there that shows the impact of PI on the SMEs social and environmental performance. Previous research also talks about that type of PI which has the ability in the enhancement of social and environmental targets in addition to the required quality and production cost (Adams et al., 2016). Hence, the relationship between SP and PI is the desired one in the context of small and medium enterprises.

## **2.8 Link between sustainable practices and performance**

SPr comprised of social, environmental and economic practices which have the effect on the SMEs' SP (see, e.g., Gonzalez-Bonito & Gonzalez-Bonito, 2006). The aims of the firms is to be socially oriented and greener by implementing all such internal and external practices. More the level of social and environmental performance more will be the chances of leading towards such objectives and success. Environmental performance relates to the reduction of footprints that enterprises or companies on account of operations left behind (Kleindorfer et al., 2005) or the lessening the pollution and waste, using the products and processes in a more efficient way (Zhu & Sarkis, 2004; Rao, 2002). Social performance encompass bettering the personnel, their families' quality of life and includes the aspects such as health and safety of the employees and their motivation as well (Gimenez et al., 2012; Pagell & Gobeli, 2009). Many papers examined the effects of internal and external sustainability practices on the sustainable performance (Theyel, 2001; Rao, 2002; Zhu & Sarkis, 2004, 2007; Rao & Holt, 2005; Zhu et al., 2005, 2007; Pullman et al. 2009; Vachon & Klassen, 2008; Gimenez et al. 2012; Gualandris et al. 2014; Golini et al., 2014). Though, the impact on SP by SPr may fluctuate contingent to the kind of practices being undertaken and in addition to it, its impact on SP may be effected by implementing PI and LP.

## **2.9 Link between SPr and SP keeping in view the mediating role of LP**

As noticed earlier, SPr comprised social, environmental and economic practices that have been carried out to some extent by all SMEs. The later influence SMEs optimistically through the sustainable performance (e.g., optimum consumption of energy, job creation, efficiency of the resources, growth of the business, inventory, investment in the corporate social responsibility (CSR), and well-being of the employees). LP adoption in addition to it may increase the sustainable performance of SMEs. Though, it hinge on LP, as how it is being practiced and adopted in an SME. Previous research also shows the impact of green initiatives and lean initiatives on the operational and ecological performance (Inman & Green, 2018). The impact of SPr on social and environmental performance has already explored (Malesios et al., 2018). Although combined impact of SPr and LP on the SP still remain unexplored to some extent. Hence, to make the lean and green SMEs, the insights of managers of the SMEs regarding the combined impact of LP and SPr on the SP are of great importance. Specifically, in addition the



research seeks to test a new and an overarching question of the research viz., could LP add to supply chain SP of SMEs if act as a mediator between sustainable performance and practices?

### **2.10 Link between SPr and SP keeping in view the mediating role of PI**

Likewise, the combined impact of SPr and PI on the SP may vary i.e. negative or positive depending on the type of practices undertaken and the way they are being implemented and operated (Adams et al., 2016). Hence, the insights of managers of the SMEs regarding the combined impact of PI and SPr on the SP are of great importance. And raise another research question viz. could PI add to supply chain SP of SMEs if act as a mediator Between sustainable performance and practices?

Here are some of the theories that will give a more wider view of the above discussed variables;

## 2.11 Triple Bottom Line

It is suggested by Markley and Davis (2007) that an organization which is willing to become sustainable ought to sincerely strive for achieving sustainable development by fulfilling economic, environmental and social interests. Triple bottom line is associated to create sustainable behavior by the firms for pursuing profit and the idea has been termed by John Elkington in 1994. The aforementioned concept of triple bottom line is also known as profit, people and planet and hence organization needs to manage balance among the components of triple line in order to achieve sustainable development.

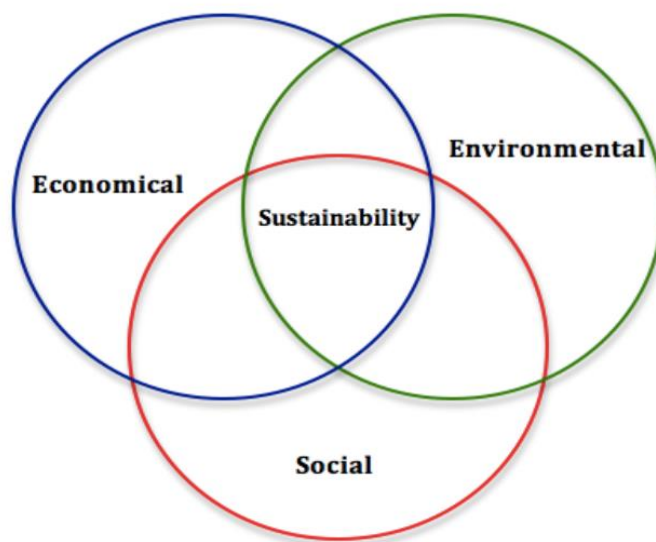


Figure: 1 Sustainability and the Triple Bottom Line

Source: Carter and Rogers, 2008

It is clearly mentioned in Figure 1 that the triple bottom line factors work together. The central part of the diagram depicts as common result sustainability is achieved. Therefore, Triple Bottom Line theory leads sustainable organizations to create a balance within all the three factors. Markley and Davis, (2007) argued that encouraging the Triple Bottom Line is to put emphasize on all the stakeholders and shareholders that pursuance of economic approach is not the only key motive of the organization but also social and environmental considerations must be taken into account. Therefore, concept of SP, PI and LP has been injected for future

sustainable environment in industries along with sustainability and Triple Bottom Line. Sourcing and Muller (2008) also traced that most of the organizations heavily concentrated on two elements including environment and economic for doing research on sustainability. This is the reason that many of the firms now view green coordination as a possible provision for achieving manageability.

### **2.11.1 Social**

Markley and Davis (2007) find out that societal effect of an organization could be assessed from the level of worker and consumer loyalty. In fact, sustainable organizations are concerned with making decisions regarding community and the workforce with the aim of contributing towards the development of the society. In the recent times, consumers are becoming more educated and aware so the social component of triple Bottom Line is considering as a massive contributor to the organizational performance. An organization can be regarded as socially aware that keeps a close eye on labor conditions and making sure that they are up to the mark. Savitz and Weber (2006) stated in his study that factors including community impacts, product responsibility, labor practices and human rights contribute to company social strategy. Standards of bench mark allow organization to provide labor the safe working conditions, manageable working hours, fair wages etc. and never used to exploit them in any form and manner e.g. child labor.

Triple Bottom Line organizations must avoid low cost exploiting countries that have adverse labor conditions, low labor cost and who are often engaged in child labor because all these issues are socially unethical. In the SMEs, social attributes of the Triple Bottom Line must contain manageable working hours with adequate resting time and by providing education and health care facilities make valuable contribution to the community as a whole. According to Prokesch (2010) with the increasing trend of “conscious consumer”, adopting sustainability as organization strategy referred to meet stakeholders’ expectations and take the long-term operations impact that business has on the community.

### **2.11.2 Economical**

The elements connected to the economic concept under Triple Bottom Line indicates all monetary profits as well as value created by an organization. De Giovanni (2012) explains the

economical features as a conventional measurement technique because this is extensively used component of Triple Bottom Line while assessing organizations' performance. Even though economic advancement of an organization is imperative, John Elkington's Triple Bottom Line represents that companies can enhance performance and reap greater economic benefits by addressing environmental and social issues. De Giovanni (2012) observed that consumers preferably go for their purchase decisions to the company that is socially conscious and conforms to green environmental policy and this gives a company competitive edge over the competitors. According to Savitz and Weber (2006) the conventional financial measurement techniques for instance return on investment, sales, tax paid, profit and cash flow assess the economical elements. Developing countries where cost of labor is low can be taken as an optimal example and ample opportunity for economic focused organization but on the other hand not likely a sustainable one. Anyhow, economic globalization has caused to foster competition across the world and considered a driving force for global economic development. Tisdell (2001) believe that this force is positively associated to environmental improvements and regarded as a crucial factor for enhancing sustainable development whereas others think its impact is negative.

In this regard, organizations are becoming capable by adopting different strategies to improve economic performance of the corporation and to minimize costs as well. Nonetheless, reduction in costs also minimizes the impact on environment as a result emissions level goes lower. Tisdell and Sen (2004) expressed that due to growing market oriented globalization, organizations for the sake of performing better economic operations are now closely interconnected across the world. Economic growth accompanying with rapid development in all over economic activities are responsible factors for the loss of biodiversity and natural environment across the world and these have been hastened from the commencement of industrial revolution. Some ecological issues including biodiversity loss and global warming have turned as matter of global distress and these complications need to be tackle by improving global governance. He further added that economic rivalry is an expected additional feature that would come about disappointment of organizations to reduce natural overflows from their operations until administrations interfere through introducing strategies that would be more beneficial for the corporations to seriously consider these spillovers instead of ignoring them.

### **2.11.3 Environmental**

Environment is the final component of Triple Bottom Line. This concept is associated with organization environment policies, performances and practices they were used to adopt for lessening the impact of their operational activities on climate. Many organizations are now seriously considering the environmental revolution and struggling to reduce environmental pollutions and enhance the benefit at the same time. Wolf and Seuring (2010) presented view how to deal with the environment while organizations purchasing services. He further added that corporations take specific issues carefully instead of simply using terms such as “all relevant environmental aspects” and the “most environmentally advanced”. With the increasing environmental awareness of consumer, De Giovanni (2012) describes that organizations have become more attentive and are establishing green programs within their system that leads the corporation for performance improvements. Consequently, due to these initiatives, impact on environment is reducing but De Giovanni discusses that unlike economic measurements its impact is difficult to measure.

Savitz and Weber (2006) explains that impact of environment can be measured by waste produced, energy usage and water and air quality. In the end being ecologically sustainable will be more beneficial which is the reason Triple Bottom Line organizations frequently hope to avoid risky products and damaging practices. SMEs can diminish their ecological effect through energy and fuel efficiency and waste reduction activities. An emission of different kinds of wastes and pollutants are escalating globally human operations and surpasses the volume of natural atmospheres to absorb and neutralize them. Tisdell (2001) found that consequences squanders are amassing in numerous situations and cause the rising danger to mankind well-being and supportable monetary progress. Peattie (2001) describes that during the most recent two decades the rapidly flourishing ecological movements has been termed by means of “green movement”, consumers that are naturally conscious named the “green consumers”, items that are intended to secure atmosphere known as “green products” finally promotion associated with ecological concerns and assertions turned as the “green marketing”. This study will take into consideration all the three components of the Triple Bottom Line because mentioned three directly relate with the concept of sustainable performance. Theory behind PI, SP<sub>r</sub> and LP is to integrate, optimize and improve supply chain in order to diminish both costs and environmental impact, which indirectly contribute to social benefits.

## **2.12 Strategic Environmental Management**

Concept of Strategic Environmental Management (SEM) is associated with ecological factors and natural impacts utilized as a reason for finding ample prospects and invisible benefits for organization. In view of Goldstein (2002) it can be done by saving costs and increasing returns. He continues by arguing that strategic environment management objective is to organize ecological as well as primary concern aims through overcoming effect on environment and social viewpoints within the organization fundamental key vision. It runs altogether along with Goldstein (2002) and Michael Porter's (1991) proposition in which strict ecological directions can maximize competitiveness by bringing modernization. They further added that enlarging ecofriendly regulations can minimize both ecological effects as well as costs while enhancing competitive position of an organization. Professional ecological methodology can likewise, as have indicated by Sharma (2000), be a purpose behind company activities to decrease the natural effect, not only to finish ecological controls. Approaches, for example the intentional technique might be critical for development of biological procedures inside organizations and administrative elucidations of environmental issues can impact an enterprise's natural methodology.

It is opposing to the neoclassic opinion, that straightforwardly contradicts Michael Porter's supposition. The assessment explains advantages of ecological activities won't balance costs most of time. Goldstein (2002) proposed in the study that the neoclassical concept declares some exemptions in which ecological execution can enhance benefits at the same time; the stance is; ecological actions would expand costs as well as fewer the returns. However, strategic environment management explicitly validates that an effect diminishing technique enable organizations to enhance focused quality. In numerous marketplaces the purchaser now been careful to the suppliers' reputes in accordance with ecological execution Goldstein (2002). It is additionally supported with strong opinion that fruitful strategic environment management can expose new income flows, capable to save costs and cut expenses by making operations green.

According to Fülöp and Gall (2011) an ecofriendly strategy can therefore enhance corporations' integration among economic, ecological, social operations and to chase economic objectives that are environmentally responsive. They added that this purpose is accomplished by maintaining the ecological prerequisites within the development of corporation's social and

economic objectives through such a degree which won't hinder enterprise competition as well as operation activities. Strategic environment management directly counterparts all the three components of Triple Bottom Line including social, economic and environment. Both managerial and organizational factors have a huge effect on company's strategy regarding environment Sharma (2000). He concludes that managerial values definitely influence organization distinction and administrative explanations regarding ecological issues that also directly influences the ecological approach of an organization.

However, health of prosperous ecological approach linked with removing the clash of corporate and social benefits as well as mutually stimulating both of the objectives. Establishing Strategic environment management within an organization can be proven a productive and flourishing mode to realize sustainability by means of incorporating Triple Bottom Line components. Therefore, by way of efficient and effective implementation of Strategic environment management organizations become able to minimize costs as well as increase their returns.

### **2.13 Development of Hypothesis**

- H<sub>1</sub>.** SPr has a significant positive relationship with SP of SMEs.
- H<sub>2</sub>.** SPr has a significant positive relationship with LP of SMEs.
- H<sub>3</sub>.** LP mediates a significant positive relation between SPr and SP.
- H<sub>4</sub>.** SPr has a significant positive relationship with PI of SMEs.
- H<sub>5</sub>.** PI mediates a significant positive relation between SPr and SP.

## **CHAPTER 03**

### **RESEARCH METHODOLOGY**

The research was organized by choosing the technique in accordance with university guidelines, thus in this mentioned chapter “Research Methodology” was administered to carry this research has been described. The main aim of this chapter is to explain the methodological approach that was organized to carry out this research. The procedure and technique of the study comprise of numerous components such as population of the study, sample size, measurement and method of data collection was discussed. Moreover, statistics used for data analysis and interpretation have been stated in this segment.

#### **3.1 Quantitative Research**

Quantitative research is administered to compute the variables. It simplifies outcome of large sample population. It is concerned with result output and emphasizes on the testing of hypothesis. Creswell (2009) state that quantitative research is a technique which is used to investigate relationship among various variables. Quantitative research is according to Malhotra et al. (1996) designed and constructed scientifically hence this involves representative samples.

Henn, Weinstein and Foard (2006) revealed that quantitative research is useful in observing the linkage between two or more variables. Creswell (2009) found that quantitative surveys and research assist in applying results to other corporations. This research was organized by selecting the quantitative techniques of research because questionnaires were outlined to gather data from respondents. The number of respondents were dispersed in the domain in Islamabad that is the reason researcher administered quantitative research. Quantitative research assist in accurate implementation of a sampling design and measurement of validity and reliability from the questionnaire enhance the ability to simplify results to a large population (Mouton, 2001).



### **3.2 Population of the Study**

According to Saunders, et al. (2003) population is entire set of data in interest of the researcher and units from where sample is taken known as target population. Zikmund (2003) discuss class of population associated to research group is known as target population. The population of this research is all the small and medium restaurants working in Islamabad, the Capital city of Pakistan. The city of Islamabad is taken in research as researcher is studying in Bahria University Islamabad Campus. So far no research study has been organized in this area. There was a dire need to gather empirical evidences about sustainable performance through sustainable practices and the mediating role of lean practices and process innovation in this sector.

### **3.3 Sample Size**

It was not possible for the researcher to gather data from all the small and medium restaurants located in Islamabad. Technique of convenience sampling was administered to select the sample of this study (Uma Sekaran, 2003). For the similar nature of research studies convenience sampling was also taken into account by previous researchers. The primary data for this study is collected by distributing the questionnaire for the purpose of analyzing the model based on hypothetical approach for the SMEs of Pakistan. The samples were taken from SMEs located in Islamabad, Capital city of Pakistan. The owners, managers and employees were included in the respondents and for the mentioned matter the questionnaires were distributed among all of them personally and total of 200 valid respondents were taken to collect the data.

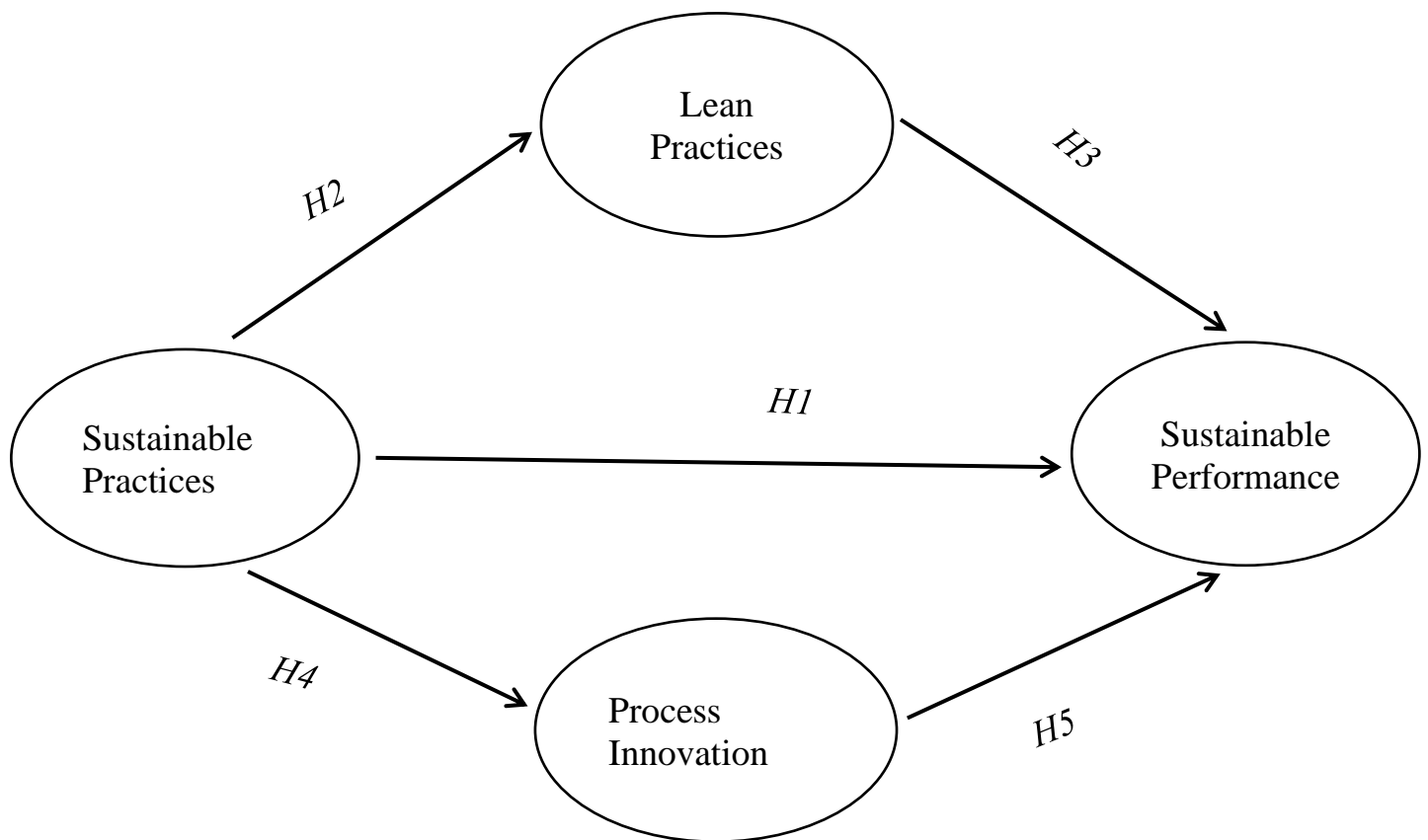
### **3.4 Measurement Instruments**

The sustainable practices was measured by Dey et al. (2019) using 5 items in the questionnaire. Furthermore, using 3 items in the questionnaire Process Innovation was measured, which were constructed by Rao and Drazin (2002) and later authenticated by Cherrafi, A. et al. (2018). Lean practices was measured by using 5 items whereas Sustainable Performance was measured by the total 7 items in the questionnaire which were developed and authenticated by the Dey et al. (2019) and also validated for SMEs. 5 point Likert scale was used for the measurement instrument of the study.

### 3.5 Reliability

To assess reliability of all the construct of measurement involved in this research verified since the Cronbach's Alpha revealed for all of them were above the acceptable level or cut-off point of 0.70 suggested by (Cronbach, 1951; Nunnaly, 1978).

### 3.6 Theoretical Model



**Figure 2. Hypothetical Model**

The description regarding the model is being discussed in the literature review by developing the links among the variables and hypothesis as well.

## CHAPTER 04

### EMPIRICAL RESULTS

#### 4.1 Reliability Test

**Table 1. Reliability test results**

Cronbach's Alpha	N of Items
0.769	4

In order to evaluate the reliability of the construct we employed Cronbach's alpha and resultantly all the measuring instruments involved in this specific study stand proved as the result of all the coefficients were above the cut-off point that was 0.70 (Nunnaly, 1978; Cronbach, 1951). The number of items shown in the table indicates the Sustainable performance, sustainable practices, process innovation and lean practices.

## 4.2 Demographics

**Table 2. Frequency table**

Demographics		Percent	Cumulative Percent
<b>Gender</b>	Male	100.0	100.0
	Female	0.0	100.0
	Total	100.0	
<b>Marital Status</b>	Married	43.0	43.0
	Single	57.0	100.0
	Total	100.0	
<b>Age</b>	18-23 years	29.0	29.0
	24-29 years	34.0	63.0
	30-35 years	21.0	84.0
	36 and above	16.0	100.0
	Total	100.0	
<b>Experience</b>	0-5 years	39.0	39.0
	6-10 years	33.0	72.0
	11-15 years	16.0	88.0
	16 and above	12.0	100.0
	Total	100.0	

The above frequency table displays that respondents were all of the male gender. And the reason behind that almost all of the employees etc., there were male.

The frequency table depicts that 43% of the respondents were married while the rest of 57% were single or not married yet.

If we talk about the age groups, the respective frequency table demonstrates that 29% of the respondents were in the age bracket of 18-23 years, 34% in 24-29 years, 21% in 30-35 years, and the remaining 16% of the respondents have the 36 years or more.

The above frequency table portrays that 39% of the respondents have the experience of 0-5 years, 33% have 6-10 years, 16% have 11-15 years whereas the rest of 12% have the experience of 16 years and above.

### 4.3 Descriptive Statistics

**Table 3. Descriptive Statistics**

	N	Mean	Standard Deviation
Sustainable Practices	200	4.2600	0.34786
Sustainable Performance	200	3.9857	0.41730
Lean Practices	200	4.3600	0.39899
Process Innovation	200	3.3000	0.84473

The descriptive statistic shows all the variables. The above mentioned table comprise Mean and Standard Deviation. The value of mean of Sustainable Practices is 4.26, Sustainable Performance is 3.98, Lean Practices is 4.36 and Process Innovation is 3.30. The descriptive statistics also show that the variation of data from its mean varies from 0.35 to 0.84. The standard deviation from the mean value of sustainable practices is 0.35, sustainable performance is 0.42, lean practices is 0.40 and process innovation is 0.84.

#### 4.4 Correlation Test

**Table 4. Correlation test results**

	Sustainable Practices	Sustainable Performance	Lean Practices	Process Innovation
Sustainable Practices	1			
Sustainable Performance	0.698**	1		
Lean Practices	0.510**	0.643**	1	
Process Innovation	0.600**	0.589**	0.394**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

#### **Explanation:**

In the above mentioned correlation matrix, the relationship between all the two variables is shown positive and depicts that any change and increase in independent variable will also change and increase the dependent variable and both will move in a same direction. Anyhow the relationship has been observed on a different parameter between the variables in this study due to the reasons of having different hypothesis. Two tailed Pearson level of significance 0.01 is used for all the results.

Sustainable Practices are positively correlated with Sustainable Performance. The Pearson correlation shows  $r=0.698$  between Sustainable Practices and Performance that shows a strong positive relationship. Similarly, the value of  $r$  between Lean Practices and Sustainable Practices is 0.510 and Process Innovation and Sustainable Practices is 0.600 that depicts a strong positive relationship and the significance level is 0.000 ( $<0.01$ ).

Lean Practices are positively correlated with Sustainable Performance. The Pearson correlation shows  $r=0.643$  between Lean Practices and Sustainable Performance, looking beyond the drawn hypothesis, the  $r$  between Lean Practices and Process Innovation is 0.394.

Moreover, Process Innovation also have positive impacts on the rests of the variables but as the variables of our study is limited to some confined and drawn hypothesis so we will analyse impact of the Process Innovation on Sustainable Performance. The results of the matrix shows that r of 0.589 is observed between Process Innovation and Sustainable Performance.

## **Regression Analysis**

Regression technique is considered to be the most precise so as to envisage the significance of relationship between the independent as well as dependent variables. The three basic categories of regression method include multiple, linear and non-linear regressions. We have chosen linear regression method in this study in order to analyse the relationship of statistical data. The gathered data related to variables was entered in the SPSS version 23 and the oriented results has been shown below in the tables coming in next pages.

#### 4.5 Relationship between Sustainable Practices and Sustainable Performance

**Table 5. Results for relationship between SPr and SP**

R	R square	Adjusted R Square	Beta	F	t	Sig.
0.698 <sup>b</sup>	0.488	0.485	0.698 <sup>**</sup>	188.427	13.727	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable: Sustainable Performance
- b. Predictors: (Constant), Sustainable Practices

The R Square represents the strength, fitness, and significance of the model among the independent and dependent variables. In the above equation the R Square is 0.488 (48.8 %) that indicates 48.8% of the variation in Sustainable Performance is explained through Sustainable Practices and rest of 52.2% is explained by other unobserved factors. We can also deduce that 48.8% of our data is fit and 52.2% is residual. There is also a minimal deviation in adjusted R Square that is 0.485.

The entire regression model is statistically significant by setting the level of significance Alpha 1%. The P value of F - Statistics is less than the acceptable range that indicates the fitness of our regression model. So we can claim that our suggested regression equation is rationally appropriate for variables.

In the above table 5, we conduct the analysis of regression results. According to our hypothetical model, we performed a test on variables. Firstly, we hypothesized that there will be a positive impact on the Sustainable Performance by the Sustainable Practices within the organization. Therefore, the coefficient for SPr (Sustainable Practices) at 1% level of significance was 0.698 (69.8 %) that clearly indicates that one-unit rise in Sustainable Practices will result 0.698 units (69.8 %) increase in Sustainable Performance as a response. These results also second the verdicts of (Dey et al., 2019; Gonzalez-Bonito and Gonzalez-Bonito, 2006). They were found a direct relation of Sustainable Practices with Sustainable Performance. With the growing issues regarding sustainability, organizations started thinking to reap the long lasting benefit in their own domain and other markets as well by making the ecological features as the part of their practices.



#### 4.6 Relationship between Sustainable Practices and Lean Practices

**Table 6. Results for relationship between SPr and LP**

<b>R</b>	<b>R square</b>	<b>Adjusted R Square</b>	<b>Beta</b>	<b>F</b>	<b>T</b>	<b>Sig.</b>
0.510 <sup>b</sup>	0.260	0.256	0.510 <sup>**</sup>	69.522	8.338	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable: lean practices
- b. Predictors: (Constant), sustainable practices

The R Square represents the strength, fitness, and significance of the model among the independent and dependent variables. In the above equation the R Square is 0.260 (26 %) that indicates 26% of the variation in Lean Practices is explained through Sustainable Practices and rest of 74% is explained by other unobserved factors. We can also deduce that 26% of our data is fit and 74% is residual. There is also a slight deviation in adjusted R Square that is 0.256.

The entire regression model is statistically significant by setting the level of significance Alpha 1%. The P value of F - Statistics is less than the acceptable range that indicates the fitness of our regression model. So we can claim that our suggested regression equation is rationally appropriate for variables.

Table 6 is based on results of the regression model/equation. According to our equation Sustainable Practices positively effects the Lean Practices inside the organization. Thus the coefficient for SPr (Sustainable Practices) at 0.01 significance level was 0.510 (51.0 %). As a consequence, the relation between Sustainable Practices and Lean Practices is positively related and figure 0.510 explicitly shows one-unit increase in Sustainable Practices will result 0.510 (51.0 %) increase in Lean Practices.

#### 4.7 Relationship between Sustainable Practices and Process Innovation

**Table 7. Results for relationship between SPr and PI**

R	R square	Adjusted R Square	Beta	F	T	Sig.
0.600 <sup>b</sup>	0.360	0.356	0.600 <sup>**</sup>	111.192	10.545	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable : process innovation
- b. Predictors: (Constant), sustainable practices

The R Square represents the strength, fitness, and significance of the model among the independent and dependent variables. In the above equation the R Square is 0.360 (36 %) that indicates 36% of the variation Process Innovation is explained through Sustainable Practices and rest of 64% is explained by other unobserved factors. We can also deduce that 36% of our data is fit and 64% is residual. The adjusted R Square shows 0.356 (35.6 %) that demonstrates a minimal deviation from R square.

The 0.000 is the P value of F – Statistics that is a clear indication of fitness of model. The value is in the range that is acceptable <0.01 hence our selected model stands appropriate.

The table 7 shows the results. It can be seen in the above index that the coefficient between Sustainable Practices and Process Innovation at 1% level of significance is 0.600 which demonstrate that one-unit increase in Sustainable Practices results 0.600 (60 %) in Process Innovation.

#### 4.8 Relationship between Lean Practices and Sustainable Performance

**Table 8. Results for relationship between LP and SP**

R	R square	Adjusted R Square	Beta	F	t	Sig.
0.643 <sup>b</sup>	0.414	0.411	0.643 <sup>**</sup>	139.782	13.727	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable : Sustainable Performance
- b. Predictors : (Constant), lean Practices

The R Square represents the strength, fitness and significance of the model among all the independent and dependent variables. In the above equation the R Square is 0.414 (41.4 %) that indicates 41.4% of the variation in Sustainable Performance is explained through Lean Practices and remaining 58.6% is explained by other unobserved factors. We can also deduce that 41.4% of our data is fit and 58.6% is residual. There is also a minimal deviation in adjusted R Square that is 0.411.

The entire regression model is significant by setting the level of significance Alpha 1%. The P value of F - Statistics is less than the acceptable range that indicates the fitness of our regression model. So we can claim that our suggested regression equation is rationally appropriate for variables.

In the above table 8, we conduct the analysis of regression results. According to our hypothetical model, we performed a test on variables. Firstly, we hypothesized that there is a positive impact on the Sustainable Performance by the Lean Practices within the organization. Therefore, the coefficient for LP (Lean Practices) at 1% level of significance was 0.643 (64.3 %) that clearly indicates that one-unit rise in Lean Practices will result 0.643 units (64.3 %) increase in Sustainable Performance as a response. The outcome of the study is reliable with the (Dey et al., 2019 ; Martínez-Jurado & Moyano-Fuentes, 2014 ; Viesi et al., 2017). They were also found a direct relation between sustainable performance and lean practices.

#### 4.9 Mediation role of LP between SPr and SP

**Table 9. Results for relationship between SPr and SP with mediation effect of LP**

R	R square	Adjusted R Square	Beta	F	t	Sig.
0.698 <sup>b</sup>	0.488	0.485	0.698 <sup>**</sup>	188.427	13.727	0.000
0.774 <sup>c</sup>	0.599	0.595	0.500 <sup>**</sup>	147.227	9.544	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable : sustainable performance
- b. Predictors : (Constant), sustainable practices
- c. Predictors : (Constant), sustainable practices, lean practices

Baron and Kenny (1986) is used for mediation and all of the four required conditions were fulfilled in this regard. The value of R square is 0.599 between sustainable performance and practices keeping in view the mediation of lean practices which is increased by 0.111 as it can easily be seen that previously only 48.8% change is explained sustainable practices separately.

The P value of F - Statistics is less than the acceptable range ( $0.000 < 0.01$ ) that indicates the fitness of our regression model. So we can claim that our suggested regression equation is rationally appropriate for variables. As in both the cases whether it's the direct relationship between sustainable performance and practices or through mediation of lean practices, the P value is significant.

This table shows that the coefficient of sustainable practices reduced from 0.698 to 0.500 when it is mediated by lean practices hence the value remains positive but reduced and significant that indicates the partial mediation. This clearly indicates that one-unit rise in Sustainable Practices when mediated by Lean Practices will result 0.500 units (50 %) increase in Sustainable Performance as a response. The outcome of the specific study is also reliable with the study of (Dey et al., 2019; Carvalho et al., 2017; Ng et al., 2015) which also indicates the positive impact on the sustainable performance of the organization if implemented in such a way.

#### 4.10 Relationship between Process Innovation and Sustainable Performance

**Table 10. Results for relationship between PI and SP**

R	R square	Adjusted R Square	Beta	F	t	Sig.
0.589 <sup>b</sup>	0.347	0.344	0.589 <sup>**</sup>	105.306	13.727	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable : Sustainable Performance
- b. Predictors : (Constant), Process Innovation

The R Square represents the strength, significance and fitness of the model among all the independent and dependent variables. In the above equation the R Square is 0.347 (34.7 %) that indicates 34.7% of the variation in Process Innovation is explained through Sustainable Practices and remaining 65.3% is explained by other unobserved factors. We can also deduce that 34.7% of our data is fit and 65.3% is residual. There is also a slight deviation in adjusted R Square that is 0.344. The 0.000 is the P value of F – Statistics that is a clear indication of fitness of model. The value is in the range that is acceptable hence our selected model stands appropriate.

Table 10 is based on results of the regression model/equation. According to our equation Process innovation positively effects the Sustainable Performance inside the organization. Thus the coefficient for PI (Process innovation) at 0.01 significance level was 0.589 (58.9 %). As a consequence, the relation between Sustainable Performance and Process Innovation is positively related and figure 0.589 explicitly shows one unit increase in Process innovation will cause 0.589 (58.9 %) increase in Sustainable Performance. These findings are relatively consistent with the study of (Dey et al., 2019; Adams et al., 2016; Aguado et al., 2013; Abdallah, Diabat, & Simchi-Levi, 2011). As they also finds that process innovation will lead to sustainable performance in the organizations.

#### 4.11 Mediation role of PI between SP<sub>r</sub> and SP

**Table 11. Results for relationship between SP<sub>r</sub> and SP with mediation effect of PI**

R	R square	Adjusted R Square	Beta	F	t	Sig.
0.698 <sup>b</sup>	0.488	0.485	0.698 <sup>**</sup>	188.427	13.727	0.000
0.730 <sup>c</sup>	0.533	0.528	0.539 <sup>**</sup>	112.419	8.853	0.000

**Note:** \*\* indicates that beta is significant at the 0.01 level (2-tailed).

- a. Dependent Variable : sustainable performance
- b. Predictors : (Constant), sustainable practices
- c. Predictors : (Constant), sustainable practices, process innovation

Baron and Kenny (1986) is used for mediation and all of the four required conditions were fulfilled in this regard. The value of R square is 0.533 between sustainable performance and practices keeping in view the role of Process Innovation as a mediator which is increased by .045 as it can easily be seen that previously only 48.8% change is explained sustainable practices separately.

The P value of F - Statistics is less than the acceptable range ( $0.000 < 0.01$ ) that indicates the fitness of our regression model. So we can claim that our suggested regression equation is rationally appropriate for variables. As in both the cases whether it's the direct relationship between performance and practices or through mediation of Process Innovation, the P value is significant.

This table shows that the coefficient of sustainable practices reduced from 0.698 to 0.539 when it is mediated by lean practices hence the value remains positive but reduced and significant that indicates the partial mediation. This clearly indicates that one-unit rise in Sustainable Practices when mediated by Process Innovation will result 0.539 units (53.9 %) increase in Sustainable Performance as a response. This specific finding is relatively in line with the hypothesis developed by Dey et al. (2019) that the sustainable practices adds to the sustainable performance with the mediation effect of the process innovation in the SMEs.

## CHAPTER 05

### DISCUSSION AND CONCLUSION

#### Discussion

This study was carried out to know the impact of Sustainable Practices on supply chain Sustainable Performance keeping in view the mediating role of Process Innovation and Lean Practices in small and medium enterprises (i) To examine the relationship of the Process innovation, Lean practices, and Sustainable practices with sustainable performance. (ii) To inspect the relationship of Sustainable performance and sustainable practices, with the mediating role of Process innovation and Lean practices. (iii) To explore that Sustainable practices, Process innovation and Lean practices enhances supply chain sustainable performance. Moreover, hypothesis was also developed i.e. (i) Sustainable Practices has a positive relationship with Sustainable Performance of SMEs. (ii) Sustainable Practices has a positive relationship with Lean Practices of SMEs. (iii) Lean Practices mediates a positive relation between Sustainable Performance and Sustainable Practices. (iv) Sustainable Practices has a positive relationship with Process Innovation of SMEs. (v) Process Innovation mediates a significant positive relation between Sustainable Performance and Sustainable Practices. The population of this specific research is all the small and medium restaurants working in Islamabad, the Capital city of Pakistan. The data collected was organized and then tabulated considering the objectives, hypothesis and model of study. Descriptive and inferential statistic was applied for data analysis. The findings of this specific study are presented in the subsequent paragraphs.

The objectives behind this study is investigating the relationship of the Lean practices, Sustainable practices, and Process innovation with Sustainable Performance. The regression analysis and correlation is done to examine the relationship between them.

There was a positive correlation shown in the results between Sustainable Performance and Sustainable Practices. The Pearson correlation shows  $r$  of 0.698 between Sustainable Practices and Performance. The level of significance is in the acceptable range  $0.000 < 0.01$  and the the R Square is 0.488 (48.8 %) that indicates 48.8% of the variation in Sustainable Performance is explained through Sustainable Practices and rest of 52.2% is explained by other unobserved factors. These results also second the verdicts of (Dey et al., 2019; Inman & Green, 2018;

Malesios et al., 2018). They were found a direct relation of Sustainable Practices with Sustainable Performance. With the growing issues regarding sustainability, organizations started thinking to reap the long lasting benefit in their own domain and other markets as well by making the ecological features as the part of their practices.

Lean Practices are also positively correlated with Sustainable Performance. The Pearson correlation shows  $r$  of 0.643 between Lean Practices and Sustainable Performance. The level of significance is in the acceptable range  $0.000 < 0.01$  and the R Square is 0.414 (41.4 %) that indicates 41.4% of the variation in Sustainable Performance is explained through Lean Practices and rest of 58.6% is explained by other unobserved factors. The outcome of the study is reliable with the (Dey et al., 2019 ; Martínez-Jurado & Moyano-Fuentes, 2014 ; Viesi et al., 2017). They were also found a direct relation between sustainable performance and lean practices.

Process Innovation also have positive impacts on the Sustainable Performance. The results of the matrix shows that  $r$  of .589 is observed between them that shows that they are positively correlated. The level of significance is in the acceptable range  $0.000 < 0.01$  and the coefficient for PI (Process innovation) at 0.01 significance level was 0.589 (58.9 %). As a consequence, the relation between Process innovation and Sustainable Performance is positively related and figure 0.589 explicitly shows one-unit increase in Process innovation will result 0.589 (58.9 %) increase in Sustainable Performance. These findings are relatively consistent with the study of (Dey et al., 2019; Adams et al., 2016; Aguado et al., 2013; Abdallah, Diabat, & Simchi-Levi, 2011). As they also finds that process innovation will lead to sustainable performance in the organizations.

Now, keeping in mind the mediating role of lean practices, our results shows a partial mediation and positive relation between the sustainable performance and sustainable practices. The coefficient of sustainable practices reduced from 0.698 to 0.500 when it is mediated by lean practices hence the value remains positive but reduced that indicates the partial mediation. This clearly indicates that one-unit rise in Sustainable Practices when mediated by Lean Practices will result 0.500 units (50 %) increase in Sustainable Performance as a response. The outcome of the specific study is also reliable with the study of (Dey et al., 2019; Carvalho et al., 2017; Ng et al., 2015) which also indicates the positive impact on the sustainable performance of the organization if implemented in such a way.



Using the role of Process Innovation as a mediator, our results shows a partial mediation and positive relation between sustainable performance and sustainable practices. The coefficient of sustainable practices reduced from 0.698 to 0.539 when it is mediated by lean practices hence the value remains positive but reduced that indicates the partial mediation. This clearly indicates that one-unit rise in Sustainable Practices when mediated by Process Innovation will result 0.539 units (53.9 %) increase in Sustainable Performance as a response. This specific finding is relatively in line with the hypothesis developed by Dey et al. (2019) that the sustainable practices adds to the sustainable performance with the mediation effect of the process innovation in the SMEs.

## **Conclusion**

The main purpose behind this specific study is to find the effect on sustainable performance by incorporating the process innovation, lean and sustainable practices. It will help the organizations to become stronger in the current environment. It is reality that companies' that work with sustainability perform much better all around the world. This study will help in developing new relationships by incorporating all the stakeholders. It will also help to make better decisions in the sensitive and competitive environment and incorporating the concept of "sustainability" in the core values. In a developing country like Pakistan there is not as much environment protection awareness as well. This research campaign will help in improve brand reputation and goodwill. Sustainable practices, process innovation and lean practices will also help to the cost reduction and production efficiency and consequently will add a benefit to the organization. An efficient and effective mechanism can be derived for minimizing the negative impact on environment and utilization of assets.

## **Managerial Implications**

The findings of this specific research will enhance the insight for the managers to design the sustainable strategy through incorporating process innovation, lean and sustainable practices in there. Consequently, employees will contribute for the development of sustainable strategy by implementing the practices effectively for achieving higher sustainable performance and manager will be in better position to innovate processes as well for enhancing the performance. It also helps in policy formulation. It will help the organizations to find out that investment in lean practices, process innovation and sustainable practices helps in creating environment,

social and economic benefits which helps in strengthening relationship with various stakeholders.

### **Limitations of the study**

This study was conducted in Islamabad by taking into consideration the constraint factors such as resources and time to the researcher work and thus limited to small and medium restaurants that are located only in Islamabad.

### **Future Research**

As the sample size is relatively small due to some constraint factors so larger sample shall be undertaken for future research. The dynamics of world regarding geographical market is diversified from one another, this study can also be useful to shed a light on geographical differences or similarities in other localities. As the population of this specific study is limited to small and medium size restaurants due to some restraint factors. Hence, other SMEs or small and medium industries of different nature shall be taken into consideration. Future study can also be conducted on different issues that managers are facing in relation to sustainability.

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## **Appendix A**

### **Impact of Sustainable Practices on supply chain Sustainable Performance: The mediating role of Lean Practices and Process Innovation in small and medium enterprises**

#### **Questionnaire**

Dear Sir/Madam,

I am student of MBA from Bahria University. I am conducting research on “*Impact of Sustainable Practices on supply chain Sustainable Performance: The mediating role of Lean Practices and Process Innovation in SMEs working in Islamabad*”. A questionnaire has been developed to get your valuable opinion in this regard. You are requested to fill up this, hence, it is stated that this information is collected for academic purpose and all responses will be kept confidential.

Your cooperation will be highly appreciated.

Yours sincerely,  
**(Adnan Ahmed)**

MBA



**PART-I**  
**DEMOGRAPHIC DATA**

- |                    |                  |                   |
|--------------------|------------------|-------------------|
| i. Gender:         | Male_____        | Female_____       |
| ii. Marital status | Married_____     | Single_____       |
| iii. Age           | 18-23 years_____ | 24-29 years_____  |
|                    | 30-35 years_____ | 36 and above_____ |
| iv. Experience     | 0-5 years_____   | 6-10 years_____   |
|                    | 11-15 years_____ | 16 and above_____ |

## PART-II

Some statements have been developed regarding Lean practices, Process innovation, Sustainable Practices and Performance. You are requested to tick (✓) the relevant column.

S#	Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Lean practices:</b>						
1	All form of waste reduction practices are being followed in your organization.					
2	Your organization focuses on effective Inventory management system.					
3	Your organization focuses on optimum Capacity utilization.					
4	Your organization use effective supplier relationship management practices.					
5	Your organization use effective customer relationship management practices.					
<b>Process Innovation:</b>						
6	Your organization gives a Fast response to the new processes introduced by other companies within the same sector.					
7	Your organization is a Pioneer in introducing new process.					
8	The number of changes in the process introduced in one year are significant.					
<b>Sustainable Practices:</b>						
9	The employees in your organization are enough to get the required work done.					

10	The Infrastructure used in your organization is enough to meet the organization needs.					
11	The waste management practices are followed in your organization.					
12	The energy consumption and emission control practices are followed in your organization.					
13	CSR practices are followed in your organization.					
<b>Sustainable Performance:</b>						
14	The turnover rate of employees are significantly low in your organization.					
15	The business growth of your organization is quite significant.					
16	The waste reduction in your organization is significant.					
17	The effectiveness of environmental system in your organization is significant.					
18	The reduction of energy consumption and emissions in your organization is significant.					
19	The CSR performance of your organization is significant.					
20	The health and safety performance of your organization is significant.					

***THANK YOU.***