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Title in English

**An Investigation into the Environmental Sustainability Practices in Saudi Arabian
Small and Medium Sized Enterprises (SMEs) in Manufacturing Sector**

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Abstract

This study investigates the environmental sustainability practices adopted by small and medium-sized enterprises (SMEs) in the manufacturing sector in Saudi Arabia. The research aims to evaluate the extent of awareness, organizational commitment, and implementation of environmental strategies within these enterprises. A quantitative research approach was employed, utilizing a structured online questionnaire, and the data was analyzed using SPSS software through reliability, correlation, and regression tests.

The findings reveal a growing awareness among SMEs regarding the importance of environmental sustainability. However, there is inconsistency in the implementation of specific environmental strategies, particularly in energy and transportation. The study confirms that organizational concern for sustainability positively influences both employee awareness and the adoption of environmental strategies.

This research recommends fostering a stronger sustainability culture in SMEs and providing technical and educational support to improve sustainable practices. These efforts align with Saudi Arabia's Vision 2030 and the nation's broader goal of achieving sustainable development.

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Chapter 1: Introduction

1.0. Introduction and background

Environmental sustainability is a practice that business organizations incorporate in their work activities, so that a stable and secure future for their business is achieved. Environmental sustainability is defined as the ability of a business organization to adapt to change in the business environment to capture contemporary best practice methods and to achieve and maintain superior competitive performance (Lonial, 2015). It relates to the futuristic plans that business formulates and then operate upon, such as to reduce waste, assure the efficiency of supply chains and building its brand. Sustainability is an all-inclusive practice, targeting everyone involved in the business i.e. the suppliers, the operations, the consumers (Lonial, 2015). Sustainability is gaining momentum when it comes to business practices, government policies and academic work globally.

In Saudi Arabia, environment is facing a severe threat caused due to the change of climate and depletion of natural resources. Climate change causes numerous threats to ecosystem, economic strength, water and food reserves. Due to high living standard in Saudi Arabia, consumption of natural resources has been enhanced resulting misbalancing in the natural reserves (Quinn, 2011). Majority of natural resources come from fossil fuel and burning of fossil fuel becomes the major threat and reason of global warming. Extreme climate conditions across the region has caused the depletion of the ozone layer triggering skin and respiratory problems. In the timespan of 1980 to 1990, the demand of water from the natural resources has been increased from 9.95m³ billion to 22.60m³ billion which is an alarming situation (Agwu et al, 2015).

The change of environment causes global warming which negatively impacts the humanity and biological system (Achoui, 2009). All of these negative effects sums up and enhance the destruction of species that reside in the planet earth. There are three levels of climate change impact which are described are as under:

- The first one is change in the physical system of earth which is melting of glaciers, land sliding, sea / river flooding and terrestrial erosion.
- The second level of climate change impact is the variation in the biological system. In marine and land ecosystem, it is observed and witnessed the demise of fauna and flora which is a huge environmental disaster.

- The third level is the variation in the human system. The destruction of food and crops due to vigorous climate change causes loss of economy and wealth.

There are some of the important factors to be implemented by the manufacturing industrial sector so that the environmental sustainability is attained in the most professional manner. This is to be more environmentally sustainably and be a better business.

Resource efficiency is key when it comes to environmental sustainability in businesses and SMEs. It is significant to use natural sources of energy for the generation of electricity, gas etc. installation of solar panels at home will generate electricity and so as the use of wind mill can generate ample volume of electricity to operate water turbines. The use of natural sources will lessen the utilization of fossil fuels and will enhance the earth's life. Some of the most peculiar wind power project includes Saudi Aramco's Turaif 2.70 Mega Watt project. Famous solar energy project includes Sakaka Project with the capacity of 300 MW generation of energy and Al-Midra Power Project generates 10.50 MW of energy (Wiesner, 2018). However, there is a long way to go for SMEs to be more environmentally sustainable. Public awareness is needed for saving the natural resources on a wider spectrum so that the species that exist in the earth can live hale and hearty. The release of dangerous gases from the industrial units weakens the ozone layer which directly implicates the growth of human health risk factors. So as the marine life gets disturbed due to water pollution and disturbs the ecosystem. It is obligatory to make constructive arrangements to make the planet earth healthier and stronger so that the species existing in it can live well (Al-Mahrouq, 2010). Saudi Arabian government has initiated environmental sustainability initiatives such as recyclable and biodegradable products as an alternate of plastic bags that would make the environment free from bad impacts (Soininen, 2012). Despite various ad hoc sustainability practices there is a need to carry out further research and support managers with more insights into effective practices.

1.1. Problem Statement

The implementation and maintaining of environmental sustainability practices is the modern and latest area of concern for the small and medium sized enterprises (SMEs) all around the world. This is particularly important for SMEs in the Saudi Arabian manufacturing sector due to its operational business activities and significant environmental impact. There is a concern for climate change due to increasing carbon emissions due to business operations. Environmental

sustainability can help minimize carbon emissions and address the issue of climate change which is a serious global concern at the moment.

1.2. Research Aim and Objectives

The main aim of this research study is to explore how Saudi Arabian Small and Medium Size Enterprises (SMEs) are implementing environmental sustainability into their core business operations in the manufacturing sector.

Following are the specific research objectives which will help in meeting the main aim of the research:

1. To investigate the current state of environmental sustainability practices in SMEs in Saudi Arabian manufacturing sector.
2. To explore the drivers and motivations for implementing environmental sustainability in SMEs in Saudi Arabia manufacturing sector.
3. To investigate the barriers/challenges to effective implementation of environmental sustainability in SMEs in Saudi Arabia.
4. To give recommendations for improving the implementation of environmental sustainability in Saudi Arabian SMEs and in other countries more generally.

1.3. Research Methodology

There are couple of research methodology approach i.e. qualitative and quantitative. The data collection method of quantitative approach to be used that would help to obtain the research aim and objectives. Small and Medium Enterprises in Saudi Arabia are consistently working hard to ensure that the required amount of information is retrieved related to environmental sustainability practice (Whittington, 2017). SurveyMonkey tool would be utilized by the relevant managers for the purpose of data collection and data analysis will then be carried out. Professionals of different categories will be invited for the questionnaire related to the environmental sustainability factors for the manufacturing sector. This will give the clear identification of small and medium enterprise professional intention and ideology related to sustainability approach (Smart, 2016).

1.4. Research Implications

Small and medium enterprises are the backbone of the economy and it is very important for them to adopt practical strategies for the implementation of environmental sustainability approaches. The proper use of the latest technology will induce efforts to make the society maintained and sustainable. The study will offer contribution to knowledge through empirical research. It will also give recommendations to SMEs managers in the manufacturing sector for improving the implementation of environmental sustainability in Saudi Arabia and in other countries more generally.

Below is the distribution of company type depending upon the number of employees in Saudi Arabia. This disintegration assists in making the analysis of efforts made in maintaining environmental sustainability.

Type of Organization	Number of Employees	*Annual Revenue
Micro	1 to 4	Less than 3 million
Small	5 to 19	Less than 40 million
Medium	20 to 199	40 to 100 million
Large	200 plus	More than 200 million

**Saudi Arabian Riyal*

There are competent authorities in Saudi Arabia which always track and monitor the activities of small and medium enterprises who are in the business of manufacturing as their production of specific products require technical processes which produces gases and by-products effecting the environment. Some of the significant institutions along with the assigned responsibilities are as under:

Saudi Institutions	Assigned Responsibilities
NCWCD- National Commission for Wildlife Conservation and Development	Preserving and security of the marine and worldly wildlife
MoA- Ministry of Agriculture	Maintaining fisheries, forests and animal resources
MoMRA- Ministry of Municipal and Rural Affairs	Maintaining waste management policies in the nation
MoH- Ministry of health	Maintaining health measures across the region
Saudi Aramco	Environmental issues of the region
SABIC- Saudi Arabia Basic Industry Culture	Environmental issues of the region

Therefore, environmental sustainability has gained strategic importance due to external and internal policy drivers from the government. According to survey, in the year 2015, the water consumption for the industrial purpose was in total 4% for which water treatment plants were also needed to the purification of waste water so that there is no harm cause to the society.

1.5. Thesis structure

The structure of the thesis would be as below:

Chapter 1: Introduction

This chapter gives an overall introduction to the research study. It presents the R research background, problem statement, research aims and objectives, research methodology and implications of the study.

Chapter 2: Literature Review

This chapter critical review of existing literature around the topic of environmental sustainability in business organizations in general and SMEs in particular.

Chapter 3: Research Methodology

This chapter presents methodological approaches used in this research study with justifications.

Chapter 2: Literature Review

2.0. Introduction

Environment sustainability is becoming one of the most important leadership challenges in business world. An extensive literature has explored the drivers for sustainability at different levels. A country's long-term sustainable development is mainly based on environmental sustainability of small and medium enterprises (SMEs). In several developing countries' economics, the SMEs are playing vital role. According to the World bank's 2018 report SMEs contributing about 40% of Gross domestic product and 60% of total employment in developing countries (Fatoki, 2018). As the environmental sustainability practices impact on human activities and it can lead for more reliable products or services by reducing the waste and increasing the profitability in the long run. Environment sustainability practices can make profitable economic sense in business context (Henderson et al., 1972). Furthermore, the climate conditions in Saudi Arabia hinder the development of communities and cities and building industry has undergone major development. However, with use of extra resources, Saudi Arabian SMEs are at a level that is not sustainable. The building industry has adverse impacts on natural environment in terms of global warming and from the last few decades the sustainability of environment assessment has emerged for promoting sustainable SMEs schemes (Crawley and Aho, 1999). This literature survey reviews sustainability as a concept, environmental sustainability in business organisations and small and medium size enterprises (SMEs) in general and Saudi Arabia. It also reviews its drivers and barriers to its implementation.

2.1. What is Sustainability?

Sustainability derived from the word sustainable which accounts for a kind of development which satisfies the current needs without compromising the ability of the future generations to satisfy their needs. Different countries came across to different sustainability challenges and follow the respective pathways. Sustainability is important in term of providing environmental quality for generating healthy communities. Natural resources, clean and fresh fair, non-toxic environment are the major constituents of a healthy community (Holden et al., 2017).

Sustainability science is the most useful thought of research which not covers the basic or applied research whereas it provides the advanced knowledge for creating a dynamic bridge between enterprise and modern science technology (Kates, 2011). UN also defines sustainability

development according to which sustainability is an organizing principle whose goal is to meet human development as well as sustain the ability of natural system to give ecosystem services and natural resources on which economy of society based. UN General Assembly acquire agenda for sustainability development “integrated, universal and transformative” in September 2015. UN also provides a set of 17 sustainability development goals that are to be implemented in each country in all over the world from 2016 to 2030. The purpose of sustainability development is to develop a balance in environmental, economic and social needs. This development allows prosperity for both new and future generations. It allows to change the ways of developing countries and allowed them to meet basic needs of water, food, employment, energy and sanitation. The sustainable development conceptually divides into three main components including social sustainability, environmental sustainability and economical sustainability and these are also known as pillars of sustainability (Panel et al., 2011).

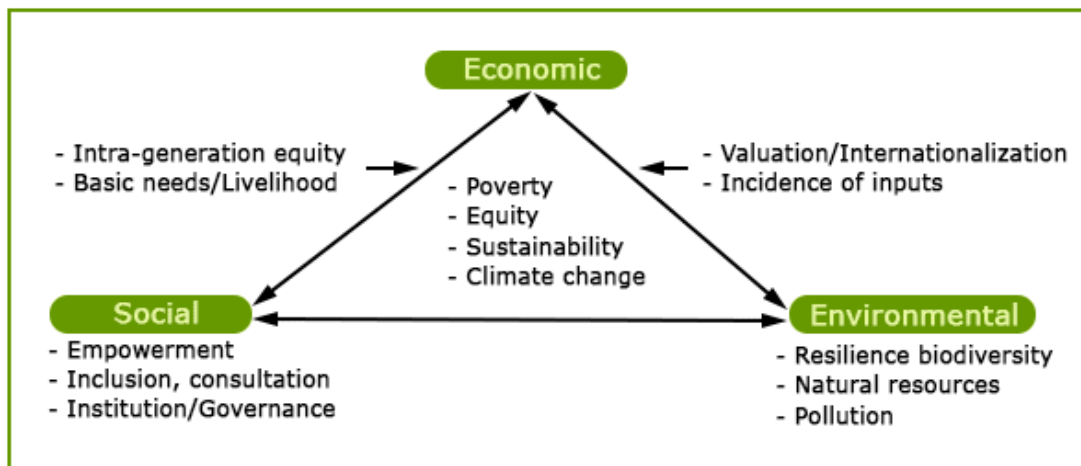


Figure 1: Components of sustainable development (Panel et al., 2011)

From Figure1 above, the sustainability pillars are integrated, for the economic sustainability which is helpful in decision making. This integrated approach also expresses a range of economic, social and environmental effects. In a community the sustainability cannot be achieved unless the whole community gets involved in it with continual improvement (Nyfeler, 2013). All these three pillars of Environmental sustainability are also represented through Venn diagram visually depicting nested concentric circles for sustainability indicators. This figure also shows the integration through different patterns. The Environmental sustainability pillars explicitly embedded in their formulation and lacks the strict logical properties (Sidiropoulos, 2014).

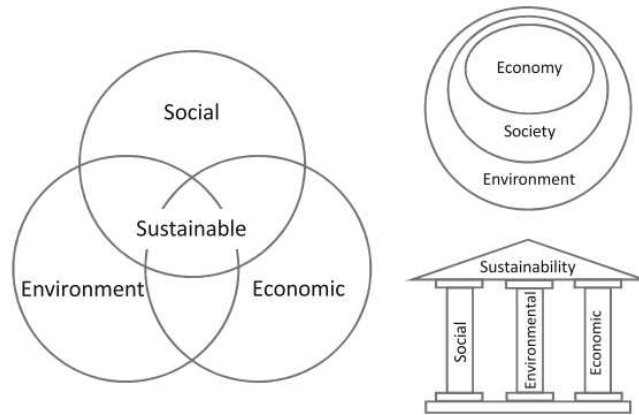


Figure 2: Environmental sustainability pillars representation through Venn Diagram
(Sidiropoulos, 2014)

In Figure 2, the left picture representing the sustainability by three intersecting circle whereas the right picture showing alternative depictions and literal pillars presenting the concentrating approach for environmental sustainability (Nyfeler, 2013). In 1994, a concept of triple Bottom line was proposed by Elkington for sustainable practices in business. He also concludes the three aspects for a sustainable conduct including Economic prosperity, environmental quality and social justice in more elaborated forms. This concept magnifies the business focus on financial bottom line by considering social and environmental aspects. (Majid and Koe, 2012). The concept of triple Bottom line was used by many scholars for sustainable development as it proves helpful in financial return, social impact and environmental responsibility. After years many researchers also proposed their models based on the idea of triple Bottom line model and concluded that the three aspects (social, economic and environment) remains as main challenge for most of the businesses (Nwogugu, 2009).

For a detailed framework to understand the sustainable development the researchers developed a more complex model expressing how three pillars of sustainable development can interlink to determine the sustainability of an entity. A framework named Five Capital Model was developed by an organization by highlighting the numerous challenges for a business to get sustainable development. The base of this model was “capital” which include “Natural Capital”, “Human Capital”, “Social Capital”, “Manufactured Capital” and “Financial Capital”.

Natural Capital mainly include the natural resources as well natural pollutants and the organizations must try to avoid the depletion of the natural resources by introducing the techniques for regeneration of environmental resources.

Human Capital covers issues related to health, skills and knowledge of the humans. For any organization smooth and effective result generation the skilled persons play the vital role and looking after of the employees is an important part of sustainable business development (Parkin, 2000).

Social Capital helps in developing common values in terms of increasing trust, networking and relationship with others which helps in communication resulting significant benefits.

Manufactured Capital mainly linked with the workforce which helps in transforming the raw material into a useful product. If the quality of the workforce is not good, then eventually it generates severe impacts and decrease the efficiency. The manufactured capital mainly includes buildings, transportation network and different machine tools etc.

Financial Capital covers the assets which is money and it can be in the form of shares or bonds. The financial capital is not always sustainable even if the rest of the four capitals are managed well. In case of any natural disaster, the estimated value of financial capital can be changed (Parkin, 2000).

2.1.1. Social sustainability

Sustainability concept was emerged in 1960s in response to environmental degradation due to poor resource management. From last few decades, it this pillar of sustainability was becoming ignored and was not getting publicity. Only bio-physical economic issues of sustainability were becoming focused by people, but this approach did not show any significant change in “development” and “economic growth” (Firth and Smith, 2018) After failure of this approach, researchers started focusing on social sustainability. (Gough, 2009). A review of literature shows that social sustainability has very importance in development of societies. Purpose of literature review is to determine diverse literature that is meant for social sustainability and describes different ways by which it plays its role in social sustainability. Social dimension of sustainability is widely used in America and all other developed countries including Saudi Arabia (Bridge, 2000). Literature suggested that developing countries should also focus on social sustainability for meeting their needs of employment, food and water etc. The important part of social sustainability

is that it addresses organizations, government and citizen about their social life and social needs. After failing of last approaches, researches are focusing on social sustainability and increase focus of people in researches and teaching of social sustainability (Kibert, 2016).

2.1.2. Economic sustainability

Economic sustainability is defined as a matter of intergenerational equity, but the specification of this sustainability is sustained not straightforward. Economic sustainability provides a relationship between sustainable development, pure time preference, distributional equity, and optimal growth. It is a complementary factor and maintains a balance between two equities. (Delrue et al., 2012). Literature attempted to provide a long-term new observational narrative for economic sustainability for the economic health of both developing and developed countries. When literature matches the results of many observations, it is clear that economic sustainability is essential for the development of a healthy society. It provides a good natural ecosystem for living organisms. Nowadays, the concern of people for the study of economic sustainability and its relationship with the other natural sources is increasing day by days (Jänicke, 2012). Literature also analyses the economic sustainability of energy crops for developing its concept. It shows that the use and production of the biomass of energy has two types of impact on the environment that can be positive and negative impacts. The Dutch Centre for Agriculture and Environment has also developed a systematic methodology for assessing the economic and socio-economical sustainability of biomass crops. The method that they used for assessing biomass energy of crops was related to Life Cycle Assessment. The literature highlights that the economic sustainability of every department is necessary and has importance for the development of Saudi Arabia. It not only develops society but also develops the life of living things (Dauber et al., 2012).

2.1.3. Environmental sustainability

Global is increasing its attention toward environmental sustainability. Carbon footprints and natural resources are recycled to improve economical sustainability. In the business, it gives opportunities to organizations to coordinate comprehensive sustainability targets (Panel et al., 2011). It also provides strategies and responsibility programs to organization to create a balance between two equities. Today, economic sustainability is more discussing on public debate and has more potential than others. Scientific researches and literature provide policies for economic sustainability such as Paris Agreement and Sustainable Development Goals. Environmental sustainability is important for all types of organizations either it is of small scale or large scale.

Both individual citizens and corporate citizens are focusing on improving environmental sustainability in incrementally and transformative ways (Smeets et al., 2008). Each positive step of any organization either it is small or large act as a first step to create a virtuous cycle of sustainability. It can reduce harmful or excessive wastes of any organization and can improve the condition of that organization to create sustainable society, planet and economy for present and future generation (Roseland, 2012).

The term Environmental sustainability expands the common perception of human activity by interlinking the ecological concept of interdependence corresponding to the functioning of ecosystem. More specifically Environmental sustainability is the condition of balance that allows human society to fulfil their needs for the nature by supporting the ecosystem and adopting the generation or recycling methods (Morelli, 2011).

The natural environment has remarkable ability to sustain its viability. Consider the example of a tree or plant when it decomposes it provide nutrition and mineral to the soil which helps in sustaining the further growth of the plants. As nature counts a major pillar in environment and the violation in nature rules can generates fundamental problems with empirical studies (Elkington, 1994).

In a nutshell, the environmental sustainability is the capacity for improving quality of human life by supporting the ecosystem. With increase of the population the increase is usage of natural resources is also obvious which is declining the balance between human and nature. This is generating the negative impact on human and environment which can be reduced recycling and regeneration (Regan et al., 2000).

2.2. Environmental sustainability in business organisation

Sustainable development was provided as an agenda for examining and guidance of global environment and development. Now, this concept is getting progress and has been transferred to various fields especially in studies and business practice (Elliot, 2011). The concept of environmental sustainability is doing progress day by day. There are many reasons of increasing its practice but most important are mentioned here. Stakeholder groups (such as media, employees, government, stakeholders and society etc) are increasing the demand of adopting and implementing responsible management practices. Therefore, these stakeholders are demanding strong economic performance as well as social and economic sustainability of that

organization. This is because, unsurprisingly Corporate Social Responsibility, Sustainable Management and Business Ethics are becoming an important part of any organizational strategy. Environmental sustainability is also becoming organizational day-to-day operations and also becoming an important part of curriculum development in business schools. The second and most important reason due to which the concept of environmental sustainability is increasing now-a-days is “Business Case for Sustainability”.

Business case for sustainability describes that how a relation between social, environmental and corporate economic success can be advanced, together, innovated and managed. By doing literature review, sustainability-related activities directly and indirectly play role in developing societies and business. Stakeholders are using different sustainability models such as Triple Bottom Line for developing of business in developed countries. Triple bottom line model provides designs for all pillars of sustainability that are social sustainability, environmental sustainability and economic sustainability (Stubbs and Cocklin, 2008).

The sustainability of an organization is linked with the transformation of environmental priorities in which the concept of sustainability targets the driving force in decision making. By this the organization generates internal cultural values to achieve certain level of sustainability through collaboration with other stakeholders (Stubbs and Cocklin, 2008). The framework of sustainability utilized the assumptions of ecological modernization to business practices and behaviour. The sustainability aim in business is to engage the entities in different situations rather than presenting one version of sustainability (Stubbs and Cocklin, 2008).

2.3. Drivers and Barriers to implementing Environmental Sustainability in Business Organizations

The management has emerged as an essential organizational philosophy to overcome social and environmental risks because role and importance of business is changing in contemporary society. There are many drivers that play positive role in implementing environmental sustainability in business organizations. On the other hand, there are also some barriers to environmental sustainability. Literature review shows that drivers for sustainable practices are directly related to internal factors and other factor that is of great importance for implementation of sustainable practices is organizational factor. While organizations describe that barriers for implementation of sustainable practice are internal. Some other barriers are lack of financial resources such as machinery, equipment and increase of demand for better development.

Literature survey indicates that for sustainable practices, drivers are most common and identified than barriers. The barriers of environmental sustainability that are experienced by different organizations are tends to become more internal and external (Giunipero et al., 2012). Some of drivers of environmental sustainability are organizational values, organizational culture and ethical principles while barriers include workers resistance to change (Giunipero et al., 2012).

2.4. Environmental Sustainability in Business Organizations in Saudi Arabia

Among Middle Eastern Nations, Saudi Arab is the most important and developed country. Saudi Arab is considered as a vital country among all over Middle Eastern nations because it has a key role in International Petroleum Production. Environmental sustainability practices are becoming more prominent in both public and private sector of Saudi Arabian business enterprises. For tackling environmental and social problems the government of Saudi Arab has become serious. Primary data showed that managers of private sector in Saudi Arabia were better prepared and were eager to deal with the carbon management and sustainability problems as compare to public sector enterprises. Saudi managers of Surveyed reported that employees of their organization will start rewarding positive environmental sustainability actions and will also take part in educating their managers about sustainability and carbon cycle management. The findings and results of literature survey can enforce Saudi Arabian leaders and policymakers of private and public sector universities to change the structure of higher education sector. The purpose of this step is to prepare their students for various jobs for future. This will help Saudi Arabia to pursue environmental sustainability (Mandurah et al., 2012).

2.5. Environmental Sustainability in SMEs

People are witnesses of worst natural calamities and by adapting the good environmental practices, the SMEs can gain competitive advantage which can help in sustaining a business. There is some misunderstanding in achieving this practice where different organizations believe that environmental issues effect their businesses (Simpson et al., 2004). The scale as well as rate of environmental degradation is widely spreading among governments, businesses and civil society with the help of economic activities. Corporations are adopting sustainability practices and sustainability reporting in all over the world. This practice is more common in premises of most of corporation of Saudi Arabia. Large organizations procure their all service and manufacturing operations to small and medium corporations and enterprises. Thus, large organizations

effectively convert their whole environmental burdens on small enterprises and vendors. In developing countries, weak enforcement of environment laws and poor regulations leave SMEs on their own and allow them to improve their environmental practices. Limited resources and managerial capabilities of developing countries are not adequate to do sustainability practices (Bos-Brouwers, 2010). According to a research the business practices offer obvious benefits for SMEs as the size of corporation increase the demand of environmental management also increase which contribute directly is sustainability efforts. In many organizations the insurers charge high premium from SMEs due to environmental risks (Lee, 2008).

2.6. Environmental Sustainability in SMEs in Saudi Arabia

In middle East region, Saudi Arabia has begun to exploit its potential as destination for individuals as well for business organizations. Saudi Arabia is now being more outward facing as a result of its Vision 2030 where sustainability is at the heart of it. Along the environmental challenge the country is facing many economic challenges. In this situation the Environmental sustainability in SMEs is helpful in planning development initiatives with focus on sustainable environment (Johnson, 2010). Many foundations and project partners have hosted a number of sustainability practices in Saudi Arabia. These programs provide a foundational understanding of sustainability business concept to small and medium size enterprises. The purpose of those programs was to provide knowledge and skills about environmental sustainability to Saudi SMEs. These skills can apply directly to get well-established business. These training programs are also held to build entrepreneurial capacity, to improve business performance and to increase knowledge of International Sustainability leading practices and to share organizational learning (Joanne Johnson, 2010). This section needs to be expanded with more relevant literature.

2.7. Gap in the knowledge

In any business or organizational environment, the unpredicted fundamental changes help in forming traditional business models which help in achieving the target in obsolete situations. In present day, business improvement techniques polish the skills and effectively monitor the improvement of processes through visual management system. This review has explored that environmental sustainability has been well researched in the context of developed countries. Past researchers have explored a range of dimensions of environmental sustainability both in business organisations and SMEs. They have also investigated drivers and barriers to change. However, there is a lack of literature in environmental sustainability in the context of SMEs and that as well

from Saudi Arabian perspective. This suggests that this is an under-developed and under-researched area and offers the foundation of future research. SMEs have a key role in an economy and in SMEs, the competitive capacity can be increased with the economic growth in Saudi Arabia (Swanson, 2007).

2.9. Data Collection and Analysis

This research study will adopt quantitative research approach in order to answer the central research aim and objectives. Quantitative data collection method of questionnaire survey will be used to collect the required data to answer the main research aim and specific objectives. Managers in Saudi Arabian SMEs in the manufacturing sector will complete the questionnaire which will be carried out online with the help of SurveyMonkey tool. Junior, middle and senior management in Saudi Arabian SMEs will be invited to complete the questionnaire to gain their perspective. Statistical analysis will be carried out with the data collected from Saudi Arabian SMEs.

2.10. Conclusion and Summary

Sustainability is most important part for business organizations among all over the world. It improves the condition of developed as well as developing countries. There are three pillars of sustainability that are social sustainability, environmental sustainability and economical sustainability. All these pillars are core part of any society and play role in their development. Environmental sustainability is most important pillar among all others and plays beneficial role in business growth. Developed and developing countries are arranging programs to provide knowledge and skills of environmental sustainability and gain competitive advantage. Based on the literature survey and gap in the existing academic knowledge, this study's main aim is to explore how Saudi Arabian SMEs are implementing environmental sustainability in their core business operations.

Chapter 3: Research Methodology

3.0. Introduction

In order to meet the objectives of a research, it is crucial to adapt an appropriate research approach which helps in guiding all of the procedures of conducting a research. Research methodology is the most important part of a research approach, which makes it coherent and comprehensive. It spans from broad and varied assumptions to comprehensive procedures of data collection, sampling, data analysis and interpretation. According to Steele (2000), whether it is applied or fundamental research, adapting a proper research framework/methodology helps in enhancing validity, generalizability and authenticity. Because, it ensures that the researcher has taken care of research ethics and followed a concrete pathway to meet the findings and meet the research objectives.

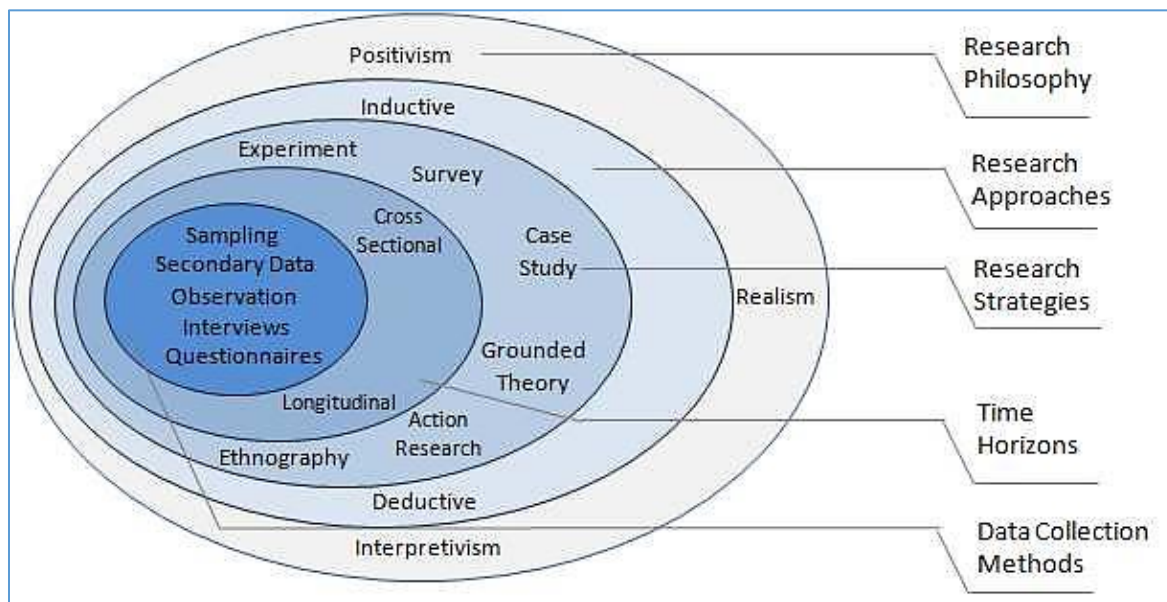


Figure 3: Research Onion (Saunders, 2011)

This chapter particularizes the key decisions and their rational about the research methodology which will be adapted to conduct the research. In order to make particular choices about the research phases and procedures, onion framework (Saunders, 2011) is followed which elaborates all of the phases and approaches which could be considered in conducting different types of researches.

Saunders (2011) has helped in making discrete choices about research methodologies by confining the constituent processes, comprehensively, in five layers, to cover every aspect of a methodological choice. with the help of this Onion Framework, this chapter develops the decisions & rationales about research philosophy, research approach, methodology, research instruments, data analysis, time horizons and sampling techniques. All of these particulars are developed after careful examination of research aims and objectives, limitations and ethics in this study.

3.1. Research philosophy

The broader term “research approach” is used to collectively describe a set of activities (research process) which involves the intersection of **research philosophy**, design, strategy and specific methods for data collection.

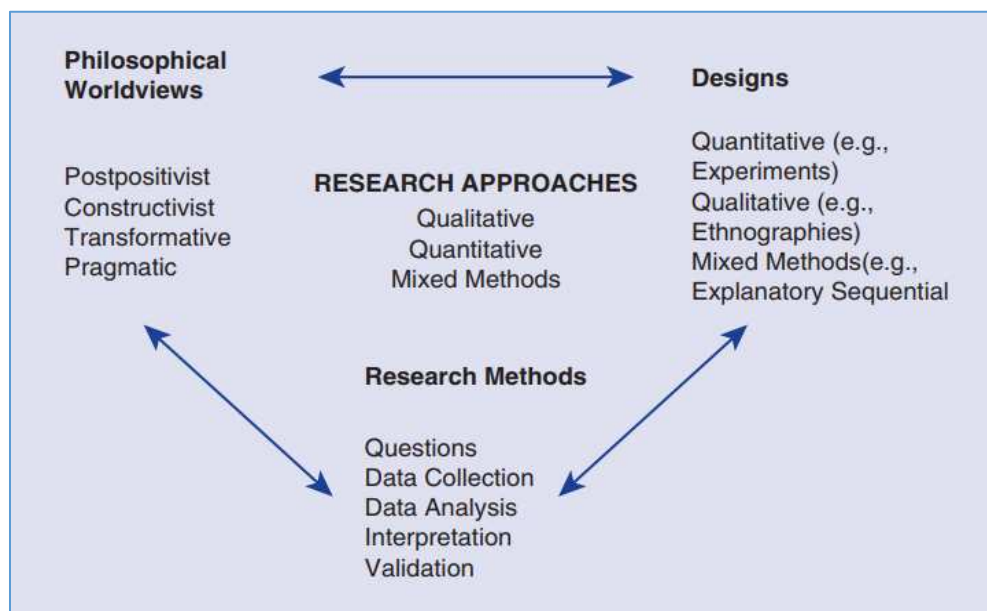


Figure 4: Research methodology selection process

Choice of research philosophy is a basic step which specifies how, when and what resources will be used to collect the data as well as their analytical framework to extract the findings and reaching the conclusion. Hence, investigation of a particular research problem begins from the selection of philosophical approach, leading to the decisions of research design and methods (Cook, 2000).

Neuman (2000) identified four research philosophies which take into account the general philosophical orientation, nature of the research, research's discipline orientations, researchers' inclinations and experiences. these philosophies include the following:

Postpositivism	Constructivism
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	Pragmatism
• Political • Power and justice oriented • Collaborative • Change-oriented	• Consequences of actions • Problem-centered • Pluralistic • Real-world practice oriented

Figure 5: Philosophies for a research

The **post- positivists** deal with the deterministic philosophy or causal studies in which cause & effect relationship is found. It particularly deals with experimental & scientific studies and provides with very authentic & valid research findings (Dillman, 2011). It often leads to adaption of quantitative research method.

The **constructivist philosophy** is, typically seen as an approach leading to qualitative method and deals with the social construction of reality. It involves in seeking the understanding, general knowledge and subjective meanings, which are varied & multiple, hence, complex (Duffy, 2005).

The transformative view deals with the issues of social justice or power, discrimination & oppression and other societal perspectives. It is largely based on qualitative research method and results in explanatory & descriptive research findings (Evans, 2005).

The **pragmatic philosophy** is derived from the work of James et al (1992). It arises from certain situations, actions and consequences, and deals with the situational factors i.e. What works and what could be the solution to the problem. Briefly, it is intended to be used for the researches which are problem- solving or intended to seek a solution for a particular situation whether it is social or scientific. This philosophy leads to either qualitative, or quantitative or mixed method approaches (Evans, 2005). It is multidisciplinary in nature, can be adapted for every kind of

research, given the pragmatic solutions to the problem, reality based, extract factual information and highly generalizable.

To conduct this research “investigation of sustainability practices in SMEs of Saudi Arabia”, **post - positivism research philosophy** is adapted. The choice is made because of the following advantages which it offers:

- It reverts the positivist concept that “a research and researcher are independent of each other” and believes that backgrounds, values, theories and knowledge of the researcher influence the observations, thus, the research findings too (Harris, 2009).
- It helps in strategizing a way for collection and analysis of quantitative data which leads to the conduct of a more valid, authentic, coherent and generalizable research.
- It helps in presenting knowledge of the social world as that of scientific one and lead to the critical analysis of social phenomenon.
- It helps in investigation of a reality within a social or natural phenomenon, applying the rigorous techniques and making it as valid as a scientific research (Duffy, 2005).

Generally, it will help in investigation of social entities, businesses and project based organizations to examine their efforts for sustainability and their impact in solving the sustainability issues in Saudi Arabia.

3.3. Research approach

Research approach comes after the selection of philosophical standpoint and there are two approaches i.e. Deductive and inductive. Inductive approach deals with the construction of a new theory after analysis of certain data. While deductive approach is aimed to test or study an existing theory, idea, social phenomenon or effect, after development of hypotheses or research objectives (Mackenzie, 2006). For this study, deductive approach is selected as it is intended to study an existing phenomenon of environmental sustainability within a prescribed population (SMEs in Saudi Arabia). This study is underpinned by the review of literature as part of its methodological design, therefore, it is deductive in nature.

3.4. Research Design

All of the procedures (data collection, sources, sampling, analysis, timing, tools) are contingent upon the selection of research design which can be quantitative or qualitative in nature. Both of

these designs have discrete processes, as mentioned above. Quantitative research design taken into account the quantitative data (numeric in nature) which is collected from surveys, observations or experiments. While qualitative research design is descriptive and explanatory in nature. It is used to investigate social occurrences or social phenomenon in natural sciences (Mackenzie, 2006). Post-positivism paradigm allows the researcher to find the cause and effect relationships and adaption of **quantitative research design**, hence, it is adapted for this study. It relies on collection of numeric data, encoding the data and statistical analysis, leading to valid and concrete research results (Mkansi, 2012).

3.5. Research strategy

It is a step-by-step plan that directs a researcher to articulate his/her efforts & thoughts, enabling the researcher to conduct the process systematically. It also takes into account the scheduling, detailed reporting and generating results. There are many research strategies which are divided according to the research design i.e. Qualitative or quantitative (Dillman, 2011). Qualitative research design usually focuses on gathering non-numeric data which is descriptive in nature. For this, common research strategies are unstructured or semi-structured techniques of data collection, focus groups, case studies, group discussions, individual interviews, ethnographic modeling, grounded theory, narrative modeling and observations. Quantitative research designs emphasize numeric, statistical, mathematical analysis or objective measurements (Duffy, 2005). Hence, the mostly used research strategies are surveys, pre-existing statistical data, polls and close-ended questionnaires.

It is intended to adapt survey as the research strategy for this study. It is chosen because of its advantages in data collection process which include:

- It allows researcher to reach to thousands of participants. Hence, it will enable to contact hundreds of managers in SMEs of Saudi Arabia to conduct this research.
- It offers low cost and fast processing of collecting data. Hence, it will enable to communicate and contract with key respondents at very low cost (online conduct of survey), speedy manner (instant sending and receiving data) and increased reach (SMEs across whole country).
- It enables a researcher to get more accurate sampling and data collection as well as it offers easier data sorting by putting the responses directly to MS excel or SPSS (Nardi, 2018).

- It offers anonymity and confidentiality of data as through online survey one cannot recognize respondents and their credentials. Moreover, the data could be kept secured through proper encoding.
- Statistical analysis and results exhibit more validity, accuracy, authenticity and generalizability for a research. In other words, the research significance will be increased.

3.6. Research instrument

A research instrument is a measurement tool which is designed to collect data from research subjects. It is also called as research method. For this research, questionnaire method is adapted among many others i.e. Interviews, focus group, observation, document analysis, charges and notes etc. (Noor, 2008)

Questionnaire development

A questionnaire is developed, using the close- ended questionnaire and adapting the following process:

Comprehending the research objective: investigation of environmental sustainability practices among SMEs in Saudi Arabia.

Type of questions: close- ended questions and multiple-choice questions (MCQs)

Channel to administer: online administration through survey monkey

Organization/assortment: collecting Responses through survey monkey and auto- assortment of responses

Designing the questionnaire: it is consisted of the discrete four sections for better understanding and convenient responding

Purpose: clear instructions as well as purpose of collecting the data is provided in the first section of questionnaire so that respondents can effectively comply with the survey

Revise: prior to administration, necessary improvement must be taken for survey's efficacy

The procedure of designing a questionnaire is complex, and many "**issues in questionnaire development**" could be faced by the researchers. There could be methodological issues such as wording, formatting, administrating process, content development, ethical consideration and facilitating cultural adaptation.

I. Order of words

Wording play a considerable role in initiating a proper response. Hence, attention must be given to avoid technical jargons, abbreviations, slangs, cultural verbal gestures and improper words which can raise ethical, ethnic or cultural issues (Onwuegbuzie, 2013). Particular attention is given to avoid all of these issues as well as double- barreled questions, unclear, personal, ambiguous and invasive questions are avoided to include.

II. Formatting

Formatting must be comprehensible, easily. In development of the questionnaire, formatting is studied and then, questionnaire is organized into four sections for a clear perspective as well as to makeup the respondents' minds to what information is needed in each section. The arranging order is "from general to particular" and "from factual to abstract" (Peffer, 2007).

III. Administration issues

There could be many issues related to the questionnaire administration process if it is outsourced or shared or collaborated with other parties which are collecting similar information. In order to avoid these issues, self- administration is adapted through an online media which offers easier implementation, cost- effectiveness, respondents' anonymity and confidentiality (Wright, 2005).

IV. Cross- cultural adaptation

It is highly conceivable that the managerial posts (in SMEs of Saudi Arabia) are filled with personnel belonging to diverse cultures, ethnicities, nationalities and values. As, the modern business world is hiring emotionally intelligent managers from international pool of human resources to better run their organizations as well as to promote workforce diversity (Mkansi, 2012). Hence, adapting cross- cultural intelligence and avoiding any cultural inappropriate contents have been the basic principle during questionnaire development.

V. Social desirability

It is referred to the extent to which persons tend to convey auspicious image of themselves during the social interactions. It is considered during the development of questionnaire that there is no content which can invade a respondent's privacy. It is possible that the inquiries from managers in SMEs might contain riskier information for other parties, related to company's private information, or might not allowed as a social rule (Onwuegbuzie, 2013). Hence, it is predominantly considered that no personal, socially unacceptable or company- related information is asked. The questionnaire is kept totally un- biased and neutral.

3.7. Population and sample size

it is necessary to adapt a sampling technique and population selection process so that the data size could be reduced (enough to be processed and analyzed), and to stay focused on attainment of research objectives. There are many sampling techniques which can be adapted to conduct a research, however, the selection depends on the research aims and targeted population (Cook, 2000). In this research, the aim is to investigate environmental sustainability practices in SMEs of Saudi Arabia in the manufacturing. Hence, the targeted population's main category is "SMEs of whole country" in the manufacturing industry. Further, the personnel at managerial positions are the main population. However, there are three sub- categories i.e. Junior, middle and senior managers.

Methods of sampling from a population include: Simple random sampling, Systematic sampling, Stratified sampling, Clustered sampling, Convenience sampling and Quota sampling (Dillman, 2011).

It can be said that stratified sampling will help in better achievement of the research aims as it is intended to contact managers at three positions. A stratified sample is a set of respondents which ensures that the strata or subgroup of a given population is adequately represented within the whole population of a research. Hence, instead of randomly selecting managers of SMEs, it is better to select appropriate number managers within each category. Hence, the intended division is as follows: 100 senior managers, 100 middle managers and 100 junior managers from all of the SMEs in Saudi Arabia. Every effort will be made to get maximum response rate which can help facilitate validity, reliability and generalization of research findings.

3.8. Time Horizon

Defining the time horizon increases the effectiveness and efficacy of a research, as it makes the research more focused, limited to certain time period/s and helps in better resource allocation. According to Saunders (2011), there are two types of researches based on time horizons i.e. Longitudinal and cross-sectional. In longitudinal research, data is collected many times, over certain intervals, to measure a pattern among occurrences or observations under study. While, in cross- sectional research, data is collected once, based on certain events/ observations within a particular time period (Harris, 2009).

This is cross-sectional research as SMEs will be contacted once to inquire about their environmental sustainability practices. This study is intended to investigate only current practices which means the sustainability practices adapted by SMEs in Saudi Arabia till 2019. The past and future are exclusive of this study's scope.

3.9. Data Analysis

Selecting the analytical tools is necessary prior to initiate the data collection process. It helps in selecting the channel for data collection, assortment and presentation for final analysis. Hence, it is intended to use SPSS to analyze data which is collected from the online administered questionnaire. The responses from close-ended questions will be collected and sorted by Survey Monkey. The data will be presented in numeric form and the analytical tools will be applied which may include regression analysis, and correlation with simple descriptive analysis in SPSS. The final presentation of data analysis will be in form of charts, figures and graphs along with the descriptive analysis.

3.10. Research Ethics

Following research ethics are adapted to serve the privacy rights and moral values for respondents:

Anonymity and confidentiality is considered by asking no demographic information as well as keeping the necessarily asked credentials secure from the other agencies or marketing companies.

Encoding is done for the collected data, to keep it encrypted as well as unrecognizable in case of leakage, cybercrimes and hacking.

Legal written consent is taken prior to send the questionnaire, through direct email to the respondent.

Formal statement of purpose for data collection is developed and shared through the email in which formal consent is sought so that the respondent can effectively contribute in the research.

Ethical Approval Form will be completed and signed. Supervisor will approve and sign the form prior to the data collection process. See Appendix 1 for the ethical approval form.

3.11. Conclusion and Summary

The whole process of studying, analyzing and selecting the research methodology is described in this chapter which is started from the selection of research paradigm, studied all of the constituents and ended with the statement of ethics. The study aims to investigate environmental sustainability practices in manufacturing sector SMEs in Saudi Arabia. This underlying objective is duly considered, and post-positivism research philosophy is chosen which allows the quantitative research method adaption and data analysis. Survey is the research strategy and questionnaire are research instrument which will be administered online through survey monkey. Final analysis will be done through SPSS and it is cross-sectional study hence, the data will be collected once from the SMEs in the Saudi Arabian manufacturing sector

Chapter 4: Data Analysis and Results

This chapter presents analysis of the data collected through the online questionnaire survey in order to produce research findings in line with the research aim and objectives.

4.1 Introduction:

The previous chapter has laid down a comprehensive methodology to undertake this research. Using that methodology, data collection has been made with the help of a structured questionnaire. All the data collection has been made via online sources i.e. via online questionnaire filling. Once the data has been collected, its analysis has been performed in SPSS (Statistical Package for Social Sciences) in MS Excel spread sheet using different techniques. In this regard, reliability of data has been determined in the first phase in order to ensure that it is fit for advance analysis. The normality of data of data has been checked in order to ensure that no extreme responses exist in data.

Thus, after determining for reliability and normality, the descriptive statistics of study have been calculated followed by graphical analysis of a couple of variables in order to understand the trends of sample responses of selected sample. Finally, correlation and regression tests have been performed to understand the relationship between variables of study. All this has been provided in the following sections:

4.2 Reliability Analysis

Table 1: Cronbach's Alpha Test:

Cronbach's Alpha	N of Items
.859	18

In order to determine the reliability of collected data, Cronbach's Alpha test has been performed in SPSS. According to **Bryman and Bell, (2015)** any Cronbach's Alpha value for a set of questions greater than 0.7 is considered reliable for the scale. In current situation, table 1 shows that there are a total of 18 questions as shown under N of items column while the value of Cronbach's Alpha is 0.859 which is higher than 0.7, thus, the scale is reliable.

4.3 Frequency Distribution:

Frequency distribution of demographics of study have been performed in order to understand the composition of overall sample so that it can be determined as to whether selection of sample can serve the purpose of study or not i.e. whether selection of sample is relevant or not. In this regard, there are two main demographic variables including type of organization in which sample respondents work and the qualification of sample respondents, which should be analyzed.

Table 2: Type of Organization

Sector	Frequency	Percent
Food	19	31.7
Airlines	2	5.0
Oil and Gas	15	25.0
Engineering and Construction	3	3.3
Maintenance	8	13.3
Others	13	21.7
Total	60	100.0

Table 2 provides the results frequency distribution for the type of organizations to which the sample respondents belonged. In this regard, there are total 5 main categories while others have been grouped into 'others' category. The highest number of respondents belonged to food sector followed by oil and gas sector with 31.7% and 25% respondents respectively. The increased number of respondents for these sectors is good as both food and oil and gas sector have to play a significant role in environmental sustainability since they both produce substantial wastes. Thus, the composition of sample is good.

Table 3: Qualification

Degrees	Frequency	Percent
Engineering graduates	20	33.3
Business graduate	29	48.3

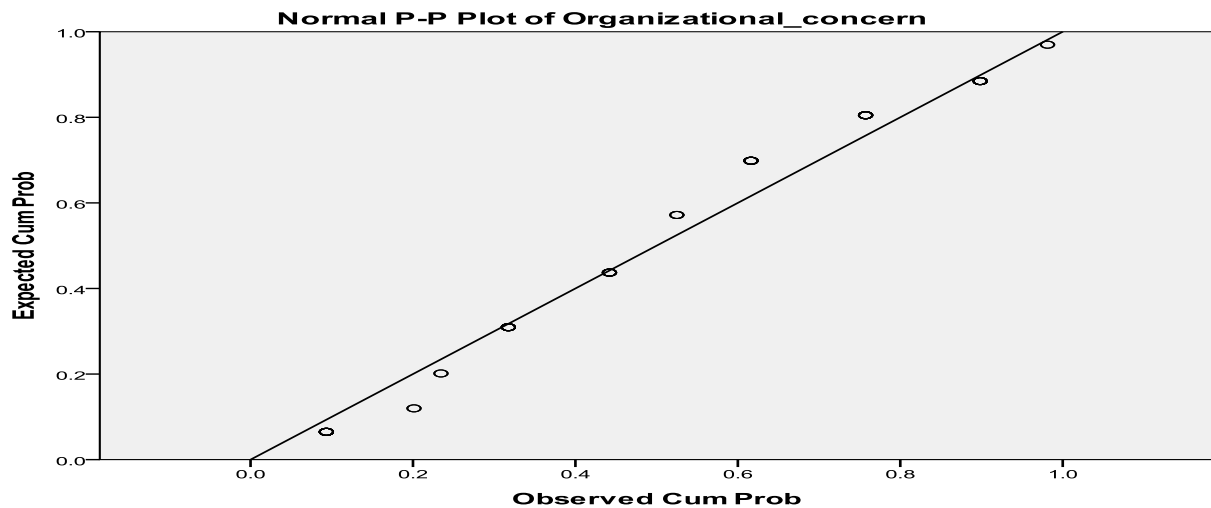
Business diploma	5	8.3
Engineering diploma	3	5.0
Others	3	5.0
Total	60	100.0

Table 3 provides result of frequency distribution of qualification of respondents of study. It is also helpful to understand the type of respondents for sample composition. In this regard, it can be observed that the greater portion of sample respondents are graduates either business or engineering graduates. There are 48.3% of the respondents as business graduates while 33.3% as engineering graduates. Thus, there are qualified people who have been interviewed and they can be trusted to possess sufficient knowledge about environmental sustainability. It has further authenticated the right select of sample respondents.

4.4 Normality Test

P – P Plots:

Figure 1: P – P plot for Organizational concerns for environmental sustainability



The normal P – P plot has been used to analyze the normality of the variable of organizational concern. The graph has shown that all the values of variable have been concentrated around the mean value or mean line. It confirms to the normality of the data obtained for the variable of organizational concern.

Figure 2: P – P plot for Employee concerns for environmental sustainability

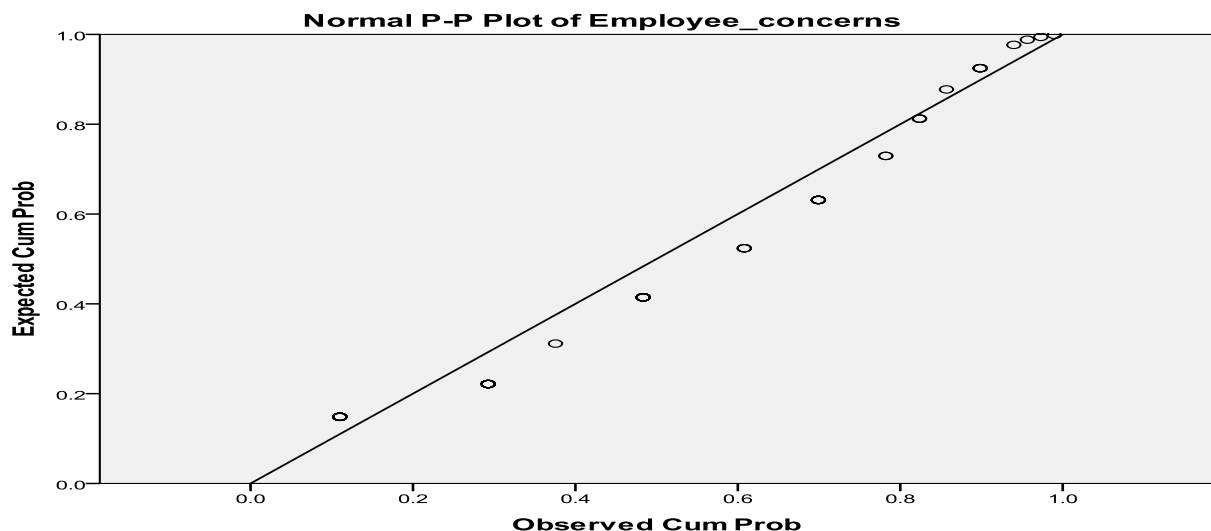


Figure 2 has been showing the normal P – P plot for the variable of employee concerns for environment. The graph has shown all values concentrated around a mean line which is again the indication of normality of data. There is no extreme value in the data in the form of outliers neither the values have greater distance from the average line. Thus, the variable of employee concerns is also normal and is fit to perform the advanced analysis.

Figure 3: P – P plot for organizational strategies for environmental sustainability

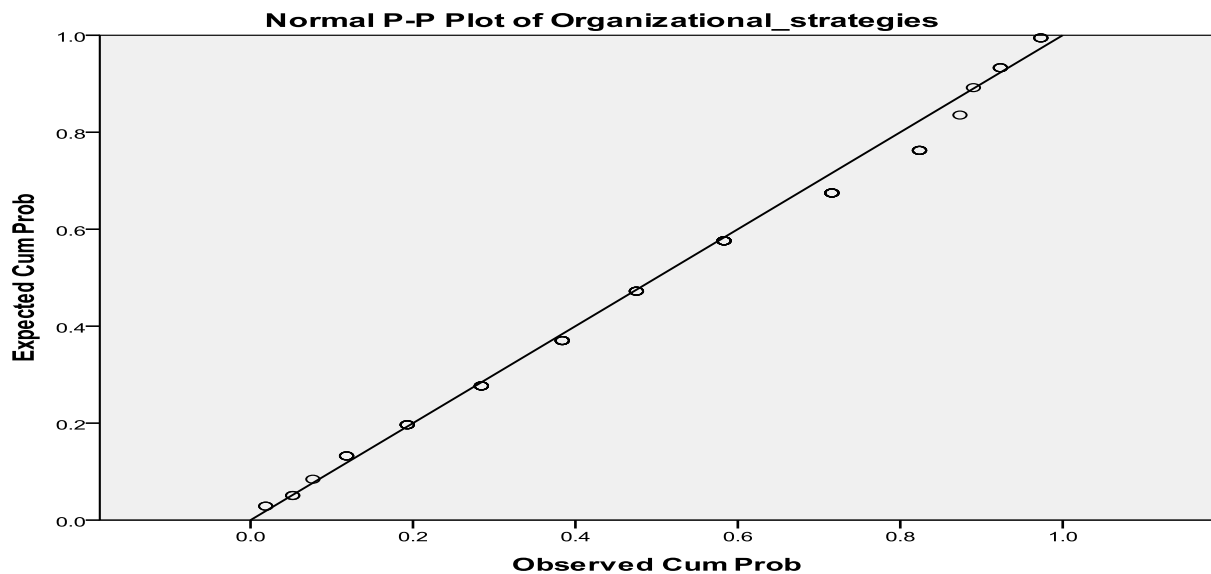


Figure 3 provides the normal P – P plot for the variable of organizational strategies. In this case the values are exactly over the average line which indicates the perfect normality of data. It means that the data of this variable is normal and is fit to perform advanced statistical analysis. Thus, P –P plots have shown perfect normality of data for all three continuous variables of study.

Analysis for the achievement of Objectives of study:

This section specifically deals with how the objectives of study have been achieved. In this regard, the first objective of study has been provided as under:

1. To investigate the current state of environmental sustainability practices in SMEs in Saudi Arabia.

This objective is comprehensive in nature and requires detailed analysis. For the achievement of this objective, three variables have been mainly used which include: environmental sustainability feel among individual employees working in SMEs, organizational focus for environmental sustainability and organizational strategies for environmental sustainability. Using these variables, correlation and regression analysis have been performed in first stage to understand the relationship between these three variables.

Table 4: Frequency Distribution for Employee Awareness

	Yes	To some Extent	Un- sure	No
Are you aware of environmental sustainability concept?	35	18	2	5
Does your company have an environmental sustainability policy?	26	22	3	9
Does your company consider environmental sustainability important in management and decision making process?	40	14	3	3
Do you think that your company implements sustainability practices and projects	25	25	5	5
Do you believe that all departments in your company consider environment sustainability important in their decision making	24	24	4	8

Table 4 contains the results of frequency distribution of different questions relating to employee awareness about how their respective organizations are doing environmental sustainability. In this regard, it can be seen that respondents are either completely agreed or up to some extent for all questions asked which indicates that they have all the awareness about the environmental sustainability steps of the organization

Table 5: Frequency Distribution for Organizational Concerns for Environmental Sustainability

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The company is aware of the potential risks associated with environmental sustainability	24	24	5	7	0

The company is aware of the business opportunities associated with the implementation of environmental sustainability	15	34	10	1	0
The company has procedures to monitor its environmental sustainability impacts	15	27	9	9	0
The company allocates resources for implementing environmental sustainability projects	16	19	10	15	0

Table 5 contains results of frequency distribution of different questions relating to organizational awareness and concerns for environmental sustainability. The results have revealed that organizations are well aware of the environmental sustainability and are concerned to work for it. This has been inferred from responses provided by sample respondents since most of the respondents are agreed or strongly agreed for different questions asked in this regard

Table 6: Frequency Distribution for Organizational Strategies of environmental sustainability

	Yes	No	Don't Know
Has your company developed strategies for electricity and gas?	23	20	17
Has your company developed strategies for transport fleet?	16	28	16
Has your company developed strategies for waste?	42	11	7
Has your company developed strategies for water?	44	8	8
Has your company developed strategies for procurement and supply chain?	22	16	22

Has your company developed strategies for staff commute?	32	12	16
Has your company developed strategies for visitors travel?	7	28	25
Has your company developed strategies for business travel?	12	28	20
Has your company developed strategies [None of the above]	6	25	29

Table 6 contains the results of frequency distribution of different questions asked from sample respondents for organizational strategies formulated by the organizations. The results have provided that though, the organizations have formulated strategies for environmental sustainability yet there are large numbers of responses which have provided their response in 'No' and Don't know'. This indicates that when it comes to specific strategies formulation, the organizations are providing less than the average responses. Though, they are aware of environmental issues and allocate funds for it but the funds might not be directed towards right positions or in right way.

4.5 Correlation Analysis

After fulfilling the basic assumptions of data, correlation test of significance has been performed on three main variables of study. The purpose of correlation test is to analyze the relationships between variables. It helps in understanding the significance of relationship between variables as well as the direction of relationship i.e. either positive or negative. The correlation test between three variables of study has been discussed as under:

4.8 Regression Analysis:

Once the relationship between variables has been analyzed using correlation statistics, the regression analysis has been performed to understand the impact of independent variables of study on dependent variables. In this regard, the first regression analysis has been performed taking organization focus or concern for sustainable environment and individual employee feel for sustainable environment as dependent variable In this regard, two tests of linear regressions have been performed under the headings of regression analysis 1 and regression analysis 2. The regression analysis 1 analyzes the relationship

taking organizational concerns as independent variable and employee concerns for environment as dependent variable while regression 2 takes organizational concerns as independent variable and organizational strategies for environment as dependent variables. The results have been discussed as under:

4.6.1 Linear Regression 1:

Table 8: Model Summary 1:

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.661	.437	.427		.54902

There are three tables of regression analysis. First of all there is model summary table which is helpful to understand the fit of the model i.e. how well the model has analyzed the responses. In this regard, the value of R square is useful. It explains the variation of the responses which has been explained by the model. Higher value always indicates better fit of the model or in other words model has explained most of the variation in responses. The value of r square in current model is 0.437 which shows that nearly 43% of variation has been explained by the model which is fairly good. On the other hand, adjusted R square is basically the value of R square which has been adjusted if more predictors are added in the model. Here the value of adjusted R square is also 0.427 which indicates that any new variable will not much affect the fit of the model.

Table 9: ANOVA 1

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	13.565	1	13.565	45.002	.000
1 Residual	17.483	58	.301		
Total	31.047	59			

The second output while running linear regression is of ANOVA which has been given in Table 9. This table helps to understand the statistical significance of the impact of inde-

pendent variable on dependent variable. Here in this case the significance value of regression model is 0.00 which is lesser than 0.01. Thus, the model is statistically significant i.e. it provides better fit for the variables.

The degree of freedom (DF) is always calculated as $N-1$. In this case the total respondents were 60, thus, $N-1 = 59$. On the other hand residual DF is 58 which is calculated as Total DF minus number of predictors. Since in this case there is only one predictor, thus, residual Df is $59 - 1 = 58$. The value of F statistic is also a good predictor of the model as a higher F value indicates better fit while lower F value points to a poor fit of the model. Here in this case the value is 45.002 which indicate a better fit of the model under analysis.

Table 10: Test of Coefficients 1

Model	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.380	.217		1.749	.016
1 Organizational Concern	.650	.097	.661	6.708	.000

Dependent variable: Employee Concern for sustainable environment, $p = 0.01$

Table 10 provides the results of regression coefficients. In this case there are two types of beta coefficients i.e. standardized coefficients and un-standardized beta coefficients. The un-standardized beta coefficients explain the rate of change in dependent variables due to change in independent variables in natural units of the variables. On the other hand, standardized coefficients explain change in dependent variable due to change in independent variables in similar units. In this situation, there is little difference in scales used for dependent and independent variables, thus, standardized beta coefficients have been used for reporting. Thus, due to 1 unit change in independent variable i.e. organizational concern for environmental sustainability, there is 0.661 units change in dependent variable employee concerns for sustainable environment. Moreover, the significance value against this predictor is $0.000 < 0.01$. Thus, the impact of independent variable is

significant on dependent variable. This can be explained in the form of least square regression equation as under

$$Y = P B_0 + B_1(X_1) + e$$

Employee concern for environmental sustainability = 0.380 + (Organizational concern for environmental sustainability) + 1.749

All this explains that there is positive relationship between organizational and employee concerns for environmental sustainability. Moreover, the magnitude of impact of independent variable of dependent variable is strong. Thus, for the sake of speeding up environmental sustainable efforts, the organizations should increase their focus on environmental sustainability concerns and it will directly and positively affect all employees in the organization.

4.6.2 Linear Regression 2:

Table 11: Model Summary 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.196	.038	.022	.42045

Table 11 provides the results of model summary for regression run between organizational concern for environmental sustainability and organizational strategies for the same. The table shows that the value of R square is only 0.038 which means that the model explains only 3.8% of the total variance in dependent variable which is quite low and the value of adjusted R square is also low. These results indicate that the model is not fit and it does not explain the variance of dependent variable.

Table 12: ANOVA 2

Model	Sum of Squares	df	Mean Square	F	Sig.
1					
Regression	.410	1	.410	2.320	.133
Residual	10.253	58	.177		
Total	10.663	59			

Table 12 contains the results of ANOVA table for linear regression run between organizational concern for environmental sustainability and organizational strategies for environmental sustainability. The results have indicated that the regression results are not significant since significance value in last column is 0.133 which is greater than 0.01. Thus, the results cannot be trusted. Df for residuals is $59 - 1 = 58$ while total is $60 - 1 = 59$. The F value is 2.320 which is quite low and it also points to poor fit of the model.

Table 13: Coefficients 2

Model	Un-standardized Coef-		Standardized Co-	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.679	.166		10.098	.000
1 Organizational Concern	.113	.074	.196	1.523	.133

Dependent Variable: Organizational Strategies for environmental sustainability, $p = 0.01$

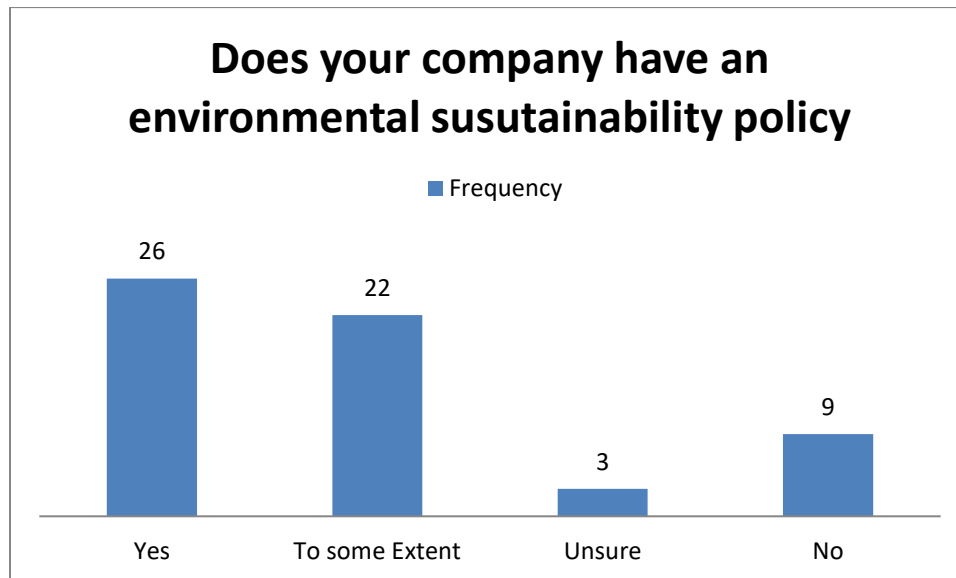
Table 13 contains results of coefficients for the regression analysis taking organizational concern as independent variable and organizational strategies for environmental sustainability as dependent variable. The value of un- standardized coefficient is 0.113 and that of standardized coefficient is 0.196. Here in this case, the scales used to measure both the variables are slightly different, thus, value of standardized beta has been used which is quite low and it is also insignificant since significance value is $0.133 > 0.01$. Thus, the results are not significant and it can be inferred that organizational concerns for sustainable environment do not put significant influence on organizational strategies for sustainable environment.

Thus, despite of having environmental concerns, the organizations are not chalking out comprehensive strategies for environmental sustainability. Though, the employees of organizations have significant concern for environmental sustainability as indicated in first regression model and the organization itself is also concerned about it but they have been failed to formulate strategies for this purpose. This is where the flaw lies. Developing

concerns for sustainable environment is always the first priority while taking practical steps based upon these concerns is the second step which has not been possible till now.

This can be further studied in combination with the following graph:

Figure 4: Environmental Sustainability Policy of Organizations



The graph explains the responses when respondents were asked if their companies have environmental sustainability policy. Out of 60 respondents 26 reported yes while only 9 were sure that the company does not have any such policy while 25 were unsure or their companies have such policies up to some extent. In the light of this graph and previous analysis it can be inferred that the organizations do have environmental concerns and some of them have formulated an environmental policy but there might be problems in chalking out a right strategy to implement the policy and achieve the desired objectives.

Thus, with the help of such analysis the first objective of study has been achieved. The results of correlation statistics has provided that there has been significant correlation between organizational concern for environmental sustainability and those of employees'. However, no relationship exists between organizational concerns for environment and its strategies establishment. Thus, the organizations are concerned about environment; they have drafted policies for sustainable environment but have not required strategies. This provides a clear answer to first objective of study that the organizations are lacking at

strategy implementation. The similar findings have been obtained through linear and multiple regression analysis.

4.9 Analysis of Variance:

One way ANOVA test has been performed to analyze the difference in organizational strategies and organizational concern for environmental sustainability with respect to change in nature of organization. In this regard, one way test has been performed between organizational concern for environmental sustainability and type of organization. It has been provided as under:

Table 14: One Way ANOVA between Organizational concerns for Environment and Type of Organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.127	5	2.425	6.571	.000
Within Groups	19.931	54	.369		
Total	32.058	59			

Table 14 has provided results of one way ANOVA run to analyze the differences in organizational concerns for environmental sustainability by different organizations. The results have provided that there are differences in groups means which are significant as indicated by significance column. The significance value is $0.000 < 0.01$. The df is total $60 - 1 = 59$ while within groups is $59 - 5 = 54$. From these results, it can be inferred that different types of organizations have different concerns for environmental sustainability. As for instance a food manufacturing or an oil and gas company may have higher concerns for environment which may not be the case for other organizations.

Table 15: One Way ANOVA between organizational strategies for sustainable Environment and Type of Organization

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.550	5	.110	.587	.710
Within Groups	10.114	54	.187		
Total	10.663	59			

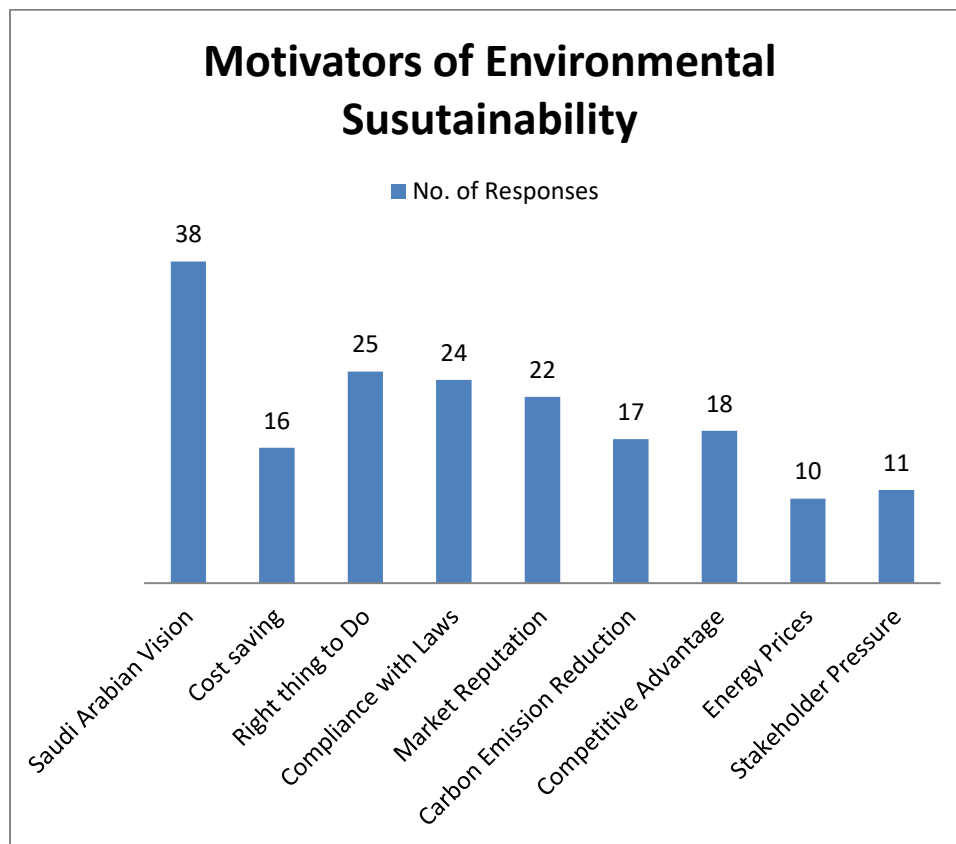
Table 15 provides results of one way ANOVA run between organizational strategies for sustainable environment and type of organization. The results have shown that there is difference in mean squares between different groups of organization but this difference is not significant since the significance value is 0.710 which is greater than 0.01. From these results, it can be inferred that there is no significant difference among different type of organizations in case of preparing strategies and implementing them for environmental sustainability. In other words it is immaterial whatever the type of organization is, all are providing similar results for strategies of environmental sustainability. Similar results have been obtained from regression and correlation tests where it has been observed that the organizations have environmental concerns but they have not impact on organizational strategies for environment.

With the help of these results, the first objective of study has been achieved which requires to analyze the environmental sustainability efforts of different organizations. In this regard, the results of regression and correlation analysis have revealed that there has been significant positive relationship between employee concerns for environment and organizational concerns for environment but the relationship between organizational strategies and organizational concerns for environment is not significant. It means organizations have achieved a level where there is increased concern for environment but the same has not been implemented in the form strategies. Moreover, it has also been observed that different types of organizations have different levels of concerns for environment but in terms of strategy formulation for this purpose they are all the same. Thus, the first objective of study has been achieved comprehensively.

2. To explore the drivers and motivations for implementing environmental sustainability in SMEs in Saudi Arabia.

The second objective requires to explore the drivers and motivators for SME organizations to work on environmental sustainability practices. For this purpose, an open ended question has been asked from respondents to list down the factors which they believe the prime motivators for organizational efforts for environmental sustainability efforts. Their results have been presented in the form a bar graph as under:

Figure 5: Motivators of Environmental Sustainability



The figure shows the motivators of environmental sustainability. In this regard, various factors have been listed down. Respondents have selected one or more than one options against this question. The factor which is the main contributor for environmental sustainability as per the opinion of maximum respondents is the Saudi Arabian Vision 2030. This option has been selected by 38 respondents out of total 60. Thus, it has been the biggest

motivator for businesses to contribute for environmental sustainability efforts. It also indicates that any initiative taken by government at national level is more effective than any other plan. People are motivated to undertake any activity which has been planned by government at national level.

At second priority is the 'right thing to do' approach. It means that because of taking it as a right thing, people are motivated to undertake it, so morality occupies second place. Anything which comes under morality or a social value, people will be motivated for doing that. After this, there are 24 respondents who have highlighted that they will undertake environmental sustainability steps in order to comply with rules and regulations. From this it can also be inferred that anything which is needed to be done in society should be made a law so that the concerned parties can follow that.

In addition to these reasons, respondents have pointed out other reasons like market reputation, competitive advantage, emission reduction, cost saving, stakeholder pressure and energy prices as the prime factors which motivate their respective organizations for environmental sustainability steps.

Thus, the second objective of study has been fulfilled. It has listed down 9 main factors which can really act as motivator for organizational efforts to protect environment. In this regard, the prime motivator is government's vision 2030, followed by wish to do right things, compliance with laws, market reputation and some others. Thus, focusing on these factors can be helpful to achieve the desired results.

Objective 3: To investigate the barriers/challenges to effective implementation of environmental sustainability in SMEs in Saudi Arabia.

This objective requires to analyze the hindrances or challenges of in the way to effectively implement environmental sustainability practices in SMEs of Saudi Arabia. For this purpose, again the respondents were asked an open ended question to report the main challenges of environmental sustainability in their respective organizations. The results have been provided in the form of following bar graph:

Figure 6: Barriers to Environmental sustainability

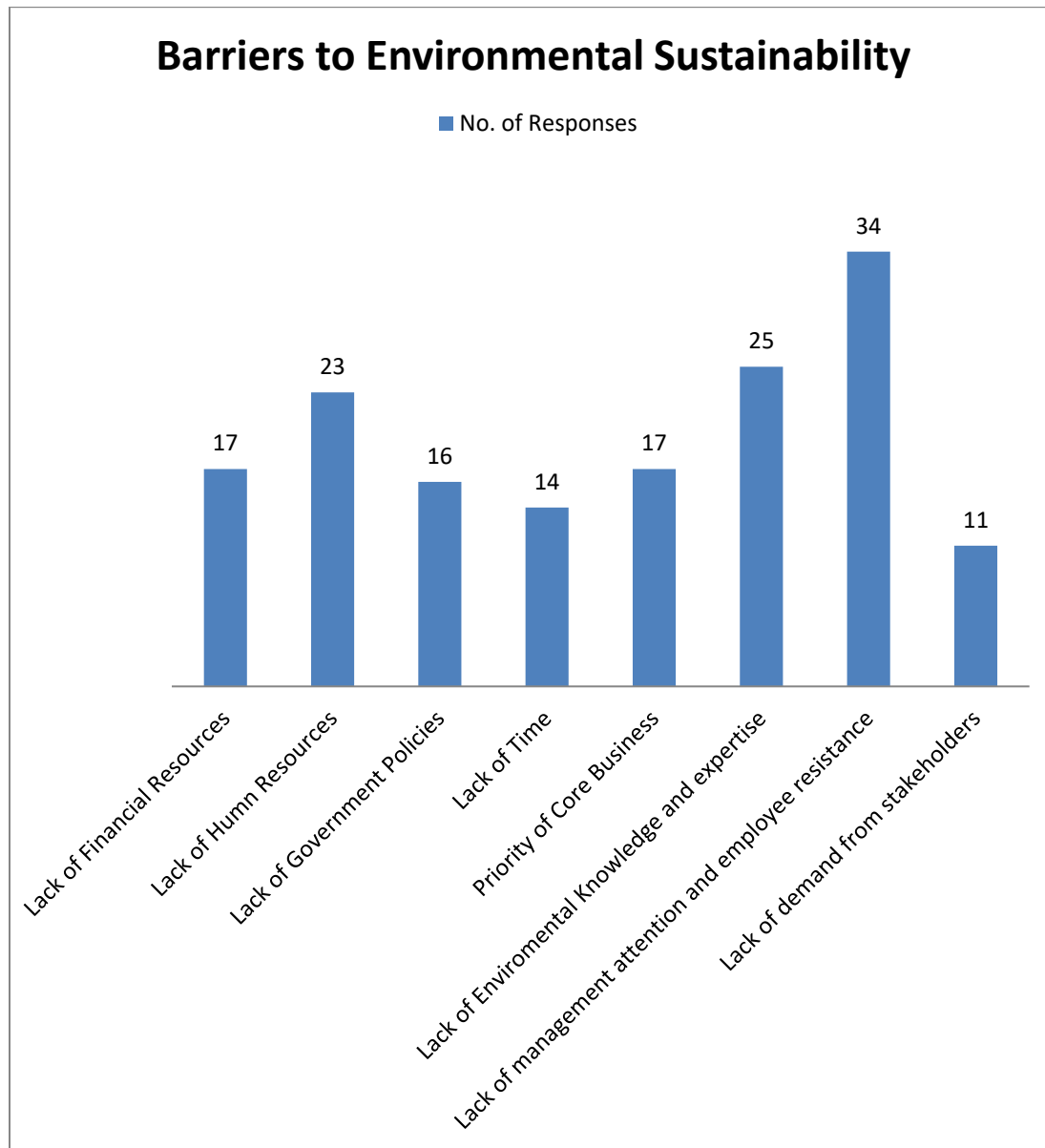


Figure contains the responses of sample respondents to list down the main barriers which are hindrance in the way of environmental sustainability. In this regard, the biggest reason is lack of management and senior leadership attention towards the issue since out of the 60 sample respondents 34 have provided it a reason. This is in line with the regression results where it has been observed that there is no significant relationship between organizational concern for environment and their strategies for the same.

In the next step they have reported that lack of required knowledge and expertise is also amongst the biggest hindrances towards a sustainable environment. Though, there is certain level of awareness in people for a sustainable environment but they lack the required knowledge and expertise to handle with the issue. After this, lack of human resources by the organizations has been ranked as the third largest barrier for a sustainable environment. SMEs are usually of small scale which cannot afford to hire many people for social activities. Thus, they focus on their core business and take such social activities at second priority.

An important thing is that there are respondents who have highlighted that there is limited pressure from stakeholders for environmental sustainability. The stakeholders may include: society, regulatory bodies, customers of business, investors of business and lenders. It has been reported that they have not put significant impact on business to undertake sustainability steps for environment, thus, it also serves as a hurdle towards the important cause. In addition to it, other factors include: lack of financial resources, lack of government policies and lack of time. SMEs are small organizations which have lower funds to invest on social activities, however, environmental sustainable efforts need resources and time. Moreover, it has also been observed that the government has though chalked out a 2030 vision for more developed and environmentally stable country but the government has not framed relevant policies for the corporate players to follow the vision. This is something seriously lacking at the part of government. The above graphical analysis has shown that the main motivator of environmental sustainability for businesses is government's vision 2030. However, government has no practical policies in place to govern this vision and guide businesses for undertaking sustainability initiatives which limits business efforts for the achievement of government's vision. Thus, owing to all these factors, there are hurdles for sustainable efforts towards environment.

With the help of these results the third objective of study has been achieved. The main hindrances of environmental sustainability include: lack of management attention employee resistance, lack of resources, lack of technical knowledge and expertise and some other factors.

4.10 Chapter Summary:

With the help of methodology laid down in previous chapter, this chapter has provided detailed analysis. Using different statistics of reliability, normality and frequency distribution of demographics the basic analysis has been performed. On the other hand, the tests of linear regression and correlation have been performed to understand the relationship between variables. Moreover, the graphical analysis has also been performed using simple bar graphs in order to understand the responses of sample data. The analysis of data has been performed in such a way which has authenticated the step by step analysis of the objectives of study. Thus, the current chapter has provided the analysis of data in the best way through answering all the research objectives.

Chapter 5: Discussion

5.1 Introduction:

The previous chapter has discussed in detailed the results of collected data analyzed in SPSS and spread sheets of Excel. In this regard, tests of reliability and normality have been performed while the analyses of data have been made using regression, correlation and ANOVA tests while graphical analysis of data has also been made. The current chapter provides discussion on the results obtained in last chapter. The structure of chapter has been designed in such a way that it has discussed the key findings of each objective and has made its comparison with some of previous studies. Finally, it has presented the summary of all key findings in the form of a table and provided a conclusion.

5.2 Key Research Findings:

The first objective of study was to analyse the current state of environmental sustainability practices in SMEs in Saudi Arabia. For the achievement of this objective, questions related to environmental concerns of organizations, employees' concern and organizational strategies for sustainable environment have been asked from sample respondents. The analysis of these responses has been made using descriptive statistics, correlation and regression tests. The results have provided that there has been increased level of concern for environment among employees and at organizational level as well. However, the same is not effectively translated in the form of strategies to achieve the environmental sustainability. The results of frequency distribution of different questions of organizational strategies for environment have shown where the SMEs are largely lacks on drawing clear and specific strategies targeting specific operational segments. These results are consistent with the study of Brammer et al, (2012) who have found that there always exists gap between strategic planning and implementation which leads in failure to achieve the required results. Chapman and Darby, (2016) have also provided with similar findings were the researchers have found that strategic formulation is mostly done with practical aspects but the same is usually difficult to actually convert in practical steps. They have also reported that at some occasions some businesses are able to effectively implement the policies but such implementation may not always be sustainable. The problem arises when the implementation is not sustainable. The gap emerges between the planned and actual outcome. This is not the problem for efforts directed towards environmental sustainability but this problem exists in every

type of business. The successful organizations are those which reduce the gap between planning and effective implementation while those who are failed to do so, cannot survive for longer time period. The results of study have also revealed that different types of organizations have different levels of concerns for environment while in terms of strategic planning and implementation, they are all the same. The widespread problem exists in every type of company interviewed. These results are in line with Muratcehajic, (2016) who has reported that proper strategy implementation fails up to some extent in almost all types of organizations. The researcher has discovered the reasons behind this which include: poor co-ordination for different processes involved in strategy execution, lack of attention from senior management of organization, weaker communication of the strategy execution and implementation process and lack of sufficient resources or the required resources are not in harmony of the strategy execution.

Henley, (2007) has, however, conducted research in another context and has provided that strategy execution is successful if all its barriers are removed and proper communication and coordination of activities is made. He added that mostly companies fail in translating strategies into actions but not all.

The second objective of study required to analyze the main motivators of environmental sustainability in SMEs of Saudi Arabia. For the purpose, sample respondents were asked to list down the factors which they think have helped in sustainable environmental initiatives. Against this question, they have largely provided a list citing one or more motivators. The graphical analysis of this response has revealed that the biggest motivators in this regard are Government's Vision 2030 which means that problem which becomes a national agenda puts impact on stakeholders to follow or adopt. The Saudi government has made it an agenda to clean country and reduce its carbon emission through different means for environmental safety and sustainability. Many of the SMEs which have been interviewed for this study belong to oil and gas sector which may be responsible for environmental pollution to a greater extent.

The previous literature has proved that the role of government has always been crucial for the success of any environmental policy. Moreover, its working with local private agencies helps to increase the rate of success of policies many times (Eyssen et al., 2017). The current study has provided a similar results where sample respondents have reported that the main motivator for their environmental sustainability initiatives is the

government's vision of 2030. Experts believe that it has always been the role of government to tackle the environmental problems with clear focus on implementation of the designed strategies. The integration of strategies regarding environmental sustainability are required to be in the form of official documents. The plans like the Climate Change Action Plan, Least Cost Power Development Plan, Vision 2030 are the primary factors from where the effective implementation of sustainable environmental initiatives start. Safter drafting such a plan, the next stage requires the resources in the form of financial and other resources as well as technical knowledge to deal with the problem.

However, the results of study are not in line with Revell et al. (2007) and Jenkins (2006) who has reported that compliance with law is more than a hindrance than a motivator in the way of environmental sustainability initiatives. They have reported that the increased rules and regulations often make businesses more conscious to follow the law and avoid unnecessary regulations which are not in line with their core business practices. In addition to it, Simpson et al, (2004) have also provided a bit different results where they have discussed that environmental sustainability does not always result in competitive advantage. It is because huge resources are needed for this purpose which is often not possible for SMEs.

The third objective of study was aimed at analyzing the main barriers of environmental sustainability efforts. For the question, again the sample respondents were asked to list down the main barriers which they think serve as a hurdle for environmental sustainability efforts in their respective organizations. Against this question, the respondents provided 1 or more reasons. The graphical analysis of this question has shown that the biggest hindrance in the way of effective implementation of environmental sustainable efforts is lack of senior management attention as well as employee resistance. This is an internal weakness of the organizations. At the next level they have reported lack of environmental knowledge and the insufficient funds are the other bigger hurdles. The organization under study are SMEs which usually are established because of the shortage of funds. Thus, all these organizations have already lower resources which hinder the capability to take bigger initiatives for environmental sustainability. Moreover, the management, using

minimum resources, focus on their core business and pay lesser attention towards taking beyond business affairs. These results are consistent with the study of Muratcehajic, (2016) who have grouped similar hurdles in the way of effective strategy implementation for sustainable environment. According to him, inadequate leadership attention, lack of proper allocation of roles and responsibilities of team and poor alignment of strategies with financial budgets are the prime reasons of failures of environmental sustainability efforts.

The results of study are in line with **Giunipero et al., (2012)** who have reported that there are both internal and external barriers to environmental sustainability efforts of organization and the prime barriers they reported mainly fall in the category of lack of resources both financial and others. However, the researchers stress that the financial support from international bodies of development can play the key role to help countries fight the issue of environmental sustainability while the technical know how for clean energy solutions is also possible with the help of international support. These two problems i.e lack of resources and technical know how are the main problems as highlighted by the respondents of this study which can be resolved using international support.

Constantinos et al, (2015) have reported that there are certain key factors which serve as the base for good governance in terms of environmental issues. Among all, the role of stakeholders is primary which has reported to be low in this study. It can be inferred that the government designs policies are effective and serve as the base but they are not successful or may lack proper implementation if they are not forced or stressed by stakeholders. This is what happening in Saudi Arabia. There are policies in place and the broader government's vision 2030. However, there is little stress from stakeholders while the organizations also lack resources both technical and financial, thus, their prime focus is on their core business and not on environmental sustainability. Revell et al., (2009) Taylor et al., (2003) have also provided that the biggest obstacle in the way of effective implementation of environmental sustainability is the lack of cost of SMEs to manage it while Revell et al. (2009 and Jenkins (2006) has mentioned time constraints as the prime reasons for poor environmental sustainability at the part of SMEs.

In the light of results and discussion, the prime findings of research objectives have been provided as under:

Table 15: Achievement of Research Objectives:

Objective	Key Findings
To investigate the current state of environmental sustainability practices in SMEs in Saudi Arabia.	1. Increased organizational concerns for environment; 2. Increased employees' concerns for environment; 3. No significant relationship between organizational concerns and strategic implementation of environmental sustainability steps
To explore the drivers and motivations for implementing environmental sustainability in SMEs in Saudi Arabia.	Government's vision 2030, Environmental sustainability: a right thing to do, compliance with law, market reputation
To investigate the barriers/challenges to effective implementation of environmental sustainability in SMEs in Saudi Arabia	Lack of senior management attention and employee resistance, lack of environmental knowledge and expertise, lack of human and financial resources, focus on core business

5.3 Chapter Summary:

Thus, the study has effectively provided a snapshot of the existing level of environmental sustainability status in Saudi Arabia. It has provided insights into the gap between formulation of policies for protection of environment and the positive strategy formulation. The overall debate on challenges of environment sustainability efforts has been included: lack of resources, lack of technical knowledge and lack of attention of senior leadership and employee resistance. On the other hand, the main motivators include: the government's vision 2030, market reputation and taking environmental sustainability as a right thing to do. Thus, with the help of these results, the study has been successful in achieving the objectives set in first chapter.

Chapter 6: Conclusion and Recommendations

6.1 Conclusion

Environment sustainability is becoming one of the most important leadership challenges in business world. The sustainability of organization is linked with the transformation of environmental priorities in which the concept of sustainability targets the driving force in decision making. By this, the organization generates internal cultural values to achieve certain level of sustainability through collaboration with other stakeholders. This research has been carried out to understand the environmental sustainability awareness among employees, organizations and practices being carried out by organizations in this regard. For this purpose, data has been collected using questionnaire from 60 respondents working in different SMEs of Saudi Arabia. The collected data has been analyzed using different data analysis techniques in SPSS and Excel spread sheets. The techniques used for analysis of data included: frequency distribution, correlation, linear regression, one way analysis of Variance and graphical analysis. The results obtained have provided that the employees working in different SMEs are aware of the environmental issue while organizations are also directing their resources for sustainable environment. However, the problem lies in proper strategy formulation and implementation for sustainable environment in specific departments. An important finding of study has been obtained through ANOVA test which provided that the organizational concerns for environment are different in different SMEs interviewed. They are aware of environmental issues and they allocate funds for this purpose as well as they undertake different practices, formulate policies for it. However, their efforts are different from each other. Some of the organizations are concerned more for environment and others are less. On the other hand, when it comes to strategy formulation for specific segments for the purpose of environmental sustainability all the organizations have similar response. They are lacking proper strategy formulation or implementation.

The study has also revealed that the prime motivators for sustainable environment include mainly the government's vision 2030, acceptability of sustainable environment as a socially right thing to do, market reputation and compliance with laws. On the other hand, the biggest hurdles in the way of sustainable environment mainly include: lack of senior

management's attention as well as employee resistance, lack of financial and other resources. Thus, the results of study have provided a comprehensive overview of the strengths and weaknesses of the environmental sustainability status in different SMEs working in Saudi Arabia. From the results obtained it can be concluded that the environmental sustainability efforts are being undertaken in SMEs of Saudi Arabia but still there is a long way to go. There exists a big gap between policies development and their practical implementation. This gap is needed to be bridged.

6.2 Recommendations:

In the light of results, discussion and conclusion made from this study, different recommendations can be made to managers and government. These have been discussed as under:

6.2.1 For Managers

The managers of businesses have to take certain steps for the improvement of environmental sustainability efforts. This is the fourth main objective of this study. with the help of results obtained from this study, managers can get greater direction in regards of what to do for betterment of situation. For this purpose, the main steps which managers should undertake in the light of this study include the following:

- The results have revealed that organizations have been engaged in policy designing and strategy formulation but the same has not been done keeping in view the exact requirements in different segments. This is a clear gap which managers are needed to fill. Moreover, the policies of SMEs should be strongly interlinked with government's vision 2030 and should be in compliance with laws and regulations pertaining environmental sustainability;
- Managers are needed to formulate clear policies for waste, water, transport and other related processes if they have to achieve real results for sustainable environment as the results of study have provided that the problem lies in clear strategy formulation for each operational segments i.e. the organizations are needed to adopt more specific approach. It will also help to reduce employee resistance because most of the resistance comes from unclear strategies and roles and duties.

6.2.2 For Government

The government is also needed to undertake certain steps in policy development for sustainable environment. In this regard, the government is recommended the following steps:

- The respondents are widely agreed that the main motivator of sustainable efforts is the government's vision 2030. It shows that any effort which is the national agenda is widely accepted and acted upon the businesses. Thus, the government should focus more on it and formulate several other key agendas of environmental sustainability for key segments like transportation, water and others. it will also help businesses to formulate their strategies for respective segments;
- Secondly, it has also been observed that businesses are involved in environmental sustainability in order to comply with laws relating to it. Thus, the government should introduce more laws in different segments so that required results can be achieved;
- It has also been observed that organizations undertake environmental sustainability initiatives since they take it as a good thing to do or to gain market reputation. Thus, the government should design policies in a way such as to reward the organizations in the form of rewards and other cash prizes to organizations with better environmental results.
- There is shortage of financial and other resources with the SMEs for sustainable environment. In order to resolve these problems, the government should help out SMEs with additional funds and it should also involve international agencies to resolve the issue of environmental sustainability since it is world agenda and is not confined to any specific country or organization.

6.3 Achievement of Research objectives:

This research was aimed at achieving four objectives set in first part. The first three objectives have been achieved in results chapter. Those objectives required to analyze the environment sustainability efforts of SMEs in Saudi Arabia, the prime motivators as well as hurdles in the way of such efforts. Thus, with the help of collected data, analyzed in SPSS, the answers to first three objectives were achieved. For the last objective i.e. to give recommendations for improving the implementation of environmental sustainability in Saudi Arabian SMEs and in other countries more generally, comprehensive recommendations have been made which are based upon the results and discussion. In this regard, two types of recommendations have been made i.e. for government and for managers. Using these recommendations, the SMEs in Saudi Arabia can improve their efforts for sustainable environment while government can also formulate more policies to handle the issues. Thus, the objectives of study have been comprehensively achieved.

6.4 Research Limitations

This research has been carried out on a broader topic and efforts have been made to cover maximum of it. However, like all other researches, this research also contains certain limitations which are provided as under:

- The current research has been done using a sample size of 60 SMEs operating in Saudi Arabia. This is a reasonable sample but still it does not cover majority. Thus, the findings of study are generalizable up to a limited extent. Moreover, the research has been undertaken to include SMEs of different sectors and it does not focus on any specific sector. Thus, the results of study cannot be generalized to any specific sector of SMEs.
- Another limitation of study is that the study has been undertaken through online filling of research questionnaire, thus, it lacks administering the questionnaire while filling and all the results are completely based upon such data obtained. Moreover, the results have been generated purely on the basis of primary data obtained and they have not been validated from any secondary data.

6.5 Future Research

The completion of this research has opened new horizons for researchers to discover more under this topic. In this regard, the following areas can be focused in future researches:

- Future research should be undertaken using secondary data to understand the amount of funds allocated by the SMEs for sustainable environment and the results achieved sing it;
- Another research should be undertaken to make a comparison between the strategy formulation of SMEs in Saudi Arabia and those of European countries. This should be done to investigate the difference in strategy formulation and results obtained;
- Research is also needed to study the sector-wise efforts and contributions of SMEs for sustainable environmental efforts;
- Another future research should be undertaken to understand the impact of sustainable environmental efforts of business on organizational profitability. It will guide managers to quantify the reward of their efforts as the current study has provided that the managers give it a second priority and spend any funds left after performing all business operations. Once the managers will be convinced that undertaking such efforts will help to raise their revenues, they will give it top priority and the required results will be achieved.

References

- Achoui, M. M. (2009). CSR and Human resource development in Gulf countries: an analysis of the trends and challenges facing Saudi Arabia. *Human Resource Development International*, 12(1), 35-46.
- Agwu, Edwin, and Peter J. Murray. (2015). Empirical study of barriers to electronic commerce adoption by Small and Medium scale businesses in Middle East. *International Journal of Innovation in the Digital Economy* 6: 1–19
- Al-Mahrouq, Maher. (2010). Success factors of small and medium-sized enterprises (SMES): The case of Jordan. *Anadolu University Journal of Social Sciences* 10: 1–16.
- Bagozzi, R. P., & Yi, Y. (2015). On the evaluation of structural equation models. *Journal of the academy of marketing science*, 16(1), 12-19.
- Mintzberg, H., & Waters, J. A. (2014). Of strategies, deliberate and emergent. *Strategic Management Journal*, 6 (3), 257 272.
- Slevin, D. P., & Covin, J. G. (2013). Strategy formation patterns, performance, and the significance of context. *Journal of management*, 23 (2), 189 209.
- Smart, D. T., & Conant, J. S. (2016). Entrepreneurial orientation, distinctive marketing competencies and organizational performance. *Journal of applied business research*, 10 (3), 28.
- Soininen, J., Martikainen, M., Puumalainen, K., & Kyläheiko, K. (2012). Entrepreneurial orientation: Growth and profitability of Finnish small and medium sized enterprises. *International Journal of Production Economics*, 140 (2), 614 621.
- Whittington, R., Yakis Douglas, B., Ahn, K., & Cailluet, L. (2017). Strategic planners in more turbulent times: The changing job characteristics of strategy professionals.
- Wiesner, R., & Millett, B. (2018). Strategic approaches in Middle East SMEs: deliberate or emergent? *Journal of management & organization*, 18 (1), 98 122.
- Quinn, J. B. (2011). Strategic Change:" Logical Instrumentalism. *"Sloan management review*, 20 (1), 7 19.

Lonial, S. C., & Carter, R. E. (2015). The impact of organizational orientations on medium and small firm performance: A resource-based perspective. *Journal of Small Business Management*, 53 (1), 94-113.

BOS-BROUWERS, H. E. J. 2010. Corporate sustainability and innovation in SMEs: evidence of themes and activities in practice. *Business strategy and the environment*, 19, 417-435.

BRIDGE, G. 2000. The social regulation of resource access and environmental impact: production, nature and contradiction in the US copper industry. *Geoforum*, 31, 237-256.

CRAWLEY, D. & AHO, I. 1999. Building environmental assessment methods: applications and development trends. *Building Research & Information*, 27, 300-308.

DAUBER, J., BROWN, C., FERNANDO, A. L., FINNAN, J., KRASUSKA, E., PONITKA, J., STYLES, D., THRÄN, D., VAN GROENIGEN, K. J. & WEIH, M. 2012. Bioenergy from "surplus" land: environmental and socio-economic implications. *BioRisk*, 7, 5.

ELKINGTON, J. 1994. Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California management review*, 36, 90-100.

ELLIOT, S. 2011. Transdisciplinary perspectives on environmental sustainability: a resource base and framework for IT-enabled business transformation. *Mis quarterly*, 35, 197-236.

FATOKI, O. 2018. Environmental Sustainability Practices of Immigrant-Owned Small and Medium Enterprises in South Africa. *European Review Of Applied Sociology*, 11, 27-43.

FIRTH, R. & SMITH, M. 2018. *Education for Sustainable Development: What was achieved in the DESD?*, Routledge.

GIUNIPERO, L. C., HOOKER, R. E. & DENSLOW, D. 2012. Purchasing and supply management sustainability: Drivers and barriers. *Journal of Purchasing and Supply Management*, 18, 258-269.

GOUGH, A. 2009. Towards more effective learning for sustainability: Reconceptualising science education. *TCI (Transnational Curriculum Inquiry)*, 5, 32-50.

HENDERSON, R. W., BERGAN, J. R. & HURT JR, M. 1972. Development and validation of the Henderson Environmental Learning Process scale. *The Journal of Social Psychology*, 88, 185-196.

HOLDEN, E., LINNERTUD, K., BANISTER, D., SCHWANITZ, V. J. & WIERLING, A. 2017. *The imperatives of sustainable development: needs, justice, limits*, Routledge.

JÄNICKE, M. 2012. "Green growth": From a growing eco-industry to economic sustainability. *Energy Policy*, 48, 13-21.

JOANNE JOHNSON, D. 2010. Chapter 7 Tourism in Saudi Arabia. *Tourism in the Muslim world*. Emerald Group Publishing Limited.

KATES, R. W. 2011. What kind of a science is sustainability science? *Proceedings of the National Academy of Sciences*, 108, 19449-19450.

KIBERT, C. J. 2016. *Sustainable construction: green building design and delivery*, John Wiley & Sons.

LEE, S.-Y. 2008. Drivers for the participation of small and medium-sized suppliers in green supply chain initiatives. *Supply Chain Management: An International Journal*, 13, 185-198.

MAJID, I. A. & KOE, W.-L. 2012. Sustainable entrepreneurship (SE): A revised model based on triple bottom line (TBL). *International Journal of Academic Research in Business and Social Sciences*, 2, 293.

MANDURAH, S., KHATIB, J. & AL-SABAAN, S. 2012. Corporate social responsibility among Saudi Arabian firms: An empirical investigation. *Journal of Applied Business Research*, 28, 1049.

MORELLI, J. 2011. Environmental sustainability: A definition for environmental professionals. *Journal of environmental sustainability*, 1, 2.

NWOGUGU, M. 2009. Entrepreneurship and New Theories of Taxation of Equity-Based Incentives. *Intertax*, 37, 270-277.

NYFELER, J. K. 2013. *The Three Pillars of Sustainability: Juxtaposing two Swedish fashion companies and their corporate sustainability concepts*. Department for Media Studies, Stockholm University.

PANEL, U. N. E. P. I. R., CONSUMPTION, U. N. E. P. S. & BRANCH, P. 2011. *Decoupling natural resource use and environmental impacts from economic growth*, UNEP/Earthprint.

PARKIN, S. Sustainable development: the concept and the practical challenge. Proceedings of the Institution of Civil Engineers-Civil Engineering, 2000. Thomas Telford Ltd, 3-8.

REGAN, H. M., COLYVAN, M. & BURGMAN, M. A. 2000. A proposal for fuzzy International Union for the Conservation of Nature (IUCN) categories and criteria. *Biological Conservation*, 92, 101-108.

ROSELAND, M. 2012. *Toward sustainable communities: Solutions for citizens and their governments*, New Society Publishers.

SIDIROPOULOS, E. 2014. Education for sustainability in business education programs: a question of value. *Journal of cleaner production*, 85, 472-487.

SIMPSON, M., TAYLOR, N. & BARKER, K. 2004. Environmental responsibility in SMEs: does it deliver competitive advantage? *Business strategy and the environment*, 13, 156-171.

Stubbs, W. and Cocklin, C., 2008. Conceptualizing a “sustainability business model”. *Organization & environment*, 21(2), pp.103-127.

SMEETS, E., JUNGINGER, M., FAAIJ, A., WALTER, A., DOLZAN, P. & TURKENBURG, W. 2008. The sustainability of Brazilian ethanol—an assessment of the possibilities of certified production. *Biomass and bioenergy*, 32, 781-813.

STUBBS, W. & COCKLIN, C. 2008. Conceptualizing a “sustainability business model”. *Organization & environment*, 21, 103-127.

SWANSON, R. 2007. *Analysis for improving performance: Tools for diagnosing organizations and documenting workplace expertise*, Berrett-Koehler Publishers.

Cook, C., 2000. A meta-analysis of response rates in web-or internet-based surveys. *Educational and psychological measurement*, 60(6), pp.821-836..

Dillman, D., 2011. *Mail and Internet surveys: The tailored design method--2007 Update with new Internet, visual, and mixed-mode guide*. John Wiley & Sons..

Duffy, B., 2005. Comparing data from online and face-to-face surveys. *International Journal of Market Research*, 47(6), pp.615-639..

Evans, J., 2005. The value of online surveys. *Internet research*, 15(2), pp.195-219..

Fixsen, D., 2005. *Implementation research: a synthesis of the literature*..

Harris, P., 2009. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of biomedical sciences*.

Kaplowitz, M., 2004. A comparison of web and mail survey response rates. *Public opinion quarterly*, 68(1), pp.94-101..

Mackenzie, N., 2006. Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, 16(2), pp.193-205..

Mkansi, M., 2012. Research philosophy debates and classifications: students' dilemma. *Electronic Journal of Business Research Methods*, 10(2), pp.132-140..

Nardi, P., 2018. *Doing survey research: A guide to quantitative methods*. Routledge..

Neuman, W., 2000. The meanings of methodology. *Social research methods*, 60, p.87..

Noor, K., 2008. Case study: A strategic research methodology. *American journal of applied sciences*, 5(11), pp.1602-1604.

Onwuegbuzie, A., 2013. Introduction: Toward a new research philosophy for addressing social justice issues: Critical dialectical pluralism 1.0.

Peppers, K., 2007. A design science research methodology for information systems research. *Journal of management information systems*, 24(3), pp.45-77..

Saunders, K., 2011. "Reflections on conceptions of research methodology among management academics." *European management journal* 33, 297-304..

Steele, B., 2000. Quantitating physical activity in COPD using a triaxial accelerometer. *Chest*, 117(5), pp.1359-1367..

Wright, K., 2005. Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of computer-mediated communication*, 10(3), p.JCMC1034.

Appendix : Questionnaire Survey

An Investigation into the Environmental Sustainability Practices in Saudi Arabian Small and Medium Sized Enterprises (SMEs) in Manufacturing Sector

Dear Research Participant,

My name is Abdullah Hassan and I am studying Master of project Management at Midocean university I am conducting research dissertation and the topic of my research is “An Investigation into the Environmental Sustainability Practices in Saudi Arabian Small and Medium Sized Enterprises (SMEs) in Manufacturing Sector”. The study aims to investigate the current state of environmental sustainability practices in Saudi Arabian SMEs in the manufacturing sector, drivers for change and barriers to the effective implementation of environmental sustainability. Therefore, I have developed this questionnaire survey to collect the required data to meet the research aims of this study. It would only take 5 minutes to complete this short questionnaire.

All the data will be strictly confidential and will be stored at a secured and password protected laptop. Only the researcher will have access to the data which will be destroyed after the completion of this study. Findings of the research will be reported in an anonymous way and no names or any other personal details will not be reported anywhere.

Section 1: Demographic Information of the Respondents

Your name	
Your role in your company	
Your academic qualification	
Experience of working in SME/s (years/months)	

Section 2: Current state of environmental sustainability practices in SMEs (please tick that applies)

2.1. Are you aware of the concept of ‘environmental sustainability’?

- Yes
- No
- To some extent
- Unsure

2. 2. Does your company has an environmental policy?

- Yes
- No
- To some extent
- Unsure

2.3. Do you think that your company is implementing environmental sustainability practices and projects?

- Yes
- No
- To some extent
- Unsure

2.4. Does your SME consider environmental sustainability important in management and decision-making processes?

- Yes
- No
- To some extent
- Unsure

2.5. Do you believe that all departments in your SME consider environmental sustainability important in their functions?

- Yes
- No
- To some extent
- Unsure

2.6. For the statements below, to what extent do you agree or disagree in the context of your company?

Statements	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The company is aware of the potential risks associated with environmental sustainability.					
The company is aware of the business opportunities associated with the implementation of environmental sustainability.					
The company has					

procedures to monitor its environmental sustainability impacts.					
The company allocates resources for implementing environmental sustainability projects.					

2.7. In which of the following environmental sustainability impact areas, has your company developed strategies? (Please tick that applies)

Environmental sustainability impact area	Yes	No	Don't know
Buildings energy use (electricity and gas)			
Transport fleet			
Waste			
Water			

Procurement and supply chain			
Staff commute			
Visitors travel			
Business travel			
None of the above			

2.8. Please state below if you have any further comments on the environmental sustainability strategies mentioned above?

2.9. Who do you think has the overall responsibility for environmental sustainability (if there is any) in your SME? (please state below)

Section 3: Drivers and motivations for implementing environmental sustainability in SMEs

3.1. What are the main drivers and motivations for implementing environmental sustainability in SMEs? (please tick all that apply)

- Climate change mitigation and carbon emisisions reduction
- Right thing to do
- Cost savings
- Compliance with government laws and regulations
- Stakeholders' pressure
- Saudi Arabian Vision 2030

- Energy and resource prices
- Market reputation
- Competitive advantage in the market
- Employees' recruitment and retention

Section 4: Barriers/challenges to the effective implementation of environmental sustainability in SMEs

4.1. What are the main barriers or challenges to the effective implementation of environmental sustainability in SMEs (please tick all that apply)

- Lack of funding
- Lack of government policy
- Lack of human resources
- Lack of time for implementation
- Lack of senior management leadership and commitment
- Lack of technical knowledge and expertise
- Priority to the core business
- Employees' resistance to environmental sustainability
- Lack of demand from stakeholders

4.2. Please provide any additional comments related to improving environmental sustainability of SMEs in Saudi Arabian manufacturing sector?
